Cogitare Enfermagem

ORIGINAL ARTICLE

FACTORS ASSOCIATED WITH THE FUNCTIONAL INDEPENDENCE OF COMMUNITY-DWELLING ELDERLY INDIVIDUALS AGED 80 OR OVER

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ABSTRACT
Objectives: To verify the frequency of functional independence among elderly people aged 80 or over and identify the factors associated with their functional independence.
Methodology: Cross-sectional study with 174 elderly people aged 80 or over living in the urban area of Minas Gerais conducted from June 2017 to June 2018. Multistage cluster sampling was used for the selection of the population. Descriptive, bivariate and multiple logistic regression analyzes were performed (p≤0.05).
Results: Most participants were female individuals (67.8%), with five or more self-reported morbidities (62.6%), without symptoms of depression (74.7%) and 85.6% could perform basic activities of daily living independently. Functional independence in basic activities of daily living (ADL) was associated with lack of symptoms of depression (p = 0.046) and instrumental activities of daily living (IADL) were associated with housing arrangement (p = 0.045).Conclusion:Identification of the factors associated with the functional independence of elderlyindividuals aged 80 years or over contributes to improve the planning of nursing care for these individuals, in order to reduce or delay their dependence.

DESCRIPTORS: Elderly individuals aged 80 years or over; Longevity: Daily Activities; Geriatric Nursing.

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FATORES ASSOCIADOS À INDEPENDÊNCIA FUNCIONAL DE IDOSOS LONGEVOS DA COMUNIDADE

RESUMO

Objetivos: verificar a frequência de independência funcional entre os longevos e identificar os fatores associados à independência funcional dos longevos.

Metodologia: estudo transversal com 174 idosos de 80 anos e mais, residentes na zona urbana em Minas Gerais no período de junho de 2017 até junho de 2018. Para a seleção da população, utilizou-se a amostragem por conglomerado em múltiplo estágio. Procederam-se às análises descritiva, bivariada e regressão logística múltipla (p≤0,05).

Resultados: eram do sexo feminino 67,8%, com cinco ou mais morbidades autorreferidas 62,6%, 74,7% sem sintomas depressivos e 85,6% eram independentes nas atividades básicas da vida diária. A independência funcional nas atividades básicas da vida diária foi ausência de indicativo de sintomas depressivos (p=0,046) e as atividades instrumentais da vida diária ao arranjo de moradia (p=0,045).

Conclusão: a identificação dos fatores associados à independência funcional dos longevos auxiliam o planejamento do cuidado de enfermagem com vistas a diminuir ou postergar a dependência.

DESCRITORES: Idoso de 80 anos ou mais; Longevidade; Atividades Cotidianas; Enfermagem Geriátrica.

FACTORES ASOCIADOS A LA INDEPENDENCIA FUNCIONAL DE ANCIANOS LONGEVOS DE LA COMUNIDAD

RESUMEN:

Objetivos: verificar la frecuencia de independencia funcional entre los longevos, así como los factores que se asocian a la independencia funcional de ellos.

Metodología: estudio trasversal con 174 ancianos de 80 años y más, que viven en el área urbana de Minas Gerais en el periodo de junio de 2017 a junio de 2018. Para elegir la población, se utilizó el muestreo por conglomerado en múltiple estadio. Se realizaron los análisis descriptivo, bivariado y de regresión logística múltiple (p≤0,05).

Resultados: eran del sexo femenino 67,8%, con cinco o más morbilidades auto referidas 62,6%, 74,7% no presentaban síntomas depresivos y 85,6% eran independientes en las actividades básicas de la vida diaria. La independencia funcional en las actividades básicas de la vida diaria fue ausencia de indicativo de síntomas depresivos (p=0,046) y las actividades instrumentales de la vida cotidiana en la vivienda (p=0,045).

Conclusión: la identificación de los factores asociados a la independencia funcional de los ancianos ayudan el planeamiento del cuidado de enfermería que tiene como reto disminuir o postergar la dependencia.

DESCRIPTORES: Anciano de 80 años o más; Longevidad; Actividades Cotidianas; Enfermería Geriátrica.

INTRODUCTION

Elderly individuals aged 80 or over represent currently 2.1% of the Brazilian population, and it is estimated that this percentage will be 8.4% in 2060[1]. However, little is known about the health conditions of elderly people aged 80 or over [2-4].

A report released by the World Health Organization addresses the need to change the perceptions of aging and health, and stresses, among other things, that old age does not imply dependence. Also, the need to align healthcare systems with the demands of the elderly population, according to the reality of each country, with the sole objective of maximizing functional capacity, is emphasized [5].

From the point of view of public health, the evaluation of the functional capacity of the elderly has become an essential parameter in the practice of gerontology[3]. A study with elderly individuals monitored at a Basic Health Unit in the city of Curitiba, Paraná, found that health professionals, and specifically nursing professionals, should consider functional evaluation as an essential part of comprehensive care for the elderly[2].

Studies conducted in Brazil[3] and abroad[6] with community-dwelling elderly people aged 80 or older examined the factors associated with functional independence and concluded that being retired ($p = 0.007$); practicing physical activity ($p < 0.001$); performing leisure activities ($p < 0.001$); participating in groups ($p = 0.008$) [3]; having a better physical performance ($p = 0.043$); positive self-perception of health ($p = 0.020$); absence of hip fracture after 55 years of age ($p = 0.042$) and cardiovascular disease ($p = 0.043$) can positively influence the functional independence of elderly individuals aged 80 or older[6].

Since risk factors and protective factors differ between young and old individuals[7] and that early identification of elderly at risk for functional disability enables health professionals to plan interventions aimed at enhancing autonomy and reducing dependence[8], the present study aimed to describe the sociodemographic and clinical characteristics of community-dwelling elderly individuals aged 80 or over; verify the frequency of functional independence among these elderly individuals and identify the factors associated with their functional independence.

METHOD

Cross-sectional, observational and analytical study, with a quantitative approach, of a household survey type that integrates a thematic project titled "Active Aging, Global Functionality and Quality of Life among the elderly of the Health Micro-region of Uberaba, Minas Gerais". The study was carried out in the urban area of the city. Multistage cluster samplingwas used for the selection of the population.

The inclusion criteria were individuals aged 80 years or overwho live in the urban area of the city of Uberaba-MG. Elderly who were hospitalized and/or institutionalized, had communication problems such as hearing loss not corrected with the use of medical devices and severe speech disorders; with cognitive decline evaluated by the Mini Mental State Examination were excluded, according to the following cut-off points: ≤ 13 for illiterate, ≤ 18 for average schooling (one to 11 years) and ≤ 26 for high schooling (more than 11 years) [9].

In this study, 823 elderly individuals were interviewed. Of these, 15 had cognitive impairment and 808 completed the interviews. Elderly individuals aged 80 years or older were selected. Thus, the sample was composed by 174 elderly individuals aged 80 or older.

Data was collected at the elderly participants' homes from June 2017 to June 2018, through direct interviews.The following instruments were used: Mini Mental State Examination[9]; characterization of sociodemographic data using the form developed by

the Collective Health Research Group of the Universidade Federal do Triângulo Mineiro (UFTM); Brazilian Questionnaire on Functional and Multidimensional Assessment[10]; Katz index culturally adapted and translated into Brazilian Portuguese[11]; Lawton and Brody Index adapted to the Brazilian context[12], Brazilian version of the Short Physical Performance Battery[13] and the Geriatric Depression Scale: Short Form [14].

The study variables were gender (female, male); age group (80-84 years, 85 years or more); housing arrangement (lives alone, lives with someone); number of self-reported morbidities (0-4; 5 or more); symptoms of depression (yes, no); physical performance (inability/low, moderate /good);functional capacity for basic ADL (independent and dependent) and for IADL (independent and totally/partially dependent).

Ten individuals duly trained and also asked about their knowledge of ethical issues related to the study were selected for conducting the interviews. After data collection, a database was elaborated using Excel® spreadsheet and data was entered twice (double entry). Subsequently, consistency checks were made, i.e. the two data files were compared to find any typing errors, and the errors found were corrected. For the analysis, the database was imported into the Statistical Package for The Social Sciences program (SPSS®), version 22.0.

Data were submitted to descriptive and bivariate analysis using prevalence ratio (PR), prevalence odds ratio (POR) and chi-square test (x^2); and also to multiple logistic regression, and functional independence was the outcome. The predictive variables were gender, housing arrangement, symptoms of depression, physical performance and number of self-reported morbidities. A 95% confidence interval and a significance level of $p \leq 0.05$ were considered in this study.

The project was approved by the Research Ethics Committee for Research with Humans of UFTM, under Protocol no 2.053.520.

RESULTS

Of the total number of elderly participants aged 80 or over, most were female individuals: 118 (67.8%), aged 85 or over: 89 (51.1%), lived with someone: 138 (79.3%), had five or more self-reported morbidities: 109 (62.6%), no symptoms of depression: 130 (74.7%) and a moderate/good physical performance: 97 (55.7%), as shown in Table 1.

Table 1 - Frequency distribution of sociodemographic and clinical variables of elderly individuals. Uberaba, MG, Brazil, 2018 (continues)

Variables	n	%
Gender		
Female	118	67.8
Male	56	32.2
Age range (in years)		
80-| 84 years	85	48.9
85 or over	89	51.1
Housing arrangement		
Lives with someone	138	79.3
Lives alone	36	20.7

Number of self-reported morbidities		
0-| 4	65	37.4
5 or more	109	62.6
Symptoms of depression		
No symptoms	130	74.7
With symptoms	44	25.3
Physical performance		
Moderate/good	97	55.7
Inability/low	77	44.3

Regarding the frequency of functional independence among the elderly individuals aged 80 or over, it was found that 149 (85.6%) performed basic ADL independently and 18 (10.3%) performed IADL independently.

The percentage of functional independence for basic ADL was higher among elderly women aged 80 or over: 102 (86.4%), who lived alone: 33 (91.7%), with less than five self-reported morbidities: 57 (87.7%), without depression symptoms: 116 (89.2%)and with moderate/good physical performance: 88 (90.7%), as shown in Table 2.

Table 2 - Distribution of sociodemographic and clinical variables of elderly people aged 80 or over, according to functional independence in basic ADL. Uberaba, MG, Brazil, 2018

Variables	**Independent for Basic ADL**		**Dependent for Basic ADL**						
	n	**%**	**n**	**%**	**PR***	**(CI)****	**POR*****	**(CI)****	**p********
Gender									
Female	102	86.4	16	13.6	1.03	(0.90 – 1.17)	1.22	(0.50 – 2.96)	0.659
Male	47	83.9	9	16.1					
Housing arrangement									
Lives with someone	116	84.1	22	15.9	0.91	(0.81 – 1.03)	0.47	(0.13 – 1.70)	0.246
Lives alone	33	91.7	3	8.3					
Number of self-reported morbidities									
0-| 4	57	87.7	8	12.3	1.03	(0.92 – 1.17)	1.31	(0.53 – 3.24)	0.550
5 or more	92	84.4	17	15.6					
Symptoms of depression									
No	116	89.2	14	10.8	1.19	(0.99 – 1.42)	2.76	(1.14 – 6.65)	**0.02**
Yes	33	75.0	11	25					
Physical performance									
Moderate/good	88	90.7	9	9.3	1.14	(1 – 1.30)	2.56	(1.06 – 6.18)	**0.03**
Inability/low	61	79.2	16	20.8					

Note: *PR: Prevalence ratio; **CI: Confidence interval; ***POR: OddsRatio;**** p≤0.05.

It should be noted that the percentage was higher for functional independence in IADL in the elderly who were male: eight (14.3%); lived alone: seven (19.4%); with less than five self-reported morbidities: nine 13.8%); without symptoms of depression: 17 (13.1%) and with moderate/good physical performance: 14 (14.4%), as shown in Table 3.

Table 3 - Distribution of sociodemographic and clinical variables of elderly individualsaged 80 or over, according to functional independence in IADL.Uberaba, MG, Brazil, 2018

Variables	Independent for IADL		Dependent For IADL						
	n	%	n	%	PR*	(CI)**	POR***	(CI)**	p****
Gender									
Male	8	14.3	48	85.7	0.59	(0.24 – 1.42)	0.55	(0.20 – 1.49)	0.240
Female	10	8.5	108	91.5					
Housing arrangement									
Lives with someone	11	8	127	92	0.41	(0.17 – 0.98)	0.35	(0.12 – 1.00)	**0.044**
Lives alone	7	19.4	29	80.6					
Number of self-reported morbidities									
0-| 4	9	13.8	56	86.2	1.67	(0.70 – 4.00)	1.78	(0.67 – 4.75)	0.242
5 or more	9	8.3	100	91.7					
Symptoms of depression									
No	17	13.1	113	86.9	5.75	(0.78 – 41.99)	6.46	(0.83 – 50.10)	**0.042**
Yes	1	2.3	43	97.7					
Physical performance									
Moderate/good	14	14.4	83	85.6	2.77	(0.95 – 8.10)	3.07	(0.97 – 9.76)	**0.047**
Inability/low	4	5.2	73	94.8					

Note: *RP: Prevalence ratio; **CI: confidence interval; ***RCP: OddsRatio;**** p≤0.05.

Functional independence in basic ADL was associated with absence of depression symptoms (p = 0.046), as shown in Table 4. Functional independence for IADL was associated with the variable living with someone, (p = 0.045), as shown in Table 5.

Table 4 - Final multiple logistic regression model for the variables associated with functional independence in the basic activities of the daily life of elderly individuals aged 80 or over. Uberaba, MG, Brazil, 2018 (continues)

Variables	POR*	(CI)**	p***
Gender	0.55	(0.21 – 1.46)	0.233
Housing arrangement	2.62	(0.69 – 9.85)	0.153

Number of self-reported morbidities	0.80	(0.30 – 2.09)	0.653
Depression symptoms	0.38	(0.15 – 0.98)	**0.046**
Physical performance	0.39	(0.15 – 1.00)	0.052

Note: *POR: OddsRatio;**CI: Confidence interval;*** p≤0.05.

Table 5 - Final multiple logistic regression model for variables associated with functional independence in the instrumental activities of the daily life of elderly people. Uberaba, MG, Brazil, 2018

Variables	**POR***	**(CI)****	**p*****
Gender	1.39	(0.48 – 3.98)	0.540
Housing arrangement	3.01	(1.02 – 8.82)	**0.045**
Number of self-reported morbidities	0.72	(0.25 – 2.04)	0.541
Depression symptoms	0.18	(0.22 – 1.50)	0.114
Physical performance	0.42	(0.12 – 1.41)	0.162

Note: *RCP: OddsRatio;**CI: Confidence Interval;***p≤0.05.

DISCUSSION

The highest percentage of elderly women aged 80 years or over found in this study corroborates national[15-16] and international[17] studies in the community. Women live longer than men, a fact that can be associated to social aspects and to health behaviors[18]. Men are more exposed to the risks of work-related accidents, violence and unhealthy living habits, such as smoking and drinking, while women seek health services and join prevention programs more frequently[19].

Regarding the age group, divergent results were identified in national studies developed among elderly people, most of them aged 80 to 84 years old[15].With increasing longevity, health services must develop health promotion and disease prevention strategies in order to provide these elderly individuals with functional independence for the longest possible period of time[3].

The results obtained for housing arrangement were similar to those from a survey among elderly people living in Recife, state of Pernambuco, which found that 38 (88%) of the elderly lived with someone[18]. However, in international studies, there was a predominance of elderly individuals who lived alone, with 380 (95.7%) in Sweden[20] and 404 (60.6%) in the United Kingdom[17]. It is believed that elderly people who feel responsible for their survival and the survival of their families, who care about their partner's care and maintain an active social life tend to develop more daily activities and be more active[21].

The number of self-reported morbidities was similar to that identified in national [4,15-16] and international [17] studies withcommunity-dwelling elderly individuals where most of them had five or more morbidities. Noncommunicable chronic diseases are more frequent with aging and have a direct relationship with the independence of the elderly, impacting the execution of basic ADL[15]. Therefore, prevention of these conditions through the necessary support for each individual should be the main objective of health systems.

Regarding the presence of depression symptoms, national studies with elderly people

that lived in the community obtained results similar to the present study: most did not show depression symptoms[22]. The presence of depression is now considered an important predictor of disability, with the onset and worsening of functional decline[23]. Thus, health professionals, especially the nursing team, should recognize the symptoms of depression among the elderly, because the disease is still underdiagnosed and its symptoms are often considered to be natural manifestations of aging[15].

Regarding physical performance, results similar to those obtained in the present study were found in an international study with elderly people living in the Southwest of the United States, where 750 (54.9%) had moderate/good physical performance[24]. It is known that poor physical performance, difficulties in performing basic ADL and sedentary lifestyle are independent predictors of mortality, even in the absence of aggravating diseases[25]. Thus, assessment of the physical performance of elderly should be included in the health professionals' visits so that the changes are monitored over the years and plans of interventions are drawn [25].

Considering issues related to the situation of the elderly, in order to identify the factors associated with their functional independence, makes it possible to develophealth actions targeted to the specific needs of this group[15].

Regarding the prevalence of functional independence for performing basic ADL (149 - 85.6%) among elderly individuals aged 80 or older, lower percentages were identified in national investigations conducted in Jequié, Bahia: 69 (59.0%) [15] and Lafaiete Coutinho, Bahia 33 (75.3%)[22]; and in an international study conducted in Sweden: 98 (25%) [26].

Regarding functional independence for IADL, values higher than those obtained in the present study were identified in national surveys with community-dwelling elderly people aged 80 years or older [15,22].

In this regard, it is worth mentioning the scarcity of studies, both nationally and internationally, related to the independence for performing basic ADL in elderly individuals aged 80 years or older[18,27]. This is corroborated in a systematic review with meta-analysis of studies with Brazilian elderly individuals, in which functional capacity among those with older age was evaluated in only two (8.7%) of the studies[27].

The high percentage of elderly people who perform self-care activities independently suggests that elderly people aged 80 years or older are choosing to remain active and engaged in their community, which favors their mobility and independence[21].

Some explanations for the lower prevalence of independence for performing IADLcompared to basic ADL are as follows: the former activities require greater physical and cognitive integrity[28]; hierarchy of functional loss [28]; elderly feel insecure to perform activities that require more complex abilities, and relatives who do not allow the elderly to perform certain activities because of theirold age[29].

Therefore, public policies should take into consideration the profile of their target audience [18]. Regarding functional capacity, there is a greater possibility of early identification of those elderly individuals at greater risk for dependence and for improvement or stability of independence with aging [3,22]. Thus, interventions and health promotion strategies aim at maintaining the functional capacity of the elderly, in order to ensure the maintenance of their autonomy and independence [22].

Regarding the associated factors, an international survey carried out in Sweden identified an association between dependence on self-care activities, such as transference ($p = 0.007$) and dressing ($p = 0.035$), and depressive symptomatology[26]. Although the relationship identified by this study was inversely related to that of the present study, it is possible that elderly with no symptoms of depression are more likely to maintain their independence for basic ADL, due to the lower probability of deleterious effects of the symptoms associated with symptoms of depression, such as fatigue, decreased energy, loss of appetite and weight[26].

Most studies analyze possible risk factors for functional dependence, which makes it difficult to compare the results[4,7,15,22,26]. It is also important to consider that variables related to functional capacity may differ among the different age ranges of the elderly group[7].

In an international systematic review, elderly individuals who lived with a companion ($p < 0.001$) demonstrated better functional capacity, and this variable is considered a protection factor for basic activities of daily living[7], which is consistent with the findings of the present study.Moreover, cohabitation can be considered a beneficial strategy for the elderly [30]. Also, elderly individuals who live with someone may feel stronger and encouraged[18], particularly to remain active.

One limitation of this study is its cross-sectional design, which does not allow to determine the causal relationships and to establish protective measures for functional independence.

CONCLUSION

In the present study, there was a prevalence of elderly individuals aged 85 years or older who lived with someone, had five or more self-reported morbidities, no symptoms of depression and with moderate/good physical performance.

Of the elderly assessed, 85.6% were considered independent for performing basic ADL and 10.3% for IADL. The factor significantly associated with functional independence in basic ADL was the absence of symptoms of depression, whereas in the IADL it was the housing arrangement.

Knowledge about the functional capacity of elderly individuals aged 80 or over provides health professionals with better conditions to identify the needs for assistance of this population to perform dailyactivities and for the maintenance and promotion of their health.Such knowledge is also important for the development of actions that maximize these activities, enabling the elderly to live as independently as possible.

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