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INFLUENCING FACTORS, PREDICTION, AND NURSING STRATEGIES OF NON-SUICIDAL SELF-INJURY BEHAVIOR IN HOSPITALIZED ADOLESCENT ATHLETIC PATIENTS

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ABSTRACT

The incidence of no suicidal self-injury(NSSI)among adolescents is high, causing harm to adolescents 'physical and mental health and increasing the burden of hospital management in athletic patients. However, there is still a lack of systematic and effective prevention and management procedures for NSSI intervention in hospitalized adolescents. This article examines the overview, influencing factors, prevention monitoring, and NSSI intervention status in hospitalized adolescents to provide a reference for the establishment of NSSI prevention and management programs for adolescents.

KEYWORDS: adolescents; non suicidal self-harm; prevention; management

1. INTRODUCTION

Adolescent NSSI is a global health problem with a behavioral lifetime prevalence of 17%to 60% (Brown & Plener, 2017). It is of particular concern to psychiatric practitioners, primary and secondary educators and other professionals working with adolescents, as well as affected families. In recent years, NSSI has been an unhealthy coping mechanism, and adolescents use NSSI behaviors to cope with suicidal ideation(anti-suicidal function),which not only aggravates adolescents 'psychiatric symptoms but is also one of the strongest predictors of suicidal behavior (Karman, Kool, Poslawsky, & van Meijel, 2015; Mars et al., 2019).As an increasing number of young people come to the hospital for help, it also creates a burden on hospital management, increases medical costs, an aggravates the psychological pressure of medical

workers; at the same time, it is negative for athletic patients and others in society. Timely intervention is an important means of alleviating the suffering of athletic patients and maintaining clinical order (HIBINO et al., 2019).As close contacts with athletic patients, psychiatric nurses play a central role in intervening with patients who practice self-harm, and their attitudes, experience, knowledge and skills are particularly important for patients who practice such behaviors, and they have a continuous role in clinical practice. Comprehensive nursing measures can further reduce self-harm and reduce the risk of suicide (American Psychiatric Association & Association, 1994; Vergara, Stewart, Cosby, Lincoln, & Auerbach, 2019).At present, there are few clinical studies on the prevention and management of NSSI behavior by nurses, and there is no systematic, comprehensive and deep exploration. In view of this, this study systematically reviewed the related studies on the prevention and management of NSSI in athletic patients combined with the current clinical intervention measures to provide a reference for the prevention and management of NSSI behaviors in hospitalized adolescents.

2. Overview of non-suicidal self-harm

NSSI was defined by the International Society for the Study of Self-Injury in 2018 as intentional self-injury to bodily tissue for non-social purposes or culturally recognized acts without suicidal intent that are not the same as suicide (Monto, McRee, & Deryck, 2018).The DSM-5 treats NSSI as a disease, and the proposed standard defines the condition as intentional harm to one's own body, neither socially acceptable nor intended to result in death, at least five times in the past year or five or more acts of intentional self-harm. It can manifest in a variety of forms, the most common including cutting, biting, knocking or pounding, carving and scratching. NSSI behaviors are widely present in adolescents, whether in social or clinical settings, and the detection rate of NSSI in research reports in various countries may be due to different survey tools, definitions, geographical environments, socioeconomic and cultural backgrounds. The factors vary, but the general trend is that the incidence of NSSI behavior has increased in recent years (Brown & Plener, 2017; Hauber, Boon, & Vermeiren, 2019).

The United States Centers for Disease Control and Prevention's Adolescent Risk Behavior Surveillance System sampled 11 states in the United States in 2015 for boys(n=32150)and girls(n=32521),and the proportion of boys in each state ranged from 6.4%to 14.8%.The rates for girls ranged from 17.7%to 30.8%.In a German study (Bem, Connor, Palmer, Channa, & Birchwood, 2017),25–35%of adolescents in a random sample drawn from schools were found to exhibit at least one non-suicidal self-harm. In a sample from child and adolescent psychiatry clinics, the prevalence of NSSI in adolescents reached 50%. Han Azhu et al. (Azhu, Geng, & Puyu, 2017)conducted a meta-analysis on the prevalence of NSSI among middle

school students in mainland China, and the total detection rate of NSSI was 27.4%. Zhang Pei et al. (Pei Z, Min-lu L, & Chun W et al., 2021)retrospectively analyzed the medical records of 168 athletic patients aged 14-25 who were admitted to the Department of Mood Disorders in a psychiatric hospital, and the incidence of NSSI was 28.6%.Adolescents in various countries are high-risk groups for NSSI behaviors, and the clinical detection rate is higher (Geng et al., 2020; Westers & Plener, 2020).In a study by Hauber K et al. (Hauber et al., 2019)the detection rate of NSSI in hospitalized adolescents reached 66.4%. NSSI behaviors are more severe. There are challenges in psychiatric care. However, there is still a lack of evidence for effective interventions in adolescent NSSI prevention and clinical intervention.

3. Factors associated with NSSI among hospitalized adolescents

3.1 Environmental factors

Hospital factors include the inpatient environment and human environment. There are potential safety hazards in the hospital environment, including medical equipment such as iron beds, handles of cabinets, screws for assembling equipment; and items brought by athletic patients and their families, sharp packaging, desiccants, and broken spoons, all of which can become a tool for athletic patient self-injury. At present, due to the impact of the pandemic, athletic patients need to wear masks for some treatments and examinations, and the metal nose clips on the masks can also be used as self-injury tools. Human factors mean that China is currently a developing country, and the allocation of resources to children and adolescents is disproportionate to the demand.

The demand for juvenile hospitalization is far greater than the number of beds set up. Some provinces do not have wards dedicated to the treatment of children with mental illness, and children may have to be hospitalized in wards that are mixed with adults, while other provinces have set up psychiatry departments that specialize in children and adolescents. Generally, only large-scale top three public hospitals are equipped with adolescent wards, but there are few beds, closed management is still the mainstay, and there are few choices of nursing services. NSSI has only attracted the attention of mental health practitioners in recent years. Related practitioners lack psychological knowledge, the clinical intervention process is not perfect; they feel incompetent and insufficient in the face of self-injured athletic patients, which means they cannot meet the psychological needs of these athletic patients (Pintar Babič, Bregar, & Drobnič Radobuljac, 2020).

3.2 Self-factors

Adolescents lack the ability to deal with negative events and emotions and tend to rely on their own coping strategies instead of actively seeking help

from adults or peers. Their immature emotion regulation, impulsivity and denial of self-worth are important influencing factors of NSSI behavior. Most hospitalized NSSI individuals have psychiatric disorders, and the most common comorbid diagnosis is depression (Czyz, Glenn, Busby, & King, 2019; Victor, Hipwell, Stepp, & Scott, 2019).They show psychopathological features and functional impairments and have abnormalities in cognition, emotion regulation, and behavior. NSSI behaviors are susceptible to psychiatric symptoms.

Emotional disorders and impulsive violent tendencies are significantly related to NSSI behaviors, especially in athletic patients with depression, who can experience more negative emotions. When individuals cannot bear to deal with negative emotions, NSSI behaviors have become an outlet to release or express bad emotions. Some teenagers believe that NSSI behavior is a way to regulate emotions and deal with problems, and they can achieve self-control through NSSI. Although they know that this is an unhealthy and inappropriate way of coping, they do not think it is a form of self-injury (Long, Manktelow, & Tracey, 2015).The clinical treatment of athletic patients with mental illness should be active to correct cognition, improve coping styles, and enhance adolescents 'sense of positive identity and empowerment.

3.3 Peer factors

The peer factors of NSSI in hospitalized adolescents mainly come from the influence of peers in the ward. Some adolescents perform NSSI due to the role of peers. Inpatient adolescents like to hold groups because of their similar age, and their peers 'attitudes toward harmful behaviors, peer delinquency, and suicidal and self-harm ideation and attempts may be contagious; that is, adolescents exposed to peer suicidal self-injury behavior are more likely to experience suicidal ideation or attempt suicide (Syed, Kingsbury, Bennett, Manion, & Colman, 2020). In addition, peer groups are prone to impulsivity(i.e. Negativity and premeditated self-harm)as a factor in the occurrence of collective NSSI (You, Zheng, Lin, & Leung, 2016).

3.4 Family factors

The parent–child relationship is an important factor for athletic patients to develop NSSI behavior. Family is an important environment in which adolescents mature. Teenagers with NSSI behavior may have poor relationships with their parents, and parents may be severe in punishing, exercise poor supervision and fail to establish high levels of parenting. Quality attachment relationships and inpatients without parental accompaniment are more likely to lack a sense of security during hospitalization and be unable to receive timely and effective emotional support.

Even if they are accompanied by their parents during hospitalization, they are under great emotional pressure due to their lack of understanding of

NSSI and its treatment (Fu et al., 2020).They have a stigma toward mental illness, and they bring bad communication patterns to the ward where there are too many athletic patients and interventions that affect the athletic patients' mood and stimulate bad behavior.

4. Predictive assessment of non-suicidal self-harm in hospitalized adolescents

There are many scales for NSSI in adolescents, but some of them are aimed at assessing athletic patients 'past NSSI behaviors and exploring the existence, frequency, and characteristics of suicidal and self-injurious thoughts and behaviors such as past NSSI behaviors, frequency, and causes(functions). The scales cannot predict the occurrence of NSSI. At present, the following two methods can predict the occurrence of NSSI to a certain extent.

The causes of self-reported NSSI refer to the reasons for the occurrence of NSSI in adolescents. Olivia H and others have tested non-suicidal thoughts and behaviors through self-injurious thoughts and behaviors interviews(SITBIs) (Nock & Banaji, 2007; Pollak, D'Angelo, & Cha, 2020).SITBI assessed these thought and behavioral characteristics and concluded that there are two main reasons why adolescents perform NSSI: some adolescents engage in NSSI to perform automatic or self-directed functions(e.g., cutting to avoid internal negative states),while other adolescents perform NSSI to serve a social function(e.g., cutting to communicate with others).The two reasons were then functionally correlated to predict the incidence of NSSI during the athletic patient's hospital stay.

Automatic functioning corresponds to a greater likelihood of NSSI-related thoughts and behaviors, while social functioning primarily corresponds to a reduced likelihood of NSSI-related outcomes. Self-reports suggesting adolescents' reasons for performing NSSI can predict future NSSI.T herefore, proactively assessing the causes of NSSI behavior in athletic patients can initially screen high-risk athletic patients and establish relevant simple screening forms in the future to facilitate clinical development.

The Self-Injury Implicit Association Test(SI-IAT) is a computerized test developed, administered and scored according to the Implicit Association Test(IAT)program. Tests based on measuring participants 'implicit associations, through reaction time measures of implicit associations between self-injury and self, were used to detect and predict suicidal self-injury ideation and attempts, with high specificity for the identification of NSSI behaviors; that is, people with only self-injury behaviors only identify with self-injury but not with suicide and death.

The SI-IAT consists of two blocks: in the first key test block (presented in random order), the participant must press the same key in response to the

stimuli of "Cut" and "I", while the other key responds to "No", Cut" and "Not Me" stimuli. In the second key test block, we reversed the ordering, pairing "Cut/Not Me" with another" Not cut/Me" on the same computer key. Participants were instructed that stimuli would appear in the middle of the screen and should be classified as soon as possible. The next stimulus was presented after correct classification, along with a red "X" that remains in the middle of the screen until the correct key is pressed to present an incorrect pairing. Each block contains two trials for a total of four trials. After the task was completed, the mean response delay of the "cut/is me "test block was subtracted from the mean response delay of the "cut/not me "test block and divided by the standard deviation of the response delays for all trial scores or D scores. This indicates the relative strength of the association between self-injury and self, with a positive D-score representing a relatively faster response (i.e., a stronger association) and a negative D-score representing a relatively slower response (i.e., a weaker association). The SI-IAT had good test-retest reliability, $r=0.46$, $p<0.001$. The stronger the association was, the greater the probability of NSSI. Early identification of individual currently participating in NSSI or at risk of NSSI beha (Powers, Brausch, & Muehlenkamp, 2021).

5. Clinical nursing countermeasures for NSSIy in hospitalized adolescents

Establishing a safe environment Ensuring a safe inpatient environment begins with building a hospital that combines architectural and creative aspects to create an atmosphere for suicide prevention by creating positive distractions(panoramic views, activities, occupational therapy opportunities), leveraging positive physical and natural influences(such as color and light),creating a warm atmosphere and reducing environmental stimuli (Glenn, Kleiman, Cha, Nock, & Prinstein, 2016). In terms of ward management, safety nursing measures for suicide/self-injury athletic patients, such as reducing the acquisition of self-injury tools and patrolling at key time periods is also suitable for the management of athletic patients with non-suicidal self-harm. The specifics are as follows:1. Prevent suicide-related dangerous items from being brought into the ward, including knives, scissors, ropes, glass, ceramics and other items, and remove sharp items and long tapes such as iron pieces and plastic pieces from clothing. Standardize the management of masks. When the athletic patient uses the mask, check whether the nose clip is lost. Check the integrity of mask being discarded.

Ensure that the patient's belongings are properly kept.2. The interior furnishings of the rooms should be simple, the ward checked regularly, the surrounding environment scanned and any new risks should be eliminated. Equipment should be within the patient's reach, such as the bed, bedside table, armrest, dining table and chair; these should be checked and repaired in a timely manner.3. Inspections should be made routinely. There should be strict

psychiatric monitoring within 72 hours of admission, inspections every 15 minutes to 30 minutes and more often during key periods, especially from 3:00 to 5:00 in the morning, which is the peak of self-injury and suicide. For the positioning management of athletic patients at risk of self-injury, the athletic patient should not be left alone in the room or bathroom for a long time.4. Caregivers should closely observe the athletic patient's condition at crucial times, such as when he or she is rejected for discharge, argues with family members on the phone, or argues with other athletic patients. Attention should be given to the patient's emotional ups and downs, so that interventions can be made in a timely manner, and records of any changes should be kept so that information is passed from one shift to the next.5. The responsible nurse has a good idea of the condition of her athletic patients, and the department conducts a unified safety inspection every day. The head nurse should contact the responsible person for hidden safety problems and order remediation.

On the basis of routine nursing, psychiatric nurses should also provide a wider range of professional services, including psychosocial intervention and health promotion. Plener et al. from Germany in 2016 (Plener et al., 2016) and Westers et al. in 2019 (Westers & Plener, 2020) put forward suggestions about the professional attitude and skills of nurses when dealing with NSSI:1.Nurses should maintain a low-key, calm and respectful attitude when athletic patients have NSSI behaviors, use non-insulting language, and use a realistic and neutral tone when giving the athletic patient instructions. The nurse should reflect on whether what is said conveys negative bias at any time and avoid stigmatizing comments about the athletic patient's behavior.2.In the event of a wound, the nurse should provide aftercare(examine and deal with the wound and whether anyone else knows about the incident),assess the degree of injury and deal with it accordingly.3.When counseling athletic patients, the nurse should be empathetic, understand the social factors involved in the patient’s psychological behavior and determine the factors that stimulate or maintain NSSI.4.

The nurse should help analyze the causes for the behavior, provide alternative behavior or problem-solving strategies, help athletic patients identify warning signs and prevent new behaviors. It not only requires nurses to exercise first aid skills but also psychological intervention abilities. The hospital should provide a supportive environment for psychiatric nurses, including training in professional knowledge and skills, regular supervision, and support from the hospital management team. The focus of the training should be to better understand the athletic patients ‘emotions and behavior while focusing on effective communication with the athletic patients. The nurse should be able to connect with and experience the patient as a person, express empathy and close support for the athletic patient, and meet the needs of the patient in a timely manner within a humane environment that reduces the potential for suicidal, self-harming behaviors.

5.1 Building a healthy psychology

5.1.1 Strengthening psychological education

Treating adolescent patients with NSSI behaviors should change from passive treatment to active mental health education and guidance; in terms of time, health education should be started as soon as possible during the athletic patient's hospitalization, and admission education should be done when the athletic patient is admitted. The publicity and education of NSSI-related knowledge should be emphasized and taught throughout hospitalization. In terms of content, according to the psychological characteristics of young athletic patients, there is a misunderstanding of NSSI behavior if it is not considered to be harmful.

Thus, the content of publicity and education is not only to educate others about NSSI. It is necessary to change the attitudes and cognition of athletic patients toward mental illness and to conduct propaganda and education from many aspects and angles. For example, Yang Chunjuan suggested examining the behavior of suicide and self-injury from an ethical point of view, exploring the psychological contradictions of young people and suggesting that families, schools and society face the current problems and provide timely psychological counseling.

Allowing emotional catharsis, it is important to establish a special catharsis place to allow athletic patients to vent their negative emotions. The Shanghai Mental Health Center has a catharsis workshop, which is a room with an area of approximately 20 m^2, which is quiet and undisturbed. The decor is comforting and safe, with warm pads on the walls and floors. The room is equipped with common appliances that are conducive to catharsis, including strength appliances (inflatable man, sponge wall, inflatable vent stick, boxing gloves, etc.), shouting appliances (screaming catharsis pot, silicone catharsis mask, etc.), writing implements (diary, graffiti wall, booklet).

When using the catharsis workshop,2 research team members encouraged a group of athletic patients to choose their favorite catharsis equipment according to their preferences and current emotional state for use from 10 to 30 minutes at a time. After the emotional catharsis,2 professionals organized the athletic patients to share their experiences and discuss their views on emotions for 45-60 minutes/time.

This method provides a gap for the athletic patient's negative emotions. These emotions can be vented in a safe and timely manner to avoid escalation into self-harming behavior. Research (Hua L I, Zhongying S, & Jia H et al., 2020) has confirmed that athletic patients participating in the "emotional catharsis workshop" group intervention can experience reduced NSSI behaviors, improve coping styles and reduce anxiety, depression and other negative

emotions.

5.1.2 Integrative Psychotherapy

Dialectical Behavior Therapy(DBT)has been shown in clinical trials to reduce NSSI behaviors in adolescents. In recent years, scholars have tried to integrate other treatment methods on the basis of DBT. In a randomized controlled study,40 subjects were randomly assigned to the control group (DBT group) and the experimental group (DBT+brief cognition to reduce self-criticism) For the intervention. It is suggested that receiving additional cognitive intervention for the purpose of reducing self-criticism after DBT treatment can reduce athletic patients 'self-criticism and further reduce the occurrence of NSSI. Emotion Regulation Individual Therapy for adolescents ERITA (Emotion Regulation Individual Therapy, ERITA) has shown promise in the treatment of NSSI in adolescents with NSSID. This therapy is a psychotherapy developed by Bjureberg J et al. (Bjureberg et al., 2018)to reduce NSSI in adolescents by improving emotion regulation skills. Under the guidance of this therapy, Ding Hanqin et al. (Ding, Yang, & He, 2021)conducted a face-to-face form of emotion regulation strategy for the observation group of 45 cases. This short-term inpatient intervention is carried out twice a week from the aspects of identifying specific emotions, recognizing the relationship between thinking, emotions and behaviors, asking about the direct behaviors brought about by emotions, cognitive reappraisal, interpersonal interaction, behavioral inhibition, and learning adaptive alternative behaviors,1 h each time, for a total of 7 interventions. It is concluded that short-term hospitalization intervention dominated by emotion regulation strategies is beneficial in improving the cognitive emotion regulation ability of depressed adolescents and reducing self-injury behaviors, thus demonstrating the acceptability, feasibility, and utility of incorporating psychotherapy into nursing interventions for adolescent with NSSI.

5.1.3 Training life skills

Williams Life Skills Training(WLST) was developed by American Psychologist Dr. Williams on the basis of life skills training to overcome self-awareness and reduce the response to stress, thereby optimizing the individual's ability to deal with negative emotions (Williams, 2011). Zhu Ping et al. (ZHU et al., 2021)conducted training in groups of 42 athletic patients for four weeks, with 6 to 8 people in each group, twice a week,1 hour each time, for a total of 8 training sessions. The sessions consisted of teaching, content explanation, watching videos, simulated scene training, group discussion, and assignment of homework to train patients in 10 skills designed to alleviate the body's response to stress from self-awareness, decision-making and self-defeatin behaviors. It is confirmed that WLST may help reduce the incidence of NSSI behavior in adolescent athletic patients with depression and the degree

of depression, enhance self-efficacy, and improve life satisfaction.

Reshaping family relationships Improving the parent–child relationship of athletic patients can prevent the occurrence of NSSI behavior. Durand (Durand SC & McGuinness TM, 2016) pointed out that caring for patients with self-injury should start with understanding the patient's living environment, identifying risk factors, identifying self-injuring adolescents in nursing work, and linking the entire family system with appropriate and effective interventions. Therefore, on the one hand, nurses need to understand the persistent pain and fear experienced by the athletic patient's parents and provide psychological support and empathy for the affected family members. Some parents have stigmatized and misidentified the athletic patient's NSSI behavior and have poor communication with them. While doing a good job in adolescent health education, we cannot ignore the education of family members on disease knowledge, avoiding stigma, and finding adaptive ways of responding and getting along with their adolescent family members by accepting, understanding, and supporting athletic patients. Conditional family therapy can be carried out, looking for problems in the family and unreasonable solutions to those problems. Guiding family members to change emotional expression and interaction patterns, promote parent–child relationship skills training, and rebuilding family structures to better support and understand adolescents can help mediate NSSI behaviors.

5.1.4 Establishing positive peer relationships

The influence of peers is two-sided, reducing negative influences and strengthening positive role models. When the patient has extreme behaviors, the nurse should isolate the patient from peers and simultaneously comfort the peers. When athletic patients gather to discuss bad behaviors such as self-injury, running outside, and impulsiveness, nurses should intervene in time, separate the athletic patients, and reconstruct their psychological cognition to avoid the occurrence of collective impulsive behavior. In addition, to carrying out peer support activities and setting a positive example, Xuan G used the literature research method to review domestic and foreign literature related to peer support and compiled appropriate content in three parts: mental illness knowledge, peer support education, and rehabilitation skills training.

For a patient with repeated self-injury,3 athletic patients who were cured of depression presented their own peer support once a week for a total of 4 times, playing a role in reducing patient self-injury behavior. Taking advantage of young people’s interest in the internet online peer support applications using smartphones as a medium can be useful. This study used the peer support app Talk Life, which provides an online communication platform where young people can exchange knowledge, seek help in daily life without stigma and obstacles, and increase the sense of belonging and social connection. A well-

managed forum for self-harm appears to be one where adolescents gain continuous peer support and reduce NSSI frequency, increasing confidence in changing NSSI behavior. At present, there is no NSSI peer forum with professional intervention in the Chinese environment. Applying the peer therapy application network platform to patients can be regarded as a treatment method that conforms to the characteristics of adolescents.

6. Conclusion

At present, the research on NSSI in adolescent patients with depression nationally as well as globally focuses on the analysis of the causes. There are few clinical studies on the prevention and management of NSSI behavior by nurses, and there is no systematic, comprehensive and in-depth exploration. The predictive evaluation of NSSI is still in its infancy. It is not fully applicable to the clinical guidelines of psychiatry. Likewise, how to verify some of the recommendations in clinical practice and build a mature program that meets China's national conditions is also an issue to be resolved. Therefore, on the one hand, there must be systematic training so that nurses can master relevant knowledge and skills, develop corresponding simple and easy-to-operate predictive scales, and build a systematic preventive management process to provide continuous and comprehensive nursing measures in clinical practice. On the other hand, there is a need to combine the influencing factors of behavior and build an institutionalized and standardized program as soon as possible. For example, following the model of evidence-based nursing practice, we should systematically search the relevant content of NSSI prevention and management, synthesize the best available evidence and conduct quality evaluation, use scientific methods to provide a high-quality decision-making basis for clinical practice. We could then construct a set of scientific, standardized and complete “Adolescent Non-Suicidal Self-Injury Behavior Prevention and Management Program “suitable for China's national conditions.

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Data Availability

The data used to support the findings of this study are available from the corresponding author on reasonable request.

Conflicts of Interest

The authors declare that there are no conflicts of interest regarding the publication of this paper.

Reference

American Psychiatric Association, A., & Association, A. P. (1994). *Diagnostic and statistical manual of mental disorders: DSM-IV* (Vol. 4): American psychiatric association Washington, DC.

Azhu, H., Geng, X., & Puyu, S. (2017). A Meta-analysis of characteristics of non-suicidal self-injury among middle school students in mainland China. *CHINESE JOURNAL OF SCHOOL HEALTH, 38*(11), 1665-1670.

Bem, D., Connor, C., Palmer, C., Channa, S., & Birchwood, M. (2017). Frequency and preventative interventions for non-suicidal self-injury and suicidal behaviour in primary school-age children: a scoping review protocol. *BMJ open, 7*(7), e017291.

Bjureberg, J., Sahlin, H., Hedman-Lagerlöf, E., Gratz, K. L., Tull, M. T., Jokinen, J., . . . Ljótsson, B. (2018). Extending research on Emotion Regulation Individual Therapy for Adolescents (ERITA) with nonsuicidal self-injury disorder: open pilot trial and mediation analysis of a novel online version. *BMC psychiatry, 18*, 1-13.

Brown, R. C., & Plener, P. L. (2017). Non-suicidal self-injury in adolescence. *Current psychiatry reports, 19*, 1-8.

Czyz, E., Glenn, C., Busby, D., & King, C. (2019). Daily patterns in nonsuicidal self-injury and coping among recently hospitalized youth at risk for suicide. *Psychiatry research, 281*, 112588.

Ding, H., Yang, F., & He, X. (2021). Effect of emotional regulation strategy on non-suicidal self-injury behavior of adolescents with depressive disorder. *Journal of Nursing Science, 36*, 62-65.

Durand SC, & McGuinness TM. (2016). Adolescents Who Self-Injure. *J Psychosoc Nurs Ment Health Serv, 54*(4), 26-29.

Fu, X., Yang, J., Liao, X., Lin, J., Peng, Y., Shen, Y., . . . Chen, R. (2020). Parents' attitudes toward and experience of non-suicidal self-injury in adolescents: a qualitative study. *Frontiers in psychiatry, 11*, 651.

Geng, F., Jiang, F., Rakofsky, J., Liu, T., Liu, Y., Liu, H., & Tang, Y.-l. (2020). Psychiatric inpatient beds for youths in China: data from a nation-wide survey. *BMC psychiatry, 20*(1), 1-6.

Glenn, C. R., Kleiman, E. M., Cha, C. B., Nock, M. K., & Prinstein, M. J. (2016). Implicit cognition about self-injury predicts actual self-injurious behavior: Results from a longitudinal study of adolescents. *Journal of Child Psychology and Psychiatry, 57*(7), 805-813.

Hauber, K., Boon, A., & Vermeiren, R. (2019). Non-suicidal self-injury in clinical practice. *Frontiers in Psychology, 10*, 502.

HIBINO, Y., OGATA, Y., Shunsuke, E., Masaaki, W., MURASE, A., &

MOCHIOKA, N. (2019). First records of a rare snake eel, Leiuranus versicolor (Anguilliformes, Ophichthidae) from Japan. *FishTaxa, 4*(3), 145-149.

Hua L I, Zhongying S, & Jia H et al. (2020). Effect of emotional catharsis workshop on negative emotions among patients with depression. *Chinese Nursing Management, 20*(8), 1164-1168.

Karman, P., Kool, N., Poslawsky, I. E., & van Meijel, B. (2015). Nurses' attitudes towards self-harm: A literature review. *Journal of psychiatric and mental health nursing, 22*(1), 65-75.

Long, M., Manktelow, R., & Tracey, A. (2015). The healing journey: Help seeking for self-injury among a community population. *Qualitative Health Research, 25*(7), 932-944.

Mars, B., Heron, J., Klonsky, E. D., Moran, P., O'Connor, R. C., Tilling, K., . . . Gunnell, D. (2019). Predictors of future suicide attempt among adolescents with suicidal thoughts or non-suicidal self-harm: a population-based birth cohort study. *The Lancet Psychiatry, 6*(4), 327-337.

Monto, M. A., McRee, N., & Deryck, F. S. (2018). Nonsuicidal self-injury among a representative sample of US adolescents, 2015. *American journal of public health, 108*(8), 1042-1048.

Nock, M. K., & Banaji, M. R. (2007). Prediction of suicide ideation and attempts among adolescents using a brief performance-based test. *Journal of consulting and clinical psychology, 75*(5), 707.

Pei Z, Min-lu L, & Chun W et al. (2021). Retrospective analysis of the non-suicidal self-injury of the young hospitalized patients in the depart-ment of mood disorders. *Journal of Clinical Psychiatry, 31*(2), 101-104.

Pintar Babič, M., Bregar, B., & Drobnič Radobuljac, M. (2020). The attitudes and feelings of mental health nurses towards adolescents and young adults with nonsuicidal self-injuring behaviors. *Child and adolescent psychiatry and mental health, 14*, 1-10.

Plener, P. L., Brunner, R., Fegert, J. M., Groschwitz, R. C., In-Albon, T., Kaess, M., . . . Becker, K. (2016). Treating nonsuicidal self-injury (NSSI) in adolescents: consensus based German guidelines. *Child and adolescent psychiatry and mental health, 10*(1), 1-9.

Pollak, O. H., D'Angelo, E. J., & Cha, C. B. (2020). Does function predict persistence? Nonsuicidal self-injury among adolescents during and after hospitalization. *Psychiatry research, 286*, 112839.

Powers, J. T., Brausch, A. M., & Muehlenkamp, J. J. (2021). Explicit and implicit measurement of nonsuicidal self-injury in the prediction of concurrent and prospective self-injury. *Suicide and Life-Threatening Behavior, 51*(4), 665-672.

Syed, S., Kingsbury, M., Bennett, K., Manion, I., & Colman, I. (2020). Adolescents' knowledge of a peer's non-suicidal self-injury and own non-suicidal self-injury and suicidality. *Acta Psychiatrica Scandinavica,*

142(5), 366-373.

Vergara, G. A., Stewart, J. G., Cosby, E. A., Lincoln, S. H., & Auerbach, R. P. (2019). Non-suicidal self-injury and suicide in depressed adolescents: Impact of peer victimization and bullying. *Journal of Affective Disorders, 245*, 744-749.

Victor, S. E., Hipwell, A. E., Stepp, S. D., & Scott, L. N. (2019). Parent and peer relationships as longitudinal predictors of adolescent non-suicidal self-injury onset. *Child and adolescent psychiatry and mental health, 13*(1), 1-13.

Westers, N. J., & Plener, P. L. (2020). Managing risk and self-harm: Keeping young people safe. *Clinical child psychology and psychiatry, 25*(3), 610-624.

Williams, C. A. (2011). Mentoring and Social Skills Training. *Child welfare, 90*(1), 59-74.

You, J., Zheng, C., Lin, M.-P., & Leung, F. (2016). Peer group impulsivity moderated the individual-level relationship between depressive symptoms and adolescent nonsuicidal self-injury. *Journal of adolescence, 47*, 90-99.

ZHU, P., ZHU, F., JI, C., KONG, F., DU, X., JI, F., . . . LU, X. (2021). Application of Williams Life Skills Training in depressive adolescents with non-suicidal self-injury. *Sichuan Mental Health*, 131-135.