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Protection and Risk Factors for Attempted Suicide in Mexican Students Majoring in Psychology

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ABSTRACT

Introduction. The prevalence of suicidal behavior in university students ranges from 14.1% to 27.9%, with suicide being the fourth leading cause of death among young people ages 15 to 29. Hopelessness, decreased self-efficacy, depression, anxiety, and emotional dysregulation are among the main risk factors. **Objective.** To determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican psychology students. **Method.** A quantitative, cross-sectional study was undertaken with a sample of 3,438 students from sixty-two universities accredited by the National Council for Teaching and Research in Psychology (CNEIP) from six regions in Mexico. **Results.** A total of 19.9% reported attempted suicide (85.1% women and 14.9% men); 36.4% drug use; 40.2% moderate to extreme stress; 50.1% anxiety, and 40.7% depression; 74.1% medium to high emotional dysregulation; 30.2% moderate to high hopelessness, and 32.9% low self-efficacy. Drug use (OR 1.897), sex (OR 1.756), anxiety (OR 1.218), hopelessness (OR 1.209), depression (OR 1.756), and stress (OR 1.050) respectively account for 17.2% of the variability of suicide attempts. **Discussion and conclusion.** Confirmation of the effect of the variables analyzed on the suicide attempts of psychology students underlines the importance of incorporating actions that will contribute to controlling the incidence of suicide.

Keywords: Suicide attempts, hopelessness, anxiety, stress, depression, self-efficacy.

RESUMEN

Introducción. La prevalencia de la conducta suicida en estudiantes universitarios se encuentra entre el 14.1 y 27.9%, es la cuarta causa de fallecimientos entre los jóvenes de 15 a 29 años. La pérdida de esperanza, disminución de autoeficacia, depresión, ansiedad y desregulación emocional se encuentran entre los principales factores asociados al suicidio. **Objetivo.** Determinar el efecto de la desesperanza, depresión, ansiedad, estrés, consumo de drogas y autoeficacia sobre el intento de suicidio en estudiantes mexicanos de la carrera de psicología. **Método.** Se realizó una investigación cuantitativa y transversal. Se conformó una muestra de 3438 estudiantes, pertenecientes a 62 Instituciones de Educación Superior (IES) acreditadas por el Consejo Nacional para la Enseñanza e Investigación en Psicología de seis distintas regiones del país. **Resultados.** El 19.9% reportó intento de suicidio (85.1% mujeres y 14.9% son hombres). El 36.4% reportó consumo de drogas, el 40.2% reportaron de moderado a estrés extremo, el 50.1% ansiedad y 40.7% depresión, el 74.1% de media a alta desregulación emocional, 30.2% de moderada a alta desesperanza y el 32.9% baja autoeficacia. El consumo de drogas (OR 1.897), sexo (OR 1.756), ansiedad (OR 1.218), desesperanza (OR 1.209), depresión (OR 1.756) y estrés (OR 1.050) respectivamente, explican el 17.2% de la variabilidad de los intentos de suicidio. **Discusión y conclusión.** Al confirmar el efecto de las variables analizadas en el intento de suicidio de los estudiantes de psicología, se recalca la importancia de integrar, dentro de las propuestas de intervención, acciones que abonen al control de su incidencia.

Palabras clave: Intento de suicidio, desesperanza, ansiedad, estrés, depresión, autoeficacia.

INTRODUCTION

The mental health of students, particularly those training to care for the physical and psychological health of the population, is a matter of concern. One of the main risk factors for mental health is suicide, with a suicide risk prevalence of between 14.1% and 27.9% having been reported in university students (Corredor et al., 2019; Crispim et al., 2021; Granizo et al., 2021). The World Health Organization (WHO) reports that one in 100 deaths is due to suicide, the fourth leading cause of death among young people aged between 15 and 29, who constitute the bulk of the senior high school and university population (WHO, 2021).

Factors associated with suicide include academic stressors, hopelessness, a decreased perception of self-efficacy, pessimism, depression (with a prevalence of between 16% and 28.2%), anxiety (with a prevalence of 56.6%), and emotional difficulty or dysregulation (García et al., 2021; Landa-Blanco et al., 2022; Rábago et al., 2019). In regard to depression, significant differences have been found between women (Abdu et al., 2020; Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019; Quarshie et al., 2022) and men (Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019). Moreover, the prevalence of depression in women (16%-28.2%) is higher than in men (7.1%-20.5%). However, López (2018) did not find significant differences by sex. This is consistent with what was reported by García et al. (2021), namely that women (37.2%) have higher rates of depression than men (30.2%), while 34.8% of the students surveyed reported some degree of depression and 56.6% anxiety.

Another risk factor for mental health and suicide was stress. In this regard, Carbonell et al. (2019) reported that a 31.7% prevalence rate for depression, a 59.9% prevalence rate for anxiety was and a 37.3% prevalence rate for stress, while Santana Campas et al. (2022) found that women scored higher in stress (74.6%) than men (25.1%). However, women scored higher in coping strategies than men, with 63.2% vs. 36.8%. In addition to the above, self-esteem can serve as either a risk or a protective factor for mental health (Ceballos-Ospino et al., 2015; Domínguez-Mercado et al., 2016; Gómez Tabares et al., 2020). In this respect, self-efficacy has been reported as both a risk and a protective factor (Gómez-Acosta, 2018; Palacios Jimenez, 2018).

During the COVID-19 pandemic, mental health problems increased noticeably. For example, Winkler et al. (2020) reported that the prevalence of people experiencing at least one symptom of mental health problems increased from a baseline of 20.02 (95% CI = 18.64, 21.39) in 2017 to 29.63 (95% CI = [27.9, 31.37]) in 2020, while major depressive disorders (3.96, 95% CI = [3.28, 4.62 v. 11.77], 95% CI = [10.56, 12.99]) and suicide risk (3.88, 95% CI = [3.21, 4.52 v. 11.88]; 95% CI = [10.64, 13.07]) tripled and current anxiety disorders doubled (7.79, 95% CI = [6.87, 8.7 v. 12.84], 95% CI = [11.6, 14.05]).

It is therefore useful to study risk and protective factors in university students, specifically psychology students, since there is evidence of more health problems in those enrolled in medicine, nursing, and associated programs (Caro et al., 2019; Ochoa et al., 2021). Given the above, the objective of this study was as follows: to determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican students majoring in psychology, under the hypothesis that there would be a link between the variables and suicide attempts.

METHOD

Study design

The research was observational, cross-sectional, descriptive, prospective, and quantitative.

Participants

The sample comprised 3,438 psychology students from sixty-two universities offering a bachelor's program in psychology and accredited by the National Council for Teaching and Research in Psychology (Spanish acronym CNEIP). The universities are distributed throughout Mexico and grouped into six different regions: South Southeast 29.1% ($n = 1002$), Northwest 25.4% ($n = 872$), Central West 20.7% ($n = 711$), Northeast 12.8% ($n = 441$), Metropolitan 7.9% ($n = 273$) and Central South 4% ($n = 139$). Of the total, 77.6% were women and 22.4% men, with a mean age of 20 (SD = 3.06). In regard to marital status, 96.3% were single, followed by those who were living together (1.5%), married (1.3%), or other (.8%).

Measurement instruments

The Beck Hopelessness Scale (Beck et al., 1974) with twenty items and a dichotomous response format (true or false), with a true assigned value of one, and a false value of 0, with a maximum score of twenty. The higher the score, the greater the degree of hopelessness. For this research, the validation for Mexico by Hermosillo-De la Torre et al. (2020) comprised 18 items. Both versions have adequate psychometric properties. Likewise, the present study reported good internal consistency ($\alpha = .804$). Four cut-off points were established for the interpretation of the scores: without hopelessness [0-2], mild hopelessness [3-5], moderate hopelessness [6-10], and severe hopelessness [11-18].

The Depression, Anxiety Stress Scales ([DASS-21]; Lovibond & Lovibond, 1993). This study uses the version by Ruiz et al. (2017) with twenty-one items and answers consisting of four options: "It has not happened to me," "It has happened to me a bit," "It has happened to me a lot," and

“It has happened to me an enormous amount,” scored on a scale of 0 to 3. It comprises three subscales: (1) Depression, (2) Anxiety, and (3) Stress; each with seven items. In the depression subscale, the categories are: (1) No depression [0-4], (2) Mild depression [5-6], (3) Moderate depression [7-10], (4) Severe depression [11-13] and (5) Extremely severe depression [14 or more]. For the Anxiety subscale, the cut-off points are (1) No anxiety [0-3], (2) Mild anxiety [4], (3) Moderate anxiety [5-7], (4) Severe anxiety [8-9] and (5) Extremely severe anxiety [10 or more]. Finally, for the Stress subscale, the cut-off points are (1) No stress [0-7], (2) Mild stress [8-9], (3) Moderate stress [10-12], (4) Severe stress [13-16] and (5) Extremely severe stress [17 or more]. In regard to its psychometric properties, the authors have confirmed adequate internal consistency values. These properties were confirmed in this study ($\alpha = .949$).

The General Self-Efficacy Scale (Baessler & Schwarzer, 1996), using the review by Sanjuán-Suárez et al. (2000), with ten unidimensional items, has four response options: “Incorrect,” “Barely true,” “Quite true” and “True,” scored from one to four. Satisfactory psychometric properties are reported in both the original version and this study ($\alpha = .91$). The scale has three cut-off points: Low self-efficacy [10-28], Medium self-efficacy [29-35], and High self-efficacy [36-40].

The Difficulties in Emotional Dysregulation Scale ([DERS]; Gratz & Roemer, 2004), translated, adapted, and validated in Mexican students by Marín et al. (2012). The validated scale has twenty-four items and four factors: non-acceptance, goals, awareness, and clarity. It is answered with a Likert-type response format with five options.

The Drug Abuse Screen Test ([DAST-20]; Skinner, 1982; De las Fuentes & Villalpando, 2001). This test consists of twenty questions with a dichotomous response format; “true” is assigned a value of “1” and false is assigned a value of “0” such that the minimum score is “0” and the maximum score is “20.” It has adequate internal consistency values ($\alpha = .98$). Satisfactory values were found in the present study ($\alpha = .72$). Five cut-off points were established for the interpretation: (1) No risk reported [0], (2) Low drug use [1-5], (3) Moderate drug use [6-10], (4) Substantial drug use [11-15] and (5) Heavy drug use [16-20].

Suicide risk was identified with a specially designed questionnaire based on the proposals of González-Forteza et al. (1998) and Hermosillo-De la Torre et al. (2020). For this study, only the following question was considered: Have you ever hurt yourself, cut yourself, intoxicated or hurt yourself on purpose to cause your death? The response format is dichotomous: Yes (1) and No (0).

Procedure

An official letter inviting respondents to participate in the data collection was sent to the ninety-nine HEIs accredited by the CNEIP in the six regions. Sixty-two HEIs were lo-

cated in the following regions: South Southeast (Veracruz, Puebla, Yucatán, Chiapas, Tabasco, Tlaxcala, Campeche and Quintana Roo), North-West (Chihuahua, Baja California, Sonora and Sinaloa), North-East (Tamaulipas, Durango, Coahuila, Nuevo León, San Luis Potosí and Zacatecas), Central-West (Guanajuato, Jalisco, Colima, Aguascalientes, Michoacán and Nayarit), Central-South (State of Mexico, Morelos, Querétaro and Hidalgo) and Metropolitan (State of Mexico and Mexico City). The link to these psychometric tests (comprising the instruments described in the corresponding section), contained in an online form, was sent out to be distributed by the CNEIP institutional representatives and answered electronically by the psychology students who gave their informed consent and voluntarily agreed to participate. The scales were administered from April to June 2021.

Statistical analysis

Descriptive, frequency, and bivariate analyses were performed. For the latter, logistic regression was used with the INTRODUCE method, which involves incorporating both the dependent variable (suicide risk) and the independent ones (hopelessness, anxiety, stress, depression, drug use, gender, age, and region). Odds ratios with a 95% confidence interval (CI) were obtained. Hosmer-Lemeshow and Cox and Snell's R^2 and Nagelkerke's R^2 tests were used to fit the regression model. The reliability of the scales was calculated with Cronbach's alpha. SPSS version 24 software was used to conduct all the analyses (SPSS Inc., Chicago, IL, USA).

Ethical considerations

This study has been endorsed by the Bioethics Committee of the University Center of Tonalá of the University of Guadalajara (folio CB-00002 and protocol: F-2021-004), which declares that human rights were respected, as provided by the General Health Act and the Helsinki principles.

RESULTS

The results show that 19.9% of the sample reported attempting suicide, 85.1% ($n = 582$) of whom were women and 14.9% ($n = 102$) men. These differences were statistically significant ($p < .001$) in regard to lifetime suicide attempts. Self-efficacy was included as a protective factor, since men reported a higher proportion of high self-efficacy (29.8%) than women (24.9%), with these differences being significant ($p < .001$).

Of the total sample, 36.4% reported some level of drug use. Likewise, 40.2% reported moderate to extreme stress, 50.1% anxiety and 40.7% depression, 74.1% reported medium to high emotional dysregulation, 30.2% moderate to severe hopelessness and 32.9% low self-efficacy. Depres-

sion, anxiety, stress, hopelessness, emotional dysregulation, and drug use were included as risk factors for suicide attempts. Women scored higher than men on all risk factors, except hopelessness. All these differences are statistically significant (Table 1).

The region with the highest level of self-efficacy (the states comprising each region were described in the procedure) was the South-Central region (43.2%), followed by the Northeast (28.3%), South Southeast (25.3%), Central West

(24.8%), Northwest (24.5%) and Metropolitan region (24%). In regard to suicide attempts, the region with the highest reported prevalence was the Metropolitan Region (28.5%), followed by the Central West (22.4%), Northwest (20.9%), Northeast (18%), South Southeast (16.7%), and Central South (14.4%) respectively. In both cases (self-efficacy and suicide attempts), the differences were statistically significant ($p < .001$). Conversely, the Metropolitan region scored higher in anxiety, depression, and emotional dysregulation (Table 2).

Table 1
Prevalence of drug use, stress, depression, anxiety, emotional dysregulation, and hopelessness differentiated by sex (n = 3438)

	Men		Women		p value
	N	%	N	%	
Drug use					
Did not report drug use	439	56.9	1747	65.6	< .001
Low drug use	307	39.8	882	33.1	
Moderate drug use	18	2.3	33	1.2	
Substantial drug use	6	0.8	1	0.0	
Heavy drug use	1	0.1	2	0.1	
Stress					
No stress	434	56.3	1236	46.3	< .001
Mild stress	89	11.5	297	11.1	
Moderate stress	115	14.9	455	17.1	
Severe stress	100	13.0	447	16.8	
Extreme stress	33	4.3	232	8.7	
Anxiety					
No anxiety	396	51.4	1027	38.5	< .001
Mild anxiety	67	8.7	225	8.4	
Moderate anxiety	130	16.9	485	18.2	
Severe anxiety	73	9.5	213	8.0	
Extreme anxiety	105	13.6	717	26.9	
Depression					
No depression	388	50.3	1262	47.3	< .001
Mild depression	108	14.0	282	10.6	
Moderate depression	130	16.9	519	19.5	
Severe depression	71	9.2	242	9.1	
Extreme depression	74	9.6	362	13.6	
Emotional dysregulation					
Low dysregulation	239	31.0	652	24.4	< .001
Moderate dysregulation	396	51.4	1284	48.1	
High dysregulation	136	17.6	731	27.4	
Hopelessness					
No hopelessness	184	23.9	822	30.8	< .001
Low hopelessness	314	40.7	1078	40.4	
Moderate hopelessness	213	27.6	568	21.3	
High hopelessness	60	7.8	199	7.5	

Table 3 shows that sex, hopelessness, depression, anxiety, stress, and drug use influence suicide attempts. One unexpected result was that in this sample, self-efficacy was not a protective factor. The same was true of marital status and region, because of which these variables were excluded from the final model.

The best-fit logistic regression model (Table 3) shows that the variables with the greatest effect on suicide attempts were drug use (95% CI, OR 1.897 LI 1.619 – LS 2.222), sex (95% CI, OR 1,756 LI 1,374 – LS 2,244), anxiety (95% CI, OR 1,218 LI 1,121 – LS 1,323), hopelessness (95% CI, OR 1,209 LI 1,070 – LS 1,365), depression (95% CI, OR 1,756 LI 1,180 – LS 1,298) and stress (95% CI, OR 1.050 LI .950 – LS 1.161). The variables with the lowest effect were age

and self-efficacy, which were not eliminated from the model because the goodness of fit decreased. This model explains 17.2% of the variability of suicide attempts.

DISCUSSION AND CONCLUSION

The objective of the study was to determine the effect of hopelessness, depression, anxiety, stress, drug use, and self-efficacy on suicide attempts in Mexican psychology students. This objective assumed that during lockdown and social isolation, mental health problems, particularly depression, anxiety, and suicide risk, increased (Winkler et al., 2020). In this study, there was no benchmark to be able

Table 2
Prevalence of drug use, stress, anxiety, depression, and emotional dysregulation by CNEIP region

	Central West		Northeast		South-Central		Northwest		South Southeast		Metropolitan		p value
	N	%	N	%	N	%	N	%	N	%	N	%	
Drug use													
Did not report use	448	63.0	267	60.5	100	71.9	539	61.8	667	66.6	165	60.9	.064
Low drug use	245	34.5	170	38.5	39	28.1	319	36.6	319	31.8	97	25.8	
Moderate drug use	13	1.8	4	.9	0	.0	12	1.4	13	1.3	9	3.3	
Substantial drug use	3	0.4	0	.0	0	.0	1	.1	3	.3	0	.0	
Heavy drug use	2	0.3	0	.0	0	.0	1	.1	0	.0	0	.0	
Stress													
No stress	350	49.2	227	51.5	87	62.6	422	48.4	474	47.3	110	40.3	.022
Mild stress	83	11.7	43	9.8	12	8.6	97	11.1	118	11.8	33	12.1	
Moderate stress	113	15.9	80	18.1	17	12.2	130	14.9	178	17.8	52	19.0	
Severe stress	103	14.5	65	14.7	14	10.1	147	16.9	158	15.8	60	22.0	
Extreme stress	62	8.7	26	5.9	9	6.5	76	8.7	74	7.4	18	6.6	
Anxiety													
No anxiety	285	40.1	195	44.2	77	55.4	324	37.2	444	44.3	98	35.9	.004
Mild anxiety	69	9.7	33	7.5	10	7.2	71	8.1	82	8.2	27	9.9	
Moderate anxiety	139	19.5	83	18.8	19	13.7	160	18.3	170	17.0	44	16.1	
Severe anxiety	52	7.3	29	6.6	6	4.3	78	8.9	89	8.9	32	11.7	
Extreme anxiety	166	23.3	101	22.9	27	19.4	239	27.4	217	21.7	72	26.4	
Depression													
No depression	349	49.1	230	52.2	88	63.3	386	44.3	482	48.1	115	42.1	< .001
Mild depression	85	12.0	37	8.4	14	10.1	89	10.2	122	12.2	43	15.8	
Moderate depression	129	18.1	82	18.6	18	12.9	198	22.7	176	17.6	46	16.8	
Severe depression	69	9.7	43	9.8	5	3.6	77	8.8	92	9.2	27	9.9	
Extreme depression	79	11.1	49	11.1	14	10.1	122	14.0	130	13.0	42	15.4	
Emotional dysregulation													
Low dysregulation	184	25.9	130	29.5	50	36.0	198	22.7	275	27.4	54	19.8	< .001
Moderate dysregulation	359	50.5	206	46.7	70	50.4	429	49.2	488	48.7	128	46.9	
High dysregulation	168	23.6	105	23.8	19	13.7	245	28.1	239	23.9	91	33.3	

Note: p-value was obtained using Chi square.

Table 3
 Logistic regression model for sex, age, hopelessness, depression, anxiety, stress, self-efficacy, and drug use with respect to suicide attempts

	B	Standard error	Wald	df	Sig.	OR	95% CI	
							Lower	Higher
Sex	.563	.125	20.223	1	< .001	1.756	1.374	2.244
Age	-.053	.021	6.318	1	.012	.948	.910	.988
Hopelessness	.190	.062	9.321	1	.002	1.209	1.070	1.365
Depression	.166	.049	11.506	1	.001	1.180	1.072	1.298
Anxiety	.197	.042	21.825	1	< .000	1.218	1.121	1.323
Stress	.049	.051	.924	1	.336	1.050	.950	1.161
Self-efficacy	-.110	.070	2.473	1	.116	.896	.782	1.027
Drug use	.640	.081	62.892	1	< .001	1.897	1.619	2.222
Constant	-3.193	.552	33.490	1	< .001	.041		

Note: OR = odds ratio; CI = confidence interval at 95%; Hosmer-Lemeshow: X^2 16.5 and $p = .036$. R^2 of Cox & Snell.108 R^2 of Nagelkerke .172.

to calculate the increase or decrease in mental health problems in psychology students. Nevertheless, high levels of emotional dysregulation, anxiety, depression, stress, hopelessness, and low self-efficacy were found.

A total of 74.1% reported medium to high emotional dysregulation, which could be a risk factor for suicide attempts, anxiety, depression, stress, and hopelessness (Landa-Blanco et al., 2022; García et al., 2021; Rábago et al., 2019). It is therefore essential to consider emotional dysregulation when designing interventions to reduce suicide risk since these factors have been found to directly influence suicide attempts. The research results are consistent with others reporting a high prevalence of anxiety, depression, stress, and hopelessness (Carbonell et al., 2019; García et al., 2021; Landa-Blanco et al., 2022; Rábago et al., 2019; Santana Campas et al., 2022).

The results of this research showed that sex influences the development of mental health problems such as stress, anxiety, depression, drug use, and emotional dysregulation, which are more common in women than in men (only in hopelessness did men show higher values). Although López (2018) and García et al. (2021) found no differences in the analysis of prevalence by sex, other researcher has found differences between men and women (Abdu et al., 2020; Benjet et al., 2019; Marraccini et al., 2019; Miranda-Mendizabal et al., 2019; Santana Campas et al., 2022; Quarshie et al., 2022), consistent with the findings of this study. Although these differences between the sexes had already been identified prior to COVID-19 and attributed, among other factors, to sociocultural issues, they may have been accentuated during the pandemic. It would be worth inquiring about the specific repercussions of lockdown on women.

Some research has reported that self-efficacy is a protective factor against suicide risk (Ceballos-Ospino et al., 2015; Domínguez-Mercado et al., 2016; Gómez-Acosta,

2018; Gómez Tabares et al., 2020; Palacios Jimenez, 2018). An unexpected result of this research was that it did not prove to be a protective factor, even though only 32.9% of the respondents presented low self-efficacy. Of the participants who mentioned previous suicide attempts, 47.1% scored low on self-efficacy and 16.1% high, which is significant. Likewise, stress proved not to be a significant risk factor for suicide attempts.

The results show that in the woman the risk of attempting suicide increases by a factor of up to 2,244, drug use increases it by up to 2,222, followed by hopelessness (which increases the risk of suicide attempts 1,365-fold), anxiety (which increases the risk of attempting suicide by a factor of 1,323), and depression (which increases the risk of suicide attempts by a factor of 1,298). Although a higher prevalence of anxiety, stress, and emotional dysregulation was found in the metropolitan region (State of Mexico and Mexico City), it was not very different from the prevalence observed in the remaining regions. Mental health problems in psychology students in Mexico can therefore be considered as similar across the country regardless of the area or cultural and social factors.

One of the limitations of the study is the non-probabilistic sample affecting the generalizability of results and the fact that the questionnaire was administered electronically, making it impossible to resolve doubts or questions from the participants. Contextual factors such as the emotional effects of the pandemic could have biased the results obtained. In addition, other contextual variables in Mexico that may influence suicidal behavior, such as violence, financial difficulties, or the use of social networks by young people, were not considered and would be relevant in future studies. Higher Education Institutions should support mental health programs for students in general, particularly those enrolled in health areas, including psychology. In addition to need-

ing support, these students will one day be responsible for providing mental health care for society.

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Conflict of interest

The authors declare they have no conflicts of interest.

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