Prevalence of mental disorders in an urban area in Brazil

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Abstract

Objective
To detect the prevalence of mental disorders among the elderly residents of an urban area.

Methods
A sample of 327 elderly residents (60 years and older) of the city of Montes Claros, in northern Minas Gerais, was selected by means of probabilistic sampling, in multiple strata, within a homogeneous stratum. The sample unit was the home. Mental disorders were determined by means of the Short Psychiatric Evaluation Schedule (SPES). Univariate analysis was done via the chi-squared test and multivariate analysis via logistical regression.

Results
The estimated prevalence of mental disorders was 29.3%. Their presence was associated with female sex, number of illnesses, functional capacity and place of residence (shantytown/non-shantytown).

Conclusions
Comparing the results with other community studies, the prevalence of mental disorders among the elderly in the urban area of Montes Claros was high and was associated with multiple illnesses, incapacity and poverty. This reality is a matter for concern because of its impact on quality of life relating to this population's health, and on healthcare services over the next few decades.

INTRODUCTION

The growth of the elderly population is a world-wide phenomenon, and is especially affecting developing countries.[16,17,19]

The *Demographic Yearbook* of 1997 showed that Brazil has one of the biggest elderly populations in the world. Over the next 20 years, the elderly population in Brazil may reach over 30 million people and will represent almost 13% of the total population at the end of this period.[7,13,16,17,19]

The explosive growth in the size of the elderly population has caused an increase in the number of people at risk of acquiring neurological and psychiatric diseases.[3,12] Aging may result in the presence of a multiplicity of diseases, losses and incapacities with consequent deterioration of health among the elderly.[3,13-15] Various factors that are associated with aging may predispose towards the development of mental disorders, especially dysthymic symptoms.[3,11]

Mental disorders are common and correspond to 8% of diseases.[8] They were already being described by Hypocrites in Ancient Greece.

Psychiatric syndromes are frequent entities in geri-

atric psychiatry.[17] Approximately one in every six elderly people in the community present a history of mental disease.[19] Such syndromes constitute a serious clinical and public health problem, as well as being associated with worse quality of life in relation to health.[1,7,19]

According to previous studies carried out in various countries, the presence of mental disorders ranges from 3 to 52.2% and anxiety and, especially, depression are the most frequent psychiatric disorders.[2-6,9,11,16,20]

This home-based inquiry had the objective of estimating the prevalence of mental disorders among the elderly in an urban region, with the aim of contributing towards preventive action and attendance for this population.

METHODS

This was a cross-sectional, descriptive and analytical study carried out in the city of Montes Claros, State of Minas Gerais, Brazil. The sample was selected by probabilistic sampling in clusters, in several stages. The sample unit was the home (Ramos[13]).

The sample was selected by means of data from the Brazilian Institute for Geography and Statistics (Instituto Brasileiro de Geografia e Estatística - IBGE) that divides the city of Montes Claros into 186 census sectors, divided into various groups. The urban area consists of sectors of urban type 10 (non-special; non-shanty town) and urban type 11 (subnormal; shanty town). Together, these two types make up 167 sectors. From these, the sectors 23, 18, 88, 154, 106, 117, 21 and 125 (type 10) and sector 78 (type 11) were drawn randomly.

The delineation of the sector drawn was handed over to the researchers in the form of a map showing all the streets to be surveyed. The starting point for beginning the interviews was a place where two streets crossed. The streets on the map were visited until the desired number of interviews had been completed. These interviews were done by means of a questionnaire.

One researcher would go along the right side of the street and another along the left side. Of every two houses, the first one was drawn and this was repeated right along the street and subsequently for each sector that had been drawn. If the address drawn was an apartment block, all persons aged over 60 years were interviewed. Commercial properties or establishments were excluded: when these were drawn, the researcher would move on to the next residential property.

After applying the questionnaire on one street, the researcher continued to the next street by taking the first turning to the right. When this was not possible, a left turn was made and the procedure continued until terminating the drawn sector or completing the number of individuals determined for the survey. Persons included in the survey who were not at home at the time of the interview were sought out for interviewing on a further three occasions.

The interviews were held in the mornings, afternoons or evenings on all days of the week. The questionnaires applied were handed in on the same day or the day following the interview.

Seven interviewers (all of them university students) were duly trained before the start of the survey, for a pilot project. During this training, the objective of the study was explained and the questionnaire utilized was discussed in detail.

The instrument utilized was a psychogeriatric screening questionnaire: the Brazilian version of the Short Psychiatric Evaluation Schedule (SPES). The questionnaire forms part of a multidimensional assessment of the elderly, the Brazilian OARS Multidimensional Function Assessment Questionnaire (BOMFAQ), which is the Brazilian version of the Older Americans' Resources and Services questionnaire (OARS).[2,4,9,12-14] The SPES is a test of 15 simple questions that are objective, short and quickly completed, requiring only seven minutes for their application. Each question requires a yes or no response. The total score for the questionnaire is obtained by summing the number of yes responses, thus giving a score of between 0 and 15. The questionnaire has been found to present sensitivity of 61%, specificity of 89%, positive predictive value (PPV) of 66% and negative predictive value (NPV) of 87%.[4]

The result from the questionnaire was considered to be positive when the score was greater than or equal to seven. The scores presented good performance as indicators of psychiatric symptoms, although without giving diagnostic precision.[4,10]

The following domains of BOMFAQ were analyzed: sociodemographic data, functional capacity, physical health, mental health by means of the mini-mental state examination (MMSE), and the SPES. Univariate analysis was done initially, using the chi-squared test, between the result from the SPES screening (dependent variable) stating from the cutoff point of seven, and each of the abovementioned other variables (independent variables). The covariables that showed a significant association (p<0.05) with the dependent variable

SPES in this first model were selected for multivariate logistic regression analysis. Through logistic regression, variables with p>0.05 were then removed from subsequent models, one by one. The exercise was repeated until finding the variables that had the greatest influence on the result from the screening and which had statistical significance.

This research was approved by the Ethics Committee of the Federal University of São Paulo, Escola Paulista de Medicina, and by the Ethics Committee of the State University of Montes Claros.

RESULTS

Interviews were held with 327 individuals aged 60 years or over. The sociodemographic and economic characteristics of this population are presented in Table 1. Eleven persons refused to participate in the study.

The proportion of women with positive screening for mental disorders (76.5%), was greater than for the men. Among all the women, 36.1% had a positive score, versus only 21.6% of the men. The association was statistically significant (p=0.007).

The greatest proportion of the people interviewed was in the age range of 60 to 64 years (30.9%). Within this age range, there were many individuals with alterations, although there were greater numbers among the people aged 75 years and over. There was a large proportion of old people aged 80 and over and also a larger proportion of persons with alterations (39.6%) in this population. However, these differences did not present statistical significance (p=0.292).

A marked difference with statistically significant values (p=0.000) was detected in the analysis of place of residence (sector). High rates of alterations were concentrated among those living in the shantytown sector. Among the 21 elderly people in the shanty town, 17 had an income of up to one minimum salary (80.9%), 15 had three or more diseases (71.4%), 13 (61.9%) presented moderate to severe daily difficulties and 14 (66.7%) were women. In the assessment of cognitive function in the mental state examination (MMSE), 80.9% of these individuals had a score of ≤23.

The marital status did not show statistical significance (p=0.319). The proportion of women among the widowed, single and separated individuals was, respectively, 81.7, 80.6 and 71.4%. It was seen that married people tended to mention fewer mental disorders than did people in the other categories. Such alterations were most frequent among separated and

Table 1 - Detailed results from the Short Psychiatric Evaluation Schedule (SPES), taking seven as the cutoff point.

SPES ≥7 (with alterations)	N	%
No	225	68.81
Yes	102	31.19

divorced people (Table 2).

The income presented statistical significance (p=0.010). The great majority of the elderly people had a per capita income of less than or equal to one minimum salary. Individuals with lower income mentioned more mental disorders. In contrast, those who received more than four minimum salaries reported fewer mental disorders (Table 2).

There was no statistically significant difference between living alone or not (p=0.681) (Table 2).

The schooling category did not present statistical significance (p=0.138). However, the largest scores from the screening questionnaire were concentrated among illiterate people and those who were only able to read and write. The interviewees' schooling level was low, with an average length of schooling of 2.46 years. It was observed that, as the schooling increased, the number of people presenting alterations decreased (Table 2).

With regard to physical health, a minority (18.9%) did not report any disease (Table 1). The most common disease was hypertension (187 persons, or 57.2% of the total sample), followed by diabetes, affecting 10.7%; 22 individuals had suffered a cerebrovascular event. The individuals with the largest numbers of diseases were in the shantytown sector (71.4%). The numbers of diseases affecting individuals showed high values of statistical significance (p=0.000). It was seen that healthy individuals reported fewer mental disorders. Among those with three or more diseases, the majority presented alterations according to the questionnaire (Table 2).

Functional capacity was measured according to daily activity on the 15-task BOMFAQ scale and indicated the need for assistance, or the presence or absence of difficulty in performing such activities. Out of the 86 elderly people in the whole sample who presented serious difficulties, 65.1% were women and 34.9% were men; the majority lived in sector 88 (45.5%) and the shanty town sector (38.1%). The latter category was shown to be a factor of high significance from a statistical point of view (p=0.000), in relation to the presence of mental disorders. There was an evident difference between people showing alterations according to the screening questionnaire

who did not have functional difficulties and those with moderate to serious difficulty and a positive test for mental disease (Table 2).

With regard to cognitive function, measured by the MMSE, the majority of the individuals had scores of less than or equal to 23 (Table 2). The relationship with mental disorders was statistically significant and the proportion of these disorders was greater among individuals presenting alterations according to the MMSE.

There was a positive score in relation to mental health for 31.2% of the individuals. Most of these persons presenting alterations were in sectors 88 (54.6%) and 78 (57.1%) (Table 2).

According to the formula: $P = \%\ positive\ X\ PPV + \%\ negative\ (1\text{-}NPV)$, the prevalence of individuals presenting alterations was 29.3%.

Logistic regression following univariate analysis of the data led to four variables remaining: sex, number of diseases, functional capacity and place of residence (sector). These four variables were each capable of significantly interfering individually in the SPES scores.

DISCUSSION

This study had some limitations. It was a cross-sectional assessment, while certain psychiatric diseases of old age have fluctuating courses with altera-

Table 2 - Profiles of interviewees aged 60 years or over living in the urban area of Montes Claros, State of Minas Gerais, Brazil, according to mental health screening and variables of the Short Psychiatric Evaluation Schedule (SPES). October 2002.

Variable	Category %	Positive (%)	SPES test Negative (%)	Total (%)	p value
Sex					0.007
Female	66.1	36.1	63.9	100.0	
Male	33.9	21.6	78.4	100.0	
Age					0.292
60-64 years	30.9	31.7	68.3	100.0	
65-69 years	22.6	27.0	73.0	100.0	
70-74 years	19.3	23.8	76.2	100.0	
75-79 years	11.0	38.9	61.1	100.0	
80 years or over	16.2	39.6	60.4	100.0	
Schooling					0.138
Illiterate	39.1	35.9	64.1	100.0	
Able to read and write	25.2	34.0	66.0	100.0	
Primary school completed	23.8	21.0	79.0	100.0	
Secondary school	7.3	31.6	68.4	100.0	
More than eight years of schooling	4.6	13.3	86.7	100.0	
Marital status					0.319
Single	8.0	30.8	69.2	100.0	
Married	47.1	27.9	72.1	100.0	
Widowed	38.5	32.5	67.5	100.0	
Separated/divorced	6.4	47.6	52.4	100.0	
Per capita income					0.010
<1 minimum salary	68.2	34.5	65.5	100.0	
≥1 and <3 minimum salaries	19.9	32.3	67.7	100.0	
≥3 minimum salaries	11.9	10.3	89.7	100.0	
Home					0.681
Living alone	6.7	27.3	72.7	100.0	
Living with one or more people	93.3	31.5	68.5	100.0	
Number of diseases					0.000
0	19.0	11.3	88.7	100.0	
1	27.5	12.2	87.8	100.0	
2	28.4	37.6	62.4	100.0	
3 or more	25.1	59.7	40.3	100.0	
Daily activities					0.000
No difficulties	32.1	12.4	87.6	100.0	
Slight difficulty	22.6	27.0	73.0	100.0	
Moderate difficulty	19.0	35.5	64.5	100.0	
Serious difficulty	26.3	34.6	65.4	100.0	
Cognitive function					0.020
>23	34.6	23.0	77.0	100.0	
≤23	65.4	35.5	64.5	100.0	
Sector					0.000
18	18.7	24.6	75.4	100.0	
23	6.4	28.6	71.4	100.0	
78 (shanty town)	6.4	57.1	42.9	100.0	
88	20.1	54.5	45.5	100.0	
106	7.7	16.0	84.0	100.0	
117	8.9	17.2	82.8	100.0	
121	9.5	29.0	71.0	100.0	
125	8.0	19.2	80.8	100.0	
154	14.4	21.3	78.7	100.0	
Total	100.0 N=327	31.2 N=102	68.8 N=225	100.0	

tions in form over just a few days or even several times on the same day.

False positives and false negatives are a byproduct from utilizing questionnaires in epidemiological research. Thus, the effect of such incorrect classifications must be taken into account in the findings.

It is possible that old people exaggerate or underestimate their symptoms, and they may express these with more vehemence and thus be detected on a questionnaire that is filled out by non-experts. There is also an interrelationship between physical and mental diseases, since physical diseases are very prevalent in the geriatric population. Thus, false positives may be associated with this problem, given that the SPES has some questions that investigate physical symptoms.

Despite this, Blay et al[4] (1988) stated that the SPES presented good performance as an indicator for the presence of psychiatric symptoms. Even without giving diagnostic precision, it is a valuable instrument for the first screening of people with possible mental disorders.

This was the first home-based survey for investigating mental disorders among the elderly population in Montes Claros. A prevalence of 29.3% was found, which is comparable to the rates found by Bourget,[5] in São Paulo (36.1%); Blay et al,[4] in São Paulo (30%); Almeida,[3] in Salvador (33%); Ramos et al,[13] in São Paulo (27%); Coelho & Ramos,[6] in Fortaleza (26.4%); and Liu,[11] in China (26%).

The frequency of alterations in the shantytown sector was much greater (57.1%), which backs the theory that the prevalence of mental disorders is higher in poorer and needier areas.

The findings from the present study resemble those of Bourget,[5] in São Paulo, Coelho & Ramos,[6] in Fortaleza, and Liu,[11] in China, in which the data gathered showed a high prevalence of mental disorders among the needy low-income population.

The profile of the population studied mirrors those of the populations studied in São Paulo, Fortaleza and China. In these different studies, the majority of the participants were women: 69.1% in São Paulo, 66% in Fortaleza, 57% in China. In the present study, women formed a large majority: 66.1%. Likewise, a large proportion of the population was in the youngest age group considered: 40.1% between 65 and 69 years in the study by Bourget[5] and 53% between 60 and 69 years in Coelho & Ramos,[6] while in the present study, 53.5% were under 69 years old, 30.3% were between 70 and 79 and around 16.2% were over 80.

With regard to illiteracy, 37.4% of those interviewed in the study by Bourget[5] were illiterate. In the present work, this prevalence was 39.1%, whereas in the study by Liu,[11] 67% were illiterate and 93% had had less than six years of schooling. In the present study, 63.4% of the population interviewed said they had had less than four years of schooling, while in Bourget,[5] 59% were in the same situation.

Another matter observed was in relation to housing and the habit of living alone or not. Most of the interviewees did not live alone: most frequently, they lived in multigenerational homes. Only 6.4% of the individuals studied lived alone, while 20.2% of the old people lived in crowded homes. In the study by Bourget,[5] around 15.4% lived alone and 19.1% lived with more than five other people.

Another finding to be analyzed is the per capita income. A majority of the population interviewed (68.2%) was receiving less than one minimum salary per month. In Bourget,[5] 71% earned less than 100 reais.

With regard to the number of diseases and the functional capacity, a majority of the elderly people studied (53.5%) had two or more chronic diseases and required assistance in three or more daily activities, measured as daily activity values (45.3%). The São Paulo and Fortaleza studies showed similar tendencies: in São Paulo, 44.7% of the individuals had two or more diseases and 34.8% required assistance in three or more daily activities. In the study by Coelho & Ramos,[6] in Fortaleza, 92.4% of the individuals had more than one chronic disease and 46.8% needed assistance in more that three daily activities. In the study by Liu,[11] 67.2% presented chronic diseases.

With regard to other studies, the elderly population with mental disorders is mostly female, widowed, needy and living with children and grandchildren, and has many chronic diseases and incapacities in relation to daily activities.[2,3,5,6,10,11,13,15,16,20]

Old age is the time in the cycle of life when biopsychosocial interactions are very much narrowed. Disorders in one area sometimes increase the potential for limitations in other areas.[4]

There is a need for professionals to be trained in order to face the multidimensional problem of the growing geriatric population. There is also a need for the healthcare system to go through a process of restructuring aimed at promoting the prevention, early diagnosis and treatment of chronic diseases and incapacities that are associated with adulthood and especially with old age.

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