

Childhood Trauma: Effects on Adolescents' Mental Health

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Abstract: Developmental psychopathology theory and biosocial theory explain how traumatic childhood trauma impact and translate into adolescent mental health problems from a sociocultural perspective. Adolescents who have been exposed to childhood trauma are often profoundly affected in their psychological developmental trajectory, developing a range of complex emotions and behaviors such as insecure attachments, diminished emotional regulation, dysphoria, and susceptibility to anger expression, which ultimately lead to mental health problems such as depression, social anxiety, non-suicidal self-injurious behaviors, and aggressive behaviors. In recent years, a large number of studies have been conducted to verify the relationship between childhood trauma and these mental health problems and the formation mechanism of these problems, and have achieved fruitful results. Future research should focus on the diversity of experimental groups, the combination of relevant design and experimental research to explore the causal relationship between the two, as well as research on childhood trauma from the perspective of prevention and intervention.

1. Introduction

Childhood trauma typically refers to behaviors perpetrated by caregivers or guardians towards individuals before the age of 16, which are detrimental to their physical and psychological well-being. These behaviors encompass five forms: physical abuse, emotional abuse, sexual abuse, physical neglect, and emotional neglect[1]. However, due to differences in research subjects, various researchers may have distinct age ranges defined for childhood. Childhood trauma encompasses diverse categories such as sexual abuse, physical abuse, emotional abuse, physical neglect, and emotional neglect. Specifically, sexual abuse typically involves sexual contact or behavior between a child and an adult or someone at least five years older. Physical abuse refers to the risk of harm or actual harm caused by physical attacks perpetrated by adults or older individuals towards children. Emotional abuse involves verbal assaults, any form of humiliation, or behaviors that undermine a child's personality by adults or older individuals. Physical neglect occurs when guardians fail to meet the basic physical needs of children, while emotional neglect arises when guardians neglect to fulfill the fundamental emotional and psychological requirements of children.

The Report on the Development of Chinese National Mental Health has pointed out that adolescence is a period of high incidence of mental health issues, and it is essential to prioritize the mental well-being of adolescents. According to research statistics, 10% to 30% of children

worldwide report experiencing at least one form of childhood trauma. A study involving 4,360 Chinese students as subjects revealed that the proportions of those who had experienced emotional neglect, emotional abuse, physical abuse, physical neglect, and sexual abuse during childhood were 60.0%, 78.6%, 14.2%, 13.0%, and 16.1%, respectively[2]. Childhood trauma not only causes direct harm to children at the time of occurrence, but it also affects their long-term physical and mental development, serving as a risk factor for mental health issues among adolescents. Therefore, this article primarily reviews the impact of childhood trauma on the mental health of adolescents, aiming to integrate relevant psychological factors and gain a deeper understanding of their mechanisms of action, thus providing new directions for subsequent psychological treatments and interventions.

Childhood trauma is a prevalent adverse experience in individual development. Multiple studies reveal that most high school students have encountered some form of childhood abuse[3]. These experiences range from physical and emotional abuse to sexual abuse. Notably, repeated abuse is common, with female gender and being an only child offering protection from severe physical abuse, while children from single-parent families or with absent parents are more vulnerable. Scholars have examined the deleterious effects of childhood trauma, demonstrating its impact on brain development and subsequent mental health issues like depression and anxiety. Childhood psychological trauma is also associated with deliberate self-harm among women and other mental health problems. Complex traumas, such as long-term interpersonal trauma, can negatively affect children's brain development, leading to cognitive and neuropsychological deficits[4]. Interventions, including community support and psychodrama, have shown promising results in helping traumatized individuals.

2. The impact of childhood trauma on adolescent mental health

A large number of studies have shown that childhood trauma adversely affects the health of adolescents, including depression, social anxiety, non-suicidal NSSI, and aggressive behavior.

2.1 Depression

Depression, referring to the psychological state of feeling oppressed and sad, is a typical negative emotional experience that can develop into depression in severe cases[5]. Multiple studies have shown that childhood trauma is a significant risk factor for the occurrence of depression in adolescents, accounting for up to 54% of depression risk attribution. Individuals who have experienced childhood trauma are more likely to form insecure attachment styles, thereby significantly increasing the risk of developing depression. Empirical research further suggests that individuals who have experienced childhood trauma are twice as likely to develop major depression as those who have no. The occurrence of depression in adolescents is closely related to the family environment, especially family factors such as emotional and physical abuse[6]. Patients with depression accompanied by childhood trauma have abnormal structures and functions in brain regions such as the hippocampus and amygdala, which may lead to negative memory biases and thus increase the risk of depression. Compared with adolescent patients with depression who have no history of trauma, those with trauma experience have more severe depressive symptoms at onset and slower recovery after psychological treatment. There are differences in the impact of different types of childhood trauma on depression. For example, sexual abuse not only leads to earlier and longer onset of the disease, but is also associated with more depressive symptoms and suicidal thoughts. Physical, emotional abuse, and neglect are all associated with the onset of depressive disorders, with neglect and emotional abuse having the closest relationship with depression. Adolescents who have suffered neglect and emotional abuse have a higher risk of anxiety and

depressive episodes compared to normal individuals. In summary, childhood trauma is an important family risk factor for depression, and its mechanism deserves further investigation.

2.2 Social anxiety

Social anxiety refers to the anxiety experienced by an individual when their socialization process does not align with predetermined social roles and behaviors, primarily manifesting as fear, anxiety, and tension during interpersonal interactions[7]. Numerous studies have established a close link between childhood trauma and social anxiety in non-clinically distressed individuals, with those who have experienced childhood trauma reporting higher levels of social anxiety. Attachment theory suggests that individuals who have been separated from their parents or experienced various traumatic experiences (such as violence) are more likely to develop insecure attachment patterns[8]. People who lack a sense of security are more prone to anxiety and avoidance in interpersonal relationships. Childhood trauma can lead to negative attachment patterns, which can increase susceptibility to interpersonal judgment, potentially resulting in excessive avoidance behaviors and accompanying negative emotional symptoms such as anxiety and interpersonal difficulties in later social environments. In more severe cases, this can manifest as social anxiety and depression. Based on cognitive-behavioral theory of social anxiety and attachment theory, negative experiences within parent-child relationships may serve as risk factors for later maladjustment. Individuals affected by negative parent-child relationships may internalize these negative experiences into their views of themselves and others[9]. When children are exposed to violence for extended periods, their physiological, psychological, and emotional balance is disrupted, and a sense of learned helplessness gradually increases. This forces them to abandon their original, correct cognitive patterns and adopt irrational ones to help reduce internal anxiety and fear. If these erroneous beliefs are not corrected, they can lead to adaptive problems such as social anxiety and social difficulties. Childhood parenting styles and traumatic experiences have profound impacts on an individual's interpersonal relationships. These experiences can lead to the formation of incorrect cognitive patterns and psychological states, ultimately triggering social anxiety.

2.3 Non-suicide self-injury behaviors

Non-suicide self-injury (NSSI) refers to the intentional and repeated alteration or harm to one's own body tissues in the absence of explicit suicidal intent. The physiological/biological model summarizes the potential biological factors underlying self-harm behaviors among adolescents, emphasizing the biological vulnerability of NSSI, which may be triggered by early risk factors such as childhood trauma[10]. The developmental psychopathology model constructs a pathway from childhood trauma to NSSI, providing an important framework for understanding this behavioral mechanism[11]. The biosocial theory suggests that an ineffective family environment during childhood can affect the development of emotional regulation skills, increasing the risk of future self-harm[12]. The motivational-volitional stage model[12] identifies external influencing factors that contribute to self-harm behaviors in adolescents, emphasizing the role of adverse life events as potential external triggers for NSSI[13]. The integrated model also maintains that childhood trauma can lead to problems in emotional regulation and interpersonal communication, ultimately triggering NSSI. Empirical studies have also demonstrated that childhood trauma experiences are significant risk factors for the occurrence of NSSI. Adolescents, as a high-risk group, exhibit a strong correlation between self-harm behaviors and childhood trauma experiences. Specifically, sexual abuse during childhood increases the risk of NSSI in adolescents. In summary, childhood trauma experiences are important risk factors for the occurrence of NSSI in individuals, and further research is needed to investigate their underlying mechanisms to provide effective intervention

measures.

2.4 Aggressive Behavior

Aggressive behavior refers to the intentional infliction of harm on others in various forms, including physical violence, verbal threats, intimidation, and bullying. With the advancement of neuroscientific techniques, it has been suggested that the relationship between childhood trauma and aggressive behavior may be linked to brain mechanisms. Studies have found that childhood trauma can lead to abnormal changes in the structure and function of brain regions such as the prefrontal cortex and cingulate gyrus, thereby increasing the risk of adolescents exhibiting aggressive behavior. The social-biological model theory emphasizes that the impact of childhood trauma is multi-level and multi-dimensional, involving social, emotional, cognitive, and physiological aspects of the individual. Some studies have found that adolescents with childhood trauma experiences are more likely to process social information negatively, such as paying excessive attention to negative information and being more sensitive to negative emotions and expressions. This negative cognitive bias may increase their likelihood of exhibiting aggressive behavior. Additionally, childhood trauma can affect adolescents' emotional regulation abilities, making it more difficult for them to adapt to stress and negative emotions, further increasing the risk of displaying aggressive behavior. According to the I3 theory of aggressive behaviour[14], individual aggression is influenced by instigation, impairment-provoking events, and inhibition. Childhood trauma experiences expose individuals to chronic stress environments, and traits such as hostility biases triggered by these experiences can serve as instigating factors, thereby promoting aggressive behavior. Numerous studies have explored the relationship between childhood trauma and aggressive behavior. For instance, Whitfield et al. (2016) found that children who experience physical abuse are more likely to exhibit aggressive behaviors, including physical and verbal aggression. Additionally, other studies have shown that childhood trauma experiences such as sexual abuse and emotional neglect can also lead to aggressive behavior in children. According to the frustration-aggression hypothesis[14], frustration serves as a harmful stimulus that can lead to aggressive behavior. Individuals who have experienced childhood trauma are more likely to have accumulated frustration experiences compared to those without such trauma, which may also contribute to their aggressive behaviors. In summary, there is a close relationship between childhood trauma and aggressive behavior in adolescents. Childhood trauma not only causes long-term psychological trauma to children but may also lead to the exhibition of increasingly problematic behaviors, including aggression, during their development.

3. Mechanisms underlying the impact of childhood trauma on adolescent mental health

Theoretical frameworks of developmental psychopathology and biosocial theory provide crucial perspectives for understanding how childhood trauma contributes to mental health issues in adolescents. Firstly, the developmental psychopathology theory suggests that individuals encounter various setbacks and traumas throughout their development, which may give rise to psychological problems. During childhood, when the brain is still in the process of maturing, children possess limited cognitive, emotional, and behavioral control abilities, rendering them more susceptible to the effects of trauma. For instance, children who have experienced long-term abuse, neglect, or domestic violence may develop insecure attachment relationships, thereby compromising their self-esteem, trust, and emotional regulation skills. Consequently, this can heighten the risk of developing mental health issues during adolescence. The biosocial theory, on the other hand, emphasizes the interplay between biological factors and social environmental factors. Childhood trauma can trigger stress responses in the body and brain, leading to prolonged states of tension and

stress, which can affect the secretion of neurotransmitters and hormones. Such physiological changes can impact the development of brain structures and neural networks, subsequently influencing an individual's cognitive, emotional, and behavioral development[15]. Additionally, traumatic experiences may weaken immune system functions, increasing individuals' vulnerability to mental health issues. Adolescents who have experienced childhood trauma, such as physical and emotional abuse and neglect, may often find themselves in angry states. These traumatic experiences gradually shape their cognitive patterns in understanding the world, making them more prone to capturing negative information and generating negative interpretations and evaluations, further intensifying angry emotions. Consequently, this may lead to the emergence of negative emotions and behaviors. Notably, a range of mediating variables, such as attachment styles, emotional regulation, alexithymia, and anger expression, play pivotal roles in this process. In conclusion, the mechanisms underlying the impact of childhood trauma on adolescent mental health are complex and multifaceted, involving interactions among psychological, social, and biological factors. Understanding these mechanisms is crucial for identifying and intervening with adolescents who have experienced childhood trauma, thereby promoting their mental health development. Therefore, timely and comprehensive psychological and social support should be provided to these adolescents to help them establish healthy coping strategies and emotional regulation techniques, thus reducing the risk of mental health issues.

Multiple studies have focused on the mediating roles of insecure attachment and alexithymia. Earlier research confirmed a positive correlation between childhood trauma and insecure attachment, with individuals exhibiting insecure attachment being more prone to issues such as aggressive behavior. Attachment theory[16] suggests that memories and relationships between individuals and their primary caregivers in early childhood shape an internal working model, which impacts intimate relationships and attachment levels. Prolonged childhood trauma, including emotional abuse and neglect, can lead junior high school students to distrust their parents and close relationship partners, fostering a sense of alienation and developing negative internal working models. These models provide a stable negative pattern for future interactions, reducing attachment security and undermining the establishment of secure attachment relationships. Childhood trauma is a predictor of alexithymia, and numerous studies have shown that childhood trauma affects the development of alexithymia. Problematic parent-child relationships and emotional neglect can influence alexithymia development through insecure attachment styles and deficits in emotion regulation. Research indicates that childhood trauma increases sensitivity to emotional conflict and affects individuals' emotional regulation strategies[17]. High alexithymia is associated with emotional dysregulation and reduced adaptive coping behaviors. For instance, alexithymia patients are more likely to use suppression strategies rather than cognitive reappraisal strategies compared to non-alexithymia individuals. Suppression strategies have been linked to greater psychological and physical health issues. Previous studies have found that alexithymia's inability to identify and describe emotional dimensions mediates the relationship between childhood trauma and a range of psychological disorders, including mood disorders, post-traumatic stress disorder, and personality disorders.

Current research on the mediating role of emotion regulation and anger expression is limited. However, recent studies have confirmed that childhood trauma alters individuals' emotional regulation strategies, a significant factor contributing to its negative impact on mental health. Research suggests that compared to other forms of childhood trauma, emotional neglect may have a specific association with emotional regulation and its strategic use. For instance, childhood emotional abuse and neglect have been linked to different aspects of emotional dysregulation. Specifically, neglect is positively associated with antecedent difficulties in emotion regulation, while abuse is positively linked to reactive difficulties. A study involving 585 adult patients found

that among all traumatic experiences, only emotional neglect demonstrated a mediating role of adaptive emotion regulation in the relationship with depressive and anxiety symptoms[18]. Given the paucity of research on adolescents, it is crucial to specifically investigate the relationship between isolated childhood emotional neglect and adolescents' emotional regulation strategies, excluding the interference of other traumatic experiences. Adverse childhood experiences physiologically and psychologically sensitize individuals to overreact to later stressors, involving the interaction between childhood adversity and proximal stress factors, which increases vulnerability to future stressful experiences. Anger expression refers to the tendency to express anger, encompassing four main dimensions: controlled outward anger, angry outward expression, controlled inward anger, and angry inward expression. Difficulties in controlling or expressing anger are often linked to adverse childhood experiences. While the appropriate expression of legitimate anger can be beneficial and even enhance relationships, the inability to express anger can be pathogenic. Existing research indicates that childhood trauma can predict depressive emotions through the mediating roles of angry inward expression, angry outward expression, and controlled angry outward expression. Childhood trauma may increase the degree of inward and outward anger expression while reducing the ability to control outward anger expression, leading to depressive emotions. This aligns with findings that childhood abuse may lead to dysfunctional anger expression, potentially contributing to adolescents' tendency to express anger towards themselves. However, this study focused on a specific population of new recruits, limiting its generalizability. Therefore, to better understand the mediating role of anger expression in the impact of childhood trauma on adolescents' psychological problems, future research needs to further explore this complex relationship. This will aid in developing a deeper understanding of adolescents' mental health issues and providing more targeted intervention measures.

4. Limitations and prospects

Since the concept of childhood trauma was introduced, researchers have aimed to unravel the sociocultural causes of adolescent mental health issues, achieving significant progress in understanding the impact of childhood trauma on adolescent psychological well-being. Despite decades of validation and expansion in this field, there remain some shortcomings.

Firstly, research on the impact of childhood trauma on adolescent mental health should be expanded to include a more diverse range of populations and age groups. Current studies primarily focus on college students, limiting the ecological validity of their findings. To overcome this, researchers have also investigated other age groups and social strata, such as adults with severe depressive symptoms and adolescents with psychiatric disorders[19]. Future research should prioritize the diversity of subjects in childhood trauma studies. Secondly, in terms of research perspectives, current studies primarily concentrate on the negative impacts of childhood trauma, such as depression, anxiety, and behavioral problems. However, there is a relative scarcity of research exploring and cultivating the positive qualities exhibited by individuals after experiencing trauma from a positive psychology perspective. Nevertheless, some studies have examined the mediating role of positive psychological qualities between childhood trauma and depression, suggesting that these qualities can modify the impact of childhood trauma on depressive symptoms. Positive psychology emphasizes individual adaptation and growth in the face of difficulties and challenges, providing a novel perspective for childhood trauma research. Moreover, regarding research content, while many studies have explored the physical and psychological impacts of childhood trauma, there is still a lack of research on how to prevent and reduce childhood trauma and provide effective support and interventions for traumatized children. Future research should place greater emphasis on prevention and intervention strategies to better safeguard children's well-

being. Lastly, in terms of research methods, most studies on childhood trauma currently adopt retrospective designs, which have inherent limitations. These include issues with memory accuracy and the difficulty in controlling other potential influencing factors. Although longitudinal studies have found the impact of childhood trauma on adolescent non-suicidal self-injury, the relatively short intervals between follow-up events limit the persuasiveness of their conclusions. Therefore, future research can adopt experimental and longitudinal designs to more systematically explore the impact of childhood trauma experiences on individual development, providing a more accurate understanding of causality. To further refine childhood trauma research, it is necessary to comprehensively consider different research perspectives, contents, and methods for a more comprehensive understanding of this field. Additionally, interdisciplinary collaboration will facilitate the advancement of this area. For instance, experts from neuroscience, sociology, and medicine can jointly explore the impacts and coping strategies of childhood trauma from multi-dimensional and multi-level perspectives.

5. Conclusion

After delving into the impact of childhood trauma on adolescent mental health, this paper has revealed the complexity and urgency of this issue. Childhood trauma not only affects the mental health of adolescents, but also may accompany them throughout their lives, exerting profound influences on their futures. We must face this issue squarely, strengthen prevention and intervention measures, and provide necessary psychological support and assistance to adolescents. At the same time, we also call on all sectors of society to pay attention to the mental health of adolescents and jointly create a healthy and safe growth environment for them. In the future, we will continue to conduct further research and explore more effective intervention strategies to protect and escort the mental health of adolescents.

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