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Incidence of depression and anxiety in the general population of Mexico

Incidencia de depresión y ansiedad en la población general de México

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Abstract


Depression and anxiety are mental health disorders on the rise that affect 5% of the world's population, this was aggravated by the SARS COV 2 pandemic. These disorders are multifactorial, having several factors such as biological, genetic, environmental, and psychological factors that influence their development. Treatment includes cognitive behavioral therapy and antidepressants. Estimate the incidence of depression and anxiety in the general Mexican population. Provide information on the characteristics of the population studied. Methods: An observational cross-sectional study was carried out that included 2010 participants in Mexico, using surveys, the Calderón Narváez tool for the diagnosis of anxiety and depression. Surveys were conducted from April to August 2023 using online survey services and in 3 private offices in Guanajuato, Querétaro and Sinaloa. Inclusion criteria were being Mexican, being between 15 and 85 years old, and knowing how to read and write. The data collected was analyzed with IBM SPSS software. 61.9% of the population sample had a diagnosis of anxiety or some degree of depression. Self-harm in women is more common in the legs and in men in the arms. Marijuana use is associated with moderate depression, and alcohol, methamphetamine, or tobacco use was related to anxiety. This study highlights the high incidence of depression and anxiety in the Mexican population, there are differences in self-harming behaviors between both sexes, drug addictions are relevant to developing a mental disorder. These disorders are underdiagnosed.

Keywords: incidence, depression, anxiety, epidemiology, general population

Resumen

La depresión y ansiedad son trastornos de salud mental al alza y que afectan al 5% de la población mundial, esto se agravó por la pandemia de SARS COV 2. Estos trastornos son multifactoriales, al tener varios factores como biológicos, genéticos, ambientales y psicológicos que influyen en su desarrollo. El tratamiento incluye terapia cognitivo conductual y antidepresivos. El objetivo de la presente investigación es estimar la incidencia de depresión y ansiedad en la población general mexicana. Proporcionar información sobre las características de la población estudiada. Se realizó un estudio transversal observacional que incluyó 2010 participantes en México, utilizando encuestas, herramienta Calderón Narváez para diagnóstico de ansiedad y depresión. Las encuestas se llevaron a cabo de abril a agosto de 2023 empleando servicios de encuestas online y en 3 consultorios privados en Guanajuato, Querétaro y Sinaloa. Los criterios de inclusión fueron ser mexicano, tener entre 15 a 85 años cumplidos, saber leer y escribir. Los datos recabados fueron analizados con el software IBM SPSS. El 61.9% de la muestra poblacional presentó diagnóstico de ansiedad o algún grado de depresión. Las autolesiones en el sexo femenino son más comunes en piernas y en hombres en brazos. El consumo de marihuana está asociado con depresión moderada, y el consumo de alcohol, metanfetaminas o tabaco se relaciona con ansiedad. Este estudio resalta la alta incidencia de depresión y ansiedad en la población mexicana, existen diferencias en comportamientos autolesivos entre ambos sexos, las toxicomanías tienen relevancia para desarrollar algún trastorno mental. Estos trastornos están infradiagnosticados.

Palabras clave: incidencia, depresión, ansiedad, epidemiología, población general

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INTRODUCTION

Depression is a disease that according to WHO estimates affects 5% of the world's population which is approximately 280 million people and it is estimated that 700,000 suicides occur each year worldwide, while in Mexico the population affected by depression is 10%, which is the same as 12,601,402 inhabitants and the figure concerning suicides is 8432. This pathology is on the rise, because every year these numbers are increasing both in global and national terms, as well as the increase in the sale of antidepressants and anxiolytics both nationally and globally.

Depression and anxiety not only affect the health of individuals, but also have repercussions on social dynamics in terms of economic productivity, since according to WHO projections, the world economy loses 1 trillion dollars a year, between direct costs for medical care and indirect costs generated by a decrease in work capacity and incapacity, on the other hand, the SARS COV-2 pandemic worldwide increased the incidence of depression due to social isolation and constant stress caused by the fear of contagion, since the prevalence of anxiety and depression doubled with respect to the pre-pandemic period, this situation occurred in Mexico, United States of America and United Kingdom.

The Mexican states with the highest incidence of suicide, from highest to lowest, are (Percentage of deaths registered by suicide with respect to the total number of violent deaths): Yucatan 35.3%, Aguascalientes 24.2%, Campeche 21.8%, Coahuila 21.5% and Queretaro 20.4%. Querétaro 20.4%.

This disease is an affective disorder that affects the patient causing him/her to lose interest and the capacity to enjoy together with a detriment in vitality due to insecurity, tiredness and sadness, which frequently causes them to experience feelings of guilt and a rather desolate projection of the future. Insecurity, tiredness and sadness, which causes them to frequently experience feelings of guilt and a rather desolate projection of the future. It is also frequent that they develop alterations in their sleeping habits, decreased appetite and libido.

It is a multifactorial disease, some of the risk factors for developing it are:

Genetics: History of depression in direct relatives. About 44 genes have been detected that are directly related to this disease.

Biology: levels of hormones and neurotransmitters such as noradrenaline (excitatory activity), serotonin and dopamine (related to feelings of pleasure, tranquility and well-being)

Environmental: Socioeconomic level, unemployment, family interactions, daily life events.

Psychological: Low self-esteem, traumatic experiences.

Age: The higher the age, the higher the incidence.}

Gender: Some studies suggest that the female sex is more susceptible to depression. On the other hand, the female sex also has a higher incidence of suicide attempts, but with a lower fatality rate compared to its male counterpart.

The treatment for depression has as its goal the total remission of symptoms and the functional restoration of the patient, its treatment in the case of mild to moderate depression consists of:

Psychotherapeutic: Such as cognitive-behavioral therapy (CBT) whose function is to change the patient's thinking and behavior patterns in order to develop skills that are useful for coping with problems and improving interpersonal relationships.

Antidepressants: Selective Serotonin Reuptake Inhibitors (SSRIs) being the first choice, clinical practice guidelines suggest the use of Sertraline or Citalopram in those cases of patients with other non-

psychiatric pathologies and with the use of other drugs. In certain cases, selective serotonin and norepinephrine reuptake inhibitors (SNRIs) or tricyclic antidepressants (TCAs) may be used.

Treatment for severe or treatment-resistant depression may consist of the above plus:

- Electroconvulsive therapy (ECT): Consists of applying an electric current to the brain under general anesthesia.

The American Psychiatric Association defines anxiety as a normal feeling that human beings experience in situations of stress or danger; however, it ceases to be normal when it is experienced for a prolonged period of time, is overwhelming or exaggerated in relation to the situation that generates it or interferes in the daily life of the person experiencing it, in which case it is considered an anxiety disorder.

According to the WHO, there are about 280 million people worldwide who suffer from an anxiety disorder. The lack of adequate and timely medical attention allows the evolution of these pathologies until they become chronic and generate a social limitation to the person suffering from any of these diseases.

The objectives of this research are:

- To study the incidence of anxiety and depression in the Mexican population.
- To ascertain substance use behavior in relation to diagnoses of anxiety and depression.
- To provide relevant information on the characteristics of the population studied.

METHODOLOGY

A cross-sectional, descriptive observational study design was used. The population sample was calculated using the formula for finite population considering the population figure provided by INEGI in the last census and it was decided to exceed the population sample by 5 times. A total of 2010 people were surveyed throughout the Mexican Republic, of which 1012 (50.3%) were women and 998 (49.7%) were men, with a mean age of 29.71.

Random surveys were carried out using the services of a nationwide online platform and surveying patients in private general medical practice in the states of Guanajuato, Querétaro and Sinaloa, the data collection time was from April to August 2023.

The Calderón-Narváez diagnostic tool for depression and anxiety was used to make 4 diagnoses (normal, anxiety reaction, moderate depression, severe depression) using Likert-type items, and variables such as sex (male, female) were also added, age in years at the time of the survey, history of diagnosis of anxiety or depression (yes, no), consumption of anxiolytic or antidepressant drugs (yes, no), marital status (single, married, free union), separated, divorced and widowed were considered as single, maximum schooling completed (primary, secondary, high school, bachelor's degree or higher), diseases (none, diabetes mellitus type 1 or 2, gastritis or gastroesophageal reflux disease, cancer, systemic arterial hypertension, other), consumption of illicit substances (none, marijuana, cocaine, methamphetamines, heroin, inhalants), consumption of illicit substances (none, marijuana, cocaine, methamphetamines, heroin, inhalants), consumption of illicit substances (no, marijuana, cocaine, methamphetamines, heroin, inhalants), alcohol and tobacco consumption, history of self-injury (yes, no), type of injury (none, cuts, blows, burns, scratches, toxic substances), as well as topographic location on the body where the injuries were inflicted (none, legs, arms, back, chest, abdomen, face, neck).

The following were considered as inclusion criteria: Being Mexican, being 15 to 85 years old at the time of the survey, being able to read and write.

The exclusion criteria are: Being younger than 15 years old, being older than 85 years old, having a diagnosis of depression or anxiety, being with cognitive difficulties that prevent the understanding of the survey items, being under medical treatment with anxiolytics or antidepressants, not being able to read and write, not completing the survey.

The information obtained was dumped and analyzed in the IBM SPSS statistical analysis software, contingency tables, chi2 and considering an $\alpha = .05$ were used.

RESULTS AND DISCUSSION

Analysis of the database showed that, of the 2010 respondents, 766 individuals (38.1%) were healthy, 653 (32.5%) qualified with generalized anxiety reaction, 538 (26.8%) were found to be moderately depressed and 53 (2.6%) were found to be severely depressed (Graph 1). The characteristics of the population sample are shown in Table 1.

It was found with respect to self-injury, that 1926 (95.8%) individuals have not performed any type of injury to themselves, while 84 (4.2%) indicated that they did or continue to do so, of the latter, 44 (2.2%) opted for cuts, 18 (.9%) blows, 14 (.7%) burns, 7 (.3%) scratches and 1 (.1%) opted for the use of toxic substances.

Regarding the anatomical region in which the lesions were performed, it was found that 37 (1.8%) were on the arms, 29 (1.4%) on the legs, 7 (.3%) on the back, 5 (.248%) on the face, 4 (.199%) on the abdomen, 1 (.049%) on the chest and 1 (.049%) on the neck.

Table 1

Population characteristics

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Population characteristics.

	Features	%
Gender	Male	49.5%
	Female	50.5%
Marital status	Single	41%
	Married	54.4%
	Free union	4.6%
Schooling	Elementary school	9.3%
	Middle school	40%
	High school	27.5%
	College or superior	23.1%
Diseases	None	52.1%
	Diabetes	17%
	Gastritis or GERD	4.4%
	Cancer	1.9%
	HAS	13.1%
	Other	11.5%
Substances	None	36.7%
	Marihuana	19%
	Cocaine	0.6%
	Methamphetamine	1.2%
	Heroin	0%
	Inhalants	0.2%
Age	Tobacco	12%
	Alcohol	30.1%
	<u>29±9</u>	

Three contingency tables were made and a Chi2 test was performed; one for the variables sex and place of injury (Table 2) with a value of $p < .001$ and $gl=7$; another table for the variables diagnosis and sex (Table 3) with a value of $p = .001$ and $gl=3$; and one for the variables substances and diagnosis (Table 4) with a $p < .001$ and $gl=21$.

The data from the population sample show a similarity with respect to the data reported by INEGI in the case of the mean age of the population, which coincided exactly; on the other hand, sex, schooling and nuptiality show a remarkable similarity. This suggests that the population sample used for this research is representative of the general Mexican population.

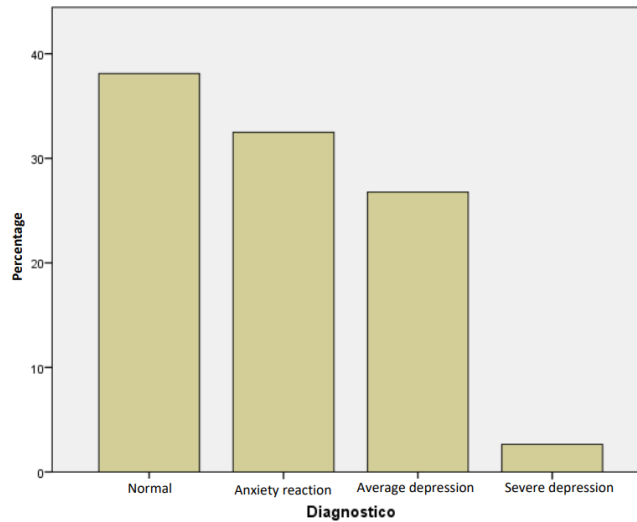
The 61.9% of the population sample presented some diagnosis of anxiety reaction, medium depression, or severe depression, being a minority of healthy individuals, which highlights that in general medical practice these mental health pathologies are highly underdiagnosed.

Graphic 1

Distribution of diagnoses in the population

Graphic 1

Distribution of diagnoses in the population



According to the Substance Abuse and Mental Health Services Administration (SAMHSA) the practice of self-injury is seen more frequently in the female sex, but there is no relevant information in this or any other source that mentions the anatomical locations where self-injury is preferred according to sex. In this research we found that the preferred site for self-injury in the female sex is the legs, while in the male sex it is the arms. This pattern may complicate the detection of lesions in the female sex because it occurs in areas that are covered by clothing and that are rarely explored routinely in the first level medical consultation, In addition, the lesions are usually out of sight of family members who could notice the lesions and therefore seek professional help in a timely manner, in addition to this, the underdiagnosis in these pathologies makes us think that anxiety and depression affects a much larger number of people but with emphasis on the female sex.

Table 2

Contingency table for sex and place of injury variables

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Contingency table for sex and place of injury variables.

	Gender		Total
	Male	Female	
None	952	975	1926
Legs	2	27	29
Arms	29	8	37
Back	6	1	7
Chest	1	0	1
Abdomen	1	3	4
Face	3	1	5
Neck	0	1	1
Total	994	1016	2010

Table 3

Contingency table for sex and diagnosis variables

Table 3

Contingency table for sex and diagnosis variables.

	Gender		Total
	Male	Female	
Normal	379	387	766
Anxiety reaction	284	369	653
Medium depression	305	233	538
Severe depression	26	27	53
Total	994	1016	2010

Table 4

Contingency table for diagnostic variables and substances

Table 4

Contingency table for diagnostic variables and substances.

		Diagnosis				Total
		Normal	Anxiety reaction	Medium depression	Severe depression	
Substance use	None	469	147	115	7	738
	Marihuana	19	24	304	35	382
	Cocaine	0	3	7	2	12
	Methamphetamine	2	16	7	0	25
	Heroin	0	0	1	0	1
	Inhalants	0	3	2	0	5
	Tobacco	38	186	16	1	241
	Alcohol	238	274	86	8	606
	Total	766	653	538	53	2010

Regarding diagnosis and sex, we find that the anxiety reaction mainly affects the female sex, according to Arenas and Puigcerver (2023), in their study "Differences between men and women in anxiety disorders: A psychobiological approach". It indicates that the female sex has 2 to 3 times more risk of suffering from anxiety with respect to the male sex, being due to hormonal physiological changes. As for medium depression, it affects the male sex more. Severe depression did not show a significant preference between one sex and the other.

In this research, relevant data were found regarding the consumption of marijuana with the diagnosis of medium depression, this is confirmed according to Torres and Fiestas (2023), in their study "Effects of marijuana on cognition: A review from the neurobiological perspective" it has been shown that with the consumption of marijuana can develop depression, and according to Volkow (2005), in his report "Abuse of marijuana" indicates that after the consumption of marijuana can be experienced euphoria that will disappear to become sleepy or depression, although sometimes you can get to experience anxiety or panic. Other information we obtained is that there are more marijuana users than tobacco users in our population sample.

CONCLUSION

The 3 most consumed substances in this population sample, from highest to lowest are: Alcohol, marijuana, and tobacco. However, the underlying reasons for this pattern of substance use preference are unclear and were not addressed in this research.

The consumption of alcohol, methamphetamine or tobacco was related to the diagnosis of anxiety reaction. Although alcohol is a central nervous system depressant during the intoxication effect, its suppression can generate anxiety, which is more frequently seen in those individuals with chronic consumption. In the case of methamphetamine, it is a central nervous system stimulant, which means that the person who consumes it generates feelings of euphoria and physical energy; however, with its suppression, anxiety is manifested due to changes in the levels of neurotransmitters. For tobacco, this generates anxiety in the suppression of nicotine concentration in the brain receptors, generating an impulse of anxiety to consume tobacco again.

Anxiety and depression are an alarming public health problem in the Mexican population and in the world, given that there is an upward trend. Therefore, medical personnel should have the necessary

skills and tools to be able to offer the pertinent approaches for the diagnosis and follow-up of patients with these mental pathologies from the first level of care and, if necessary, refer them to the second level to avoid complications, in addition to promoting multidisciplinary treatment.

The population sample used in this research is representative of the Mexican population since it showed similarities to the data reported for characteristics related to mean age, sex, nuptiality and schooling.

Anxiety affects mostly the female sex, but moderate depression affects mostly the male sex, being indifferent for diagnosis of normal and severe depression.

Self-injuries practiced in male individuals predominate in the upper extremities, while in female individuals they are in the lower extremities, so that in female patients part of the physical examination with suspected or diagnosed depression or anxiety should include these regions, as they usually go unnoticed because they are usually covered by clothing.

The use of illegal substances, alcohol and tobacco are risk factors for developing some degree of anxiety or depression, since marijuana users tend to present medium depression, while alcohol, tobacco or methamphetamine users present anxiety reactions. On the other hand, there are more marijuana users than tobacco users; further research is needed to study the underlying reasons that explain the cause of this behavior in the Mexican population.

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