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The relationship between Alexithymia and aggressive behavior:the mediating role of perceived stress

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Abstract: *Individuals with alexithymia, due to the fragmentation of cognitive and emotional components in their behavioral sequences, tend to interpret cues in a hostile manner and exhibit maladaptive behaviors such as aggression. The disconnect between subjective stress evaluation and autonomic response may exacerbate these externalized behavioral problems. However, this perspective has not been sufficiently validated in the college student population. The current study measured 754 college students in northern China using validated scales for alexithymia, aggressive behavior, and perceived stress. The results revealed a significant positive correlation between alexithymia and perceived stress, aggressive behavior(t=0.602,t=0.410,P<0.001), the direct predictive effect of alexithymia on aggressive behavior was significant (B=0.574, t=12.191, P<0.001).This finding supports the notion that alexithymia can influence an individual's predisposition towards aggressive behavior. Furthermore, the study explored the mediating role of perceived stress in this relationship. Perceived stress, the predictive effect of alexithymia on aggressive behavior remained significant (B=0.363,t=6.284, P<0.001) after the introduction of the mediating variable. The indirect effect, mediated by perceived stress, is 0.145, accounting for 36.62% of the total effect. The findings provide valuable insights into the complex interplay between alexithymia, aggressive behavior, and perceived stress in college students, which can guide future research and interventions aimed at reducing aggressive behavior in this population.*

Keywords: *alexithymia, aggressive behavior, perceived stress, mediating, college students*

1. Introduction

Amid the ever-increasing campus attacks worldwide, research on aggression with a focus on aggressive behavior has received widespread attention in academia. However, the current stage of aggressive behavior has not received adequate consideration due to the self-protective abilities of college students and the implicit nature of certain campus attacks. Aggressive behavior refers to intentional behavior patterns and tendencies to harm others physically and psychologically. Common explicit forms of aggression include physical aggression (such as shoving and fighting), verbal aggression (such as spreading malicious rumors or hurtful words), and relational aggression (such as teasing or publicly embarrassing someone to damage interpersonal relationships)[1]. Surveys reveal the coexistence of aggressors and victims, with students embodying both identities on university campuses. Various studies estimate varying levels of aggression, with about 20% to 25% of students reporting non-cyberbullying behavior during their college years and around 5% reporting incidents of cyberbullying. Furthermore, roughly 20% of students reported non-cyberbullying incidents, and 10% to 15% reported being victims of cyberbullying[2].Aggressive behavior can also extend to interactions between students and teachers, with over 44% witnessing bullying against students by teachers and nearly 5% reporting occasional or frequent bullying by teachers[3].Numerous research findings indicate the effects of aggressive behavior on both the aggressors and victims. Students who experience aggressive behavior may exhibit a range of psychophysiological symptoms such as depression, anxiety, and impaired social functioning. At the same time, aggressors may contend with ostracism, social rejection, and unfavorable interpersonal relationships[4].The consequences of aggressive behavior should not be underestimated, as there is unity in individual cognition, emotion and behavior. Emotional issues and their management have always been crucial factors contributing to the occurrence of aggressive behavior among factors related to aggressive behavior. In studies on aggression, language processing deficits and emotional deficits are important characteristics of aggressors. Recognizing emotional difficulties is a core aspect of understanding the emergence of aggressive behavior[5].The emotional expressions of aggressors align with the characteristics of individuals with mood disorders,

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highlighting the necessity to consider these emotional factors in the analysis of aggressive behavior.

1.1 Alexithymia and Aggressive Behavior

Alexithymia was first described as a psychosomatic clinical symptom in 1973. This condition refers to difficulties in emotional experience and expression, leading to an incomplete emotional state. Alexithymia is generally not regarded as a separate mental illness, and according to most studies, it is seen as a consistent personality trait. Individuals with alexithymia exhibit three main features: difficulty identifying emotions, difficulty describing emotions, and externalized thinking[6]. This emotional struggle leads to a more intense experience of negative emotions. The lack of comprehension regarding emotional experiences can engender increased emotional distress and incite aggression. When individuals perceive potential danger in a situation, anxiety may arise. The inability to identify the source and nature of this feeling make it difficult for them to employ adaptive coping strategies to resolve potential conflicts, which increases the occurrence of aggression. Similarly, denying negative emotions and a sense of urgency can also impair cognitive assessment abilities.They may use compensatory mechanisms to meet psychological needs and maintain mental balance, resulting in disordered behavior associated with aggression[7]. Higher levels of alexithymia can impose an adverse impact on an individual's healthy development and give rise to a range of internalizing and externalizing problems. Those with greater alexithymia exhibit deficiencies in emotion cognition and processing, leading to more severe symptoms of depression, somatization, and anxiety, as well as an increased propensity for aggression, impulsive behavior, self-harm, and aggressive behavior[8]. Moreover, individuals with severer alexithymia struggle to recognize the potential consequences of their actions, making it difficult to inhibit aggression, further intensifying the occurrence of aggressive behaviors. Studies on the relationship between alexithymia and aggression mainly focus on individuals or populations with aggressive crimes or neuropsychiatric disorders, which may differ from the university student population[9].Nonetheless, the findings support the hypothesis that alexithymia can predict aggressive behavior. Neurophysiological studies validate the intertwined relationship between alexithymia and aggression.Research has identified a link between alexithymia and defects between the two hemispheres of the brain, as well as decreased activation of the amygdala, which affects areas related to facial expression and visual encoding, leading to a deficiency of emotional reactions[10]. Structural brain abnormalities contribute to unhealthy behaviors and heighten the association between alexithymia and various risk factors, such as depression, higher levels of aggression, and suicidal ideation. In light of these findings, research suggests that alexithymia serve as a predictive factor for aggressive behavior.

1.2 The Mediating Role of Perceived Stress

In 2002, Anderson and Bushman proposed a general attack model that categorize aggressive behavior into input variables (including individual and environmental variables), action paths, and output results. By influencing internal states such as emotions, thoughts, and physiological arousal, this model posits that alterations in individuals' internal states can ultimately lead to aggressive behavior On this basis, this study suggests that perceived stress (internal state) may mediate the relationship between alexithymia (individual variable) and aggressive behavior. Perceived stress is directly linked to individuals' emotions, cognition, and behavior, and is recognized as a trigger for many mental and physical illnesses and maladaptive behaviors[11].On the one hand, there is an association between perceived stress and alexithymia. Individuals with alexithymia have difficulty in feeling identification and description, which influences their ability to cope with stress. In stressful situations, those with alexithymia find it challenging to engage in emotional arousal. They may suffer anxiety without clear recognition of its source and nature, being deprived of the opportunity for the understanding and resolution of conflicts. On the other hand, perceived stress influences the aggressive behavior of individuals with alexithymia. The lack of internal self-awareness in individuals with alexithymia may lead to difficulties in emotional awareness, thinking and discussing emotions under stress. Continuous stress increases the incidence of early forms of aggressive behavior, as stress amplifies threats and significantly increases behaviors that deter dangerous approaches.Individuals with aggressive traits may exhibit approach-oriented aggression[12].A comprehensive analysis of the development mechanism of alexithymia and aggressive behavior in university students is necessary, with perceived stress as a variable. University students contend with various pressures such as academics, social life, daily living, and employment, which significantly increase the risk of aggressive behavior. In this context, exploring and revealing the risk factors and development mechanisms of aggressive behavior in university students is an important topic in aggression research. This exploration yields important insights into the

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prevention and control of aggressive behavior in university students.

1.3 The Current Study

Based on the above analysis, the following hypotheses are proposed in this study:

H1.The higher the alexithymia, the higher the likelihood of aggressive behavior.

H2. Higher alexithymia can predict higher levels of perceived stress.

H3. High levels of perceived stress can predict higher aggression.

H4.Perceived stress plays a mediating role in the relationship between alexithymia and aggressive behavior.

2. Materials and methods

2.1 Participants

The research data was obtained through a questionnaire survey targeting college students in universities in Heilongjiang Province, China. A total of 764 questionnaires were randomly distributed using an online survey system, of which 754 were deemed valid, with an effective response rate of 98.69%. Among the valid samples were 333 males (44.16%) and 421 females (55.84%). In terms of academic year, there were 154 freshmen (20.42%), 300 sophomores (39.79%), 175 juniors (23.21%), and 125 seniors (16.58%). In terms of discipline, 382 students belonged to humanities and social sciences (50.66%), while 372 students were enrolled in science and engineering (49.34%).

2.2 Measures

2.2.1 Alexithymia Scale

The revised Taylor's Alexithymia Scale (TAS) served as a tool in this study[13].The scale, consisting of 20 items, is divided into three dimensions: difficulty in identifying emotions, difficulty in describing emotions, and externally oriented thinking. A 5-point rating scale was used, with participants' scores representing the severity of alexithymia symptoms. Cronbach's α coefficient for this study was 0.784.

2.2.2 Aggression Questionnaire

To measure aggression, the Aggression Questionnaire (AQ), developed by Buss and Perry (1992), was used[14].The scale, consisting of 29 items, is divided into four subscales: physical aggression, verbal aggression, anger, and hostility. Physical and verbal aggression represent the instrumental component, anger measures the emotional component, and hostility captures the cognitive component of the overall aggression. A 4-point scoring system was applied, with higher scores indicating greater levels of aggressive behavior. The Cronbach's α coefficient for this study was 0.894.

2.2.3 Perceived Stress Scale

The Perceived Stress Scale (PSS), an internationally accepted stress measurement tool, was adopted, with reference to the Chinese Perceived Stress Scale (CPSS) for translation[15].The scale, consisting of 10 items, is divided into two dimensions, perceived tension and perceived lack of control, aimed at measuring the perception stress over the past month. A 5-point scoring system was used, with higher scores indicating higher levels of stress. The Cronbach's α coefficient for this study was 0.808.

2.3 Ethical considerations

The research was conducted strictly in accordance with the Declaration of Helsinki and approved by the Research Committee of Daqing Normal University. All identifiers such as the participants' names have been removed from the manuscript, and informed consent has been obtained for the information to be published.

2.4 Data Analysis

This study primarily utilized SPSS 20.0 and its PROCESS 3.3 program for the analysis and

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processing of variables. Statistical methods employed in this study included Pearson correlation analysis, Harman single-factor test, and mediation analysis.

3. Results

3.1 Common Method Biases

In the research implementation stage, common method bias was controlled through measures such as anonymous responses, reverse-coded items, and different scoring methods. A common method bias test was conducted during data analysis to ascertain and control for the common method biases. According to Harman's single-factor test, the results indicated that the 14 eigenvalues of the unrotated factor solution were above 1. The variance explained by the first factor was 18.03%, below the critical threshold of 40%, indicating the absence of significant common method bias. Therefore, the statistical analysis was deemed valid.

3.2 Descriptive Statistics and Partial Correlation Analysis

Mean values, standard deviations, and correlation coefficients were analyzed for alexithymia, aggressive behavior, and perceived stress among college students. The results indicated a significant positive correlation between alexithymia and aggressive behavior, as well as between alexithymia and perceived stress, which confirms hypotheses 1 and 2. Additionally, a positive correlation was observed between aggressive behavior and perceived stress, lending support to hypothesis 3. In terms of basic information, gender exhibited a negative correlation with aggressive behavior, gender and alexithymia have no significant relationship,as shown in Table 1.

Table1. Descriptive statistics and correlation analysis of each variable

Measures	M	SD	r		
			1	2	3
1.Alexithymia	53.304	7.791	1.00		
2.Aggressive Behavior	64.414	11.042	0.410**	1.00	
3.Perceived Stress	41.992	6.830	0.602**	0.396**	1.00
4.Gender	1.590	0.493	-0.029	-0.107**	0.043
5.Grade	2.360	0.986	-0.024	-0.026	0.016
6.Growth Environment	1.450	0.497	0.029	0.037	-0.021
7.Number of Children	1.530	0.499	-0.024	-0.049	-0.051
8.Major	1.78	0.678	-0.027	-0.02	0.029

M: mean. SD: standard deviation. r: correlation coefficient.*P<0.05, ** P<0.01.

3.3 Mediating Effect Analysis

Previous studies have indicated that testing for moderated mediation effects requires an initial mediation analysis.After controlling for gender, grade level, upbringing, number of children and major, we explored the predictive role of alexithymia in aggressive behavior through perceived stress. The mediating effect of perceived stress in the relationship between alexithymia and aggressive behavior underwent testing.

The direct predictive effect of alexithymia on aggressive behavior was significant (B=0.574, t=12.191, P<0.001). Perceived stress, the predictive effect of alexithymia on aggressive behavior remained significant (B=0.363,t=6.284, P<0.001) after the introduction of the mediating variable. Alexithymia exerted a significant effect on perceived stress (B=0.531, t=20.813, P<0.001), and perceived stress also had a significant effect on aggressive behavior (B=0.397, t=6.009, P<0.001), confirming hypothesis 4.The specific results are detailed in Table 2.

Table 2 provides a comprehensive overview of the regression analysis results, howing the analysis results of the significant variables among the multiple predictors (such as gender, grade, growth environment, number of children, major, and alexithymia) that have a significant impact on perceived stress and aggressive behavior.

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Table 2. Tests the mediating model of perceived stress.

Regression Equation			Fit Indices		Coefficient Significance			
Result variable	Predictor variable	R	R2	F	B	CI lower	CI upper	t
Perceived Stress		0.6085	0.3703	73.2207				
	Alexithymia				0.531	0.4807	0.5809	20.813***
Aggressive Behavior		0.4663	0.2174	29.608				
	Gender				-2.4178	-3.9399	-0.8957	-3.118**
	Alexithymia				0.3633	0.2498	0.4768	6.284***
	Perceived Stress				0.397	0.267	0.5261	6.009***
Aggressive Behavior		0.4237	0.1795	27.2441				
	Gender				-2.1468	-3.7016	-0.5919	-2.711**
	Alexithymia				0.574	0.4814	0.6662	12.191***

Table 3 further breaks down the total effect, direct effect, and indirect effect. The total effect indicates that alexithymia has a significant overall impact on aggressive behavior, with a value of 0.396, and its 95% confidence interval excludes zero, indicating the significance of this effect. The direct effect represents the direct influence of alexithymia on aggressive behavior, which is 0.251, accounting for 63.38% of the total effect. The indirect effect, mediated by perceived stress, is 0.145, accounting for 36.62% of the total effect. This finding suggests that alexithymia not only directly affects aggressive behavior but also indirectly impacts it through influencing an individual's perceived stress.

Table3.Total effect, direct effect and intermediate effect breakdown table

	Effect	Boot SE	CI lower	CI upper	Relative Effects
Total effect	0.396	0.033	0.332	0.459	
Direct effect	0.251	0.04	0.172	0.329	63.38%
Indirect effect	0.145	0.024	0.098	0.192	36.62%

4. Discussion

4.1 The relationship between alexithymia and aggressive behavior

Several factors contribute to aggressive behavior, including difficulties in recognizing the feelings of the target, difficulties in expressing emotions, and prominent experiences of negative emotions. Some aggressors may also exhibit physical symptoms or somatization, which aligns with the characteristics of alexithymia. Theories and descriptions related to individuals with alexithymia often emphasize internal disruptions, associated with behaviors such as dependency and avoidance, including anxiety, depression, non-suicidal self-injury, suicide, autism spectrum disorders, and alcohol abuse. These internal struggles can even lead to physiological and psychological somatic illnesses[16].Existing descriptions of individuals with alexithymia often tend to overlook external behaviors. However, the interconnectedness of internal and external manifestations in individuals is inevitable. Therefore, we hypothesize and confirm a predictive relationship between alexithymia and aggressive behavior. Consistent with previous research,our findings validate the relationship between alexithymia and aggression while providing new insights. Although the gender factor has been considered in studies on alexithymia, the current research conclusions on the relationship between gender and alexithymia have not yet been consistent. Some studies have shown significant differences in the levels of alexithymia between men and women, while other scholars hold different views[17]. These scholars suggest that one possible reason for the higher rates of alexithymia in men is that they tend to adopt an extroverted thinking style and pay more attention to external factors rather than internal experiences, rather than due to emotional recognition or expression difficulties. Due to the different manifestations of individuals with alexithymia and aggressive behaviors under varying perceived stress, we integrate perceived stress into our model. Results indicate that perceived stress serves as a mediating factor in the relationship between alexithymia and aggressive behavior. The research provides references for the establishment of a supportive psychological educational environment to reduce the incidence of aggressive behaviors in universities.

Alexithymia exhibits a positive predictive effect on aggressive behavior, a stance supported by

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previous research suggesting a link between alexithymia and the occurrence of aggressive behavior.Individuals with high levels of alexithymia often exhibit more anger and higher levels of trait aggression. They may be confused because of their difficulties in recognizing the source, valence, and intensity of emotional experiences. These internal deficits in emotional distress management may lead to higher levels of externalized behavioral problems[18]. Alexithymia may be a potential mechanism underlying aggression.The General Aggression Model provides a comprehensive theoretical explanation for the relationship between alexithymia and aggressive behavior, emphasizing three key stages in explaining aggressive behavior: person and situational inputs, internal states (cognitive, emotional, physiological arousal,etc.), and the evaluation and decision-making processes[19].The second stage,which involves evaluation and decision-making, is closely related to individual emotions.Psychodynamic theory posits that individuals with high levels of alexithymia have deficits in emotion expression and recognition, leading to a covert state of psychological repression. In an attempt to alleviate psychological repression and seek inner balance, individuals may resort to destructive behaviors such as aggression.The cognitive and affective components of behavioral sequences are fragmented, which impairs the processing of facial expressions and contextual information. Such impairments affect behavioral goals, management, and monitoring, leading to dysfunctional behavior. This pattern is not only evident in adults but also the development of individuals. Scholars argue that all infants harbor a natural inclination towards hostile explanations and impulsive behavior, but accurate recognition and interpretation of others' mental states can help alleviate malignant situations[20]. For example, in awkward or provocative situations, individuals can communicate and resolve problems through emotional expression. However, individuals with alexithymia, unable to recognize and express emotions, tend to define them as distress or anger, which increases the likelihood of aggression.Despite the extroverted thinking characteristics exhibited by individuals with alexithymia, their limited ability to recognize emotions and experience emotional anxiety contributes to lower levels of empathy[21], which aligns with the characteristics of bullies,explaining why the aggressive behavior of individuals with alexithymia cannot be changed by perceiving the pain of the target. From a perspective of social interaction, individuals with alexithymia demonstrate deficiencies in emotional expression and low empathy skills in interpersonal interactions, preventing their establishment of emotional resonance with others and leading to anger or misattribution of emotions. This context also increases the occurrence of aggressive behavior.

4.2 The mediating role of perceived stress

Alexithymia exerts its influence on aggressive behavior through the mediating effect of perceived stress. The general stress theory predicts that children exposed to adverse and traumatic experiences have difficulties in perceiving emotional states and identifying positive coping strategies, leading to an overreliance on hostile and aggressive behavior as a coping mechanism[22].From a longitudinal perspective, the impact is not limited to adulthood but is rooted in early development. Increased exposure to life stressors during early childhood is associated with decreased connectivity between the bilateral amygdala and the medial prefrontal cortex (mPFC), which in turn increases aggressive behavior. Stress induces physiological changes that affect individual behavior, an association observed in adolescents and adults as well.The interaction between aggression and stress may be explained by their joint enhancement of electrical activity in specific brain regions, possibly due to the connection of different neural circuits[23]. Perceived stress serves as a trigger for aggressive behavior, and there is also a link between Alexithymia and perceived stress. The "decoupling hypothesis" proposed by Papciak suggests that individuals with Alexithymia experience a mismatch between physiological arousal and emotional awareness in stress-inducing situations. Psychophysiological evidence further indicates that Alexithymia may lead to biased perception of stress,and a decoupling between physiological and subjective responses to stress. [24]

Alexithymia is associated with significantly increased cortisol levels before, during, and after exposure to stress, indicating an increased anticipatory and recovery responses to stress. The role of Alexithymia in perceived stress mainly manifests through physiological arousal.In the state of Alexithymia, individuals generate physiological responses that form implicit perceived stress, and the first step in dealing with stress—perceiving and wisely acknowledging its full extent[25]—remain absent among individuals with Alexithymia, which results in the failure to assess and ineffective stress alleviation.

In this context, the rate and probability of perceived stress response follow a linear behavioral pattern, resulting in a tendency towards aggression, which indirectly explains the overlapping physiological phenomena of stress and the neural circuits of aggression, supporting the view that

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perceived stress is essentially a non-specific general adaptation syndrome closely linked to the demands of the internal and external environment[26].Perceived stress associated with Alexithymia not only escalates anger and hostility in aggressors but also contributes to the occurrence of different forms of aggression, including physical and verbal aggression.

5. Limitations

The study has certain limitations owing to certain constraints. Firstly, the primary focus of the study is on Alexithymia and its mechanisms. However, Alexithymia serves as a key cross-diagnostic risk factor based on emotional psychopathology. Individuals at high, medium, and low levels may differ in the types of emotion regulation strategies they typically employ. There are differences in behavioral manifestations among individuals with different levels of expressive language disorders, as well as differences in stress perception and aggression tendencies among different populations, but most studies have not differentiated and controlled for these individual differences. Therefore, the study results may not accurately reflect the relationships between different individuals.

Secondly, the use of cross-sectional research methods to study the impact of perceived stress on the relationship between alexithymia and aggressive behavior cannot fully explain the fluctuations in perceived stress that occur as a result of changes in stressors. Future research can employ experimental methods to more clearly demonstrate causal relationships between variables, by manipulating independent variables. In addition, to enhance the validity of relevant research results, longitudinal studies with long-term follow-up or cross-lag designs can be implemented to more comprehensively explore the process of stress perception and identify key transition points within it.

Thirdly, the study was conducted with Chinese university students. Given that perceived stress and aggressive behavior fall within the domain of social psychology, they are subject to influence from cultural and environmental factors, such as different ways of social interaction in different countries and cultural contexts. Consequently, there is a potential for differences in research conclusions. Cross-cultural studies would greatly enhance the robustness and generalizability of research findings.

6. Conclusion

This study examines the relationship among alexithymia, aggressive behavior, and the mediating role of perceived stress in college students. The results indicate a positive correlation between alexithymia and both aggressive behavior and perceived stress. Alexithymia demonstrates a predictive effect on aggressive behavior, with perceived stress serving as a mediating factor. This research contributes to the understanding of aggressive behavior and emphasizes the importance of addressing alexithymia and stress management in intervention measures targeting aggressive behavior in college students. Future studies should explore the longitudinal impact of perceived stress on this relationship and analyze the influence of individual differences among college students from different countries on the research findings, in order to enhance the effectiveness of interventions targeting alexithymia and stress reduction for aggressive behavior.

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References

[1] Anderson, C. A. ,Bushman, B. J.Human Aggression. Annual Review of Psychology. 53,27-51(2002).
[2] Lund, E. M., Ross, S. W. Bullying perpetration, victimization, and demographic differences in college students: A review of the literature. Trauma, Violence & Abuse.18, 348-360 (2016).
[3] Chapell, M., Casey, D., De la Cruz, C., Ferrell, J., Forman, J., Lipkin, R., Newsham, M., Sterling, M., Whittaker, S. Bullying in college by students and teachers. Adolescence. 39, 53-64 (2004).
[4] Hawker, D.S., & Boulton, M.J. Twenty years' research on peer victimization and psychosocial maladjustment: a meta-analytic review of cross-sectional studies. Journal of Child Psychology & Psychiatry & Allied Disciplines. 41, 441-455 (2000).

ISSN 2616-5783 Vol.7, Issue 11: 174-181, DOI: 10.25236/AJHSS.2024.071125

[5] Fossati, A., Acquarini, E., Feeney, J. A., Borroni, S., & Maffei, C. Alexithymia and Attachment Insecurities in Impulsive Aggression. Attachment & Human Development. 11, 165-182 (2009).
[6] Hintistan, S., Nural, N., Kahriman, I., and Cilingir, D. Evaluation of alexithymic features of rheumatoid arthritis patients based on certain variables in turkey. Healthmed. 6, 2080-2087 (2012).
[7] Gillespie, S. M., Garofalo, C., Velotti, P. Emotion regulation, mindfulness, and alexithymia: Specific or general impairments in sexual, violent, and homicide offenders?. Journal of Criminal Justice. 58, 56-66 (2018).
[8] Farah, T., Ling, S.C., Raine, A., Yang, Y.L., & Schug, R. Alexithymia and reactive aggression: The role of the amygdala. Psychiatry Research: Neuroimaging. 281, 85-91 (2018).
[9] Parry, C. L. The nature of the association between male violent offending and alexithymia. Perth: Edith Cowan University (2012).
[10] Reker, M., Ohrmann, P., Rauch, A. V., Kugel, H., Bauer, J., & Dannlowski, U. Individual differences in alexithymia and brain response to masked emotion faces. Cortex. 46, 658-667 (2010).
[11] Sher, L. Primary and secondary resilience to stress-related disorders and suicidal behavior. Australian & New Zealand Journal of Psychiatry. 54, 108 (2020).
[12] Vogel, S., Schwabe, L. Stress, aggression, and the balance of approach and avoidance. Psychoneuroendocrinology. 103, 137-146 (2019).
[13] Bagby, R. M., Taylor, G. J., Parker, J. D. A. The twenty-item toronto alexithymia scale-II. convergent, discriminant, and concurrent validity. Journal of Psychosomatic Research. 38, 33-40 (1994).
[14] Buss, A. H., & Perry, M. The aggression questionnaire. Journal of Personality and Social Psychology. 63(3), 452-459 (1992).
[15] Cohen, S., Kamarck, T., & Mermelstein, R. A global measure of perceived stress. Journal of Health & Social Behavior. 24(4), 385-396 (1983).
[16] Oakley, B. F. M., Jones, E. J. H., Crawley, D., Charman, T., & Loth, E. Alexithymia in autism: cross-sectional and longitudinal associations with social-communication difficulties, anxiety and depression symptoms. Psychological Medicine. 52, 1-13 (2020).
[17] Levant, R. F., Hall, R. J., Williams, C. M., et al. Gender differences in alexithymia. Psychology of Men & Masculinity. 10(3), 190-203 (2009).
[18] Li, X., Li, B., Lu, J., Jin, L., Xue, J., & Che, X. The relationship between alexithymia, hostile attribution bias, and aggression. Personality and Individual Differences. 159, 109869- (2020).
[19] Dewall, C. N., Anderson, C. A., & Bushman, B. J. The general aggression model: theoretical extensions to violence. Psychology of Violence. 1, 245-258 (2011).
[20] Dodge, K. A. Translational science in action: hostile attributional style and the development of aggressive behavior problems. Development and Psychopathology. 18, 791-814 (2006).
[21] Grynberg, D., Luminet, O., Corneille, O., Julie Grèzes, & Berthoz, S. Alexithymia in the interpersonal domain: a general deficit of empathy? Personality and Individual Differences. 49, 845-850 (2010).
[22] Auslander, W., Sterzing, P., Threlfall, J., Gerke, D., & Edmond, T. Childhood abuse and aggression in adolescent girls involved in child welfare: the role of depression and posttraumatic stress. Journal of Child & Adolescent Trauma. 9, 1-10 (2016).
[23] Wommack, J. C., Salinas, A., Melloni, R. H. J., & Delville, Y. Behavioural and neuroendocrine adaptations to repeated stress during puberty in male golden hamsters. Journal of Neuroendocrinology. 16, 767-775 (2004).
[24] Stone, L. A., Nielson, K. A. Intact physiological response to arousal with impaired emotional recognition in alexithymia. Psychotherapy & Psychosomatics, 70, 92-102 (2001).
[25] Eriksson, M., & Mittelmark, M. B. The sense of coherence and its measurement. The Handbook of Salutogenesis, 12, 97-106 (2017).
[26] Wang, M. H. Research on College Life Stress and Adaptation Strategies. Taiwan: Institute of Information Sociology, Yuanzhi University (2007).