Cogitare Enfermagem

ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH DEPRESSIVE SYMPTOMS AND FUNCTIONAL CAPACITY IN ELDERLY*

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ABSTRACT

Objective: To identify the prevalence and factors associated with depressive symptoms and functional capacity in the elderly.

Method: Analytical cross-sectional study with 100 elderly individuals in a Basic Health Unit (UBS) in northern Brazil. The Geriatric Depression Scale (GDS), Katz scale and the Lawton and Brody scale were used. Data was analyzed with Pearson's Chi-square test, Pearson's Correlation Coefficient and Student's t tests, and a p value less than 0.05 was considered significant.

Results: The prevalence of symptoms of depression was estimated at 22%. It was higher in elderly people with poor self-rated health, sedentary and who did not participate in social groups. Functional dependency of elderly for performing instrumental activities of daily living was estimated at 46%. It was associated with depressive symptoms and old age.

Conclusion: The use of instruments for early detection of depressive symptoms and functional disability allows risk stratification and prevention of the worsening of these living conditions of the elderly.

DESCRIPTORS: Aging; Elderly; Depression; Quality of life; Elderly Health.

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FATORES ASSOCIADOS A SINTOMAS DEPRESSIVOS E CAPACIDADE FUNCIONAL EM IDOSOS

RESUMO
Objetivo: identificar a prevalência e fatores associados a sintomas depressivos e capacidade funcional em idosos.
Método: estudo analítico, de corte transversal, realizado com 100 idosos em Unidade Básica de Saúde do norte do Brasil. Aplicou-se a Escala de Depressão Geriátrica, escalas de Katz e de Lawton e Brody. Os dados foram analisados por meio dos testes Qui-quadrado de Pearson, Correlação Linear de Pearson e t de Student com nível de significância estatística valor de p-valor <0,05.
Resultados: a prevalência de sintomas depressivos foi de 22%, sendo maior em idosos com autopercepção ruim da saúde, sedentários e não participantes de grupos de convivência. A dependência nas atividades instrumentais da vida diária foi de 46% com associação a sintomas depressivos e idade avançada.
Conclusão: o uso de instrumentos para detecção precoce de sintomas depressivos e incapacidade funcional permite a estratificação de risco e prevenção do agravamento dessas condições de vida do idoso.

DESCRITORES: Envelhecimento; Idoso; Depressão; Qualidade de Vida; Saúde do Idoso.

FACTORES ASOCIADOS A SÍNTOMAS DE DEPRESIÓN Y CAPACIDAD FUNCIONAL EN ANCIANOS

RESUMEN:
Objetivo: identificar la prevalencia y los factores asociados a síntomas de depresión así como la capacidad funcional en ancianos.
Método: estudio analítico, de cohorte trasversal, que se realizó con 100 ancianos en Unidad Básica de Salud del norte de Brasil. Se utilizó la Escala de Depresión Geriátrica, escalas de Katz y de Lawton y Brody. Se analizaron los datos por medio de los tests Chi cuadrado de Pearson, Correlación Linear de Pearson y t de Student con nivel de significancia estadística valor de p-valor <0,05.
Resultados: la prevalencia de síntomas de depresión fue de 22%, siendo más alta en ancianos con auto percepción mala de la salud, sedentarios y no participantes de grupos de convivencia. La dependencia en las actividades instrumentales de la vida diaria fue de 46% con asociación a síntomas depresivos y edad avanzada.
Conclusión: el uso de instrumentos para detección precoz de síntomas de depresión e incapacidad funcional permite la estratificación de riesgo y prevención del agravio de esas condiciones de vida del anciano.

DESCRIPTORES: Envejecimiento; Anciano; Depresión; Calidad de Vida; Salud del Anciano.

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INTRODUCTION

There has been a rapid increase in the size of the elderly population in Brazil. According to the Brazilian Institute of Geography and Statistics (IBGE), in 2013 there were more than 26 million elderly people in the country (12.5% of the population), and according to projections of IBGE, there will be 32 million elderly people by 2025[1].

The main concern with the increase in the number of elderly individuals is related to functional losses and the degree of dependency that these individuals may have throughout their lives [2]. Functionality is one's ability to decide and act independently. Functional disability, on the other hand, is the difficulty in performing certain activities of daily living or even the impossibility of performing them [3]. These activities are classified into basic activities of daily living (BADL), related to self-care, and instrumental activities of daily living (IADL), of greater complexity and related to independent living in the community[3].

Functional capacity decreases with age. However, it is not only related to physiological processes, but also to social, cultural and behavioral factors [4].

Mental disorders deserve special attention in the elderly because they are intrinsically related to increased vulnerability and occurrence of functional disability, with emphasis on depression, the most prevalent disorder in this age group. Epidemiological studies indicate a prevalence rate of depression of approximately 18% in community-living elderly[5], and in hospitalized and institutionalized elderly this rate is even higher, varying according to the instrument used[6].

Depression is one of the fastest rising mental health conditions in the world and is the result of a complex interaction of social, psychological and biological factors. For this reason, it is one of the priority conditions covered by the Mental Health Gap Action Programme (mhGAP) of the World Health Organization (WHO) [7].

Depression and functional capacity are intrinsically related to each other, since depression contributes to increased morbidity and later impairment of functional status, and functional losses associated with aging can often lead to depression [8].

According to the recommendations of the Brazilian National Health Policy for Elderly Persons (PNSPI), a comprehensive health assessment of this population must include tests for measuring the mental and functional health of elderly people[9]. However, the rates of recognition of depressive symptoms in the elderly in primary care are low, and the symptoms are often mistaken for physiological manifestations of aging or masked by symptoms of other concomitant conditions[5].

Identifying the factors associated with the prevalence of depressive symptoms, as well as the functional impairments generated by this condition, allows us to assist in the prevention and early identification of these symptoms, through the implementation of specific intervention strategies to prevent or minimize damage to the quality of life of elderly individuals. Thus, the present study aimed to identify the prevalence and factors associated with depressive symptoms and functional capacity in the elderly population.

METHOD

Analytical cross-sectional study that used a quantitative approach with elderly assisted at the Municipal Health Unit of Guamá (UMS-Guamá), in the city of Belém, Pará. Data was collected through individual interviews in a consulting room of UMS-Guamá, from August to December 2016.

Inclusion criteria were individuals of both genders aged 60 years or older enrolled in the Hypertension and Diabetes Mellitus control program. Elderly individuals who had

cognitive deficit suggested by the Mini Mental State Examination (MMSE) were excluded.

Non-probability convenience sampling was used. The elderly were contacted during medical or nursing appointments, and at this occasion they were invited to participate in the study. The initial sample contained 130 elderly. Of these, three refused to participate and 27 were excluded due to cognitive impairment suggested by MMSE. Therefore, the final sample consisted of 100 elderly individuals.

During the interview, a questionnaire on sociodemographic and health aspects was used for the characterization of the sample. It contained the following variables: gender, age, education, marital status, monthly family income, physical activity, participation in social groups and self-perception of health status.

Subsequently, the elderly were assessed for functional capacity with the use of the Katz Scale that evaluates the performance of elderly in six functions related to BADL (bathing, dressing and grooming, toileting, transfers, maintenance of bladder and bowel continence and feeding)[10]. Elderly individuals unable to perform one or more of these functions were considered dependent [11].

The Lawton and Brody Scale, which assesses functional performance in IADL, was also used. Participants were assessed for the degree of difficulty in performing nine functions: managing communication (use of telephone), managing transportation, managing medications, shopping, housecleaning and home maintenance, meal preparation and managing finances. For each of the activities described, three response options were considered (no assistance required, partial assistance required, unable) [12]. The maximum score is 27 points. The following classification was adopted in this study: independence (27 points), partial dependence (26 to 18) and total dependence (≤ 18 points) [13].

Regarding the presence of depressive symptoms, the elderly were assessed through the 15-item version (short form) of the Geriatric Depression Scale (EDG-15). Yes/no questions are used by the respondents[14]. A 0-5 score is considered normal, 6-10 suggests mild depression and 11-15 suggests severe depression [3].

The data collected was analyzed by inferential statistics, using the Statistical Package for Social Sciences (SPSS) version 22.0. Pearson chi-square coefficient and Pearson correlation coefficient were used to test the association between variables, and a p value less than 0.05 was considered significant. Student's t-test was used for comparison of the means obtained in the EDG-15.

The study complied with the relevant ethical principles and was approved by the Human Research Ethics Committee of Universidade Federal do Pará under Protocol No. 1.747.092.

RESULTS

Regarding the sociodemographic profile of the population, it was consistent with the trends observed in epidemiological studies (10, 15): predominance of female individuals: 74 (74%); age group 60-69 years: 57 (57%); marital status (married): 42 (42%); elementary education (up to 3 years of schooling): 60 (60%) and monthly family income up to 3 minimum wages 60 (60%).

Regarding health status, the assessments showed that 67 (67%) of the respondents considered their health regular or poor; 78 (78%) said they did not perform physical exercises and 72 (72%) reported not participating in social groups.

The prevalence of depressive symptoms in the sample was estimated to be 22%, and most of the elderly interviewed: 82 (82%) were considered independent to perform basic activities of daily living, and only seven (7%) reported dependence in one activity, and one

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(1%) was dependent in two activities. However, a significant percentage of the respondents reported dependence in instrumental activities of daily living: 41 (41%) reported partial dependence and five (5%) reported total dependence.

Table 1 shows the distribution of the elderly according to socioeconomic characteristics and health conditions related to the presence of depressive symptoms, obtained through the EDG-15 scale. There was a significant association between depressive symptoms and self-rated health, participation in social groups and regular practice of physical exercises. There was no significant association with the other variables.

Table 1 – Distribution of elderly according to the association between depression and socioeconomic characteristics and health conditions of the elderly. Belém, PA, Brazil, 2017 (continues)

Variable	EDG-15						p-value[1]
	Normal (n = 78)		Depression Mild (n = 21)		Depression Severe (n = 1)		
	N	%	n	%	n	%	
Gender							
Female	56	71.79	17	80.95	1	100.00	0.5067[ns]
Male	22	28.21	4	19.05	0	0.00	
Age Range							
60-69	45	57.69	11	52.38	1	100.00	0.4909[ns]
70-79	26	33.33	10	47.62	0	0.00	
80-89	6	7.69	0	0.00	0	0.00	
90-99	1	1.28	0	0.00	0	0.00	
Marital Status							
Single	19	24.36	4	19.05	1	100.00	0.7484[ns]
Married	35	44.87	7	33.33	0	0.00	
Stable union	3	3.85	1	4.76	0	0.00	
Divorced	6	7.69	2	9.52	0	0.00	
Widowed	15	19.23	7	33.33	0	0.00	
Education							
Illiterate	12	15.38	7	33.33	1	100.00	0.6318[ns]
Elementary school (up to 3 years)	50	64.10	10	47.62	0	0.00	
Incomplete primary education	7	8.97	2	9.52	0	0.00	
Complete primary education	6	7.69	2	9.52	0	0.00	
Complete secondary education	2	2.56	0	0.00	0	0.00	
Higher education	1	1.28	0	0.00	0	0.00	
Income							
Up to 1 minimum wage	26	33.33	11	52.38	1	100.00	0.2705[ns]
1-3 minimum wages	50	64.10	10	47.62	0	0.00	
More than 3 minimum wages	2	2.56	0	0.00	0	0.00	
How do you rate your health?							

Very good	2	2.56	0	0.00	0	0.00	0.0002**
Good	31	39.74	0	0.00	0	0.00	
Regular	38	48.72	14	66.67	0	0.00	
Poor	7	8.97	7	33.33	1	100.00	
Do you participate in a social group?							
Yes	27	34.62	1	4.76	0	0.00	0.0070*
No	51	65.38	20	95.24	1	100.00	
Do you practice physical exercises?							
Yes (2 to 3 times a week)	17	21.79	2	9.52	0	0.00	0.0374*
Yes (more than 3 times a week)	3	3.85	0	0.00	1	4.76	
No	58	74.36	19	90.48	0	0.00	

Source: Research data (2017).

(1) Pearson's chi-square test (p-value <0.05). ** Highly Significant Values; *Significant Values; NS Non-Significant Values. H1: With significant association (p<0.05).

The variable gender showed no significant association in the correlation test. However, comparison of the mean values obtained in the EDG-15 scale according to gender, using Student's t-test, showed that women obtained a significantly higher mean ($p < 0.05$) ($\mu = 3.89 \pm 3.62$) compared to men.

The functional capacity to perform IADL, as occurred with depressive symptoms, was associated with the variables self-rated health and regular practice of physical exercises (Table 2). Moreover, the highest percentage of elderly considered independent were aged 60-69 years old, while the elderly with partial or total dependence were aged 70-79 years old, and this difference was statistically significant ($p < 0.05$).

Table 2 – Distribution of the elderly according to the association between IADL and socioeconomic characteristics and health conditions of the elderly. Belém, PA, Brazil, 2017 (continues)

Variable	IADL						p-value[1]
	Independent (n = 54)		Partial Dependence (n = 41)		Total Dependence (n = 5)		
	N	%	n	%	n	%	
Gender							
Female	39	72.22	30	73.17	5	100.00	0.2109ns
Male	15	27.78	11	26.83	0	0.00	
Age Range							
60-69	43	79.63	13	31.71	1	20.00	<0.0001**
70-79	10	18.52	24	58.54	2	40.00	
80-89	1	1.85	4	9.76	1	20.00	
90-99	0	0.00	0	0.00	1	20.00	
Marital Status							

Single	14	25.93	8	19.51	2	40.00	0.1975ns
Married	25	46.30	16	39.02	1	20.00	
Stable union	4	7.41	0	0.00	0	0.00	
Divorced	3	5.56	4	9.76	1	20.00	
Widowed	8	14.81	13	31.71	1	20.00	
Education							
Illiterate	2	3.70	15	36.59	3	60.00	0.0043**
Elementary education (up to 3 years)	37	68.52	21	51.22	2	40.00	
Incomplete primary education	7	12.96	2	4.88	0	0.00	
Complete primary education	6	11.11	2	4.88	0	0.00	
Complete secondary education	1	1.85	1	2.44	0	0.00	
Higher Education	1	1.85	0	0.00	0	0.00	
Income							
Up to 1 minimum wage	20	37.04	17	41;46	1	20.00	0.8585ns
1-3 minimum wages	33	61.11	23	56.10	4	80.00	
More than 3 minimum wages	1	1.85	1	2.44	0	0.00	
How do you rate your health?							
Very good	1	1.85	1	2.44	0	0.00	0.0060*
Good	23	42.59	7	17.07	1	20.00	
Regular	24	44.44	24	58.54	4	80.00	
Poor	6	11.11	9	21.95	0	0.00	
Do you participate in a social group?							
Yes	20	37.04	7	17.07	1	20.00	0.0854[2]
No	34	62.96	34	82.93	4	80.00	
Do you practice physical exercises?							
Yes (2 to 3 times a week)	15	27.78	3	7.32	1	20.00	0.0217*
Yes (more than 3 times)	3	5.56	0	0.00	0	0.00	
No	36	66.67	38	92.68	4	80.00	

Source: Research data (2017).

(1) Pearson's chi-square test (p-value <0.05). ** Highly Significant Values; *Significant Values; NS Non Significant Values.
H1: with significant association (p<0.05). (2) Significant at the level of p <0.10.

When depressive symptoms and functional capacity for IADL were related, a moderate negative correlation was found between the results obtained with the EDG-15 scale and the Lawton and Brody Scale (R^2= -0.4121; $p <0.05$). In the scatter diagram (Figure 1) it can be seen that the higher the level of depressive symptoms, the lower the functional capacity in IADL.
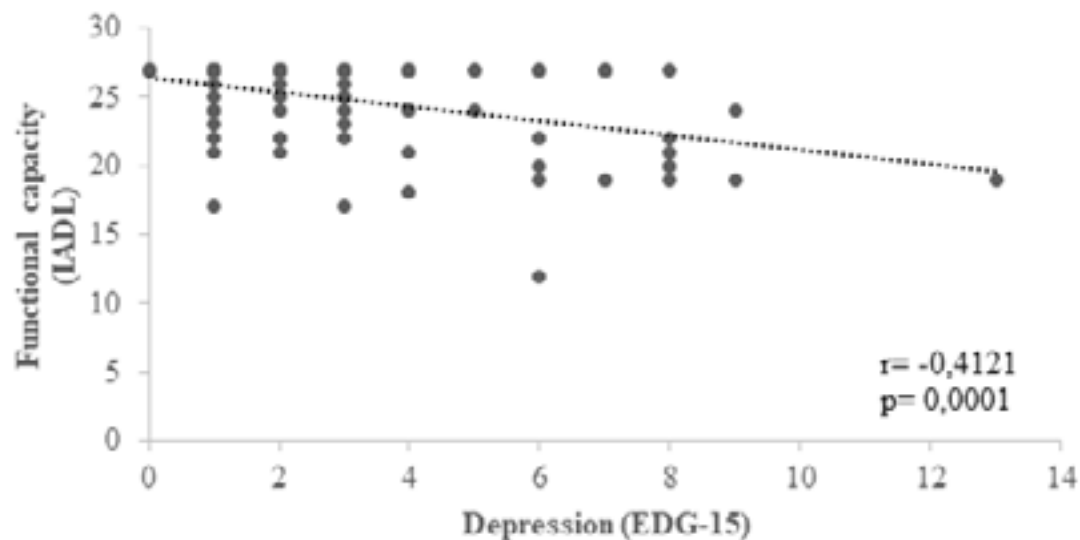
Figure 1 - Relationship between Depression and Functional Capacity. Belém, Pa, Brazil, 2017

DISCUSSION

The prevalence rate of 22% of depressive symptoms found in this study was higher than that found in the elderly population of the city of Bagé, Rio Grande do Sul (18%) and lower than that found in the city of Sarandi, Paraná (30%)[5,15]. Population-based studies conducted in Brazil that used the same instrument found prevalence rates ranging from 15% to 30% of depression in this age group. These variations can be explained by regional differences and sample characteristics[16-17].

The higher means obtained by women in the EDG-15 confirms the fact that they are more susceptible to depression than men. However, explanations for this event are not fully satisfactory. Women's longevity is known to increase the risk of exposure to potentially stressful events, which may influence the occurrence of depressive symptoms[18].

A prospective study with 310 elderly in Juiz de Fora, Minas Gerais, found a higher frequency of women in the groups of incidence and recurrence of depression. On the other hand, the frequency of men was higher in the groups without depressive symptoms and among those who showed symptom remission[19].

Depressive symptoms were significantly associated with self-rated health, as in a population-based study conducted in the city of Florianópolis, Santa Catarina. Self-perception of health is one of the most widely used indicators in epidemiological studies with elderly people, as it reflects an understanding of the changes that lead these individuals to perceive their own health positively or negatively, and may describe the health status more accurately than objective measures[20].

Participation in social groups is a protective factor against the onset of depressive symptoms[21]. However, in this study it was not possible to infer whether participation in social groups contributed or not to the non-onset of depressive symptoms. It was neither possible to infer whether the absence of these symptoms contributed or not to increase participation in social groups.

A study conducted in the city of Itabira, Minas Gerais, assessed the presence of depression among elderly people who participated and did not participate in social groups and found that the elderly who participated in social groups were less depressed than those who did not participate in social groups, suggesting the importance of the social support network in maintaining health and preventing and/or treating depression in the elderly[21].

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Elderly people not engaged in regular physical activity also had a higher prevalence of depressive symptoms compared to those who performed physical exercises regularly. Likewise, in a study conducted in the city of Pelotas, Rio Grande do Sul, a higher prevalence of depressive symptoms was observed in physically inactive elderly compared to those who reported practicing 150 minutes or more of weekly physical activity[22].

A study that aimed to evaluate the association between indicators of active aging and depressive symptoms in the elderly found a lower prevalence of depression among physically active elderly. Therefore, physical activity is a factor that protects against the onset of depression, as it promotes body stimulation and broadens social life, helping the individuals to cope with and prevent depressive conditions [23].

Regarding functional capacity, the results corroborate other studies that showed that limitation for performing IADL is more frequent than limitation for BADL. In a study conducted in the city of Uberaba, Minas Gerais, the prevalence of functional disability for ABVD was 21.2% and for IADL, 65.9%, demonstrating that the prevalent functional disability of this population concerns the difficulty in performing more complex activities of daily living[11].

It should be noted that the disability process is dynamic and, in its progression, the limitation in activities more strongly related to social life precedes limitation to perform self-care activities, and dependence to perform an IADL predisposes to impairment in BADL [24].

The association between depressive symptoms and functional dependence for IADL is a consistent finding. Similar results were found in studies with elderly individuals living in a rural city of Minas Gerais and elderly individuals living in the city of Montes Claros, Minas Gerais. In both studies, there was a significant association between depressive symptoms and dependence for performing IADL [25]. However, other studies demonstrated that this association occurs both for dependence on basic activities and instrumental activities of daily living [11].

Studies suggest the existence of a bidirectional cause-effect relationship between these conditions, i.e., depression could be the primary factor for functional disability, and functional disability could be the primary factor for depression. This is explained by the fact that the development of a limitation to perform daily activities can generate a negative feeling, which can lead to depressive episodes. Similarly, the lesser enjoyment of everyday activities, which is one of the symptoms of depression, can reduce the ability to perform these activities, making them more difficult to perform [25].

In addition to depressive symptoms, other factors are directly related to decreased functional capacity. Studies showed that the probability of functional disability in the elderly is directly correlated with aging, low level of education and low income [26-27].

In this study, age was strongly associated with decreased functional performance. Elderly individuals aged 70 years or older had a high prevalence of functional disability for IADL compared to those aged 60-69 years.

Other studies corroborate this result, though for older individuals, showing an association of dependence to perform IADL and old age in 'old' elderly [24]. This difference can be explained by the fact that only 7 (7%) of the elderly who participated in this study are 80 years or older. Similarly, the elderly in the age group of 70-79 years identified as having a degree of dependence had additional factors that contribute to worse functional performance, since the association of dependence on IADL with basic education, physical inactivity and poorer health perception was also statistically significant.

Considering the Ministry of Health's priority agenda for research, which includes the health of the elderly as one of the priority axes, the results of this study contribute to the care lines to elderly of the Health Care Network (RAS) [28]. Moreover, it places nursing in a prominent position in the production of knowledge for the area of gerontology and for the

elaboration of efficient public policies for the elderly.

One limitation of the present study is its cross-sectional design that does not allow establishing a cause-effect relationship, and the possibility that the associations observed at a given point of time do not fully represent the reality of this population. Thus, longitudinal studies are suggested for a better understanding of these conditions and their determinants.

CONCLUSION

The level of dependence of the elderly for performing IADL was found to be strongly associated with the presence of depressive symptoms and older age. It can be inferred that the use of instruments for early detection of depressive symptoms and functional disability is useful for risk stratification and prevention of the worsening of these conditions. In this regard, nursing, assumes an important role for the implementation of actions within the scope of health promotion, prevention and protection, in order to preserve the independence, autonomy and quality of life of elderly assisted in primary health care.

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