

The Study on the Influence of Trait Anger on Aggression Behavior from the Perspective of Crime Prevention

Wenlan Mu^{1,a}, Qing Sun²

¹*Criminal Investigation Police University of China, Shenyang, Liaoning, 110000, China*

²*Tianjin University of Finance and Economics, Tianjin, 300000, China*

^a*1164497546@qq.com*

Keywords: Trait Anger; Aggressive Behavior; Theoretical Explanation; Prevention and Treatment

Abstract: Aggressive behavior is closely related to problem behavior and criminal behavior, and the aggressive behavior shown by individuals in the past may evolve into criminal behavior in the future. Therefore, it is very important to study the influencing factors of aggressive behavior. Trait anger, as a stable personality tendency, refers to the frequency, intensity and duration of people's anger experience. It's the premise of state anger and aggression. Trait anger can directly and indirectly affect aggressive behavior. Based on the theoretical review of the influence of trait anger on aggressive behavior, intervention measures were proposed from four aspects of cognitive intervention, avoidance motivation training, forgiveness intervention and mindfulness intervention to reduce the aggressive behavior of individuals with high trait anger.

1. Introduction

With the development of society, people's material conditions have been improved, but criminal behavior is still in a high incidence and showing a younger age trend. With the development of network society, criminal behavior has been widely concerned and valued by the society and has serious social harm, so crime prevention is particularly important. Aggressive behavior is closely related to problem behavior and criminal behavior, and the aggressive behavior previously exhibited by individuals may evolve into criminal behavior in the future. Therefore, reducing individual aggressive behavior can effectively prevent the occurrence of criminal behavior. Therefore, reducing individual aggression can effectively prevent the occurrence of preventive behaviors. Trait anger, as a more stable personality variable, has a stable and long-term effect on the production of aggressive behavior; therefore, this study refines the relationship between trait anger and aggressive behavior by combing through previous research on the subject and proposes targeted prevention and intervention measures.

2. Trait Anger and its neural basis

Beginning in the 1950s, psychologists began to notice individual differences in people's expression of anger, and Spielberger first proposed the state-trait anger theory of personality. Trait

anger refers to the frequency, duration, and intensity with which people become angry and is a more stable personality variable. In contrast, state anger is the current intensity of feeling the emotion of anger, with the level of anger ranging from having mild distress to intense rage [1]. There is a close relationship between trait anger and aggression in daily life. Differences in individuals' levels of trait anger can cause them to react differently to the same scenario: e.g., some individuals will storm out and act aggressively, while others will judge and control their impulse to act aggressively depending on the scenario.

With the use of techniques such as fMRI, researchers have gained a deeper understanding of anger brain regions. Yoon et al. found that individual trait anger was not only related to gray matter concentration (GMC) in the orbitofrontal cortex (OFC) and the hippocampus [2], but also to the individual's left postcentral gyrus, the left supraparietal gyrus, and the volume of gray matter in the left talar gyrus [3], all of which are strongly associated with emotion recognition.

Fulwiler et al. found a significant negative correlation between trait anger and the strength of functional connectivity between the amygdala and the contralateral orbitofrontal cortex in a functional connectivity analysis [4]. The prefrontal cortex and amygdala are important brain regions for the regulation of trait anger. Individuals with high trait anger are more likely to engage in aggressive behaviors because their amygdala has a weaker strength of functional connectivity with the contralateral OFC, and they have poorer ability to regulate their emotions to the point that they are more likely to be provoked and to experience more anger when confronted with hostile scenarios. In contrast, low-trait angry individuals also had stronger functional connectivity of the amygdala to the bilateral medial OFC, had better emotion regulation, and were able to call upon effortful control resources to regulate their emotional state.

3. The Relationship between Trait Anger and Aggressive Behavior.

3.1 Trait Anger directly affects Aggressive Behavior

Trait anger can directly influence aggressive behavior. It has been demonstrated that trait anger can influence aggression and that there are not only significant gender differences but also age differences in the effect of trait anger on aggression.

Violent crime is an extreme form of aggressive behavior, and Zhan Qinghe and Zhou Min et al. found that trait anger is a risk factor for violent behavior in males relative to females, and that males high in trait anger are likely to commit more violent acts [5]. Students who engage in violent behavior are themselves more likely to have personality traits that predispose them to anger, to be more easily provoked in the same scenario, to experience feelings of anger and express them outwardly as hostile aggression, and to appear less capable of controlling and regulating their anger. Song Dan and Fu Hailing found that there are significant gender differences in trait anger, with males having higher scores than females in both trait anger and external expression of anger [6]. Although there is no relevant literature on trait anger influencing aggression, however, through the findings that males have higher scores on external expression of anger, it can be shown that males are more inclined to externalize their anger and are more likely to express their anger by engaging in aggressive behaviors. Social culture expectations of men and women are different, with men being expected to be tall and to display an image of strength. Based on this, men show more interpersonal and violent behavior when they become angry in order to gain social approval and to show the image that they are demanded by society.

Aggressive behavior manifests itself in different ways at different ages. In childhood, individuals are predominantly active and instrumental aggression [7]. During adolescence, as the physical strength of the individual gradually increases, in which boys mainly show physical aggression, while girls mainly show verbal aggression [8]. Cornell et al.'s study of juvenile offenders found that

they had high levels of trait anger and were effective predictors of aggressive behavior in everyday life [9]. Violent offenses may arise because offenders are not able to control their anger well and thus impose their anger on others. Possibly due to early childhood experiences, adolescents who experience child abuse also have higher levels of anger and a greater probability of engaging in aggressive behavior [10]. In the workplace, high trait anger individuals are more likely to feel angry emotions in the workplace [11]. Extending to intimate relationships, men high in trait anger are more likely to be physically abusive to their partners, meaning that high trait anger individuals are prone to angry feelings and even aggressive behaviors towards their loved ones [12]. Based on the above research, it can be found that trait anger affects individuals' aggressive behaviors in daily life.

3.2 The Trait Anger indirectly affects Aggressive Behavior

3.2.1 Intermediary role

Cognitive factors are the main mediating variables in the influence of trait anger on aggression, and cognitive factors such as hostile perceptions, moral excuses, emotional states, and attitudes all influence the process of trait anger influencing aggression to varying degrees.

Liu Wenwen and Jiang Qi et al. found that hostile cognition partially mediated the relationship between trait anger and aggressive behavior [13]. In the same scenario, individuals high in trait anger will preferentially notice hostile stimuli and process hostile stimuli, which will result in more aggressive behaviors. Empathy affects the mediating role of hostile cognition, which is divided into cognitive and affective empathy, with cognitive empathy mainly mediating between trait anger and hostile cognition, and affective empathy mediating between hostile cognition and aggressive behavior [14].

Moral excuses are behaviors in which individuals make the actions they perform less harmful and avoid moral punishment [15]. The "anger threshold" of high trait anger is relatively low, and in the presence of anger, the individual's moral cognition decreases, the level of moral excuses increases, and self-control decreases, thus lowering the "threshold" for engaging in aggressive behavior [8].

Violent attitude is the tendency to react to violent behavior and is an important factor in triggering aggressive behavior [16]. High violent attitude is the perception of violent behavior as a positive way to solve problems, which is activated when high trait anger individuals encounter problems and is continuously reinforced in later behavior, and thus aggression becomes a habitual behavioral pattern for solving problems and getting out of the situation.

The emotion maintenance hypothesis suggests that individuals in an angry mood will increase positive emotions through some risky decisions and behaviors as a way to reduce negative anger emotions. Individuals high in trait anger have higher levels of emotional arousal and are prone to feel more anger while driving, which leads to more aggressive driving behaviors, more risky-type decisions, and more traffic accidents [17, 18, 19].

3.2.2 Regulatory role

The level of cognitive reappraisal influences the specific pathways of trait anger on aggression [20]; for individuals with low cognitive reappraisal, trait anger predicts aggression primarily through the full multiplicity of mediating roles of hostile cognition and anger rumination; for individuals with high cognitive reappraisal, trait anger affects aggression primarily through its direct effects. Cognitive reappraisal is to assess the event in an objective and neutral manner. Individuals with higher levels of cognitive reappraisal are adept at regulating negative emotions and experience less anger under the same hostile provocation conditions, and even high levels of trait

anger can be reduced under the guiding language of cognitive reappraisal. Individuals with lower levels of cognitive reappraisal tend to interpret events in a hostile manner and become caught up in unintentional repetitive thinking about the anger situation or event, i.e., enter into automated hostile cognitive processes leading to aggression and enter into automated anger ruminative processes to further amplify the aggression. Thus, the level of cognitive reappraisal alters the specific pathways that trait anger takes towards aggressive behavior.

The level of forgiveness moderated the relationship between trait anger and cyberattacks among college students. Individuals with a high level of forgiveness have a predominantly benevolent motivation, and tend to "pay back with kindness" when they experience harm, and solve problems in a more positive way. Individuals with low levels of forgiveness have a tendency to "pay back a grudge" when they are victimized, and are more likely to retaliate in a more aggressive manner against the person who hurt them, and are more likely to engage in aggressive behavior [21].

4. Theories Related to the Influence of Trait Anger on Aggressive Behavior

4.1 Social Information Processing Theory

Social information processing theory suggests that an individual's journey from perception to situational cues to engaging in aggressive behavior can be divided into five components, which are decoding, interpretation, search response, decision response, and execution response. Trait anger affects the process of decoding and interpreting in individuals, who will always tend to think in inherent thought patterns as well as attributional ways. High-trait angry individuals tend to respond to and interpret ambiguous situations with a negative attitude [22], so high-trait angry individuals are more likely to notice hostile cues and act aggressively in the same scenario than low-trait angry individuals.

4.2 Cognitive Neo-linkage model

Trait anger levels influence the strength of associative networks in memory, with high trait anger individuals having stronger associations of memories, thoughts, and emotions, and anger-related memories and emotions being more likely to be activated. Yali Luo and Da-Jun Zhang found that subjects in the high trait anger group responded significantly faster to the ipsilateral side of the angry face than the opposite side of the face, there is an attentional bias for anger-related stimuli in high trait anger individuals, and once the anger emotion is generated, anger-related memories are activated, and previous behavioral styles get repetitive appearances, which result in habitual aggressive behaviors [23]. And high trait anger individuals recognized anger faces significantly faster than happy faces, with no difference on neutral or sad faces. High-trait angry individuals had stronger associations for angry emotions than for other emotions, so when angry emotions were present, high-trait angry individuals were able to recognize them more quickly.

4.3 General Aggression Model

GAM theory suggests that an individual's internal state includes a person's more stable state (e.g., personality traits, values) and the emotional state of the situation to which the person belongs at the time (e.g., anxiety, anger, drug addiction), and environmental factors (frustration, triggers), which together act on the cognition of the external stimulus to form a path cycle of stimulus, cognition, and response, and at the same time act on the decision-making process of evaluation, which enables individuals to make different judgments based on the Reactions can be either rational actions made by investing more cognitive resources and thoughtful consideration; or impulsive behaviors made

by investing less cognitive resources and unconsciousness, and the results of the behaviors are fed back to the individual, forming a vicious cycle of aggressive behaviors.

GAM theory emphasizes three key components that produce aggressive behavior: Results of personal and situational inputs, internal states (i.e., cognition, arousal, emotion, including brain activity), evaluation, and decision-making processes.

4.4 Effort Control Theory

All of the above theoretical explanations emphasize the individual's unconscious response and ignore the individual's subjective control, especially under the emotional state of anger, where trait anger is correlated with effortful control disorder [24]. Liu, Y. and Li, Z. et al. found that for individuals with different trait anger levels, there was no significant difference in their brain activation levels when faced with hostile stimuli, but when confronted with incongruent stimuli, low-trait angry individuals invested more cognitive resources in an effort to eliminate cognitive incongruities and had a greater ability to monitor their own responses, as compared to high-trait angry individuals [25]. One's cognitive resources are limited, and when too much of one's cognitive resources are devoted to emotion management, then other areas don't get enough cognitive resources to make mistakes. Denny and Siemer confirmed from another study that compared to low-trait angry individuals, high-trait angry individuals tended to make more errors when they viewed angry faces and needed to control their angry responses, whereas this was not the case when viewing happy faces [26].

4.5 Integrated Cognitive Modeling

The Integrated Cognitive Model theory suggests that individuals first have a holistic processing of the situation for automated interpretation, and that if external cues are interpreted as hostile, then there is a risk of directly eliciting angry emotions and aggressive behavior. Individual differences will also be evident, with high trait anger individuals more likely to interpret external cues as hostile, and cognitive attention will be focused on these hostile cues, and these persistent hostile processes are likely to increase the individual's anger, at which point, if the individual has a higher degree of control over their emotions, then they will be able to think more about the situation, which in turn will alleviate the individual's anger.

Liu Wenwen et al. found that hostile cognition partially mediates between trait anger and aggressive behavior, i.e., individuals with high trait anger will produce aggressive behavior through subjective interpretation of external stimulus scenarios; in which the mediating effect of hostile cognition is explained at 14%, i.e., the processing of external scenarios relies more on automated processing, while cognitive processing is less involved [13]. Another study found that the effect of hostile cognitions on aggressive behavior can show varying degrees of influence due to individual differences in cognitive reappraisal [20].

The above theories explain how trait anger affects the emergence of aggressive behavior; the first social information processing theories only paid attention to the decoding and interpretation of hostile stimuli, focusing the explanation on the individual's cognitive bias; the cognitive neo-linkage model pays attention to the fact that there is a linkage network of cognition, emotion, and memory for individuals, and that the strength of the formation of the linkage network varies from person to person, so that the memory triggered by different emotions and cognition are different. The general theory of aggression proposed by Dodge, which makes an integration of situational and individual factors, is more complete compared to the first two models, but it ignores the individual's ability to exercise autonomous control. Effortful control theory suggests that high trait anger individuals need more cognitive resources to control their anger to the point that they do not get enough cognitive

resources for the rest of it, and thus problematic behaviors can occur. The integrated cognitive model generalizes previous theories, considers cognitive reappraisal factors, and reflects the individual's ability to exercise subjective control, making it a more comprehensive theoretical model at this time.

5. Prevention and Correction

Trait anger is a stable personality variable, and it is difficult to reduce aggression by lowering the level of trait anger; therefore, the present study provides targeted recommendations for the prevention of adolescent aggression and even delinquent behavior by summarizing the internal mechanisms of the effect of trait anger on aggression and, consequently, on the prevention of adolescent aggression and even delinquent behavior.

5.1 Cognitive interventions

Cognitive-behavioral therapy focuses on reconstructing cognitive content that is factually and logically incorrect, i.e., forming a new cognitive framework.

Trait anger is associated with cognitive biases. Individuals high in trait anger tend to have reduced effortful control and are more likely to notice hostile stimuli, which leads to quicker hostile judgments about their surroundings. Additionally, they are more inclined to perceive the external environment as a threatening presence and engage in subjective hostile cognitive processing. A study by Yawei Li and Jingmin Zhu found that comprehensive cognitive interventions can significantly reduce violent behavior by adolescents with violent tendencies [27]. Therefore, cognitive interventions can reduce aggressive behaviors of high trait anger individuals from the perspective of constructing a new cognitive framework.

To summarize, taking into account the characteristics of adolescent development, on the one hand, legal education and warning education should be carried out regularly in school education, and timely intervention should be made in response to incidents occurring in schools. Through education, young people will have a clear understanding of the serious consequences of aggressive and criminal behaviors, and such cognitive beliefs will force students to adopt other means of solving problems, thus changing their original irrational cognitive beliefs. On the other hand, moral education has been strengthened. The over-emphasis on promotion rates in schools has led teachers to focus only on students who are good learners, thus ignoring poor learners and introverted students, which, if not properly guided, will lead them to go astray, develop bad cognitive beliefs, and be very prone to aggressive behaviors.

5.2 Avoidance Motivation Training

While convergence motivation is commonly thought to be associated with positive emotions, related research has found that there is also a high correlation between convergence motivation and the negative emotion of the trait anger, which provides a drive to approach and get closer to a goal. Avoidance motivation, in contrast to convergence motivation, provides a drive to avoid and escape.

Convergence motives motivate the behavioral response of trait angry individuals to want to get closer to the source of the stimulus that triggers the anger, so trait anger is related to the convergence motives associated with the anger scenario. The Harmon-Jones study found that nerves associated with convergence motivation were activated in high trait anger individuals after viewing pictures associated with anger, but there was no corresponding activation after viewing pictures associated with fear or disgust [28]. Although the emotion of anger is a negative emotion, the activation of the emotion of anger is associated with a convergence motive, the desire to go closer

to the source of anger when it arises. When an individual's cognition is challenged, more cognitive resources are invested, and after moving away from the source of anger, the probability that the individual will engage in aggressive behavior decreases as the target of aggression disappears [29]. Therefore, we can control our anger through avoidance motivation training, and avoidance motivation is to move away from the source of anger, which can inhibit the generation of aggressive behavior to a certain extent.

5.3 Positive Mindfulness Therapy

Positive Mindfulness Therapy is the process of consciously focusing on internal or external feelings and without judgment, a mental process of becoming aware of the individual's emotional and physical sensory aspects. Positive thinking meditation influences the allocation of attention to emotional regulation and changes the process of automating emotional responses. Instead of reacting immediately when an angry emotion arises, there is a process of attentional expansion, noticing more stimuli, and cognitive reappraisal, which increases positive emotions. Trait positivity is a protective factor for problematic behaviors and plays an important role in reducing negative emotions such as anxiety and anger, and reducing aggressive behaviors [30]. Yuan Quan and Zhang Jieting et al. per capita found that positive thinking training can significantly reduce the aggressive behavior of prison inmates, reduce anger as well as control the expression of aggressive emotions and reduce aggressive behavior [31, 32]. As shown by brain imaging, positive thinking intervention can reduce the activation level of the amygdala, and effective control of angry emotions is often accompanied by a reduction in the activation level of the amygdala [33], which is a side-effect of proving that positive thinking can control angry emotions and thus reduce aggressive behavior. Therefore, positive thinking interventions play an important role in controlling anger as well as reducing aggressive behavior or regulating other maladaptive emotions in high trait anger individuals.

In summary, avoidance motivation training and positive thinking therapy can help reduce aggressive behavior. In school education, emphasis should be placed on psychological education, which can be regularized by conducting psychological courses on a regular basis. Through the use of psychological classroom, on the one hand, students can be effectively relieved from the heavy pressure of learning, and on the other hand, the method of reducing aggressive behavior will be passed on to the students, so that students can master more ways to control their emotions, so as to avoid aggressive behaviors when their emotions are "on the rise".

5.4 Forgiveness Intervention

Forgiving oneself and forgiving others helps to reduce resentment and anger within oneself. High-trait angry people are more likely to notice aggressive cues, which creates anger, activates neural network channels, stimulates the convergent nervous system, and produces more aggressive behaviors, and thus are less likely to turn to forgiveness as a way to solve problems.

Wu Xiqing, Hu Qian, and Chen Cui et al. found that there is a significant negative correlation between trait anger and forgiveness, and the higher the level of forgiveness, the better the individual's ability to regulate anger [34]. Therefore, it is possible to cultivate one's ability to forgive, thereby reducing aggressive behaviors due to anger in life. Forgiveness levels moderated the direct effect of trait anger on cyberattack behavior in college students [21], which further explains that the emotion of anger influences the development of an individual's ability to forgive. Therefore, enhancing the level of forgiveness in individuals with high trait anger is important for controlling individual anger as well as avoiding problematic behaviors due to anger [35].

In summary, in family education, an increased level of individual forgiveness will help reduce

aggressive behavior. Creating a good family culture helps to cultivate children's benevolence and love, so that they can have the ability to love people. Parents are able to listen to and respect their children's ideas, and pass on the right way of dealing with people to their children, so that they can love themselves and others in their future lives.

6. Summary and Outlook

Anger plays an important role in the perpetration of aggression, and the present study has refined the relationship between trait anger and aggression by reviewing the psychological mechanisms by which trait anger affects aggression, thereby proposing to reduce the impact of trait anger on aggression from a crime prevention perspective in order to facilitate the control of aggression in daily life. After sorting and summarizing, the following two other research priorities exist:

The first is the limitation of measurement. Regarding the measurement of trait anger and aggression, the relationship between the two is more often studied using questionnaires, and the conclusions of the study will be affected by the reliability and social approval of the questionnaire, which may reduce the authenticity of the results of the measurement, so the relationship can be explored more deeply by laboratory research methods or EEG methods; on the other hand, trait anger is a personality trait that develops more steadily, but many challenges encountered during adolescent growth may be factors that affect trait anger. On the other hand, trait anger is a personality trait that is more stable in its development, but many of the challenges that adolescents encounter during their formative years may be factors that influence trait anger, and for this reason, questionnaires should be developed to measure trait anger in adolescents.

Second, research related to the effects of cognitive broadening on aggressive behavior is controversial. Trait anger has been linked to cognitive biases, such as when effortful control is reduced, individuals are more likely to notice hostile stimuli, resulting in high trait anger individuals being quicker to make hostile judgments about their surroundings. Past theories and research have shown that strongly motivated affective states narrow cognitive scope. Research has also shown that broadening the cognitive scope reduces responses to both positive emotional stimuli and negative stimuli, thus suggesting that cognitive broadening reduces motivational intensity, which supports the hypothesis that cognitive broadening reduces the emotional anger associated with convergent motivation. As far as this study is concerned, individuals with high trait anger will lead to cognitive narrowing when generating angry emotions to the extent that they will pay special attention to hostile stimuli, which will lead to aggressive behaviors, then in order to reduce aggressive behaviors, the psychological intervention method of cognitive broadening can be carried out, but this method of controlling negative emotions still needs to be further verified.

References

- [1] Charles, D, Spielberger, et al. *Measuring the Experience, Expression, and Control of Anger*[J]. *Issues in Comprehensive Pediatric Nursing*, 1995.
- [2] Yoon H K, Lee H J, Kim L, et al. *Impact of tryptophan hydroxylase 2 G-703T polymorphism on anger-related personality traits and orbitofrontal cortex*[J]. *Behavioural Brain Research*, 2012, 231(1):105-110.
- [3] Wang, Huanzhen. *Brain structural and functional basis of trait anger affecting aggressive behavior*[D]. Southwest University, 2017.
- [4] Fulwiler C E, King J A, Zhang N. *Amygdala-orbitofrontal resting-state functional connectivity is associated with trait anger* [J]. *Neuroreport*, 2012, 23(10):606-610.
- [5] Zhan Qinghe, Zhou Min, Bian Xi, Xie Bin, Shao Yang. *Violent behavior and anger emotional characteristics of middle school students*[J]. *Chinese Journal of Mental Health*, 2018, 32(07):558-563.
- [6] Song Dan, Fu Hailing. *The relationship between anger management and interpersonal support among college students* [J]. *China School Health*, 2014, 35(08):1255-1258.
- [7] Zhang Wenxin, Ji Linqin, Gong Xiuli, Zhang Xi, Wang Yiwen, Chen Xinyin. *A tracking study of the development of aggressive behavior in 3- to 4-year-old children* [J]. *Psychological Science*, 2003(01):44-47.

- [8] Jin Tonglin, Lu Guizhi, Zhang Lu, Jin Xiangzhong, Wang Xiaoyu. *The effects of trait anger on college students' cyberattack behavior: The role of moral excuses*[J]. *Psychological Development and Education*, 2017, 33(05):605-613.
- [9] Cornell, Peterson D G, Richards C S, et al. *Anger as a predictor of aggression among incarcerated adolescents*. [J]. *Journal of Consulting and Clinical Psychology*, 1999.
- [10] Qin Qian, Li Bing, Chen Mingxuan, Li Yi, Wan Ying, Tou Anwang. *Relationship between emotional intelligence and trait anger and aggressive behavior in childhood psychological abuse among middle school students*[J]. *Chinese School Health*, 2021, 42(01):96-99.
- [11] Booth J, Mann Sa. *The experience of workplace anger* [J]. *Leadership Organization Development Journal*, 2005.
- [12] Stith S M, Smith D B, Penn C E, et al. *Intimate partner physical abuse perpetration and victimization risk factors: A meta-analytic review* [J]. *Aggression & Violent Behavior*, 2005, 10(1):65-98.
- [13] Liu Wenwen, Jiang Qi, Ren Jingjing, Li Shufang, Xu Yapei. *Effects of trait anger on aggressive behavior: Hostile perceptions and impulsivity levels have a mediating role in moderation*[J]. *Psychological Development and Education*, 2015, 31(04):485-493.
- [14] Jiang Q, Yang Y T, Liu C L, et al. *The Differing Roles of Cognitive Empathy and Affective Empathy in the Relationship Between Trait Anger and Aggressive Behavior: A Chinese College Students Survey*[J]. *Journal of Interpersonal Violence*, 2019(5):088626051987922.
- [15] Yang Wendeng, Liang Shuang. *An overview of Bandura's theory of moral excuses*[J]. *Psychological Research*, 2022, 15(02):121-125.
- [16] Luo Yali, Liu Yunbo. *Parent-child violence moderates the mediating role of violent attitudes between trait anger and aggressive behaviour* [J]. *Chinese Journal of Behavioral Medicine and Brain Science*, 2017, 26(07):636-640.
- [17] Deffenbacher J L, Stephens A N, Sullman M. *Driving anger as a psychological construct: Twenty years of research using the Driving Anger Scale*[J]. *Transportation Research Part F Traffic Psychology & Behaviour*, 2016, 42(pt. 2):236-247.
- [18] Suls, Jerry. *Anger and the Heart: Perspectives on Cardiac Risk, Mechanisms and Interventions*[J]. *Progress in Cardiovascular Diseases*, 2013, 55(6):538-547.
- [19] Ma Y. *The effect of anger on drivers' risky decision-making* [D]. Northwest Normal University, 2018.
- [20] Hou Lulu, Jiang Q, Wang Huanzhen, Li Changyan. *The effect of trait anger on aggressive behavior: A perspective based on an integrated cognitive model*[J]. *Journal of Psychology*, 2017, 49(12):1548-1558.
- [21] Zengjian Luo, Xinyi Zhang. *The moderating role of forgiveness level in the relationship between trait anger and cyberattack behavior among college students*[J/OL]. *Chinese Journal of Health Psychology*: 1-10[2022-04-17].
- [22] Wenzel A, Lystad C. *Interpretation biases in angry and anxious individuals* [J]. *Behaviour Research and Therapy*, 2005, 43(8):1045-1054.
- [23] Luo Yali, Zhang Dajun. *An experimental study of attentional bias toward negative emotional faces in high trait angry individuals* [J]. *Psychological Science*, 2011, 34(02):322-327.
- [24] Wilkowski B M, MD Robinson. *The Anatomy of Anger: An Integrative Cognitive Model of Trait Anger and Reactive Aggression* [J]. *Journal of Personality*, 2010, 78(1).
- [25] Liu Yong, Li Zhan, Zhan Xianghong, Han Heyun, Yan Xiujuan, Hou Junlin. *An event-related potential study of conflict control in anger trait individuals* [J]. *China Medicine Herald*, 2014, 11(16):12-15.
- [26] Denny K G, Siemer M. *Trait aggression is related to anger-modulated deficits in response inhibition*[J]. *Journal of Research in Personality*, 2012, 46(4):450-454.
- [27] Li Yawei, Zhu Jingmin. *Corrective effect of cognitive-behavioral integrated intervention on adolescent violent behavior* [J]. *Chinese School Health*, 2021, 42(07):1005-1008.
- [28] Harmon-Jones, E. (2007). *Trait anger predicts relative left frontal cortical activation to anger-inducing stimuli*. *International Journal of Psychophysiology*, 66(2), 154-160.
- [29] Veenstra, L., Schneider, I. K., & Koole, S. L. (2017). *The effects of motivational training on state anger and aggressive impulses among people varying in trait anger*. *Motivation Science*, 3(4), 354-368.
- [30] Yu S, Zhang Chunyang, Xu Xin. *Longitudinal relationship between trait positivity and college students' anxiety and aggression: mediation of psychological resilience and moderation of stay-at-home experience*[J/OL]. *Psychological Development and Education*, 2022(05):711-719 [2022-04-17].
- [31] Yuan Quan, Jia Kun, Liu Xinghua, Liu Weidan, Yang Chang. *Six-week positive thinking training for aggression and sleep quality in male long-sentence inmates*[J]. *Chinese Journal of Mental Health*, 2015, 29(03):167-171.
- [32] Jie-Ting Zhang, Jing-Feng Zhang, Wei-Xiong Qiu, Chao Wen, Han-Qing Cui, Can Jiao. *The relationship between positive thinking level and aggression in male inmates*[J]. *Chinese Journal of Mental Health*, 2019, 33(03):238-240.
- [33] Riccelli R, Toschi N, Nigro S, et al. *Surface-based morphometry reveals the neuroanatomical basis of the five-factor model of personality*[J]. *Social Cognitive & Affective Neuroscience*, 2017:671-684.
- [34] Wu, Xi-Qing, Hu, Qian & Chen, Cui. (2012). *The effect of forgiveness level on anger expression and mental health among college students*. *Chinese Journal of Health Psychology* (03), 448-450.
- [35] Li, Zhongchen, Wang, Kang, Liu, Xiaomin, Li, Guicheng, Zhai, Yuantao, Zhang, Xi, Pan, Fang. *Interpersonal forgiveness and psychological well-being in adolescents: Multiple mediating roles of anger and subjective well-being* [J]. *Chinese Journal of Clinical Psychology*, 2018, 26(05):987-991.