Suicide Attempt Violence: Gender Differences, Diagnosis and Psychiatric Care Seeking in Mexico City

Суицидальные попытки с использованием насильственных способов: гендерные различия, диагностика и частота обращения людей за психиатрической помощью в Мехико

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Original research

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ABSTRACT

BACKGROUND: Suicide cases in Mexico have increased during the last two years and are the second-leading cause of death in the young adult population.

AIM: To describe gender differences in violent suicide attempts as relates to diagnosis and the seeking of psychiatric care.

METHODS: A descriptive retrospective study was conducted. The referral forms of 241 patients who had attempted suicide were analyzed.

RESULTS: The mean age of the patients was 29.1 (SD=10.8) years, *n*=140 (58.1%) of the sample were women. Affective disorders were the most frequent diagnoses for both sexes. Women were more likely to delay seeking psychiatric care: 60 days versus 30 days of delay for men (p=0.009). Men were shown to more frequently resort to violent suicide methods. Both women and men who used violent suicide methods were shown to delay by more days the seeking of psychiatric care than those who were found to have used non-violent suicide methods.

CONCLUSION: We found that patients who use more violent methods of suicide took longer before seeking psychiatric care. This delay in accessing psychiatric care can be thought to contribute to the fact that completed suicides are more frequent within that category of patients. The majority of suicide attempts occurred in the 17–24 years age group; therefore, it seems reasonable to analyze the existing barriers to seeking psychiatric care, mainly in the young adult population, and to design strategies to bring mental health services closer to this population group.

АННОТАЦИЯ

ВВЕДЕНИЕ: За последние 2 года в Мехико увеличилось число суицидов, которые, таким образом, стали второй по значимости причиной смерти среди взрослого населения молодого возраста.

ЦЕЛЬ: Описать гендерные различия суицидальных попыток с использованием насильственных способов с учетом диагностики психических расстройств и частоты обращения за психиатрической помощью.

МЕТОДЫ: Было проведено описательное ретроспективное исследование. Проанализированы анкеты 241 пациента, совершившего суицидальную попытку.

РЕЗУЛЬТАТЫ: Средний возраст пациентов составил 29,1 (SD=10,8) года. Женщины составили 58,1% выборки (*n*=140). У пациентов обоих полов чаще всего диагностировали аффективные расстройства. Женщины с большей вероятностью откладывали обращение за психиатрической помощью по сравнению с мужчинами (задержка в обращении составила 60 дней по сравнению с 30 днями, соответственно, *p*=0,009). Установлено, что мужчины чаще прибегают к совершению суицида с использованием более травматичного способа. Также отмечено, что и женщины, и мужчины, использовавшие насильственный способ совершения суицидальной попытки, откладывали обращение за психиатрической помощью на большее число дней, чем те, которые применяли менее травматичные способы.

ЗАКЛЮЧЕНИЕ: Мы пришли к выводу о том, что пациентам, которые использовали насильственные способы совершения суицидальной попытки, требовалось больше времени для принятия решения об обращении за психиатрической помощью. Можно предположить, что позднее обращение за психиатрической помощью способствует тому, что среди этой категории пациентов чаще регистрируют завершенные суициды. Большинство случаев суицидальных попыток зарегистрировано в возрастной группе 17–24 лет, поэтому представляется целесообразным проанализировать существующие препятствия к обращению за психиатрической помощью, в основном среди молодых взрослых, а также разработать стратегии по повышению доступности служб охраны психического здоровья для этой группы населения.

Keywords: *suicide; violent suicide attempt; mental disorders; psychiatric emergencies; self-harm*
Ключевые слова: *суицид; суицидальная попытка с использованием насильственного способа; психические расстройства; экстренная психиатрическая помощь; самоповреждение*

INTRODUCTION

According to the World Health Organization (WHO), 700,000 people commit suicide each year, which translates into a rate of 11.4 per 100,000 inhabitants.[1] In various regions of the world, suicidal behavior has increased in recent years; in the United States, emergency room visits for suspected suicide attempts have increased by 50.6% among girls aged 12–17 years compared to the same period in 2019 [1]. Since 2014, the suicide rate has decreased in older adults and increased in adolescents and young adults in the Americas, making it the second-leading cause of death in the 15–29 age group (with a rate of 13.8 per 100,000 population), after road traffic accidents.[2] In Greece, an increase of 10.40% was documented compared to the pre-pandemic period [2]. In New Zealand, an increase in suicidal ideation was observed in 18- to 34-year-olds who had lost their jobs or faced the prospect of reduced income [3]. In Mexico, according to data from the National Institute of Statistics and Geography (INEGI by Spanish acronym), during 2020 673 more deaths by suicide compared to the previous year were recorded, an increase from 5.4 to 9.9 per 100,000 inhabitants.[3]

Suicide is defined by the WHO as the deliberate act of taking one's own life; its prevalence and the methods used vary by gender; for men, asphyxia was the most commonly used method in the Central American, Hispanic Caribbean, and Mexico subregions, while in South America and North America firearms were the main method used. For

[1] WHO (World Health Organization) [Internet]. Suicide; 2021 [cited Jul 2022]. Available from: https://www.who.int/es/news-room/fact-sheets/detail/suicide

[2] Pan American Health Organization. Suicide Mortality in the Americas. Regional Report 2010–2014. Washington, DC; 2021.

[3] National Institute of Statistics and Geography [Internet]. Population and Housing Census; 2021 [cited Apr 2023]. Available from: https://www.inegi.org.mx/app/tabulados/interactivos/?pxq=Salud_Mental_07_f6061818-d620-4269-adbb-d4376cc22c0d

women, poisoning was the most frequently used method in North America (36.5%) and in the non-Hispanic Caribbean (57.4%).[1] In Mexico, amongst men, in order of frequency, hanging comes fist followed by firearms and poisoning, while the hierarchy for women is hanging, poisoning, and firearms [4]. The choice of method when attempting suicide depends on factors such as accessibility and cultural acceptability, as well as physical availability and cognitive accessibility [5]. Another factor affecting suicidal behavior is people's living conditions, which was affected by the pandemic caused by the SARS-CoV-2 virus; in particular, restrictions on movement resulted in an increase in mental disorders such as anxiety and depression, as well as substance use.

According to data from the National Health and Nutrition Survey of 2022 in Mexico, the prevalence of suicidal behavior at some point in life in adolescents stands at 6.5%, while that for adults is at 3.5%. Some 13% of adolescents who attempted suicide were hospitalized, while the remainder were denied hospitalization [6]. It remains unknown whether those who were denied hospitalization had received any psychiatric or general medical care, which is of concern since people with suicidal ideation face a 10-fold increased risk of death by suicide [7]. Likewise, the lack of access to health care aggravates the situation since the likelihood of committing suicide after a suicide attempt stands at 2.8% after one year, 5.6% after five years, and 7.4% at 10 years. This indicator is closely tied to the psychiatric diagnosis [8]; therefore, individual follow-up of such patients is essential in preventing a new attempt. The recent COVID-19 pandemic has perturbed the scenario of suicidal behavior. Various works by researchers have reported broadly divergent results. These range from those that have uncovered an increase in suicidal ideation during the pandemic to studies that have recorded no movement in that parameter compared to previous years [9–12]. Still other studies have reported a decrease in suicidal behavior [13–15]. Contrarily, in Mexico the number of completed suicides is shown to have increased during 2020, particularly in the young adult population, accompanied by an increase in depressive and anxiety disorders [16].

The most affected age group was the 18- to 24-year-old range, and the Hispanic population exhibited a higher prevalence rate of these symptoms [17]. It was also documented that school confinement and stress associated with issues around school contributed to the prevalence of suicide [18]. Suicidal ideation was more prevalent in young adults, women, and people experiencing economic hardship, chronic illnesses and mental disorders [19, 20].

In Mexico, the methods used in completed suicides are known but data is limited on the time it takes to seek psychiatric care between the onset of symptoms and the emergence of suicidal behavior. Our purpose was to study gender differences in violent suicide attempts, as well as diagnosis and psychiatric care seeking in patients that visited a psychiatric emergency room because of suicidal behavior. We hypothesized that there are statistically significant gender differences in patients with suicidal behavior who seek psychiatric care; the degree of violence that accompanies a particular suicide attempt seems to have something to do with gender and the severity of one's mental condition (number of diagnoses).

METHODS

Study design

This study was based on a descriptive, retrospective, and cross-sectional design.

Sample

The sample was composed of the reference forms of patients who had been attended for in the emergency ward of Psychiatric Hospital "Fray Bernardino Álvarez" (PHFBA) for suicidal behavior. The finite sample formula was used to calculate the sample size with the following parameters: confidence level Z=1.96, percentage of the population with the desired attribute p=11%, percentage of the population without the desired attribute q=89%, maximum accepted estimation error (e)=4%, and universe size (N)=11800. Calculated size n=241. To collect the sample, we selected 15 bundles of referral forms by the simple random method, from which 241 referral forms of patients with suicidal behavior were obtained.

Data source

The reference forms of patients treated in the emergency department of PHFBA in the period March-December 2020 were used for the purposes of the study. The forms contain the following variables: a) age; b) sex; c) suicide attempt defined as self-harming behavior with a non-fatal outcome, accompanied by evidence (either explicit or implicit) that the person intended to die [21]; d) psychiatric diagnosis according to the International Classification of Diseases, 10th revision (ICD-10); e) time elapsed from the onset of symptoms for the current episode to the seeking

of psychiatric care; f) number of health establishments visited before receiving psychiatric care in the current episode; g) severity of the suicide method used, classified into violent methods (hanging, strangulation, suffocation, gunshot, jumping from a high altitude, or throwing oneself against a moving vehicle) and non-violent methods (blunt or sharp injuries, substance poisoning); and h) number of diagnoses (one, more than one) [22].

Data analysis

Descriptive statistics was used for the qualitative variables absolute and relative frequencies, as well as for the quantitative variables measures of main tendency and dispersion. The distribution was tested using the Kolmogorov-Smirnov test. The Mann–Whitney U test was used as the hypothesis test. The Chi-square test was applied for categorical variables. The variables (sex and the presence of more than one psychiatric diagnosis) that showed p <0.05 were included in the binary logistic regression analysis. The analysis was carried out using the SPSS version 26 statistical software.

Ethical approval

In accordance with the provisions of the Regulations of the General Health Law on Health Research, the research was deemed without risk. The Research and Research Ethics Committees of PHFBA approved the project (registration CI-955 of January 23, 2023).

RESULTS

We collected 241 referral forms of patients who had sought care after a suicide attempt between March and December 2020. We found a similar percentage of men and women patients, 41.9% (n=101) and 58.1% (n=140), respectively. The mean age of the sample was 29.1 years (SD=10.8). For women it was 29.0 years (SD=11.5); and 29.2 years (SD=9.8) for men. No statistically significant difference in the Mann–Whitney U test was uncovered (Table 1).

For 214 cases (88.4%), it was the first case of psychiatric care consumption since the onset of the current episode, with statistically significant differences by gender (χ^2=4.737, p=0.030). In addition, 111 (46.3%) patients reported having visited two health institutions before they could secure

Table 1. Parameters of psychiatric care seeking by gender

	Men N=101	Women N=140	*P**
Age (years)	29.2 (±9.8)	29.0 (±11.5)	(U=6637) 0.417
Time elapsed from the onset of symptoms to the seeking of psychiatric care (days) Me [Q1;Q3]	30 [14; 180] (min 7 – max 7565)	60 [6; 365] (min 7 – max 6570)	(U=4893) 0.009
Number of health institutions visited before receiving psychiatric care (n=128) Me [Q1;Q3]	2 [1; 2] (min 1 – max 4) n=57	2 [1; 2] (min 1 – max 5) n=71	(U=7943) 0.027

Note: * Mann–Whitney U test, significance level p <0.05.

Table 2. Percentage and frequency of main diagnoses by gender (N=241)

Diagnosis	Main diagnosis		χ^2	df	*p*
	Men N=101 (%)	Women N=140 (%)*			
Organic mental disorders	2 (1.98)	1 (0.7)	0.765	1	0.382
Substance use disorders	12 (11.8)	3 (2.1)	9.533	1	0.002
Schizophrenia, schizotypal, and delusional disorders	14 (13.86)	1 (0.7)	17.375	1	0.001
Mood (affective) disorders	36 (35.6)	55 (39.5)	0.331	1	0.565
Stress-related disorders	10 (9.90)	13 (9.35)	0.026	1	0.873
Personality disorders	23 (22.7)	62 (44.6)	11.894	1	0.001
Intellectual disability	4 (3.96)	2 (1.4%)	1.549	1	0.213
Somatic diseases	0 (0.0)	2 (1.4%)	-	-	-

Note: * The diagnosis was not recorded in the reference form in one case.

psychiatric care, while 17 (7%) had visited more than two health institutions, with gender-based statistically significant differences (U=7943, p=0.027) (Table 1).

Women delayed the seeking of psychiatric care from the time of onset of symptoms longer compared to men by a median of 60 versus 30 days (U=4893, p=0.009) (Table 1).

In both men and women, personality and mood (affective) disorders were the most frequent diagnoses, but stress-related disorders were more recurrent in women, as well as primary psychotic disorders in men. There were statistically significant differences for the latter (χ^2=17.37, p=0.001) (Table 2).

We found that 76.7% of the patients had some comorbid psychiatric diagnosis (74 men and 111 women). The most frequent were substance use disorders (12%), personality disorders (31.9%), affective disorders (15.3%), and stress-related disorders (7.4%), respectively. The least frequent comorbid disorders were eating disorders (one case), pervasive developmental disorders (two cases), intellectual disability (eight cases), and somatic disorders (three cases).

The majority of the suicide attempts fell on young people aged 17–24 years. In this group, the most frequent main diagnosis was personality disorders n=46 (43.8%), while in the groups aged 25–40 and 41–59 years the most frequent diagnosis was mood disorders: n=40 (41.2%) and n=14 (42.4%), respectively. The chi-square tests showed statistically significant differences for organic disorders and personality disorders. The older adult population group constituted five (2%) patients of the sample; two cases related to cognitive impairment (Table 3).

Regarding the methods used to attempt suicide, poisoning was the most frequent for both sexes, while hanging or strangulation was significantly more frequent in men compared to women (χ^2=47.784, p <0.05).

Regarding the methods, men used more violent suicide methods (hanging, jumping from the heights or using a moving vehicle) than women, with statistically significant differences (χ^2=22.210, p <0.05) (Table 4).

Patients with more than one psychiatric diagnosis used more violent suicide methods (χ^2=7.940, p <0.05).

Table 3. Main diagnoses by age group (N=241)

Diagnosis	Age group *n* (% by column) [years]				Chi-square test		
	17–24	25–40	41–59	>60	χ^2	df	*p*
Total in column	105 (100%)	97 (100%)	33 (100%)	4 (100%)	-	-	-
Organic disorders	0 (0.0%)	0 (0.0%)	1 (3.0%)	2 (40.0%)	64.50	3	<0.001
Substance use disorders	3 (2.9%)	9 (9.3%)	3 (9.1%)	0 (0.0%)	4.31	3	0.23
Schizophrenia, schizotypal, and delusional disorder	5 (4.8%)	9 (9.3%)	1 (3.0%)	0 (0.0%)	2.76	3	0.43
Mood (affective) disorders	36 (34.3%)	40 (41.2%)	14 (42.4%)	1 (20.0%)	1.91	3	0.59
Stress-related disorders	13 (12.4%)	4 (4.1%)	5 (15.2%)	1 (20.0%)	6.20	3	0.10
Personality disorders	46 (43.8%)	33 (34.0%)	6 (18.2%)	0 (0.0%)	10.41	3	0.02
Intellectual disability	2 (1.9%)	1 (1.0%)	3 (9.1%)	0 (0.0%)	7.07	3	0.07
Somatic diseases	0 (0.0%)	1 (1.0%)	0 (0.0%)	1 (20.0%)	-	-	-

Table 4. Frequency of suicide methods and the methods of violence by sex (N=241)

Method [ICD-10]		Men *n* (%)	Women *n* (%)
Non-violent methods	Intentional self-poisoning by and exposure to antiepileptic, sedative, hypnotic, antiparkinsonian, or psychotropic drugs [X60–X69]	34 (14.1)	86 (35.7)
	Intentional self-harm by sharp or blunt object [X78–X79]	32 (13.3)	41 (17.0)
Violent methods	Intentional self-harm by hanging, strangulation and suffocation [X70], by drowning and submersion [X71]	25 (10.4)	10 (4.1)
	Intentional self-harm by jumping from a high place [X80], by jumping or lying before moving object [X81], by crashing of motor vehicle [X82]	9 (3.7)	3 (1.2)
Intentional self-harm by unspecified means [X84]		1 (0.4)	-
Total*		101 (41.9)*	140 (58.1)*

Note: * χ^2=22.210, p <0.05.

Table 5. Regression analysis of the violence of the suicide attempt (N=241)

	B	Standard error	Wald	gl	Sig.	Exp(B)	95% C.I. EXP(B)	
							Inferior	Superior
Sex (men)	-1.577	0.364	18.745	1	0.0001	0.207	0.101	0.422
Diagnosis (>1)	-0.919	0.372	6.111	1	0.013	0.399	0.192	0.827

The regression model had a good fit according to the Hosmer-Lemeshev test p=0.971. Being male and having more than one psychiatric diagnosis increased the risk of violent suicide attempts (Exp(B)=0.207 CI 95%: 0.101-0.402 and Exp(B)=0.399, 95% CI 0.192-0.827 p <0.05) (Table 5).

The mean time from symptom onset for the current episode to the reception of psychiatric care for patients who had attempted violent suicide was longer than that for patients who had attempted non-violent suicide, but the difference was not statistically significant (705 versus 493, U=2377.0, p=0.765). The median time from symptom onset to psychiatric care for both groups was 135 days (min=7, max=7665). The median number of health institutions visited within the current episode was the same between patients who chose violent and non-violent suicide attempts (median 2, min=1, max=5, U=4821.0, p=0.294).

DISCUSSION

We studied the gender differences in the methods used to attempt suicide and the time gap in seeking psychiatric care. We found that women displayed a higher frequency of suicide attempts, that the most affected age group was the 17–24 years, which is consistent with the study by Benke et al. (2020), who noted that depressive symptoms and perceived loneliness are increased in young adults, as well as in people in that age group with mental disorders [23].

Regarding the methods of suicide, we uncovered statistically significant differences in terms of gender; men used methods that are more violent, while women used poisoning more frequently. This is in line with the data reported in France, where deliberate poisoning was more frequent in women and men who used methods related to a high likelihood of death [24]. In that study, the most frequent diagnoses were substance use and mood disorders. In our case, personality and mood disorders were more frequent, since in our results, patients who used more lethal methods of suicide were diagnosed with some category of psychosis (schizophrenia, schizotypal, or delusional disorders).

It was found that men inclined to use violent suicide attempts delayed the seeking of psychiatric care. We believe that the delay in seeking psychiatric care had the potential to contribute to the marked differences in the number of completed suicides. In Mexico, the man:woman ratio is 8:2, and high-fatality suicide attempts accounted for 90% of the deaths by suicide in Mexico City in the year 2020.[4] Unfortunately, for México there is a complete lack of studies that provide data on the number of people with completed suicide that had access to psychiatric or psychological care.

The procrastination in seeking psychiatric care may be due to barriers of geographic, administrative, or human resources nature. In that perspective, it has been established that the main barriers to accessing mental health care are due to a lack of information on where to obtain it, long waiting times, shortage of professionals, cultural and geographical factors, as well as stigma and cost [25]. Barriers to accessing psychiatric care widen the treatment gap for mental disorders in Latin America to a high 80% [26]. In our study, patients were found to have visited a median of two general medical care institutions before they could receive psychiatric care. One strategy would be to bolster human resources. For example, in Japan the increase in psychiatrists per resident was reflected in a reduction in the number of suicides [27].

The availability of human and material resources for mental health care is crucial in securing timely medical attention: however, in our study the delay in seeking psychiatric care and accessing it was considerable; so, it is paramount to analyze the causes behind the gap in seeking psychiatric care. It has been documented that in the young population, the predisposition to handle the problem by oneself or with friends and family constitutes

[4] National Institute of Statistics and Geography [Internet]. Population and Housing Census; 2021 [cited Apr 2023]. Available from: https://www.inegi.org.mx/app/tabulados/interactivos/?pxq=Salud_Mental_07_f6061818-d620-4269-adbb-d4376cc22c0d

the main barrier to accessing psychiatric care, to a greater extent than costs and difficulties of transportation. Also, having more than one psychiatric diagnosis is a predictor of delay in seeking psychiatric care [28].

In our study, a high percentage of patients had more than one psychiatric diagnosis, mainly affective disorders co-occurring with personality disorders, and patients between 25 and 40 years of age displayed high comorbidity with substance use disorders. Patients with more than one psychiatric diagnosis displayed a higher probability of attempting violent suicide. There is confirmation that having a psychiatric diagnosis with co-occurring mental or behavioral disorders is a predictor of high expectation of fatality when committing suicide, particularly in men [29].

The present work has limitations rooted in the fact that it proved impossible to conduct a structured interview to confirm the psychiatric diagnosis, since the diagnosis was established through a clinical interview in the emergency ward; it proved impossible to measure the magnitude of the harm or the intentionality of the suicidal behavior. The variables were limited to those contained in the reference form of the general medical care unit that referred the patient to the PHFBA.

CONCLUSION

As we have stated, suicide is a public health problem that affects the entire population and, particularly, the young. In conclusion, given the increase in suicidal behavior, the Mexican health system must adopt strategies that would allow prompt identification of patients at risk of committing suicide and timely provision of care to them. In particular, it is reasonable to assume that the availability of health resources significantly affects the possibility of receiving care. It also appears necessary to conduct an analysis of the causes behind the delay in seeking psychiatric care and, in addition, design strategies to detect those at a higher risk, particularly men with more than one psychiatric diagnosis.

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