

Prevalence of Depression in the Elderly Population from a Public Primary Care Unit in Michoacán

Prevalencia de depresión en adultos mayores en una unidad de medicina familiar de Michoacán

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Abstract

Objective: Determine the prevalence of depression in the elderly population in a primary care facility (Unidad de Medicina Familiar [UMF]) in Michoacán, Mexico and its association with gender, education, and age. **Methods:** A cross-sectional analytical study was performed. Elderly participants of 60 to 84 years of age from the UMF No. 5 of Sahuayo, Michoacán, completed the Yesavage test from March 2019 to June 2019. Gender, education, and age were considered as associated factors. The χ^2 test was used to identify the differences in proportions between the associated factors and Spearman's r to determine correlation. **Results:** 117 elderly patients were included. The prevalence of depression was 40.17%. The prevalence of depression was not different between genders (female: 53.85% and male: 46.15, $p = 0.79\%$), education levels (elementary: 82.91%, secondary: 11.97%, high school: 3.42% and college: 1.71%, $p = 0.57$), or ages ($p > 0.05$). The correlation analysis did not show an association between any of the variables. **Conclusions:** The prevalence of depression in the elderly population was higher than that reported in other groups; however, as previously reported, in the sample studied, associations with gender, education and age were not observed. Depression in the elderly is an underdiagnosed pathology that does not manifest a determining trait. Hence, primary care physicians should perform an intentional search.

Keywords: Elderly; Depression; Geriatric Assessment

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Resumen

Objetivo: determinar la prevalencia de depresión en adultos mayores en una Unidad de Medicina Familiar (UMF) de Michoacán, México y su asociación con el género, la escolaridad y la edad. **Métodos:** estudio transversal analítico. Participaron adultos mayores de 60 a 84 años de edad en la UMF No. 5 de Sahuayo, Michoacán, de marzo a junio de 2019, se utilizó el test de Yesavage. El género, el grado de escolaridad y la edad fueron consideradas como factores asociados. Se utilizó la prueba de χ^2 para identificar las diferencias de proporciones entre los factores asociados y *r* de Spearman para determinar correlación. **Resultados:** se incluyó a 117 adultos mayores. La prevalencia de depresión en la muestra fue de 40.17 %. No se observaron diferencias en la proporción por género (femenino: 53.85 % y masculino: 46.15, $p=0.79\%$), en el grado de escolaridad (primaria: 82.91 %, secundaria: 11.97 %, preparatoria: 3.42 % y licenciatura: 1.71 %, $p=0.57$), o en la edad ($p>0.05$). El análisis de correlación no mostró asociación entre ninguna de las variables. **Conclusiones:** la prevalencia de depresión en adultos mayores fue mayor a la reportada en otros grupos; no obstante, en la muestra estudiada no se observaron las asociaciones con el género, la escolaridad y la edad, aspectos que se han reportado previamente. La depresión en los adultos mayores es una patología que se encuentra subdiagnosticada y no manifiesta un rasgo determinante, por lo que el médico de primer nivel deberá realizar una búsqueda intencionada.

Palabras clave: adulto mayor, depresión, evaluación geriátrica

Introduction

Demographic transformations in Mexico during the mid-twentieth century caused a marked change in the population pyramid, especially in the structure of age groups and consequently of the older adult population.¹ In 2017, the United Nations (UN) in collaboration with the World Health Organization (WHO), defined an elderly individual as “a person over 60 years of age”.^{2,3} According to the WHO “between 2015 and 2050, the proportion of the world population with greater than 60 years of age will grow from 900 million to 2000 million, which represents a 12% to 22% increase.”⁴ Within this age group, the WHO has estimated that approximately one in six elderly people were victims of some type of abuse and that about 15% of them suffer from a mental disorder.^{5,6} Depression and dementias represent some of the most prevalent health problems in the elderly population. In Mexico, the National Population Council (CONAPO) reported that in 2017 there existed 12,973,411 people over the age of 60, of which 53.9% were female and 46.1% male.¹ Particularly, the state of Michoacán comprises 4% of the total elderly population of the country, of which 46.75% are men and 53.25% are women (INEGI, 2017). Data from the National Institute for the Elderly indicate that 200,000 elderly people from Michoacán live in poverty with limited health services. Additionally, it has been estimated that at least 40% of this sector of society suffers negligence or presents unfavorable conditions (e.g., disability) during their old age (26.54 and 43.18%, respectively).¹

Depression, previously known as “melancholy”, is a psychopathology that has been linked to the elderly since

ancient Greece, and its prevalence is associated with variables such as lack of social support, functionality, gender, loneliness, low income level, perception of health and stress.^{7,8} The WHO estimated that by 2020 depression would be one of the biggest health problems in the world, reaching 12% of cases globally.^{9,10} In general terms, the prevalence of depression in the elderly living within the community is 10%, while for those living in nursing homes it increases up to 15% to 35%.¹¹ The clinical manifestations of depression in the elderly show atypical expressions and unique symptoms such as dejection, sadness, decreased life-satisfaction, loss of interest, crying, irritability, low self-esteem, pessimism, rumination of problems, suicidal thoughts, anorexia, insomnia, etc.¹²

Although the prevalence of depression in the elderly has been studied previously; the evidence remains contradictory. In Mexico, the National Survey of Health and Aging (ENASEM 2018) indicated that 59% of the elderly surveys presented depression;¹³ In opposition, data from the National Survey of Health and Nutrition (Ensanut) utilizing the Depression Scale of the Center for Epidemiological Studies (CES-D), showed that only 17.6% of elderly presented depressive symptoms.¹⁴ These discrepancies could be due to methodological differences depending on the type of test used. Unlike the ENASEM scale and the CES-D, the Yesavage geriatric depression scale, or Yesavage test, is an instrument specifically designed for the study of depression in the elderly that has a high degree of reliability.^{15,16} Previous studies utilizing the Yesavage test showed that the prevalence of depression in the elderly that live in poverty and depend on a social welfare program in Ciudad Juárez was 45.48%;¹⁷

however, the prevalence of this disease in non-vulnerable populations with a low marginalization index has never been studied. The city of Sahuayo, Michoacán has a total population of 5,449 elderly people (INEGI, 2017) and has been classified with a low marginalization index (CONAPO 2018). Therefore, the aim of our study was to determine the prevalence of depression in older adults in the Family Medicine Unit No. 5 of Sahuayo, Michoacán, of the Mexican Social Security Institute (IMSS) and its association with related factors such as gender, education, and age.

Methods

A cross-sectional and analytical study was performed. 117 participants were recruited during the period between March 2019 and June 2019 from the Family Medicine Unit No. 5 of Sahuayo, Michoacán, a public primary care center part of the Mexican Social Security Institute (IMSS) located in an urban population with a low marginalization index. The participants were identified with the help of the health care staff and were informed about the aim of the study and the possible benefits or risks. The participants were women and men, with an age ranging from 60 to 84 years, with no previous diagnosis of psychiatric or neurological pathologies. After obtaining the informed consent, the information on the associated factors (age, gender, and education) was collected by a trained examiner and the Yesavage Depression Test was provided. The procedures were carried out in accordance with international ethical standards, the General Law of Health in the Field of Health Research and the Declaration of Helsinki of 1975 and its updates (Fortaleza, Brazil, 2013). The study was approved by the local

Ethics Committee No. 1602, Morelia, Michoacán of the Mexican Social Security Institute (R-2018-1602-043), and adheres to the guidelines for reporting observational studies (Report of Strengthening of Observational Studies in Epidemiology, STROBE).

The population census for the primary care unit indicated a population of 2,676 elderly patients aged 60 to 84 years. The sample size was estimated utilizing the formula for calculating finite populations with a confidence level of 95% and a tolerated error of 0.5%, resulting in an $n=117$. Participants who did not meet the age range criteria, had a previous diagnosis of mental disorders, or were undergoing treatment for these and/or did not agree to participate were excluded. Participants who presented an incomplete Yesavage test were excluded. Those who decided not to continue participating or who had a hearing disability were also excluded. Depression was considered as the dependent variable. Age, gender and level of education were considered as the associated factors. The Yesavage Depression Test (Cronbach's alpha of 0.8) was applied, considering the following score: normal = 0 to 5 points, mild depression = 6 to 11 points, severe depression = 11 to 15 points (15,16).

The numerical variables were expressed as median \pm IQR. The Kolmogorov-Smirnov normality test was used to determine the normality of the data. Numerical scores in the Yesavage test were classified according to gender, education level and age. The comparison of the frequency of depression in the different associated factors was carried out using the non-parametric Kruskal-Wallis test. Mann Whitney U was used to determine if there were differences in the Yesavage test score between the as-

sociated factors. Spearman's correlation test was used to determine the correlation between the numerical variables. Data were analyzed in the SPSS version 23 statistical package. Differences were considered significant at $p < 0.05$.

Results

Median age for the sample was 71 years with a IQR of 65 to 75 and the gender distribution was 63 female (53.85%) and 54 males (46.15%). The educational level was predominantly low; we observed that 97 participants reported elementary education (82.91%), fourteen reported secondary education (11.97%), four reported a high school degree (3.42%), and two had college education (1.71%). No gender differences were observed in any of the variables [Age: U de Mann Whitney: 1479, $p=0.22$; Education $\chi^2(3, N=117)=2.2$, $p=0.53$]. The Yesavage test reported a reliability of 0.83. Our results indicate a depression prevalence of 40.17% (47 participants), while 59.83% showed no depression. Depression prevalence expressed in categories is shown in Figure 1.

When analyzing depression distribution depending of the participant's gender, we observed that thirty female participants (63.17%) and 17 male participants (36.17%) reported a ≥ 6 score in the Yesavage test; nevertheless, statistical analysis failed to confirm a significant difference $\chi^2(1, N=117)=3.1$, $p=0.056$. No differences were observed between genders in the depression scale score (female: 5, RIQ 2.5 to 8; male: 3, RIQ 2 to 6; U de Mann Whitney: 1380, $p=0.061$). We further evaluated the relationship between education and depression. The data indicated that depression frequency was higher in participants with elementary education level than the rest of the

Figure 1. Depression prevalence

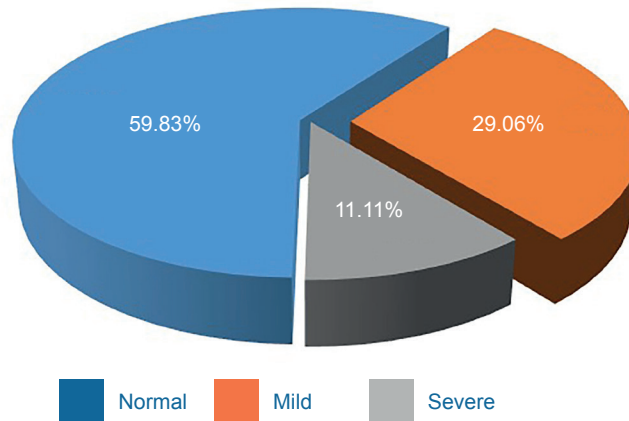


Figure 1. Prevalence (percentage) of mild (orange) or severe (grey) depression, and for normal mood (blue), in the elderly population of a primary care unit with a low marginalization index.

Table 1. Prevalence (percentage) of mild or severe depression and normal mode classified by gender, education level and age range in the elderly population of a primary care unit with a low marginalization index

	Normal mood N (%)	Mild depression N (%)	Severe depression N (%)	Analysis χ^2	P
Gender					
Female	33 (28.21%)	20 (17.09%)	10 (8.55%)	4.39 (df = 2)	0.11
Male	37 (31.62%)	14 (11.97%)	3 (2.56%)		
Education					
Elementary or less	55 (47.01%)	31 (26.5%)	11 (9.4%)	6.47 (df = 6)	0.37
Secondary	11 (9.4%)	2 (1.71%)	1 (0.85%)		
High School	3 (2.56%)	1 (0.85%)	0 (0%)		
College	1 (0.85%)	0 (0%)	1 (0.85%)		
Age					
60 - 64	14 (11.97%)	9 (7.69%)	4 (3.42%)	4.67 (df = 8)	0.79
65 - 69	16 (13.68%)	9 (7.69%)	1 (0.85%)		
70 - 74	19 (16.24%)	8 (6.84%)	5 (4.27%)		
75 - 79	16 (13.68%)	7 (5.98%)	3 (2.56%)		
80 - 85	5 (4.27%)	1 (0.85%)	0 (0%)		

*df: Degrees of Freedom

categories. 42 participants (35.89%) with only elementary education reported a score classified as depression in the Yesavage test; while a score ≥ 6 was only observed in three participants (2.56%) with secondary education and one participant (0.85%) with a high school degree. Depression scores were not observed in participants with college education. However, we did not observe a significant difference in the frequency of depression between the different education levels χ^2 (3, N = 117) = 2.90, $p = 0.40$. Depression distributions considering its category, gender and education level are presented in Table 1. Additionally, there were no statistically significant differences when comparing the Yesavage test score between the different education degrees (elementary or less: 5, RIQ 2 a 7; secondary: 2.5, RIQ 1.25 a 4.75; high school or more: 4, RIQ 1.5 a 6.5; K de Kruskal- Wallis: 2.19 $p = 0.33$).

To study the distribution of depression frequency depending on age, the participants were classified into five-year age categories. Thirteen participants (11.11%) from the age range of 60 to 64, ten participants (8.54%) from the age range of 65 to 69, thirteen participants (11.11%) from the age of 70 to 74, ten participants (8.54%) from 75 to 79 and one participant (0.85%) aged 80 to 85 years, reported depression in the Yesavage test. The χ^2 analysis did not show statistical significance χ^2 (4, N = 117) = 2.1, $p = 0.70$. No significant correlation was observed between age and the Yesavage test score using the Spearman test. The data on the frequency of depression classified by its severity, educational level and age are shown in Table 1. There were no significant differences in the depression scores between

the different ages (60 a 64: 5, RIQ 2 a 9; 65 a 69: 5, RIQ 1 a 6; 70 a 74: 4.5 RIQ 2 a 7.25; 75 a 79: 4 RIQ 3 a 6.75; 80 a 85: 2.5, RIQ 2 a 4.5; K de Kruskal-Wallis: 2.6, $p = 0.62$).

Discussion

One of the greatest public health problems in Mexico is depression of the elderly, which has devastating consequences on the quality of life and occurs differentially based on social, structural, economic, and health factors, as well as predisposing genetic factors.^{18,19} In the present work, we evaluated the prevalence of depression in the elderly and its association with sex, education, and age in a public primary care unit of the IMSS with a low marginalization index using the Yesavage test, and we observed that its prevalence is much higher than that reported in other age groups (4.5% to 4.8% for adults and from 5.9% to 7.2% for children and adolescents).²⁰⁻²² Additionally, in our study population there is no relationship between males and females, level of education, and age with the prevalence of depression.

The prevalence of depression in the elderly population has been previously studied, however, the reports are still contradictory. Previous results using the ENASEM from 2018 observed that 59% of the elderly population presented depression.¹³ In contrast, the data presented by the Ensanut from 2012, reported a prevalence of 17.6%.¹⁴ On the other hand, the Health, Well-being and Aging survey (SABE), reported a prevalence of depression of 63.3% in Mexico.²³ The prevalence of depression observed in this study is higher than the reported in the Ensanut survey but is lower than the observed in the ENASEM

and SABE studies. These discrepancies may be caused by a change in social conditions that predict for depression in the elderly as the studies were performed (2011-2012), variations between the instruments used in the studies, or differences in the social structures of each region. In this regard, a study conducted by Zavala-González and Domínguez-Sosa utilizing the Yesavage test in a primary care unit from an urban location in the town of Cárdenas, Tabasco, Mexico during the period between January 2008 and June 2008, showed a prevalence of depression in older adults of 53%.²⁴ In addition, Saavedra-González and colleague. Utilized the same test in participants over 60 years of age that were seeking medical care from a primary care unit in a location with a low marginalization index (UMF No. 4, Guayalejo, Tamaulipas, México), as the one evaluated in the present study, during 2013, and reported a lower prevalence of depression than the one observed here (27.7%).²⁵ Peña-Marcial and Bernal-Mendoza used the Yesavage test in an elderly population from a nursing home that included both residents and day care participants as well as an open population in an urban setting of Guerrero during the time period comprised between September 2017 and July 2018 and their results indicated a 97% prevalence of depression in the elderly.²⁶ Taken together, the evidence indicates that the increase in depression observed in the elderly population when compared to previous studies is not related to a rise in the prevalence of this disease over time, nor to methodological differences. The evidence highlights the importance of performing studies specifically aimed to consider the contributions of the

different genetic, social, and economic factors across the different regions and populations of our Country.

In general, it is widely accepted that the prevalence of depression in women is greater than in men.^{27,28} In 2010, the global annual prevalence of depression was 5.5% and 3.2%, respectively, which represents an incidence 1.7 times higher in women than their male counterparts.^{29,30} The emotional and economic burden of this difference is more evident when analyzing depression in the elderly.³¹ It has been observed that depression in women has similar rates in countries classified as high-income per capita as in those classified as low- and middle- income countries, which suggests that the differential risk may come mainly from the biological differences associated with sex.³⁰ Although in the present work we observed a trend towards higher depression in females compared to males, this association was not significant. These data are in congruence with those reported in the SABE survey for the state of Michoacán.²³ Taken together, the evidence suggests that the influence of environmental and social factors could be greater than what was considered before and support the hypothesis that the higher depression frequency observed in women does not solely depend on biological factors.^{19,32}

When evaluating education level, we observed that the highest degree of depression was observed in the participants with only elementary education (35.9%). However, in concordance with our observations about gender differences, the association between the education and depression in the elderly was not significant; however, it is important to note that these results

may not be representative due to the low proportion of participants who reported secondary or higher education levels. In concordance with our results, a study utilizing the Yesavage test in an elderly population from the Guadalajara area indicated that although the group with primary-secondary education showed a higher score on the depression scale compared to the group of high school-university, the statistical analysis did not show a significant difference.³³ On the other hand, the depression prevalence observed in the present study was lower than those previously reported in an elderly population living in extreme poverty;¹⁷ this finding indicates that the interaction between educational level and socioeconomic stratum could be an important determinant factor for depression.

When comparing the type of depression between the different age categories, we were able to identify that depression was higher between 60 and 64 years and between 70 and 74 years (22.22%); however, in concordance to our observation in the other variables, no significant association was observed between age and depression. Old age has been proposed to be a risk factor for depression, but the existing data do not uniformly support this hypothesis. The scarcity of studies with samples large enough to represent both the young and the elderly, as well as the lack of control for confounding variables have prevented testing of this hypothesis. In 1991, Blazer et al. observed that there is a significant relationship between depression, age, gender, low income, physical disability, cognitive impairment, and social support. However, they observed that the association between age and depressive symptoms

was reversed when the above variables were controlled simultaneously,³⁴ which suggests that the association between old age and depression depends mainly on these factors. Given that the present study was performed in a primary care unit from a population with a low level of marginalization, it is appropriate to assume that the frequency of social factors that increase vulnerability to depression in the elderly, such as lack of social support or belonging to a family with low income, is lower than in other populations studied.

In the present work, we expected to find a direct association between depression and associated factors that could explain the high prevalence of depression in the elderly; however, this was not the case. This evidence suggests that there are other variables that can trigger the development of this mental illness. We consider that one of the limitations of this study was the fact that variables such as socioeconomic status, disability, dependency, or lack of family support were not included; therefore, further follow-up studies should be done to include the effect of these variables.

Conclusions

The present study showed a prevalence of depression of 40.17%, within which we observed that 29.06% of the participants reported mild depression and 11.11%, reported severe depression. In the population studied, depression in the elderly did not show an association with gender, level of education, or depression. The high prevalence of depression observed in the elderly suggests that this is an underdiagnosed condition, so we propose that there is a need for an intentional search by first-level physicians.

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