



Effect of Childhood Trauma on PTSD and PTG among College Students: The Mediating Role of Attachment

Huijuan Cheng

Research Center for Adolescent Personality and Health,
Institute of Psychology, CAS, Beijing 100101, China;
Department of Psychology, University of Chinese
Academy of Sciences, Beijing 100049, China

Yuqing Zhang*

Research Center for Adolescent Personality and Health,
Institute of Psychology, CAS, Beijing 100101, China

ABSTRACT

This study used CTQ-SF, PLC-C, PTGI and AAS questionnaires to evaluate the mediating role of attachment from childhood trauma to PTSD and PTG among 1421 college students in 5 colleges in a province as subjects. Through correlation analysis by SPSS, structural equation modeling analysis and Bootstrap method by Mplus, the results highlighted that childhood trauma positively predicted PTSD directly and negatively predicted PTG directly. Furthermore, it could negatively predict PTSD and positively predict PTG under the mediation of closeness-dependence, and positively predict PTSD and negatively predict PTG under the mediation of attachment anxiety. Therefore, we concluded that college students' childhood trauma had an important influence on PTSD and PTG, and attachment played a partially mediating effect from childhood trauma to PTSD and PTG. Implications for future research and attachment-based clinical intervention are discussed.

CCS CONCEPTS

• Computing methodologies; • Modeling methodologies;

KEYWORDS

Childhood Trauma, PTSD, PTG, Attachment

ACM Reference Format:

Huijuan Cheng and Yuqing Zhang. 2023. Effect of Childhood Trauma on PTSD and PTG among College Students: The Mediating Role of Attachment. In *2023 the 7th International Conference on Medical and Health Informatics (ICMHI) (ICMHI 2023)*, May 12–14, 2023, Kyoto, Japan. ACM, New York, NY, USA, 5 pages. <https://doi.org/10.1145/3608298.3608358>

1 INTRODUCTION

Abuse or neglect from parents or significant others during childhood can result in childhood trauma. It includes sexual abuse, emotional abuse, physical abuse, emotional neglect and physical neglect [1]. People who have experienced childhood trauma have different post-traumatic outcomes. Some people show post-traumatic stress

disorder symptoms which are abbreviated as PTSD. According to DSM-IV, PTSD is a delayed reaction resulting from an individual's exposure to a major life traumatic event. The symptoms include re-experiencing of the traumatic event in the brain, emotional numbing or avoidance and heightened alertness. It's usually accompanied by impairment in social functioning [2]. In the contrary, others acquire post-traumatic growth which is abbreviated as PTG. It means that people undergo a positive psychological change after struggling with a traumatic event. They become stronger, more optimistic and compassionate. They could understand others better than before and keep better relationship with others. Meanwhile, their resilience could also go beyond before the traumatic event [3]. For these people who experienced childhood trauma but obtained different post-traumatic outcomes, it is necessary to understand the regularities and differences in order to help more people obtain PTG and reduce PTSD symptoms.

People who have experienced trauma often need attachment most which they also fear most [4]. Attachment is a special kind of emotional connection between the caregiver and the child. As children grow up to be adults, they can easily present attachment behaviors under the right conditions. Especially when they experience setbacks and traumas again, they have an inner desire to have a holding environment and look for closeness and dependence. Adult attachment is the adult's recollection, reproduction and the current evaluation of his or her childhood attachment experiences [5]. Therefore, attachment experiences in childhood often influence their attachment behaviors in adults. College students are at an important stage in the development of intimate relationships which are shown by attachment behaviors. How to repair the relationship traumas they have encountered in childhood and fulfil the relationship tasks of the stage? That's an important question for all practitioners in the field of physical and psychological health.

In the previous studies of childhood trauma, PTSD and PTG, Gao et al. (2020) found that PTSD level were significantly higher among people with childhood trauma experiences than without. Childhood trauma were significantly and positively associated with PTSD. The risk factors for PTSD were emotional abuse and physical neglect of childhood trauma [6]. In a study of 663 freshmen with childhood trauma experience in an independent institution, Ding et al. (2019) found that college students with childhood trauma had moderate to high levels of growth. Childhood trauma and PTG had a significant negative correlation [7]. But Alisic et al. (2008) concluded that the higher the level of trauma, the higher the level of PTG [8]. Furthermore, Nelson et al. (2019) reported that trauma didn't have significant effect on PTG [9].

*Place the footnote text for the author (if applicable) here.

Permission to make digital or hard copies of all or part of this work for personal or classroom use is granted without fee provided that copies are not made or distributed for profit or commercial advantage and that copies bear this notice and the full citation on the first page. Copyrights for components of this work owned by others than the author(s) must be honored. Abstracting with credit is permitted. To copy otherwise, or republish, to post on servers or to redistribute to lists, requires prior specific permission and/or a fee. Request permissions from permissions@acm.org.
ICMHI 2023, May 12–14, 2023, Kyoto, Japan

© 2023 Copyright held by the owner/author(s). Publication rights licensed to ACM.
ACM ISBN 979-8-4007-0071-2/23/05...\$15.00
<https://doi.org/10.1145/3608298.3608358>

Mikulincer et al. (2007) found that attachment highly influenced people how to understand traumatic events which happened to them [10]. Another study found that attachment style influenced adults how to express and response to trauma. It also effected the development of PTSD symptoms. Secure attachment was medium correlated with lower PTSD while insecure attachment was medium correlated with higher PTSD. But there was not significantly association between dismissing attachment and PTSD symptoms [11]. In the contrary, Karatzias et al. (2022) found that both fearful and secure attachment were not significantly correlated with PTSD. But dismissing attachment was significantly correlated with PTSD [12].

Nelson et al. (2019) revealed that attachment was significantly associated with PTG [9]. A meta-analytic review wrote by Gleeson et al. (2021) found secure attachment was significantly positively associated with PTG while dismissing attachment was significantly negatively correlated with PTG. Preoccupied attachment wasn't significantly correlated with PTG [13]. However, Campodonico et al. (2021) showed that attachment wasn't associated with PTSD and PTG [14].

As there were inconsistencies in the previous studies and limited studies concerning the different outcomes of childhood trauma among college students from an attachment perspective, we attempted to evaluate the mediating impact of attachment between childhood trauma, PTSD and PTG in this study. It not only combines trauma theory and attachment theory to break the existing theoretical limitations, but also provides support and intervention directions to practitioners who work with college students with childhood trauma in clinical practice.

2 METHODS

2.1 Participants

1722 college students from five colleges in A province were recruited. The web link and QR code of the questionnaire star were sent directly to the students with informed consent for online answering through the help of related department of five colleges. 1421 valid questionnaires were obtained with an efficiency rate of 82.6%. These 1421 students were selected as the subjects of this study. 415 were male and 1006 were female. There were 822 students whose primary caregivers were parents, 562 were grandparents, 3 with babysitters and 34 with others. 145 students were living in single-parent families while 1276 in non-single-parent families. 9 students were in wealthy families, 1170 in average families and 242 in poor families.

2.2 Measures

2.2.1 Childhood Trauma Questionnaire, Short Form (CTQ-SF). We use CTQ-SF developed by Bernstein and Fink [15] and translated by Zhao et al. [16]. The scale has 28 entries. It's divided into 5 subscales: sexual abuse, emotional abuse, physical abuse, emotional neglect and physical neglect. Each subscale has 5 entries. There are 3 additional entries as validity ratings. Each entry is rated on a Likert scale of 1 (never) to 5 (often). The internal consistency in the present sample was good, with Cronbach's $\alpha = 0.671$.

2.2.2 Posttraumatic Stress Disorder Checklist - Civilian Version (PCL-C). We use PCL-C developed by Weathers et al. [17] and

translated by Jiang Chao et al. The scale has 17 entries. It's divided into re-experiencing (5 entries), avoidance (7 entries) and hypervigilance (5 entries). Each entry is rated on a Likert scale of 1 (not at all) to 5 (extremely). The reliability of the total PTSD scores in this study was high, with Cronbach's $\alpha = 0.905$.

2.2.3 Post-Traumatic Growth Inventory (PTGI). We use PTGI developed by Tedeschi et al. [3] and translated by Geng et al. [18]. The scale has 21 entries. It's divided into interpersonal relationships (7 entries), new possibilities (5 entries), personal strength (4 entries), spiritual change (2 entries) and appreciation of life (3 entries). The scale is rated on a Likert scale of 0 (not at all) to 5 (very much). The research has a high internal consistency with Cronbach's $\alpha = 0.916$.

2.2.4 Adult Attachment Scale (AAS). We use AAS developed by Collins et al. [19] and translated by Wu et al. [20]. The scale has 18 entries. It's divided into three subscales of closeness, dependence and anxiety with six entries each. Each entry is rated on a Likert scale of 1 (not at all) to 5 (fully). Closeness and dependence can be combined as Closeness-Dependence (CD) dimension while anxiety is named separately as Attachment Anxiety (AA) dimension. The Cronbach's α of Closeness-Dependence and Attachment Anxiety in this study were 0.683 and 0.845 respectively.

2.3 Data analysis

We analyzed the data using SPSS 25.0 and Mplus 8.0. Firstly, we examined the mean scores of each variable by descriptive statistics. Secondly, we checked the correlation between childhood trauma, closeness-dependence, attachment anxiety, PTSD and PTG by correlation analysis. Finally, we assessed the mediating role of closeness-dependence and attachment anxiety from childhood trauma to PTSD and PTG by structural equation modeling analysis. Meanwhile, we evaluated good model fit indexes by the criteria of CFI and TLI greater than 0.90 and RMSEA less than 0.08.

3 RESULTS

3.1 Descriptive statistics and correlation analysis

Pearson correlation in SPSS software was used to calculate the correlation among childhood trauma, adult attachment, PTSD and PTG. The correlation analysis results of each variable are shown in Table 1. It indicated that childhood trauma, attachment, PTSD and PTG were significantly correlated.

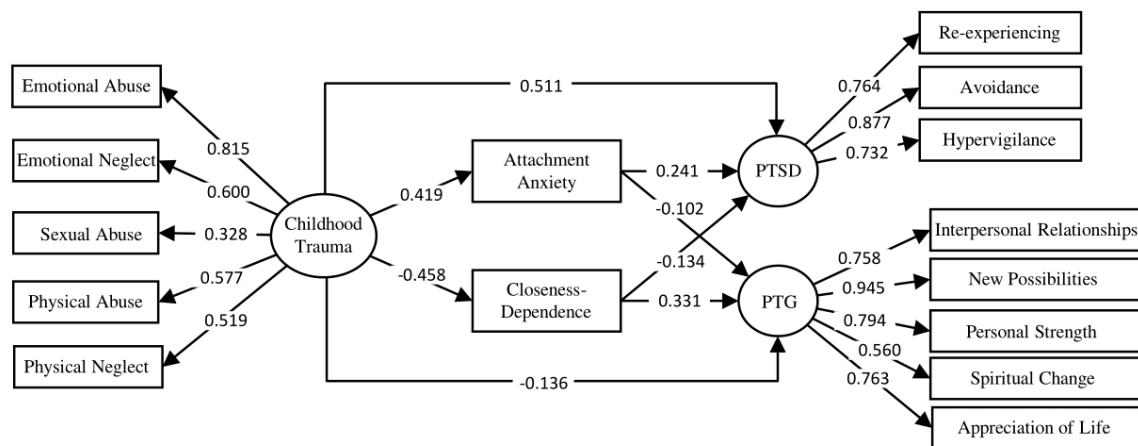
3.2 Structural equation modeling analysis

Based on the existing theoretical basis, the initial model was established. We analyzed the model's fit indexes with actual data by Mplus 8.0. After running the calculation, it showed that the initial model fit was fair, but further corrections were needed. When checking all MI, it revealed that the MI between closeness-dependence and attachment anxiety was the largest one which was 256.335. It indicated that χ^2 would decrease significantly after adding this correlated path. According to the theoretical analysis, people always feel anxious when they have difficulty in keeping close with others or depending on others. It means that there might be a correlation

Table 1: The correlation between variants

Variant	M±SD	1	2	3	4	5
1. Childhood Trauma	36.67±8.55	-				
2. Attachment Anxiety	2.87±0.85	0.36**	-			
3. Closeness-Dependence	3.29±0.51	-0.44**	-0.55**	-		
4. PTSD	29.62±9.11	0.53**	0.50**	-0.46**	-	
5. PTG	59.52±15.55	-0.35**	-0.33**	0.48**	-0.31**	-

Note: ** $p < 0.001$

**Figure 1: A parallel multiple mediation model of childhood trauma, attachment, PTSD and PTG**

between their residuals. After observing and modifying the model by several times, we added the correlation paths between PN and EN of CTQ-SF, spiritual change and appreciation of life, spiritual change and new possibilities for PTGI scale. The revised model was finally obtained. The fitting indexes were also improved greatly (CFI = 0.927, TLI = 0.904, RMSEA = 0.079). It indicated that the model was acceptable.

Before adding attachment in the model, the total effect of childhood trauma on PTSD was 0.674. It's changed to 0.511 after adding. And it's -0.330 which was changed to -0.136 for PTG. Both differences were statistically significant ($p < 0.001$).

The modified model is shown in Figure 1. By analyzing each pathway in the model, it indicated that childhood trauma could positively predict PTSD directly and significantly ($\beta = 0.511$, $p < 0.001$) and negatively predict PTG directly and significantly ($\beta = -0.136$, $p < 0.001$). Childhood trauma could positively predict attachment anxiety significantly ($\beta = 0.419$, $p < 0.001$) and negatively predict closeness-dependence significantly ($\beta = -0.458$, $p < 0.001$). Attachment anxiety positively predicted PTSD significantly ($\beta = 0.241$, $p < 0.001$) and negatively predicted PTG significantly ($\beta = -0.102$, $p < 0.01$). Closeness-dependence could negatively predict PTSD significantly ($\beta = -0.134$, $p < 0.001$) and positively predicted PTG significantly ($\beta = 0.331$, $p < 0.001$).

To further test the significance of the mediated pathway, we used Bootstrap method to sample 5000 times for calculation. The results were shown in Table 2. The 95% confidence intervals of all above mediation effects didn't contain 0 and $p < 0.01$. It indicated that the above mediation effects held. Closeness-dependence and attachment anxiety played a partially mediation effect from childhood trauma to PTSD and PTG.

4 DISCUSSION

We investigated the mediating effect of attachment from childhood trauma to PTSD and PTG among college students using CTQ-SF, PLC-C, PTGI and AAS questionnaires in this study. We found that childhood trauma could positively predict PTSD directly and negatively predict PTG directly. Furthermore, childhood trauma could negatively predict PTSD and positively predict PTG under the mediation of closeness-dependence and positively predict PTSD and negatively predict PTG under the mediation of attachment anxiety.

The first result showed that childhood trauma significantly predicted PTSD positively and PTG negatively. It indicated that people who have experienced trauma as children probably suffer from PTSD and have less PTG. People with high levels of childhood trauma are usually more likely to have a sense of loneliness, rejection, helplessness, self-doubt and unloved feelings in relationships.

Table 2: Mediation effect with bootstrap method

Path	S.E. of Indirect Effect	95% Confidence Intervals	
		Lower 2.5%	Upper 2.5%
Childhood Trauma → Attachment Anxiety → PTSD	0.101	0.077	0.128
Childhood Trauma → Closeness-Dependence → PTSD	0.061	0.032	0.090
Childhood Trauma → Attachment Anxiety → PTG	-0.043	-0.072	-0.013
Childhood Trauma → Closeness-Dependence → PTG	-0.151	-0.191	-0.119

It makes them prone to avoid interpersonal relationships or be more sensitive to the reactions of others. It might provoke their early traumatic memories and presented PTSD symptoms [21][22]. People with low levels of childhood trauma are less prone to be so afraid of some fears inspired by future dilemmas after they have experienced feelings of trauma and stress. Some of them are more resilient than before and presented PTG [3].

This result was consistent with previous studies which assessed post-traumatic outcomes [3][6][7][23]. But we assessed both of PTSD and PTG in the same big data group. PTSD and PTG, as two major and relatively opposite post-traumatic reactions, are studied together in a comparative manner to facilitate both the accuracy of the results and the identification of new problems. It also indicated that childhood trauma among college students, as measured by the CTQ-SF questionnaire, significantly predicted PTSD positively and PTG negatively.

The second result showed that childhood trauma predicted PTSD negatively and predicted PTG positively under the mediating role of closeness-dependence and predicted PTSD positively and predicted PTG negatively under the mediating role of attachment anxiety. It means that higher levels of closeness-dependence in childhood traumatized individuals are more likely to present low PTSD and high PTG while high PTSD and low PTG are more common in childhood traumatized individuals with high attachment anxiety. People who have experienced childhood trauma crave the support and help from others. When they feel comfortable in the process of being with these people and think that they are trustworthy and can be relied on, it will bring opportunities of change in their interpersonal relationships, generating some spiritual changes and new possibilities. It will also make them trust their own motivating power more than before. This allows them to start appreciating life and healing more easily which indicates low PTSD and high PTG [10][11][24][25]. However, if they feel that they are unloved by others who seem give up helping them when they seek help, they would be more likely to anxious and be more alert to others, showing avoidance behaviors and closing themselves off in their own world. It may affect their interpersonal relationships. It's hard to make new possibilities and get psychological change to childhood trauma which proved high PTSD and low PTG [10][11][24][26].

This result was similar to the primary findings [9][10][14]. Our study was unique because we used college students as subjects and indicated parallel multiple mediation effects of closeness-dependence and attachment anxiety from childhood trauma to PTSD and PTG by structural equation model. It combines trauma theory and attachment theory which enriches the exploration of trauma's effects on PTSD and PTG with theoretical implications.

4.1 Limitations and future research

This study has some limitations. Firstly, our sample only included college students who volunteered to participate and it might not represent all college students. Secondly, due to retrospective self-report for CTQ-SF, the results were easily influenced by children's perceptions at the time when trauma happened. They might take the imagination as the real event. Their memories and emotion when filling out the questionnaire might also influence the results. Thirdly, it's a cross-sectional quantitative study and the results could not be used to determine impact direction between attachment and post-traumatic outcomes. Lastly, lacking intervention experiment and a control group are also limitations for our study. Therefore, In the future, we will use qualitative study to get a deeper understanding of individuals' experiences and psychological process after childhood trauma event to learn more how PTSD and PTG happened. Meanwhile, we suggest future research could focus on clinical intervention to verify these findings by doing control group experiments. And a longitudinal study would better reveal the long-term effects of childhood trauma.

4.2 Clinical implications

Good therapists do similar things to their patients to what successful parents do to their children [27]. Childhood abuse and neglect by attachment subjects, such as parents, often destroy children's inner sense of security and make them become insecure adult attachment to others. But the attachment relationship can be a situation [4]. Childhood trauma could still be healed in a new relationship. The counselor, as a new attachment subject, provides a safe and supportive environment for the visitors who have experienced childhood trauma. Furthermore, counselors form a good therapeutic alliance with visitors, pay attention to treatment frame and boundaries, and doing a lot of work about dissociation and reenactments [28]. It can enable the visitors to develop new inner working patterns, establish a relationship of trust and safety in counseling, form a new attachment style and change their behaviors in their lives. In the end, it brings low PTSD and high PTG to those people with childhood trauma experiences.

5 CONCLUSION

Some people show PTSD while others show PTG after experiencing childhood trauma. To reduce the level of PTSD, increase the level of PTG effectively and promote their psychological health development, our study indicated the mediating effect of attachment from childhood trauma to PTSD and PTG among college students through correlation analysis, structural equation modeling analysis and Bootstrap test method of mediation effect. The results found

that childhood trauma significantly impacted PTSD and PTG. In addition, it showed that closeness-dependence and attachment anxiety made a parallel multiple mediation effect from childhood trauma to PTSD and PTG. This parallel multiple mediation model provides clinical support and theoretical rationale for reducing PTSD and increasing PTG among college students. It provides important value for promoting college students' psychological health.

REFERENCES

- [1] World Health Organization (WHO). Report of the Consultation on Child Abuse Prevention [R]. Geneva: WHO, 1999: 29-31.
- [2] Davidson, J. R., & Foa, E. B. (1991). Diagnostic issues in posttraumatic stress disorder: considerations for the DSM-IV. *Journal of Abnormal Psychology*, 100(3), 346.
- [3] Tedeschi, R. G., & Calhoun, L. G. (1996). The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of traumatic stress*, 9, 455-471.
- [4] Allen, J. G. (2018). Mentalizing in the development and treatment of attachment trauma[M]. Routledge.
- [5] Ni, Y. J., Zhao, B. J. (2012). A study on the relationship between adult attachment and childhood experiences among college students. *Journal of Chongqing Three Gorges College*, 28(2): 139-142.
- [6] Gao, Y. Y., Zhang Y. Q., Chen, S. F., Liu N. L., Liu T., He, Q. Q., & Tao Y. C. (2020). A study on the relationship between childhood maltreatment and posttraumatic stress disorder in sixth grade students. *Injury medicine (electronic version)*, 9 (1), 16-21
- [7] Ding, Y. P., Gu H., & Xu, Y. Y. (2019). Post-traumatic growth of college students with childhood trauma and its relationship with personality. *Journal of Guizhou Normal University*, 35 (12), 33-37
- [8] Alisic, E., Van der Schoot, T. A., van Ginkel, J. R., & Kleber, R. J. (2008). Looking beyond posttraumatic stress disorder in children: Posttraumatic stress reactions, posttraumatic growth, and quality of life in a general population sample. *Journal of Clinical Psychiatry*, 69(9), 1455-1461.
- [9] Nelson, K. M., Hagedorn, W. B., & Lambie, G. W. (2019). Influence of attachment style on sexual abuse survivors' posttraumatic growth. *Journal of Counseling & Development*, 97(3), 227-237.
- [10] Mikulincer, M., Shaver, P. R., & Solomon, Z. (2015). An attachment perspective on traumatic and posttraumatic reactions. *Future directions in post-traumatic stress disorder: Prevention, diagnosis, and treatment*, 79-96.
- [11] Woodhouse, S., Ayers, S., & Field, A. P. (2015). The relationship between adult attachment style and post-traumatic stress symptoms: A meta-analysis. *Journal of anxiety disorders*, 35, 103-117.
- [12] Karatzias, T., Shevlin, M., Ford, J. D., Fyvie, C., Grandison, G., Hyland, P., & Cloitre, M. (2022). Childhood trauma, attachment orientation, and complex PTSD (CPTSD) symptoms in a clinical sample: Implications for treatment. *Development and Psychopathology*, 34(3), 1192-1197.
- [13] Gleeson, A., Curran, D., Reeves, R., J Dorahy, M., & Hanna, D. (2021). A meta-analytic review of the relationship between attachment styles and posttraumatic growth. *Journal of Clinical Psychology*, 77(7), 1521-1536.
- [14] Campodonico, C., Berry, K., Haddock, G., & Varese, F. (2021). Protective factors associated with post-traumatic outcomes in individuals with experiences of psychosis. *Frontiers in psychiatry*, 2164.
- [15] Bernstein, D.P., & Fink, L. (1998). *Childhood Trauma Questionnaire: A retrospective self-report questionnaire and manual*. San Antonio: TX Psychological Corp.
- [16] Zhao, X.F., Zhang, Y. L., Li, L. F., Zhou, Y. F., Li, H. Z., & Yang, S. C. (2005). Reliability and validity of the Chinese version of the Childhood Trauma Questionnaire[J]. *Chinese Journal of Clinical Rehabilitation*, 9(20): 105.
- [17] Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, October). The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility. In *annual convention of the international society for traumatic stress studies*, San Antonio, TX (Vol. 462).
- [18] Geng, Y. Q., Xu, Q., Liu, H. X., Xu, X. L. (2011). Reliability and validity analysis of the Chinese version of Posttraumatic Growth Inventory in survivors of multiple injuries. *Chinese Journal of Nursing*, 46(10): 1003-1005.
- [19] Collins, N. L., & Read, S. J. (1990). Adult attachment, working models, and relationship quality in dating couples. *Journal of personality and social psychology*, 58(4), 644.
- [20] Wu, W. L., Zhang, W., Liu, X. H. (2004). The reliability and validity of the Adult Attachment Scale (AAS - 1996 Revision) in China. *Journal of Sichuan University: Medical Edition*, 35 (4), 536-538
- [21] Doba, K., Saloppé, X., Choukri, F., & Nandrin, J. L. (2022). Childhood trauma and posttraumatic stress symptoms in adolescents and young adults: The mediating role of mentalizing and emotion regulation strategies. *Child Abuse & Neglect*, 132, 105815.
- [22] Wiseman, H., Hamilton-Giachritsis, C., & Hiller, R. M. (2021). The relevance of cognitive behavioral models of post-traumatic stress following child maltreatment: a systematic review. *Trauma, Violence, & Abuse*, 22(1), 191-206.
- [23] Adams, J., Mrug, S., & Knight, D. C. (2018). Characteristics of child physical and sexual abuse as predictors of psychopathology. *Child abuse & neglect*, 86, 167-177.
- [24] Collins, N. L. (1996). Working models of attachment: Implications for explanation, emotion, and behavior. *Journal of personality and social psychology*, 71(4), 810.
- [25] Ensink, K., Fonagy, P., Normandin, L., Rozenberg, A., Marquez, C., Godbout, N., & Borelli, J. L. (2021). Post-traumatic stress disorder in sexually abused children: secure attachment as a protective factor. *Frontiers in psychology*, 12, 646680.
- [26] Barazzone, N., Santos, I., McGowan, J., & Donaghay-Spire, E. (2019). The links between adult attachment and post-traumatic stress: A systematic review. *Psychology and psychotherapy: theory, research and practice*, 92(1), 131-147.
- [27] Holmes, J. (2017). Attachment, Psychoanalysis, and the search for a 21st-century psychotherapy practice. *Psychoanalytic Inquiry*, 37(5), 309-318.
- [28] Pearlman, L. A., & Courtois, C. A. (2005). Clinical applications of the attachment framework: Relational treatment of complex trauma. *Journal of Traumatic Stress: Official Publication of The International Society for Traumatic Stress Studies*, 18(5), 449-459.