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Depression in the elderly living in a rural area and other related factors

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Introduction. We want to determine the prevalence of depression in a rural population (65 years and over) free from cognitive impairment and to evaluate related factors of late life depression.

Patients and method. A total of 265 persons (mean age [SD]: 76.2 [6.7] years; 60.4 % females) residing in the towns of Proaza, Quiros and Santo Adriano (Asturias) were interviewed. The evaluation included sociodemographical and clinical aspects as well as the Mini-Mental State Examination Spanish version (MMSE), the Geriatric Depression Scale (GDS), the Oviedo Sleep Questionnaire (OSQ), the CAGE Questionnaire, the Goldberg General Health Questionnaire (GHQ-28), and the World Health Organization Quality of Life Instrument (WHOQOL-BREF).

Results. A total of 23 subjects out of the total sample were excluded from the study due to scoring less than 18 points on the MMSE. The final sample included 242 subjects (mean age [SD]: 75.59 (6.2) years; 60.3 % females). Prevalence of probable depression was 23.1 % [30.1 % females vs 12.5 % males; p = 0.002]. Depression was statistically associated with a higher number of physical diseases (p = 0.012), higher psychiatric comorbidity (p = 0.031), less cognitive impairment measured by MMSE (p = 0.019), higher prevalence of sleep disorders (p ≤ 0.050), higher score in the GHQ-28 (p = 0.000), and worse quality of life evaluated by the WHOQOL-BREF (p = 0.000).

Conclusions. Depression is moderately prevalent in this population. Depression is more frequent in females, those living alone, without studies, working in agricultural sector, with physical or psychiatric comorbidity, with higher cognitive impairment, and with a worse health status and quality of life perception.

Key words:
Depression. Elderly. Prevalence. Community.

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La depresión en el anciano en una zona rural y su interacción con otros factores

Introducción. Se quiere determinar la prevalencia de depresión en población anciana (≥ 65 años) rural, libre de deterioro cognitivo y examinar las características que presentan los ancianos con probable depresión.

Pacientes y método. Un total de 265 personas (edad media [DE]: 76,2 [6,7] años; 60,4 % mujeres) residentes en los concejos rurales de Proaza, Quirós y Santo Adriano (Asturias) fueron entrevistados. Se registraron variables sociodemográficas y clínicas y se administraron los siguientes cuestionarios: Mini-Examen Cognoscitivo (MEC), Escala de Depresión Geriátrica de Yesavage (GDS), Cuestionario Oviedo de Sueño (COS), Cuestionario de alcoholismo CAGE, Cuestionario de Salud General de Goldberg (GHQ-28) y el Instrumento de Evaluación de Calidad de Vida de la Organización Mundial de la Salud (WHOQOL-BREF).

Resultados. Se excluyeron a 23 personas por puntuar < 18 puntos en el MEC. La muestra final incluye 242 sujetos (edad media [DE]: 75,59 [6,2] años; 60,3 % mujeres). Presentaban probable depresión el 23,1 % (30,1 % mujeres frente a 12,5 % hombres; p = 0,002), las prevalencias más elevadas de depresión se obtuvieron en aquellos que padecían mayor número de enfermedades físicas (p = 0,012), presentaban comorbilidad psiquiátrica (p = 0,031), puntuaban menos en el MEC (p = 0,019), presentaban mayor prevalencia de problemas de sueño (p ≤ 0,050), puntuaban más en el GHQ-28 (p = 0,000) y menos en el WHOQOL-BREF (p = 0,000).

Conclusiones. La prevalencia de depresión es moderadamente elevada, siendo más frecuente en mujeres, en los que viven solos, carecen de estudios, pertenecen al sector primario, padecen patología física o psíquica, presentan mayor deterioro cognitivo, peor salud general y tienen una peor percepción de su calidad de vida.

Palabras clave:
Depresión. Anciano. Prevalencia. Comunidad.

INTRODUCTION

The population of most of the Western countries is undergoing a progressive aging process, mainly due to the decrease of birth rate and increased longevity[1]. If as foreseeable, life expectancy is maintained or increases in Spain, we will go from being 6.3 million elderly in the year 2002 to 8.1 million in the year 2025 when the elderly population will account for 20 % of the general population. Population aging is giving increasingly more significant importance to mental health problems in the elderly since psychiatric disease has a high prevalence in elderly persons. Within the psychiatric disorders in this age group, depression, together with dementia, is the most frequent diagnosis[2-5], it ranging from 10 %-30 % for depressive disorders in general, including minor and major forms of depression[6-10]. There are several factors that may modify the expression of depressive disorder in the elderly. Some of them come from the aging process itself. Others are due to generational differences on the way of perceiving physical and psychological health. Other differences occur due to frequent overlapping between depressive disorders and physical disease[11-17] and cases in which the presentation is fundamentally from somatic complaints[8-18]. The frequent situation of the appearance of cognitive symptoms in the context of a depressive episode must also not be overlooked[19-21]. Its fundamental repercussion on health is clear: it produces important incapacity[22,23] and suffering in persons having it. It is associated in a high percentage of suicide cases[8,18,24] and generates significant health care and social costs (12.25). In spite of its frequency and the incapacity it generates, it is clear that depression in the elderly is underdiagnosed and undertreated. This is especially lamentable given the high risk of associated chronicity and recurrence[12,15,26]. This study aims to determine the prevalence of depression in the 65 year old and older population, who live in a rural area and the association of mood disorders with other variables, to try to determine the profile of the elderly who most probably will have a depressive disorder during their lifetime.

MATERIAL AND METHOD

This is a descriptive, cross-sectional study conducted in a sample of 299 persons from the general community population of a rural area of Asturias that includes the towns of Proaza, Quirós and Santo Adriano, between September 1999 to December 2001. This is a population of 3055 inhabitants who live in small rural nuclei, 28.97 % of whom are over 64 years of age, according to the data sent by the Statistics Department of the Health Care Area IV of Oviedo that included all the inhabitants who were of a certain age and were also members of the Social Security. Enrolment criteria were: *a)* being over 64 years of age; *b)* being registered in the social security in July 1998, and *c)* having been chosen from the 885 possible subjects by simple random sampling. In every case, the participant's informed consent was requested. Exclusion criteria are: presence of cognitive deterioration, assessed through the Mini-Mental State Examination, ruling out those persons whose score in it was 17 points or less. Those chosen were told of the study purpose and their participation was requested, with a 100 % participation index.

To determine the sample size, a sampling statistical model for finite populations that use a large number of known variables, the computer program MEDPRE (Epidemiological Methods for research in Public Health, 1998) elaborated by Professors Cueto, Hernández and Casariego of the Preventive Medicine and Public Health Area of the University of Oviedo were used. It had great reliability[27]. A sample size was calculated, assuming a 30 % prevalence, 0.05 error and 95 % confidence interval. The sample size recommended was 236 persons, but it was increased to 299 persons, due to the possibility that some would refuse to participate in the study or that there would be losses of these subjects. A total of 265 interviews (105 men and 160 women) were made, since 34 persons could not be interviewed because 20 died during the study and 14 moved.

Method

All those who participated in the study were administered the following questionnaires in their homes:

AD HOC questionnaire containing sociodemographical and clinical data of the interviewed subject. This information was then verified with the subject's clinical history.

To evaluate cognitive status, the Mini-Mental State Examination, Spanish version (MMSE) was used, establishing a 17/18 cut-off in this study, that corresponds with «sure/probable deficit cognitive deficit.» Those subjects who had a score of 17 points or less (23 persons) on the Mini-Mental State Examination were not used for the statistical analysis, thus a total of 242 persons have been included in the present study.

The Oviedo Sleep Questionnaire (OSQ)[30] is a brief semi-structured interview of diagnostic help for insomnia and hyperinsomnia type sleep disorders according to the SDM-IV and ICD-10 criteria.

The CAGE alcoholism questionnaire[31] is included within the questionnaires for detection of alcohol abuse or dependence, and is made up of four questions. Probable alcoholism criterion is established at two or more points.

The Yesavage Geriatric Depression Scale (GDS), in its short form (15 items)[32], for the detection of depressive status in the elderly. The diagnosis of depression was established as probable with a score greater than 5 for its qualitative interpretation.

Goldberg's General Health Questionnaire (GHQ) is a screening instrument to detect current psychiatric disorders, in

its 28 item Spanish version[33]. Each subscale has a total of 7 items, the cut-off is established at 6/7 points, the greater the score the greater the possibility that it is a case. It does not measure seriousness or type of disorder.

World Health Organization Quality of Life Instrument, brief version (WHOQOL-BREF) provides a short form of evaluation of quality of life. It has a total of 26 questions, with two global questions: global quality of life and general health and profile of four areas, physical health, psychological health, social relationships and setting. The instrument is focused on the «perceived» quality of life of the subject[34].

RESULTS

The prevalence of depressive disorders (defined as percentage of patients with score over 5 in the GDS) was calculated. Association of each one of the sociodemographical and clinical variables of the elderly with being or not being a probable case of depression was evaluated.

The study includes a total of 265 persons over 64 years of age whose mean age is 76.2 (SD 6.7) years. The sociodemographical and clinical characteristics of the sample studied are presented in tables 1 and 2. In reference to the medical diagnoses, the mean physical diseases suffered are 3.5 (SD: 1.4) with a minimum value of 0 and maximum one of 5 or more. The most prevalent conditions are those related with the circulatory system, 66.4 % (176 persons) and locomotor apparatus, 51.7 % (137 persons) and mean consumption of drugs for their physical condition is 2.2 (SD: 1.7) with a minimum value of 0 and maximum one of 5 or more. The drugs consumed the most are cardiovascular, 56.2 % (149 persons). Mean psychic diseases suffered by those making up the sample is 0.3 (SD: 0.5) with a minimum value of 1 and maximum one of 3, anxiety disorders being the most prevalent, 10.6 % (28 persons). Mean consumption of psychodrugs is 0.2 (SD: 0.5) with a minimum of 0 and maximum of 3, tranquilizers being consumed the most, 7.5 % (20 persons), followed by antidepressants, 5.3 % (14 persons). In a second step, 23 subjects (8.7 %) were excluded from the study as they had a score on the MMSE lower than or equal to 17 points. Thus the study focused on the 242 remaining subjects (mean age [SD]: 75.59 [6.2] years; 60.3 % women).

The score obtained on the GDS shows that 23.1 % (56 persons) of the sample had a score over 5, with a high probability of having a depressive disorder. The mean score obtained by those considered a probable case was 8.3 (SD: 2.3) with a maximum value of 14 points and a minimum of 6. All the variables were related with the score obtained on the GDS to study the profile of the elderly patient who had a greater likelihood of having a mood disorder during his/her lifetime. The results with which a statistically significant correlation was found are presented in tables 3 and 4. Depression prevalence according to the GDS is higher in women (30.1 % vs 12.5 %; p = 0.002), in those who live alone (33.3 % vs 19.3 %; p = 0.033), in those who have no studies (61.5 % vs 21.0 %; p = 0.002), and in those who belong to the agricultural sector (26.7 % vs 13.6 %; p = 0.048). Regarding the clinical variables studied, it was observed that the highest prevalences of depression were obtained by those who suffered a greater number of physical disease (p = 0.001), those suffering some psychic disease (p = 0.038), those suffering a greater number of psychic diseases (p = 0.031) and those who received treatment for a psychic disease other than depression (p = 0.000). Equally, the following variables are associated in a statistically significant way with suffering depression: obtaining a lower score on the MMSE (p = 0.019), having a diagnosis of probable case according to the GHQ-28 (p = 0.000), considering that one has a worse quality of life and greater dissatisfaction with health and obtaining lower scores in the rest of the areas of the WHOQOL-BREF (p = 0.000). In the same way, it was observed that the probable cases of depression had a greater prevalence of different sleep problems, such as difficult to fall asleep (p = 0.018), problems to wake up at the usual time (p = 0.013), excessive drowsiness (p = 0.019), increased latency in falling asleep

Table 1 Sociodemographic characteristics

	%	N
Gender		
Female	60.4	160
Male	39.6	105
Civil status		
Married	48.3	128
Single	20	53
Widow (er)	30.6	81
Divorced/separated	1.1	3
Living condition		
Alone	26.4	70
Spouse/mate	35.8	95
Spouse/mate and	11.7	31
Children	11.7	31
Other family members	14.3	38
Study level		
Without studies	7.5	20
Primary studies	91.7	234
Secondary studies	0.4	1
Upper studies	0.4	1
Profession		
Agricultural sector	72.1	191
Secondary industry sector	7.2	19
Tertiary industry sector	11.7	31
Housewife	8.3	22
Rest	0.8	2

Table 2 Clinical characteristics

		%	N
Physical disease			
Presence	Yes	96.6	256
	No	3.4	9
Treatment	Yes	84.2	223
	No	15.8	42
No. of diseases	< 3	24.2	64
	≥ 3	75.8	201
Psychic disease			
Presence	Yes	26.0	69
	No	74.0	196
Treatment	Yes	15.8	42
	No	84.2	223
No. of diseases	< 2	97.0	257
	≥ 2	3.0	8

(p = 0.005), early waking (p = 0.011), snoring with breathing difficulty (p = 0,012) or nightmares (p = 0.046). No statistical association with the score obtained on the CAGE questionnaire was observed.

DISCUSSION

For the study of possible mood disorders in the elderly population, there are previous studies[14,35-37] that use the Yesavage Geriatric Depression Scale (GDS) due to its ease of application, validation in our setting and optimum sensitivity and specificity characteristics for the elderly population. The results in the references are very different, with values ranging from 5 % to 36 %. This study has obtained moderately high depression prevalence values, presenting a diagnosis of 23.1 % (56 persons) «probable case of depression.» This coincides with those of several authors[1,3,6-10,38], who indicate similar prevalences in geriatric samples over 65 years, although reference is also made to higher values[8,9,14,15,35,39-41], which can be explained because these are patients attended in primary care, institutionalized or hospitalized, where the depression rates are generally greater than those found in the general population. It is also possible to make a comparison with those investigations with lower rates[42-45], that may not only be due to the sampling characteristics but also to the use of other instruments for the evaluation.

The greater proportion of women among depressed patients is not an unexpected finding, since this is a constant phenomenon in the epidemiological studies[3,15,43,46-50]. A greater prevalence was observed in those who live alone, as described by Swenson et al.[43] in a study of the rural elderly population. Furthermore, the fact of living alone has regularly been related with less social support. Less social support has a close relationship with lower level of mental health and is a risk factor for depression[13,17,51-53], as is also observed in this study. The highest values for depression were obtained among those who lack studies. This agrees with other epidemiological studies[4,49,54], even those having similar sample characteristics[43]. This would also explain

Table 3 Depression (GDS). Sociodemographic and clinical variables

Chi square test (statistically significant correlations p ≤ 0.05)

	N	Probable case of depression		Probable no case of depresión	
		%	N	%	N
		23.1	56	72.9	186
Gender					
Male	96	12.5	12	87.5	84
Female	146	30.1	44	69.9	102
Living condition					
Alone	66	33.3	22	66.7	44
Accompanied	176	19.3	34	80.7	142
Academic education					
Without studies	13	61.5	8	38.5	5
With studies	229	21.0	48	79.0	181
Profession					
Agricultural sector	176	26.7	47	73.3	129
Remaining sectors	66	13.6	9	86.4	57
Suffers psychic diseases (different from depression)					
Yes	39	35.9	14	64.1	25
No	192	19.3	37	80.7	155
Treatment for psychic dis.					
Yes	33	48.5	16	51.5	17
No	209	19.1	40	80.9	169

Student's *t* test (statistically significant correlations p ≤ 0.05)

	N	Mean	Standard deviation
No. of physical diseases			
No case of depression	186	3.4	1.5
Case of depression	56	3.9	1.2
No. of psychic diseases			
No case of depression	186	0.2	0.4
Case of depression	56	0.3	0.5

Table 4 Depression (GDS) (MEC, WHQOL-BREF, GHQ-28)

Student's *t* test (statistically significant correlations p ≤ 0.05)

	N	Mean	Standard deviation
Score obtained in MMSE			
Probable no case of depression	186	28.6	3.3
Probable case of depression	56	27.1	4.4
Quality of life (W-B)			
Probable no case of depression	186	3.5	0.5
Probable case of depression	56	2.9	0.7
General health (W-B)			
Probable no case of depression	186	3.2	0.7
Probable case of depression	56	2.3	0.8
Physical health (W-B)			
Probable no case of depression	186	13.6	2.3
Probable case of depression	56	11.1	2.6
Psychological health (W-B)			
Probable no case of depression	186	12.4	1.8
Probable case of depression	56	9.5	1.7
Social relationships (W-B			
Probable no case of depression	186	13.5	1.6
Probable case of depression	56	12.0	1.2
Setting (W-B)			
Probable no case of depression	186	13.2	1.3
Probable case of depression	56	12.0	1.4

Statistically significant correlations chi square test p ≤ 0.05

	N	Probable case of depression		Probable no case of depression	
		%	N	%	N
General Health (GHQ-28)					
Probable no case	209	14.4	30	85.6	179
Probable case	33	78.8	26	21.2	7
Quality of life (W-B)					
Bad	16	87.5	14	12.5	2
Normal	118	28.8	34	71.2	84
Good	108	7.4	8	92.6	100
General health (W-B)					
Dissatisfied	67	52.2	35	47.8	32
Normal	106	15.1	16	84.9	90
Satisfied	69	7.2	5	92.8	64

why persons belonging to the agricultural sector suffer more depressions than those who have a lower academic education.

The relationship between depression and somatic disease is a complex process, since both diseases may appear simultaneously or independently and they may become worse or be masked respectively. The patients with greater levels of stress have a greater risk of suffering a depressive disorder[12-15,17,48,55], results that agree with those found herein. Other studies coincide with describing a greater prevalence of possible depression in this age group[43]. A greater frequency of cognitive deterioration stands out among the characteristics of depression in the elderly, this result being in keeping with that found in the references[4,13,52,56]. More cases of depression were found among those who had different sleep complaints. Sleep disorder is a constant and is frequently one of the first symptoms of depression, this opinion appearing in other works[8,18,57]. Equally, it was observed that there was a greater prevalence of probable case of depression among those diagnosed of probable case according to the GHQ-28 and they obtained higher scores in the mentioned questionnaire than those who had a diagnosis of probable no case. The results obtained in the WHOQOL-BREF show that depression prevalence increased as quality of life worsened. The same occurs in the section of general health where it is observed that as the degree of dissatisfaction with health growth, depression prevalence increases, as in the remaining areas of the WHOQOL-BREF (physical health, psychological health, social relationships and setting) where the group that has a diagnosis of probable case of depression has a lower score than the group diagnosed as probable no case. This relationship between quality of life and depression has been indicated by different studies[58-62]. Mood disorders in general and especially depressive disorder not only generate a significant personal suffering but also cause higher incapacity and morbidity-mortality for the patient[63] and an overload for the family, society and health care services. All this involves a high cost of economic and personal resources. The application of pertinent preventive measures and adequate treatment of the patients and their families will make it possible to decrease both direct and indirect costs of these diseases and avoid the suffering generated by inadequate care[64].

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