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SUICIDAL THOUGHTS AND BEHAVIORS AMONG COLLEGE STUDENTS

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RESUMEN

La muerte por suicidio entre los jóvenes continúa siendo un problema importante de salud mental debido a su alta prevalencia, especialmente en el período comprendido entre los 15 y los 29 años. Los pensamientos y las conductas suicidas vistas como un continuo involucran la ideación suicida (SI), la planeación del suicidio (SP) y el intento suicida (SA). Se ha demostrado que las conductas asociadas al suicidio (CAS) están correlacionadas con la desesperanza, muestran mayor prevalencia en mujeres y se correlacionan de manera negativa con el rendimiento académico. Por lo tanto, el propósito de esta investigación fue describir las tasas de conductas suicidas (SI, SP y SA y desesperanza) en una muestra de 10,307 estudiantes universitarios mexicanos que ingresan al primer año en un campus de ciencias biológicas y de la salud. Los resultados mostraron que: a) las mujeres presentaron mayores prevalencias de SI, SA y SP, b) el rendimiento académico se correlacionó negativamente con las conductas suicidas, y c) la desesperanza se correlacionó positivamente con los pensamientos y las conductas suicidas. Es necesario tomar acciones para prevenir y derivar oportunamente a los estudiantes en riesgo.

Palabras clave: pensamientos de suicidio, desesperanza, estudiantes universitarios, salud mental, desempeño académico

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PENSAMIENTOS Y CONDUCTAS SUICIDAS EN ESTUDIANTES UNIVERSITARIOS

ABSTRACT

Death by suicide among young people continues to be an important mental health concern because of its high prevalence specially in the period between ages 15 and 29. Suicidal thoughts and behaviors seen as a continuum involve suicidal ideation (SI), suicidal plan (SP) and suicidal attempt (SA). Several studies have shown that suicide related behaviors are correlated with hopelessness, have a higher prevalence in women and are negatively related to academic performance. Accordingly, the purpose of this research was to describe rates of suicidal thoughts and behaviors (SI, SP and SA and hopelessness) among a sample of 10,307 Mexican entering freshmen at a health and biological sciences campus. Results showed that: a) women had higher prevalences of SI, SA and SP, b) academic achievement was negatively correlated with suicidal behaviors, and c) hopelessness was positively correlated with suicidal behaviors. Actions need to be taken in order to prevent, and refer students at risk opportunely.

Key words: suicide thoughts, college students, mental health, academic achievement, hopelessness

Emerging adulthood is a critical period of development characterized by life changes, acquisition of independence and facing new challenges (Arnett, 2000). Nevertheless, is a period of increased vulnerability for psychopathology, for instance there is a significant prevalence of depression (Mojtabai et al., 2016), anxiety (Baxter et al., 2012) and substance use disorders among other psychopathologies in late adolescents and emerging adults (United Nations Department of Economic and Social Affairs, 2004).

People with mental health problems have a higher risk for suicidal behaviors compared to non clinic populations (Chesney et al., 2014; Cavanagh et al., 2003; Wiebenga et al., 2020), and this relationship is particularly notable in young adults (Borges et al., 2016 Bentley et al., 2016). Consistent with this observations, cross-sectional studies carried out with late adolescents and young adults suggests that suicidal ideation has tended to increase in the last two decades (Borges et al., 2016; Xiao et al., 2021) and this age group is the most prone to make attempts (Borges et al., 2018).

On the other hand, is in this phase when most people experience the transition from high school to college, accompanied with potential stressful rearrangements in academic, personal and occupational areas, which in turn can generate

psychological distress and contribute to mental disorders (Azmitia et al., 2013; Arnett et al., 2011; Matud et al., 2020). Evaluations in college freshmen suggests a slight increase of stress, depression and anxiety in the previous period to entrance (Bruffaerts et al., 2018; Kroshus et al., 2021). Often mental health problems are associated with suicidal ideation in the first year of college (D'Hulst et al., 2022) and lower academic performance measured by grade point average (GPA) (Bruffaerts et al., 2018).

Evidence also points toward a relationship between academic performance and suicidal thoughts and behaviors at these ages. For instance, a follow up of a cohort of children born in 1970's revealed that lower GPA at ages 13 - 16 was associated with greater risk for suicide attempts between ages 26 and 46, and this association was partly mediated by attained education (Sörberg Walling et al., 2020). Interestingly a similar study found that the lowest GPA quartile measured at 16 years old, had 4.9-fold risk for severe suicide attempts (Sörberg Wallin et al., 2017); furthermore, lifetime suicide plan and attempt, but not lifetime death wish (passive) or suicidal ideation (active), upon college entrance were associated with a decrease of grade point average (GPA) (Mortier et al., 2015).

Furthermore, males and females have different rates of mental health issues for several reasons: physiological, social, vulnerability to stress and pain, as well as self-concepts of femininity and masculinity (Gao, Ping & Liu, 2020). Depression rates (Kuehner, 2017), and suicidal behaviors (Dückers, et al, 2019) historically have shown higher prevalences among women.

Understanding suicidal thoughts and behaviors from a cognitive perspective includes analyzing the train of thoughts preceding suicide. Even though there is a debate towards seeing suicide as a continuum (Stanley, Winchel, Molcho, Simeon, & Stanley, 1992), or a fluid event (Rudd, 2006), years of research have described suicidal ideation (SI), suicidal plan (SP) and suicide attempt (SA) as a sequence of thoughts and behaviors with which the presence of each one escalates the risk. Addressing this sequence could provide information for clinicians in order to refer students to different options of treatment. In this order of ideas, SI could be passive or active, and SP could be desorganized or highly structured.

Assessment of SI and SA reveals that SI is, for some people of the strongest predictor of SA (Have, De Graaf, Van Dorsselaer, Verdurmen, Van't Land, Vollebergh & Beekman, 2009), but also questions have been raised towards understanding the variables related to the transition from SI to SA (Klonsky, Dixon-Luinenburg, & May 2021).

Also, hopelessness has been, since a long time, a key variable linked to suicidal behaviors related with depression (Beck, Kovacs, & Weissman, 1975). Even though suicide is a transdiagnostic phenomenon (Schechter & Goldblatt, 2020) the negative view of the future most common in depression, tends to be present in many people who have survived suicide. The cognitive distortions, understood as biases in thinking, and described by Beck (1963) are related with the perpetuation of psychopathological states. In suicide in particular, cognitive distortions and cognitive deficits (Fazakas-DeHoog, Rnic, and Dozois, 2017), as well as cognitive rigidity, overgeneralization, dichotomous thinking may be present along with SI. Findings in survivors of suicide reveal that “fortune telling” has shown to be uniquely associated with suicide attempts (Jager-Hyman, Cunningham, Wenzel, Mattei, Brown, & Beck, 2014).

The main purpose of this work was to assess suicidal thoughts and behaviors in Mexican college freshmen of a public university. Additionally, this study aims to compare suicidal thoughts and behaviors among sex, and to describe the relationship between academic performance, hopelessness and suicidal thoughts and behaviors (SI, SP and SA). This study addresses a gap of descriptive research of these variables in Mexican samples of students, mainly coming from urban marginated areas, in a context of high rates of criminality and violence (Robles & Santillán et al., 2021). Therefore, our results could give more accurate information to describe the variables in Mexican college freshmen and design and implement new policies or clinic programs of early contact tailored to the specific needs of this population, helping to improve the mental health of students and reducing school dropouts.

METHOD

The aim of the present study was to assess suicidal thoughts and behaviors among college students.

Specific objectives.

1. Assess the frequency of SI, SP and SA among of college students.
2. Describe sex differences in prevalence of suicidal behaviors.
3. Describe the relationship between GPA, suicidal thoughts, hopelessness and suicidal behaviors among college students.

Research design: descriptive including four observation periods.

Participants

At the beginning of every school year, faculty offers a week of propaedeutics activities. During this period but independent of the activities, 10,307 undergraduate new students of all departments were recruited and voluntarily involved in the study in the years 2016 (n=2,540), 2017 (n= 2,591), 2018 (n= 2,508), y 2019 (n= 2,668). 4,278 (41.7%) of the students self-identified as males, 5,993 (58.1%) as females, and 36 students did not answer. Regarding the academic program enrollment, the composition of sample was as follows: medicine n=2,092, psychology n= 2,229, optometry n= 1,039, dentistry n=2,018, biology n=1,085, and nursing (n=1,841) (Table 1).

Instruments and measures

Suicidal thoughts and behaviors occur in a continuum which include in the first place a passive suicidal ideation (SI) "I would like to leave this world" (item 1) or "I believe or feel that nothing motivates me to continue in this world" (item 2), a second moment with an active suicidal ideation "I have thought about killing myself" (item 3). The following phase in the continuum includes suicidal plan (SP; item 4): "I have planned my own death", and attempt (A): "I have tried to take my own life (injuring myself, hurting myself, cutting myself, taking pills, suffocating myself, poisoning myself, with the purpose of dying)". These items correspond to suicidal ideation and intentionality in the IRISA Scale. Hopelessness was measured with the item 5 "I believe or feel that nothing motivates me to continue in this world", also included on the aforementioned scale. This screening instrument has shown suitable levels of

reliability and validity in different Mexican populations (Hernández y Lucio, 2006). In the present study the reliability of the items measured through Cronbach's alpha was 0.835.

In the Mexican educational system, the academic performance is rated from 0 to 10. By calculating the mean of all subjects' ratings during the semester or year, the result is commonly called "grade point average" (GPA) and expressed as an integer with one or two decimals; the minimum average required to be promoted is 6.0. Participants were asked to report their grade point average when they graduated from high school. In addition, the sex with which the participants self-identified was asked and coded as "male" or "female".

Procedure

Participants were informed about the aims of the study; they consented and were reunited in the Campus Gym. Instruments were provided in paper and pencil format, applied and gathered by volunteers of the faculty institutional program "Crisis, Emergencies and Suicide Care" and "Student Guidance and Support Center". Another group of volunteers captured and built a database, which allowed a staggered follow up, first contacting the participants with higher risk and referring them to the support faculty programs, and subsequent three, six and 12 months follow ups. Data was captured and processed using statistical software SPSS V.24 (IBM, Chicago, IL, USA). While data did not meet the assumption of normality according to the Kolmogorov Smirnov test, the appropriate nonparametric tests were used to carry out the comparisons. All data are expressed as the mean and standard deviation (SD).

RESULTS

Regarding sample composition, Table 1 provides the distribution by sex, grade point average, academic program, and the number of participants per year. In this study more women than men participated, the grade point average of 75% of the newly admitted students was 8.0 or above. Medicine, psychology, and dentistry admitted more than half (62%) of the total tuition; and there was a tendency to increase in the number of students that entered this campus over the four year period.

Table 1
Sociodemographic Characteristics of the Participants

Variable	N	%
Sex		
Women	5,993	58.1
Men	4,278	41.7
Highschool grade point average		
5.59 - 7.99	2,354	23%
8.00 - 8.45	2,700	26%
8.46 - 8.99	2,265	22%
9.00 - 10.00	2,736	26%
Academic Program		
Medicine	2,092	20.3%
Psychology	2,229	21.6%
Optometry	1,039	10.1%
Dentistry	2,018	19.6%
Biology	1,085	10.5%
Nursing	1,841	17.9%
Number of participants by year of entry		
2016	2,540	24.6
2017	2,591	25.1
2018	2,508	24.3
2019	2,668	25.9

The most prevalent finding was thoughts of suicide, being the most frequent passive SI (item 1), and helplessness (item 5). This prevalence was followed by the active SI (item 2). The lowest prevalence of suicidal behaviors was found in SA. Despite its relative low prevalence, SA was nearly twice prevalent in women than in men. When grouped by sex, women showed higher prevalence in suicidal thoughts and

behaviors compared to men. This differences were statistically significant in four of five suicidal behaviors measured: “I would like to leave this world” (item 1) women M= 0.36, SD 0.651 vs men M= 0.31, SD= 0.706 [$t_{(10262)} = -3.594$ $p < .001$]; “I believe or feel that nothing motivates me to continue in this world” (item 2) women M= 0.29 SD= 0.622 vs men M=0.25 SD= 0.570 [$t_{(10253)} = -3.522$ $p < .001$]; “I have thought about killing myself” (item 3) women M= 0.28, SD= 0.668 vs men M= 0.23, SD= 0.558 [$t_{(10262)} = -3.805$ $p < 0.001$]; and “I have tried to take my own life” (item4) women M= 0.12 SD= 0.471 vs men M=0.28 SD= 0.381 [$t_{(10265)} = -3.964$ $p < 0.001$] (Table 2).

Table 2
Sex differences of suicidal behaviors

	Men (n=4,278)	Women (n=5,993)	t	p
1. I would like to leave this world.	.31	.36	-3.594	.000
2. I have thought of taking my life by suicide.	.23	.28	-3.805	.000
3. I have planned my death	.16	.18	-1.756	.079
4. I have tried to kill myself hurting myself, hurting myself, cutting myself, taking pills, suffocating myself, poisoning myself, with the purpose of dying)	.08	.12	-3.964	.000
5. I believe or feel that nothing motivates me to continue in this world	.25	.29	-3.522	.000
Grade Point Average	8.3714	8.465	-6.935	.000

Grade point average (GPA) during high school was self-reported by participants. We found that the mean was 8.43 (SD= 0.671), and the t student test revealed a significant difference [$t_{(10021)} = -6.935$, $p < 0.001$] when GPA was compared by sex: women showed a higher GPA (M=8.46; SD= 0.64345) compared with men M= (8.37; SD= 0.704).

One of the specific aims of this study was explore the association of suicidal thoughts and behaviors as well as helplessness with academic performance in college freshmen. Pearson coefficients revealed weak negative, but significant correlations between academic averages and the items "I would like to leave this world" (item 1) ($r = -0.56, p < 0.01$); "I believe or feel that nothing motivates me to continue in this world" (item 2) ($r = -0.063, p < 0.01$); "I have thought about killing myself" (item 3) ($r = -0.065, p < 0.01$); "I have planned my own death" ($r = -0.074, p < 0.01$); and "I have tried to take my own life..." (item 4) ($r = -0.041, p < 0.01$). (Table 3)

Descriptive data by academic program shows that recently admitted psychology students have the highest prevalence of suicidal behaviors, followed by nursing students. Specifically, students from the psychology department reported the highest scores in the five items of the questionnaire, while nursing students did so in four of the five items. Grade point average was correlated with the five critical items of suicidal behaviors $r = -0.56, p = .001$, being SP the highest.

Table 3
Values of the Pearson correlation indices between the grade point average and the behaviors associated with suicide.

	GPA	1	2	3	4
1. I would like to leave this world	-.056**				
2. I have though of taking my life by suicide.	-.065**	.664**			
3. I have planned my death	-.074**	.529**	.658**		
4. I have tried to kill myself hurting myself, hurting myself, cutting myself, taking pills, suffocating myself, poisoning myself, with the purpose of dying.	-.041**	.419**	.597**		
5. I believe or feel that nothing motivates me to continue in this world	-.063**	.618**	.558*	.464*	.386**

Note: GPA: Grade Point Average
 * $p < .05$.
 ** $p < .01$.

DISCUSSION

The purpose of this paper was to describe rates of suicidal thoughts and behaviors (SI, SP and SA and hopelessness) among a sample of freshmen at a health and biological sciences campus. Also, suicidal behavior rates among sex were described. Grade point average relationship with suicidal thoughts and behaviors was described. Results show that women report highest suicidal behaviors in comparison with men. These data relate to several findings (Vijayakumar, 2015; INEGI, 2021), even though we hypothesize that under-reporting suicide rates, as well as depression is more common on men (Pitman, Krysinska, Osborn & King, 2012) because of stigma, and cultural related factors.

Data showed that grade point average was negatively correlated with the five items that measured suicidal behaviors. These results can relate to findings of other research (Lee, Kim, Choi, Lee, 2008) which underlines predictors of suicide ideation were depression and a decrement in academic achievement.

According to the data in this research special attention should be put on suicidal ideation (SI) which was the item which showed higher correlations with suicide attempt (SA) when doing evaluation on the first entry students. Identifying SI as risk factor and referring students as soon as possible to available services in the campus could lower SA behaviors in the future. The opportunity of identifying high-risk students from the first week entering college and following students throughout their studies could help prevent the high dropout rates related to mental health issues that have been documented. We agree with Ebert et al., (2019) who after doing screening in freshmen students conclude that having the opportunity of identifying students at risk at college entrance is a promising strategy to prevent major depressive disorders.

The participants on this research show that students continue in time to be a high-risk group of young adults and that self-perceived academic performance is an important indicator to take in account in screening (Orozco, Benjet, Borges, Moneta Arce, Ito, Fleiz, & Villatoro, 2018). Also, the students who participated on the study tend to come from underserved populations, in which poverty and inequality could

raise the prevalence of suicide thoughts and behaviors. Further study with other mexican populations should be followed.

Our sample also showed to be a high academic achievement one compared to other academic programs. This is because in order to enter our faculty, students are asked to have a high-grade point average for high demanding academic programs. Unfortunately these academic programs also have shown in national and international research to have the highest suicide rates among others (Watson, Ventriglio & Bhurga, 2020; Moreira de Sousa, Moreira, & Telles Correia 2018). This makes the argument for urgent universal suicidal prevention campaigns, strengthening of mental health services at the campus, and then need of having in the curriculum mental health courses specifically for academic programs with high prevalence of suicidal thoughts and behaviors.

Research should be done more thoroughly in order to understand the relationship between grade point average and suicidal thoughts and behaviors. It has been found that depression and other mental health issues affect learning, failing and dropping out college. Also, according to the findings of Gao, Ping & Liu (2020), research should be done on freshmen regarding anxiety which showed higher levels of prevalence besides depression, especially in women.

Gatekeeper type programs (Santillán, 2019), interventions for professors, tutors, officials and students should be designed to increment knowledge about depression, suicidal thoughts behaviors related with other disorders like alcohol abuse, bipolar disorder, borderline personality disorder, and early detection of suicidal signs could be the next line of action (Davey & McGorry, 2019).

Other hypothesis could be studied, for example the association between sleep problems, and suicidal behaviors. Findings of Becker, Dvorsky, Holdaway, & Luebbe (2018) when assessing depression and sleeping behaviors among students show significant correlations with suicidal behaviors. Our experience in the sample of students and other work on the same line document serious sleeping problems due to the high demand departments on our campus.

Finally, most undergraduate students are in their late teens or early twenties, which is not only a major transitional period, but is when first episodes of many

psychological disorders (e.g., depression) are most likely to appear. According to Solmi, et al (2022) fifteen out of 27 mental health disorders have as an age of onset college years.

Several limitations of this study include that GPA was only reported by students and did not have official records from high school.

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