Original Article

Prevalence of depressive symptoms and signs of dementia in the elderly in the community

Prevalência de sintomas depressivos e sinais de demência em idosos na comunidade

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ABSTRACT

A cross-sectional study that analyzed the prevalence of depressive symptoms, signs of dementia and associated factors in seniors residing in a city located in the south of Brazil. A house survey was conducted in a sample of 359 seniors registered in the Basic Health Units, using the questionnaire Brazil Old Age Schedule. To analyze associated factors, Chi-Square test and Prevalence Ratio were calculated. The prevalence of depressive symptoms was 65,2%, higher for women (PR = 1,2; *p*=0,029) and for elders living alone (PR=1,3; *p*=0,009). Dementia signs were present in 37,69%, they were more frequent in women (PR=1,8; *p*<0,001), elders of 70 to 79 years (PR=1,4; *p*=0,014), of 80 or more years (PR=1,6; *p*=0,015), widowed (PR=1,7; *p*<0,001) and illiterate (RP=2,8; *p*<0,001). It is essential to comprehend the associated factors to depressive symptoms and signs of dementia to improve mental health actions for the elderly in the community, especially for women, widowed, those aged more than 70 years, illiterate and those living alone.

Descriptors: Aged; Geriatric Nursing; Depression; Dementia; Prevalence.

RESUMO

Estudo transversal que analisou a prevalência de sintomas depressivos, sinais de demência e fatores associados em idosos residentes em município do sul do Brasil. Foi realizado inquérito domiciliar a uma amostra de 359 idosos cadastrados nas Unidades Básicas de Saúde, utilizando questionário *Brazil Old Age Schedule*. Para análise dos fatores associados empregou-se teste Qui-Quadrado e Razão de Prevalência. A prevalência de sintomas depressivos foi 65,2%, maior para mulheres (RP=1,2; *p*=0,029) e idosos que moram só (RP=1,3; *p*=0,009). Os sinais de demência, presentes em 37,6%, foram mais frequentes em mulheres (RP=1,8; *p*<0,001), idosos de 70 a 79 anos (RP=1,4; *p*=0,014), de 80 anos e mais (RP=1,6; *p*=0,015), viúvos (RP=1,7; *p*<0,001) e analfabetos (RP=2,8; *p*<0,001). A compreensão dos fatores associados aos sintomas depressivos e sinais de demência é essencial para aperfeiçoar ações em saúde mental do idoso na comunidade, principalmente mulheres, viúvos, acima de 70 anos, analfabetos e que moram sozinhos.

Descritores: Idoso; Enfermagem Geriátrica; Depressão; Demência; Prevalência.

INTRODUCTION

Depressive symptoms and signs of dementia are frequent in seniors and pointed as common and important psychiatric problems[1]. Added to other physiological changes, they directly impact the elderly daily routine, affecting their quality of life and from their families, besides being silent enhancers of financial and social costs, and use of health services[2].

The global prevalence of elderly depression vary from 0,9% to 9,4% in the community and 14% to 42% in institutionalized seniors[3]. In Brazil, the prevalence of depressive symptoms in the elderly community population vary from 13% to 39%[4] according to the location and socio-demographic profile. Regarding dementia, considering the mean prevalence and not the symptoms, the growing perspective is 7,6% in 2010 to 7,9% in 2020, representing 55.000 new cases per year, becoming a public health issue carried by a bioethical preoccupation involving loss of autonomy in affected people and the responsibility of the healthcare system to care for them[5].

Even with guarantee of access and focus of public policies for the elderly population, to improve the mental healthcare assistance for this population is a challenge[6]. Normally, health services and professionals in their care plan do not prioritize signs, symptoms and complaints relative to neuropsychiatric problems of seniors. Studies in this field have been pointed as priority in Brazil[7], as they identify earlier subjects with specific needs[8] and help iith the adoption of strategies to prevent these diseases[9]. Thus, this study aimed to analyze the prevalence of depressive symptoms, signs of dementia and associated factors in elderly living in a city located in the south of Brazil. We expect the results to reiterate the evidence of mental health problems of elderly living in the community and, the need to include these problems on the health attention agenda.

METHODS

A cross-sectional study with a home survey that explored socioeconomic and mental health conditions of people 60 or more years old, registered at the Basic Health Units (BHU) in Guarapuava- PR, which had a residing population of 167.328 inhabitants in 2010, being 9,5% over 60 years[10].

The sample selection was organized through listing provided by the nurses responsible for each BHU, accounting for the age inclusion criteria (60 years or more) in December of 2009 and to be registered on the A records from BHUs, totalizing 5.508 elderly subjects.

The sample calculation was conducted with proportional stratified sampling technique, and it considered the number of elderly subjects from each BHU, using the following equation:

$$n0 = \frac{(Z\ \alpha/2)^2}{4\ d^2}$$

Where:

- zα/2 = z0,025 = 1,96;
- confidence level = 5%;
- n = (N.n0)/(N+n0);
- d = error margin.

The number (n) established for the study was 359 senior subjects. To obtain the interviewed n in each stratum (BHU), we applied the function:

$$ni = n*Ni/total$$

Where:

- n = number of elders registered in each BHU;
- Ni = number of elders in the sample, equivalent to 359;
- Total = total number of elders of the study population, which is 5.508.

To select the interviewed subjects, we used simple random drawing, individualized for each BHU, using the program *Microsoft Office Excel*® (2007 version). In case of

denial, absence at the residence after the third visitation, change of address, or death, the person was substituted by a new drawing, respecting the BHU proportionality.

The interview used the Brazil Old Age Schedule (BOAS) questionnaire, the Brazilian version of the Older Americans Resources and Services (OARS) [11], and it was applied by trained interviewers, between January and April of 2010. The BOAS is a multidimensional instrument divided in nine sections addressing aspects of the elderly life, the impact in daily activities, as the social, economic, physical and mental situations. General, social and economic resources information were used, and the segment about mental health, consisting of the short-care scale, in a version valid for Portuguese, emphasized changes related to depression symptoms and dementia signs; as loneliness, preoccupation, insomnia, headache, knowledge of the date of birth, address, time of living, within others.

This scale is composed by 22 questions and for each answer, a value is given, adding a total of 37 points, and indicating suspected dementia signs or of depressive symptoms.

To identify depressive symptoms, we considered the sum of answers from the short-care scale reaching eight or more, as this is the cut point that better provides a balance between sensitivity and specificity[11]. We consider "minor depression" values between eight and 12 points and "major depression" values between 13 and more. It was possible to identify severe and persistent disorders with a maximum score of 28 points.

The analysis of dementia signs considered scores less or equal to two for "absence of dementia signs" and equal or higher three points for "presence of dementia signs", and the scores could reach up to nine[11].

Prevalence of dementia signs and depressive symptoms (dependent variables) were analyzed in accordance with gender, age, marital status, education, family arrangement and place of residence (independent variables). We used Chi-Square tests (Chi^2) and Prevalence Ratio (PR), adopting a level of significance of p <0,05. For analyses, we used the program Epi Info 7.

Our study met the ethical precepts regarding home interview; the presentation of the study aims, guarantee of secrecy, anonymity, data privacy, and absence of personal losses in case of withdrawing from the study. The research project was approved by the Ethics in Research Committee of the Universidade Estadual de Maringá-PR (Protocol nº 492/2009).

RESULTS

From the 359 interviewed seniors, 64,3% were women, 60,4% were between 60 and 69 years and 57,7% were married. Most lived in urban areas (78,8%) and lived with family members (83,6%). We highlight the low education of participants, 37,8% declared not having any education and 54% completed only the first cycle of middle school. The prevalence of depressive symptoms were 65,2%, being 30,7% with major depression and 69,3% with minor depression. Depressive symptoms were more frequent in women (PR=1,2; *p*=0,029) and in those living alone (PR =1,3; *p*=0,009). Seniors 70 to 79 years old (PR=0,8; p=0,006) and those who had up to eight years of education (PR=0,5; *p*<0,001) had lower prevalence of depressive symptoms (Table 1).

Signs of dementia were present in 37,6% of elderly, with significant association for females (PR=1,8; *p*<0,001), widowed (PR=1,7; *p*<0,001), those with no education (PR=2,8; *p*<0,001) and those between 70 and 79 years (PR=1,4; *p*=0,014) and over 80 years of age (PR=1,6; *p*=0,015) (Table 1).

Tables 2 and 3 shows the distribution of answers to the short-care scale items, for depressive symptoms and signs of dementia. The 234 seniors with depressive symptoms presented divergent information in their answers, 85% revealed to have less energy, even when eating well (80,8%), feeling depressive or very sad on the last month (55,1%), although 88,5% were happy at the moment. Besides, 72,6% of seniors presented regrets in

relation to their past and were worried (70,1%), and 56,8% related headache (Table 2).

The highlighted items of the short-care scale for the seniors with signs of dementia were: do not remember the research institution at the end of the interview (85,2%), do not know the name of the actual Brazilian president (71%), cannot repeat the name of the research institution (60,7%) and the year of birth does not correspond to the observer' impression (59,3%). The items of the scale related to small exercises show high proportions between these seniors with difficulty to place the right hand on the right ear (71,9%), on the left ear (70,4%) and the left hand on the right ear (62,2%) (Table 3).

Table 1: Prevalence of depressive symptoms and signs of dementia in elderly according to sociodemographic variables. Guarapuava, PR, Brazil, 2010.

Variables	Total	Depressive Symptoms			Signs of dementia		
	n (%)	n (%)	*p**	PR– CI (95%)	n (%)	*p**	PR- CI (95%)
Gender							
Male	128 (35,7)	74 (57,8)		1	32 (25,0)		1
Female	231 (64,3)	160 (69,2)	**0,029**	**1,2 (1,02; 1,41)**	103 (44,6)	**<0,001**	**1,8 (1,31; 2,43)**
Age							
60 to 69	216 (60,4)	144 (66,7)		1	64 (29,6)		1
70 to 79	101 (28,3)	62 (61,4)	**0,006**	**0,8 (0,94; 0,69)**	48 (47,5)	**0,014**	**1,4 (1,07; 1,87)**
80 or more	40 (11,3)	27 (67,5)	0,752	1,0 (0,82; 1,32)	22 (55,0)	**0,015**	**1,6 (1,09; 2,23)**
Marital status							
Married	207 (57,7)	130 (62,8)		1	63 (30,4)		1
Single	8 (2,2)	5 (62,5)	0,872**	0,9 (1,58; 0,56)	4 (50,0)	0,716**	1,3 (0,61; 2,93)
Widowed	124 (34,6)	86 (69,3)	0,227	1,1 (0,94; 1,29)	64 (51,6)	**<0,001**	**1,7 (1,31; 2,22)**
Divorced	20 (5,5)	13 (65,0)	0,986	1,0 (1,39; 0,72)	4 (20,0)	0,094	0,5 (1,12; 0,24)
Education							
High school/superior	9 (2,5)	4 (44,4)		1	1 (11,1)		1
None	135 (37,8)	94 (69,6)	0,176	1,1 (0,95; 1,30)	84 (62,2)	**<0,001**	**2,8 (2,16; 3,68)**
Middle school 1***	194 (54,3)	129 (66,5)	0,594	1,0 (0,98; 1,11)	45 (23,2)	**<0,001**	**0,4 (0,57; 0,33)**
Middle school 2****	19 (5,4)	6 (31,6)	**0,001**	**0,5 (0,75; 0,29)**	3 (15,8)	**0,046**	**0,4 (0,99; 0,17)**
Family arrangement							
Live w/ family member	310 (86,3)	194 (62,6)		1	112 (36,1)		1
Live alone	49 (13,7)	40 (81,6)	**0,009**	**1,3 (1,07; 1,59)**	23 (46,9)	0,146	1,3 (0,91; 1,85)
Residency location							
Rural area	76 (21,2)	44 (57,9)		1	31 (40,8)		1
Urban area	283 (78,8)	187 (66,1)	0,186	1,1 (0,94;1,39)	104 (36,7)	0,392	0,9 (1,20; 0,63)

* Chi-Square Test

** Yates Chi-Square Test

***Middle school, up to four years of education

****Middle school, up to eight years of education

Table 2: Depressive symptoms according to the short-care scale. Guarapuava, PR, Brazil, 2010.

Items of the short-care scale	Depressive symptoms			
	Yes		No	
	n (234)	%	n (125)	%
Felt lonely on the last month	93	39,7	8	6,4
Felt worried on the last month	164	70,1	36	28,8
Has some difficulty to sleep	104	44,4	25	20,0
Had headache last month	133	56,8	31	24,8
Have been eating well last month	189	80,8	110	88,0
Have been feeling less energy	199	85,0	52	41,6
Felt more irritated/ angry on the last month	123	52,6	26	20,8
Leave the house whenever needed or when want to	212	90,6	103	82,4
Have been feeling sad or depressed on the last month	129	55,1	2	1,6
On the last month, felt that was not worth living	58	24,8	4	3,2
Feels regret from the past years of your life	170	72,6	112	89,6
Whenever thinking of the future, has expectation	122	52,1	64	51,2

At the moment, feels lack of interest for things or satisfaction	79	33,8	8	6,4
Feels happy nowadays	207	88,5	122	97,6

Table 3: Signs of dementia in accordance with the short-care scale variables. Guarapuava, PR, Brazil, 2010.

Items of the short-care scale	Signs of dementia			
	Yes		No	
	n (135)	%	n (224)	%
Do not repeat or do not answer the name of the research institution	82	60,7	44	19,6
The date of birth does not correspond with the observer' impression	80	59,3	12	5,4
Do not know or provide the incorrect house address	50	37,0	5	2,2
Do not know or inform the wrong time of residence	36	26,7	3	1,3
Do not remember of provide the wrong name of the actual Brazilian president	96	71,1	14	6,3
Do not know or informs wrong the actual year	74	54,8	5	2,2
Do not know or informs wrong the actual month	42	31,1	2	0,9
Do not remember the name of the researcher' university	115	85,2	63	28,1
Places the right hand on the right ear	97	71,9	216	96,4
Places the left hand on the right ear	4	62,2	210	93,8
Places the right hand on the left ear	95	70,4	219	97,8

DISCUSSION

The prevalence of depressive symptoms (65,2%) was higher than in a study describing the use of the multidimensional BOAS questionnaire in a people attending a social group and revealed a prevalence of 30%[2], and a study conducted in Florianópolis/SC that identified a prevalence of 23,9%[9].

We observed other associations with depressive symptoms, as the sociodemographic variables. Social inequalities influenced life and health conditions and contributed for the appearance of these symptoms[12], that in the study were associated to women and those living alone. In addition, a higher prevalence in seniors 80 years or older, widowed, illiterate and, those living in urban areas. The higher risk of depressive symptoms associated to females have been described in the literature[12] and, is related to the fact that women presented higher occurrence of non-fatal disabling conditions, use of health services, ability to report health conditions in comparison to men[6], and mean age higher than men[10].

the prevalence of depressive symptoms was present in all age groups and, increased with age. It was observed in 67,5% in elders 80 years or older, even without showing an association, it reinforces the risk of developing mental disorders with the increase in years of life[2,13-14]. The experience of psychosocial episodes, as death and end of relationships, the increase in comorbidities observed with the increase in age[15] can contribute to the appearance of these depressive symptoms in comparison to seniors 60 to 69 years, and can be explained by the difference in age means among genders[10].

Widowed and divorced seniors had higher prevalence of depressive symptoms, probably due to the higher likelihood to live alone. Regarding those living alone (81,6%), the change of family structure from multi-generational to in core, allied to social contemporaneous problems can contribute to the appearance of depressive symptoms, showing the need of directed attention to these senior.

Illiterate elders presented higher proportion of depressive symptoms (69,1%), superior to the one found in studies conducted in the south region, of 39,1% in a city in Paraná state[2] and of 25,2% for elders with up to four years of education in the capital of Rio Grande do Sul state[16]. Therefore, education was significant only for elders with more years of middle school, becoming a protective factor (PR=0,5). It is a condition demonstrated in the literature where depressive symptoms are inversely proportional to years of study, overall in women[17], broadening resources to face stressful situations[12].

The vulnerability in which the senior is exposed can change the effects on stressful events about their health over time. The number of stressful events that a senior experience during his life have been associated with depression in old age[15]. To mention that life is the target for reflection for most seniors, it can be positively faced, since a social support network is available, and the health service is not reduced to curative and hospital treatment[18].

The prevalence of dementia is of global interest and can be subject to changes, due to modifiable risk factors and different in populations[19]. In our study, we observed signs of dementia in 37,5% of elders, a different result from the one described for the country in a systematic review[13], in which results showed variation of 3,1% in interior cities of São Paulo and 86,7% in the interior of Bahia state. Those elders without education presented 12,2% and 62,8%, respectively in Catanduva/SP and Santo Antônio de Pádua/RJ. Other factors associated to signs of dementia were low socioeconomic status (10,9% to 41,3% in Catanduva/SP and Ribeirão Preto/SP) and female gender (1,7% in Rio de Janeiro/RJ to 50,2% in a city from the interior of Bahia State).

In our study, higher prevalence of dementia signs is associated to female gender, being 80 or more years, being widowed, illiterate and, living alone and in rural areas. In the same way, these factors were identified as predictors to worse scores of dementia signs in elders from a community in São Paulo[14].

In the present study, signs of dementia were more prevalent in older seniors, agreeing with higher wear of organic functions, decrease of cognitive levels and decreased speed to process information. We observed a significant association of dementia signs and age groups of 70 to 79 years and 80 or more (PR=1,4 and PR=1,6, respectively), agreeing with an European study[20], which identified a positive linear increase of dementia with age.

Illiterate seniors who did not know how to read and write (37,8%) became the most sensible group to develop signs of dementia with prevalence of 62,2%. Educational experiences create a cognitive reserve that acts as protector effect against dementia, lasting until old ages[21]. Thus, education is also related to higher socioeconomic status, better lifestyle and less exposition to environmental toxins[22], confounding with the real protection of education on dementia.

The action of education on dementia signs in individuals was investigated through decades and, similarities of dementia signs in individuals with or without high levels of education were found. Regardless, the most literate group presented decrease of 11% per year on the risk of developing the signs in life, demonstrating that education does not protect, and yes, compensate the disease actions on the brain[22].

Cognitive difficulties of seniors with signs of dementia are related to the attention and alert states, visual-space activities, psychomotor speed and his operational short-term memory; important factors that should be identified to show its cognitive commitment[23]. In the present study, these factors were more present in elders with dementia signs, especially on items related to attention state and recent memory.

The mental health monitoring of elders living in the community shows important implications to plan an integral assistance and provides evidence about the need to develop strategies of attention to the senior population. Due to its simple applicability and easy management of the BOAS questionnaire, it becomes a tool to assess life and patterns in the elder, and can be used by basic attention professionals, especially the nurse, aiming to track and provide opportunity to a first mental health condition assessment during the nursing consultation, in social groups and, in home appointments.

Thus, the elder should be considered in multiple interfaces, and the nursing care should aim the assistance management and preservation of its independency. Nursing activities as the knowledge of each elder and personal characteristics, capacity of the health team in providing competent and quality assistance, establishment of reference networks and counter-

reference integrated and resolute, are actions that can propitiate a humanized and integral care to the elder and his family [24].

CONCLUSION

Our findings of most elders presenting depressive symptoms and signs of dementia are women, with low education, widowed and living alone, reaffirm the evidence from the literature and demonstrate that overpassing these problems still requires urgency.

This study had as advantages; the home survey, with a sample representing elderly going to BHU residing in a medium size city, delineating the health profile and showing information consistent and agreeing with results from epidemiologic studies in the literature. The high prevalence points for a sub-recognition of the mental health of elders in the community by the basic attention, compromising a treatment sufficiently adequate and specific. Thus, we suggest more improvements in health services, directed to basic attention responsibility and consequently, from multi-professional health teams, for early detection of depressive symptoms and signs of dementia in elders living in the community.

Some limitations should be considered when interpreting the results, as the multi-dimensional and dynamic character of the investigated diseases, which can determine the fluctuating course of signs and symptoms even in old ages, changing its expression in few days or even many times in a day. It is also possible to exist an over estimation of symptomatology by interviewers. Another limitation refers to the cross-sectional design of the study, in which results cannot define cause-effect relationships, but only signs associations between analyzed characteristics and depressive symptoms and signs of dementia.

These results can subsidize actions of the health team, overall the nurse, in a sense to reinforce efforts to consider the elder vulnerability to neuropsychiatric disorders. Support activities and interdisciplinary accompaniment, development of partnerships, creation of social groups, enhancement of the bond and monitoring depression symptoms and signs of dementia are strategies that should be adopted in the attention routine to the elder in the community.

Due to the high prevalence of depressive symptoms and signs of dementia, the possibilities for these diseases' treatments, and due to the tracking characteristic of the instrument used in the study, we suggest broader investigations to conclude a more accurate diagnosis for those diseases in the older population. Also, longitudinal studies can be more capable to better understand factors associated to elderly groups with higher risks, as a more detailed relationship of education, through regression tests. Experimental studies can be useful to analyze the behavior of modifiable factors and their relationships with depression symptoms and signs of dementia, as well as the functionality of the family, social and health support network to the elder in the community.

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Received: 03/03/2015.
Accepted: 05/25/2015.
Published: 12/31/2015.