

Functionality comparison of elderly residing in two institutional modalities

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ABSTRACT

The objective was to compare the prevalence and factors associated with functional incapacity for BADLs in elderly residing in two institutional modalities. A cross-sectional study with 159 seniors from long term permanence institutions, being 84 resident of Nursing Homes and 75 in Integral Permanence Homes. The functional incapacity (FI) was assessed by the Katz index. The associations were investigated using the χ^2 Test or Fisher's exact Test. The prevalence of FI in Nursing Homes was 16.7% (CI 95%: 8.0 – 28.8) and 56.0% (CI 95% 44.2 – 68) in Integral Permanence Homes. In the two institutions, hypertension and cataract were prevalent. In Nursing Homes, it was seen an association between FI and age >80 years and the report of musculoskeletal diseases. Depression was statistically significant in both institutions. The most compromised ADLs were to keep continence, to get dressed and to shower. The findings demonstrate a need of interventions with institutionalized elderly, especially those living in integral permanence modality, focused in depression control.

Descriptors: Frail Elderly; Health of Institutionalized Elderly; Geriatric Nursing.

INTRODUCTION

The functional incapacity is defined as the difficulty to perform daily activities and complex tasks independently, beyond those desired by society⁽¹⁾. In the clinical assessment, functional incapacity is determined by the elderly capacity to perform activities of daily living (ADL), through basic activities of daily living (BADLs) or instrumental activities of daily living (IADLs). The BADLs include eating, showering, going to

the bathroom, keeping continence (urinary and fecal) and to move⁽²⁻³⁾.

The functional capacity lost or decrease is known to result in loss of autonomy for these individuals to manage their own life, compromising the quality of life⁽⁴⁾. Studies demonstrate the functional incapacity in elderly community associated to female gender, lower educational levels, to be widowed, low income^(3,5), multimorbidity (three or more comorbidities)⁽⁶⁾. Besides, functional incapacity is a strong predictor of mortality in elderly⁽³⁾.

In Brazil, studies with institutionalized elderly in the South, Southeast and Northeast regions^(1,3,7-9) demonstrated a functional incapacity prevalence varying from 10.3% to 70%. The target population of these studies was elderly residing in Integral Permanence modality, and the prevalence found had a broad variation, which can be related to social, economic, and cultural disparities between the studied Brazilian regions.

With the growing progression of seniors in the global population, there is an increase in incidence of disabling and chronic diseases that can compromise elderly functionality⁽¹⁰⁾, favoring institutionalization. In Brazil, there are different institutionalizing modalities, those where the elderly stays integrally (Integral Permanence Homes) and others where the elderly have more care autonomy (Nursing Homes)⁽¹¹⁾. However, little is known about elderly functionality characteristics in these other institutionalizing modalities, considering the studies found being conducted with elderly in integral permanence^(1,7-9). In professional practice, the type of elderly institutionalization is seen contributing differently in compromising ADLs.

Thus, this study brings important contributions to the scope of knowledge for health conditions of this group and it should inform about the level of elderly functionality in institutionalized modalities (Nursing Homes), and still, to aggregate knowledge about the functionality of elderly in another Brazilian region, contributing with the foment of local and national public policies.

Facing the exposed, the objective of the study was to compare the prevalence and factors associated with functional incapacity for BADLs in elderly residing in two institutional modalities.

METHODS

A cross-sectional study with a target population constituted by people living in nine Institutions of Long Term Permanence for Elderly (ILTPE), at a Brazilian center-west capital city, estimated in 346 people, during 2012. From those ILTPE, one denied participation in the study and one was excluded because they sheltered homeless people.

Among the seven participating ILTPE, four were Nursing Homes (NHs) characterized by individual residency and stimuli to conduct self-care activities, including those related to basic activities of daily living. The other three institutions were integral permanence homes (IPHs) offering collective shelter, without private spaces for the residents, with their needs attended by the assistencial team, restricted to the institution environment, and impeded to move around the institution alone.

The inclusion in the study was based on the cognitive function score assessed by the Mental State Mini

Exam equal or higher than 13 (score assessed by the researchers as limit for the execution of tasks). Residents were included if they were 60 years or older, without speech, sight or hearing restrictions that could impair data collection, residing in IPH (residing was considered as sleeping four nights or more in the institution) and, being present at the data collection (up to three meeting trials).

After a pilot study, six research assistants previously trained to apply the questionnaire and the measurement instruments collected the data during May to August of 2012. To approach the elderly, a time was previously scheduled with the institution's director. Participants were most of times interviewed in a social location at the institutions. At the end of data collection, information was checked and the data was double entered to check for inconsistencies.

The outcome variable was functional incapacity, assessed by the Katz scale⁽¹²⁾, that assess the elderly incapacity to perform daily activities (to shower, to get dressed, to go to the bathroom, to move, to keep continence and, to eat) allowing classification as dependents, partially dependents and, independents. The variable was dichotomized in dependents (dependents and partially dependents) and independents^(6,13).

Exposition variables assessed were: demographic (gender, age, marital status, having or not children, education, time of institutionalization); self-reported diseases (diabetes, hypertension, hypercholesterolemia, osteoporosis, cancer, cataract, stroke, acute myocardial infarction, asthma or bronchitis, musculoskeletal diseases); health and clinical conditions (health self-assessment, multimorbidities, physical activity, chronic pain and depression). Self-reported diseases were identified through the question: "Which ones of those diseases the doctor said that you have?". Multimorbidities were classified according to the number of self-reported diseases, being those with five or more diseases. The health self-assessment was measured through the answer to the question: "In general you would say that your health is..", and the answer options were: great, good, regular, bad and very bad⁽¹⁴⁾. Depression was assessed through the Geriatric Depression Scale, which is one of the most used instruments to track depression in elderly, and it offers valid and reliable measures⁽¹⁵⁾.

The statistical analyses were conducted in the SPSS version 20.0 program. Initially, all variables were descriptively analyzed: categorical variables were expressed in absolute and relative frequencies, and continuous variables were expressed in means and standard deviations. The prevalence of functional incapacity was estimated and the association between incapacity and the exposure variables was assessed through the Chi-Squared test or Fisher's Exact test, considering a level of significance of 5% ($p < 0,05$).

The project was approved by the Ethics Committee from Universidade Federal de Goiás-UFG, (Protocol n°398/11), respecting the Brazilian legislation for research with human beings.

RESULTS

From 159 elderly who participated in the study, 52.9% resided in Nursing Homes and 47.1% in Integral Permanence Homes. In Nursing Homes, it was prevalent elderly between 70 to 79 years (51.2%), without a companion (75%), with children (70.2%) and who completed elementary school (53.6%). Yet, in Integral

Permanence Homes, most were 80 years or older (49.3%), without a companion (70.7%) and, with children (57.3%). Both modalities had predominance of women.

The prevalence of functional incapacity was superior for males (28.6%), between 70 to 79 years (14%), without a companion (20.6%) and, with institutionalization time over five years (23.7%) in Nursing Homes. In Integral Permanence Homes, the prevalence was higher in females (66.7%), in those aged ≥ 80 years (64.9%), without a companion (61%) and with time of institutionalization between one and five years (60%). There was difference statistically significant between functional incapacity and age group of 80 years or more ($p = 0.048$) in Integral Permanence Homes (Table 1).

Table 1. Elderly distribution, prevalence of functional incapacity and association with sociodemographic factors. Goiânia, GO, Brazil, 2012.

Variables	Nursing home			Integral permanence home		
	Sample (n = 84)	Incapacity prevalence n (%)	p	Sample (n=75)	Incapacity prevalence n (%)	p
Gender						
Female	49 (58.3)	4 (8.7)	0.276	36 (48.0)	24 (66.7)	0.074
Male	35 (41.7)	10 (28.6)		39 (52.0)	18 (46.2)	
Age						
60-69 years	15 (17.9)	1 (6.7)	0.077	15 (20.0)	5 (33.3)	0.048*
70-79 years	43 (51.2)	6 (14.0)		23 (30.7)	13 (56.5)	
80 years or more	26 (31.0)	7 (26.9)		37 (49.3)	24 (64.9)	
Marital status			0.081 [†]			0.054
With companion	21 (25.0)	1(4.8)		15 (20.3)	5(33.3)	
Without companion	63 (75.0)	13(20.6)		59 (79.7)	36(61.0)	
Have children			0.595 [†]			0.367
Yes	59 (70.2)	10(16.9)		43 (57.3)	26 (60.5)	
No	25 (29.8)	4 (16.0)		32 (42.7)	16 (50.0)	
Education			0.891			0.167
Illiterate	20 (23.8)	4 (20.0)		18 (24.3)	9 (50.0)	
Knows how to read and write	10 (11.9)	2 (20.0)		8 (10.8)	3 (37.5)	
Elementary	45 (53.6)	7 (15.6)		35 (47.3)	20 (57.1)	
High School	5 (6.0)	1 (20.0)		11 (14.9)	9 (81.8)	
College	4 (4.8)	0 (0.0)		2 (2.7)	1 (50.0)	
Institutionalization time			0.104*			0.064
< 1 year	27 (32.1)	1(6.7)		11 (15.1)	8 (72.7)	
1 to 5 years	18 (21.4)	4 (12.9)		40 (54.8)	24 (60.0)	
> 5 years	39 (46.4)	9 (23.7)		22 (30.1)	9 (40.9)	

* Chi-Square for tendency

** Fisher's Exact test

In Table 2, it is seen that in both modalities, the most prevalent self-reported diseases in the general sample were hypertension and cataract. However, the prevalent functional incapacity was higher in elderly with musculoskeletal diseases in both modalities; and in those with osteoporosis and hypercholesterolemia (73.3%) in Integral Permanence Homes. Yet, statistical significant associations were observed in those who reported musculoskeletal diseases ($p=0.047$) in Nursing Homes.

Table 2. Characterization of institutionalized elderly with self-reported chronic conditions and associations with functional incapacity. Goiânia, GO, Brazil, 2012.

Variables	Nursing home			Integral permanence home		
	Sample (n = 84)	Incapacity prevalence		Sample (n = 75)	Incapacity prevalence	
		n (%)	p		n (%)	p
Diabetes Mellitus	17(20.2)	4 (23.5)	0.395	13 (17.3)	7 (53.8)	0.863
Hypertension	45 (53.6)	7(15.6)	0.769	39 (52.0)	22 (56.4)	0.941
Hypercholesterolemia	30 (35.7)	3(10.0)	0.222	15 (20.3)	11 (73.3)	0.147
Osteoporosis	28 (33.3)	7 (25.0)	0.147	15 (20.0)	11 (73.3)	0.131
Cancer	5 (6.0)	1 (20.0)	0.837	5 (6.8)	1 (20.0)	0.086
Cataract	49 (58.3)	11 (22.4)	0.092	33 (44.0)	18 (54.5)	0.822
Stroke	11 (13.1)	1 (9.1)	0.470	23 (30.7)	13 (56.5)	0.952
Myocardial infarction	5 (6.0)	0 (0.0)	0.302	5 (6.7)	1 (20.0)	0.093
Respiratory problems	13 (15.5)	2 (15.4)	0.893	12 (16.0)	5 (41.7)	0.275
Musculoskeletal diseases	34 (40.5)	9 (26.5)	0.047	19 (25.3)	14 (73.7)	0.072

Regarding other clinical and health conditions, it is observed that in Nursing Homes, the prevalence of functional incapacity was higher in elderly with self-perceived health as bad (40%), with more than five self-reported chronic diseases (23.8%), who were not physically active (18.5%) and who presented depression (28.6%). In Integral Permanence Homes, the prevalence of functional incapacity was superior for those who referred their health as bad (72.2%), with two to five morbidities (55.6%), chronic pain (60.6%) and, who presented depression (65.9%). Statistically significant differences were observed between functional incapacity and depression in both modalities ($p=0.042$ and $p=0.032$) (Table 3).

Table 3. Elderly characterization regarding clinical variables and association with functional incapacity. Goiânia, GO, Brazil, 2012.

Variables	Nursing home			Integral permanence home		
	Sample (n=84)	Incapacity prevalence		Sample (n=75)	Incapacity prevalence	
		n (%)	P		n (%)	P
Health Self-assessment			0.808			0.612
Great/Good	38 (45.2)	8 (21.1)		30 (40.0)	18 (60.0)	
Regular	41 (48.8)	4 (9.8)		27 (36.0)	11 (40.7)	
Bad/Very bad	5 (6.0)	2 (40.0)		18 (24.0)	13 (72.2)	
Multimorbidity			0.485			0.716
2 to 5	48 (69.6)	8 (16.7)		45 (76.3)	25 (55.6)	
More than 5	21 (30.4)	5 (23.8)		14 (23.7)	7 (50.0)	
Physical activity			0.754			1.000
Yes	57 (67.9)	9 (15.8)		25 (33.3)	14 (56.0)	
No	27 (31.2)	5 (18.5)		50 (66.4)	28 (56.0)	
Chronic pain			0.769			0.476
Yes	45 (53.6)	8 (17.8)		33 (44.0)	20 (60.6)	
No	39 (46.4)	6 (15.4)		42 (56.0)	22 (52.4)	
Depression			0.042			0.032
Yes	28 (33.7)	8 (28.6)		41 (56.2)	27 (65.9)	
No	55 (66.3)	6 (10.9)		32 (43.8)	13 (40.6)	

* Chi-Square for tendency

** Fisher's Exact test

The BADL with higher frequency for dependence were to keep contingency, followed by to get dressed

and to shower in both institutions, and in Integral Permanence Homes, all BADL presented some level of compromise (Figure 1).

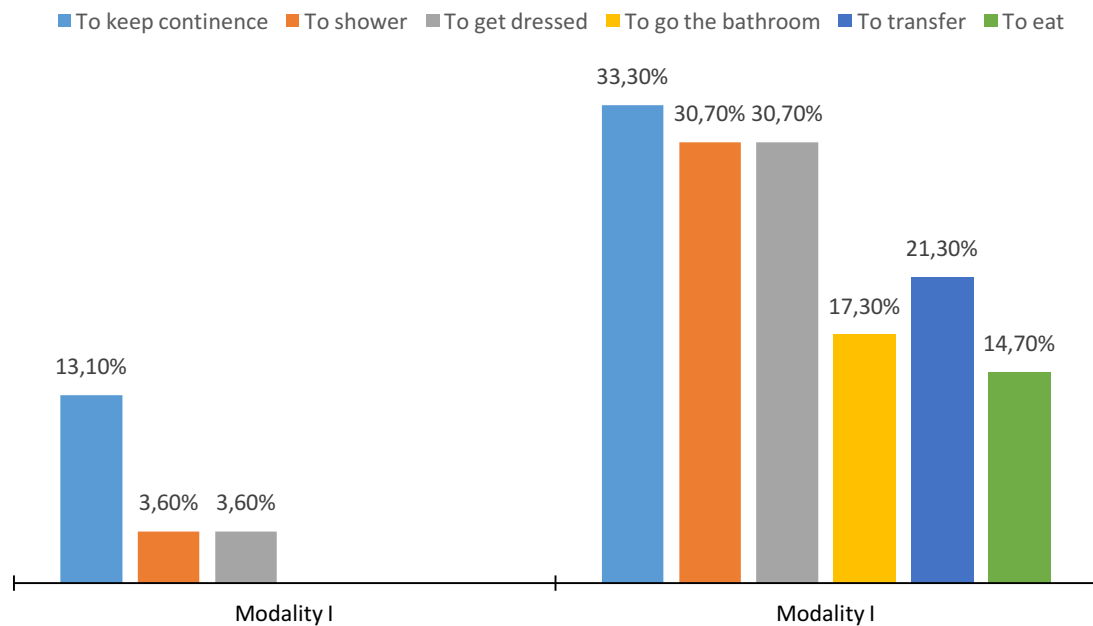


Figure 1: Frequency of BADL with higher compromise. Goiânia, GO, Brazil, 2012.

DISCUSSION

The prevalence of functional incapacity was higher in elderly residing in Integral Permanence Homes when compared to those living in Nursing Homes, an expected result considering that self-care capacity is a requirement to include the elderly in this institutional modality. Nevertheless, from the analyses, it was observed an increase of incapacity prevalence with the increase in institutionalization time, suggesting that incapacity increases as it increases the time of permanence of elderly in these institutions. The prevalence found in this study is lower than the one found in previous studies developed in Jequié (BA)⁽¹⁾, Montes Claros (MG)⁽⁶⁾ and Pelotas (RS)⁽³⁾, where the dependence prevalence for functional incapacity were respectively 70%, 56.8% and 79.4%. In European countries, where population aging is experienced for longer than the Brazilian reality, the results are similar. In Spain, a study conducted with more than 700 institutionalized elderly, it was demonstrated that approximately 80% presented dependency for some BADL⁽¹⁶⁾. In Finland, elderly who received long term care were particularly dependent for BADL with important limitations for eating (approximately 70%) and need of help for showering (99%)⁽¹⁷⁾. The lower dependence prevalence found in this study can relate to elderly being included after a minimum scoring in the MiniMental (≥ 13), in such way that those with severe deficit and, presumably, those with higher level of functional incapacity, had not been reached, as the cognitive function is intimately related with the development of activities of daily living⁽¹⁸⁾.

Comparing the two institutions, it was observed that elderly from Nursing Homes presented lower frequency of BADL compromising. However, in both, the most compromised activities were in this order: to

keep continence, to get dressed and to shower. In Integral Permanence Homes, elderly still presented compromising for all BADL. This difference can be explained by individuals admitted in Long Term Institutions with regimen of Nursing Home should present more independence, as they will not be full-time assisted as in the other discussed modality. Brazilian studies with institutionalized elderly demonstrated compromising in different BADL: to transfer (for example, to get out of bed and sit in a chair with or without aids), to shower, to get dressed, to go to the bathroom^(1,3-4) and to walk⁽¹⁾. There are evidence that loss of functional capacity initiates with the compromising of instrumental activities and later, there is impairment of BADLs considering the instrumental ones presenting higher complexity and being related to social participation of the subject in society⁽¹⁹⁻²⁰⁾.

The dependency level can also increase at the measure that health professionals and/or caregivers of institutionalized elderly opt many times to help them execute determined basic tasks, instead of stimulating them in their daily difficulties⁽¹³⁾.

Regarding the demographic characteristics, it was observed in higher frequency the incapacity among women in Integral Permanence Homes, and in men in Nursing Homes, although it has not been presented statistically significant differences. Previous studies affirmed that institutionalization occurs more among women due to differences between survival and morbidities associated and highlighted among female and male genders⁽³⁻⁴⁾. Besides, it is known that although women present higher life expectancy than men; they present more comorbidities, which in this case could have contributed with higher prevalence of functional incapacity in Integral Permanence Homes. In contrary, as Nursing Homes are characterized by admitting independent elderly, women could have presented more independence when compared to men because they assume their compromises with care and health.

There was an increase in incapacity prevalence with the increase of age, a result that is coherent with previous studies^(4,13). It is known that decrease of capacity to perform ADL increases with age and culminates with the need of long-term care, by family members, friends, neighbors (informally), or by capable professionals⁽³⁾, which can lead to elderly institutionalization.

Within the comorbidities, depression presented differences statistically significant related to functional incapacity in two modalities. The institutionalized elderly have little access to leisure activities and socializing as these institutions are more focused in care related to personal hygiene and help in daily activities, leaving aside leisure and health activities. Besides, aging lead to functionality decrease and worsening of quality of life, leaving the senior more susceptible to have depressive symptoms⁽²⁰⁾.

Musculoskeletal diseases also present association with incapacity in Nursing Homes ($p=0.047$). As it relates to more active elderly, the presence of musculoskeletal diseases can affect performance of daily activities, considering that diseases can limit the execution of activities outside that place. In cases of Integral Permanence Homes, the presence of these diseases could be related to these elderly not being functionally active, they are not physically active, and they are restricted to the institution.

CONCLUSION

The prevalence of FI was higher in Integral Permanence Homes in comparison to Nursing Homes, and depression was associated to incapacity in both. Musculoskeletal diseases in Nursing Homes and the age group higher than 80 years in Integral Permanence Homes are also variables associated to functional incapacity. The BADLs with higher compromising were in both settings for keeping continence, to shower and to get dressed.

Besides the contributions, this study presents some limitations. The totality of elderly was not analyzed. However, this guaranteed the data reliability, once elderly with cognitive impairment can give imprecise information and lead to bias. Another limitation refers to cross-sectional studies not allowing distinction of effect and cause, that is, it is not possible to infer causality between the associated exposure variables and the outcome, that can be studied in cohort studies.

The findings signalize the need of interventions for institutionalized elderly, especially those living in the integral permanence modality, focused in depression control.

The nurse has the fundamental role in Long Term Institutions. Considering the findings, it is recommended for nursing to leverage active aging in elderly residing in institutions similar to Nursing Homes, where the elderly has lower dependence and, to propose actions to prevent incapacities between those who live in integral permanence institutions. In both institutions, the assessment of dependence level and offer of actions, with focus in the development of motor and cognitive functions, are proposals that can be implemented and continuously assessed by nursing professionals.

It is recommended for future studies to investigate functionality of elderly in other regions of the country and in other institution modalities beyond the two assessed, to foment policies focused in long-term elderly care, with quality in attention and, focused in elderly maintenance and independence.

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