

SELF-MUTILATION AMONG ADOLESCENTS: A SYSTEMATIC REVIEW WITH META-ANALYSIS

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ABSTRACT

Objective: to estimate the prevalence of self-mutilation among adolescents and the factors that influence it.

Method: this is a systematic review with meta-analysis. The search was carried out October 2021 in the following databases: SciELO, LILACS, MEDLINE and PubMed databases, with the descriptors “*Adolescente*” and “*Comportamento autodestrutivo*” and “Adolescent” and “Self-destructive behavior”, combined by the Boolean operator “AND.” We included studies published between 2015 and 2021, quantitative, in Portuguese, English and Spanish, available in full. We excluded documents that did not contain the amount referring to adolescents who practiced self-mutilation, duplicate and review studies. Study selection was performed by pairs, removing duplicates and applying inclusion and exclusion criteria, reading titles, abstracts and full text. In the end, the sample consisted of 86 studies. Meta-analysis was performed using the R software through the elaboration of forest plot, heterogeneity test, funnel test and Egger’s test.

Results: the prevalence of self-mutilation among adolescents averaged 21%, with the United States standing out with the highest percentage. Among the identified factors, older adolescents, female, economically disadvantaged, who experience family conflicts, with parents with low education, victims of violence and bullying and who have friends with suicidal behavior stood out.

Conclusion: self-mutilation is socially determined so that its prevalence varies according to the integration between different factors. In this context, it is necessary for nursing professionals to offer emotional support to adolescents and their families.

DESCRIPTORS: Prevalence. Violence. Self-Mutilation. Adolescent. Self-Destructive Behavior. Nursing Care. Mental Health. Systematic Review.

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AUTOMUTILAÇÃO ENTRE ADOLESCENTES: REVISÃO SISTEMÁTICA COM METANÁLISE

RESUMO

Objetivo: estimar a prevalência da automutilação entre os adolescentes e os fatores que a influenciam.

Método: revisão sistemática com metanálise. A busca foi realizada no mês de outubro de 2021 nas bases de dados SciELO, LILACS, MEDLINE e PubMed, com os descritores “Adolescente” e “Comportamento autodestrutivo” e “Adolescent” e “Self-destructive behavior,” combinados pelo operador *booleano* “AND”. Foram incluídos os estudos publicados entre 2015 e 2021, quantitativos, em português, inglês e espanhol, disponíveis na íntegra, e excluídos os documentos que não continham o quantitativo referente aos adolescentes que praticaram automutilação, estudos duplicados e de revisão. A seleção dos estudos foi realizada por pares a partir da remoção de duplicatas e da aplicação dos critérios de inclusão e exclusão, leitura de títulos, resumos e texto completo. Ao final, a amostra foi composta por 86 estudos. A metanálise foi realizada pelo uso do *software* R por meio da elaboração do *forest plot*, teste de heterogeneidade, teste de funil e teste de Egger.

Resultados: a prevalência de automutilação entre adolescentes apresentou uma média de 21%, destacando-se os Estados Unidos com o maior percentual. Dentre os fatores identificados, destacaram-se: adolescentes mais velhos, do sexo feminino, desfavorecidos economicamente, que vivenciam conflitos familiares, com pais com baixa escolaridade, vítimas de violência e de *bullying* e que possuem amigos com comportamentos suicidas.

Conclusão: a automutilação configura-se como socialmente determinada de modo que a sua prevalência varia de acordo com a integração entre os diferentes fatores. Nesse contexto, faz-se necessário que o profissional de Enfermagem ofereça apoio emocional aos adolescentes e aos familiares.

DESCRITORES: Prevalência. Violência. Automutilação. Adolescente. Comportamento autodestrutivo. Cuidados de enfermagem. Saúde mental. Revisão sistemática.

AUTOMUTILACIÓN ENTRE ADOLESCENTES: REVISIÓN SISTEMÁTICA CON METANÁLISIS

RESUMEN

Objetivo: estimar la prevalencia de automutilación entre adolescentes y los factores que influyen en ella.

Método: revisión sistemática con metanálisis. La búsqueda se realizó en el mes de octubre de 2021 en las bases de datos SciELO, LILACS, MEDLINE y PubMed, con los descriptores “Adolescente” y “Comportamiento autodestructivo” y “Adolescent” y “Self-destructive behavior”, combinados por el operador booleano “AND”. Se incluyeron estudios publicados entre 2015 y 2021, cuantitativos, en portugués, inglés y español, disponibles en su totalidad, y documentos que no contenían lo cuantitativo referente a adolescentes que practicaron automutilación, estudios duplicados y de revisión. La selección de estudios se realizó por parejas a partir de la remoción de duplicados y la aplicación de criterios de inclusión y exclusión, lectura de títulos, resúmenes y texto completo. Al final, la muestra estuvo compuesta por 86 estudios. El metanálisis se realizó mediante el *software* R mediante la elaboración del *forest plot*, prueba de heterogeneidad, prueba de embudo y prueba de Egger.

Resultados: la prevalencia de automutilación entre adolescentes presentó un promedio de 21%, destacándose Estados Unidos con el mayor porcentaje. Entre los factores identificados, se destacaron los adolescentes mayores, del sexo femenino, en desventaja económica, que viven conflictos familiares, con padres con baja escolaridad, víctimas de violencia y *bullying* y que tienen amigos con conducta suicida.

Conclusión: la automutilación está socialmente determinada, por lo que su prevalencia varía según la integración entre diferentes factores. En ese contexto, es necesario que el profesional de enfermería brinde apoyo emocional a los adolescentes y sus familias.

DESCRITORES: Prevalencia. Violencia. Automutilación. Adolescente. Comportamiento autodestructivo. Cuidado de enfermería. Salud mental. Revisión sistemática.

INTRODUCTION

Self-mutilation is a type of self-inflicted violence, with or without the intention of suicide, which consists of carrying out aggression against one's own body.¹ Relief from bad experiences, from an emotional point of view, family afflictions, relationships or everyday life as a whole is the main reason for the occurrence of this act among adolescents.² This same public understands the phenomenon of self-mutilation as a disease and/or addiction, since it tends to repeat the act to refuge from its own feelings.³

This issue represents a global public health problem, with prevalence ranging from 10.1% to 75.9% among adolescents in Australia and Singapore, respectively.⁴ In a Brazilian state, it was identified that 83.3% of adolescents practiced self-mutilation, but in Brazil there is a lack of studies that quantify the number of adolescents who practice this type of violence in a national overview.²

Self-mutilation can take many forms, with emphasis on: scratches on the skin, lesions on the chest or breasts, face and genitals, hitting the head, burning and cutting oneself. The latter is the most common act among adolescents,⁴ ranging from superficial cuts to deep cuts, without manifestation of anguish, restlessness or pain, referring to self-injury as a soothing resource in the face of a moment of distress.¹

Generally, self-injurious acts are carried out in places on the body that are easily hidden, such as the wrist, arm, thigh and stomach. In this regard, it is avoided that the parents themselves, or other people, identify and question the reason for the injuries, since, for adolescents, the discovery of self-mutilation practice represents judgment and embarrassment.³

In addition to physical self-harm, there is also digital self-harm, characterized by sending messages to oneself, defaming oneself. According to a survey carried out in the United States of America (USA),⁵ 6% of adolescents aged between 12 and 17 years, mainly males, practiced digital self-mutilation. Among the reasons listed were depression, bullying, sexual orientation and drug use.

Self-mutilation has as risk factors female adolescents, who have suffered sexual, physical and/or psychological violence; deficiency in the relationship with the family, more specifically with the mother; low self esteem; consumption of alcohol and other drugs; difficulty expressing emotions;⁴ and those who prefer solitude and social isolation.⁶

Nursing care for adolescents and their families in this context is of paramount importance, as nurses are the professionals responsible for screening in health sectors, and can therefore identify self-injurious signs in the first instance, providing instant acceptance through the establishment of a bond and from directing to specialized services.⁷

Thus, given the role that nursing professionals play in health care, especially at the primary care level, it becomes essential to understand the causes and motivations that lead to self-mutilation in order to avoid ineffective care, with stigmas, banalizations and judgments that can result in bad experiences and, consequently, interfere with the search for health services.⁸⁻⁹

In this regard, studies on self-mutilation are of fundamental importance to equip the nursing team with a specific look with regard to the identification of early signs of cases, with a view to producing holistic and specific assistance aimed at adolescents' needs.

Thus, considering the reduced volume of scientific studies and the need to identify the profile of adolescents who practice self-mutilation, the need to investigate the theme becomes relevant, in order to direct health care and encourage the construction of public policies aimed at this public, considering the current deficit in health care for adolescents with regard to self-mutilation practice. Therefore, the objective was to estimate the prevalence of self-mutilation among adolescents and the factors that influence it.

METHOD

This is a systematic review with meta-analysis guided by the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) recommendations.

The search strategy started from the structured research question based on the PICO acronym, commonly used for reviews with non-clinical studies. Thus, P (patient) referred to adolescents, I (interest), to the prevalence and factors that influence self-mutilation, and Co (context), to the context in which self-mutilation occurs in adolescents' lives.

The search was carried out in October 2021 in the following databases: Scientific Electronic Library Online (SciELO), Latin American and Caribbean Literature in Health Sciences (LILACS), Medical Literature Analysis and Retrieval System Online (MEDLINE) and PubMed Central (PMC), using descriptors present in the Health Sciences Descriptors (DeCS) of the Virtual Health Library (VHL): adolescent and "self-destructive behavior" for the search in Latin American databases and the MeSH database: adolescent and "self-destructive behavior" for the search in PubMed. The terms were selected based on the guiding question and combined with the Boolean operator "AND."

The research included scientific documents published in the last five years (April 2015 to September 2021, this time limit being justified by using the broad search strategy and the desire to obtain materials that represent the current reality) and quantitative studies that had the full text available in Portuguese, English and/or Spanish. The research excluded scientific articles duplicated in more than one database, studies that did not present data regarding the number of adolescents who performed self-mutilation, studies developed with other age groups and literature review studies (integrative, systematic, narrative).

A form created by the authors was used as a data collection instrument, which points out the information that was extracted from selected studies. The information include: the number of cases of self-mutilation and the total number of adolescents; methods of performing self-mutilation; risk factors that contribute to the phenomenon practice in adolescents; the place where the research was carried out and the references.

The study selection procedure was carried out in pairs, concomitantly between two authors (nursing students), divergences were discussed between the two authors in consultation with a third participant (nursing professor) through a meeting, considering, mainly, the presence of data regarding the prevalence of self-mutilation in adolescents in the manuscripts.

The procedure for collecting data from the information to achieve the research objective took place by reading articles in the final selection in full and from extraction of information according to the data collection instrument, with a focus on directing the removal of relevant points, such as the prevalence of self-mutilation, characteristics and risk factors.

To assess the methodological quality of the studies that made up the final sample, an instrument was used that has eight assessment criteria such as: probabilistic or census sampling; adequate sampling source; sample quantity; measurement properly; impartial measurement by trained collectors; description of refusals; Confidence Interval (CI) display and well-described participants.¹⁰ The justification for choosing this instrument was due to similarity of prevalence and incidence assessment between studies. Thus, no studies were removed after assessment.

Study analysis was based on the R software use to perform the meta-analysis, obtaining a forest plot, heterogeneity test, funnel test and Egger's test. Heterogeneity between the selected studies was assessed according to the Q test, based on the chi-square, with a p-value lower than 0.05 considered an obvious heterogeneity. Moreover, the I² value was adopted to assess the heterogeneity degree.

RESULTS

As shown in Figure 1, the review's final selection was based on 86 national and international scientific articles, namely: Brazil,^{6,11} China,^{12–35} United States,^{5,36–50} Portugal,^{51–54} Argentina,⁵⁵ Japan,^{56–57} Turkey,⁵⁸ Poland,^{59–60} Canada,^{61–62} Taiwan,^{63–65} Mexico⁶⁶, Switzerland^{67–68}, Hungary^{69–70}, Indonesia⁷¹, Belgium⁷², Belgium and Netherlands,⁷³ Uganda and Jamaica,⁷⁴ Iran,⁷⁵ England,⁷⁶ Australia,⁷⁷ Vietnam,⁷⁸ Norway,^{79–80} Israel and ten countries from Europe,⁸¹ Denmark,⁸² Germany,^{83–84} Korea,^{85–86} South Korea,⁸⁷ United Kingdom,⁸⁸ Scotland,⁸⁹ Ghana,^{90–91} Spain,⁹² Italy,⁹³ and Jordan.⁹⁴ The country that carried out the most studies on the subject was China with 25 scientific documents.

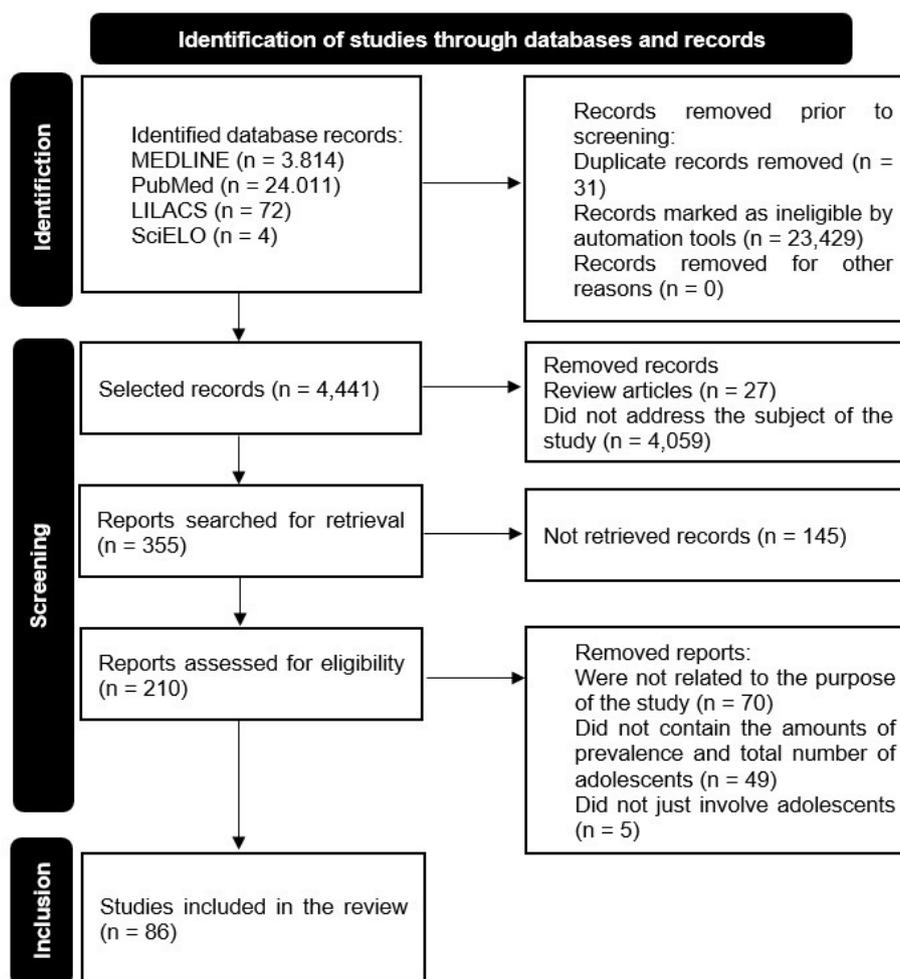


Figure 1 – PRISMA study selection flowchart. Campina Grande, PB, Brazil, 2015-2021.

It is observed that self-mutilation has an estimated prevalence, for the entire population, of 21% (95%CI 16%-26%) among the analyzed studies. The highest prevalence was found in the study carried out in the United States,⁴⁹ with a value of 85% (95%CI 72-92), while the lowest was observed in studies developed in Argentina,⁵⁵ with a value of 1% (95%CI 0-1), and Portugal⁵¹ with the same value of 1% (95%CI 1%), described in Figure 2.

Figure 3 shows the asymmetry between investigations, confirmed by Egger's test ($p=0.0018$), indicating the probability that studies with smaller samples, which may have found lower prevalences, may not have been published.

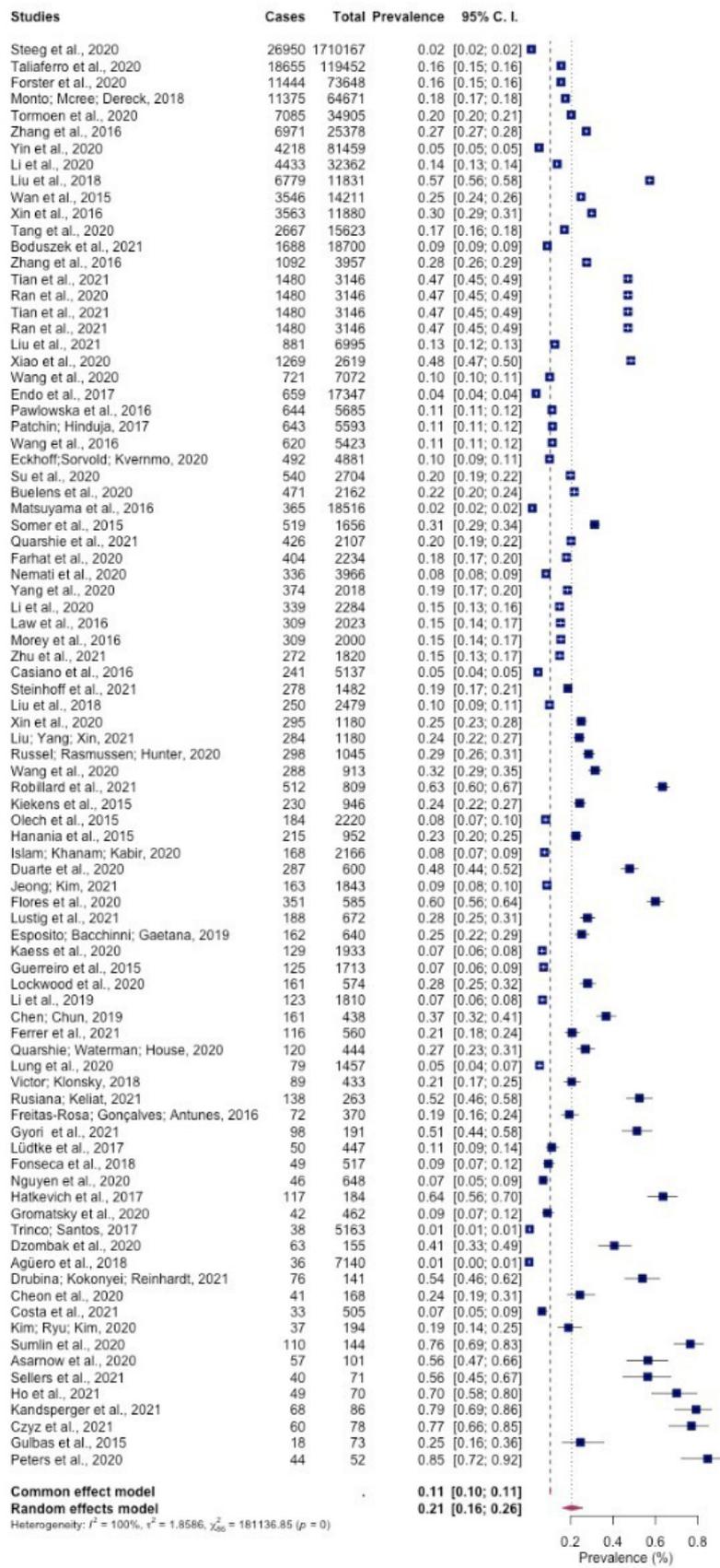


Figure 2 – Forest plot of prevalence of self-mutilation among adolescents according to the analyzed studies. Campina Grande, PB, Brazil, 2015-2021.

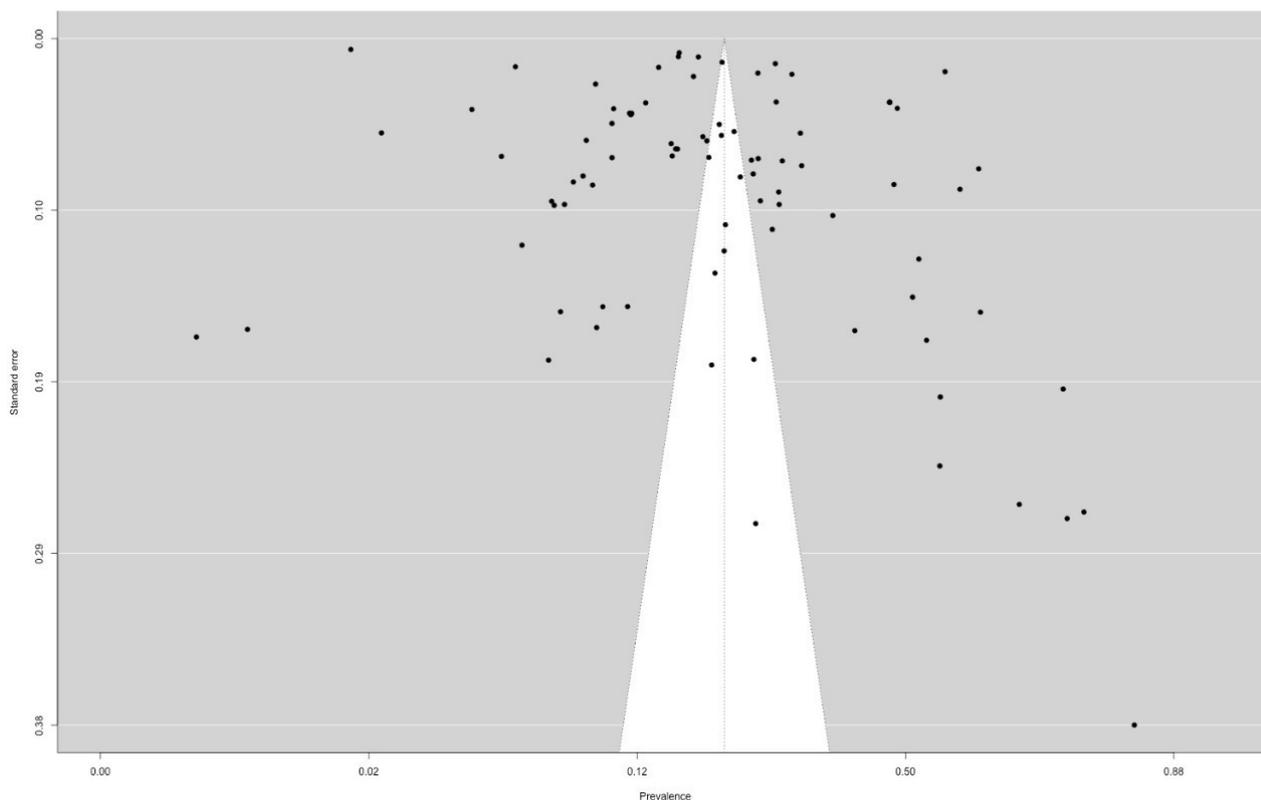


Figure 3 – Funnel plot of distribution of self-mutilation among adolescents according to the investigated manuscripts. Campina Grande, PB, Brazil, 2015-2021.

With regard to the method of self-mutilation, cutting proved to be the most cited in studies,^{6,11,13–17,29–30,35,37–39,48,51–52,54–56,58,67,70,72–73,74,79,85–86,91–94} carried out as the only method or followed by others. In surveys that revealed its percentage, self-cutting led.

Hitting oneself,^{11,13–17,32,36,38,40,53,74,77,86–87,92,94} biting oneself,^{11,13–17,38,59,68,71} scratching oneself,^{6,13,68,71,73,94} burning oneself,^{11,13,15,17,32,40,53,59,71,73,92,94} intoxicating oneself by drugs or other substances,^{29,32,36,39,52–53,56–57,59,77,80,87,92} jumping from high places,^{53,57} hanging oneself,^{57,80,87,92} picking at a wound,^{11,13,40} posting something bad about oneself,⁵ inserting objects under the nail or skin^{11,17,29,59,68} and pinching oneself^{11,14} were identified as methods of choice.

Regarding the factors that can influence self-mutilation, these will be divided into the following groups: personal; socioeconomic; family; behavioral; relational; and environmental. As for personal factors, most studies have shown that females,^{6,11–18,21,24,26–27,36–39,47–48,52–53,56–57,59–61,63–64,66,68–69,70,75,77,81,83,86–88,89,93} older adolescents (between 15 and 19 years)^{18,37,52,57,59,61–63,68,77,84,94} and white color/race^{37,49,77} influence self-mutilation.

For socioeconomic factors, the influence of the following factors was observed: being an only child;^{14,26,31,34} low economic situation;^{6,18,36,49,52,83,88} low education;^{15,63} and having an employment relationship.²⁹

As for family factors, the following stand out: low parental education;^{15,25,36} conflicts with parents or between siblings,^{13,21,31,34,39,45,48,52,56,64,79,82,87,92} witnessing domestic violence;^{12,32,39} separated parents;^{13,18,32,39,60,64} absence/excessive presence of parents;^{14,17,28,35,39,86} self-inflicted violence in the family;^{18,53,84,92} alcohol and drug abuse by family members;^{49,60} death/illness;^{18,39,56,82} unemployment⁸² and family psychological dysfunction.⁷⁶

With regard to behavioral factors, the following were identified: use/abuse of alcohol and licit and illicit drugs;^{5,11-12,16,21,27,37,42,53,59,60,64,92} having been victims of sexual, physical, emotional violence and/or abuse in childhood;^{12,19,31-32,34,37,45,53,60,87,92} having suicidal ideation;^{16,37,64} having impulsive behavior;^{17,28,35,72,79} being dependent on the internet;^{23-24,65} anorexia nervosa;⁴³ participating in gambling⁴⁷ and irregular sleep.⁴⁴

Regarding relational factors, the following were obtained: relationship problems;^{52,71,92} having experience with a romantic relationship;³⁴ having initiated sexual life;^{12,37,53} forced or unsafe sexual behavior;^{16,37,75} conflicts with other adolescents;^{52-53,82} friends/colleagues who have suicidal behavior;^{28,38,53,64,67,92} social isolation or low social support;^{48,52,58,62,64,68,76} and homoaffective sexual orientation.^{50,91}

As environmental factors, we found: bullying at school;^{5,12,22,32,39,52-53,65,78,94} cyberbullying;^{5,20,78-79} pressure at school;^{12,14,32,39} school problems;^{56,60-61,92} economically disadvantaged community;¹³ residing in a rural area;^{29,75} exposure to suicidal behavior on the internet;⁶⁴ running away from home;^{16,60} truancy;¹⁶ and change of school.⁵⁶

DISCUSSION

Self-mutilation among adolescents may be related to the fact that this period of life is marked by vulnerabilities resulting from discoveries and conflicts that are part of individuals' biopsychosocial development and the phase change between childhood and adulthood.⁹⁵

Added to this, one can highlight the influence of capitalist characteristics, such as the commercialization of good living conditions and perfect bodies through social networks, as a possible potentiator of self-injurious acts.^{55,63} Amidst frantic scenarios for the dissemination of information, influences and demands for standards – characteristics of today's society –, it is observed that adolescents can go through the accentuation of internal conflicts, instabilities and disturbances that, in turn, can influence self-mutilation.

As for personal factors, in a study carried out in Brazil, the percentage of girls and boys who practiced self-mutilation was 79.6% and 20.4%, respectively.¹ It is suggested that the prevalence of self-mutilation in the female population in relation to the male population is due to the fact that changes related to puberty have a greater potential to cause stress in this first group, making them more sensitive to interpersonal relationships, hiding negative emotions and to self-mutilate.¹³ Moreover, it is seen that girls more easily identify their own emotional experiences and, consequently, look for methods to regulate them. In the meantime, self-mutilation may appear as an alternative.¹¹

With regard to socioeconomic factors, the findings in the literature indicate a greater propensity for self-mutilation in economically disadvantaged adolescents, since they end up suffering from a lack of resources and from the family financial stress transmitted to them, generating suffering, isolation and self-mutilation⁹⁶, especially in the final phase of adolescence, when social relationships are being established with more intensity.¹³

The family factor was also relevant with regard to self-mutilation among adolescents. However, in a study carried out in China⁹⁷, it was revealed that the level of parental education was not significantly associated with self-mutilation among adolescents. In Brazil,⁹⁸ difficulties in living with family members demonstrated an influence on self-mutilation behavior among adolescents, as they compromise the healthy development of this population.

Under healthy conditions, adolescents should bond with their parents to expose their feelings in a healthy way. However, family conflicts present themselves as barriers in the development of this bond, such as abandonment by one of the parents and emotional rejection, which can result in negative feelings such as anger and frustration. In this regard, they cannot keep feelings of love and

affection and thus learn to deal with negative feelings. Because they cannot identify what they feel, they seek self-mutilation as an immediate method for relief.⁹⁸

Behavioral factors, such as exposure to abuse, suffering from emotional, physical and sexual abuse and neglect in childhood, directly interfere with the regulation of emotions such as anger, anxiety and fear, which predisposes to increased emotional instability. This exposure can cause psychological and physical consequences, which interfere with awareness, recognition and acceptance of emotions. Thus, self-mutilation emerges as an adequate.⁹⁹

With regard to drug use, they are more frequent in adolescents who see sex as self-harm as well as the frequent change of sexual partners as a self-mutilation mechanism. This can be explained, as adolescents who have already suffered sexual abuse are more likely to be exposed to risky behaviors.¹⁰⁰ In addition to this, the use of alcohol is also present in the repetition of acts.¹

In relational factors, for adolescents who have a homoaffective relationship, the risk of developing self-mutilation behaviors occurs through the suffering caused by prejudice and discrimination, which can cause damage to mental health. Furthermore, feelings of loneliness and social isolation are also evident due to not sharing sexual orientation with other people.⁹⁸

Involvement in sexual relationships can appear as a type of self-mutilation, carried out as a way to participate in a group, attract someone's attention to oneself, regulate loneliness and boredom and obtain someone's attention, even if it is in a negative way. Sexual self-mutilation is characterized as an indirect self-harm to the body and, from this practice, adolescents become more vulnerable to suffering some type of situation without consent, such as the sexual act itself.¹⁰¹

Adolescents who have friends who self-harm engage in more self-harm methods compared to no friends who engage in this behavior as well as an increase in the frequency of cutting and suicidal ideation.³⁷ Adolescents who have friends who self-harm engage in more self-harm methods compared to no friends who engage in this behavior as well as an increase in the frequency of cutting and suicidal ideation.

In Spain,¹⁰² an adolescent reports having seen this self-mutilation practice on the internet when she was nervous, which triggered self-mutilation. In this way, the internet becomes an environment of great influence in self-mutilation in adolescents due to access to digital media, who show a reality opposite to that of adolescents, generating low self-esteem.¹⁰³ However, the internet is also used as support for those who feel like stopping practicing self-mutilation and as a place to vent.^{3,24}

As for environmental factors, children and adolescents who study are more likely to practice self-mutilation due to school stress, which generates anger, anxiety, helplessness, shame and boredom,⁷ and bullying, which can be characterized in the forms of psychological bullying, through defamation, threats and exclusion; physical, which are slaps, punches, kicks and pushes; and virtual, threats, defamation and insults carried out by messages on the telephone or on the internet.¹⁰⁴

This last form of bullying, also called cyberbullying, shows among its consequences: psychological, expressed through feelings such as depression, anxiety, social phobia and low self-esteem; emotional, which can trigger feelings of anger, disappointment, frustration, and vulnerability; biological, through abdominal pain, headaches, insomnia and nocturnal urinary incontinence.¹⁰⁵

The bullying experienced by adolescents directly impacts their self-esteem and their view of themselves as a being-in-the-world, since this public, after being the target of malicious comments, feels useless in the world. It is estimated that eliminating bullying could reduce cases of self-injury by between 20% and 43%.¹⁰⁶ In this context, nurses constitute a social transformer, being essential their involvement with the school context and adolescents in order to understand what leads to self-mutilation practice¹⁰⁷.

Thus, it is necessary that nursing professionals, in assisting patients with self-mutilation behavior, offer emotional support to subjects and their families with the purpose of strengthening

the professional-patient bond, providing a comforting and stimulating environment for continuity of treatment and search for more help, since the positive perception of care is especially important in order to facilitate communication with the patient for an agile and qualitative resolution by nurses.⁹

However, in the assistance provided by health professionals, there is a deficit in terms of caring for the adolescents' family. For the most part, this is justified by the insecurity of how to approach the theme. Therefore, the importance of professional training is highlighted, in order to make it possible to carry out community workshops, with the aim of debating the problem, making it a propitious action for sharing experiences among the families of victims of self-mutilation.¹⁰⁸ Moreover, intersectoral and interdisciplinary interventions are necessary to reduce this phenomenon, especially in health promotion, through health education.⁷

There is also the failure of public health policies, as well as the lack of physical and human resources and a network of adolescent health care that favors comprehensive care for this public, considering their vulnerabilities inherent in the phase they are experiencing.¹⁰⁸

As a limitation of the study, the search on four data platforms stands out, which may have allowed for publication bias as well as the failure to carry out the screening of references. It was also noticed the lack of data that reflect the world reality of self-mutilation in adolescents.

Thus, this review showed that self-mutilation is a global phenomenon, which affects adolescents in emotional vulnerability caused by several factors. Consequently, multidisciplinary assistance to this public is essential in order to provide comprehensive care. With regard to nursing, the importance of training these professionals and active listening are highlighted, since they are directly inserted in the care of these patients.

CONCLUSION

The prevalence of self-mutilation in adolescents ranged between 1% and 85% in Argentina and the United States, respectively. Cutting was the main method of choice for self-mutilation, followed by bites, hitting and burns. As for the factors related to self-mutilation, the female gender, older ages in adolescence, low income, conflicts in the family nucleus, adolescent drug use and/or abuse, childhood abuse, friends and family who have suicidal behavior, and school bullying.

Self-mutilation is a stigmatized phenomenon, however it reveals concerns and problems of adolescents who, for the most part, are neglected and ignored by family, school and society. Therefore, this study provides adolescents with the expression of a reality they experience.

It is noteworthy that the data allow nursing professionals to empower knowledge focused on the profile of adolescents who practice self-mutilation, as well as the presence of this phenomenon in the lives of this public, in order to support prevention strategies, aimed mainly at the risk public mentioned above as well as health promotion and specifically mental health.

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NOTES

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