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PREVALENCE OF SUICIDAL RISKS IN UNDERGRADUATE STUDENTS: ARE WE FACING A PUBLIC HEALTH PROBLEM?

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ABSTRACT

Objective: Admission to a university is a period of significant change and exposure to stressors that may raise emotional vulnerabilities and in some cases lead to suicide risk. The aim of the present study was identify the prevalence of behaviors of suicidal risk in undergraduate students of a municipal institution of higher education. **Methods:** A descriptive-exploratory cross-sectional study, carried out which 300 undergraduate students in the courses of a Higher Education Institution, Catanduva, Brazil. The instruments used was socio-demographic data questionnaire, social support scale, depression scale and suicide risk scale. Descriptive statistics and the Mann Whitney test with significance level of $p < 0.05$ it was used. **Results:** The sample consisted of academics with a mean age of 24.2 years, female (72.5%) and no partner (84.6%). The variable depression and the variables of the social support scale showed to have a correlation with suicidal ideation. Alcoholic habits are relevant for suicidal ideation, pointing out that the higher the alcohol consumption rate, the greater the propensity for suicide. Of the participants, 33.4% had a suicide risk divided into: low (18.7%), moderate (7%), high (7.7%). **Conclusions:** The suicidal ideation reaches a large part of university students, and can be understood with a phenomenon already installed in the academic environment, and should be better explored in this context in order to obtain material to understand and consequently to combat what makes the university period a factor aggravating the risk of suicide.

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INTRODUCTION

Suicide is a major global public health problem and the second leading cause of death in young people aged 15 to 29 years worldwide [WHO, 2019]. This data has repercussions in contemporary society, in which death is treated with discomfort and detachment. When it is voluntarily provoked by the victim's own actions, the theme becomes a real taboo. There is, in turn, a paradox in which life is overvalued, but not the singular experience, in which there is concern for the individual in suffering, in need of help, but life as only the act of existing and human suffering is perceived, often when it becomes part of the self-extermination statistics [NETTO, 2013]. Although it is difficult to specify, according to the Encyclopedia Delta, the first suicide event reported in history, is a self-poisoning of 12 people, who after drinking the liquid,

lay down waiting for death. Such an event took place in Mesopotamia, in the city of Ur on the date of 2,500 BC, and after this start, the self-destructive events began to spread and become increasingly more frequent, and more practiced, both in a group and individual way [WEISS, 1969]. In Antiquity, Egyptian and Hindu societies, called barbarians, in their religious systems, shared the view that self-murder was accepted as a way of guaranteeing a good place in the post-mortem since violent deaths, whether they are derived from battles or through attempts on oneself, were valued. It was believed that these types of deaths would ensure that the warrior spirit remained present, making the act of killing part of the tributes of the time. Those who resisted, and opted to live the limitations of old age, opposing the social thinking of that period, were frowned upon, once the act was a way of preserving the group's identity [KALINA & KOVADLOFF, 1983]. In Ancient Greece, the view about this phenomenon has

changed over the years: in a certain period, it was abhorred, it sought to be repressed even after death, the corpse was penalized as a form of punishment. In another period of Greek history, suicide was accepted, as long as it followed political and ethical criteria. In some cities, a stock of poison was maintained, to be used by those who presented their reasons and obtained an official permission from the Senate to carry out the act [ALVAREZ & FARIA, 1999]. The definition of suicide is the act in which the subject attempts his own life, directly or indirectly, keeping in mind the result previously established, the death. Although analyzed by many as just the action of killing oneself, actually it is the result of a continuous and complex process that goes from idealization, attempts, to consummate accomplishment. Self-destruction appears as an escape from suffering and not from the desire to live properly. It is concluded that the suicidal person, when he ends his existence, does not want to give up life; on the contrary, he would like to enjoy his pleasures, if that were possible. However, when circumstances are not favorable to their emotional well-being, the subject reaches self-extermination, as he no longer has hopes that this situation will change. Thereby, considering its complexity, suicide cannot be analyzed from just one perspective, since this fatality, in its great majority, is associated with multiple psychosocial factors, as well as external influences. Self-destructive behavior involves socio-cultural, religious, psychiatric and emotional factors, involving deep suffering. The act in its amplitude is often the attempt to relieve the pain and anguish experienced [KLONSKY *et al.*, 2016].

There are some situations that are warning signs, indicating risk factors, such as: low self-esteem, mental disorders, abuse of legal and illegal drugs, isolation, stressful events, fights, death of a loved one, breaking of relationships, besides family history of suicide, suicidal thoughts and previous attempts. Social factors must be highlighted, which further aggravate the risk of incidence, such as poverty, unemployment, among others [MOREIRA & BASTOS, 2015]. Although there are many risk factors, they cannot be attributed to cause and effect, there is no universal cause for this violent death. In the individuality of each being, one finds what motivates him to appeal to that extreme, the devastating feeling capable of putting an end to his own existence. Even though this sadness is fundamental for the act to be consummated, it cannot be attributed exclusively to the cause of suicide: it usually leads the individual to relive situations of previous suffering, that is, this difficulty carries with it a range of other anxieties already experienced, making the situation intolerable. It is in this context, that suicide presents itself as an effective possibility of relief [RIGO, 2013]. Running away from pain is instinctive of humanity, one is only able to resist it when one imagines that after this experience there will be pleasure, satisfaction. An individual who seeks death no longer sees this anguish as something external, in his perception, suffering is part of his being, and death appears as an eternal relief, a refuge. Self-murder consolidates self-annulment, some choose to end their existence at first, others surrender to addictions such as alcohol and other drugs, as a way of escape [LOPES, 1960]. The severity of suicide appears in the ranking of the ten main causes of death, occupying the top positions, if only young people and adolescents are analyzed [KLONSKY *et al.*, 2016]. Consolidating itself as a major public health problem worldwide, studies show that annually the number of people who commit this misfortune exceeds one million individuals, with juveniles being a significant part of this percentage

[BARROS, 2013]. Youth suicide has gained worldwide repercussions in the last year due to the game "Blue Whale", which spread quickly across the world, through social networks, reaching several countries. Composed of challenges that last 50 days, the "players" are encouraged to perform one task per day, starting with lighter actions such as listening to sad music and watching psychedelic horror films. With the completion of the stages, the danger of impositions increases such as: self-mutilation, putting the life at risk, until finally, the 50th challenge is to induce the suicidal act. The alert that this issue brings, is the fact that young people are at risk and emotional vulnerability situations, often unnoticed, neglected by their families, or due to a characterization of their sadness as "adolescent freshness", exposing stigmas and prejudices [PEIXOTO, 2018]. Another example that went viral on social networks and the media globally in 2017 was the launch of the series "13 Reasons Why", which in its chapters brings to light several problems faced during youth such as bullying, depression, sexual abuse and suicide. As it deals with controversial issues, it divides opinions about how these themes are portrayed in the course of the plot. The fact is that after the series was launched, much was discussed about the theme of suicide, with a significant increase in demand for the Life Valuation Center (CVV). The search for help counted by e-mails in the first 10 days after the launch of the series, an increase of more than 445%, compared to the previous period, more than 33% of these e-mails directly cited the plot [BARBOSA *et al.*, 2018].

It is possible to divide the classification of the urgency of the suicide risk into: a) low: although there is an idealization, there is no well-defined planning, nor an effective intention to perform the act; b) average: there is a planning for the execution of the suicidal action in the future, in case your situation does not change favorably, that is, the act still depends on variables to materialize; c) high: well-defined strategies and intensity for the execution of the suicidal act, which tends to occur in the next hours or days [DEL-BEM *et al.*, 2017]. Every day there are about three thousand deaths resulting from self-inflicted injury, the gravity of the theme is even more evident if you take into account that with each action taken, between ten and twenty-five attempts occur, that is, ten to twenty-five million attempts against life itself every year [RIGO, 2013]. Between the years 2011 and 2016, 176,226 cases of self-harm were reported in the Sistema de Informação de Agravos de Notificação (SINAN), identifying 48,204 cases of suicide attempts in Brazil, of which 33,269 (69%) were cases by women and 14,931 (31%) by men. The female sex leads when the question is attempt, however the male audience steps ahead when analyzing the effective actions [KLONSKY *et al.*, 2016]. This result may be associated with the methods used by each gender, in general men resort to more violent practices such as hanging and using a firearm. While women use more subtle methods such as poisoning [LOVISI *et al.*, 2009]. According to the Ministry of Health (2017) female attempts correspond to 53.2% in white women and 32.8% in black women, with the concentration within the 10 to 39 age group, which refers to 73.1% of cases. In male attempts 52.2% are white men and 34.8% are black men, with 71.1% of cases occurring within the 10 to 39 age group. It showed, in both groups, that the majority of these attempts occur at home, 88.9% for women and 82% for men. Studies are being carried out, but it is necessary to expand the investigations on the theme, especially in the university environment, due to the great tensions present in this period

[ESKIN *et al.*, 2016]. The transition process of young people to higher education is linked to the processes of biopsychosocial changes typical of adolescence and entering university, for many of the young people is the materialization of a dream, both for this student and his family. For this reason, many start higher education with a distorted view of academic reality and what it involves. Adapting to this period is a challenging process and when they perceive themselves in a different environment, in which there is a gain in autonomy, they tend to move away from the values that were taught to them in the family context. Such unpreparedness both in the educational and in the individual field, turns into a critical period, potentiating harmful behaviors, crises with high levels of stress and anxiety, which end up leaving them vulnerable to psychological disorders, linked to risks of suicide [SOARES *et al.*, 2018]. Upon entering this new reality, students face several academic adjustment difficulties, due to the demands that are presented and the expectation, on the part of others, of an adaptation of this freshman to this new context, occurring transformations in the personal, emotional, social, family and professional. The idealizations brought by academics in relation to the course, often without a clear idea about the profession for which they are graduating, bring expectations that will later be refuted, generating frustration and suffering. Other stressors for these university students are the lack of free time due to academic obligations and the high level of demands imposed [PORTI & SOARES, 2017]. The adaptation of university life can be analyzed from two perspectives: the academic that has its relationship established with the study, academic performance and perspective of curricular formation, and the social, directly linked to the interpersonal relationships created in this environment, with teachers, colleagues from class, other university students. Both adaptations are essential for the student's professional and social development [KLONSKY *et al.*, 2016].

Despite the number of cases of deaths by suicide and their attempts having increased significantly, the questions and debates about the theme have also grown, which can help in prevention policies, since the more information, the greater the chances of understanding the phenomenon, and thus prevent it [SILVA & DAIUTI, 2018]. Alerting to this, in 2014 in partnership with CVV, CFM (Federal Council of Medicine) and BPA (Brazilian Psychiatric Association) initiated an action in Brazil to raise awareness of suicide prevention, the campaign was named "September Yellow" for being linked to the 10th of September, the World Suicide Prevention Day, from that, every year for the whole month of September, attention is turned to this theme. Through social networks, the campaign was really expanding and reaching its goal of guiding and informing the population [ZANLUQUI & SEI, 2017]. In the past decade, many researchers have sought to understand suicidal idealization in youth [VASCONCELOS-RAPOSO *et al.*, 2016; SALES E SILVA & OLIVEIRA, 2017], in higher education students [GONÇALVES *et al.*, 2011] and the relationship between depression and suicidal ideation in young people [SOBRINHO & CAMPOS, 2016] and the results of these studies show how changes in youth, difficulty in adapting to university life, and personal experiences influence the young person's psychological fragility, which in turn ends up potentiating the sufferings and anxieties maximizing their vulnerabilities to risky behaviors. In this sense, the present study has as specific goals to investigate sociodemographic aspects, lifestyle and history of mental health, the prevalence of risky behaviors, self-harm and suicide

attempts, in university students from a municipal institution of higher education.

MATERIALS AND METHODS

Study participants: Cross-sectional, descriptive-exploratory research. Data collection was performed at the Instituto Municipal de Ensino Superior (IMES), in the city of Catanduva, a municipality in the countryside of the state of São Paulo, Brazil, with a convenience sample of 300 students from the Psychology, Accounting, Nutrition, Physiotherapy, Law, Dentistry and Pedagogy courses, over 18 years old, of both sexes. The instruments were applied in the classroom according to the availability of teachers and students. The researcher presented the study and those who accepted it were oriented on the theme and goals of the research, he also informed, their non-mandatory participation, anonymity and ethical aspects, possibility of interruption on the part of the university if it deemed necessary. After reading and signing the Free and Informed Consent Term, the questionnaires and scales were applied individually. Emotional support was made available to the academic and eventual referral, when necessary.

Data Collection Instruments

For the data collection process, participants responded to the following instruments:

- Questionnaire on sociodemographic data: an instrument authored by the researchers, covering four main areas: sociodemographic characterization, academic characterization, addictive behaviors and clinical aspects related to mental health/illness, built with the goal of characterizing the participants regarding demographic and professional aspects;
- Medical Outcomes Study's social support scale (MOS-SS): 19 items comprising five functional dimensions of social support: material, affective, emotional, positive social interaction and information [GRIEP *et al.*, 2005];
- Center for Epidemiological Study's depression scale (CES-D): composed of 20 items, evaluated on a four-point Likert scale, 1 = rarely or never (less than 1 day), 2 = few times (1-2 days), 3 = considerable time (3-4 days), 4 = all time (5-7 days) [BATISTONI *et al.*, 2007];
- Mini International Neuropsychiatric Interview (MINI): 6 questions where the first five refer to aspects that occurred during the last month and the last one, throughout life [AMORIM, 2000].

Compliance with Ethical Standards: This study only uses questionnaire data. The participation was anonymous and voluntary. The ethics committee, the data protection committee and the internal research-clearing department of the Faculdade de Medicina de São José do Rio Preto – FAMERP approved the study (CEP-FAMERP 2.795.916).

Statistical Analysis: For the analysis of sociodemographic data, descriptive statistics were used and for comparison, the Man Whitney test was performed, considering a significant value $p \leq 0.05$. For the correlations, the Spearman test was used, with a 95% confidence interval (95% CI), also considering a

significant $p \leq 0.05$ value. The analyzes were performed using the GraphPad Prism software version 6.

RESULTS

The total sample of this study was composed of 300 university students, with an average age of 24.2 (± 8.38), with a minimum age of 18 and a maximum of 81, a sample composed primarily of female participants (72, 5%), (74.3%) of the participants revealed to reconcile work activities with academic training, (Table 1).

Table 1. Description in frequency (n) and percentage (%) of sociodemographic data and academic profile of students at the Municipal Institute of Higher Education, in the interior of São Paulo, Brazil, 2018

Variables	n	(%)
Gender		
Male	82	27.5
Feminine	218	72.5
Marital status		
No partner (single, divorced, widowed)	254	84.6
With partner (married, stable union)	46	15.4
Courses		
Psychology	72	24
Accounting	38	12.7
Nutrition	29	9.7
Dentistry	71	23.7
Physiotherapy	25	8.3
Law	22	7.3
Pedagogy	43	14.3
UndegraduatePeriod (annual)		
First	46	15.3
Second	58	19.3
Third	134	44.7
Fourth	62	20.7
Fifth	0	0
Labor Activity		
Yes	223	74.3
No	77	25.7
Coursesatisfaction		
Yes	276	92
No	24	8
Academicachievement		
Great	22	7.3
Very good	92	30.7
Good	126	42
Sufficient	47	15.7
Insufficient	12	4
Bad	1	0.3

The results of the lifestyle and history of mental health aspects are shown in Table 2. Through MINI, it was possible to identify that there are vulnerabilities in the undergraduates of all participating courses. Because they are classified as low, moderate and high risk, Psychology students were the ones with the highest rates in the high category (12.6%).

The factors of the MOS-SS demonstrated to have a negative correlation with the risk of suicide, pointing out that the less support, the greater propensity for suicide and the emotional spheres, social and affective integration, were the ones that presented greater significance. Depression indicators correlate positively with suicidal idealization. (Table 4). The comparison between suicide risk indicators and the gender, family history of mental illness and other aspects of the students' lifestyle can be seen in Table 5.

Table 2. Frequency (n) and percentage (%) description of lifestyle and mental health history of students at the Municipal Institute of Higher Education in the interior of São Paulo, Brazil, 2018

	n	(%)
Smoking habits		
Yes	22	7.3
No	278	92.7
Alcoholichabits		
Yes	161	53.7
No	139	46.3
Illicitdrughabits		
Yes	78	26
No	222	74
Psychoactivesubstance		
Cannabis	40	13.3
Amphetamines	02	0.6
Cocaine	02	0.6
Threeor more	33	11
Family history of mental illness		
Yes	80	26.7
No	220	73.3
Degreeofkinship		
Father	11	3.6
Mother	14	4.6
Brothers	04	1.3
Grandparents	13	4.3
Others (uncles, cousins)	19	6.3
More than one family member	22	7.3
Professional monitoring (Mental health)		
Yes	179	59.7
No	121	40.3
Medication for psychiatric problems		
Yes	63	21
No	237	79

Table 3. Description in frequency (n) and percentage (%) of the Suicide Risk results according to each course at the Municipal Institute of Higher Education in the interior of São Paulo, Brazil, 2018

Risco de Suicídio	Null	Low	Moderate	High
Psychology	47 (65,3)	13 (18)	03 (4,1)	09 (12,6)
Accounting	29 (76,3)	05 (13,1)	0	04 (10,5)
Nutrition	23 (79,3)	02 (07)	04 (13,7)	0
Dentistry	47 (66,2)	17 (24)	02 (2,8)	05 (7)
Physiotherapy	13 (52)	07 (28)	03 (12)	02 (8)
Law	16 (72,6)	03 (13,7)	03 (13,7)	0
Pedagogy	25 (58,1)	09 (20,9)	06 (14)	03 (7)
Total academics	200 (66,6)	56(18,7)	21 (7)	23(7,7)

Table 4. Correlation between suicide risk indicators and factors of the Social Support Scale, depression and current age of students

Variables	Suicide Risk	p	CI (95%)	
			Superiorlimit	inferiorlimit
MOS-SS				
Affectivedimension	-0.2091	0.0003*	-0.3180	-0.0948
Emotionaldimension	-0.2182	0.0001*	-0.3265	-0.1043
Informationdimension	-0.1659	0.0040*	-0.2771	-0.0502
Positive social interactiondimension	-0.2119	0.0002*	-0.3206	-0.0977
Materialdimension	-0.1310	0.0233*	-0.2438	-0.1459
CES-D				
Total Score	0.4557	0.0001*	0.3582	0.5435
Age	-0.1144	0.0478*	-0.2279	0.0022
Undegraduate Period (annual)	-0.0223	0.6999	-0.1386	0.0944

Legend: * significant $p \leq 0.05$; CI: Confidence interval (95%); Sperman's test.

DISCUSSION

University students, most of whom are between 17 and 25 years old, can be affected by adaptation to university life, self-

identity, interpersonal relationships and career development. Worldwide, they are a specific group that report high levels of ideation, planning and suicide attempts and the data indicate that the suicide rate of university students is 2 to 4 times higher than the rate of non-university students of the same age. The choice of a private institution to compose the sample of the present study is related to the perceived burden, a perceived burden that includes the feeling that someone is a burden to your family, friends and/or society and that it may be a psychological state proximal to suicidal ideation [ZHAO *et al.*, 2020].

Table 5. Comparison between suicide risk indicators and gender, family history of mental illness and other aspects of the students' lifestyle

Variables	Suicide risk	p
Gender	8554	0.6213
Family history of mental illness	7637	0.0372*
Smoking habits	2913	0.6905
Alcoholichabits	9684	0.0161*

Legend: * significant $p \leq 0.05$; Mann Whitney test.

The average age is similar to the average age of another survey carried out with 350 university students, who pointed out 24.4 years old [SCHLEICH *et al.*, 2006], a female predominance corroborated by the literature that indicates a worldwide predominance of women in higher education [RICOLDI & ARTES, 2016], which is repeated for Brazilian higher education, which in 2010 showed 56.7% of the female gender. Another aspect that justifies this rate are the courses which were covered, Pedagogy, Psychology, Nutrition, Physiotherapy and Dentistry, which are mostly choices made by women [IBGE, 2010]. The conciliation of studies with paid work activities can be included, since it is a private institution and Pereira (2012) demonstrated similar results. Most respondents rated themselves in terms of academic performance as good (42%) in contrast to those who rated themselves as above (38%) or below (20%) of good. Negative cognitive beliefs about oneself can bring non-adaptive results of shame and many studies show that shame is one of the factors that lead to suicidal ideation [ZHAO *et al.*, 2020]. In the assessment of lifestyle aspects, alcoholic habits predominated (53.7%), followed by illicit drug habits (26%) and finally smoking habits (7.3%), and other studies indicate even higher rates [ANDRADE *et al.*, 2006; SOARES *et al.*, 2015; TRINDADE *et al.*, 2018].

The fact that Psychology students have the highest rates in the high category (12.6%) are consistent with the data by Vieira and Coutinho(2008). The survey results point to an alert panorama, since one third of young people had some type of suicide risk, having been classified as low (18.7%), moderate (7%) and high (7.7%). Higher numbers presented by the literature [PEREIRA, 2011]. The negative correlation between MOS-SS factors and the risk of suicide, with greater significance for the emotional, social and affective spheres, are in accordance with the results of another study, which focuses on the social support network and attempted suicide [GASPARI & BOTEAGA, 2002]. Both in this study and in other studies already carried out in the world, depression goes hand in hand with suicide since the higher the depression indicators, the greater the risk of suicide is [RIHMER & RIHMER, 2015]. Although age in this study has shown statistical significance, indicating that the younger, the greater the risk of suicide is, a detailed investigation is still necessary,

since researches have been found in the literature that either point out results similar to this one, or indicate the opposite [PEREIRA & CARDOSO, 2015]. The statistical non-significance in the comparison of gender with the suicide indicators found herein ($p = 0.6213$) is inconsistent with previous studies in which the female sex is more prone to suicidal ideation [IBRAHIM *et al.*, 2017] and this inconsistency may be due to the different regions of the research, sampling methods and measurement tools among university students. The family history of mental illnesses can be related to suicidal idealization [BAHLS & BAHLS, 2002], and it is also directly related to depression, which was statistically significant in this study. Alcoholic habits are relevant to suicidal idealization, pointing out that the higher the rate of alcohol consumption, the greater the propensity for suicide is [MARTIN *et al.*, 2017]. The present study showed important rates regarding the significant increase in suicidal idealization among young people in recent years, an aspect that triggers the global public health concern [PAULOMINO *et al.*, 2018]. Suicidal ideation among students is growing, presenting a warning factor in universities. The academic environment focused on the teaching / learning process needs to rethink strategies and policies aimed at the mental health of its students. In this sense, this study sought to contribute to the perception of the emotional vulnerabilities of university students, identifying that the risk of suicide in the sample represents (33.4%) of the participating students. Such results show the relevance of the theme, aiming at the development of new research on prevention strategies and mental health care, reflecting on the reduction of suicide risks and the mental health professionals in universities should pay attention and routinely assess the psychological status of university students.

Among the characteristics presented by the participants, the indicators of depression, family history of mental illness, aspects of lifestyle, such as alcoholic habits are highlighted as important vulnerabilities to the risk of suicide. However, the aspects of social support showed statistical significance, showing that the larger the academic social support network, including the university environment, the lower the chances of suicide risk are. Therefore, this study is expected to collaborate with Higher Education institutions, regarding the insertion of prevention strategies and mental health care for academics. The necessary psychological education of university students is emphasized to encourage them to establish a positive outlook on life and reduce their perceptions about the perceived burden. In education related to the meaning of life, university students must learn the preciousness of life, and how to deal with life's stress and frustrations, as well as the development of group activities to improve their social skills and interpersonal interactions [PAULOMINO *et al.*, 2018] In addition, the social support of university students needs to be strengthened through the establishment of social networks, which can result in a powerful sense of belonging to prevent suicidal ideation. However, the study's limitations are emphasized, since it did not include in its results the ascendancy of emotional vulnerabilities and factors of protection to mental health, as well as the fact that self-reported data are not always sufficiently objective and there may be bias information, thereby, further research will be needed to address these aspects.

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