

Self-injurious behavior and adolescence: a review of predisposing factors, preventive and therapeutic strategies

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Abstract:

With the aim of describing self-injurious behavior among adolescents, including predisposing factors, strategies for health promotion and prevention of this behavior, as well as for its treatment, a narrative review was developed based on the criteria of the Scale for the Assessment of Narrative Review Articles. Searches were carried out in the PubMed, Virtual Health Library, Scientific Electronic Library Online, CAPES, and Google Scholar databases with a time frame from 2018 to 2023, and the primary descriptors used were “Self-Injurious Behavior”, “Self Mutilation”, “Adolescent”, “Causality”, “Risk factors”, “Suicide”, “Suicidal Ideation”, “Health Promotion”, “Primary Prevention”, “Secondary Prevention”, “Tertiary Prevention”, “Therapeutic” and “Self-harm Behavior”. The selected articles were categorized into 1. Predisposing factors for self-injury, 2. Preventive strategies for self-injury, and 3. Therapeutic strategies for self-injury. It was evidenced that adolescence is marked by vulnerabilities that make these individuals prone to self-harming behaviors. Factors such as family conflicts, psychological disorders, childhood abuse, prejudice and discrimination, and being female increased this propensity. Strengthening family bonds, fostering teacher-student connections, and improving health service-user relationships stood out as preventive strategies for self-harm. Treatment should include early identification and intervention, with possibilities such as harm reduction and emotional regulation techniques, as well as psychotherapy with Cognitive Behavioral Therapy.

Keywords: Self-injurious behavior, Self-mutilation, Therapies, Adolescents.

Comportamento autolesivo e adolescência: uma revisão de fatores predisponentes, estratégias preventivas e terapêuticas

Resumo:

Com o objetivo de descrever o comportamento autolesivo entre adolescentes, incluindo fatores predisponentes, estratégias para promoção de saúde e prevenção deste comportamento, bem como para seu tratamento, desenvolveu-se uma revisão narrativa baseada nos critérios da *Scale for the Assessment of Narrative Review Articles*. Foram realizadas buscas nas bases de dados PubMed, Biblioteca Virtual em Saúde, *Scientific Electronic Library Online*, Periódicos CAPES e *Google Scholar* com recorte temporal de 2018 a 2023 e, os principais descritores utilizados foram “Self-Injurious Behavior”, “Self Mutilation”, “Adolescent”, “Causality”, “Risk factors”, “Suicide”, “Suicidal Ideation”, “Health Promotion”, “Primary Prevention”, “Secondary Prevention”, “Tertiary Prevention”, “Therapeutic” e “Self-harm Behavior”. Os artigos selecionados foram categorizados em 1. Fatores predisponentes à autolesão, 2. Estratégias preventivas à autolesão e 3. Estratégias terapêuticas à autolesão. Evidenciou-se que a adolescência é marcada por vulnerabilidades que tornam esses sujeitos propensos a comportamentos de autolesão. Fatores como conflitos familiares, transtornos psicológicos, abuso na infância, preconceito e discriminação e pertencer ao sexo feminino aumentaram essa propensão. Destacaram-se como estratégias preventivas da autolesão o fortalecimento do vínculo familiar, aproximação professor-aluno e serviço de saúde-usuário. O tratamento deve incluir identificação e intervenção precoce, com possibilidades como técnicas de redução de danos e de regulação emocional, bem como psicoterapia com Terapia Cognitivo Comportamental.

Palavras-chave: Comportamento autolesivo, Automutilação, Terapias, Adolescentes.

Comportamiento auto agresivo y adolescencia: una revisión de factores predisponentes, estrategias preventivas y terapéuticas

Resumen:

Con el objetivo de describir la conducta autolesiva entre los adolescentes, incluidos los factores predisponentes, las estrategias de promoción de la salud y prevención de esta conducta, así como para su tratamiento, se desarrolló una revisión narrativa basada en los criterios de la Escala para la Evaluación de artículos de revisión narrativa. Se realizaron búsquedas en las bases de datos PubMed, Biblioteca Virtual en Salud, *Scientific Electronic Library Online*, CAPES y *Google Scholar* con un marco temporal de 2018 a 2023, y los principales descriptores utilizados fueron “Self-Injurious Behavior”, “Self Mutilation”, “Adolescent”, “Causality”, “Risk factors”, “Suicide”, “Suicidal Ideation”, “Health Promotion”, “Primary Prevention”, “Secondary Prevention”, “Tertiary Prevention”, “Therapeutic” y “Self-harm Behavior”. Los artículos seleccionados se categorizaron en 1. Factores predisponentes para la autolesión, 2. Estrategias preventivas para la autolesión y 3. Estrategias terapéuticas para la autolesión. Se evidenció que la adolescencia está marcada por vulnerabilidades que hacen que estos sujetos sean propensos a comportamientos de autolesión. Factores como los conflictos familiares, trastornos psicológicos, abuso en la infancia, prejuicio y discriminación y ser del sexo femenino aumentaron esta propensión. Se destacaron como estrategias preventivas de la autolesión el fortalecimiento del vínculo familiar, la aproximación profesor-alumno y la relación entre el servicio de salud y el usuario. El tratamiento debe incluir la identificación e intervención temprana, con posibilidades como técnicas de reducción de daños y regulación emocional, así como psicoterapia con Terapia Cognitivo Conductual.

Palabras clave: Conducta autolesiva, Automutilación, Terapias, Adolescentes.

INTRODUCTION

The fifth edition/ text revision of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5-TR) defines non-suicidal self-injury and its purpose as the behavior in which "the individual repeatedly inflicts minor-to-moderate, often painful injuries to the surface of his or her body without suicidal intent. Most commonly, the purpose is to reduce negative emotions, such as tension, anxiety, sadness, or self-reproach, or less often to resolve an interpersonal difficulty" (AMERICAN PSYCHIATRIC ASSOCIATION, 2023, p. 1960). The DSM-5-TR and other sources in the literature emphasize the need for further studies on this condition, as well as emphasize that the practice of non-suicidal self-injury with multiple methods is associated with suicide attempts (AMERICAN PSYCHIATRIC ASSOCIATION, 2023; CARMO *et al.*, 2020; SILVA *et al.*, 2022).

Papalia and Martorrel (2021) describe that in India, adolescents can use computers, but have strong family ties, and their decisions are influenced by traditional Hindu values; in Western countries, there is an overvaluation of female thinness, while in Nigeria obesity is the body ideal. This variability demonstrates that the concept of adolescence is not unanimous and that adolescence is experienced differently given to cultural influence. However, it is emphasized by the authors that this is a phase with biological and brain markers, which behaviorally influence the subjects, and maintain its markers independent of the culture. Therefore, adolescence is a period of transition from childhood to adulthood marked by brain and biological changes, and consequently cognitive, social, and emotional (PAPALIA; MARTORELL, 2021). This transition offers an opportunity for development in all mentioned areas and, when experienced with parent, school, and social support networks, the result is likely to be a healthy teenager. On the other hand, adolescents face risks, such as high self-injury, suicide, and accident mortality rates, which may reflect some factors, such as their brain immaturity. (PAPALIA; MARTORELL, 2021)

Puberty triggers the beginning of adolescence - usually, girls experience the beginning of this event at age 10, while boys at age 12. With growth hormones and sex hormones (androgens and estrogen), there is a growth spurt, where there is a rapid and unequal increase in bone, weight, and height (PAPALIA; MARTORELL, 2021). In this phase of development, it is common to concern appearance; due to the greater charging and cultural emphasis given to the physical aspect in females, girls face more irritability and depressive

states, with frequent negative feelings related to their bodies; this factor may be related to the highest prevalence of non-suicidal self-harm among female adolescents (ALENCAR, 2009, CARMO *et al.*, 2020; PAPALIA; MARTORELL, 2021).

In adolescence, the accumbent center - part of the reward path - loses about one-third of its dopamine receptors (HERCULANO-HOUZEL, 2005). This loss leads to the dullness of the reward system, that is, difficulty activating the sense of pleasure. The adolescent is bored with previously pleasant stimuli and overvalues new experiences and social interactions; strong stimuli facilitate the activation of this system and, consequently, the adolescent becomes more prone to risky behaviors, which is evidenced by the greater frequency of self-injury in adolescents compared to other phases of development (ALENCAR, 2009, CARMO *et al.*, 2020, SILVA *et al.*, 2022).

According to Herculano-Houzel (2005), another factor that corroborates this is the changes in the prefrontal cortex; in this brain transition, the dorsolateral prefrontal cortex undergoes structural and functional reorganization, in which there is a decrease in the gray substance and an increase in the white substance. This reorganization occurs throughout adolescence, which gradually leads to the development of the capacity for selection and inhibition of behavior and to use emotions for decision-making. It is necessary to emphasize that these skills are not ready at this stage, so adolescents have difficulties in emotional regulation and are impulsive because they do not find a prefrontal dorsolateral cortex developed to stop them (HERCULANO-HOUZEL, 2005).

During this transient period, adolescents undergo drastic physical changes, distancing from the family environment, challenges in creating bonds of friendship, and loss of child identity; the teenage scenario is marked by challenges, vulnerability, and brain immaturity, which makes them prone to self-injury behaviors - which occurs in about 15 to 20% of adolescents and increases their risk of suicide by up to 100 times when compared to the general population (AMERICAN PSYCHIATRIC ASSOCIATION, 2022, CARMO *et al.*, 2020, SILVA *et al.*, 2022).

As mentioned, given the high incidence, 15 to 20%, of self-harm among adolescents, the association of this condition with the high risk for suicide - which increases their risk by up to 100 times when compared to the general population and the need for further research

on risk factors is relevant to the realization of this review. Thus, this narrative review aims to describe predisposing factors of self-injurious behavior among adolescents, health promotion strategies, and prevention of this behavior, as well as their treatment.

METHOD

It is a narrative review. This approach is useful for theoretical and conceptual descriptions and discussions from the analysis and interpretation of different bibliographic sources, such as books and articles, presenting an expanded panorama on the theme to which it is proposed (ROTHER, 2007). For this purpose, this article was conducted considering the criteria of Scale for the Assessment of Narrative Review Articles – SANRA: 1) justification and significance of the study, 2) clear objectives, 3) a description of the literature, 4 and 5) references and the level of evidence for the main arguments, 6) proper presentation of the data. (BAETHGE; GOLDBACK-WOOD; MERTENS, 2019). This instrument was used as an internal assessment guide to ensure the quality of the manuscript before submitting it for external review.

Initially, descriptors were selected for the search - “Self -Injurious Behavior”, “Self Mutilation”, “Adolescent”, “Causality”, “Risk Factors”, “Suicide”, “Suicide Ideação”, “Health Promotion”, “Primary Prevention”, “Secondary Prevention”, “Tertiary Prevention”, “Therapeutic” - and its Entry Terms available on the Medical Subject Headings - Mesh (MeSH - NCBI”, [s.d.]), and other localized terms that could lead to the subject. From their combinations with the Boolean OR and AND, the selection of articles published between 2018 and 2024, with a focus on the current relevance of the research, was done in the Pubmed databases, Virtual Health Library (BVS), Scientific Electronic Library Online (Scielo), Periodic Capes, and Google Scholar, in order to obtain a national and international sample, which responded to the search goal. Screening and analysis of the studies were done manually in January/2023 and November/2024, aiming to update the research.

The selected articles were categorized into 1. Predisposing factors for self-injury, 2. Preventive strategies for self-injury, and 3. Therapeutic strategies for self-injury; for further detail.

RESULT/DISCUSSION

Predisposing Factors

Understanding the predisposing factors for non-suicidal self-injury is essential to establish better preventive methods and avoid possible injuries such as suicidal ideation and worsening of mental disorders (TANG *et al.*, 2018). Several contributing factors for self-injury in adolescence were mapped, such as sexual, physical, or psychological abuse suffered in childhood or adolescence, living with parental conflicts or in a bad relationship between parents and children, aggression, compromised family structure, living with parents with psychopathologies or abuse of alcohol or other drugs, prejudice, and discrimination, emotional dependence on peers, low self-esteem and aesthetic pressure, impulsivity, belonging to the female gender, having some psychological disorder or psychological distress/depressed mood, dependence on digital devices, sleep problems, conflicts in non-family interpersonal relationships (friends and partners), academic pressure and poverty (FARBSTEIN *et al.*, 2022, KAESZ *et al.*, 2020, LIANG *et al.*, 2022, TANG *et al.*, 2018, HUANG *et al.*, 2022). However, few of these studies have described in depth the influence of these risk factors as predisposing factors for non-suicidal self-injury. The figure 1 summarizes the main results about predisposing factors for non-suicidal self-injury.

Figure 1. Summary of predisposing factors for non-suicidal self-injury

Source: Own elaboration.

In the adolescence there is an unbridled search for immediate rewards, due to hyperactivation of the pleasure center (nucleus accumbens) resulting from the immaturity of the prefrontal cortex, which acts as an inhibitory control area (MARTINEZ; MARTINS, 2024). In this sense, the self-injurious behaviors, when presented in adolescence, may result from the capacity for emotional regulation not yet fully developed at this stage, so self-harm may represent a search for control of emotions in the face of stressors (MURNER-LAVANCHY *et al.*, 2024). In this bias, in adolescents whose self-injurious behavior is only due to this immaturity, this practice could be temporary (HERCULANO-HOUZEL, 2005). However, this theory lacks solid evidence.

The first episodes of non-suicidal self-injury are influenced by triggers - previous

situations to the practice that arises from the need for emotional regulation in the face of experienced stressful events. A prospective multicenter controlled study found that these events are mainly related to interpersonal conflicts, which can be classified into two domains: family, including questions such as "change in the health of the family member", "parents stop or start working" and "problems with the parents"; or refers to a peer group, including "problems with bullies" and "warmly discussion with a close friend" (KAESS *et al.*, 2020).

The difficult relationship with caregivers and the presence of family conflicts are among the main risk factors in childhood and the first phase of adolescence - and in this second phase, this factor is amplified by psychological disorders, such as anxiety and depression (LIANG *et al.*, 2022, YU *et al.*, 2024, THIPPAIAH *et al.*, 2024). The importance of the family support network lies in the dependency on subsidy, formation of behavioral patterns, and emotional regulation that adolescents have with their guardians, in addition, people who self-harm are more likely to have been exposed to problems of family structure and functionality (LIANG *et al.*, 2022; GENG *et al.*, 2023). In this sense, it is understood that the structure and functionality of the family influence abuse and violence, neglect, lack of emotional support, or the need to deal with adult demands, which, associated with brain immaturity, generates emotional problems that can lead to self-injury (LIANG *et al.*, 2022, GENG *et al.*, 2023, MARTINEZ; MARTINS, 2024, YU *et al.*, 2024, THIPPAIAH *et al.*, 2024).

The interaction between biological factors, such as changes in sleep regulation and circadian systems throughout puberty, and sociocultural factors, such as early morning school start times and nighttime electronics use, can lead to risks of self-harm (KHASAIE *et al.*, 2020, ASARNOW *et al.*, 2020). Thus, in that regard, it is noteworthy that the recurrent delay in sleeping and waking hours among adolescents is associated with a worsening in mental health (ASARNOW *et al.*, 2020). It was evident that adolescents with self-injurious practices are exposed to more screen time than adolescents who do not, demonstrating the influence of this factor, in addition to being related to the increase in psychological disorders in this age group (LIANG *et al.*, 2022). In support, a prospective cohort study carried out in the United Kingdom with 14 years old adolescents showed that exposure to social networks in adolescence increases the risk of developing depression among girls, suggesting that experiences of online harassment, worse quantity and quality of sleep, affect self-esteem and body image largely explain the observed associations (KELLY *et al.*, 2018).

During puberty is demonstrated an inversion in the distribution of NSSI between the sexes, so that at the beginning of adolescence the prevalence of this behavior becomes feminine, unlike childhood, when it was more observed in boys (LIANG *et al.*, 2022). Thus, it is understood that the puberty - a period that triggers hormonal, physical and neurodevelopment changes - influences the way adolescents see themselves and behave in different everyday situations, in a way that makes them more related to non-suicidal self-injury than males (TANG *et al.*, 2018, KAESS *et al.*, 2020, LIANG *et al.*, 2022, HUANG *et al.*, 2022). This data is corroborated by the higher prevalence of mental disorders in women, which are predisposing to this self-injurious behavior (LIANG *et al.*, 2022, TANG *et al.*, 2018).

One of the main risk factors is psychological disorders, especially anxiety, depression, and behavioral disorders that resemble borderline personality disorder, which is related to the cited predisposing factors (KAESS *et al.*, 2020, SHOREY; NG; WONG, 2022). Adolescents with depression are more inclined to perform self-harm repeatedly, that is, continuously over time, thus, treatment should focus on the mental disorder and self-injury, becoming more complex (HUANG *et al.*, 2022). At this stage of development, subjects with suicidal tendencies are more tolerant of non-suicidal self-injurious behavior - considered a significant risk factor. At the same time that non-suicidal self-injury is presented as one of the main risk factors for suicide, understanding it becomes even more urgent (POUDEL *et al.*, 2022).

It is clear that adolescents who report loneliness and low levels of social support are more tolerant of self-injurious practices, which are used as a method of emotional regulation, self-punishment, or stress communication (TANG *et al.*, 2018, POUDEL *et al.*, 2022). At this point, it is evident that non-suicidal self-injurious behavior arises in the search for relief from negative emotions when the young person faces personal difficulties in everyday life (POUDEL *et al.*, 2022).

The economic and technological development of recent decades has brought social changes, which have brought new demands on adolescents, such as increased academic demands and psychological pressure (LIANG *et al.*, 2022). As a consequence of these cognitive factors and those related to future perspectives, there is an intensification of emotional problems - such as anxiety and depression - and behavioral problems, such as self-harm behavior (LIANG *et al.*, 2022). In this sense, it was observed that the presentation of low school grades, lack of attentive listening by guardians, self-harm through cutting and suicidal

ideation presented in the previous year were among the main factors for continued self-harm (HUANG *et al.*, 2022).

Emphasizing the relevance of the theme for health professionals, iatrogenesis in health centers was raised as a predisposing factor, given that sometimes the main complaint is sought without an attentive view of the adolescent patient, which prevents screening and possible interventions for self-injurious behavior (LIANG *et al.*, 2022). In a longitudinal study, it was reported that adolescents who had their first episode of self-harm treated in a hospital environment were more likely to repeat self-injurious behavior, which demonstrates the unpreparedness of health professionals to deal with self-injury, as well as highlights the urgency of the current research (HUANG *et al.*, 2022).

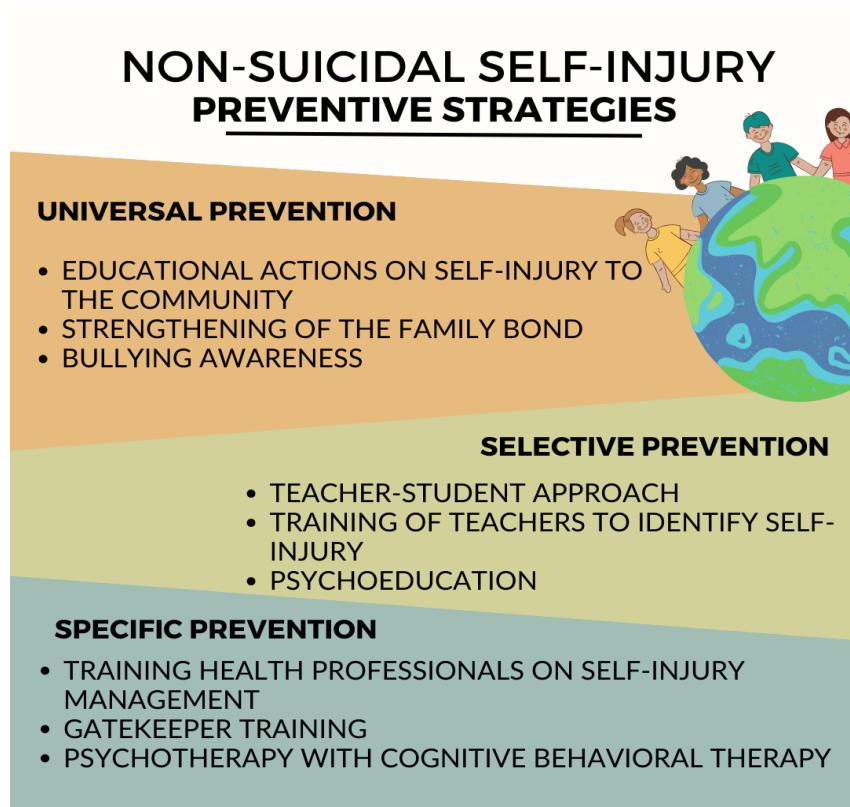
Preventive Strategies

The development of strategies to prevent self-injurious behavior without suicidal intent in adolescents is essential, considering the increase in prevalence and associated implications; these strategies must be based on knowledge of the ideas and functions of self-injurious behavior practices, which are driven by positive reinforcement (interpersonal) and/or negative reinforcement (intrapersonal) (FONSECA *et al.*, 2018). An integrative review highlights that adolescents who engage in self-injury to obtain positive or negative social reinforcement have different demands, motives, and factors, and concludes that preventive interventions targeting the functions identified by adolescents produce better results in reducing related risks (MOREIRA *et al.*, 2020).

In this perspective, the search and identification of modifiable risk factors are an important point of approach for prevention. Gordon (1897) develops a prevention model that categorizes self-injury and suicide prevention into three levels, being them: 1) the universal level, which aims to reduce the incidence of new cases through educational actions aimed at the community, sharing information about risk factors and warning signs, dispelling myths, promoting help-seeking behavior and teaching how to effectively respond to a person in risk and connect them to appropriate resources; 2) selective prevention, aimed at subgroups exposed to risk situations; and 3) specific prevention aimed at individuals who exhibit suicidal behavior (*apud* NEVES, 2020; PEREIRA; PEREIRA, 2020). The literature points to the

application of this theoretical concept of categorization of prevention in literature review studies, pointing out that strategies such as gatekeeper training (guardians of life), screening programs for risk detection, psychoeducation, dialectical behavioral therapy, and cognitive behavioral therapy, users are directed to these three levels of actions (NEVES; PEREIRA; PEREIRA, 2020, TRINCO, SANTOS, 2021, KAMAZAKI; DIAS, 2021). The figure 2 summarizes the main results about preventive strategies for non-suicidal self-injury.

Figure 2. Summary of preventive strategies for non-suicidal self-injury



Source: Own elaboration.

It is noteworthy that family and school contexts are privileged to identify adolescents at greater risk and provide support for potential adversities since these are part of their daily routine and can provide an environment for building bonds in the axes where their lives converge. social: family, school, and friends (ESCOBAR; ARRUDA; SOBRINHO, 2022, GABRIEL *et al.*, 2020). In this sense, a qualitative study carried out in Pakistan on the opinion of adolescents who self-harm highlights the importance of family involvement in the

prevention process, as for them family members are key facilitators in the preventive process (NAZ *et al.*, 2021). Other studies that address the issue of family perception in contexts of adolescent self-injury point out that family groups that have this experience may experience crises, reflecting changes in family dynamics; so that, although in some cases the strengthening of affective bonds between its members occurs, generating a space for resolution or improvement of the situation, in others families are affected by intense suffering that can result in positive or negative changes depending on their restructuring form and capacity (TRINCO, SANTOS, 2021, HUGHES *et al.*, 2017, CURTIS *et al.*, 2018).

In the school context, from the perspective of teachers, two literature review studies focused on this theme, demonstrated that the preventive behaviors for self-injurious behavior identified by teachers are: 1) strengthening of the family bond, 2) teacher-student approximation, 3) identification, and awareness of bullying; 4) professional support, considering that teachers demonstrate difficulty in identifying factors that would be characterized as a warning sign, thus making preventive actions difficult (BRITO *et al.*, 2020, CURTIS *et al.*, 2018, ESCOBAR; ARRUDA; SOBRINHO, 2022). A study conducted with university students highlighted that the use of artistic techniques in the educational context can be a powerful tool to assist individuals in developing self-awareness, identity formation, and the recognition of their own emotions, with positive repercussions and impact on adult life (LAGUNA *et al.*, 2023a).

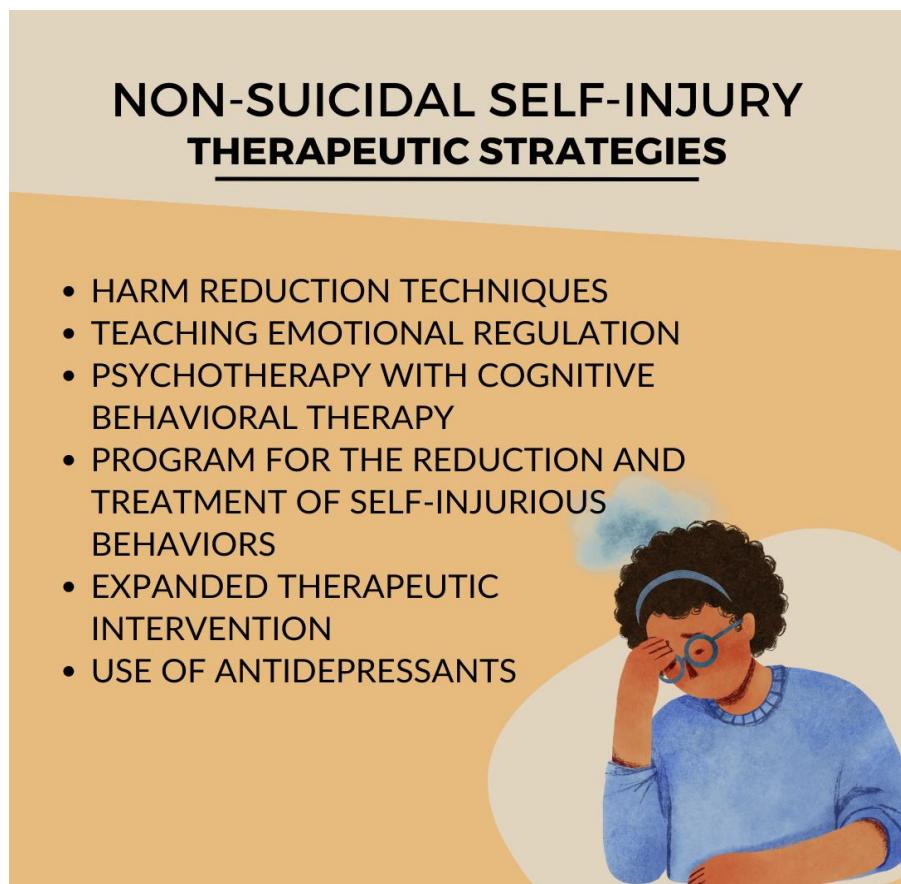
As for prevention carried out by primary health care levels, early identification and intervention in cases of adolescent self-mutilation have the potential to reduce the worsening of serious injuries resulting from self-mutilation and reduce the risk of future suicide (GONÇALVEZ *et al.*, 2021, GABRIEL *et al.*, 2020). The literature, however, points out that many adolescents do not seek health services and that the search for help in most cases turns to informal support, thus strengthening and investing in interventions to raise awareness about this practice aimed at friends and family can direct them to seek subsequent formal help (CURTIS *et al.*, 2018, GABRIEL *et al.*, 2020). It is noteworthy that a minority of adolescents seek help, due to the presence of barriers such as lack of basic knowledge about where to seek help, fear of exposure, abandonment, rejection, and shame, and the search for support happens when trust is established, recognition of the seriousness and willingness to cease the practices (NEVES; PEREIRA; PEREIRA, 2020, CURTIS *et al.*, 2018, GONÇALVEZ *et al.*, 2021).

Therefore, understanding and overcoming the barriers that impede this demand and the provision of information on the subject becomes increasingly urgent.

Therapeutic strategies

Non-suicidal self-injurious behavior in early adolescence should be considered an indicator of negative health outcomes; it is reported that self-harm in adolescence impairs mental health, social and academic functions; consequently, greater tendencies towards substance abuse, anxiety, and depression, impaired educational and occupational outcomes, and higher divorce rates in adult life are identified - demonstrating social harm (HUANG *et al.*, 2022). More specifically, a longitudinal study, with a 10-year follow-up, found this data mainly when self-injurious behavior in adolescence was continuous and, in adult life, depression, anxiety, and difficulty in emotional regulation were presented; even when the behavior was infrequent in adolescence, the subject was more vulnerable to short and long-term mental health issues (DAUKANTAITĖ *et al.*, 2020). These findings reinforce the need for early identification and intervention to reduce the damage to the mental health of adolescents who self-harm. The figure 2 summarizes the main results about therapeutic strategies for non-suicidal self-injury.

Figure 3. Summary of therapeutic strategies for non-suicidal self-injury



Source: Own elaboration.

Possibilities and clashes are researched and discussed regarding interventions for self-injurious behavior presented by adolescents. Qualitative research addressed adolescents included in a British program of early intervention on self-harm about their perceptions of the harm reduction techniques promoted by it; their results point out that harm reduction techniques, such as short-term or situation-specific, can contribute to the management of self-injury for some people; however, its use must be monitored and combined with alternative strategies and therapeutic support (DAVIES *et al.*, 2020). Furthermore, a systematic review investigated the attitudes of health professionals related to the self-injurious behavior of children and adolescents, evidencing the apprehension of many professionals due to the fear of worsening the conditions - an attitude that makes it difficult to establish effective therapeutic relationships (COIMBRA; NOAKES, 2022). In line with this finding, in another qualitative research with young people, who sought assistance in the

emergency room due to a self-inflicted injury, there were common complaints about the environment and care processes being counter-therapeutic and the employees lacking information, as well as demonstrating disinterest and contempt (BYRNE *et al.*, 2021). These data highlight the imperative of improvements in services and professional health training for the adequate reception of the public since they are actors who are in a prominent position for the care and prevention of relapses of self-injury.

Emotional reactivity proves to be an influential element for the continuity or interruption of non-suicidal self-injurious behavior. A longitudinal study conducted in Germany identified the relevance of reinforcing functions in non-suicidal self-injurious behavior for increasing emotional reactivity; it was concluded that teaching alternatives that can reduce this emotional reactivity, as well as reducing self-injurious behavior in a clinical context, can be strategic for reducing it in these cases (KANDSPERGER *et al.*, 2022).

About psychotherapy, a systematic review of randomized clinical trials about interventions on suicide attempts and self-mutilation showed that, although most studies have not been able to determine the effectiveness of interventions, in general, self-guided and socially oriented individual interventions suggested a greater reduction in suicide attempts, with benefits from combined self-directed and systems-oriented approaches to reducing self-injury (IYENGAR *et al.*, 2018). In that study, Cognitive Behavioral Therapy (CBT) was the only intervention with a replicated positive impact on reducing self-injury in adolescents, including different variations of it and comprising Dialectical Behavioral Therapy for Adolescents (CBT) as a type of CBT, although the authors point out that establishing the most effective intervention given the heterogeneity of suicidal behavior is a challenge (IYENGAR *et al.*, 2018). A later review on self-injurious behavior in adolescents found similar results regarding the quality of the available evidence - moderate or low - and supported the development and evaluation of DBT and CBT in children and adolescents (WITT *et al.*, 2021). Another, more specific, review on self-injurious behavior without suicidal intent in adolescents showed the effectiveness of two psychotherapeutic interventions: Program for the Reduction and Treatment of Self-Injurious Behaviors (CALVO, 2022).

In the Brazilian context, there is a recent effort to implement public policies related to self-injurious behavior and suicidal intent. In this sense, Law N° 13,819 stands out, which instituted the National Policy for the Prevention of Self-Mutilation and Suicide in 2019

(BRASIL, 2019). This policy aims at promoting health, preventing behaviors and treating conditions in an intersectoral way, guaranteeing access to psychosocial assistance for people suffering and/or with a history of self-injury, ideation, or attempted suicide, information, and social awareness on the subject, as well as notification of events for the formulation of policies and improvement of care, permanent training of health professionals, maintenance of free and confidential telephone service to support people in psychological distress (BRASIL, 2019).

Some data reinforce the importance of the contribution of intersectionality, for the identification of cases and promotion of assistance and reveal challenges for the longitudinally of care due also to the lack of records. Qualitative research in the south of Brazil identified that 76.3% of the youngsters who attended for self-injury in the Center for Psychosocial Care for Children and Adolescents had no history of previous treatment, most were referred by the school, and it was not possible to establish the period between the identification of self-injury and specialized care due to lack of data in the medical records (SANTO; BEDIN; DELL'AGLIO, 2022). In addition, about half of the adolescents had other risk behaviors, such as the use of alcohol and other drugs and/or risky sexual behavior, and most of the sample used psychiatric medication, with the most frequent diagnostic hypotheses being mood disorders and borderline personality disorder - approximately 8% had already required psychiatric hospitalization for self-injury (SANTO; BEDIN; DELL'AGLIO, 2022). Thus, the importance of broadly planning the therapeutic intervention of adolescents with self-injurious behavior is highlighted, since this behavior is often not the only one to be managed, and recurrences are not rare.

Considering that the risk of suicide in people with mental disorders is ten times greater than in the rest of the population, the training of primary care professionals, such as general practitioners, may favor the identification of these cases, and training programs have shown that the increase in the prescription of antidepressants may contribute to the decrease in rates of suicidal behavior (SERRANO; FAJARDO-DOLCI, 2021). Regarding which antidepressant(s) to prefer, a systematic review with meta-analysis evaluated the effect of psychotropic drugs on self-injurious behavior without suicidal intent in children and adolescents; in it, selective serotonin reuptake inhibitors (SSRIs) were compared with control medication (placebo or serotonin-norepinephrine reuptake inhibitor), however,

there was no statistically significant difference between groups regarding the frequency of events, not being identified as a preferential drug between SSRI and serotonin-norepinephrine reuptake inhibitor, so that each case should be considered from its particularities and the clinician's criteria (EGGART *et al.*, 2022).

Key lifestyle habits significant in managing the risk of self-injurious behavior include sleep quality, regular physical exercise, and a sense of identification and belonging to a community (LAGUNA *et al.*, 2023b). In the case of patients with mood disorders, the use of lithium, compared to placebo and other active treatments, also showed a significant response in reducing the suicide rate, thus being a therapeutic tool to be considered in cases where there is this risk (D'ANCI *et al.*, 2019, LAGUNA *et al.*, 2023b). It is also pointed out that the evidence about the use of cannabis and its impact on self-injurious behavior is still insufficient for definitive conclusions, however, its use may represent a negative prognostic marker regarding this behavior (DENISSOFF *et al.*, 2022). Finally, it is emphasized that the management of self-injurious behavior includes the management of possible underlying disorders.

CONCLUSION

This review examined the main predisposing factors, preventive measures, and treatment strategies related to self-injurious behavior described in the literature. However, due to the chosen methodological approach, the objective was not to exhaustively cover the entire body of literature but to present an overview of the current evidence. Additionally, as this study was developed from secondary data, limitations present in the selected studies may have affected their results. To address these limitations, a rigorous screening process was conducted based on scientific reasoning, prioritizing study designs with higher levels of evidence whenever possible. The most significant biases identified were explicitly discussed, including limitations related to the quality of evidence presented in some studies. This approach aimed to provide a comprehensive understanding while acknowledging and clarifying potential research constraints.

Subject-related predisposing factors were described, including immaturity in the

adolescent's emotional regulation capacity; being female; the presence of psychological disorders, mainly Pisu, anxiety, and depression; and sleep problems. Additionally, aspects of their life context were noted, such as family conflicts; sexual, physical, and/or psychological abuse; socioeconomic vulnerability; excessive screen use; academic, aesthetic, and psychological pressure; and experiences of prejudice and discrimination. Preventive strategies for self-injury, based on the recognition of these factors, focus on strengthening family bonds, as well as the roles of school and health service agents in connecting with adolescents and their families, for whom targeted training is essential. Effective treatment of self-injurious behavior and its implications involves early identification and intervention. In this context, harm reduction and emotional regulation techniques, alongside psychotherapy—particularly Cognitive Behavioral Therapy (CBT) - can contribute significantly, together with managing underlying disorders where applicable.

Future research opportunities lie in exploring the long-term impact of these preventive strategies and treatment methods on diverse populations, as well as assessing the effectiveness of tailored interventions across different sociocultural contexts. Studies of this nature are crucial for refining current approaches and deepening our understanding of self-injurious behavior, ultimately aiding in the development of more targeted and effective prevention and treatment programs.

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Self-injurious behavior and adolescence: a review of predisposing factors, preventive and therapeutic strategies

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