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Research Article
Artigo de Pesquisa
Artículo de Investigación

Factors associated with non-suicidal self-injury among health students at a Brazilian university

Fatores associados à autolesão não suicida de estudantes dos cursos da área da saúde em uma universidade brasileira

Factores asociados a la autolesión no suicida de estudantes de las carreras del área de la salud en una universidad brasileña

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ABSTRACT

Objective: to investigate the association between non-suicidal self-harm and socioeconomic, demographic, and behavioral factors among university students enrolled in health-related courses. **Method:** Quantitative, cross-sectional study involving 251 students from a federal higher education institution in southeastern Brazil. Data collected between October 2019 and February 2020 using an electronic questionnaire. **Results:** The prevalence of non-suicidal self-harm was 44.22%. Homosexual students are more vulnerable to non-suicidal self-harm. Suicidal ideation and depressive symptoms double the chances of self-harm. Having a history of suicide attempts in the family/among friends increased the chances of non-suicidal self-harm. **Conclusion:** It was identified that LGBT+ students in health courses presenting suicidal ideation and depressive symptoms increased their vulnerability to non-suicidal self-harm. Female gender, black, brown, and yellow skin colors, and the initial period of the course were not associated with non-suicidal self-harm.

Descriptors: Students; Universities; Suicidal Ideation; Self-Injurious Behavior.

RESUMO

Objetivo: investigar a associação da autolesão não suicida a fatores socioeconômicos, demográficos e comportamentais entre estudantes universitários dos cursos da área da saúde. **Método:** investigação quantitativa, transversal, com 251 alunos de uma instituição federal de ensino superior no sudeste brasileiro. Dados coletados entre outubro de 2019 e fevereiro de 2020, por meio de questionário eletrônico. **Resultados:** a prevalência da autolesão não suicida foi de 44,22%. Estudantes homossexuais possuem maior vulnerabilidade para a autolesão não suicida. Apresentar ideação suicida e sintomas depressivos aumenta duas vezes as chances para o ato autolesivo. Ter histórico de tentativa de suicídio na família/amigos aumentou as chances para a autolesão não suicida. **Conclusão:** identificou-se que estudantes LGBT+ dos cursos da área da saúde apresentando ideação suicida e sintomas depressivos aumentou a vulnerabilidade para autolesão não suicida. Gênero feminino, cores da pele preta, parda e amarela, e período inicial do curso não foram associados à autolesão não suicida.

Descritores: Estudantes; Educação Superior; Ideação Suicida; Autolesão não Suicida.

RESUMEN

Objetivo: investigar la asociación de la autolesión no suicida con factores socioeconómicos, demográficos y conductuales entre estudiantes universitarios de las carreras del área de la salud. **Método:** investigación cuantitativa, transversal, con 251 estudiantes de una institución federal de educación superior en el sudeste de Brasil. Los datos fueron recolectados entre octubre de 2019 y febrero de 2020 mediante un cuestionario electrónico. **Resultados:** la prevalencia de autolesión no suicida fue del 44,22%. Los estudiantes homosexuales presentan mayor vulnerabilidad a la autolesión no suicida. Presentar ideación suicida y síntomas depresivos duplica la probabilidad de realizar actos autolesivos. Tener antecedentes de intento de suicidio en la familia o entre amigos aumentó las probabilidades de autolesión no suicida. **Conclusión:** se identificó que estudiantes LGBT+ de las carreras del área de la salud que presentan ideación suicida y síntomas depresivos tienen una mayor vulnerabilidad a la autolesión no suicida. El género femenino, los colores de piel negra, parda y amarilla, y estar en los primeros períodos del curso no se asociaron con la autolesión no suicida.

Descriptores: Estudiantes; Universidades; Ideación Suicida; Conducta Autodestructiva.

INTRODUCTION

Non-suicidal self-injury and suicidal behavior in young people are major public health concerns[1]. Non-suicidal self-injury can be defined as behavior characterized by deliberate, self-inflicted damage to body tissue, without the intention of suicide on the part of the person[2]. Non-suicidal self-harm involves skin injuries, commonly cuts, as well as burns, scratches, and blows to parts of the body. People who engage in self-harm report immediate relief from tension and distress in the face of emotional pain[3]. Non-suicidal self-harm is most reported in adolescence, but the second peak in the occurrence of self-harming acts is in young adulthood, specifically in the 20-24 age group, coinciding for many with entering university[4-5].

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The prevalence of non-suicidal self-harm among young adults is high, ranging from 17% to 42% among university students in several countries[5-7]. University students may be more vulnerable to non-suicidal self-harm, considering the adaptation to academic life, migration from another city or state, living alone, precarious economic backgrounds, being female, ethnic minorities, and the LGBTQIAPN+ population[5,8]. In fact, research reports an increase in non-suicidal self-harm during periods of academic performance evaluation, possibly reflecting periods of greater stress[5,9,10].

For three decades, scholars have been studying this topic, with some theories discussing emotional dysregulation, in which people with self-harming behaviors have lower socio-emotional skills to deal with negative emotions, lack of impulse control, emotional awareness deficits, and perform the act as a coping strategy in the face of stressful events[9-13].

A history of non-suicidal self-harm leads to greater vulnerability to suicide[5,8,13-16]. Suicidal ideation and depression have been reported among female students and LGBTQIAPN+ university students with non-suicidal self-harming behavior[15,17]. Frequent alcohol consumption doubles the likelihood of non-suicidal self-harm, and problematic alcohol consumption has been associated with increased suicidal ideation and attempts among Norwegian university students[18]. These data raise questions about which conditions may mediate emotional profiles in the occurrence of non-suicidal self-harm behavior. In this sense, this study aims to examine the association of non-suicidal self-injury with socioeconomic, demographic, and behavioral factors among university students in health courses at a public higher education institution (HEI). There is a knowledge gap regarding the black population, as most studies involve the white population[3-10].

The hypothesis is that female gender, LGBTQIAPN+ community, black, brown, or yellow skin color, early stages of the course, suicidal ideation, suicide attempts, depressive symptoms, and psychoactive substance use are associated with non-suicidal self-harm. Therefore, expanding studies in the Brazilian context on depressive symptoms and suicidal behavior associated with sociodemographic variables may provide clues about the profile of university students, specifically those in health courses, who are at risk and more vulnerable to the occurrence or repetition of non-suicidal self-harm. Consequently, the results of this study contribute to producing knowledge in the area and provide support for the formulation of strategies to welcome and care for university students with non-suicidal self-harm in mental health services.

This study aims to investigate the association of non-suicidal self-harm with socioeconomic, demographic, and behavioral factors among university students in health courses.

METHOD

This study is part of a larger research project that investigated suicidal behavior among university students enrolled in health courses at a higher education institution (HEI) in a municipality in southeastern Brazil. This is a cross-sectional study that followed the recommendations of the tool STrengthening the Reporting of OBservational studies in Epidemiology (STROBE)[19].

The population consisted of 1,087 university students. To calculate the sample size, a 95% confidence interval (CI), a maximum error of 5%, and an estimated prevalence of suicidal ideation of 17.8%[13] were established, resulting in a sample of 260 university students. Of these, nine were excluded for not having filled out the instruments used in the research, totaling 251 participants.

The inclusion criteria were people aged 18 years or older who entered the HEI in the first semester of 2014 and were still enrolled in the second semester of 2019 in one of the six undergraduate courses in the health area (n=251), including nursing, speech therapy, health services management, medicine, nutrition, and radiology technology at the Federal University of Minas Gerais (UFMG). We included only students who had complete information about the covariates evaluated, which included socioeconomic and behavioral demographic factors. We excluded those who were on leave from academic activities for family/illness reasons or on institutional exchanges, those who had suspended their enrollment during the data collection period, and those who did not fully respond to the instruments used.

Data collection took place between October 2019 and February 2020. UFMG is one of the Brazilian public universities that has adopted the national higher education admission system, the Unified Selection System (SiSU), since 2010. This system allows all students in the country to enroll in any public university, provided they meet the required classification, resulting in greater heterogeneity among students from different locations in the country.

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Belo Horizonte is a municipality in the state of Minas Gerais located in the southeastern region of Brazil. The city's Human Development Index (HDI), which measures the degree of development in terms of education, health, and income, is similar to that of the state and the country (HDI = 0.79, 0.78, and 0.76, respectively).

The university's course coordinators provided a list of names of all eligible participants, and students were approached in classrooms to complete an anonymous, self-administered questionnaire in Portuguese. The electronic questionnaire was administered through the Google Forms® electronic platform. To ensure confidentiality and anonymity, each student was assigned a numerical identification. This process ensured that each person responded to the survey only once.

Before data collection, participants read and signed an informed consent form. After completing the questionnaire, all respondents received an information leaflet containing a list of free public health services, with information about services where they could seek support in case of psychological distress. As it was an electronic and anonymous questionnaire, it was not possible to identify students in these conditions.

The instrument was divided into sections: sociodemographic, academic, and economic characterization of the participants; questions associated with the theme of non-suicidal self-harm with the question “In the last 30 days, have you intentionally injured yourself?”; dichotomous questions to assess suicidal ideation, such as “In the last 30 days, have you thought about killing yourself?”, “In the last 15 days, have you thought about killing yourself?”, “Have you ever attempted suicide?”, “Do you have a history of suicide attempts in your family/friends?”, “Do you have a history of suicide in your family/friends?”[1,2,4,5], in addition to the Major Depression Inventory (MDI), based on the Diagnostic and Statistical Manual of Mental Disorders (DSM-V) and International Classification of Diseases (ICD-10)[13], and the Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)[14].

The demographic information collected included gender (female or male), sexual orientation (heterosexual, homosexual, bisexual, or transgender), age (18–20 years, 21–30 years, 31–40 years, ≥41 years), self-reported skin color/race (white and non-white (black, brown, yellow), other), current relationship status (single, married, divorced), student aid (yes/no), student's means of support (alone, receives help from others, contributes to household income but receives help from others), average monthly income (up to one minimum wage, one to three minimum wages, and above three minimum wages), religion (yes/no), cohabitation status (living alone, roommates, and with relatives in general/others), course (nursing, medicine, speech therapy, radiology, nutrition, health services management), and course period (first to sixth semester and seventh to 11th semester).

The data obtained were stored in Microsoft Excel®, in a spreadsheet automatically generated by Google Forms®. Subsequently, these were compared using the Epi Info® software, version 3.5, and analyzed in the Stata® software, version 13.1. We compared demographic and behavioral characteristics with the dependent variable of non-suicidal self-harm. Descriptive statistics were used to summarize the demographic, socioeconomic, and behavioral characteristics of the participants, as well as the prevalence of non-suicidal self-harm among these factors.

To test the significance of the study, the crude model was used to analyze the associations of the variables with the outcome, considering a significance level of 0.05 and a 95% confidence interval (CI). Chi-square tests of heterogeneity were used for comparisons between categories, and a linear trend test was used for ordinal categorical variables, when appropriate.

For the multivariate analysis, the Poisson regression model was applied, testing variables with $p \leq 0.20$ in the unadjusted analyses and retaining, at the end, those with $p < 0.05$, with a 95% CI. Multivariate logistic regressions were conducted to calculate the odds ratio (OR) and their respective CIs for the associations between demographic, socioeconomic, and behavioral characteristics and non-suicidal self-injury, testing variables with $p \leq 0.20$ in unadjusted analyses and retaining, those with $p<0.05$, with 95% CI, remaining at the end.

The research protocol was approved by the Research Ethics Committee, under protocol no. 04567018.6.0000.5149. All aspects contained in Resolution no. 466/12 were respected. Participation in the study was voluntary.

RESULTS

The prevalence of non-suicidal self-harm among health science university students was 44.22% (n=112). Table 1 shows the associations between demographic, socioeconomic, and academic variables and the occurrence of non-suicidal self-harm.

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Table 1: Bivariate association between socioeconomic and academic demographic variables of university students in the health field and the occurrence of non-suicidal self-harm (n=251). Belo Horizonte, MG, Brazil, 2020.

	Yes		No		
Variables	**n**	**(%)**	**n**	**(%)**	**p-value***
Sex					0,035
Female	27	19.42	112	80.58	
Male	11	9.82	101	90.18	
Skin color					**0.717**
White	67	45.58	80	54.42	
Black, brown, and yellow	56	56.33	45	43.27	
Age group					0.220
Up to 20 years old	29	52.73	26	47.27	
21-30 years old	77	45.03	94	54.97	
31-40 years old	06	46.15	07	53.85	
>41 years old	02	16.67	10	83.3	
Sexual orientation					**0.006**
Heterosexual	78	40.00	117	60.00	
Homosexual	34	60.71	22	39.29	
Marital status					0.786
Single	97	44.09	123	55.91	
Married	12	46.15	14	53.85	
Divorced	03	60.00	02	40.00	
Student aid					0.541
Yes	73	43.20	96	56.80	
No	39	47.56	43	52.44	
Average monthly income					0.724
Up to 1 minimum wage	12	44.44	15	55.56	
1-3 minimum wages	57	47.11	64	52.89	
>3 minimum wages	43	41.75	60	58.25	
Cohabitation status					0.998
Lives alone	05	45.45	06	54.55	
Roommates	16	44.44	20	55.56	
Relatives in general/others	91	44.61	113	55.39	
Religion					0.117
Yes	36	51.43	34	48.57	
No	76	41.99	105	58.01	
Course					0.075
Nursing	48	43.24	63	56.76	
Nutrition	25	55.56	20	44.44	
Health services management	16	50.00	16	50.00	
Medicine	08	25.81	23	74.19	
Radiology	06	60.00	04	40.00	
Speech therapy	09	50.00	09	50.00	
Period					0.187
1st to 6th	82	47.40	91	52.60	
7th to 11th	30	38.46	48	61.54	

Note: *Poisson regression model.

With regard to gender, 84.80% (n=213) of participants were women and 16.20% (n=38) were men. Attention should be given to the fact that 60.71% (n=34) of participants who declared themselves homosexual reported having engaged in non-suicidal self-harm, in contrast to a rate of 40% (n=78) of those who declared themselves heterosexual and experienced non-suicidal self-harm.

Only the variable sexual orientation had a significant association with non-suicidal self-harm. However, the variables gender, skin color, age group, marital status, student residence, student aid, monthly income, student residence, religion, course, and period had no significant association with non-suicidal self-harm. Although there was no significant association, it is noteworthy that 56.33% (n=56) of those who reported having black, brown, or yellow skin color reported non-suicidal self-harm.

Table 2 shows the results of the association tests performed.

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Table 2: Association between psychosocial factors among undergraduate health students and the occurrence of non-suicidal self-harm (n=251). Belo Horizonte, MG, Brazil, 2020.

	Yes		No		p-value*
Variables	**n**	**(%)**	**n**	**(%)**	
Suicide attempt in the family/friends					**0.000**
Yes	26	28.66	66	71.74	
No	86	54.09	73	45.91	
Suicide in the family/friends					0.547
Yes	75	43.35	98	56.65	
No	37	47.44	41	52.56	
MDI					**0.001**
Present	97	59.15	67	40.84	
Absent	15	17.24	72	82.76	
Intensity of suicidal ideation					**0.000**
Mild	06	14.29	36	85.71	
Moderate to severe	12	22.22	42	77.78	
Suicidal ideation in the last 30 days					**0.000**
Yes	69	37.30	116	62.70	
No	43	65.15	23	34.85	
Suicidal ideation in the last 15 days					**0.001**
Yes	82	39.61	125	60.39	
No	30	68.18	14	31.82	
ASSIST					**0.007**
Mild	46	36.22	81	63.78	
Moderate to severe	66	53.23	58	46.77	

Note: *Poisson regression model; ASSIST - Alcohol, Tobacco, and Substance Screening Test; MDI - Major Depression Inventory.

There is an association between a history of suicide attempts among family members/friends (p=0.000) and non-suicidal self-harm among participants. The results of the regression tests are presented in Table 3.

Table 3: Multivariate Poisson regression model adjusted for factors associated with non-suicidal self-injury among university students (n=251). Minas Belo Horizonte Gerais, MG, Brazil, 2020

Variables	**PR (95%CI)**	**p-value***
Major depression		**0.005**
Present	2.26 (1.27-4.02)	
Absent	-	
		0.049
Has anyone in your family or circle of friends ever attempted suicide?		
Yes	1.56 (1.00-2.43)	
No	-	
Suicidal ideation		**0.005**
Present	2.52 (1.37-4.64)	
Absent	-	

Note: PR - Prevalence Ratio; *Poisson regression model; 95% CI - 95% Confidence Interval.

After applying Poisson multivariate regression, depressive symptoms, history of family members and friends with suicide attempts, and suicidal ideation remained associated with non-suicidal self-harm. Having depressive symptoms and suicidal ideation increased the chances of presenting non-suicidal self-harm by almost three times.

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DISCUSSION

The prevalence of non-suicidal self-harm among undergraduate health students was 44.22% (n=112). Similar results were found in a cohort study, which identified 40% non-suicidal self-harm among university students in Canada and 45% among psychology students in Australia[11,16]. These findings showed higher prevalence rates compared to a study with students in Turkey, which reported a prevalence of 28.5%[12], students in Canada, with a prevalence of 25%20, and a Brazilian study[13] that identified that 17.8% of university students from various courses reported at least one episode in their lifetime. Of these, 48.5% were involved in five or more episodes of self-harming behavior, and 35% reported the onset of non-suicidal self-harm between the ages of 14 and 16[13].

On the other hand, research in Australia with psychology students highlighted that 14.1% performed the act five or more times, and 11.1% reported such behavior only during the last year[11]. University students in Scotland reported non-suicidal self-harm between the ages of 18 and 23[21]. The high prevalence of non-suicidal self-injury among undergraduate health students may indicate the occurrence of sporadic episodes, as reported in the literature[11], suggesting that non-suicidal self-injury may have been an exploratory experience with a specific purpose.

Health professionals and teachers who interact with university students should be vigilant, considering the prevalence of non-suicidal self-harm in this age group[4-5]. Thus, based on the results of this study, the authors propose screening strategies for non-suicidal self-harm that, upon entering university, students participate in mapping, through a self-report questionnaire, to identify a history of self-harming behavior, psychological and/or psychiatric follow-up, and use of prescription and non-prescription psychotropic drugs. The Dean of Student Affairs undertakes efforts to support students; however, there is no assessment of the effectiveness of actions in promoting the mental health of this community.

No statistically significant association was observed between female gender, black, brown, and yellow skin color, early stages of the course, and non-suicidal self-harm in the logistic regression analysis. There is no consensus in the literature on the association between gender and self-harming behavior.

Research in Turkey corroborated the findings of this study, in which there was no gender difference in the frequency of self-harming behavior[12]. Unlike the study in Brazil[13], England[5], and Canada[20], an association was found between self-harming behavior and female gender and black skin color. A literature review sheds light on explanations for non-suicidal self-harm considering sociocultural factors[30]. Thus, most research is conducted with a population composed of women and white skin color[4,5,12,13,20]. Thus, oppressive socialization, particularly in relation to Western standards of beauty, is widespread in women's relational crisis with their bodies, in which non-suicidal self-harm is performed to manage suffering, culminating in visible scars and leaving the skin “ugly,” which is considered unacceptable and stigmatizing behavior. However, it can also be interpreted as a mechanism for taking control of bodies that are socially demanded to fulfill aesthetic purposes[22-23].

This study shows that non-suicidal self-harm is more common among students who identify as homosexual and have black, brown, or yellow skin. Most of the sample was composed of white students, which may explain the results of not finding, through bivariate analysis, an association between black, brown, or yellow skin color and non-suicidal self-harm. Future research may investigate non-suicidal self-harm in black and yellow populations, since the mental health of these individuals is marked by episodes of racism and xenophobia. In the bivariate analysis, being homosexual was associated with non-suicidal self-harm, but this did not remain in the final model. A similar result was reported in Canada[20], where being homosexual increased vulnerability to non-suicidal self-injury. Future research is needed to understand the circumstances of sociocultural factors and the occurrence of non-suicidal self-injury.

There was no association between psychoactive substance use, history of suicide in family/friends, and non-suicidal self-harm. Longitudinal research in England found that alcohol problems are less reported among students compared to the population of young adults who are not students[5].

It should be noted that this study did not observe the contextual characteristics of psychoactive substance use, including use alone, in groups, recreationally, or for coping or self-medication purposes, and it is not possible to infer unintended and/or unwanted harms related to substance use. Harmful substance use in social contexts can function as an ineffective strategy to regulate emotions and reduce the occurrence of non-suicidal self-harm[18,24].

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In the multivariate Poisson logistic regression analysis, depressive symptoms, presence of suicidal ideation, and history of suicide attempts in family/friends are at greater risk for the presence of non-suicidal self-harm. Depressive symptoms are present among college students who self-harm without suicidal intent. This data has been corroborated by previous studies with adolescents, college students, and adults[15,17,25]. Rumination and maladaptive cognitive practices moderate the relationship between depressive symptoms and non-suicidal self-harm[15,17]. In this sense, cognitive reactivity seems to explain the association between depressive symptoms and the presence of non-suicidal self-harm, in which cognitive reactivity is understood as a cognitive vulnerability, in which negative thoughts about oneself, the world, and the future appear in the presence of stress. Having negative views of oneself and the future in response to stress leads to greater vulnerability to non-suicidal self-injury in young adults[15].

A qualitative study of young women up to the age of 24 found pessimistic self-perception, low self-esteem, psychological distress and the practice of non-suicidal self-injury to relieve unbearable negative feelings[26]. Mental health problems are precipitating factors for the occurrence of non-suicidal self-injury among students[5].

A study shows that students who have carried out non-suicidal self-injury have greater difficulty in emotional regulation, using maladaptive coping strategies such as self-punishment, rumination, avoidance behavior and self-blame. In this line of thought, difficulty in emotional regulation is associated with intrapersonal functions, in which people recognize an unmet need to feel better, and interpersonal functions, in which they may not set boundaries for a relationship. Students with self-injurious behavior may have difficulties in identifying and describing subjective feelings, which results in general difficulties in regulating emotions[11].

Non-suicidal self-injury is an ineffective emotion regulation resource, as it does not help students adapt to university, nor does it reduce perceived stress, social support from friends and coping self-efficacy. This finding suggests that adaptation to university should promote students' access to psychological resources and should consider the intersectionality and life history of each student, considering them as subjects with unique beliefs, thoughts and experiences, as well as understanding the circumstances involved in non-suicidal self-injury, the frequency, method and intensity[8].

It should be noted that non-suicidal self-injury is still a topic that is little discussed in the academic environment[8]. Involving students in initiatives that promote discussions about the use of strategies to cope with challenging situations could be a way of preventing non-suicidal self-injury.

This is the first Brazilian study to find an association between a history of suicide attempts by family members/friends and the presence of non-suicidal self-injury among university students in the health sector. A previous Brazilian study did not investigate the variables of family history of attempted suicide and non-suicidal self-injury[13]. A possible explanation for this result could be insufficient emotional support from family and friends and the experience of stressful situations resulting from the psychological suffering of family and friends with suicidal behavior.

According to the boundary model, which has its roots in the theory of object relations, people who have experienced a failure of parental empathy are unable to form stable object representations. Thus, the skin represents the basic boundary between the self and the other. When the boundaries become blurred, self-injurious behavior is used to draw a line, and blood and scars are the marks of self-reality[12,27].

Similar results were found in an investigation in the United States of America, in which young adults with non-suicidal self-injury behavior have a family history of suicide and non-suicidal self-injury, and have poor communication and problem-solving skills[6]. In Sweden, patients with attempted suicide who had a family history of attempted suicide and suicide showed an intrusive personal style. Thus, a family history of suicidal behavior can interfere with the ability to establish healthy and lasting relationships[6].

In this sense, some possible explanations corroborate the four-function model[29], in which the automatic reinforcement of non-suicidal self-injury stems from the increase or decrease in affective experiences, with overwhelming or distressing feelings mediated by some stressful experience, whether affective or social[24,25]. Therefore, a history of attempted suicide among family and friends can make it difficult to establish a bond and trust with the health team, and the person may be considered difficult to cooperate with or be misunderstood[28].

Nock, in proposing the integrative development model of non-suicidal self-injury, highlights the distal and proximal processes relevant to the occurrence of the self-injurious act. In this model, it is assumed that the most vulnerable distal factors, such as childhood maltreatment, family problems, hostility/criticism and genetic predisposition, lead to psychological suffering and social difficulties, such as greater emotional reactivity, poor communication and difficulty in

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solving problems. Thus, the experience of living with significant people and possibly family caregivers with suicidal behavior is a stressful event in life that can cause university students to have difficulty coping with stressful situations and resort to self-injurious acts as a way of regulating negative emotions, such as anguish, sadness and depressive symptoms, derived from current stressful situations[14].

Suicidal ideation is associated with the presence of non-suicidal self-injury. Similar results were found in Brazilian students with episodes of non-suicidal self-injury and an association with previous mental disorders, suicidal ideation and suicide attempts. There was a ten times greater risk of suicidal behavior among students with recurrent episodes of non-suicidal self-injury[13]. A study conducted in the United States of America found that adolescents and young adults up to the age of 24 with non-suicidal self-injury have a 26.4 times greater risk of suicidal behavior. One in three young people who have committed suicide has carried out non-suicidal self-injury in the last three months of their life[25].

The association between suicidal behavior and non-suicidal self-injury can be explained by the purpose of seeking relief from negative emotions or achieving a positive emotional state[5,8,13-16]. A study carried out with university students who had a history of non-suicidal self-injury found that the presence of fear of death and painful/provocative experiences was associated with intentional self-injury behavior, and was not specific among those who had suicidal ideation and attempts without the presence of non-suicidal self-injury. Feeling overwhelmed, loneliness and hopelessness were not present among those who engaged in non-suicidal self-injury, suggesting that these motivational factors may only be specific to suicidal behavior[29]. Furthermore, a study of young adults treated in psychiatric emergencies found that, over time, non-suicidal self-injury, specifically self-injury using more violent methods (burns), evolved into suicide attempts[5].

Although there was no significant association between the length of the course and the occurrence of non-suicidal self-injury, attention should be drawn to the fact that 47.40% of non-suicidal self-injury was concentrated in the first three years of university. This result is similar to research from Canada[8] and England[5]. There is evidence from previous research that students who engage in non-suicidal self-injury in the first two years of university tend to experience greater emotional and academic distress, when compared to those who have never engaged in the behavior or who have stopped completely or temporarily[8].

This reality provides information on the need for personal-emotional support, as it suggests that the second and third years of university can be equally, if not more, challenging than the first. In fact, the transition from the first to the second year and from the second to the third year of university is often described as a period of growth and development, in which students must make critical decisions and engage in clinical practice situations, which can be challenging, such as caring for patients at the end of life and death[8].

This study adds to the literature on the urgent need to look at non-suicidal self-injury in young adults, since the scientific evidence overlaps with non-suicidal self-injury in adolescents. It was not possible to measure the onset of non-suicidal self-injury. It can be assumed that the act of self-injury began in adolescence and continues into adulthood or occurs for the first time in adulthood, in the face of university stress. This reality is frightening given the increased risk of suicide. In addition, it highlights the invisibility of care for young people who commit self-injury in the university environment.

Identifying the motivations involved in self-injurious acts is fundamental, since some aspects are associated with suicidal behavior and can enable therapeutic interventions to prevent self-injurious behavior[13].

Strategies for preventing non-suicidal self-injury are being launched, such as the BlueIce® app, implemented with adolescents in England, which identified that tips and screening through the mood diary were effective in reducing symptoms of depression and anxiety, making them more aware of their emotions[22]. Nurses at HEIs, through student health care centers, can use information technologies as strategies to prevent and manage cases of non-suicidal self-injury among university students.

Study limitations

A limitation of this study is the fact that the assessment was carried out using single questions, because although these have been widely used, non-suicidal self-injury should not be assessed using only this type of question. Consequently, some people may inconsistently report their history and lead to the underreporting of non-suicidal self-injury.

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CONCLUSION

The prevalence of non-suicidal self-injury was 44.22% among university health students. Having suicidal ideation and depressive symptoms increased vulnerability to self-injury twice. Having a history of suicide attempts in the family/friends, depressive symptoms and suicidal ideation increased the chances of non-suicidal self-injury. These results highlight the need to raise awareness about non-suicidal self-injury among young adults, emphasizing that non-suicidal self-injury can occur among undergraduate students, not just adolescents.

As technology advances, it is crucial to address new ways of preventing and managing non-suicidal self-injury and to help mechanisms within the university understand its recurrence, specificities and social and individual dimensions within the affected groups.

REFERENCES

1. Department of Health (UK). Preventing suicide in England: third progress report of the cross-governmental outcomes strategy to save lives. England: Department of Health; 2017 [cited 2024 Sep 30]. Available from: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/582117/Suicide_report_2016_A.pdf.
2. International Society for the Study of Self-injury. What is self-injury? International Society for the Study of Self-injury; 2018. [cited 2024 Sep 30] Available from: https://itriples.org/category/about-self-injury/.
3. Klonsky ED, Muehlenkamp J, Lewis SP, Walsh B. Nonsuicidal Self-Injury. 22ª edição. Gottingen: Hogrefe Publishing; 2011.
4. Gandhi A, Luyckx K, Baetens I, Kiekens G, Sleuwaegen E, Berens A. et al. Age of onset of non-suicidal self-injury in Dutch-speaking adolescents and emerging adults: an event history analysis of pooled data. Compr. Psychiatry. 2018 [cited 2024 Sep 30]; 80(1):170–8. DOI: https://doi.org/10.1016/j.comppsych.2017.10.007.
5. Clements C, Farooq B, Hawton K, Geulayov G, Casey D, Waters K. et al. Self-harm in university students: a comparative analysis of data from the Multicentre Study of Self-harm in England. J Affect Disord. 2023 [cited 2024 Sep 30]; 335(1):67-74 DOI: https://doi.org/10.1016/j.jad.2023.04.112.
6. Hawton K, Saunders KEA, O'Conner RC. Self-harm and suicide in adolescents. Lancet. 2012 [cited 2024 Sep 30]; 379(9834):2373–82. DOI: https://doi.org/10.1016/S0140-6736(12)60322-5.
7. McManus S, Gunnell D. Trends in mental health, non-suicidal self-harm and suicide attempts in 16–24-year-old students and non-students in England, 2000–2014. Soc. Psychiatry Psychiatr. Epidemiol. 2020 [cited 2024 Sep 30]; 55(1):125–8. DOI: https://doi.org/10.1007/s00127-019-01797-5.
8. Joly M, Petrovic J, Mettler J, Heath NL. A longitudinal investigation of university adjustment among students with and without a history of non-suicidal self-injury. J Am Coll Health. 2022 [cited 2024 Sep 30]; 72(5):1496-506. DOI: https://doi.org/10.1080/07448481.2022.2082841.
9. Kiekens G, Claes L, Demyttenaere K, Auerbach RP, Green JG, Kessler RC, et al. Lifetime and 12-month nonsuicidal self-injury and academic performance in college freshmen. Suicide Life Threat. Behav. 2016 [cited 2024 Sep 30]; 46(5):563–76. DOI: https://doi.org/10.1111/sltb.12237.
10. Kiekens G, Hasking P, Claes L, Boyes M, Mortier P, Auerbach RP, et al. Predicting the incidence of non-suicidal self-injury in college students. Eur. Psychiatry. 2019 [cited 2024 Sep 30]; 59(3):44–51. DOI: https://doi.org/10.1016/j.eurpsy.2019.04.002.
11. Christoforou R, Boyes M, Hasking P. Emotion profiles of university students engaging in non-suicidal self-injury: association with functions of self-injury and other mental health concerns. Psychiatry Res. 2021 [cited 2024 Sep 30]; 305(4):114253. DOI: https://doi.org/10.1016/j.psychres.2021.114253.
12. Idig-Camuroglu M, Gölge ZB. Non-suicidal self-injury among university students in Turkey: the effect of gender and childhood abuse. Psychiatr Danub. 2018 [cited 2024 Sep 30]; 30(4):410–20. DOI: https://doi.org/10.24869/psyd.2018.410.
13. Bandeira BES, Santos Júnior A, Dalgalarrondo P, Azevedo RCS, Celeri EHVR. Nonsuicidal self-injury in undergraduate students: a cross-sectional study and association with suicidal behavior. Psychiatry Res. 2022 [cited 2024 Sep 30]; 318(3):114917. DOI: https://doi.org/10.1016/j.psychres.2022.114917.
14. Nock MK. Why do people hurt themselves? New insights into the nature and functions of self-injury. Curr. Dir. Psychol. Sci. 2009 [cited 2024 Sep 30]; 18(2):78–83. DOI: https://doi.org/10.1111/j.1467-8721.2009.01613.x.
15. Vaartstra LD, Taone T, Mezulis A. Cognitive reactivity as a risk factor for non-suicidal self-injury in young adults. J Am Coll Health. 2024 [cited 2024 Sep 30]; 72(1):1–7. DOI: https://doi.org/10.1080/07448481.2023.2269450.
16. Ewing L, Hamza CA, Willoughby T. Stressful experiences, emotion dysregulation, and nonsuicidal self-injury among university students. J. Youth Adolesc 2019 [cited 2024 Sep 30]; 48(7):1379-89 DOI: https://doi.org/10.1007/s10964-019-01025-y.
17. Kruijt A-W, Antypa N, Booij L, Jong PJ, Glashouwer K, Penninx BWJH, et al. Cognitive reactivity, implicit associations, and the incidence of depression: a two-year prospective study. PLoS One. 2013 [cited 2024 Sep 30]; 8(7):e70245. DOI: https://doi.org/10.1371/journal.pone.0070245.
18. Hammond NG, Sivertsen B, Skogen JC, Øverland S, Colman I. The gendered relationship between illicit substance use and self-harm in university students. Soc Psychiatry Psychiatr Epidemiol. 2022 [cited 2024 Sep 30]; 57(4):709–20. DOI: https://doi.org/10.1007/s00127-021-02209-3.
19. Elm EV, Altman DG, Egger M, Pocock SJ, Gotzsche PC, Vanderbroucke S. Initiative The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. Int. J. Surg. 2014 [cited 2024 Sep 30]; 12:1495-99. DOI: https://doi.org/10.1016/j.ijsu.2014.07.013.

DOI: https://doi.org/10.12957/reuerj.2025.87907

20. Griffin K, Twynstra J, Gilliland JA, Seabrook JA. Correlates of self-harm in university students: a cross-sectional study, J Am Coll Health. 2021 [cited 2024 Sep 30]; 69(8):959-66. DOI: https://doi.org/10.1080/07448481.2021.1909049.
21. O'Connor RC, Wetherall K, Cleare S, Eschle S, Drummond J, Ferguson E, et al. Suicide attempts and non-suicidal self-harm: national prevalence study of young adults. BJPsych Open. 2018 [cited 2024 Sep 30];4(3):142-148. DOI: https://doi.org/10.1192/bjo.2018.14.
22. Cliffe B, Moore E, Whittle K, Stallard P. Is a smartphone application (BlueIce) acceptable and safe for university students who self-harm: an open study. BMJ Open. 2024 [cited 2024 Sep 30]; 14(5):e069862. DOI: https://doi.org/10.1136/bmjopen-2022-069862.
23. Lurigio AJ, Nesi D, Meyers SM. Nonsuicidal self injury among young adults and adolescents: Historical, cultural and clinical understandings. Soc Work Mental Health. 2024 [cited 2024 Sep 30]; 22(1):122–48. DOI: https://doi.org/10.1080/15332985.2023.2264434.
24. Bailey S, Lin A, Cook A, Winter S, Watson V, Toussaint DW, et al. Contextualising experiences of co-occurring mental ill-health and substance use among trans, non-binary, and gender diverse young people: implications for tailored harm reduction approaches. Community Ment Health J. 2024 [cited 2024 Sep 30]; 231(1):181-92. DOI: https://doi.org/10.1007/s10597-024-01342-y.
25. Olfson M, Wall, M, Wang S, Crystal S, Bridge JÁ, Liu SM, et. al. Suicide after deliberate self-harm in adolescentes and young adults. 2018 Pediatrics [cited 2024 dec 06]; 141(4):e20173S17. DOI: https://doi.org/10.1542/peds.2017-3517.
26. Cronemberger GL, Silva RMD. Nonsuicidal self-injury in young women: understanding the meanings involved in the self-injurious act. Physis. 2023 [cited 2024 dec 12]; 33(1):e33051. DOI: https://doi.org/10.1590/S0103-7331202333051.en.
27. Littleton LL, Rehbein DM, Barber JJ, Muehlenkamp JJ. Testing suicide ideation-to-action theory differences among those with nonsuicidal self-injury. Arch Suicide Res. 2024 [cited 2024 Sep 30]; 29(1):91–102. DOI: https://doi.org/10.1080/13811118.2024.2323589.
28. Rajalin M, Hirvikoski T, Renberg ES, Åsberg M, Jokinen J. Family history of suicide and interpersonal functioning in suicide attempters. Psychiatry Res. 2017 [cited 2024 Sep 30]; 247(5):310–4. DOI: https://doi.org/10.1016/j.psychres.2016.11.029.
29. Hamza CA, Goldstein AL, Heath NL, Ewing L. Stressful experiences in university predict non-suicidal self-injury through emotional reactivity. Front Psychol. 2021 [cited 2024 Sep 30]; 12(4):610670. DOI: https://doi.org/10.3389/fpsyg.2021.610670.

Author's contributions

Conceptualization, G.S.S. and L.A.B.T.; methodology, G.S.S. and L.A.B.T.; formal analysis, G.S.S. and L.A.B.T.; investigation, G.S.S. and L.A.B.T.; data curation, G.S.S. L.A.B.T., A.M.S.R. and M.O.P.; manuscript writing, G.S.S., L.A.B.T.; review and editing, G.S.S., L.A.B.T., A.M.S.R. and M.O.P.; visualization, , G.S.S., L.A.B.T., A.M.S.R. and M.O.P.; supervision, G.S.S., A.M.S.R. and M.O.P.; project administration, L.A.B.T. All authors read and agreed with the published version of the manuscript.

Use of artificial intelligence tools

Authors declare that no artificial intelligence tools were used in the composition of the manuscript "*Factors associated with non-suicidal self-injury among health students at a Brazilian university*".