# SELF-HARMING BEHAVIORS IN BRAZILIAN ADOLESCENTS: RELATIONSHIPS WITH BULLYING, IMPULSIVITY, AND SUICIDAL BEHAVIOR

## COMPORTAMENTOS AUTOLESIVOS EM ADOLESCENTES BRASILEIROS: RELAÇÕES COM *BULLYING*, IMPULSIVIDADE E COMPORTAMENTO SUICIDA

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**Abstract:** We aimed to investigate the possible relationships between self-harm behaviors and bullying, as well as between self-harm behaviors and sociodemographic perfil of the sample. For this, 513 adolescents, between 15 and 19 years old, high school students living at four cities of Sergipe, Brasil, participated. We used the Adolescence Suicide Ideation, Self-harm and Impulse Questionnaire (ASISQ), the Bullying Victimization California Scale (BVCS), and a sociodemographic questionnaire. Overall, 35,9% of the participants already had selfinjuried mainly for decrease negative affective state (negative automatic reinforcement) and copy with unwanted social demands (negative social reinforcement), and they had moderate suicide ideation. The participants classified as bullies victims were 24,8% of the sample. About logistic regression, of the variables insert in the model, just suicide ideation, high impulsivity, bullying victimization and low religiosity increase chances of engage in self-harm behavior. Understanding the prevalence and accurately analyzing this relationship is essential for the most effective prevention and to impact both phenomena.
*Keywords:* Self-harming behaviors, Bullying, Adolescents, Suicidal behavior, Brazil

**Resumo:** O presente estudo investigou as relações entre condutas autolesivas e *bullying,* bem como entre condutas autolesivas e o perfil sociodemográfico da amostra, caracterizando-se, assim, sua distribuição social. Participaram 513 adolescentes com faixa etária de 15 a 19 anos, estudantes de Ensino Médio, residentes na capital ou de três cidades do interior no Estado de Sergipe. Utilizou-se o Questionário de Impulso, Autodano e Ideação Suicida na Adolescência (QIAIS-A), a Escala Califórnia de Vitimização ao *Bullying* (ECVB) e um questionário sociodemográfico. Nos resultados, foi constatado que 35,9% dos participantes já cometeram autolesão, cujos objetivos principais foram reduzir estados afetivos negativos (reforço automático negativo) e escapar de demandas sociais indesejadas (reforço social negativo), além de possuir ideação suicida moderada. Os participantes classificados como vítimas de *bullies* totalizaram 24,8% da amostra. Quanto aos resultados da regressão logística para a prática da conduta autolesiva, viu-se que foram fatores de explicação significativos a ideação suicida, a alta impulsividade, a vitimização por *bullying* e a baixa religiosidade. Entender a prevalência e analisar acuradamente esta relação é essencial para prevenção mais efetiva e impacta ambos fenômenos.
*Palavras-Chave:* Condutas autolesivas, *Bullying*, Adolescentes, Comportamento suicida, Brasil.

Adolescence is considered a period of life when most biopsychosocial transformations occur in the individual and when peer culture has a relevant role and influences forms of acting and thinking (Rasmussen et al. 2016). For example, this mutual influence between two groups makes adolescents a particularly vulnerable group to some behaviors and contexts such as bullying and being a victim of bullies (a person that plays the role of the aggressor in bullying) (Klomek et al., 2016). Adolescents may also adapt maladaptive coping strategies like self-harming behavior to deal with such contexts (Nock et al., 2019).

The concept of self-harming behavior refers to the direct and deliberate behavior of self-harm with the knowledge that it will bring physical or psychological damage without suicidal intention (Nock, 2010; Nock et al., 2019). It is a behavior still poorly understood, but prevalent in all cultures and socioeconomic levels (Klomek et al., 2016). Self-harming behaviors in general are also possible responses to stressful events, functioning as a factor that shifts the focus of the stressful event itself (Wolf et al., 2019). In clinical samples, 14% to 70% of adolescents have already committed self-harming behaviors (Asarnow et al., 2011), which have been related to disorders such as borderline disorder, schizophrenia, and depression (Klomek et al., 2016; Nock, 2010; Sing et al., 2019). In non-clinical or community samples, between 3.8% and 7% of adolescents reported self-injury at some point in their life course (Brausch & Gutierrez, 2010); however, some studies find a higher prevalence even in community samples, between 26% and 60% (Barreira, 2016; Leal & Coutinho, 2017; Nunes, 2012; Somer et al., 2015; Sousa, 2015).

Worldwide, there is a higher prevalence of self-harm in young people (Borschman et al., 2012; Sing et al., 2019), and it usually begins between 12 and 14 years of age (Nock, 2010). In addition, self-harm rates among adolescents have increased, making them a more vulnerable group that should receive greater attention in this regard (Andover & Gibb, 2010). Adolescents seem to commit such behaviors as a form of affective or cognitive regulation, since the behavior seems to stop negative thoughts or shift their focus, besides being an effective form of social communication, signaling a possible request for help much more effective than talking or crying (Baetens et al., 2011).

One of the obstacles to the study of self-harming behavior is the heterogeneity in the literature, which presents inconsistent definitions for this phenomenon (Nock, 2010), as well as the scarcity of valid instruments to measure and evaluate this phenomenon, especially in Brazil (Borschman et al., 2012). Usually, studies of this type of behavior use their own instruments, created according to the purpose of the study, without a statistical proof of scientific validity (Nock, 2010). The studies conducted in Brazil use surveys created specifically for the study or without validation (Caldas et al., 2009), or even open or semi-structured interviews (Silva & Siqueira, 2017), for example, apart from being mostly focused on studying suicide or some facet of suicide.

The scarcity of instruments for measuring self-harm was noted in studies such as the survey conducted by Borschman et al. (2012), in which only 7 instruments validated in the English language were found in a search of 5 databases. In Brazil, there are few studies and even less with adolescents, which had been highlighted by other authors on the topic (Borschman, et al., 2012). This finding points to the importance of studies conducted in Brazil that prioritize behavior in its non-suicidal facet, especially among groups possibly more vulnerable to self-harm, such as adolescents.

Besides the scarcity of instruments, there are also few explanatory models for the self-harm conduct. Nock (2009) proposes an etiological model that considers both proximal and distal factors that were adopted as the basis for the current study. In this multi-causal model, self-harm results from the combination of several environmental factors and circumstances, which is maintained as an immediate and effective way of regulating emotional experiences and aversive social situations. A set of inter- and intrapersonal vulnerabilities culminates in ineffective responses to stressful events, which can predispose to different outcomes (for example, psychopathologies), in addition to increasing the risk of engagement in self-harm behaviors due to some specific vulnerability factors (social learning, self-punishment, pragmatism, pain analgesia, implicit identification, for instance) (Nock, 2009).

One of the valid ways to develop a broader understanding of self-harm refers to the knowledge of which (and how much) unique stressors increase the likelihood of its occurrence. Thus, the lack of studies leads to low knowledge of predictors; therefore, more research on these possible triggering elements is needed. There are important proximal factors of vulnerability to self-harm, like impulsiveness and suicidal ideation (Joiner, 2005; Liu et al., 2017; Nock, 2010). Regarding suicidal ideation, Joiner (2005) tries to explain this relationship from the assumption that the desire to die is influenced by habituation to physical pain, fear, and emotional pain, and such habits can occur through suicide attempts or even other risky behaviors. Self-harm behavior helps in the habituation to pain and makes suicide attempts more likely to occur, which in turn is a significant risk factor for future suicidal behavior. Thus, the feedback between suicidal ideation and self-injurious behavior seems to happen. About this, Andover and Gibb (2010) observed that individuals who had suicidal ideation were also more likely to engage in self-injurious behavior. A potentially relevant mechanism for both self-harm and suicidal behaviors is impulsivity (Nock, 2010), which has been found at higher levels in individuals who engage in self-harm, as well as those who have suicidal ideation, compared to those who do not engage on it (Costa et al., 2021; Guerreiro et al., 2014).

Regarding more distal factors, a relevant association is between self-harm and engaging in risky behaviors, especially in adolescents, whose propensity to engage in activities that may be dangerous is a not unusual characteristic in this stage of development (Nock , 2010). Studies have found the use of substances such as tobacco, alcohol and drugs as significant predictors of the practice of self-harm behaviors (Bakken, 2019). Another predictor is having chronic disease, chronic physical and/or mental conditions, which are associated with an increased risk of self-harm, suicidal thoughts and suicide attempts (Barnes et al., 2010).

Of particular importance is also the predictive role of frequent exposure to stressful everyday environments on self-harm behaviors (Nock, 2009). Bullying is considered one of the most regular stressful events experienced throughout adolescence and is characterized by repetitive oppression of someone or a group that considers itself more powerful than a less powerful individual or group without any justification. In general, bullying is classified as physical, verbal, relational, and/or electronic, with physical being the most common type (Bandeira, 2009).

Both self-harm and bullying seem are mostly observed in the context of school (Bandeira, 2009; Klomek et al., 2016) and among the most vulnerable groups (United Nations Children's Fund [UNICEF], 2014), as well as challenging to study and generally treated as a common phenomenon (Borschman et al., 2012; Nock, 2010). The UNICEF (2014) estimated that the bullying prevalence may vary between 7% and 52%, depending on the territory surveyed. In a more recent report, UNICEF (2018) observed that globally, slightly more than one in three students aged 13–15 experience bullying. Furthermore, in 39 industrialized countries, 17 million young adolescents admitted to bullying others at school.

Considering the importance of these problems, studies are needed that seek to understand the relationship among self-harm behaviors and bullying. This knowledge would help guide preventive interventions for self-harming behaviors as well as facilitate public education about bullying and its consequences. Therefore, this study investigated the relationship between self-harm and bullying, impulsivity and suicidal behavior in a sample of Brazilian adolescents. As a hypothesis, it is expected that these phenomena are correlated with each other and work as predictors of self-harm behaviors.

## METHODS

This is a descriptive-exploratory, cross-sectional, and correlational investigation.

*Participants*

The sample of this study consisted of 513 adolescents, living in Aracaju (27.6 %, *n* = 142) or in county cities of Sergipe (Brazil): Tobias Barreto (19.6%, n = 101), Riachão do Dantas (32.7%, *n* = 168) and Lagarto (19.8%, *n* = 102). The choice of schools and the collection strategy were conducted for convenience, involving high school students (1st [22.8%, *n* = 117], 2nd [57.5%, *n* = 295], and 3rd [19.7%, *n* = 101] years), in the morning and afternoon sessions according to the availability of the school. The age of the students varied between 15 and 19 years (*M* = 16.4; *SD* = 1.02) and were 51.7% (*n* = 265) female. Most reported not using tobacco (97.5%; *n* = 500), alcohol (79.3%, *n* = 407) or other drugs (98.6%; *n* = 506). Regarding chronic diseases, 95.9% (*n* = 492) had no diagnosed chronic disease.

*Instruments*

*Impulse, Self-harm and Suicide Ideation Survey for Adolescents* (ISSI-A). Nunes (2012) validated the ISSI-A with the aim of identifying the presence of self-destructive behaviors in adolescents aged between 14 and 19 years on the island of São Miguel (Portugal). It is composed of 64 items divided into 4 blocks (16 in impulse, 14 in self-harm, 31 in self-harm functions and 3 in suicidal ideation). It is a self-reporting instrument, answered on the Likert scale of agreement (four points, 0 to 3), except for the functions block, whose answer is dichotomic (yes or no). The self-harm block also has two subdivisions: self-harm alone or with objects (items 1 to 8) and self-harm associated with risk behaviors (items 9 to 13) and any answer higher than 0 indicates a possible self-harm behavior.

For classification of the ISSI-A, the blocks are considered separately. In impulse block, there are 16 statements related to impulsive attitudes, of which the positively formulated items (6, 9, 13, and 15) are reversed coded. In general, for this block (Minimum [*MIN*] = 0; Maximum [*MAX*] = 48) and B (*MIN* = 0; *MAX* = 39), the higher the score, the higher the attitude towards this component. For the present study, the instrument was adapted to Brazilian Portuguese and the item number 13 ("Driving at risk - high speed, not respecting traffic rules") of self-harm block was excluded because most of the study sample was not at the minimum age allowed to have a National Driver's License. In relation to functions block, which has nominal answers regarding the function of self-harm behavior, the items are grouped according to the Nock and Prinstein's (2004) model, in which there are four functions for self-harm behavior: Positive Self-Reinforcement or PSeR (it aims to create a desirable physiological state; items 8, 10, 12, 19, 20, 21, 26, 29, 30, and 31), Negative Self-Reinforcement or NSeR (aims to reduce tension or negative affective states; items 1, 2, 4, 6, 7, 9, 13, 27, and 28), Positive Social Reinforcement or PSoR (the individual wants to gain attention from others or something else; items 16, 17 and 22) and Negative Social Reinforcement or NSoR (use of self-harm to escape unwanted social demands; items 3, 5, 11, 14, 15, 18, 23, 24, and 25). Suicidal ideation block is classified from the sum of responses (between 0 and 9), into four groups: nonexistent, when the total score is equal to 0; moderate, when the score is between 1 and 3; high, when the score is between 4 and 6; and very high, when the score is between 7 and 9. Regarding the psychometric data, Cronbach's alpha of the total scale was .90 in the original study and .80 in this study. Cronbach's alpha values for each block in the original study and in the present research were, respectively: impulsivity, .77 and .60; self-injurious conduct, .88 and .76; and suicidal ideation, .82 and .83.

*California Bullying Victimization Scale* (CBVS). Validated for Brazil by Soares et al. (2015), it consists of 7 items that assess bullying victimization. It is a 5-point Likert-type scale that varies between "never" and "several times during this week". There was also a nominal question (yes or no, in which the value 1 is assigned to yes and 0 to no): "Was this behavior intentional and important for you (did it hurt you)?" to differentiate victims of bullies and peers. Additional items list 10 adjectives for comparison between the individual and the aggressor in a 3-point Likert-scale (less than me,

similar to me, more than me). Regarding the psychometric data, Cronbach's alpha was .72 in the original study and .64 in this study.

The final classification of the CBVS is obtained by assessing the items separately for each table or aspect measured and its subsequent classification. Thus, one score is obtained on to determine if the victimization experience was intentional and another on the perception of power imbalance. It is classified as follows:

(1) Non-victims are those who do not report any experience of victimization and power imbalance (i.e., have 0 in the first score and 0 in the third);

(2) Peer victims report at least one experience of victimization at any frequency, but do not perceive power imbalance, scoring more than 0 in the first score and between zero and 10 in the third without reporting "more than me" (no score 2 in any characteristic);

(3) Victims of bullies report at least one type of victimization specifically 2-3 times a month, that this victimization was intentional at least once, with an imbalance of power, that is, score more than 2 on the first score being at least one item "two or three times in the last month", the second score must be between 0 and 7, and the third score must be greater than 10 or there must be at least one item of score 2 ("more than me").

*Procedures*

This research was approved by the Ethics and Research Committee of the University (Register omission for evaluation) and prior authorization was obtained from the directors of the schools with a signed authorization form. The research was previously presented to the participants and parents or legal caregivers. Both, parents and adolescents, given consented to participate signing the Consent Form. Data collection occurred collectively in several classrooms throughout a week by means of a self-applied questionnaire. No financial gratification was given for participating in the study.

*Data analysis*

A logistic regression analysis (Backward Stepwise) was conducted to analyze an explanatory model of self-harm conduct with practicing or not self-harm as the dependent variable (DV). Explanatory variables were those variables measured by ISSI-A (impulsiveness and suicidal ideation) and the victimization to bullying. The level of significance adopted for the analyses was $p < .05$. It is important to note that the Odds Ratio ($OR$) indicators with values lower than 1 were converted by the formula "1/$OR$", aiming at standardizing the interpretation of $OR$s ($> 1$).

## RESULTS

*Profile related to bullying and self-harm behavior*

Regarding victimization to bullying, 43.5% ($n = 223$) of the sample were classified as 'not victims', 31.8% ($n = 163$) as 'peer victims' and 24.8% ($n = 127$) as 'victims of bullies'. In relation to QIAIS-A block A, the average score was 16.5 points ($SD = 6.06$) in the impulsiveness block, below the midpoint of the scale (24.0 points). From the total score obtained in block B, regarding whether or not to commit self-harm, 35.9% ($n = 184$) of the participants had already committed self-harm and 64.1% ($n = 329$) had never engaged in self-harm.

Of the participants who committed self-harm ($n = 184$), 15.6% ($n = 80$) did so as negative social reinforcement (NSoR), 15.2% ($n = 78$) as a negative self-reinforcement (NSeR), 11.5% ($n = 59$) used the behavior as positive self-reinforcement (PSeR), and only 3.1% ($n = 16$) as a positive social reinforcement (PSoR). In the block related to suicidal ideation (block D), the participants had an average of 2.3 points ($SD = 2.31$), which characterizes moderate suicidal ideation. Of these, 50.9% ($n = 261$) of the participants had a score denoting moderate suicidal ideation, 24.8% ($n = 127$) did not have suicidal ideation, and 24.4% ($n = 125$) had high or very high suicidal ideation.

*Logistic regression of self-harm behavior*

Covariates: impulsiveness (low, medium and high, from the variable's percentiles [3 equal groups]) and suicidal ideation (absent and present; the responses 'non-existent' and 'moderate' were coded as absent suicidal ideation), and finally the classification related to bullying victimization (not victims, victims of peers, and victims of bullies). The variables related to self-harm functions (PSeR, NSeR, PSoR, NSoR)-were not included in the model because they showed minimal variability in this sample.

The variables suicidal ideation, impulsiveness, and bullying were statistically significant ($p < .05$). Adolescents who demonstrated suicidal ideation were approximately 6 times more likely to commit self-harm than those who were classified without suicidal ideation ($OR = 6.3$). On the other hand, people who were classified as having high impulsiveness were about 3 times more likely to self-harm than those with low impulsiveness ($OR = 3.0$). Regarding bullying, participants classified as peer victims were 1.8 times more likely to commit self-harm than individuals considered as not victims ($OR = 1.8$). Finally, the victims of bullies were 2.2 times more probable to perpetrate self-harm behavior than not victims ($OR = 2.2$) (Table 1).

**Table 1.** Logistic Regression of Factors Associated with the Self-Harm Behaviors among Adolescents

| Variables | | *n* (513) | F% | OR | CI 95% | *p* |
|---|---|---|---|---|---|---|
| Suicidal ideation | Present | 125 | 24.3 | 6.3 | 3.9 – 10.2 | < .001 |
| | Absent | 388 | 75.7 | - | - | - |
| Impulsivity | High | 109 | 21.2 | 3.0 | 1.6 – 5.5 | < .001 |
| | Medium | 284 | 55.3 | 1.6 | .9 – 3.3 | .124 |
| | Low | 120 | 23.3 | - | - | - |
| *Bullying* | Bullie Victim | 127 | 24.7 | 2.2 | 1.3 – 3.8 | .003 |
| | Peer Victim | 163 | 31.8 | 1.8 | 1.1 – 3.0 | .017 |
| | Not a victim | 386 | 75.3 | - | - | - |

***Notes.*** 1. *n* = number of participants; F% = percentage indicator; *OR* (*odds ratio*); CI 95% = 95% confidence interval; *p* = statistical significance. 2. Model's fit indices: Omnibus test = 135.232; *p* < .001; Nagelkerke $R^2$ = .318 (31.8%); Hosmer and Lemeshow Test = .211 (ns). Percentage of cases correctly predicted: 76.4%.

**DISCUSSION**

The prevalence rate of self-harm behaviors in this study was 35.9% among the age range consistent with the literature as well as among studies surveyed by the same questionnaire (between 26.5% and 60%) (Barreira, 2016; Leal & Coutinho, 2017; Medeiros, 2016; Nunes, 2012; Sousa, 2015). Furthermore, studies with other measures of this type of behavior showed prevalence rates of 8% to 46.5% (Sing et al., 2019; Somer et al., 2015). The prevalence found here is equivalent to saying that of every 10 adolescents interviewed, 3 to 4 deliberately commit self-harm. Due to the complexity of the problem and its potential for serious harm, this finding becomes even more relevant as it is

common to detect this association with other risk behaviors, such as suicide attempt (Nock, 2010), anti-social behavior (Barreira, 2016) or drug addiction (Caldas et al., 2009). According to Nock (2010), self-harm behavior should be fully investigated, considering the individual's general context, which includes intrapersonal and interpersonal factors. Understanding how these factors result in self-harm or even reinforce existing self-harm behavior is essential for the creation of effective intervention strategies.

By characterizing individuals vulnerable to self-harm behaviors, this study can help guide intervention or prevention practices in environments with greater potential for concentrating adolescents who self-harm, such as schools. Considering that there are no tested national programs on prevention, promotion of information or care in relation to self-harm behaviors, the findings of this investigation provide a starting point for the investigation of factors associated with self-harm behavior, such as impulsiveness, suicidal ideation, and peer or bullie victimization. Also, when describing the occurrence of that behavior in Sergipe and initiating an empirical study of the subject in the state, one notices the lack of previous investigations in the schools. Additionally, these schools have professionals who are mostly unaware on how to deal with self-harm behaviors in their students.

Regarding the variables associated with self-harm behaviors, in the case of impulsiveness, adolescents scored below the midpoint of the scale ($M$ = 16.5; $SD$ = 6.06), which was 24 points, showing that, on average, the individuals in this sample had a low level of impulsiveness. For the studies found in the literature that also investigated self-harm behaviors, none described the mean or classification of individuals in the block of the impulsiveness scale (Barreira, 2016; Leal & Coutinho, 2017; Medeiros, 2016; Nunes, 2012; Pereira, 2016; Sousa, 2015), making it impossible to directly compare the scores. However, studies that used other instruments to measure impulsiveness, or even only theoretical, point to impulsiveness as a factor associated both with self-harm behaviors (Wolf et al., 2019) and with suicidal behaviors (Mann, 2002).

In this analysis, adolescents with above-average impulsiveness are about 3 times more likely to commit self-injury, which draws attention to the relevance of further research on the association between impulsiveness and injury. Guerreiro et al. (2014), for example, pointed out that more than 50% of their sample had made the decision to commit self-harm in less than one hour. Considering impulsiveness as a decisive factor in most self-harm behaviors, efforts on understanding how this aspect can act as a trigger for behavior enables the construction of effective prevention strategies focused on impulsiveness itself.

Suicidal ideation was the variable that showed the most susceptibility of individuals to self-harm behavior. In the presence of suicidal ideation there were 6.3 times more chances of engaging in self-harm, which demonstrates the important predictive value of this variable. In the literature, both the history of self-harm and its duration are associated with suicide, attempt or ideation, as if there were a progressive line of actions of self-harm towards in fact suicide (Andover & Gibb, 2010; Joiner, 2005). Andover and Gibb (2010) mentioned that the presence and frequency of self-harm behaviors were more strongly related to suicide attempts than depressive symptoms, hopelessness, and borderline symptoms, which demonstrates the importance of understanding the reasons why there is engagement in this type of conduct. Furthermore, individuals with a history of suicide attempt who also had a history of self-harm had the intention of dying more than those who did not practice self-harm behaviors.

On the other hand, it is important to highlight that despite the association between suicidal ideation and self-harm found here and in the literature in general (Glenn & Klonsky, 2013), this relationship is still rarely studied. It should be considered that both behaviors (self-harm and suicidal ideation) are part of a multicausal context where several factors may play an important role, such as parental and peer relationships, susceptibility to stressful events, and coping strategies, among others (Nock, 2010). Thus, the association between self-harm and death intention should be investigated in light of the psychological and social contexts of each individual. Bearing in mind that in this study individuals were mainly classified as having moderate suicidal ideation (50.9%), and that 75.2% had some level

of suicidal ideation, attention is drawn to the relationships discussed here about suicidal ideation and self-harm.

As far as victimization, almost a quarter of this sample was classified as victims of bullies and almost one third as peer victims, according to the literature. Also, the bullying variable showed a little more than 2 greater chances of self-harm and 1.5 times more chances to peer victims when they were compared to the not victimized group. In a European study, Klomek et al. (2016) found that three types of victimization (physical, verbal and relational) were associated with self-harm. Another study found that between girls, peer victimization was evaluated as predictor of self-harm (Adrian et al., 2019). It should be noted that only one Brazilian study was found on the investigation of both phenomena, bullying and self-harm (Pereira, 2016). More recently, Myklestad and Straiton (2021) found that victim of bullying are six times more exposed to self-harm behavior compared to non-victims. Our findings demonstrated that experiences of victimization added to the negative cognition in relation to oneself and are vulnerable factors for the presentation of self-harm, even though victimization is not characterized as bullying. Thus, adolescents who reported more experiences in which they feel victimized showed more inclination to committing self-harm.

Further research on the association between bullying and self-harm is needed, since school is the place where self-harm behaviors usually attract more attention, in addition to being the typical environment for bullying and peer victimization (Alves, 2015). Next, self-harm behaviors generally result from unsuccessful attempts to adapt to stressful contexts (Miller & Smith, 2008), one of which is victimization (peers or bullies). Hence, several commonalities between these elements are observed (suffering victimization and committing self-harm). Therefore, understanding the prevalence and accurately analyzing this relationship is essential for the most effective prevention and to impact both phenomena. Furthermore, it would be interesting to change the analysis criteria of the groups in the ISSI-A suicidal ideation block to non-existent (score 0), mild (scores 1 to 3), moderate (scores 4 to 6) and high (scores 7 to 9). This suggestion is made as the ISSI-A is a very sensitive scale, suitable for targeting potential cases, but which focuses on a likely high number of false positives. This is an issue related to sensitivity X specificity of research instruments and that seems relevant to be evaluated in future studies to attenuate a potential overdetection of suicidal ideation.

The cross-sectional design of the data is an important limitation to be considered, since patterns of change in self-harm behavior cannot be observed, for example. For this reason, longitudinal studies may contribute greater understanding by assessing the relationship between occurrence, frequency and duration of episodes. Finally, it is noteworthy that this study is the first to carry out a survey on self-harm and bullying with adolescents in the Brazilian Northeast – a very specific country region due to socioeconomic and cultural characteristics –, it is expected that this research will inform new studies regarding vulnerability to self-harm behavior. Most importantly, this research intends to foment the creation of proposals for intervention on the problem.

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## AUTHOR'S CONTRIBUTION

Luana Cristina Silva-Santos: Investigation; Methodology; Writing of the original draft.
André Faro: Project administration; Resources; Software; Supervision.
Derek Falk: Writing – review and editing.

# REFERENCES

Adrian, M., Zeman, J., Erdley, C., Whitlock, K., & Sim, L. (2019). Trajectories of non-suicidal self-injury in adolescent girls following inpatient hospitalization. *Clinical Child Psychology and Psychiatry, 24(4), 831-846.* https://doi.org/10.1117/1359104519839732

Alves, C. F. (2015). Bullying: School management and public health, a literature review. *Electronic Journal Management and Health, 6*(3), 2919-2933. https://doi.org/10.18673/gs.v6i3.22423

Andover, M. S, & Gibb, B. E. (2010). Non-suicidal self-injury, attempted suicide, and suicidal intent among psychiatric inpatients. *Psychiatry Research, 178*(1), 101-105. https://doi.org/10.1016/j.psychres.2010.03.019

Asarnow, J. R., Porta, G., Spirito, A., Emslie, G., Clarke, G., Wagner, K. D., Vitiello, B., Keller, M., Birmaher, B., McCracken, J., Mayes, T., Berk, M., & Brent, D. A. (2011). Suicide attempts and nonsuicidal self-injury in the treatment of resistant depression in adolescents: Findings from the TORDIA study. *Journal of the American Academy of Child and Adolescent Psychiatry, 50*(8), 772-781. https://doi.org/10.1016/j.jaac.2011.04.003

Baetens, I., Claes, L., Muehlenkamp, J., Grietens, H., & Onghena, P. (2011). Nonsuicidal and suicidal self-injurious behavior among Flemish adolescents: A web-survey. *Arquives of Suicide Research, 15*(1), 56-67. https://doi.org/10.1080/13811118.2011.540467

Bakken, N. W. (2019). Risk factors and correlates of self-injurious behavior and suicidal ideation among college students. *Deviant Behavior*, *42*(1), 68-79. https://doi.org/10.1080/01639625.2019.1651447

Bandeira, C. M. (2009). *Bullying: Autoestima e diferenças de gênero*. Lume UFRGS. https://lume.ufrgs.br/handle/10183/23014

Barnes, A. J., Eisenberg, M. E., & Resnick, M. D. (2010). Suicide and self-injury among children and youth with chronic health conditions. *Pediatrics*, *125*(5), 889-895. https://doi.org/10.1542/peds.2009-1814

Barreira, A. (2016). *Associations between nonsuicidal self-injury behavior and attachment to parents and peers in Portuguese adolescents* [Masters dissertation, University of Coimbra]. http://hdl.handle.net/10316/33459

Borschman, R., Hogg, J., Philips, R., & Moran, P. (2012). Measuring self-harm in adults: A systematic review. *European Psychiatry, 27*(3)*, 176-180. https://doi.org/10.1016/j.eurpsy.2011.04.005.

Brausch, A. M., & Gutierrez, P. M. (2010). Differences in non-suicidal self-injury and suicide attempts in adolescents. *Journal of Youth and Adolescence, 39*(3), 233-242. https://doi.org/10.1007/s10964-009-9482-0.

Caldas, M. T., Arcoverde, R. L., Santos, T. F., Lima, M. S., Macedo, L. E. M. L., & Lima, M. C. (2009). Self-harm behavior among brazilian women in Recife prison. *Psicologia em Estudo, 14*(3), 575-582. https://doi.org/10.1590/S1413-73722009000300019.

Costa, R. P. O., Peixoto, A. L. R. P., Lucas, C. C. A., Falcão, D. N., Farias, T. S., Viana, L. F. P., Pereira, M. A. A., Sandes, M. L. B., Lopes, T. B., Mousinho, K. C., & Trindade-Filho, E. A. (2021). Profile of non-suicidal self-injury in adolescents: Interface with impulsiveness and loneliness. *Jornal de Pediatria*, *97*(2), 184-190. https://doi.org/10.1016/j.jped.2020.01.006

Glenn, C. R., & Klonsky, E. D. (2013). Nonsuicidal self-injury disorder: An empirical investigation in adolescent psychiatric patients. *Journal of Clinical Child and Adolescent Psychology, 42,* 496-507. https://doi.org/10.1080/15374416.2013.794699

Guerreiro, D. F., Sampaio, D., & Figueira, M. L. (2014). *Relatório da investigação "Comportamentos autolesivos em adolescentes: Características epidemiológicas e análise de fatores*

*psicopatológicos, temperamento afetivo e estratégias de coping"* [Report]. University of Lisboa, Medical School.

Joiner, T. E. (2005). *Why people die by suicide.* Harvard University Press.

Leal, A., & Coutinho, J. (2015). Uma reflexão sobre os comportamentos dos jovens adolescentes e a influência no rendimento escolar. In *Acts do 2º* (pp. 262-270). Editions ISPGaya

Klomek, A. B., Snir, A., Apter, A., Carli, V., Wasserman, C., Hadlaczky, G., Hoven, C. W., Sarchiapone, M., Balazs, J., Bobes, J., Brunner, R., Corcoran, P., Cosman, D., Haring, C., Kahn, J. P., Kaess, M., Postuvan, V., Sisask, M., Tubiana, A., …, & Wasserman, D. (2016). Association between victimization by bullying and direct self-injurious behavior among adolescence in Europe: A ten-country study. *European Child & Adolescent Psychiatry, 25*(11), 1183-1193. https://doi.org/10.1007/s00787-016-0840-7

Liu, R. T., Trout, Z. M., Hernandez, E. M., Cheek, S. M., & Gerlus, N. (2017). A behavioral and cognitive neuroscience perspective on impulsivity, suicide, and non-suicidal self-injury: Meta-analysis and recommendations for future research. *Neuroscience & Biobehavioral Reviews, 83,* 440–450. https://doi.org/10.1016/j.neubiorev.2017.09.019

Mann, J. J. (2002). A current perspective of suicide and attempted suicide. *American College of Physicians – American Society of Internal Medicine, 136*(4), 302-311. https://doi.org/10.7326/0003-4819-136-4-200202190-00010

Medeiros, P. C. M. (2016). *Autodano e ideação suicida em indivíduos com patologia psiquiátrica* [Masters dissertation, University of Azores]. http://hdl.handle.net/10400.3/3933

Miller, A. L., & Smith, H. L. (2008). Adolescent non-suicidal self-injurious behavior: The latest epidemic to assess and treat. *Applied and Preventive Psychology, 12(4)*, 178-188. https://doi.org/10.1016/j.appsy.2008.05.003

Myklestad, I., & Straiton, M. (2021). The relationship between self-harm and bullying behaviour: Results from a population based study of adolescents. *BMC Public Health*, *21,* Article 524. https://doi.org/10.1186/s12889-021-10555-9

Nock, M. K. (2009). Why do people hurt themselves? New insights into the nature and functions of self-injury. *Current Directions in Psychological Science, 18*(2), 78-83. https://doi.org/10.1111/j.1467-8721-2009.01613.x

Nock, M. K. (2010). Self-injury. *Annual Review of Clinical Psychology, 6*, 339-363. https://doi.org/10.1146/annurev.clinpsy.121208.131258.

Nock, M. K., Boccagno, C. E., Kleiman, E. M., Ramirez, F., & Wang, S. B. (2019). Suicidal and nonsuicidal self-injury. In M. J. Prinstein, E. A. Youngstrom, E. J. Mash, & R. A. Barkley (Eds.), *Treatment of disorders in childhood and adolescence* (4. ed.) (pp. 258-273). The Guilford Press.

Nock, M. K., & Prinstein, M. J. (2004). A functional approach to the assessment of self-mutilative behavior. *Journal of Consulting and Clinical Psychology, 72*(5), 885-890. https://doi.org/10.1037/0022-006X.72.5.885

Nunes, C. P. S. (2012). *Auto-dano e ideação suicida na população adolescente: Aferição do questionário de impulso, auto-dano e ideação suicida na adolescência (QIAIS-A)* [Masters dissertation, University of Azores]. http://hdl.handle.net/10400.3/1985

Pereira, M. T. R. F. (2016). *Bullying e comportamentos autolesivos não suicidários na adolescência* [Masters dissertation, University of Coimbra]. http://hdl.handle.net/10316/34068

Rasmussen, S., Hawton, K., Philpott-Morgan, S., & O'Connor, R. C. (2016). Why do adolescents self-harm? An investigation of motives in a community sample. *Crisis, 37*, 176-183. https://doi.org/10.1027/0227-5910/a000369

Silva, M. F. A., & Siqueira, A. C. (2017). O perfil de adolescentes com comportamento de autolesão identificados nas escolas estaduais em Rolim de Moura – RO. *Revista Farol, 3*(3), 4-20. http://www.revistafarol.com.br/index.php/farol/article/view/38

Sing, S., Kumar, S., & Deep, R. (2019). Patients with deliberate self-harm attended in emergency setting at a tertiary care hospital: A 13-month analysis of clinical-psychiatric profile. *The International Journal of Psychiatry in Medicine, 54*(6), 363-376. https://doi.org/10.1177/0091217419837052

Soares, A. K. S., Gouveia, V. V., Gouveia, R. S. V., Fonsêca, P. N., & Pimentel, C. E. (2015). California Victimization of Bullying Scale (CVBS): Evidence of validity and internal consistency. *Trends in Psychology, 23*(2), 481-491. https://doi.org/10.9788/TP2015.2-18

Somer, O., Bildik, T., Kabukçu-Basay, B., Güngor, D., Basay, Ö., & Farmer, R. F. (2015). Prevalence of non-suicidal self-injury and distinct groups of self-injurers in a community sample of adolescents. *Social Psychiatry and Psychiatric Epidemiology, 50*(7), 1163-1171. https://doi.org/10.1007/s00127-015-1060-z

Sousa, J. M. (2015). *Estudo preliminar de adaptação e validação da escala de avaliação do eu resiliente* [Masters dissertation, Miguel Torga Higher Institute, Higher School of High Studies].

United Nations Children's Fund. (2014). *Hidden in plain sight: A statistical analysis of violence against children* [Research report]. https://data.unicef.org/resources/hidden-in-plain-sight-a-statistical-analysis-of-violence-against-children/

United Nations Children's Fund. (2018). *An everyday lesson: #ENDviolence in schools* (Research report). https://www.unicef.org/documents/everyday-lesson-endviolence-schools

Wolf, J. C., Thompson, E., Thomas, S. A., Nesi, J., Bettis, A. H., Ransford, B., Scopelliti, K., Frazier, E. A., & Liu, R. T. (2019). Emotion dysregulation and non-suicidal self-injury: A systematic review and meta-analysis. *European Psychiatry, 59*, 25-36. https://doi.org/10.1016/j.eurpsy.2019.03.004