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Análisis epidemiológico de la ideación suicida en estudiantes universitarios

Epidemiological analysis of suicidal ideation in university students

Análise epidemiológica da ideação suicida em estudantes universitários

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Resumen

La ideación suicida es un fenómeno social de prevalencia creciente en el mundo. Conocer su comportamiento epidemiológico y factores de riesgo resulta fundamental para el desarrollo de políticas preventivas adecuadas.

Materiales y métodos. Estudio prospectivo, multicéntrico, experimental y no controlado en la población universitaria de las áreas administrativa y de la salud en Veracruz, México. La medición de ideación suicida se dio por medio de la escala de ideación suicida de Beck. El análisis estadístico descriptivo e inferencial por medio de Chi cuadrada y Kruskal Wallis.

Resultados. Se incluyeron 537 individuos, de ambos sexos, pertenecientes a las carreras de Medicina, Odontología, Educación Física, Contaduría Pública y Gestión de Negocios. No hubo diferencias en sus características sociodemográficas, La prevalencia de ideación suicida fue 10.06% (10.63% en sexo femenino vs 9.32% en sexo masculino). Sólo se encontraron diferencias estadísticamente significativas en el antecedente de enfermedades psiquiátricas y el consumo de medicamentos psicotrópicos.

Conclusiones. La prevalencia de ideación suicida y los factores de riesgo detectados en nuestra muestra son similares a los reportados en la literatura mundial; esta información debe considerarse en el diseño de programas preventivos.

Palabras Clave: Ideación suicida, prevalencia, suicidio.

Abstract

Suicidal ideation is a social phenomenon of increasing prevalence worldwide. Understanding its epidemiological behavior and risk factors is essential for developing appropriate preventive policies.

Methods. A prospective, multicenter, experimental, and uncontrolled study was conducted on the university population from the administrative and health areas in Veracruz, Mexico. Suicidal ideation was measured using Beck's Suicidal Ideation Scale. Statistical analysis was performed using the Chi-square test and the Kruskal-Wallis test.

Results. A total of 537 individuals from the fields of Medicine, Dentistry, Physical Education, Public Accounting, and Business Management were included. No differences were found in their sociodemographic characteristics. The prevalence of suicidal ideation was 10.06% (10.63% in females vs. 9.32% in males). Statistically significant differences were found only in the history of psychiatric diseases and the use of psychotropic medications.

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Conclusions. The prevalence of suicidal ideation and the risk factors detected in our sample are similar to those reported in previous reports; this information should be considered in the design of preventive programs.

Keywords: Suicidal ideation, prevalence, suicide.

Resumo

A ideação suicida é um fenômeno social de prevalência crescente no mundo. Conhecer seu comportamento epidemiológico e fatores de risco é essencial para o desenvolvimento de políticas preventivas adequadas.

Materiais e métodos. Estudo prospectivo, multicêntrico, experimental, não controlado, na população universitária de áreas administrativas e de saúde de Veracruz, México. A ideação suicida foi medida usando a Escala de Ideação Suicida de Beck. Análise estatística descritiva e inferencial usando qui-quadrado e Kruskal Wallis.

Resultados. Foram incluídos 537 indivíduos de ambos os sexos, pertencentes às carreiras de Medicina, Odontologia, Educação Física, Contabilidade Pública e Administração de Empresas. Não houve diferenças em suas características sociodemográficas. A prevalência de ideação suicida foi de 10,06% (10,63% em mulheres vs. 9,32% em homens). Diferenças estatisticamente significativas foram encontradas apenas no histórico de doenças psiquiátricas e no uso de medicamentos psicotrópicos.

Conclusões. A prevalência de ideação suicida e os fatores de risco detectados em nossa amostra são semelhantes aos relatados na literatura mundial; Essas informações devem ser consideradas no planejamento de programas preventivos.

Palavras-chave: Ideação suicida, prevalência, suicídio.

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Introduction

It has been estimated that approximately 800,000 suicides occur worldwide each year, being the main cause of death in individuals between 15 and 29 years of age; however, these statistics do not include suicidal ideation, which could be 20 times higher (WHO, 2015). In Mexico, between 2010 and 2015, 6,825 suicides were recorded, being more frequent in the male population and in individuals between 15 and 29 years of age (INEGI, 2015).

Suicidal ideation is defined as the presence of thoughts directed toward self-harm or death. Its frequency, intensity, and duration determine its severity (Goldsmith et al., 2002). However, for study purposes, suicidal ideation is included within suicidal behaviors, which include thinking, planning, attempting, and completing suicide (PAHO, 2014).

Suicide, seen as a problem on a global scale, represents a factor of great sociocultural impact, which requires studying it from a scientific perspective to identify its variables. On the one hand, we have suicidal ideation, where suicidal thoughts do not originate an attempt; suicidal intentionality, where attempts exist, but have not been completed; and finally completed suicide. (Rosales et al., 2013; Beck et al., 1976)

Risk factors related to suicide have been studied, especially in the young population. In the educational population, identifiable factors of suicidal ideation include genetic and biochemical aspects (Engelberg , 1992; Troisi , 2009), as well as sociocultural factors, among which substance abuse stands out (Howard et al., 2010), failure in interpersonal relationships and previous exposure to domestic violence (Wilcox et al., 2010).

However, university students present some special characteristics that could increase the risk of suicidal behavior, such as the transition from adolescence to adulthood, the acquisition of responsibilities, the increase in the pace of life and competitiveness with other peers (Teixeira & Rondini , 2012; Martínez et al., 2016). A history of affective or anxiety disorders (Sareen et al., 2005), sleep problems (Becker et al, 2018), technological dependence (Jasso & López, 2018), lack of exercise (Álvarez, 1979; Norman, 1977; Simon, 1997 ; Taliaferro et al., 2018; Brosnahan et al., 2004; Uglesic et al., 2014) and even homosexual affinity (Garofalo et al., 1998; Lytle et al., 2018) should be included.

Analyzing the prevalence of suicidal ideation in the student population is not easy, partly due to underreporting and, on the other hand, to the diversity of scales used for its detection and measurement (Hawkes , 1992; Li et al., 2014). The most widely used scale in the world is the Beck Suicidal Ideation Scale, which has been translated into several languages for international application (Rottenstein et al., 2016); With it, a prevalence of 10% has been

reported in China (Lee et al., 2008), 5.4% in South Korea (Horgan et al., 2018), 9.9% in Brazil (Santos et al, 2017), 28.5% in Ireland (Supartini et al., 2016), 5.77% in Japan (Córdova et al, 2013) and 12% in the United States (Torres et al., 2017). In Mexico, the results have been variable. A study conducted by the Technological University of Costa Grande found a prevalence of suicidal ideation of 11% in men and 18.3% in women (Torres et al., 2017). The Technological University of Tlaxcala reported a prevalence of 7.2%. The National Autonomous University of Mexico conducted a study in which it found that 13% of its population had made at least one suicide attempt (Goebert et al., 2009).

It is evident that knowledge of the frequency of suicidal ideation and the sociodemographic factors related to it are of utmost importance for the development of detection and support campaigns; knowledge of the epidemiological behavior of suicidal ideation in our population will allow the detection of individuals at risk; this has a high social, demographic and economic impact; therefore, in the present study we aim to analyze the epidemiological behavior of suicidal ideation in the university population, both students in the health area and in other areas, with the aim of determining prevalence, predisposing and protective factors, in the socioeconomic context of our country.

Materials and methods

This was an experimental, prospective, uncontrolled, multicenter study conducted in the population belonging to various faculties of the Universidad Veracruzana, in southeastern Mexico. 537 university students from health science-related courses, such as Medicine, Dentistry, and Physical Education, as well as administrative areas, such as Accounting and Business Management, were included. The sample consisted of 56% women (n = 301) and 44% men (n = 236).

To determine the prevalence of suicidal ideation, the Beck Suicidal Ideation Scale, one of the most widely used tools to assess suicidal thinking, was used (Seo et al., 2021). It can be used as a monitoring instrument for the detection of suicidal ideation and associated factors in different contexts, such as hospitals and educational institutions (Grasdolsmoen et al., 2020) . This scale has demonstrated its diagnostic utility with satisfactory internal consistency (α = 0.87). It presents an excellent correlation with other tests with similar purposes, such as the Suicide Probability Scale and the Adult Suicidal Ideation Questionnaire. Finally, it has been translated into various languages (Korean, Chinese, French, Persian, Spanish and Norwegian), obtaining statistical parameters similar to the original version (Peng et al., 2023).

Initially, the sociodemographic data and the results obtained from the different variables were analyzed using descriptive statistics, in which the means, frequencies and percentages are reported as appropriate. Subsequently, the data collected from the assessment instruments were analyzed using a normality and homogeneity of variance test to determine the distribution they present. Due to the type of variables obtained in the questionnaires, the results were categorized to allow a non-parametric analysis.

To determine differences in the prevalence of suicidal ideation among participants in the different courses, the Kruskal-Wallis test was used, a nonparametric alternative to one-way analysis of variance (ANOVA). This test is used when the data do not have a normal distribution or it is necessary to contrast an ordinal variable with a nominal one. It is a test that contrasts whether the different independent samples are equidistributed by comparing the medians. To determine whether there is an association between sociodemographic variables and suicidal ideation, the Chi-square test of association or, failing that, the Fisher exact test was used, as appropriate. The latter is applied when the number of subjects in a cell is small and the criterion of the expected value equal to or greater than 5, required in the Chi-square test, is not met. The data analysis was performed with the statistical program SPSS v.16.

Results

Based on the descriptive analysis, it was determined that, from a sample of 537 participants, 56% were women (n = 301) and 44% men (n = 236), distributed across the different careers evaluated. Table 1 presents the distribution of age, sex and school year of the population. Table 2 shows the number of hours per day dedicated to school activities, the need for daily transportation, the place of origin and the people with whom they share a room.

Table 1. Distribution of age, sex and school year (n=537)

Variables		Career									
		Dental surgeon		Accountancy		Physical education		Business Management		Medicine	
		N	%	n	%	n	%	n	%	n	%
n	537 participants	78	14.53	183	34.08	74	13.78	117	21.79	85	15.83
Average age		20.51		19.98		21.66		19.68		20.19	
Sex	Men (M)	17	21.79	70	38.25	54	72.97	51	43.59	44	51.76
	Women (M)	61	78.21	113	61.75	20	27.03	66	56.41	41	48.24
School year	1	6	7.69	48	26.23	8	10.81	65	55.56	34	40.00
	2	30	38.46	30	16.39	16	21.62	29	24.79	17	20.00
	3	27	34.62	64	34.97	15	20.27	20	17.09	17	20.00
	4	5	6.41	37	20.22	19	25.68	3	2.56	17	20.00
	5	9	11.54	4	2.19	13	17.57	0	0.00	0	0.00
	6	1	1.28	0	0.00	3	4.05	0	0.00	0	0.00

Note: Own source

Table 2. Daily duration of school activities, need for transportation, place of origin and cohabitants of the sample studied (n=537)

Variables		Career									
		Dental surgeon		Accountancy		Physical education		Business Management		Medicine	
		n	%	n	%	n	%	n	%	n	%
N	537	78	14.53	183	34.08	74	13.78	117	21.79	85	15.83
Hours per day spent on school activities	1 to 5	5	6.41	48	26.23	14	18.92	25	21.37	8	9.41
	5 to 10	31	39.74	119	65.03	50	67.57	78	66.67	33	38.82
	more than 10	42	53.85	16	8.74	10	13.51	14	11.97	44	51.76
Daily transfer for school purposes	Yeah	22	28.21	62	33.88	22	29.73	45	38.46	11	12.94
	No	46	58.97	113	61.75	41	55.41	65	55.56	68	80.00
	Just a few days	10	12.82	8	4.37	11	14.86	7	5.98	6	7.06
Place of origin	Veracruz-Boca del Rio	37	47.44	118	64.48	42	56.76	83	70.94	49	57.65
	Municipality located 1-3 hours away by road	25	32.05	48	26.23	23	31.08	25	21.37	22	25.88
	Municipality located more than 3 hours away by road	16	20.51	17	9.29	9	12.16	9	7.69	14	16.47
People you share a room with	Both parents	30	38.46	91	49.73	32	43.24	58	49.57	33	38.82
	Father only	3	3.85	5	2.73	3	4.05	4	3.42	6	7.06
	Only mother	15	19.23	41	22.40	12	16.22	27	23.08	15	17.65
	Another relative	7	8.97	28	15.30	15	20.27	17	14.53	10	11.76
	Live alone	23	29.49	18	9.84	12	16.22	11	9.40	21	24.71

Note: Own source

Table 3 presents the socioeconomic level, previous diagnosis of psychiatric illnesses and current use of psychotropic medications in the study population, factors previously associated with suicidal ideation .

Table 3. Socioeconomic level, prevalence of psychiatric illnesses and consumption of psychotropic drugs in the study population (n=537)

Variables		Career									
		Dental surgeon		Accountancy		Physical education		Business Management		Medicine	
		n	%	n	%	n	%	n	%	n	%
N	537	78	14.53	183	34.08	74	13.78	117	21.79	85	15.83
Membership level economic	High	0	0.00	2	1.09	0	0.00	0	0.00	0	0.00
	Medium high	43	55.13	72	39.34	30	40.54	64	54.70	56	65.88
	Medium low	33	42.31	95	51.91	36	48.65	48	41.03	28	32.94
	Low	2	2.56	13	7.10	5	6.76	5	4.27	1	1.18
	Very low	0	0.00	1	0.55	3	4.05	0	0.00	0	0.00
Previous diagnosis of psychopathological disorders	Depression	5	6.41	12	6.56	5	6.76	10	8.55	6	7.06
	Anxiety	5	6.41	23	12.57	6	8.11	14	11.97	8	9.41
	Another mental illness	0	0.00	2	1.09	1	1.35	1	0.85	3	3.53
	No health problems	68	87.18	146	79.78	62	83.78	92	78.63	68	80.00
Drug use in the last 6 months	Antidepressants	3	3.85	5	2.73	0	0.00	4	3.42	0	0.00
	Sedatives	3	3.85	5	2.73	1	1.35	2	1.71	0	0.00
	Other psychiatric medications	0	0.00	0	0.00	0	0.00	2	1.71	0	0.00
	Other non-psychiatric medications	1	1.28	12	6.56	2	2.70	3	2.56	1	1.18
	No medication	71	91.03	161	87.98	71	95.95	106	90.60	84	98.82

Note: Own source

In Table 4, we present the scores obtained in the Beck Suicidal Ideation Scale and their relationship with the university degree course and the sex of the participants. It is important to highlight that the prevalence of suicidal ideation in the total population was 10.06 %, considering those cases located above the cut-off point. This value was slightly higher in women (10.63%) compared to men (9.32%) . It is important to note that the prevalence of

suicidal ideation was higher in students of administrative careers compared to those belonging to the health area.

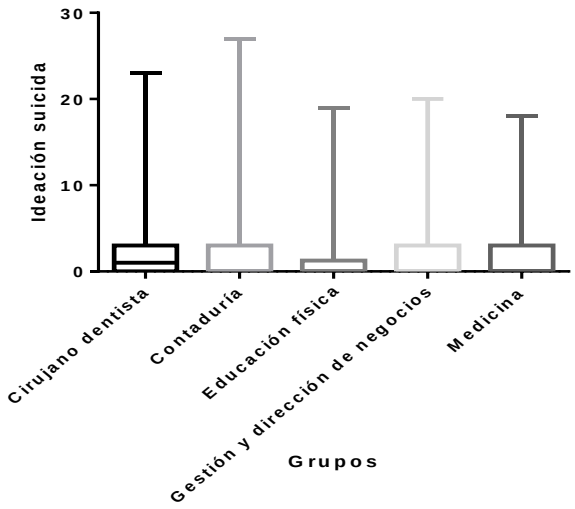
Table 4. Prevalence of suicidal ideation in relation to sex and university major

Variables		Career									
		Dental surgeon		Accountancy		Physical education		Business Management		Medicine	
		N	%	n	%	n	%	n	%	n	%
N	537	78	14.53	183	34.08	74	13.78	117	21.79	85	15.83
Beck Suicidal Ideation Scale Score	Below the cut-off point	72	92.31	161	87.98	68	91.89	105	89.74	77	90.59
		15 H		60 H		51 H		49 H		39 H	
		57 M		101 M		17 M		56 M		38 M	
	Equal to or greater than the cut-off point	6	7.69	22	12.02	6	8.11	12	10.26	8	9.41
		2 H	33.33	10 H	45.45	3 H	50	2 H	16.67	5 H	62.5
		4 M	66.67	12 M	54.55	3 M	50	10 M	83.33	3 M	37.5

Note: Own source

When evaluating the prevalence of suicidal ideation based on sociodemographic variables, the prevalence was initially compared according to university major using the Kruskal-Wallis test, without finding statistically significant differences ($p = 0.7086$; KW statistic = 2.148) (Figure 1).

Figure 1. Comparative prevalence of suicidal ideation and university career



Note : Own source

In order to establish whether there is an association between the presence of suicidal ideation and any sociodemographic variable, the Chi square test was used. This analysis highlights the association between the absence of a previous diagnosis of psychopathological disorder and the absence of drug use in the last six months with the lack of suicidal ideation (p = 0.000, gl = 3 and p = 0.000, gl = 4, respectively). The rest of the variables did not show significant results, as shown in Table 5.

Table 5. Relationship between prevalence of suicidal ideation and the sociodemographic variables analyzed

Variables	Suicidal ideation	
	p value	gl
Career	0.805	4
Sex	0.617	1
Hours per day spent on school activities	0.524	2
Daily travel for school purposes	0.439	2
Place of origin	0.957	2
People you share a room with	0.255	4
Socioeconomic level	0.581	4
Previous diagnoses of psychopathological disorders	0.000	3
Drug use in the last 6 months	0.000	4

Note: Own source

Discussion

Suicide is a sociodemographic problem that affects all countries in the world and is the main cause of death in the age group of 15 to 29 years (WHO, 2015). Since suicidal behaviour involves the study of the ideation, planning and completion of suicide, it is important that studies on the subject establish clear criteria for differentiation. The choice of suicidal ideation as an evaluation parameter allows us to identify a phenomenon in which completed suicide represents only the tip of the iceberg, suggesting that suicidal ideation constitutes a larger problem.

The demographic study of suicidal ideation presents methodological difficulties. The main challenge lies in the selection of techniques and scales that allow a reliable identification of real cases without generating underreporting. In many of the studies carried out in this regard, scales developed by the same authors have been used, which makes it difficult to extrapolate their results (Capdevila et al, 2021); however, there are validated scales for determining the prevalence of suicidal ideation. In this study, the Beck Suicidal Ideation Scale was used, one of the most widely used tools worldwide, with excellent internal consistency and translations into various languages, including Spanish; it has already been used and validated in Mexico (Córdova et al, 2013).

Although studies have been conducted using different scales, reports from different regions of the world present relatively similar results. In the present study, a prevalence of suicidal ideation of 10.06% was identified, being slightly higher in women (10.63%) than in men (9.32%). This figure is similar to that reported in China (Lee et al, 2008), Brazil (Santos et al, 2017) and the United States (Wilcox et al, 2010), as well as reports made in some sites in Mexico. (Córdova et al, 2013)

In this study we selected a university population exclusively; we chose some careers belonging to the area of health sciences (Medicine, Dentistry, Physical Education) and, as a comparison group, students of administrative careers (Business Management and Accounting). In numerous previous studies it has been documented that suicidal ideation is especially frequent in health personnel and in medical students; in this sense there are reports from all over the world, with variable prevalences: 6% in the United States (Matheson et al, 2016), 10% in France (Sareen et al, 2005) and 15.6% in Canada (Coffin & Álvarez, 2009); in Mexico the prevalence of suicidal ideation in medical students has not been studied, but in those studying psychology a prevalence of 40.7% was found (Torres et al, 2017); In the same

sense, Córdova et al analyzed the prevalence of suicidal ideation in university students of various careers, finding it present in 11.3% of male students and 18.7% of female students.

In the present study, we found a general prevalence of 10.06%, without finding any statistically significant difference between male and female sex (10.63% in female vs. 9.32% in male); these results are similar to those reported in various studies conducted in Western countries, as well as in the study by Córdova in Mexico. Various additional sociodemographic variables were analyzed that could influence the prevalence of suicidal ideation, such as the number of hours per day spent on school activities, the need to travel more than 1 hour per day to access their school facilities, the place of origin, the number of people with whom they share a room, the socioeconomic level, the previous diagnosis of psychopathological disorders and the consumption of drugs in recent months. In previous studies, it has been observed that suicidal behavior can be associated with substance abuse, domestic violence, the pace of life, the history of affective problems and sleep problems, technological dependence and sexual affinity; In this study, a statistically significant relationship was only observed between the prevalence of suicidal ideation and two specific factors: previous diagnosis of psychopathological disorders and consumption of psychotropic drugs in the last 6 months, which is compatible with what was observed in other geographic regions.

It was noteworthy that, when studying the prevalence of suicidal ideation in relation to university degree, it was slightly higher in individuals with administrative and commercial profiles compared to the three degrees belonging to the health area; however, the difference was not statistically significant. This finding does not coincide with what has been reported in previous studies in which it has been pointed out that health personnel and medical students are at greater risk of developing suicidal ideation compared to other profiles.

Suicidal behavior can have a high social, health, and economic impact on the population (Lui et al., 2019); its study is of fundamental importance for the establishment of programs to detect individuals at risk and, therefore, the design of effective preventive programs. The identification of risk groups, such as university students with a history of psychopathologies and consumption of psychotropic medications, can be a tool of great diagnostic and, especially, preventive value (Hill et al, 2018; Desalegn et al, 2020).

This study has an important limitation related to the selection of a sample located in a specific region of the country, which does not necessarily reflect the behavior in other areas of Mexico or in international contexts with similar sociodemographic characteristics. In

addition, it is necessary to have more heterogeneous samples, ideally of a larger size and representativeness, that allow the extrapolation of the results.

Conclusion

Studying the prevalence of suicidal ideation is essential to understanding the epidemiology of suicidal behavior. Although the factors that influence the transition from suicidal ideation to completed suicide have not yet been precisely identified, it is essential to identify key characteristics that allow the development of prevention campaigns aimed at vulnerable populations.

Future lines of research

Studies are needed to determine the impact of psychopathological disorders, such as depression and anxiety disorders, on at-risk groups. One of the most useful approaches would be to conduct methodologically prospective studies, which would identify depressive symptoms and sociodemographic factors that could modify the prevalence of suicidal ideation over different time periods (Jahangiri et al, 2023). It is essential to evaluate the possible relationship between studying in health areas and suicidal ideation in larger populations; it is well known that these students are exposed to exhausting hours of theoretical and practical work, a high degree of competitiveness among peers, and special pressure originating from the responsibility of dealing with patients and its medical and legal implications (Solibieda et al, 2021). Therefore, epidemiological studies in our setting should focus on this sector, to detect risk groups and develop important preventive campaigns.

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