Childhood Trauma as a Mediator between Resilience and Recidivism

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【Abstract】　Objective: This study aimed to establish a path model from childhood trauma(CT) and resilience to recidivism in Chinese male offenders. Methods: There are 3181 adult male offenders participating in this research, who completed measures of CT and resilience using Childhood Trauma Questionnaire(CTQ) and Connor-Davidson Resilience Scale(CD-RISC). Recidivism was defined as re-arrest into prison after release from incarceration, quantified by the number of arrests according to official records. Logistic Regression analysis was conducted to examine the effects of CT and resilience on recidivism. The pathway analysis was performed to examine the mediating effect. Results: Logistic regression model revealed significantly predictive effects of CT and resilience on recidivism. Pathway analysis further showed that CT exerted a full mediating effect on the relationship between resilience and recidivism. Conclusion: The findings highlights the importance of the mediating role of CT in the relationship between resilience and recidivism.

【Key words】　Recidivism; Resilience; Childhood trauma; Pathway analysis

心理弹性与重新犯罪：童年创伤的中介作用

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【摘要】　目的：本文旨在探索童年创伤以及心理弹性影响重新犯罪行为的路径模型。方法：采用儿童虐待量表（CTQ）和心理弹性量表（CD-RISC）对岳阳某监狱的3181位在押男性犯人进行测验。重新犯罪被定义为出狱后再次被捕入狱的行为，数据来自官方记录。采用Logistic回归分析检验童年创伤和心理弹性对重新犯罪的影响，使用路径分析检验中介效应。结果：①童年创伤和心理弹性显著预测重新犯罪行为；②童年创伤在心理弹性和重新犯罪之间起完全中介作用。结论：研究结果提示对于那些有过童年创伤经历且心理弹性水平较低的犯人，予以筛查和针对性的干预训练可能有助于降低再次犯罪的可能性。

【关键词】　重新犯罪；心理弹性；童年创伤；路径分析

1　Introduction

Criminal behavior, or offending, is generally defined as any overt or covert law-breaking conduct in a given country or state, punishable upon conviction (Morizot & Kazemian, 2015). In the crime research field, recidivism has been attracted the most attention in recent years due to the upsurge of recidivism rate all over the world. Recidivism, as an important criminal behavior aspect of criminal severity, is understood to be a falling back or relapsing into prior criminal habits especially after punishment(Tenibiaje, 2013). In the United State, data showed that the rate of recidivism within 3 years after released from the prison was 46.8% in 2000, and over 67.8% of the 404,638 prisoners released in 2005 were re-arrested within 3 years while 76.6% were arrested within five years(Durose, Cooper, & Snyder, 2014). In China, the recidivism rate

is 5.19% in adult criminals released in the 1980s but it increased rapidly to 8.55% in 1990, 11.1% in 1996, and 14.8% in 2006. From 1986 to 2006, the recidivism rate increased averagely by 10.88% per decade in China(Mei, 2011). However, few studies have been conducted to explore the socio－psychological mechanism of the recidivism.

One of the key objectives in the crime research is to identify risk and protective factors associated with criminal behavior. The majority of previous studies have focused on risk factors for criminal behaviors, such as impulsiveness, psychosis, early abuse, deviant peer affiliation and media exposure(Fazel & Yu, 2011; John, William, & Hoelter, 2015;Tanner－Smith, Lipsey, & Wilson, 2013; Welsh & Farrington, 2007). Other researches have examined the protective factors against criminal behaviors including resilience, parental acceptance, intensive supervision, school performance and prosocial friends(Myner, Santman, Cappelletty, & Perlmutter, 1998). Currently the researches have consistently demonstrated the critical role of childhood trauma(risk factor) and resilience (protective factor) on the criminal behaviors. More interestingly, it has been demonstrated that the childhood trauma has a close relationship with resilience, suggesting these two factors may interactively contribute to the criminal behaviors. However, few studies have been conducted to examine the interactive effects between childhood trauma and resilience on the recidivism.

A great number of studies report the significant role of childhood trauma in the development of criminal behavior. Cross－sectional research provided robust evidence that childhood trauma was correlated with delinquency(Smith, Ireland, Thornberry, & Elwyn, 2008), and that the rates of childhood trauma were disproportionately higher among teenagers who were involved in the juvenile justice system(Becker, Kerig, Lim, & Ezechukwu, 2012). Another study in adult female prisoners showed that over half of criminal justice－involved women(56%) presented a much higher prevalence of childhood sexual abuse when compared to non－incarcerated women(Goodkind, Ng, & Sarri, 2006). Moreover, sexual abuse among females is significantly associated with a higher risk of having violent crimes(Kerig

& Becker, 2015). A more persuasive longitudinal study which followed 1,000 children from birth to age 25 found that exposure to sexual and physical abuse in childhood was associated with a wide variety of negative outcomes, including conduct disorder and antisocial personality(Fergusson, McLeod,& Horwood, 2013).

Based on the consistent evidence of impact of childhood trauma on crime, recent studies have shifted their attention into the relationship between childhood trauma and recidivism. A longitudinal study followed 503 boys and found that almost 50% youths with CT were involved in serious persistent delinquency over 7 years, in contrast to 19% youths without CT(Becker, 2013; Loeber, 2002). Moreover, another study which followed 499 females imprisoned in adolescence(Colman, Kim, Mitchell－Herzfeld, & Shady, 2009) found that the experience of childhood trauma was a significant predictor of recidivism, particularly in combination with other risk factors such as family dysfunction and homelessness. These findings suggest that CT may also contribute to the recidivism, although it still needs replications in larger samples, especially in the male offenders.

Resilience, a broadly accepted protective factor against psychopathy and criminal behaviors, has been defined as the capacity for successful adaptation to change, a measure of stress coping ability or emotional stamina, or the ability to thrive in the face of adversity or recover from negative events(Hoge, Austin, & Pollack, 2007). A study in a population of 215 delinquents showed that adolescents with lower level of resilience committed more serious crimes compared to those with higher level of resilience(Mowder, Cummings, & McKinney, 2010). Moreover, evidence showed that treatment targeting on promoting resilience was effective for juvenile sex offenders to avoid re－offending(Efta－Breitbach & Freeman, 2004).

Based on the evidence showing the deteriorating role of CT and protective role of resilience in the crime development, one may wonder how the risky environmental factor and the personal factor interact to influence criminal behaviors, especially for the recidivism. Previous studies have demonstrated a negative relationship between resilience and childhood trauma(Vezina,

2011; Crenshaw, 2013; Maercker, 2015), although the causal relationship between CT and resilience still remains unclear. Recently, a Resilience Framework Theory proposed by Kumpfer points that the resilience and life events may have a mutual influencing relationship. On one hand, life event possibly riches individual experience to cope with difficulties efficiently and finally promotes the resilience(Kumpfer, 2002); on the other hand, personal characteristics with high inheritable rate, such as resilience, may influence the likelihood of specific life event occurrence.

The latter notion has been supported by the evidence showing a heritable basis of exposure to assaultive traumatic events(Stein et al., 2002). Moreover, a twins study from the Vietnam Era Twin(VET) Registry found that genetic effects accounted for 35% to 47% of the variance on exposure to combat-related trauma(Lyons et al., 1993). Interestingly, a study in 406 twin pairsidentified a significant association between the likelihood of exposure to trauma and personality variables. Moreover, this study interestingly found that the genetic factors, which has been proven as the most prominently influencing factor for individual personality, accounted for 5-11% of this observed correlation between personality and trauma exposure(Righthand, Kerr, & Drach, 2003). These findings suggest that the influence of genetic factors on the likelihood of life events occurrence may be mediated by inherited personality characteristics(Afifi, Asmundson, Taylor, & Jang, 2010). Importantly, a most recent study found that the additive genetic factors explained approximately 70% of the resilience variation(Waaktaar & Torgersen, 2012).

Taken together, when considering the interactive effects of childhood trauma and resilience on the criminal behaviors, two potential models were proposed in this study. Firstly, personal experience of life events may influence the criminal behaviors through the mediating effect of resilience. Indeed, a prior study has revealed that resilience was a significant mediator in the relationship between childhood trauma and psychological symptoms(Philippe, Laventure, Beaulieu-Pelletier, Lecours, & Lekes, 2011). Secondly, given the high inheritable rate of resilience, it is also possible that the resilience affects the criminal behaviors via childhood trauma.

2　Methods

2.1　Sample

The study were collected by extracting the necessary information from the jail's official records and self-reported scale filled in by 3,283 male prisoners from Yueyang prison in Hunan Province, China. The data were originally collected in 2015 by a fellow researcher in Department of Psychiatry, the Second Xiangya Hospital, Central South University. Our report focuses on the 3283 prisoners with complete data.Finally,there were 3,181prisoners included in the present analyses by excluding 102 incomplete ones. According to official records, nearly 25.1%(n=797) had previously been convicted of at least one crime.

Prior to testing, all participants were asked to read a consent form and to sign it if they were willing to participate in the study. This consent form included a summary of the nature and purpose of the study, and confidentiality was also assured. In addition, participants were informed that their data were collected exclusively for research purposes and that they had the right to withdraw from the study at any time. Then offenders were assessed with the Connor-Davidson resilience scale, 28-item Childhood Trauma Questionnaire, and the self-made demographic form. The study protocol was approved by the Ethics Committee of Second Xiangya Hospital before the administration of the questionnaires.

2.2　Measures

2.2.1　Childhood Trauma Questionnaire(CTQ) CTQ(Bernstein, 1998) is a 28-item self-report Likert scale, which retrospectively measures the extent of different types of abuse and neglect for person ages 12 and older. It is a 5-point Likert scale ranging range from 1(never true) to 5(very true). Scoring yields five subscales: Emotional Abuse, Physical Abuse, Sexual Abuse, Physical Neglect, and Emotional Neglect. Each subscale has five items and there is a three-item Minimization-Denial subscale to check for extreme response bias. A total of 3181 effective samples of CTQ were obtained in this study. The internal reliability for

this study was 0.78.

2.2.2   Connor−Davidson resilience scale(CD−RISC)

CD−RISC(Connor & Davidson, 2003) is comprised of 25 statements that measure characteristics of resiliency. Scores range from 0(not true at all) to 4(true nearly all the time). A total of 3183 effective samples of CD−RISC were obtained. Internal reliability for this study was 0.75.

2.2.3   Demographic data and recidivism   Participants completed a self−made demographic and personal details questionnaire including questions regarding age, education levels, and family criminal history. In this study, recidivism was defined as re−incarceration into prison after releasing from prison. We quantified the severity of recidivism by using the number of incarcerations(NOI) according to official records. In addition, term of imprisonment and nature of offence were also provided by official records.

2.3   Statistical analysis

Initially, we examined general socio−demographic characteristics by descriptive statistics. A logistic regression analysis was used to examine the effects of CT and resilience on recidivism, in which, we grouped the offenders into recidivists and non−recidivists according to their NOI greater than 1 or not. Since age, family criminal history, education levels and nature of offence (violence or non−violence) have been shown to be related with recidivism, all of these variables were included as covariates in the regression model. To further examine the hypothesized mediating model between resilience, CT and severity of recidivism(NOI), pathway analyses method was performed. For the Model 1, we hypothesized that the resilience mediated the effect of CT on the recidivism. For the Model 2, we hypothesized that the CT mediated the effect of resilience on the recidivism. Pathway analysis was performed to test the mediating effects of two undetermined pathways. Logistic regression and Pathway analysis were conducted with SPSS(version 22.0).

3   Results

3.1   Descriptive data

The result showed that the average of participants' age was 35.2 and the standard deviation was 8.8. Mean CD−RISC score was 53.59(SD=14.62)for the first offenders and 51.06(SD=16.00) for the recidivists. Mean CTQ score was 43.56(SD=13.59) for the first offenders and 45.84(SD=14.39) for the recidivists. On the issue of education levels, the result from the study obtained study that Primary school accounts for 31.1%; Junior high school 52.6%; Senior high school 14.9%; College and above 1.4%. Furthermore on the nature of offence, the result shows that 41.5% were non−violent offenders and 58.5% were violent offenders. Regarding the family criminal history, the result from the data revealed that prisoners with family criminal history accounted for 2.7% and prisoners without family criminal history were 97.3%.

3.2   Preliminary analyses

The prisoners was divided into first offenders group(the number of conviction for first time) and recidivism group(the number of convictions for second times and above). Since age, level of education, family criminal history and nature of offence all had significant differences between first offenders and recidivists, they were brought into the logistic regression model as controlling variable in the first level. Then resilience and CT were brought into logistic regression model in the second level. It showed that both resilience and CT were significantly associated with recidivism after adjusting for the demographic characteristics. First, the odds ratio of a prisoner getting childhood trauma was 1.008, suggesting that the odds of getting more severe childhood trauma was 1.008 higher for Recidivists as compared to those First offenders(P=0.004). Meanwhile, the odds ratio of recidivists getting resilience was 0.991, which meant that the odds of getting higher resilience for recidivists was 0.993 times as low as inmates who getting lower resilience(P=0.001).

3.3   Pathway analyses

The Bootstrap estimation procedure (a bootstrap sample of 1000 was specified) was used to test the significance of the mediation effects of two undetermined pathways. Table 2 displays the indirect effects and their associated 95% confidence intervals. Model 1 was rejected and model 2 was accepted as shown in Table 2.

Table 1　Hierarchical logistic Regression of male offenders' recidivism

Variable	Step 1				Step 2			
	B	S.E.	OR	95% C.I.	B	S.E.	OR	95% C.I.
Age	0.025	0.005	1.025***	[1.015, 1.035]	0.025	0.005	1.025***	[1.015, 1.036]
Nature of offence	0.313	0.092	1.367**	[1.141, 1.638]	0.339	0.093	1.403***	[1.170, 1.683]
Level of education	−0.254	0.063	0.776***	[0.686, 0.877]	−0.192	0.064	0.825**	[0.727, 0.936]
Family criminal history	0.591	0.235	1.806*	[1.139, 2.863]	0.612	0.235	1.845*	[1.163, 2.926]
resilience					−0.007	0.003	0.993	[0.987, 0.999]
CT					0.008	0.003	1.008**	[1.002, 1.015]
Constant	−1.722	0.223	0.179***		−1.968	0.343	0.140***	

Note: OR=odds ratio, CI=confidence interval; *P<0.05, **P<0.01, ***P<0.001

Table 2　Standardized estimates of direct and indirect effects for exploratory models

Pathways	Point estimate	SE	95% CI
Model 1 CT to NOI			
Direct effect	0.004**	0.001	[0.002, 0.006]
Indirect effect via resilience	0.009	0.006	[−0.004, 0.022]
Model 2 resilience to NOI			
Direct effect	−0.001	0.001	[−0.003, 0.000]
Indirect effect via CT	−0.025**	0.007	[−0.039, −0.010]

Note: **P<0.01

4　Discussion

By using a large sample of male offenders, this study for the first time explored the interactive effects of resilience and childhood trauma on the recidivism. Our logistic regression analysis showed that both childhood trauma and resilience significantly influenced the recidivism in male offenders, even after controlling for the age, family criminal history, level of education and nature of offence. In further pathway analysis, two possible models regarding the interactive effects of resilience and childhood trauma on recidivism were proposed. Our findings suggest that the CT exerted a full mediating role in the relationship between resilience and severity of recidivism in incarcerated male offenders, which supports the hypothesized Model 2.

In this study, our data did not support the hypothesized Model 1, which proposed that the CT influenced the recidivism via the effect of resilience. Traditionally, it has been broadly believed that childhood trauma negatively influences the development of individual personality. However, Kumpfer et al recently proposed a Resilience Framework Theory demonstrating a mutual influencing relationship between resilience and life events(Fletcher & Sarkar, 2013). Consistent with this theory, recent studies have provided compelling evi-

dence showing that personality variables significantly predict the occurrence likelihood of stressful life events (Kendler, Gardner, & Prescott, 2003; Lauterbach & Vrana, 2002; Middeldorp, Cath, Willemsen, & Boomsma, 2008). Furthermore, robust evidence has proven that genetic variations significantly influence the likelihood of occurrence of life events(Folke, 2006). Notably, a recent study revealed that genetic factors explained approximately 70% of the resilience variation (Waaktaar & Torgersen, 2012), which may have valuable implications that resilience may influence the life events occurrence.

According to the Resilience Framework Theory, the individuals with high resilience can mobilize the resources inside and outside actively, get positive perception and interpretation from the life events, face life trauma and setbacks bravely and reduce the impact of negative emotions with the help and support of family and others(Kumpfer, 2002). Thus, high resilience can help individuals to improve the attitude of the guardians towards their own, to reduce the delinquent behaviors, and to build a more positive environment, which finally reduces the likelihood and frequency of the occurrence of stressful life events, such as childhood trauma (Bendall, Jackson, & Hulbert, 2010). On the contrary, individuals with low levels of resilience are difficult to adapt to the negative living environment(Fletcher & Sarkar, 2013), which leads to their maladaptive interaction with the caregivers, potentially and finally increases the risk to suffer more abuse and neglect in their childhood.

In this study, our data showed that resilience influenced the recidivism indirectly through its effect on the childhood trauma experiences. This finding has valu-

able implications that offenders with low resilience would commit more crimes if they had suffered severe childhood trauma. Thus, screening the childhood trauma experiences in offenders with low resilience may help for intervention planning targeting on prevention of recidivism. Furthermore, it is also possible that relieving the childhood trauma experience by psychological therapy may help to prevent those offenders with low resilience from re-offending. This indirect influence of resilience on recidivism may also provide a possible explanation on previous observations showing that not all researches found a significant association between these two variables.

<div align="center">References</div>

1　Morizot J, Kazemian L. The Development of Criminal and Antisocial Behavior: Springer International Publishing, 2015

2　Tenibiaje DJ. Educational attainment and peer group influence as predictors of recidivism. International Review of Social Sciences and Humanities, 2013, 5(1): 30-37

3　Afifi TO, Asmundson GJG, Taylor S, Jang KL. The role of genes and environment on trauma exposure and posttraumatic stress disorder symptoms: A review of twin studies. Clinical Psychology Review, 2010, 30(1): 101-112

4　Allen B, Lauterbach D. Personality characteristics of adult survivors of childhood trauma. Journal of Traumatic Stress, 2007, 20(4): 587-595

5　Ball JS, Links PS. Borderline personality disorder and childhood trauma: evidence for a causal relationship. Current Psychiatry Reports, 2009, 11(1): 63-68

6　Becker SP, Kerig PK, Lim JY, Ezechukwu RN. Predictors of Recidivism among Delinquent Youth: Interrelations among Ethnicity, Gender, Age, Mental Health Problems, and Posttraumatic Stress. Journal of Child & Adolescent Trauma, 2012, 5(2): 145-160

7　Bendall S, Jackson HJ, Hulbert CA. Childhood trauma and psychosis: Review of the evidence and directions for psychological interventions. Australian Psychologist, 2010, 45(4): 299-306

8　Bernstein D. Childhood Trauma Questionnaire: A Retrospective Self-Report-Manual, 1998

9　Colman RA, Kim DH, Mitchell-Herzfeld S, Shady TA. Delinquent girls grown up: young adult offending patterns and their relation to early legal, individual, and family risk. Journal of Youth and Adolescence, 2009, 38(3): 355-366

10　Connor KM, Davidson JRT. Development of a new resilience scale: The Connor-Davidson Resilience Scale(CD-RISC). Depression and Anxiety, 2003,18(2): 76-82

11　Efta-Breitbach J, Freeman KA. Recidivism and resilience in juvenile sexual offenders: an analysis of the literature. Journal of Child Sexual Abuse, 2004, 13(3-4): 257-279

12　Fazel S, Yu R. Psychotic disorders and repeat offending: systematic review and meta-analysis. Schizophrenia Bulletin, 2011, 37(4): 800-810

13　Fergusson DM, McLeod GF, Horwood LJ. Childhood sexual abuse and adult developmental outcomes: Findings from a 30-year longitudinal study in New Zealand. Child Abuse & Neglect, 2013, 37(9): 664-674

14　Fletcher D, Sarkar M. Psychological Resilience A Review and Critique of Definitions, Concepts, and Theory. European Psychologist, 2013, 18(1): 12-23

15　Folke C. Resilience: The emergence of a perspective for social-ecological systems analyses. Global Environmental Change, 2006, 16(3): 253-267

16　Goodkind S, Ng I, Sarri RC. The impact of sexual abuse in the lives of young women involved or at risk of involvement with the juvenile justice system. Violence Against Women, 2006, 12(12): 456-477

17　Hoge EA, Austin ED, Pollack MH. Resilience: research evidence and conceptual considerations for posttraumatic stress disorder. Depression and Anxiety, 2007, 24(2): 139-152

18　John L, William B, Hoelter LF. Back on the streets: Maturation and risk factors for recidivism among serious juvenile offenders. Journal of Adolescence, 2015, 41: 67-75

19　Kendler KS, Gardner CO, Prescott CA. Personality and the experience of environmental adversity. Psychological Medicine, 2003, 33(7): 1193-1202

20　Kerig PK, Becker SP. 12 Early Abuse and Neglect as Risk Factors for the Development of Criminal and Antisocial Behavior, 2015

21　Kumpfer KL. Factors and processes contributing to resilience: The resilience framework: Springer US, 2002

22　Lauterbach D, Vrana S. The relationship among personality variables, exposure to traumatic events, and severity of posttraumatic stress symptoms. Journal of Traumatic Stress, 2001,14(1): 29-45

23　Lyons MJ, Goldberg J, Eisen SA, True W, et al. Do genes influence exposure to trauma? A twin study of combat. American Journal of Medical Genetics Part B: Neuropsychiatric Genetics, 1993, 48(1): 22-27

24　Mei C. Study on the Present Situation and Tendency of Recidivism in China. Journal of Social Work, 2011, 12: 26

25　Middeldorp C, Cath D, Al, Willemsen G, Boomsma D. Life Events, Anxious Depression and Personality: A Prospective and Genetic Study. Psychological Medicine, 2008, 38(11): 1557-1565

9   Zhou A, Li S, Herbert C, Xia R, et al. Perspective taking modulates positivity bias in self-appraisals: Behavioral and event-related potential evidence. Soc Neurosci, 2013, 8(4): 326-333

10 Li Wei, Han Shihui. Perspective taking modulates event-related potentials to perceived pain. Neurosci Lett, 2010, 469(3): 328-332

11 黄宇霞, 罗跃嘉. 负性情绪刺激是否总是优先得到加工: ERP研究. 心理学报, 2009, 9: 822-831

12 陈芸, 钟毅平, 周海波, 等. 内隐自我正面偏见效应的ERP研究. 中国临床心理学杂志, 2012, 20(3): 297-300

13 钟毅平, 陈芸, 周路平, 周海波. 自我正面偏见的ERP研究. 心理科学, 2010, 3: 560-563

14 Shestyuk AY, Deldin PJ. Automatic and strategic representation of the self in major depression: trait and state abnormalities. Am J Psychiatry, 2010, 167(5): 536-544

15 Watson LA, Dritschel B, Obonsawin MC, Jentzsch I. Seeing yourself in a positive light: Brain correlates of the self-positivity bias. Brain Res, 2007, 1152: 106-110

16 Herbert Cornelia, Herbert Beate M, Ethofer Thomas, Pauli Paul. His or mine? The time course of self-other discrimination in emotion processing. Soc Neurosci-Uk, 2011, 6(3): 277-288

17 Tacikowski Pawel, Jednoróg Katarzyna, Marchewka Artur, Nowicka Anna. How multiple repetitions influence the processing of self-, famous and unknown names and faces: An ERP study. Int J Psychophysiol, 2011, 79(2): 219-230

18 刘凤英, 袁加锦, 李红. 人名相关自我加工的时间过程——事件相关电位研究提供的电生理证据. 心理科学, 2011, 6: 1289-1294

19 钟毅平, 范伟, 蔡荣华, 等. 正性情绪诱导下的自我参照加工: 来自ERPs的证据. 心理学报, 2014, 46(3): 341-352

20 Zhao Ke, Wu Qi, Zimmer Hubert D, Fu Xiaolan. Electrophysiological correlates of visually processing subject's own name. Neurosci Lett, 2011, 491(2): 143-147

21 Perrin Fabien, Maquet Pierre, Peigneux Philippe, Ruby Perrine, et al. Neural mechanisms involved in the detection of our first name: a combined ERPs and PET study. Neuropsychologia, 2005, 43(1): 12-19

22 Eichenlaub Jean-Baptiste, Ruby Perrine, Morlet Dominique. What is the specificity of the response to the own first-name when presented as a novel in a passive oddball paradigm? An ERP study. Brain Res, 2012, 1447: 65-78

23 杨红升, 黄希庭. 自我信息加工的独特性: 来自人名识别研究的证据. 心理科学, 2007, 5: 1127-1129, 1138

24 彭家欣, 杨奇伟, 罗跃嘉. 不同特质焦虑水平的选择性注意偏向. 心理学报, 2013, 45(10): 1-9

25 Pinheiro Ana P, Liu Taosheng, Nestor Paul G, et al. Visual emotional information processing in male schizophrenia patients: Combining ERP, clinical and behavioral evidence. Neurosci Lett, 2013, 550: 75-80

26 何媛媛, 袁加锦, 伍泽莲, 李红. 正性情绪刺激效价强度的变化对外倾个体注意的调制作用. 心理学报, 2008, 11: 1158-1164

27 Bekker Evelijne M, Kenemans J. Leon, Verbaten Marinus N. Source analysis of the N2 in a cued Go/NoGo task. Cognitive Brain Research, 2005, 22(2): 221-231

28 Li W, Jiang Z, Liu Y, Dan F. ERP Study of Affirmative and Negative Sentences' Impact on Self-Positivity Bias. J Psycholinguist Res, 2016, 45(4): 769-778

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26 Morizot J, Kazemian L. The Development of Criminal and Antisocial Behavior: Springer International Publishing, 2015

27 Mowder MH, Cummings JA, McKinney R. Resiliency Scales for Children and Adolescents: Profiles of Juvenile Offenders. Journal of Psychoeducational Assessment, 2010, 28(4): 326-337

28 Myner J, Santman J, Cappelletty GG, Perlmutter BF. Variables related to recidivism among juvenile offenders. International Journal of Offender Therapy & Comparative Criminology, 1998, 42(1): 65-80

29 Philippe FL, Laventure S, Beaulieu-Pelletier G, Lecours S, Lekes N. Ego-Resiliency as a Mediator Between Childhood Trauma and Psychological Symptoms. Journal of Social & Clinical Psychology, 2011, 30(6): 583-598

30 Righthand S, Kerr B, Drach K. Child Maltreatment Risk Assessments: An Evaluation Guide, 2003

31 Smith CA, Ireland TO, Thornberry TP, Elwyn L. Childhood maltreatment and antisocial behavior: comparison of self-reported and substantiated maltreatment. American Journal of Orthopsychiatry, 2008, 78(2): 173-186

32 Stein MB, Höfler M, Perkonigg A, Lieb R, et al. Patterns of incidence and psychiatric risk factors for traumatic events. International Journal of Methods in Psychiatric Research, 2002, 11(4): 143-153

33 Tanner-Smith E, Lipsey MW, Wilson SJ. Risk Factors and Crime, 2013

34 Tenibiaje DJ. Educational attainment and peer group influence as predictors of recidivism. International Review of Social Sciences and Humanities, 2013, 5(1): 30-37

35 Waaktaar T, Torgersen S. Genetic and Environmental Causes of Variation in Trait Resilience in Young People. Behavior Genetics, 2012, 159B(3): 580-588

36 Welsh BC, Farrington DP. Evidence-Based Crime Prevention: Springer New York, 2007

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