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The Mechanism of Family Factors and Childhood Trauma on Non-Suicidal Self-Injury in Adolescents from an Emotion Regulation Perspective

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Abstract: Adolescent mental health issues have garnered increasing social concern, among which non-suicidal self-injury (NSSI) has become a global public health problem due to its high prevalence and potential harm. Understanding the influencing factors and mechanisms of NSSI is essential for providing new perspectives on its early prevention and intervention. Through a systematic review and evaluation of theoretical models related to NSSI, this paper highlights that impaired emotion regulation serves as a core mechanism underlying the development of NSSI behavior. Future research should be grounded in China's cultural context, strengthen longitudinal designs and multidimensional data collection, pay particular attention to the role of protective factors, and develop localized theoretical models to provide a theoretical basis for the prevention and intervention of NSSI among adolescents.

Keywords: Non-Suicidal Self-Injury, Adolescents, Parenting Style, Childhood Trauma, Emotion Regulation, Mechanism.

1. Introduction

NSSI is defined as the direct, intentional, and repeated damage to one's own body tissue in the absence of suicidal intent[15]. These behaviors are generally of low lethality and commonly include cutting, burning, or scratching oneself[14]. The onset of NSSI most often occurs in adolescence, with first episodes typically appearing between the ages of 12 and 14 and peaking around 15–16 years, making adolescents a high-risk group for NSSI[4]. Prevalence of NSSI among adolescents is as high as 17.2%, significantly exceeding rates among young adults (13.4%) and adults (5.5%), with a global lifetime prevalence of approximately 17%–18%[13,17].

The impact of NSSI extends far beyond immediate physical harm. It significantly undermines adolescents' psychological well-being, with long-lasting effects that may persist into adulthood[7]. Evidence also suggests a "contagion effect," whereby NSSI behaviors may spread among peers[1]. Beyond the immediate physical damage, recent studies suggest that engagement in NSSI may elevate the risk of future suicidal ideation and behaviors among adolescents[11]. Repeated engagement in NSSI may increase pain tolerance and reduce fear of death, thereby heightening suicide risk[12]. Additionally, NSSI is significantly associated with various psychological disorders, including depression, anxiety, substance abuse, eating disorders, and personality disorders, thereby placing substantial medical and economic burdens on society[8,19]. Given the high prevalence, contagious nature, and long-term harms of NSSI among adolescents, it is of great significance to explore its influencing factors and underlying mechanisms. Currently, most relevant theories originate from Western cultural contexts, while domestic research is still in the developmental stage. Therefore, it is necessary to conduct a systematic review of theoretical and empirical studies on NSSI, both internationally and domestically.

2. Theoretical Models of Non-Suicidal Self-Injury

Through a review of extensive existing research on NSSI, numerous scholars have proposed theoretical models from various perspectives to explain the development and maintenance of self-injurious behaviors. This study primarily focuses on the crucial role of emotion regulation factors in the occurrence and persistence of NSSI, thereby constructing relevant theoretical frameworks.

2.1. Experiential Avoidance Model (EAM)

Based on behavioral theory, Chapman et al. proposed the Experiential Avoidance Model[2]. This model suggests that certain individuals are prone to emotional reactions such as anger, self-blame, and sadness when confronted with stimulating events. If an individual exhibits traits such as high emotional intensity, low pain tolerance, and difficulty in emotion regulation, they may tend to adopt avoidance strategies-shifting their attention to physical pain-to alleviate distress caused by negative emotions, thoughts, or bodily sensations. The immediate relief provided by NSSI reinforces the motivation to avoid painful experiences. Specifically, NSSI diverts attention from the original negative emotions, offering temporary satisfaction. This process strengthens the association between negative emotional stimuli and self-injurious behavior through a negative reinforcement mechanism. Consequently, when negative emotions reoccur, the individual is more likely to resort to NSSI as an automated avoidance response to alleviate internal suffering.

2.2. Integrated Theoretical Model

Nock proposed an integrated theoretical model that systematically explains the mechanism of NSSI from three dimensions: 1) Functional aspect: NSSI is regarded as a cognitive and emotional regulation strategy for coping with internal and external stimuli, as well as a means of communicating and expressing inner states to others; 2) Risk factors and mechanisms: The occurrence of self-injurious

behavior is influenced by multiple factors, including genetic predisposition, adverse early experiences, parenting styles, interpersonal issues, and insufficient internal coping resources; 3) Contextual influences: Under specific situational factors, individuals may be influenced by peer behavior or harmful information, leading them to use NSSI as a way to address psychological needs[15].

2.3. Cognitive-Emotional Model (CEM)

Hasking et al. integrated social cognitive theory with emotional models of NSSI to develop the Cognitive-Emotional Model[10]. This model posits that when faced with negative emotional stimuli, the following factors collectively increase the risk of NSSI: emotional reactivity, negative self-schemas, expectations regarding the outcomes of NSSI, low self-efficacy in resisting self-injurious urges, and a lack of adaptive emotion regulation strategies. Additionally, the model emphasizes that rumination intensifies the individual's perception of emotional distress, thereby triggering stronger emotional reactions and further increasing the likelihood of self-injurious behavior.

3. Research Progress

3.1. Parenting Style

Parenting style is a key familial factor influencing adolescents' NSSI behavior. A meta-analysis on the correlation between childhood risk factors and adult psychological abnormalities found that most childhood risk factors originate from the family[16]. According to the integrative model proposed by Darling and Steinberg, parenting style is regarded as an important proximal environmental factor affecting adolescents' emotion regulation and social adaptation, and it plays a significant predictive role in the development and persistence of NSSI behavior. Parenting styles not only directly impact children's psychological functioning through specific rearing practices but also indirectly influence adolescents' emotion regulation strategies and self-concept formation by shaping the emotional atmosphere within the parent-child relationship[5].

The systemic theory of NSSI further suggests that self-injury is a conspicuous symptom of family or environmental dysfunction[18]. Within this theoretical framework, self-injury is viewed as a strategy employed by individuals to maintain family or environmental harmony. Specifically, self-injury serves as a tool to express or divert attention from underlying problems and conflicts within the system (e.g., family, environment, or society). Individuals who self-injure may engage in such behaviors to draw familial or social attention to themselves, thereby protecting the family or society from having to confront unresolved or difficult issues. For example, adolescents may use NSSI behavious to divert attention from parental conflicts, avoiding family breakdown or the acknowledgment of underlying tensions. Such self-injurious behaviors may be subtly supported or tacitly permitted by family members, as they help maintain the balance of the family system or serve as a coping mechanism to manage unresolved conflicts and emotions. Family systems theory also emphasizes that the family is a primary factor influencing adolescent NSSI behavious[3], particularly through parenting practices[21]. Therefore, to better understand NSSI, it is essential to contextualize it within the framework of parenting styles.

3.2. Childhood Trauma

Childhood trauma is an independent risk factor for NSSI behavior. Research indicates that experiences of abuse and neglect during childhood can heighten an individual's sensitivity to life events, meaning even minor stressors may trigger significant emotional and behavioral consequences[9]. The accumulation of childhood trauma and negative events substantially reduces well-being and increases susceptibility to distressing emotions. When unable to cope effectively with such emotional pressure, individuals may resort to self-injury as a temporary means of alleviating pain. Childhood trauma is not only significantly associated with a history of NSSI but also serves as a key predictor of future NSSI tendencies. Even after controlling for demographic variables such as gender, age, and family structure, physical abuse, sexual abuse, and poor family functioning during childhood continue to significantly increase the risk of NSSI among adolescents[6].

From a developmental psychopathology perspective, childhood traumatic events impair the development of multiple psychological capacities essential for social adaptation, including motivation, attitudes, emotional management, interpersonal skills, and instrumental competencies. This early damage to psychological resources results in vulnerabilities in psychosocial adjustment during critical developmental stages, making individuals more likely to adopt self-harm as a compensatory strategy for emotion regulation and relational coping-a way to manage various challenges encountered during development. In other words, adaptive deficits or disorders resulting from childhood trauma drive individuals to engage in NSSI as a form of compensatory adaptation to internal states and external environments[20].

4. Discussion

This study systematically reviews theoretical models and influencing factors of NSSI, with a focus on the key roles of parenting styles and childhood trauma in the development and persistence of NSSI among adolescents. The findings indicate that NSSI behavior arises from complex interactions among genetic predispositions, environmental pressures, and psychological mechanisms. Its core function lies in alleviating psychological distress through physical pain, constituting a maladaptive emotion regulation strategy. Models such as the Experiential Avoidance Model, the Integrated Model, and the Cognitive-Emotional Model all emphasize the central role of emotion regulation. However, as most existing theories are grounded in Western cultural contexts, their applicability within Chinese settings requires further validation. NSSI among Chinese adolescents may be more susceptible to cultural factors such as familial authority structures, academic pressure, and concepts of "face" (mianzi), resulting in greater behavioral concealment and stronger family involvement.

5. Conclusion

Parenting styles and childhood trauma contribute to NSSI risk through multiple pathways, including impairing emotion regulation ability, diminishing self-worth, and damaging parent-child attachment. Family systems theory further suggests that NSSI may be an external manifestation of family dysfunction, wherein individuals use NSSI to divert or express intra-family conflicts. Childhood trauma, on the other hand, may lead to long-term changes in neurophysiological

and cognitive patterns, increasing sensitivity to stress. Future research should be grounded in the Chinese cultural context to develop localized theoretical frameworks, strengthen longitudinal designs and multi-dimensional data collection, and pay particular attention to the interaction between protective and risk factors. On a practical level, it is essential to establish a family-school-community collaborative prevention system. Through parental education, trauma intervention, and emotion regulation training, adolescents' psychological adaptability can be enhanced, effectively reducing the harm associated with NSSI behavior.

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