Depressive symptoms among poor older adults in Mexico: prevalence and associated factors

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ABSTRACT

Objective.   *To describe the presence of depressive symptoms (DS) and factors associated with them among poor Mexican older male and female adults (OA).*

Methods.   *A survey was conducted among OA enrolled in a governmental poverty relief program (Oportunidades) in Mexico. Participants completed a short version of the Center for Epidemiologic Studies Depression Scale and answered questions about health and life conditions.*

Results.   *The prevalence of DS over the cutoff point was 43% (confidence interval (CI) 39.5–46.4). DS were associated with different variables among male and female participants. For men, difficulties in performing daily life activities were associated with DS over the cutoff point (odds ratio (OR) 2.62, CI 1.58–4.34) and literacy was associated with less DS (OR 0.46, CI 0.31–0.68). For women, difficulties with daily life activities were associated with more DS (OR 2.50, CI 1.57–3.97), and being head of the family was also positively associated (OR 1.81, CI 1.11–2.93).*

Conclusions.   *DS were frequent among this sample of poor OA. The differences between men and women in variables associated with DS highlight the importance of considering the gendered aspects of growing old.*

Key words   Depression, elderly, socioeconomic factors, poverty, gender role, Mexico.

Depression is a common mental health problem among older adults (OA); it is associated with decreased quality of life, difficulties in daily functioning, and increased utilization of health services as well as risk of suicide (1–5). The annual prevalence of depressive disorder ranges from 0.4% to 10.2% in noninstitutionalized OA in developed countries (2, 6). Depressive symptoms (DS), defined as those that do not guarantee a psychiatric diagnosis of depression, occur even more often. DS by themselves constitute an important mental health problem, as they are associated with increased use of health services, disability, and risk of attempted suicide (7).

The estimated prevalence of DS in OA varies widely among studies, a fact that can be explained to some extent by the use of different instruments and methods. In industrialized countries, reported prevalences range from 25% in Spain to 10% to 16% in some other European countries and Canada (6). An analysis that weighted the results of several studies estimated that the prevalence of DS could be around 13.34% (2). The prevalence of DS reported by authors who used the Center for Epidemiologic Studies Depression Scale (CES-D) (8), the instrument used in this work, ranges from 7.2% to 36% (2, 6, 9).

The prevalence of DS could be higher in OA living under adverse conditions.

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Several studies show an association between DS and a disadvantaged social position in adults. This association could be explained by different components of the socioeconomic level such as income, financial difficulties, job, and education (10–12). These factors are also associated with depression in OA (2, 5, 6, 13). A 50% prevalence of DS was found among poor rural OA in Turkey (14). On the other hand, the prevalence of DS in the United States is higher among Hispanic OA than among non-Hispanics; this difference has been attributed to the unfavorable living conditions of Hispanic groups (15).

In addition to the above-mentioned components of social position, different circumstances of OA's living conditions are also associated with DS. In most studies, being married has been associated with a lower probability of suffering from depression, while widowhood as well as the lack of social contact and the fact of living alone increase the probability. The association of DS with marital status and social networks seems to differ in men and women (1, 5, 6, 13, 14, 16–18).

Physical health status constitutes another issue tightly linked to DS in OA. Chronic illnesses and difficulties in performing daily activities are associated with both emergence and persistence of DS (1, 3, 6, 14, 18).

In Mexico, the experience of aging is framed in a context of poverty, considerable income inequality, scarce institutional development, and persistent social inequity. According to data from the Economic Commission for Latin America and the Caribbean (19), 40% or more of Mexican OA live in poverty. In rural areas, the proportion is as high as 50%. Economic difficulties worsen the problems associated with the aging process (20). In this circumstance, a large proportion of poor OA in Mexico might be expected to experience DS as a result of difficult economic and social conditions.

Data on the prevalence of DS and its association with life conditions can provide a better understanding of these situations.

DS are a common mental disorder with clear gender differences; they occur more frequently in women (3), and gender might affect the influence of other risk factors on the presence of DS (18). In this study, we describe the prevalence of DS and their association with life conditions of male and female Mexican OA living in conditions of social and economic disadvantage.

MATERIALS AND METHODS

Population and sample

This study is part of the project Diagnóstico sobre las Condiciones de Vida y Bienestar de los Beneficiarios del Componente para Adultos Mayores del Programa Oportunidades[2] (Diagnostic of Life Conditions and Wellness of the Elderly Enrolled in Oportunidades) implemented in 2006. The population and sampling design of the study are described below.

The sampling population consisted of all OA enrolled in the governmental program Oportunidades between March and April 2006. This population resides in 34 591 localities,[3] distributed in the 32 Mexican states, and it comprises 360 287 OA. From this universe, a probabilistic sample in three stages was designed, stratified by rural or urban localities, with national representation. The primary sampling unit was the locality in each stratum. The secondary sampling unit was the home of families with one or more OA enrolled in Oportunidades. The last sampling unit was the OA enrolled in the program. Selection was carried out in three stages:

1. A total of 150 localities were selected by simple random stratified sampling. Localities were selected with a probability proportional to their strata size; 110 rural and 40 urban localities were chosen.[4]
2. Within each locality chosen, 10 households were selected by simple random sampling from the total households registered in the locality.
3. Within each household chosen, one OA was chosen at random from all OA living in that household.

Three extra households in each locality were selected as well as one OA from each of these households. These extras were meant to substitute in case of the death or absence of the OA originally selected.

Sample size was estimated according to the following criteria: a 4% minimal detectable prevalence common for the main characteristics of the study, a less than 25% relative error within the strata, and a 95% confidence level. The expected nonresponse rate was 15%. The design effect estimated was 0.86 (based on information from the sampling data). The total study sample needed to meet these criteria was calculated at 1 497 OA.

Measurement of variables

A pilot study was conducted in three localities that were not part of the final sampling in order to test the questionnaire and the logistic flow in the field. This pilot study led to a modification in questionnaires as well as in operation rules and personnel training. The final questionnaire was administered in August 2006. From the 1 497 OA selected, 1 430 provided information, for a 95.5% response rate. The DS section of the questionnaire was administered only to those OA who were able to answer the questions by themselves, a total of 1 064 subjects (74.4% of the original sampling). In general, reasons for nonresponses in the DS section were that the OA presented some hearing impairment (4%) or mild cognitive impairment (21.7%) and did not have a caregiver.

DS were assessed by means of a short version of the CES-D. The CES-D was developed with the aim of assessing DS in the general population (8). Although it is not possible to diagnose depressive disorder through the CES-D, the scale has proved to be an adequate tool for research, with criterion validity in OA (21). CES-D is one of the most widely used tools in assessing DS in OA (6), and several short versions have been developed, showing adequate psychometric characteristics (9, 22).

In this study, an eight-item short version of CES-D was used. The same version was used by the Health and Retirement Study (HRS) of the University of Michigan, for which the HRS researchers developed a cutoff point (23). The Spanish translation of the eight items was provided in the Mexican Health and Aging Study questionnaire (Estudio Nacional Sobre Salud y Envejecimiento en México) (24).

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[2] This program fights poverty by delivering medical services and a monthly money transfer to members of households whose income does not meet their basic needs for food, health, and education—known as poverty of resources.

[3] Mexico's 32 states include a total of 2 454 municipalities, with 187 938 localities as the smallest level of geopolitical organization.

[4] Urban localities are defined as those that have more than 2 500 inhabitants, whereas rural localities have 2 500 or fewer inhabitants.

The eight-item CES-D asks participants whether they have experienced a set of symptoms most of the time during the preceding week. The symptom is scored as 1 if it was experienced and as 0 if it was not. The score is added to obtain a global measurement of DS, with possible values ranging from 0 to 8. Three of the items are phrased in a positive manner: to be happy, to enjoy life, and to have a lot of energy. For this analysis, the items were recoded so that an affirmative response counted as 0 and a negative counted as 1. The cutoff point for considering the presence of DS was set at 4 or higher, according to the recommendation of the research team that developed it (23).

To identify the factors potentially associated with DS, age, presence of chronic illness, and difficulty in performing daily activities were analyzed. As indicators of socioeconomic status, employment status, literacy, poverty, and the type of locality (rural or urban) were assessed. As indicators of social relationships, the amount of people within the social network as well as living arrangements, marital status, and whether the OA was the head of the family were assessed.

Age was coded as 70–79 or 80+ years. Chronic illness was considered present if a person had ever received a medical diagnosis for diabetes mellitus, blood pressure problems, arthritis, or rheumatic illness. OA were asked if, because of a health problem, they had experienced difficulties in performing daily life activities such as bathing, dressing, transferring, toileting, and eating. In the case of an affirmative answer to at least one of these questions, an OA was considered a dependent person (25).

The population under study was predominantly rural. Considering that in this context many OA could be campesinos (peasants) at a family-owned field, employment status was defined as employed if the OA reported having a job, regardless of whether he or she was paid for it. Literacy was defined as the OA reporting that he or she was able to read. The level of poverty was measured by a poverty index, commonly used in studies of Oportunidades and described in detail elsewhere (26, 27). Localities with a population of 2 500 or fewer people were considered rural.

The OA was requested to name all persons who gave him or her support or who received support from him or her.

The maximum number of names allowed was six. Concerning household arrangements, three categories were defined a posteriori: those who lived alone, those who lived with a partner, and those who lived with a partner and others. Marital status included the following categories: married or cohabiting, divorced or separated, widowed, and single (never married). OA were asked whether they considered themselves the head of the family.

Finally, the study was approved by the Ethics, Biosafety, and Research Committees of the Mexican National Institute of Public Health, and the OA signed a term of free informed consent.

Statistical analysis

The analysis was done in two stages. First, the prevalence of DS was estimated, adjusting for a design effect. A case was defined as someone with four or more DS. Then, a multivariate logistic regression model was generated to identify associations among DS and variables of interest described in this section.

Considering the possibility of a modification of the effect of the independent variables by gender, the first model included gender as an independent variable and also the interactions of gender and marital status, gender and employment status, and gender and chronic illness. All these interactions were statistically significant. On the basis of these results (available from the authors upon request), it was determined that a more parsimonious approach would be to adjust models by gender, exploring which variables were related to DS among male and female respondents separately. Thus, the final models (for men and women) included the following variables: age, health status, daily functioning, working status, literacy, poverty index, social support, living arrangement, marital status, and the OA is the family head.

The model was diagnosed for collinearity and through residual analysis. All analyses were performed using the survey analysis module in Stata (28). Confidence intervals (CIs) are reported at the 95% level.

RESULTS

Table 1 shows the characteristics of variables of interest in this group of OA. The CES-D scale was administered to

1 064 participants, 954 of whom provided complete information. As shown in Table 1, OA who did not answer all CES-D items were older, less literate, and more likely to have chronic illnesses.

Most of the OA who participated in the study lived in rural areas (75% of men, 73% of women). On average, OA mentioned two persons in their social network; 46% of OA were men. A greater proportion of women than of men lived alone or were widowed. Illiteracy was more frequent among women, and a greater proportion of them had one or more chronic illnesses.

The prevalence of four or more DS was 43% (CI 39.5–46.4). The mean CES-D score was 3.31 (CI 3.17–3.46). Table 2 shows that a greater proportion of women than men had scores beyond the cutoff point.

Among men, the proportion of subjects with DS was greater in those who were 80 years old or older, in those with chronic illnesses, and in those with difficulty in daily functioning. Greater proportions were also found among men who did not work, who were unable to read, who had wider social networks (measured by the number of people), who lived alone, and who were widowed. Among women, greater percentages were found among those with difficulties in daily functioning, who lived alone, and who were the head of the family.

The more prevalent symptoms were somatic. Among women, 55.1% of the sample reported feeling they could not "get going"; among men, 49.3% reported having experienced restless sleep most of the time in the week before the interview. The second most prevalent symptom for women was the feeling of sadness, experienced most of the time by 53.3% of the sample. For men, feeling that everything was an effort was the second most prevalent symptom, experienced by 47.5% of the sample most of the time.

The results of the multivariate regression logistic model are presented in Table 3. Among men, the odds ratio (OR) for the association between having difficulties with daily activities and DS was 2.62 (CI 1.58–4.34); the OR for having at least one chronic illness and DS was 1.51 (CI 0.98–2.35). Compared with those who were illiterate, the ones who were literate had lower odds of reporting DS (OR 0.46, CI 0.31–0.68). Having one or more persons within the social network was asso-

TABLE 1. Characteristics of older adults surveyed, Mexico, 2006

	Men				Women			
	With CES-D[a,b] (n = 442)		Without CES-D (n = 53)		With CES-D (n = 512)		Without CES-D (n = 57)	
	%	CI[c]	%	CI	%	CI	%	CI
Age (years)								
70–79	67.6	63.4–71.9	45.3	29.3–61.3	70.7	70.0–74.4	47.4	32.7–62.0
≥80	32.3	28.1–36.6	54.7	38.7–70.7	29.3	25.6–33.0	52.6	38.0–67.2
Living arrangement								
With couple or others	86.6	82.5–90.8	83.0	75.0–91.0	69.2	64.8–73.4	75.4	65.1–85.7
Alone	13.4	9.2–17.5	17.0	9.0–25.0	30.8	26.5–35.1	24.6	14.2–34.9
Marital status								
Married	72.2	67.1–77.3	58.4	46.9–70.0	31.6	27.6–35.6	24.6	13.9–35.2
Divorced or separated	1.8	0.7–2.9	3.8	0.0–8.4	5.3	3.2–7.3	3.5	0.0–7.9
Widowed	23.7	18.9–28.6	34.0	21.5–46.4	59.4	54.5–64.2	66.7	55.1–78.2
Single (never married)	2.3	0.8–3.7	3.8	0.0–9.3	3.7	2.1–5.3	5.2	0.0–11.4
Head of family								
OA[d] is family head	92.7	90.1–95.4	90.4	80.9–99.8	62.8	58.6–67.0	60.7	47.3–74.1
OA is not family head	7.3	4.6–9.9	9.6	0.1–19.1	37.2	33.0–41.4	39.3	25.9–52.7
Locality type								
Rural	74.9	55.5–94.3	69.8	51.1–88.5	73.1	53.2–92.8	73.7	57.3–90.1
Urban	25.1	5.7–44.5	30.2	11.5–48.9	26.9	7.1–46.7	26.3	9.9–42.7
Working status								
Currently working	52.2	46.4–57.9	41.5	22.4–60.6	17.0	13.4–20.5	3.5	0.0–8.5
Not working	47.8	42.1–53.6	58.5	39.4–77.6	83.0	79.4–86.6	96.5	91.5–100
Literacy								
Able to read	58.1	54.2–62.1	39.6	24.4–54.8	38.9	33.7–44.0	29.8	16.9–42.7
Not able to read	41.9	37.9–45.8	60.4	45.2–75.6	61.1	56.0–66.3	70.2	57.3–83.1
Health								
Without chronic illness	50.7	46.0–55.4	[e]		39.3	34.0–44.7	5.4	0.0–13.1
Any chronic illness	49.3	44.6–54.0	100		60.7	55.3–66.0	94.6	86.8–100
Persons in social network (mean)	2.1	2.0–2.3	2.2	1.8–2.5	2.0	1.8–2.2	1.8	1.4–2.2

[a] CES-D = Center for Epidemiologic Studies Depression Scale.
[b] With CES-D = complete answers in CES-D; without CES-D = incomplete answers in CES-D.
[c] CI = confidence interval.
[d] OA = older adults.
[e] In this category, all subjects who answered if they suffered of any chronic illness answered Yes.

ciated with an OR of 1.18 (CI 0.98–1.44). Among women, one of the variables associated with DS was the presence of difficulties performing daily activities, with an OR of 2.50 (CI 1.57–3.97). Also, being the head of the family was associated with a higher probability of reporting DS above the cutoff point (OR 1.81, CI 1.11–2.93). In men, this variable was not associated with DS.

With respect to evaluation of the logistic regression model, in the residual analysis neither outliers nor potentially influential observations were identified, whereas, for collinearity, none of the variables included had values for the variance inflation factor greater than 10.

DISCUSSION

The percentage of subjects with DS above the cutoff point in this study (35% of men and 50% of women) shows that a large proportion of OA experienced depressive mood states, explained to some extent by their daily living situation, in-

cluding difficulties performing activities of daily living, living alone, and poverty. These percentages are higher than those reported in other studies using CES-D (complete version) in the United States of America, which ranged from 9% to 16.9%, according to the review by Beekman et al. (2), and from 8.8% to 15% in the studies reviewed by Djernes (6). Using this study's CES-D version, Muramatsu (29) found a mean score of 1.68 (standard deviation (SD) 1.99), whereas an average score of 3.32 (SD 2.23) was found in this work. However, other studies using different versions of the CES-D have found results similar to the ones stated in this work. In Madrid, Spain, a prevalence of 19.6% among men and 46% among women was found in a community study (18). In Hong Kong, a prevalence of 36.3% for females and 18.3% for males was reported (9). In another community sample from the Netherlands the prevalence was 50.4% (30), and the prevalence in a sample of poor OA in the United States of America

was 36% (6). The prevalence found in our study is also close to those found in poor OA in other developing countries—39% (13), 50% (14), and 29.6% (31)—as well as in Mexican OA (32, 33). Although the possibility of a methodological artifact, such as a cultural propensity to report DS, cannot be ruled out, it is possible that the latter groups share characteristics with this study's sample that place them at increased risk for DS. This possibility constitutes a topic worthy of further research.

In this sample, age was not associated with the presence of DS. Other studies have shown contradictory results in this sense, finding both the inverse and null (2, 6, 15, 16, 18, 34). The differences might be explained by the age range in each study. In a study of depression carried out in Europe (17), DS showed a trend to increase among subjects who were 70–79 years old as well as in those older than 80, although the trend was not homogeneous among the nine centers that provided information. In this

study, such a trend was also found in DS among those age groups. However, the effect of age could be confounded by that of other closely related variables, such as physical health, marital status, employment, and income. In this case, the difference in DS among subjects who were 70–79 years old and 80 years old or older disappeared after adjusting other variables, showing that the effect of age on DS was due to a higher probability of chronic illness or functional difficulties among the older participants. It is also possible that a wider age range, including, for example, people who are 60–69 years old, could allow for better understanding of these associations.

As has been previously reported (2, 3, 6, 17, 18, 35, 36), a greater prevalence of DS was found among women. It has been mentioned that such a difference might be because, at that age, there is a greater probability of women living alone, having lost their partner, or living in worse socioeconomic conditions (36). In this study's sample, women had a smaller probability of having a job and being literate and a greater probability of having a chronic illness, living alone, and being widowed. However, the difference in the prevalence of DS between men and women was still significant after adjusting for these variables (data not shown). Even though a biological explanation has been suggested for this difference (36), it is not possible to discard the effect of other disparities in men's and women's life conditions. Some variables that were not measured in this study and that could explain the greater presence of DS in women might include experiencing stressful events, having had adverse experiences in childhood, and several components of social gender roles that have been proposed as risk factors for DS (31, 37, 38). Another possible explanation for this difference might be a response bias, with women being more prone to report DS, such as feelings of sadness or loneliness, than men. This aspect of our results would also merit further investigation, perhaps through the use of qualitative methods.

Having a chronic illness was marginally associated with DS in men but not in women. For both genders, difficulties in performing daily activities caused by health problems were associated with DS. Other studies have reported an association between chronic illnesses and difficulties in functioning and DS in both

TABLE 2. Subjects with four or more depressive symptoms according to sociodemographic characteristics, Mexico, 2006

Characteristic	Men (n = 442)		Women (n = 512)	
	%	CI[a]	%	CI
With four or more depressive symptoms	34.6	30.0–39.2	50.2	45.7–54.6
Age (years)				
70–79	31.4	25.6–37.2	48.6	43.4–53.8
≥80	41.2	34.3–48.2	54.0	45.7–62.3
Health				
Without chronic illness	29.8	23.3–36.4	46.7	39.9–53.4
Any chronic illness	40.5	34.1–46.8	51.2	44.7–57.6
Daily functioning				
With difficulty	29.3	24.3–34.3	45.0	40.1–49.8
Without difficulty	52.0	43.1–60.9	66.1	57.4–74.8
Working status				
Currently working	30.0	23.7–36.3	49.4	38.1–60.8
Not working	39.8	34.1–45.5	50.3	45.6–55.1
Literacy				
Able to read	28.0	21.6–34.4	47.7	40.7–54.7
Not able to read	43.8	37.5–50.1	51.7	46.1–57.4
Locality type				
Rural	35.9	30.4–41.5	49.2	43.8–54.6
Urban	30.6	24.6–36.7	52.9	45.8–60.0
Persons in social network				
0	25.0	2.0–48.0	62.5	37.3–87.6
1–3	33.3	27.8–38.8	48.2	43.8–52.7
4–6	50.0	36.8–63.2	52.9	39.5–66.4
Living arrangement				
With couple or others	32.2	27.6–36.8	48.0	42.8–53.2
Alone	49.1	35.0–63.3	55.1	45.3–64.8
Marital status				
Married	31.0	26.2–35.9	48.1	40.5–55.8
Divorced or separated	37.5	3.4–71.5	48.1	27.7–68.5
Widowed	44.8	34.6–54.9	50.6	45.2–56.1
Single (never married)	40.0	12.0–67.9	63.1	42.6–83.7
Head of family				
OA[b] is family head	34.1	29.3–38.8	53.9	47.8–60.0
OA is not family head	43.7	27.3–60.2	42.8	35.6–50.1

[a] CI = confidence interval.
[b] OA = older adult.

genders (3, 6, 14, 18, 31, 34, 36). A previous study identified that, for poor Mexican OA, illness is part of the symbolic aspects associated with the experience of aging (39), which could explain the lack of or the weakness of the association found between the presence of chronic illness and DS. On the other hand, functional difficulties that affect OA's self-autonomy could diminish the quality of life to a considerable extent.

The fact that this study did not find an association between poverty level and DS, whereas other studies have (2, 5, 6), could be explained by the lack of variability in the income level of this OA sample. All participants were enrolled in Oportunidades, a program aiming to fight poverty; thus, even those OA with a better income still have a lower national level of income.

The relationship between some components of social position assessed in this study and DS differed for male and female participants. Literacy was associated with DS only in men. Other authors have also found gender differences regarding the effect of educational level. Sonnenberg et al. (36) reported that a lower educational level was associated with DS in both genders, whereas income level had a greater association with these symptoms among men. In their study of OA in a Finnish city, Pahkala et al. (16) reported that the prevalence of DS was lower among men with a higher educational level, but this association was not found in women. Literacy was not associated with DS in poor women in Lebanon (31).

The differences found could be due to differences in male and female gender roles. Men are expected to be the economic providers of the family. Being illiterate and having chronic illness could affect the fulfillment of this role, which could lead to DS (5, 16). Women's expec-

TABLE 3. Multivariate logistic regression results for depressive symptoms, Mexico, 2006

	OR[a] crude				OR adjusted			
	Men (n = 442)		Women (n = 512)		Men (n = 397)		Women (n = 456)	
Variable	OR	CI[b]	OR	CI	OR	CI	OR	CI
Age (years)								
70–79	1		1		1		1	
≥80	1.53	1.03–2.27	1.24	0.84–1.84	0.96	0.61–1.52	1.04	0.69–1.57
Health								
Without chronic illness	1		1		1		1	
Any chronic illness	1.60	1.09–2.35	1.20	0.80–1.79	1.51	0.98–2.35	1.15	0.79–1.69
Daily functioning								
Without difficulty	1		1		1		1	
With difficulty	2.61	1.71–4.00	2.39	1.57–3.63	2.62	1.58–4.34	2.50	1.57–3.97
Working status								
Not working	1		1		1		1	
Currently working	0.65	0.45–0.94	0.96	0.59–1.57	0.86	0.56–1.32	0.95	0.55–1.63
Literacy								
Not able to read	1		1		1		1	
Able to read	0.50	0.34–0.74	0.85	0.60–1.21	0.46	0.31–0.68	0.88	0.59–1.31
Poverty index	0.96	0.81–1.15	0.98	0.78–1.22	0.92	0.75–1.13	0.98	0.78–1.23
Persons in social network	1.18	1.00–1.40	1.10	0.94–1.29	1.18	0.98–1.44	1.12	0.94–1.35
Living arrangement								
With couple or others	1		1		1		1	
Alone	2.03	1.11–3.75	1.33	0.83–2.11	1.39	0.61–3.16	0.94	0.53–1.67
Marital status								
Married	1		1		1		1	
Divorced or separated	1.33	0.32–5.53	1.00	0.39–2.53	1.61	0.30–8.65	0.75	0.29–1.94
Widowed	1.80	1.13–2.88	1.10	0.76–1.60	1.65	0.82–3.32	0.76	0.47–1.22
Single (never married)	1.48	0.44–5.01	1.85	0.72–4.74	1.26	0.35–4.49	0.83	0.29–2.41
Head of family								
OA[c] is not family head	1		1		1		1	
OA is family head	0.66	0.33–1.33	1.56	1.04–2.33	0.77	0.34–1.70	1.81	1.11–2.93

[a] OR = odds ratio.
[b] CI = confidence interval.
[c] OA = older adult.

tations include performing household chores and being the caretaker for other members of the family, duties that are not greatly modified by education or chronic illness.

A statistically marginal association between a greater number of persons within men's social network and DS was found in this study. Neither marital status nor living alone was associated with DS among males or females. These results contrast those found in other studies (36) in which a smaller social network was associated with a greater possibility of having a score over the CES-D cutoff point for both genders or with those cited by Cohen and Syme (40) and Gore (41). However, the size of the social network does not constitute the best indicator for the quality of relationships (42). Several studies have shown that social networks created by obligation within families "could lead towards exigencies that neutralize the likely positive effect of these networks" (43). In this sample, a greater number of social contacts could mean a greater burden and not greater availabil-

ity of social support. However, the possibility of confusion by a nonmeasured variable cannot be ruled out. On the other hand, being the head of the family was associated with more DS among women; for men, the relationship went in the opposite direction. This detail can be explained by the fact that, according to traditional Mexican gender roles, men are considered the head of the family, whereas for a woman to be the head of the family could mean an obligation to fulfill a role that is not congruent with her social gender expectations. The resultant situation could be stressful, facilitating the manifestation of DS. The lack of effect of marital status on DS could be due to the fact that, in these OA's social context, the extended family represents a more important source of emotional and material support than the relationship that exists within a couple; this explanation has already been proposed (8, 31).

The differences between male and female participants in the associations between DS and other variables highlight the importance of exploring gender-dis-

tinctive characteristics in the experience of aging. In this mainly rural population, gender roles are probably sharply defined. For men, aging could imply losing the ability to perform physical work in the field, which is essential for maintaining the family. For women, this loss of physical ability could have different implications (44). Conducting further research in this direction would help us understand why potential risk factors were differently associated with DS in male and female participants. The fact that most of the variables included in the model were not associated with DS in women suggests that, for them, factors that were not explored could be implied in the development of DS. Another possibility is that difficulties in daily functioning are the main source of distress for this population, given that their daily living might require the ability to perform activities such as walking long distances or working in the fields.

The main limitation of this research was the use of a cross-sectional design, which could have led to a reverse caus-

ality artifact. Specifically, some longitudinal studies have shown that the relationship between physical health and depression is bidirectional (4). This issue could be addressed in a strategy to deal with DS in OA. It is less likely, however, that reverse causality affected the relationships with variables such as education, employment, marital status, social networks, and poverty.

Those OA who did not answer all CES-D items constitute a group that could be considered especially vulnerable. According to this study's theoretical framework, they are at greater risk of DS, because they are older, are in worse health for both genders, and have a higher percentage of illiteracy in men. The predicted values from the adjusted logistic regression model showed that people with incomplete data in CES-D would have a probability of scoring above the cutoff point of 48% for men and 59.3% for women. For those with complete data, these probabilities are 35% for men and 49% for women. Therefore, it is possible that the DS scenario this paper shows would be even worse for those OA living in relatively worse conditions.

On the other hand, particular attention should be paid to OA who could not respond to the DS section because of mild cognitive impairment. The association between DS and mental decline remains controversial. Longitudinal studies have found that depression and dementia or depression and mental deterioration are related; nevertheless, the direction of this relation is not clearly defined (45, 46). In other studies, depression is considered a preclinical phase for dementia (47). Thus, in this study it is not possible to determine whether OA with mental deterioration would present a clearer prevalence of DS.

Our results can be considered representative of Mexican OA living in marginal conditions and in predominantly rural settings. It is likely that the process of aging would be very different for those in urban settings or with better socioeconomic status. These results show that DS constitute a frequent problem for this population of OA and that preventive and treatment services are needed. The results of this study suggest that, to provide care for OA with DS, taking care of physical health is an essential step. The roles of social relationships—both their deleterious and their protective factors—are topics worthy of further research.

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RESUMEN

Síntomas depresivos en adultos mayores pobres de México: prevalencia y factores asociados

Objetivo. Describir la presencia de síntomas depresivos (SD) y los factores asociados con ellos en adultos y adultas mayores pobres de México.

Métodos. Se realizó una encuesta a adultos y adultas mayores registrados en un programa gubernamental de alivio de la pobreza (Oportunidades) en México. Los participantes completaron una versión abreviada de la Escala de Depresión del Centro de Estudios Epidemiológicos y respondieron preguntas sobre su salud y condiciones de vida.

Resultados. La prevalencia de SD por encima del nivel de corte fue de 43% (intervalo de confianza de 95% [IC95%]: 39,5 a 46,4). Los SD se asociaron con diversas variables en los hombres y mujeres participantes. En hombres, la dificultad para realizar actividades de la vida diaria se asoció con la presencia de SD por encima del nivel de corte (razón de posibilidades [*odds ratio*, OR] = 2,62; IC95%: 1,58 a 4,34) y saber leer se asoció con menos SD (OR = 0,46; IC95%: 0,31 a 0,68). En las mujeres, la dificultad para realizar actividades de la vida diaria se asoció con más SD (OR = 2,50; IC95%: 1,57 a 3,97), al igual que ser la cabeza de la familia (OR = 1,81; IC95%: 1,11 a 2,93).

Conclusiones. Los SD fueron frecuentes en esta muestra de adultos mayores pobres. Las diferencias entre hombres y mujeres en cuanto a las variables asociadas con los SD subrayan la importancia de tomar en cuenta los aspectos de género asociados con el envejecimiento.

Palabras clave   Depresión, anciano, factores socioeconómicos, pobreza, identidad de género, México.