MENTAL HEALTH IN OLDER ADULTS OF A PUBLIC HOSPITAL NETWORK OF MEDELLIN, COLOMBIA

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ABSTRACT

Objectives. To determine the prevalence of poor mental health and associated factors in older adults of the Social Enterprise of the State (ESE) Metrosalud. *Materials and methods.* Cross-sectional study using two-stage sampling in hospital units and health centers in the network of the ESE Metrosalud of Medellin. Participants included 342 adults aged 65 and over (57.8% women). Variables: poor mental health (measured with the GHQ12), social support (Duke-11); sociodemographic: age, sex, socioeconomic status, educational level, place of residence, marital status and occupation. Study variables were described, the overall prevalence was calculated according to sociodemographic variables. The association of poor mental health with selected variables was estimated by calculating odds ratios with 95% confidence intervals adjusted for possible confounding variables using logistic regression. *Results.* The senior population without education in both sexes (ORa = 7.61; 95% CI: 2.49 to 23.34), widows (ORa 2.78; 95% CI: 1.21 to 6.40) and men and women with low social support (ORa 3.05; 95% CI: 1.65- 5.66), reported increased risk of poor mental health, compared to their counterparts of reference. *Conclusions.* We found a high prevalence of poor mental health in the population studied, with differences according to socio-demographic factors, suggesting that the social vulnerability in this group impacts their health status. Health and social policies and strategies that contribute to the welfare of this population group are required.

Key words: Mental health; Elderly; Health profile; Health surveys (source: MeSH NLM).

INTRODUCTION

The elderly population for decades has constituted a representative and vulnerable group of the population in demographic and social terms [1-3]. First, this is because there have been profound changes in the worldwide population dynamics. It is estimated that in Colombia by 2020, the group of citizens 65 years of age and older will represent 7.6% of the total male population and 9.4% of the female population. This is also projected for Medellin, the second largest city in Colombia, with a population approximately two and half million people [5], where the aging population is a surprising phenomenon [6]. Second, the research that has been conducted so far shows detailed data on the living conditions of senior citizens, who face situations of social vulnerability and difficult access to social and healthcare services and express perceptions of low quality of life [7-9].

In terms of the health conditions in this population, scientific literature is clear on parameters of the physiological process of aging, which yields frailty [10], cognitive deterioration [11], and functional dependence [12], along with other factors. There are also social determinants of the inequalities and well-being among those individuals. For example, a study performed in Catalonia (Spain) showed that a social network and social support are key factors of mental health in elderly noninstitutionalized adults [13].

In particular, the prevalence of poor mental health in the elderly population is variable and depends on the type of study, the indicator used, and the data collection method, among other factors. According to the World Health Organization (WHO) [14], 15% of adults 60 years of age or older have a mental disorder. A systematic review in the European Union [15] revealed that the most prevalent mental disorders are depression and

dementia. The authors emphasized the need to promote more coordinated epidemiological studies to facilitate the systems for monitoring epidemiology and to ensure comparability of data.

In Colombia, the last National Health Survey Questionnaire [16] used the Zung depression and anxiety tests and revealed that a substantial part of the population manifests symptoms suggestive of poor mental health. As for Medellin, there are studies that address important components of quality of life, social well-being, and social support as determinants of the health condition of the elderly population [6-9,17], but specific studies on mental health are still scarce, especially in noninstitutionalized populations. Some epidemiological parameters also need to be elucidated from the standpoint of social determinants that could explain different situations of inequality and social vulnerability. A study performed in Senior Welfare Centers (Spanish acronym CBA) in the city [18] is available as a reference, but it is important to address other indicators. Being familiar with the circumstances of a mental disorder is a crucial step toward creation of policies and strategies based on the social reality in the adult population of the second most important city in Colombia.

Thus, the purpose of this study was to determine the prevalence of poor mental health among the elderly who use out-patient services in public hospital networks of the municipality of Medellin, the Metrosalud state-owned social welfare enterprise (ESE Metrosalud) as well as the related factors.

MATERIALS AND METHODS

This is a cross-sectional study. The study population consisted of the elderly from ESE Metrosalud who use the out-patient services in its Medellin service network. Metrosalud is a first- and second-level public hospital network that offers healthcare services to a significant segment of the city's population, in particular, individuals from lower social strata and members of the subsidized healthcare system (individuals who are unable to pay) [19]. Men and women 65 years of age or older were analyzed in this study and were selected from the first-time consultation registries managed by the statistics unit of the institution (for the year 2011). People with hearing and visual impairments or with a systemic disorder that can affect their ability to attend the institution were excluded from this study because people who receive

home care and individuals who did not wish to take part in the study were not the focus of this study.

According to the characteristics of the institution, sampling was performed in two stages. First, provider units and healthcare centers were selected for inclusion in the sample, and then the sample was proportionally assigned within each of these units and centers. The total sample size of 354 senior citizens was initially calculated and defined according to other studies on quality of life and oral health care, within the macroproject undertaken at the institution [20,21]. Thus, information on 342 senior citizens (58.2% women) was used in this study; these people constitute 97% of the total sample size, after the data was filtered.

Briefly, the broader project consisted of a structured survey and a complete dental exam with information on sociodemographic parameters, perceived-health variables (mental, general, and oral), the use of oral healthcare services, quality of life related to oral health, and data on the temporomandibular joint, oral mucosa, soft tissue, periodontal, dental, and prosthetic examinations. These analyses were performed by a field work group (two examiners and four surveyors), trained to obtain quality surveys. A pilot trial involving 10 senior citizens was performed for the purposes of correcting and revising the language, adapting the questions culturally, and achieving general consistency of the data collection method. The field work was performed between March and December 2013.

The following variables were used in this study: age (groups 65–74 and ≥75 years of age); the level of education (groups "no schooling," "elementary school," and "high school or university"); socioeconomic strata (this parameter was determined according to the classification provided at home by the public services company of the city and categorized as low "0, 1 and 2" and middle "3 and 4"); marital status (single, married/common law marriage, widowed, or separated); occupation (these data were obtained from the international classification of occupations adapted for Colombia [22] and were categorized as nonmanual labor [administrators, university professionals, scientists, and other intellectuals, technicians, people with postsecondary nonuniversity education and assistants, office employees, service workers, and vendors or merchants], manual labor [agriculture, industrial and construction manual labor, and unskilled workers], housework, and others [retirees and students]); and residential area (urban or rural).

The Duke-11 profile was used to evaluate the extent of social support. It is a questionnaire (scale) composed of

eight phrases that are rated according to five Likert scale categories, ranging from "much less than I would like" (rated as 1) to "as much as I would like" (rated as 5). The scores from all phrases are summed up to obtain the scale ratings. The rating range is from 11 to 55 points: the higher the score, the higher the perceived support. A cut-off point of <32 was selected to label perceived social support as low [23,24].

Mental health was assessed using the 12-item General Health Questionnaire (GHQ-12)[25]. This is a questionnaire used to register existing mental disorders and is not used for the purposes of performing clinical diagnoses or evaluating chronic disorders. Using the Likert scale of four categories, this questionnaire asks whether the person has recently experienced a particular symptom. A value of 0 (responses 1 and 2) or 1 (responses 3 and 4) is assigned to the four response categories. A person with a cut-off point of ≥3 was assumed to have poor mental health, according to other studies on populations in a context similar to that of Medellin, in order to achieve international comparability [13].

The analyses were performed separately for men and women as well as collectively. First, the variables of the study were described via absolute and relative frequencies. Next, the prevalence of poor mental health was calculated with 95% confidence intervals for each of the selected variables. Lastly, the association between poor mental health and the variables such as the level of education, marital status, residential area, and perceived social support were evaluated by calculating raw and adjusted odds ratios (OR) using logistic regression, with 95% confidence intervals. The models adjusted for sociodemographic variables are shown in the results.

This study complies with the ethical requirements for research on human subjects in accordance with international and national regulations. The elderly were asked for their consent to participate in the study, ensuring confidentiality of personal information. This study's protocol was approved by the Research Ethics Committee (CEI, Spanish acronym) of the Metrosalud Institution, according to Act 09-2011.

RESULTS

Table 1 presents sociodemographic characteristics of the study population. In general terms, 69% of participants were under 75 years of age, 92% had elementary education or no schooling, more than 85% belonged to low socioeconomic strata, a major percentage worked as house help, particularly women (86%), while almost a third of the men worked in low-skill occupations (manual labor). More than a half of the men were married or in a common law marriage, and a third of the women were widows. We found that 11% of the adult population surveyed lived in rural areas of the city and 24% perceived social support as low.

Table 1. Sociodemographic characteristics of the elderly population participating in the study; ESE Metrosalud. Medellin, Colombia. 2013 (n=342)

Characteristics	Men n	Men (%)	Women n	Women (%)	All n	All (%)
Age (years)						
65-74	91	(63.6)	144	(72.4)	235	(68.7)
≥ 75	52	(36.4)	55	(27.6)	107	(31.3)
Educational level						
No schooling	48	(33.6)	65	(32.7)	113	(33.0)
Elementary	82	(57.3)	121	(60.8)	203	(59.4)
High school or university	13	(9.1)	13	(6.5)	26	(7.6)
Socioeconomic strata						
Low (1-2)	124	(86.7)	169	(84.9)	293	(85.7)
Middle(3-4)	19	(13.3)	30	(15.1)	49	(14.3)
Occupation						
Nonmanual labor	3	(2.1)	1	(0.5)	4	(1.2)
Manual labor	47	(32.9)	16	(8.0)	63	(18.4)
Housework	8	(5.6)	172	(86.4)	180	(52.6)
Other	85	(59.4)	10	(5.0)	95	(27.8)
Marital Status						
Single	23	(16.1)	52	(26.1)	75	(21.9)
Married or common law marriage	84	(58.7)	64	(32.2)	148	(43.3)
Widowed	24	(16.8)	66	(33.2)	90	(26.3)
Separated	12	(8.4)	17	(8.5)	29	(8.5)
Residential Area						
Urban	129	(90.2)	177	(88.9)	306	(89.5)
Rural	14	(9.8)	22	(11.1)	36	(10.5)
Social Support						
Normal	109	(76.2)	152	(76.4)	261	(76.3)
Low	34	(23.8)	47	(23.6)	81	(23.7)
Total	143	(41.8)	199	(58.2)	342	(100)

Table 2. Prevalence of poor mental health in the elderly population receiving services from ESE Metrosalud, by sociodemographic characteristics. Medellín, Colombia. 2013 (n= 342)

Characteristics	Men			Women			Total		
	n	% (95% CI)	p* value	n	% (95% CI)	p* value	n	% (95% CI)	p* value
Age in years									
65-74	54	59.3 (48.7-70.0)	0.627	89	61.8 (53.5-70.1)	0.149	143	60.9 (54.4-67.3)	0.190
≥ 75	33	63.5 (49.4-77.5)		40	72.7 (60.0-85.4)		73	68.2 (58.9-77.5)	
Educational level									
No Schooling	32	66.7 (52.3-81.0)	0.013	49	75.4 (64.1-86.6)	0.007	81	71.7 (62.9-80.4)	<0.001
Elementary	52	63.4 (52.4-74.5)		76	62.8 (53.8-71.8)		128	63.1 (56.2-69.9)	
High school or university	3	23.1 (5.0-53.8)		4	30.8 (9.1-61.4)		7	26.9 (8.0-45.9)	
Socio-economic strata									
Low (1-2)	78	62.9 (54.0-71.8)	0.196	110	65.1 (57.6-72.6)	0.853	188	64.2 (58.5-69.8)	0.346
Middle (3-4)	9	47.4 (24.4-71.1)		19	63.3 (44.4-82.2)		28	57.1 (42.3-72.0)	
Occupation									
Nonmanual labor	2	66.7 (9.4-99.2)	0.740	0	0.0	0.217	2	50.0 (6.8-93.2)	0.660
Manual labor	30	63.8 (49.0-78.6)		8	50.0 (24.7-75.3)		38	60.3 (47.7-73.2)	
Housework	6	75.0 (34.9-96.8)		113	65.7 (58.3-73.1)		119	66.1 (58.9-73.3)	
Other	49	57.6 (46.6-68.7)		8	80.0 (44.4-97.5)		57	60.0 (49.6-70.4)	
Marital Status									
Single	13	56.5 (34.1-79.0)	0.806	35	67.3 (53.6-81.0)	0.007	48	64.0 (52.5-75.5)	0.118
Married or common law	53	63.1 (52.2-74.0)		31	48.4 (35.4-61.5)		84	56.8 (48.4-65.1)	
Widowed	15	62.5 (41.0-84.0)		50	75.6 (64.7-86.9)		65	72.2 (62.4-82.0)	
Separated	6	50.0 (21.1-78.9)		13	76.5 (50.1-93.2)		19	65.6 (46.5-84.5)	
Residential Area									
Urban	76	58.9 (50.0-67.8)	0.152	119	67.2 (60.0-74.4)	0.044	195	63.7 (58.2-69.3)	0.526
Rural	11	78.6 (49.2-95.3)		10	45.5 (22.4-68.5)		21	58.3 (40.8-75.8)	
Social Support									
Normal	60	55.0 (45.2-64.8)	0.011	91	59.9 (51.7-68.0)	0.008	151	57.9 (51.7-64.0)	<0.001
Low	27	79.4 (64.4-94.5)		38	80.9 (68.5-93.2)		65	80.2 (71.0-89.5)	
Total	87	60.8 (52.5-69.2)	-----	129	64.8 (57.9-71.7)	-----	216	63.2 (57.9-68.4)	-----

* Chi-squared tests for frequency distribution and differences in proportions

Taking into consideration the prevalence of self-perceived poor mental health, according to GHQ-12 (Table 2), the data reveal that this prevalence was greater in the population ≥75 years of age among men and among women (68.2%; 95% CI: 58.9–77.5%). An important social correlation was found in terms of the level of education: for higher levels of education, the prevalence of poor mental health was lower in both sexes, and the differences were statistically significant (p < 0.001). The prevalence was greater in populations from low strata (64.2%; 95% CI: 58.5–69.8%), even though no statistically significant differences were found (p = 0.346). For men, the prevalence of poor mental health was greater in rural areas (78.6%; 95% CI: 49.2–95.3%), and in urban areas for women; statistically significant differences were found (67.2%; 95% CI: 60.0–74.4%; p

= 0.044). Individuals with low social support manifested higher prevalence of poor mental health (80.2%; 95% CI: 71.0–89.5%), and statistically significant differences were found in both sexes (p < 0.001).

Lastly, the multivariate analysis by means of logistic regression showed that after adjustment for confounding variables, the adult population without schooling in both sexes (adjusted OR [AOR] 7.61; 95% CI: 2.49–23.34), widowed women (AOR 2.78; 95% CI: 1.21–6.40), and men and women with low social support (AOR 3.05; 95% CI: 1.39–7.50) were at a greater risk of poor mental health; this association was significant. In the final model, women were at a higher risk of poor mental health, but this association was not statistically significant (AOR 1.23; 95% CI: 0.76–1.97; Table 3).

Table 3. Association of poor mental health with the sociodemographic characteristics in the population of the elderly receiving services through ESE Metrosalud. (Medellin, Colombia. 2013; n=342)

Characteristics	Men		Women		All [¶]	
	AOR	(95% CI)	AOR	(95% CI)	AOR	(95% CI)
Level of Education*						
High school or university	1.00	-----	1.00	-----	1.00	-----
Elementary	8.58	(1.77-41.65)	3.64	(1.02-12.97)	5.27	(2.04-13.62)
No schooling	9.91	(1.48-66.49)	8.44	(1.71-41.61)	7.61	(2.49-23.34)
Marital Status[†]						
Married or common law marriage	1.00	-----	1.00	-----	1.00	-----
Single	0.84	(0.30-2.34)	2.17	(0.96-4.93)	1.39	(0.75-2.60)
Widowed	1.10	(0.38-3.15)	2.78	(1.21-6.40)	1.79	(0.94-3.40)
Separated	0.58	(0.14-2.45)	3.63	(0.98-13.47)	1.47	(0.60-3.64)
Residential Area[‡]						
Urban	1.00	-----	1.00	-----	1.00	-----
Rural	2.02	(0.51-8.05)	0.55	(0.21-1.47)	0.87	(0.39-1.77)
Social Support[§]						
Normal	1.00	-----	1.00	-----	1.00	-----
Low	2.86	(1.12-7.34)	3.23	(1.39-7.50)	3.05	(1.65-5.66)
Total[ǁ]	1.00	-----	1.23	(0.76-1.97)	-----	-----

* Adjusted for age, socioeconomic stratum, occupation, marital status, residential area, and social support
† Adjusted for age, level of education, socioeconomic stratum, occupation, residential area, and social support
‡ Adjusted for age, level of education, socioeconomic stratum, occupation, marital status, and social support
§ Adjusted for age, level of education, socioeconomic stratum, occupation, marital status, and residential area
ǁ Adjusted for age, level of education, socioeconomic stratum,occupation, marital status, residential area, and social support
¶ The sex variable is included in the entire model

DISCUSSION

We identified some socioeconomic correlates of the prevalence of poor mental health in the elderly receiving medical services in the public healthcare service network of Medellin. Social gradients were observed in this prevalence according to the level of education, and there was an increased risk of poor mental health in widowed women and individuals with low social support. Even though there were no statistically significant differences, socioeconomic strata, age, and residential area were factors that influenced the prevalence of poor mental health in the population studied. To the best of our knowledge, this is one of the first studies to evaluate mental health at an institutional and population level among a particularly vulnerable group, such as the elderly receiving care in this public network.

The results are not easily comparable with other studies due to the methods and scales of measurement used. For example, the prevalence of poor mental health in the elderly who turn to the city's public healthcare network is greater than the depression reported in a study performed on 103 senior welfare centers [18] (45.7% including both sexes). In the comparison of our results with the National Demographic and Health Survey (ENDS 2010; ENDS, Spanish acronym) [16], which evaluated each component of the Zung test, ENDS uncovered symptoms related to depression and anxiety in proportions between 40% and 60% (more or less consistent with the study in Medellin). At the international level, in a study on 64-year-old senior citizens in Guadalajara, Mexico [26] (with the caveat that it uses other methods to measure depression), the prevalence of symptoms of depression was 19.7% (less than that reported in Medellin, although these populations are similar in terms of the social context). A Spanish study involving GHQ-12 [13] showed prevalence of 9.4% in men and 21.8% in women (the prevalence in a population of the elderly who use public healthcare service networks was 61% in men and 65% in women).

Our results reveal the hazardous circumstances to which the elderly population in Medellin is exposed. These circumstances are reflected in the social conditions in the neighborhoods and communities of the city, because of the sociopolitical context and the difficulty with implementing

social and healthcare policies for this population [27]. This situation is aggravated by the fact that there are subgroups with greater vulnerability, such as individuals with lower levels of education and low social support. The lack of opportunities for development in a social context with profound social inequalities is reflected in the state of health [28], which was described in the literature as the "inequality paradox," meaning that there are groups at an increased risk due to the social characteristics that they share [29]. With regard to social support, the literature shows how individuals who do not have a social support network—provided by friends, family members, or in some cases, institutions—have poorer mental health and higher rates of depression [13,18].

The relation between sex and health is worth discussing. Our findings coincide with the results of another study in a city (greater symptomatology reported in women), even though neither study showed statistically significant differences with men [18]. Various studies emphasize the relation between socioeconomic status and sex, namely, women are in a particularly vulnerable situation [30,31]. The multivariate analyses revealed a statistically significant increased probability of poor mental health among widowed women. A study in Medellin on the feeling of loneliness among the elderly population showed greater marital loneliness in women [32]. This feeling of loneliness, in addition to other circumstances related to social support, increases the risk of depression and poor mental health.

Although there were no statistically significant differences in the adjusted analyses, the prevalence of poor mental health was found to be greater in men living in rural areas. In this regard, it is worthwhile to comment on the gender roles and their social representations [33]. Many men still work in manual occupations and do not have social benefits, such as the right to a pension. This situation is a major determinant of access to healthcare services. Studies on the elderly in rural areas showed how this segment of population experiences depression and barriers to access to mental health services (diagnosis and treatment) [34].

We found that the prevalence of poor mental health in the elderly population of Medellin is much greater than that found among the general population of Colombia. According to the latest available data at the population level (2003) [35], the lifetime prevalence of mental disorders in Colombia, according to DSM-IV, is 40.1% for the population group from 18 to 65 years of age. It should be noted that mental health problems start between the ages of 9 and 23. There are important cultural, social, and economic factors associated with the prevalence of these problems, which have had repercussions in cohort epidemiological phenomena

and manifest themselves as greater problems among the elderly population; this situation may have originated years ago. This phenomenon can be explained from a social epidemiological standpoint. The social inequalities that affect health have an important historical component and have been cumulatively incorporated into the population [36].

This study has strengths and limitations. It involves a sufficient sample size in terms of senior citizens, representative of the hospital units and medical centers of the public healthcare service network of Medellin. Likewise, the use of already validated instruments made it possible to make comparisons with other studies at the international level. The questionnaires underwent quality control; thus, their reliability is adequate. As for limitations, this study was based on data from a macroproject whose purpose was to identify the determinants of quality of life and their impact on oral health in the elderly population that uses general and specialized consultation services in ESE Metrosalud in Medellin, from a general standpoint. This study included general and mental health variables. To determine the sample size, the mental health variable was secondary to the variable "quality of life," which is important when extrapolating the results. Nevertheless, after calculating additional samples in the Epi Info software and using the data on the prevalence of some mental health problems in Colombia [16] and Medellin [18] (considering that they use different indicators for screening), we found that the sample size ranges from 240 to 366 senior citizens; these data are adjusted to the sample used in the Metrosalud study. It is important to emphasize that the cross-sectional nature of the study does not make it possible to establish causality in the relations and associations found.

The GHQ-12 questionnaire, being a self-report instrument, must be interpreted with caution because it is a screening test not a diagnostic tool. With regard to the cut-off point selected here, the cut-off used by Lahuerta et al. [13] was chosen because those authors analyzed a noninstitutionalized population that shared similar characteristics with the study population of the Medellin study and allowed for international comparability. Nevertheless, this study must be supplemented with specific studies on mental health that allow for a population-wide approach, the internal and external validation of the instrument with a psychological or psychiatric interview, and examination of specific disorders (affective and cognitive), in order to achieve greater reliability of the results. Nevertheless, considering the epidemiological nature of the study, the ability of an instrument to detect the at-risk population was already validated in previous studies [25], and these self-report health indicators are used broadly, transcending the

traditional biomedical paradigm for viewing the health-illness continuum [37].

The results of this study should be supplemented with the data on elderly population that consults the contributory system in the General Health Security System (ability to pay). This supplementation is necessary to obtain a broader picture of the health state of this population group. It is also necessary to further examine the contextual, economic, political, and social factors that influence health states. Future research involving qualitative methods may be useful for identifying situations of inequality through the perception of diverse players who provide healthcare services to the elderly population, and via studies on the perceptions (among the elderly) of factors that affect their mental health state.

In conclusion, the results of this study show the need to establish epidemiological monitoring and evaluation systems with a range of mental health indicators specific to the elderly population. Colombia has the Law of Social Protection of the Elderly (251/2008) [38],

but promotional and preventive policies and strategies for health maintenance must continue to be reinforced from the standpoint of social factors [39] that help ensure a favorable environment (for mental health and social policies needed to strengthen social support networks) and make it possible to decrease social inequalities in health and, thus, the vulnerability of this population group.

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