

ORIGINAL ARTICLE

PREVALENCE AND PERSONAL FACTORS ASSOCIATED WITH SELF-HARM IN ADOLESCENTS*

HIGHLIGHTS

- 1. 27.39% of Brazilian adolescents have committed self-harm violence.
- 2. Adolescents of African descent were associated with self-harm.
- 3. Schooling is a protective factor against self-harm.
- 4. Gender was not associated with self-harm in adolescents.

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ABSTRACT

Objective: To identify the prevalence and personal factors associated with self-harm in adolescents. **Method:** A cross-sectional analytical observational study. The population consisted of notifications of interpersonal or self-harm violence in adolescents in Brazil from the Notifiable Diseases Information System. Notifications between 2009 and 2021 in Brazil were included in adolescents aged 10 to 19. The data was analyzed using descriptive and inferential statistics. **Results:** The prevalence of self-harm was 27.39% in Brazil. Black adolescents increase the prevalence of self-harm violence by 3% and brown and indigenous adolescents by 2%; more than eight years of schooling is a protective factor in relation to self-harm violence, reducing the prevalence of self-inflicted violence by 12%. **Conclusion:** The results indicate the need for effective policies and strategies to help care for this public.

KEYWORDS: Self-destructive behavior; Risk factors; Protective factors; Adolescent health; Health information systems.

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INTRODUCTION

Violence is the use of physical force or power, by threats or acts, against a person, oneself, or a group or community, which can result in psychological harm, deprivation, injury, and death. Violence is classified into three categories: interpersonal, which is perpetrated against another person or a small group of people; collective, which is perpetrated by large groups such as states, political organizations, militias, and terrorists; and self-inflicted, in which the individual inflicts acts of violence against themselves¹.

Self-harm violence includes self-injury, suicidal ideation, suicide attempts, and suicide², and consists of intentional aggression against oneself. It should be noted that this type of violence is used to relieve emotions and is often a refuge for family, relational, and everyday afflictions³.

With regard to the subtypes of self-harm violence, suicidal ideation is made up of thoughts and plans aimed at ending one's own life, considered the only alternative for solving problems; attempted suicide is a predictor of suicide, consisting of acts of self-harm with the intention of death, but without resulting in death; and suicide is the intentional act that ends in death, often preceded by ideation and attempted suicide⁴.

Self-harm violence has a multifactorial origin, involving factors related to age, culture, race/color, genetics, mental disorders, living conditions, low economic status, bullying, school, relationships, and family⁵⁻⁶. In addition, problematic situations, together with low self-esteem, self-criticism, and stress, are associated with suicidal ideation in adolescence⁴.

According to the Pan American Health Organization (PAHO), adolescents are considered people between 10 and 19. They are seen as a social problem by today's society due to their experience of conflicts, irresponsibility, and disorders that trigger early pregnancies, Sexually Transmitted Infections (STIs), and involvement in situations of violence⁷⁻⁸.

In this context, it was observed that 16.47% of adolescent admissions in Argentina were caused by self-harm violence, as well as in the United Kingdom, where 21.7% of adolescents practiced acts of self-mutilation⁹⁻¹⁰; in the Netherlands, 2.4% of adolescents attempted suicide¹¹; and in Chile, 5.4% of this public committed suicide¹². At a national level, 33,541 cases of self-harm violence in adolescents were reported between 2009 and 2016, an increase from 2.1 per 100,000 adolescents in 2009 to 25.7 in 2016, mainly in the South and Southeast, and is considered a public health problem in Brazil¹³.

In view of the above, the question arises: What are the prevalence and personal factors associated with self-harm in adolescents in Brazil? It is essential to understand the aspects of self-harm violence and the factors associated with this type of violence in adolescents in Brazil, allowing health professionals, especially nurses, to identify the signs of these cases, which results in specific assistance geared to the needs of the adolescent, support in all areas, especially in terms of emotional health, as well as the creation of policies and actions aimed at preventing and/or reducing these cases. The aim of this study was to identify the prevalence and personal factors associated with self-harm in adolescents.

METHOD

Cross-sectional analytical observational study. The data was collected from notifications of interpersonal or self-harm violence in adolescents in Brazil, using the Notifiable Diseases Information System (SINAN) as a source.

Initially, the data universe consisted of 726,407 notifications of interpersonal/self-

harm violence between 2009 and 2021. After applying the inclusion and exclusion criteria, the sample consisted of 650,346 reports of interpersonal or self-harm violence in Brazilian adolescents during the period mentioned above. Notifications of interpersonal or self-harm violence between 2009 and 2021 in Brazil, in adolescents aged between 10 and 19, were included, considering the PAHO definition of adolescence⁷. Data in which the self-harm violence variable was missing or ignored was excluded.

Data was collected using an instrument designed by the authors in order to standardize the information extracted, containing the independent variables: age group (10 to 14 years and 15 to 19 years), color/race (white, black, brown, indigenous and yellow) and schooling (8 years or less of study, which corresponds to illiterate adolescents or those attending/finishing elementary school, and more than eight years of study, which comprises adolescents attending high school or higher) and the dependent variable: self-inflicted violence (yes or no).

The data was downloaded via *Tabwin* (DATASUS), processed and organized in Excel 2019 spreadsheets, and applied to the Statistical Package for the Social Sciences (SPSS) software for descriptive and inferential analysis.

Absolute and relative frequencies were used for the descriptive analysis. Bivariate analyses were carried out using the chi-square test (\mathbb{C}^2), and multivariate analyses using Poisson regression with a robust variance estimator. A 5% significance level was adopted for both tests. Variables with a p-value < 0.01 were included in the regression model and were retained when the p-value was < 0.05%.

Pearson's chi-square test of independence was presented by relative and absolute frequency and p-value. Poisson regression was presented with the Prevalence Ratio (PR), Confidence Interval (95% CI), and p-value.

The research project was submitted to the Ethics Committee of the Federal University of Rio Grande do Norte (UFRN) and approved under opinion no. 5.521.288.

RESULTS

Between 2009 and 2021, 650,346 cases of interpersonal/self-harm violence were reported in adolescents aged 10 to 19 in Brazil. As shown in Table 1, the majority of cases of interpersonal/self-harm violence occurred among female adolescents (68.74%), between 15 and 19 years old (60.89%), brown (40.99%), and with schooling from the 5th to 8th-grade incomplete (28.86%). The prevalence of self-harm in adolescents was 27.39%.

Table 1 - Characterization of notifications of interpersonal/self-harm violence in Brazilian adolescents between 2009 and 2021 (N=650,346). Natal, RN, Brazil, 2023.

Variables	n	%
Sex		
Female	447,097	68.74
Male	203,172	31.25
Ignored/ Blank	77	0.01

Age group		
10-14 years	254,299	39.11
15-19 years	396,047	60.89
Race/color		
White	249,583	38.37
Yellow	4,679	0.71
Indigenous	6,590	1.01
Brown	266,398	40.99
Black	50,929	7.83
Ignored/blank	72,167	11.09
Education		
Eight years or less of schooling	287,412	44.19
More than eight years of study	158,693	24.40
Not known/Not applicable	204,341	31.41
Self-harm violence		
Yes	178,115	27.39
No	472,231	72.61

Source: Authors (2023).

Self-harm violence was significantly associated with females (p < 0.001) and the 15-19 age group (p < 0.001). Concerning race/color, an association was identified (p < 0.001), and the analysis of the adjusted residuals showed that white was associated with self-harm.

As for schooling, an association was found (p < 0.001), requiring the analysis of adjusted residuals, which identified significant differences in adolescents with more than eight years of schooling (Table 2).

Table 2 - Association between personal characteristics and self-harm. Natal, RN, Brazil, 2023.

	Self-i	Self-inflicted violence		
Personal Characteristics	Yes	No	p-value	
Sex (n = 650,346)				
Female	135,402	311,695	_	
Male	42,693	160,479	< 0.001	
Ignored	20	57		
Age group (n = 650,346)				

10 to 14 years	49,631	204,668	< 0.001
15 to 19 years old	128,484	267,563	_
Race/color (n = 643,596)			
White	83,022	166,561	_
Black	10,880	40,049	_
Yellow	1,321	3,358	_
Brown	63,640	202,758	_
Indigenous	1,523	5,067	
Ignored	16,422	48,995	< 0.001
Schooling (n = 613,448)			
Eight years or less of schooling	59,980	227,432	
More than eight years of study	60,421	98,272	< 0.001
Not known/Not applicable	47,818	119,525	
6 4 1 (0000)			

Source: Authors (2023).

The multivariate analysis identified the characteristics associated with the prevalence of self-harm violence, with a frequency of 27.39% of this phenomenon as the outcome (Table 3).

Table 3 - Prevalence ratio of self-harm violence according to personal characteristics. Natal, RN, Brazil, 2023.

Personal Characteristics		е	
	RP	CI (95%)	p-value
Sex			
Female	0.95	0.90-1.01	0.109
Male	1.00	0.95-1.06	0.813
Age group			
10-14 years	1		
15-19 years	0.91	0.95 - 0.95	< 0.001
Race/color			
White	0.97	0.97 - 0.98	< 0.001
Yellow	1		
Indigenous	1.02	1.01 - 1.03	< 0.001
Brown	1.02	1.01 - 1.03	< 0.001

Black	1.03	1.02 - 1.04	< 0.001
Education			
Eight years or less of schooling	0.98	0.92 – 1.03	0.442
More than eight years of study	0.88	0.84 – 0.93	< 0.001
Not known/Not applicable	0.93	0.88 – 0.98	0.016

Source: Authors (2023).

Gender was not statistically associated with an increase in the prevalence of self-harm (p > 0.05). Adolescents aged 15 to 19, when compared to those aged 10-14, showed a 9% reduction in the prevalence of violence (95% CI: 0.95 - 0.95).

In terms of race/color, the other races, when compared to yellow and white, showed an increase in the prevalence of self-harm, with indigenous and brown races showing an increase of 2% (95% CI): 1.01 - 1.03) and a black rate of 3% (95% CI: 1.02 - 1.04) of the prevalence of self-harm violence, while the white race/color showed a reduction of 3% (95% CI: 0.97 - 0.98) of this prevalence.

Concerning schooling, the variable more than eight years of schooling reduced the prevalence of self-harm by 12% (95% CI 0.84 - 0.93), while having less than eight years of schooling was not statistically associated with an increase in the prevalence of self-harm (> 0.05).

DISCUSSION

The prevalence of self-harm was 27.39% in Brazil, as identified in this study. A systematic review with meta-analysis of studies carried out in various countries found an estimated prevalence of 21% for the adolescent population with self-harm behaviors14.

There isn't just one reason why self-harm happens; there are several factors that lead adolescents to hurt themselves. Adolescence itself is a favorable period for triggering these actions since it unveils various internal and external conflicts¹⁵.

In addition, hostile family relationships, problems in social relationships, psychopathologies such as depression and personality disorders, previous physical and sexual aggression, and difficulties in coping with problems¹⁶⁻¹⁷ stand out as motivators of self-harm violence.

As for personal factors, this study found that in Brazil, gender was not significantly associated with self-harm in adolescents. However, studies carried out in North America and Asia¹⁸⁻²⁰ show a different reality, in which females are more likely to be associated with this type of violence.

The association between self-harm violence and females is due to stress as a result of the changes experienced during adolescence, which mainly affect girls and generate greater sensitivity in interpersonal relationships and negative emotions¹⁴.

In addition, this study found that the 15 to 19 age group reduced the prevalence of self-harm by 9%, contrary to data from a study carried out in Ceará in which the 12 to 21 age group was statistically associated with suicide attempts, mainly in males²¹.

Older adolescents, aged between 15 and 19, are more mature than younger adolescents (10 to 14 years old), who experience body changes through puberty, new feelings, and love relationships, begin to be demanded by parents/guardians, and are in situations that lead to self-harm violence.

Regarding race/color, black Brazilian adolescents (blacks and browns) have a higher risk of committing self-harm violence when compared to whites and yellows. People of this ethnicity are more vulnerable to various types of violence, particularly domestic violence and self-harm²².

Race/color is indirectly related to cases of self-harm violence since it can be a determining factor in situations of social inequality, visibility, discrimination, economically disadvantaged situations, and low schooling, which can contribute to an increased risk of suicide¹³⁻²³. It should be noted that racial discrimination is a conditioning factor for an increase in suicidal thoughts and behaviors²⁴.

In Brazil, there is a predominance of brown self-declaration (46.8%) when compared to other races/colors, which may be the reason for the large number of reports of self-inflicted violence among brown adolescents²⁵.

In this sense, the National Policy for the Integral Health of the Black Population is an initiative of the Brazilian Ministry of Health and works to combat inequalities in the Unified Health System (SUS). The aims of the policy are to combat racism and discrimination in SUS institutions and services and to promote comprehensive health care. To this end, it considers the socioeconomic conditions and cultural particularities that affect the morbidity and mortality factors of this population²⁶.

The establishment of public policies for the black population faces numerous challenges in the areas of health actions and services. However, Primary Care provides care and reception for people in situations of violence and enables health professionals to diagnose and intervene in situations of conflict²⁷.

Such situations of self-inflicted violence are also related to schooling, since the lower the level of schooling, the greater the chances of individuals being subjected to low working conditions and low wages, and suicide mortality rates are higher in economically disadvantaged regions²⁸.

In addition, schooling is associated with individual empowerment, as well as allowing adolescents to feel closer to financial independence as they graduate and enter the job market, which promotes life satisfaction and protection against situations of self-harm and violence²⁹⁻³⁰. It is important to consider that it is fundamental for adolescents to feel satisfied with themselves and understand their qualities and limitations, which is the main point for self-esteem and mental balance, characteristics that protect against self-harm.

This study is limited to the low number of studies on self-harm in adolescents, especially in Brazil. However, the data was compared with the available Brazilian and international literature in order to gain a better understanding of the phenomenon.

Another limitation is the underreporting identified in the data from this study, ranging from incomplete information due to many variables not being filled into cases that had access to health services and were not recognized or reported.

In this sense, it is essential that health professionals report suspected and confirmed cases of self-harm violence, which provides a real picture of the phenomenon and the basis for creating public policies to prevent and protect adolescents who experience such situations.

CONCLUSION

The personal factors associated with the risk of adolescents committing self-harm violence were black, brown, and indigenous race/color. Furthermore, the protection of adolescents was associated with white race/color and having more than eight years of schooling.

This data enables health professionals to identify situations of self-harm violence in adolescents more quickly and to devise strategies and interventions to help them care for this population.

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