

# ***Research on the Intervention Methods of Adolescents' Non-suicidal Self-injury Behavior***

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**Abstract:** Non-suicidal self-injury (NSSI) occurs more frequently in the adolescent onset peak of 12–15 years old, seriously affecting the physical and mental health of teenagers, and adolescent non-suicidal self-injury in China has gradually shown the trend of low age. Although there is no suicidal intention, it will evolve into suicide with the course of the disease, causing severe trauma and negative effects to the family and society. Based on a search and review of relevant literature, this paper sorted out the pathogenesis and inducing factors of non-suicidal self-injury, primarily including genetic, neurotransmitter level changes, biological regulatory system changes, family factors, personal personality basis, and environmental factors. According to the pathogenesis and inducing factors to popular science from the social level and to non-suicidal self-injury patients and their families to provide more support, from the family level to strengthen the mental health education of the family, establish a more complete family support system, from the perspective of the school to strengthen teachers' mental health education level, establish crisis intervention system, establish medical school green channel, to ensure timely discovery NSSI teenagers timely treatment.

**Keywords:** adolescent, non-suicidal self-injury, intervention

## **1. Introduction**

Non-suicidal non-suicidal self-injury (NSSI), also known as deliberate self-injury, refers to behaviors in which people repeatedly, intentionally, and directly harm their own organs or tissues without causing death. The common forms include cutting, burning, etc., which is designed to relieve negative emotions, experience pain, attract attention or threaten revenge against others[1]. In 1938, Menninger, a foreign scholar, pointed forward the concept of "cutting wrist cutting syndrome" by studying the purpose of suffering from the injured and pointing out the motivation of their desire to be hurt, but no follow-up research was conducted. It took nearly 20 or 30 years for NSSI to gain traction around the world and capture people's attention. NSSI seriously damages the physical and mental health of individuals and belongs to psychopathological behavior. The diagnostic and statistical manual of mental disorders fifth edition (5 edition) (DSM-V) has already included it in the draft diagnosis as a separate behavioral disorder [2].

NSSI is common in adolescents, the peak of between 12 to 15 years, the global detection rate is about 17.2%, women more often in men, and the incidence of NSSI is increasing year by year [3][4].

Related studies have shown that by 2020, 15 million to 3 million teenagers will have self-injury behavior [5]. In Europe, 27.6% of adolescents have experienced NSSI behavior, and the detection rate of NSSI in American adolescents is about 18.6%, while the detection rate in China is as high as 29.0% [6] [7] [8]. Although an individual does not intend to commit suicide in the beginning, long-term self-injury behavior will inevitably desensitize the individual to the self-injury behavior and constantly enhance the self-injury behavior, eventually leading to the individual's death and causing severe trauma to society and family.

With teenagers suicidal self-injury behavior frequently, to the number of the hospital, now research led by hospitals, individual schools, in the form of stratified group sampling research, research direction for emotional, life negative events and non-suicidal self-injury, object for teenagers, in the process of consulting relevant literature found that there is not too much education system (such as a school) for teenagers non-suicidal self-injury research. So this paper want to explore the direction of non-suicidal self-injury cause and what is the influencing factor, and put forward specific countermeasures, hope that through these measures can affect the school, family or a part of the social group, pay attention to adolescent mental health, reduce the frequency of adolescent non-suicidal self-injury events, reduce the burden of family and society.

## **2. Pathogenesis and Influencing Factors of NSSI in Adolescents**

The etiology of NSSI is complex and may be the result of comprehensive biological factors, family environment, personal factors as well as school environment.

### **2.1. Biological Factor**

There are genetic and emotion-related mechanisms, such as BDNFVal66Met and serotonin (serotonin transporter, 5-HTT) of serotonin; neurotransmitters and endocrine systems related to self-injury behavior and emotional regulation, including dopamine system,  $\gamma$ -aminobutyric acid, polyamines, glutamate, adrenaline system, hypothalamic-pituitary-adrenal axis (HPA axis), serotonin, and neurotrophin can affect non-suicidal self-injury behavior.

In the same brain neural function mechanisms related to NSSI, emotion regulation problems in NSSI patients may be related to limbic system dysregulation, and the amygdala and cingulate gyrus are two key points of the emotional network. One study shows that adolescents with NSSI have lower levels of amygdala-prefrontal connectivity compared with healthy controls [9].

And NSSI, the mechanism of behavioral addiction facilitation, may be related to the neural loop of reward regional activity in the brain, and a growing number of studies have proposed that repeated NSSI may play an unconscious role on neural reward circuits, making it addictive.

Finally, pain perception changes the mechanisms. Patients with NSSI have repeatedly hurt themselves, and studies have found that changes in pain perception levels in NSSI patients are [10]. Moreover, the results show that the group with NSSI has some improved in pain tolerance and pain threshold level, and they are insensitive to pain perception [11].

### **2.2. Family Education Environment**

Family environment is closely related to non-suicidal self-injury, lack of social support from family members, lack of emotional communication between parents and excessive criticism from parents, and other risk factors for non-suicidal self-injury. In the Study on Emotional Regulation Strategies and Family Function in Non-suicidal Self-injury Teenagers, in January 2021, 7,869 students from the Family intimacy and adaptability Scale (FACES), Emotional Regulation Strategy Scale (ERQ), Baker Depression Scale version 2 (BDI-2), and their emotional regulation strategies and family functions were studied. A significant difference in family NSSI reporting rate with different

parental relationship quality, no and group> general group> harmonious group ( $P < 0.05$ ). Students with different paternity quality had differences of their NSSI reporting rates were significant, with frequent conflict group> general group> harmonious group ( $P < 0.05$ ). Wrong parenting is another risk factor for NSSI in adolescents. Excessive strict parenting style will lead to the children's inferiority and rebellious psychology, and even anxiety, depression and self-injury behavior, and the excessive protection of parents will make their children appear maladaptive and disconfidence, more prone to NSSI in adolescence.

### 2.3. Personal Factors

The characteristics of adolescence are: individual unsynchronized physical and psychological development, high self-awareness, heavy rebellious psychology; desire to stimulate and seek adventure; emotional instability and easy to impulse. Early adolescents prone to NSSI may have personality traits such as impulsiveness, aggression, low self-esteem, and depression. Therefore, adolescents' personal personality, sexual orientation bias, abnormal behavior, and mental illness are important risk factors for NSSI.

A recent study reported that introverted adolescents with low self-confidence have poor emotional stability and are more prone to NSSI. In patients with eating disorders, for example, lower satisfaction with their body shape and lack of confidence have led to a higher frequency, more ways and more severe NSSI. Introverted teenagers with low self-confidence have less emotional vent ways, and lack the correct way to deal with stress events, and may adopt NSSI to relieve negative emotions. Impulsive personality, the pursuit of stimulation, like unconventional personality are also the important influencing factors of teenagers' repeated NSSI, this kind of teenagers do things without considering the consequences, like to do stimulating and dangerous behavior, and are more likely to try NSSI [12] [13].

### 2.4. School Environment

In addition to the home environment, the school environment is also a risk factor for inducing NSSI. Bullying, interpersonal stress, study stress, and imitation among classmates can also increase NSSI risk. A large sample of meta-analysis shows that, the probability of NSSI is 2.1 times higher than that of the general population, and the younger the person, the higher the NSSI detection rate [14]. School bullying is primarily related to NSSI via emotional behavior mediation. The results of studies studying student self-injury behavior and school relations showed that the NSSI group and NSSI group varied significantly in peer atmosphere perception and perception of teacher support, and that self-injury behavior was significantly associated with high degree of peer atmosphere negative perception, and significantly associated with low degree of teacher support perception in [15]. In addition, adolescents are greatly influenced by the surrounding classmates and peers, and many adolescents' NSSI may be the result of imitating their peers' behavior [16].

Learning pressure is an important psychological stimulus in school life. Teenagers often have insomnia, depression, anxiety and other emotional problems due to learning difficulties, and then use NSSI to relieve their mood. Some students even take NSSI to combat learning pressure. Is the media at the same time and the network, with the development of network, media, books, animation, games and describe the plot of NSSI, some teenagers after contact with hints and actively imitate NSSI, and even some teenagers establish social media group, such as QQ, WeChat group meet together for NSSI, through the NSSI behavior to establish social circle. Other NSSI game upgrades, such as the Blue Whale game, which has shocked the world, have had very bad effects and irreparable results. Some researchers have also found that if students around them take NSSI to

relieve their mood, teenagers are more likely to follow suit and learn, which is an important cause of NSSI [17].

### **3. The Treatment and Interventions of NSSI**

The treatment and intervention of NSSI can not work alone, but need to play a good role in the social, family, school and other environment, combined with a variety of hospital treatment can finally have good results.

#### **3.1. Social Level**

Most families do not know about NSSI, and do not know how to support NSSI teenagers. Some parents think that teenagers just want to blackmail their parents through self-injury behavior, so they refuse to understand and accept such behavior, and refuse to meet various needs, including emotional needs. Some parents also think that teenagers just express their emotions in incorrect ways, indulge their performance or force them to stop their self-injury behavior, let alone bring them to medical treatment. Even if only a small number of parents seek medical treatment for their children, they will blame various environmental factors, regardless of biological genetics or individual adolescent factors. And it is difficult to receive medication, requiring only psychological treatment, due to the ignorance of NSSI delays the treatment of teenagers, and may even aggravate the occurrence of NSSI behavior.

Therefore, in view of this situation, first of all, the country should expand the scope of NSSI knowledge popularization, government departments, medical institutions, communities and other departments should play a role in popularizing NSSI, deepen the public's understanding of NSSI, and how to call on parents and schools to timely find and timely treatment. At the same time, reduce the discrimination of other social groups against NSSI teenagers and their families, treat NSSI children and their families with a more tolerant and accepting attitude, and give them a stronger social support system. Second, the policy of including psychotherapy and psychological counseling into medical insurance is extended to the whole country, so that more families and adolescents with NSSI can have better treatment channels, while reducing the treatment burden.

#### **3.2. Family Level**

Because family problems in NSSI teenagers also induce NSSI behavior, treating NSSI requires parents to collaborate with NSSI teenagers to do family treatment and change the family relationship mode, so that NSSI teenagers can have a better family environment and recover quickly. At the same time, NSSI parents are under greater pressure to work and take care of their children. Sometimes the parents will choose one party to take care of their children professionally, and the other party will face more financial pressure from the family, and the one party who takes care of their children is under greater psychological pressure. The psychological pressure facing such a sudden increase in pressure will also surge, there may be more conflicts in the relationship between husband and wife, and the parent-child relationship will be more conflicts, and ultimately it will be unable to better cooperate with the treatment of NSSI children. It cannot be a separate mutual support system between parents and children in addition to the NSSI teenagers; it may require grandparents, parents between brothers and sisters to parents' care and support; it may establish a larger family support system; it may ensure that the NSSI youth families have a more stable support system and a stable mentality to support the NSSI youth's treatment and recovery.

### 3.3. School Environment Level

The understanding in schools of NSSI is also very insufficient, and there is no psychological scale measurement for NSSI students, and the lack of response plan, once the NSSI event occurs, only advised their parents to take students for treatment, no other intervention measures. Therefore, the school more need to establish a crisis intervention system, from the leadership to the teacher in charge should pay attention to the NSSI events, and set up the class psychological committee, focus on class psychological trends, found self-injury to immediately report to the school and the teacher in charge, timely communication with parents, do better in communication, let teenagers seek medical treatment as soon as possible.

Schools should pay attention to the mental health status of teenagers, make reasonable use of psychometric meters, regularly carry out mental health screening work, and incorporate the NSSI assessment scale into students' mental health screening work, and screen out students with NSSI as soon as possible, timely treatment.

Schools should also establish medical school collaboration with local specialist psychiatric specialist hospitals for timely referral of adolescents with NSSI or other psychiatric disorders. Cooperate with the hospital to open a green medical channel, to facilitate parents or schools to bring teenagers to timely medical treatment in emergencies.

### 3.4. Evaluation and Treatment Level

Psychotherapy for NSSI is now commonly used in psychotherapy, medication, as well as physical therapy. Psychotherapy is mostly based on cognitive behavioral therapy, ACT therapy, and DBT group therapy, aiming to change cognitive and emotional coping strategies through dialectical behavioral therapy. However, the family members play a very important role in the treatment, so the family treatment can not only solve the problems of the teenagers themselves, but also find out the changes and roles of each member in the treatment process from the relationship mode of the family members, so as to change the teenagers. Studies have found that the family-centered psychoeducational intervention (family-focused psychoeducational therapy, FFPT) has a good effect on parents' anxiety and depression, and parents' emotional stability also plays a good effect on adolescent emotional stability [18]. So developing more family combination therapy will be a more effective approach. Medication include antidepressants or antipsychotics, but current evidence on psychotic drugs for NSSI in adolescents is insufficient. Physical therapy includes repeated rTMS therapy, electroconvulsive therapy, and TCM acupuncture and moxibustion therapy. A large number of literature shows that electroconvulsive therapy has good effects on NSSI and suicidal behavior, and other physical therapy such as rTMS and TCM acupuncture therapy also needs further data for reference efficacy. At present, for NSSI patients with different symptoms and conditions, the effect is better than that of single treatment.

## 4. Conclusion

With NSSI becoming more common among teenagers and its obvious addictive behavior characteristics, treatment and prevention are becoming increasingly difficult, and the burden on families and society is gradually increasing. In order to better help NSSI teenagers, it is not only what the family needs to do, but also the direction of the whole society to work together. The society needs to mobilize resources to popularize NSSI, let the public to understand and support NSSI teenagers and families; families need to learn how to change the family model to make better and benign development; schools should pay attention to prevent such incidents, care about students' mental health education, timely find and timely form a front with families to help teenagers. And hospitals should choose a more suitable way to treat teenagers, so as to form a

common treatment alliance with their parents and schools, so as to help NSSI teenagers more effectively.

In short, for the adolescent NSSI intervention, which is still in the research stage, because NSSI epidemiology, pathogenesis, inducement, and other factors have not had too much clear research and specific data, the biggest difficulty and problem in this paper is being unable to obtain some research data, especially because the vast majority of school leadership for NSSI behavior psychological screening is very exclusive, making it impossible to evaluate students and obtain effective data. This is why it is difficult to have some data support in China. Therefore, the strategies proposed in this paper are all based on the data and theories involved in the existing literature and have great limitations. A recently published German NSSI clinical treatment guidance manual states that the complete treatment includes determining the treatment motivation, providing psychological education, identifying the factors causing and maintaining self-injury behavior, guiding the solution of self-injury behavior through skills and conflict strategies, and so on [19]. Therefore, there is also a lot of room for improvement in the research of NSSI behavior, but it requires the participation of the whole society, joint research, and exploration to provide a basis for establishing a complete NSSI prevention system for teenagers and helping more teenagers.

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