



Progress in Studying Theoretical Models of NSSI Behavior in Adolescents

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Abstract: Non-suicidal self-injury, NSSI refers to the individual in subjective without suicide intention, a series of not for the purpose of death, directly, intentionally, repeatedly hurt their organs and tissues, and objectively will not cause death, but cause mild or moderate damage, such as the skin cutting, friction, needles, scratch, this behavior can not be accepted by recognition or society. NSSI has become a serious impact on adolescent psychosomatic health worldwide public health problems, NSSI behavior is an important factor predicting suicide, the incidence of adolescent NSSI in China, the physical and mental health is closely related to its personal future development, about the family, social and national harmony and stability, should cause the attention of the whole society. NSSI may be related to many factors, such as psychological problems, family environment, campus atmosphere, and social relations. This paper summarizes the shortcomings of NSSI behavior theory model and analyzes the good understanding of the mechanism of adolescent NSSI behavior, provides the theoretical basis for adolescent NSSI research, provide the theoretical basis for NSSIR prevention, intervention program and policy formulation for health departments, education system and schools in China.

Keywords: Youth; NSSI; occurrence mechanism; theoretical model;

Introduction

Non-suicidal self-injury (NSSI) refers to the individual in the subjective without suicide intention, a series of not for the purpose of death, directly, intentionally, repeatedly harm their organs and tissues, and objectively will not cause death, but cause mild or moderate damage, such as the skin cutting, friction, needles, scratch, this behavior can not be accepted by or society. This kind of behavior is particularly common in teenagers, NSSI is a complex behavior, and emotional regulation difficulties, self hatred and self pity, reaction mode, automation, psychological trauma, biological psychology factors, neurobiological factors, psychological dynamic factors, social influence, social learning, family factors, peer relations, coping strategies. NSSI is a worldwide social and public problem that seriously endangers the mental health of adolescents. Frequent and repeated self-harm is an important risk factor for the death of suicide, which is the second leading cause of death among young people aged 15-29 years worldwide [1]. In recent years, the Chinese adolescent suicide behavior has caused the attention of individuals, families, schools, and the social people from all walks of life, research show that the NSSI behavior history of individual suicide risk is significantly higher than that of the general population, and often face more mental health problems, serious damage to the physical and mental health and social function [2], the physical and mental health of adolescent groups and individual is closely related to their future development, about the family, social and national harmony and stability, should cause the whole society to adolescent psychohealth attaches great importance and attention.

The primary objective of this study is to review and analyze various theoretical models of nonsuicidal self-injury (NSSI) behavior among adolescents to better understand the underlying mechanisms driving this phenomenon. By exploring models such as the Developing Psychopathological Model, Integrated Theoretical Model, Experiential Avoidance Model, and others, the study aims to synthesize insights from psychological, biological, social, and cultural perspectives. This comprehensive review seeks to identify common factors and distinct elements within these models, assess their explanatory power, and highlight their contributions to understanding NSSI.

Literature Review

A theoretical model of the NSSI behavior

1. Developing Psychopathological Model[3]: The model believes that individuals will form certain psychological abilities in the early development. When the early trauma experience affects the development of these psychological abilities, individuals will have self-injury behavior in adulthood, taking self-injury behavior as a compensatory emotional management strategy. For example, in the early development, individuals encounter traumatic experience (common school bullying events, etc.), which will make the individual's emotional management disorder and then damage their emotional ability, so that the individual is unable to deal with the relationship with the surrounding people and the environment, and then damage their interpersonal ability. When the individual's emotional ability and interpersonal ability are damaged, it will lead to the adult individual unable to reasonably deal with their relationship with the environment, and it is possible to implement NSSI behavior to regulate emotions.

2. Integrated Theoretical Model[4]: This model comprehensively analyzes the causes of self-injury behavior, and explains the causes of individual self-injury behavior rather than other behaviors from the perspectives of biological



genetic factors, social factors, and the formation of early childhood experience. For example, the motivation of NSSI behavior is not only emotional management and traumatic experiences in early childhood, but also a series of hypotheses.

3. Experiential Avoidance Model[5]: EAM the model is proposed by Chapman and others in 2006 a special used to explain NSSI and maintain behavior model, the mechanism of self-injury specific explanation: individual suffer some unpleasant events, stimulate individual produced a series of negative emotional reactions such as disgust, anxiety, nausea, individuals in order not to want or ease to escape the unpleasant inner emotional experience, chose through the NSSI to avoid. This allows individuals to immediately experience satisfaction and benefits: NSSI allows individuals to shift their attention and behavior to the pain of the body to avoid negative emotions. This benefit would be a negative reinforcement for the NSSI. That is, NSSI relieves emotional stimuli, and emotional relief negatively strengthens their NSSI behavior. Once individuals again experience unpleasant experiences such as negative emotions, then individuals are more likely and inclined to use NSSI behaviors as a means to alleviate and escape negative emotions, and over time, NSSI becomes a conditional response to negative emotions. The proposer believes that some people will show a general tendency towards empirical avoidance and habitually engage in a range of behaviors with avoidance functions. The content of avoidance include thoughts, emotions, somatosensory, or other uncomfortable or painful internal experiences. This tendency to response was particularly strong in populations with NSSI.

4. Four-function model [6]: The occurrence, maintenance and end of NSSI are discussed. This model proposes that NSSI is a means of regulating emotions, cognitive experiences and communicating with or influencing others; the presence of distal risk factors for emotional regulation and interpersonal communication problems (such as child abuse) increases the risk of NSSI; the social learning hypothesis, self-punishment hypothesis, social signal hypothesis, pragmatic hypothesis, implicit recognition hypothesis and pain analgesic substance hypothesis explain why some people use NSSI to achieve their purpose. The NSSI is maintained by four reinforcement processes: internal negative reinforcement (i. e., the NSSI reduces or distributes aversive thoughts or feelings), internal positive reinforcement (i. e. desired feelings or stimuli generated by the NSSI), positive interpersonal reinforcement (i. e., the NSSI promotes help seeking), or negative interpersonal reinforcement (i. e., the NSSI relieves the implementer from undesired social situations).

5. emotional cascade model[7]: The ECM proposed the concept of emotional cascade in order to try to clarify the link between negative emotions and dysregulated behavior. This model suggests that the cascade of rumination and negative emotions produces an aversive state, and the NSSI spreads these cascades, thereby reducing negative emotions. The cascade of emotions begins with small emotional stimuli, which are continuously amplified by a rumination cycle. Both the instability of ruminant emotions and the instability of negative emotions are important factors leading to the occurrence of NSSI. The ECM assumes that NSSI is the result of a positive feedback loop of unstable rumination and negative emotions, where the tendency to ruminate negative emotions increases negative affect, and increased negative emotions in turn increases attention to emotional levels, leading to more rumination. This cycle of rumination leads to a lot of negative emotions, which leads to an extreme aversive state. NSSI is a form of "distracting attention" in which attention shifts from rumination to terminate the affective cascade process, and NSSI shifts rumination to the strong somatosensory sensation. These sensations may include pain and visual stimuli, etc.

6. Benefit and obstruction model benefits and barriers model[8]: The core principle of this model is that: (a) NSSI may benefit the vast majority of people, but (b) most people have certain physical, psychological and social obstacles that make them reluctant to implement NSSI. Four benefits and five obstacles of the NSSI are summarized in this model. Benefits include NSSI to improve emotions, NSSI's desire for self-punishment, NSSI to gain or increase engagement with peers, and NSSI as an effective form of communication. Five obstacles include lack of exposure or self-injury awareness of the NSSI, sense of self-worth or positive association with the self, desire to avoid physical pain, aversion to NSSI stimuli, and requirements for social norms.

7. cognitive-emotional model[9]: CEM The model thinks that when the mood fluctuation situation, individuals have (a) emotional reaction tendency, (b) negative self schema, (c) the result expected, that NSSI will achieve the desired mental state, (d) belief in self-injury ability, or insufficient ability to resist NSSI, and (e) these five characteristics, these characteristics will significantly increase the risk of using NSSI to avoid external interference, avoid or regulate emotional response. The specificity of NSSI-related cognition is an important factor leading to the occurrence of NSSI. The model suggests that NSSI is not a single consequence of "bad" emotion regulation, but a possible consequence of a series of cognitive and emotional processes, namely that the occurrence of NSSI is dynamically along with different processes after emotional fluctuations.

8. Behavioral function analysis model[10]: Summarize the causes of NSSI behavior, and explain the NSSI behavior with the model of behavioral function analysis. The possible causes for the occurrence of NSSI behavior are diverse and roughly divided into two parts: function and influencing factors. Functions include: stopping bad feelings, attracting attention and relieving numbness or emptiness, trying to get even negative reactions from someone, gaining some control over the situation, finding something for yourself to do when lonely, etc. Negative life events and emotional difficulty in regulation may be the main influencing factors for the occurrence of NSSI behavior. Young childhood experiences, such as physical abuse, sexual abuse, and school bullying, can increase the possibility of NSSI, while adolescent negative life events, such as adaptation, learning stress, interpersonal stress, loss, and punishment, are significantly associated with the occurrence of NSSI behaviors. In addition, the family environment also affects NSSI behavior. Students who are excessively interfered by their parents are prone to different degrees of self-harm, and children of single-parent families are more likely to have psychological problems, such as depression, anxiety, rebellion, etc., thus increasing the incidence of NSSI among teenagers. As explained from the theoretical perspective of behavioral reinforcement, NSSI behavior can reduce negative emotions by means of negative reinforcement and increase pleasure by means of positive reinforcement.

The model analyzes the NSSI behavior patients possible cause, susceptibility, process and maintenance factors, may cause on the individual susceptibility factors, can make susceptible individual cognitive-emotional-body-behavior response, cause self-injury behavior, and the result of self-injury behavior, strengthen the behavior, is its persistence, repeatedly used maintenance factors.

9. Emotion regulation model [11]: NSSI behavior is considered as a strategy to deal with emotional difficulties. Individuals may not have learned effective emotion regulation skills, such as expressing emotions or seeking support, and therefore handle emotional stress by hurting themselves.

10. Model of self-hatred and self-pity [12]: It emphasizes the role of self-hatred and self-pity in NSSI behavior. Individuals may hurt themselves because of self-hatred, while seeking self-comfort and relief of negative emotions through self-pity.

11. Psychological trauma model [13]: believe that NSSI behavior may be related to psychological trauma experience, such as abuse, neglect, etc. Individuals may process the emotions and memories associated with these experiences by harming themselves.

12. Social impact model [14]: concluded that NSSI behavior may be influenced by the social environment and culture. For example, adolescents may imitate NSSI behavior because they want to integrate into a group or resist social norms.

13. Neurobiological model [15]: Exploring the role of brain structural and functional abnormalities in NSSI behavior. For example, studies suggest that certain neurotransmitters and neural pathways may be involved in emotion regulation and self-control, and that NSSI behavior may be associated with these abnormalities.

14. Psychodynamic model [16]: Based on Freud's psychoanalytic theory, we believe that NSSI behavior may be related to individual subconscious conflict and psychological defense mechanisms.

15. Social learning model [17]: believes that NSSI behavior is learned by observing and imitating the behavior of others.

16. Biopsychology model [18]: Combining biological and psychological factors to explore the role of genetic, neurochemical and hormonal levels in NSSI behavior.

17. Integrated model [19]: Try to combine the above various models to believe that NSSI behavior is a complex multifactorial problem, involving multiple individual psychological, social and biological factors.

Discussion

In view of the clinical characteristics and high harmfulness of NSSI independence, the Diagnostic and Statistical Manual of Mental Disorders version 5 (DSMV, Diagnostic and Statistical Manual of Mental DisordersV) regards NSSI as an independent disease to more in-depth study and exploration [1213]. The latest International Classification of Diseases (May 2021), version 11 (ICD 11, International Classification Of Diseases11), classifies the NSSI as symptomatic, physical, or clinically visible, and not in others, coded MB23.E. NSSI has become a serious impact on adolescent psychosomatic health worldwide public health problems, NSSI behavior is an important factor in predicting suicide, adolescent NSSI incidence in increasing, adolescent physical and mental health and is closely related to personal future development, about family, social and national harmony and stability, need to get clinical, scientific research workers and the whole social people from all walks of life more attention. There are many studies of theoretical models about the occurrence mechanism of NSSI at home and abroad. These above models are not mutually exclusive, but can complement each other to jointly explain the complexity of NSSI behavior. These models have made important progress in explaining and understanding this complex phenomenon, But there are also some limitations and shortcomings, For example, the origin of NSSI may involve multiple factors, But existing models often lack explanations for specific behaviors and individual differences; May focus too much on psychosocial factors, While ignoring the biological and neuroscience factors; Different individuals may undergo NSSI for different reasons, Including the interaction of psychological, physiological, environmental and other factors, Existing models may not adequately explain this discrepancy; Intervention strategies may require further refinement and personalization, Although there are currently intervention programs based on cognitive-behavioral therapy, But they may not be sufficient to cover the needs of all NSSI individuals, And the lack of sufficient empirical support to prove its effectiveness; The occurrence of NSSI may be influenced by the cultural context, But existing models may fail to fully consider the understanding and influence of different cultures on NSSI, Cultural differences may affect the behavior performance of NSSI, willingness to seek help and intervention effect; Although the short-term consequences of NSSI have been studied, But the impact on long-term mental health, social functioning, and quality of life is still poorly understood; Understanding and preventing the long-term consequences of NSSI is another important research direction.

Existing models provide less effective strategies for early preventive intervention, and intervention in the early stages of the NSSI is essential to reduce the occurrence of NSSI; NSSI is a relatively new area of research, so relevant data and research results are limited. This leads to existing models may be based on incomplete information, need more research to enrich and verify etc. To overcome these deficiencies, future research should adopt a more comprehensive multidisciplinary approach incorporating knowledge from multiple fields of psychology, medicine, sociology, and cultural research to provide a more comprehensive understanding of the causes and consequences of NSSI. Meanwhile, developing more targeted and personalized intervention strategies, as well as conducting comparative studies across cultures, will help to improve our understanding of the phenomenon of NSSI, and improve relevant early assessment, prevention and treatment measures. From the existing studies, the related risk factors and pathogenesis of NSSI in adolescents have not been uniformly elucidated. Further research is needed to accumulate more empirical data to validate and refine these models, and to explore effective prevention and intervention strategies. At the same time, the study should also focus on the early screening assessment of adolescent NSSI behavior, the establishment of mental health

records, early prevention and early intervention and the implementation of treatment measures, and how to in the actual clinical work, in school, in family treatment of these theory model, provide theoretical basis for adolescent NSSI research, provide theoretical basis for China's health department, education system and schools develop NSSIR prevention, intervention program and policy making.

Conclusion

This study underscores the multifaceted nature of nonsuicidal self-injury (NSSI) among adolescents, revealing that no single model can fully encapsulate the complexity of this behavior. Each theoretical framework offers valuable insights into different aspects of NSSI, such as emotional regulation, social influences, psychological trauma, and neurobiological factors. However, these models also have limitations, including a tendency to overlook the interplay of multiple factors and the influence of cultural contexts. Future research should adopt an integrative, multidisciplinary approach that combines insights from psychology, medicine, sociology, and cultural studies. By doing so, we can develop more comprehensive and personalized intervention strategies. Moreover, early screening, the establishment of mental health records, and targeted preventive measures are crucial for mitigating the incidence of NSSI and improving the long-term mental health and social functioning of adolescents.

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