



Cognition, functionality and depression indicative among elderly

Cognição, funcionalidade e indicativo de depressão entre idosos

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Objective: to describe the socioeconomic characteristics of the elderly according to cognitive status, and, to associate the cognitive decline with functional disability and depression indicative among the elderly. **Methods:** this is a quantitative, retrospective and observational study with 92 elderly. The used instruments were: Mini Examination of Mental State; Katz Index; Lawton and Brody Scale and Abbreviated Geriatric Depression Scale. Statistical analysis and chi-square test ($p < 0.05$) were used. **Results:** elderly with a cognitive decline for females were predominant, 80 years and older, widowed and living with children, with one to three years of study, individual income up to a minimum wage. The proportion of elderly with a dependent cognitive decline in basic activities of daily living ($p = 0.043$) and instrumental activities of daily living ($p = 0.008$) was higher than independent. There were no significant differences in the depression indicative ($p = 0.437$). **Conclusion:** the proportion of dependent elderly was higher in those with cognitive decline.

Descriptors: Aged; Cognition; Activities of Daily Living; Depression; Nursing.

Objetivo: descrever as características socioeconômicas dos idosos segundo status cognitivo, e; associar o declínio cognitivo com a incapacidade funcional e o indicativo de depressão entre idosos. **Métodos:** estudo quantitativo, retrospectivo e observacional com 92 idosos. Foram utilizados os instrumentos: Mini Exame do Estado Mental; Índice de Katz; Escala de Lawton e Brody e Escala de Depressão Geriátrica Abreviada. Utilizou-se análise estatística e teste qui-quadrado ($p < 0,05$). **Resultados:** predominaram idosos com declínio cognitivo para o sexo feminino, 80 anos e mais, viúvos e que moravam com filhos, com um a três anos de estudo, renda individual de até um salário mínimo. A proporção de idosos com declínio cognitivo dependentes nas atividades básicas de vida diária ($p = 0,043$) e atividades instrumentais de vida diária ($p = 0,008$) foi superior aos independentes. Não houve diferenças significativas quanto ao indicativo de depressão ($p = 0,437$). **Conclusão:** a proporção de idosos dependentes foi superior naqueles com declínio cognitivo.

Descritores: Idoso; Cognição; Atividades Cotidianas; Depressão; Enfermagem.

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Introduction

The nervous system requires incentives for its maintenance and development. However, over the years, often as a result of retirement, many individuals stop exercising cognitively, contributing to cognitive decline that occurs more rapidly in the elderly⁽¹⁾. In this context, national studies have observed the prevalence of cognitive decline among outpatients elderly, ranging from 29.2%⁽²⁾ 42.1%⁽³⁾.

Another important aspect is that cognitive decline can lead elderly people to a greater propensity to the occurrence of functional disabilities⁽⁴⁻⁵⁾, as shown in a research conducted in *Rio de Janeiro* that verified that elderly patients from the outpatient clinic of a public hospital with cognitive commitment, presented more difficult to perform the basic activities of daily living ($p < 0.05$)⁽⁶⁾. Concerning the dependence in instrumental activities of daily life, a study of community elderly verified association with cognitive commitment ($p < 0.05$)⁽⁴⁾.

Moreover, the reduction of cognitive capacity may influence the mood of elderly associating to depression⁽²⁾. A study of Chinese elderly without dementia identified the relationship between cognitive status and depressive symptoms⁽⁷⁾. In Brazil, a population-based survey in the municipality of *Bagé, Rio Grande do Sul*, verified among other factors, greater probability of cognitive deficit among elderly with depression ($p < 0.05$)⁽⁵⁾.

In this context, the need for studies on this topic is relevant, considering that the information generated by the assessments of functional capacity in elderly attended by the public health system with cognitive decline, are essential to verify the degree of dependence, as well as planning strategies and health interventions⁽⁸⁾ which hinder or changes the way that the elderly performs the basic and instrumental activities of daily living; thus, can provide to the nursing a care planning according to the functional

limitations related to cognition.

Concerning the relationship between depression and cognition in the country, the literature has focused this aspect in specific populations such as elderly living in areas covered by primary health care services⁽⁵⁾ emerging the need for investigations, considering that the screening precedes the diagnosis, showing the importance of outpatient studies. The use of instruments appropriate to the early detection of depressive symptoms and cognitive deficit in the elderly prevents the aggravation of these conditions⁽²⁾.

In this sense, it is questioned: What is the relationship between functional disability and depression with cognitive decline in accompaniments of elderly in the clinic? Thus, the objectives of this study were to describe the socioeconomic characteristics of the elderly according to the cognitive status, and, to associate the cognitive decline with functional disability and depression indicative among the elderly.

Methods

This is a retrospective and observational, quantitative approach study, developed at the Clinic of Geriatrics and Gerontology of the Clinical Hospital of the Federal University of *Triângulo Mineiro* in *Uberaba, Minas Gerais*, Brazil.

In the service, is adopted in the first attendance of multidimensional assessment of the elderly. Data from the first evaluations of the elderly were captured. For purposes of this study, all the assessments form composed the sample, of elderly assisted from October 2013 to September 2014. 96 elderly were screened, and four were excluded by incompleteness in the Mini-Examination of Mental State⁽³⁾ and on the questionnaires relating to basic activities of daily living⁽¹⁾. Therefore, 92 assessments were used in this survey.

The data obtained in the evaluation forms were: socioeconomic characterization; cognitive

decline using the Mini Examination of Mental State⁽⁹⁾; functional dependence with the Independence Scales in Activities of Daily Living⁽¹⁰⁾ and Instrumental Activities of Daily Living⁽¹¹⁾ and; the depression indicative from the Abbreviated Geriatric Depression Scale⁽¹²⁾.

The variables included in this study were: socioeconomic; gender (male and female), age group, in years (60 †70, 70 †80, >80), marital status (married or living with a partner; separated/independent/divorced, widowed and single), living arrangements (alone, only with professional caregiver, only with a spouse, with others of the same generation with or without spouse, with children with or without spouse, with grandchildren with or without spouse, other arrangements), education, in years of schooling (without schooling; 1 †4; 4 †8; 8; 9 †11 and >11), and individual income in minimum wages (without income; <1; 1; 1 †3; 3 †5; >5); origin of the financial resources (retirement, pension, income/rental, family donation, third-party donation, continuous work, occasional work, lifelong monthly income, financial investments); cognitive decline: yes, no; functional capacity in basic activities of daily living: bathing, dressing, toileting, transferring, sphincter control, feeding; functional disability in basic activities of daily living: yes, no; functional capacity in instrumental activities of daily living: using telephone, make trips, shopping, preparing meals, performing housework, medication use and handling money; functional disability in instrumental activities of daily living: yes, no; depression indicative: yes or no.

Data were collected in the multidimensional evaluation forms of the elderly, and entered into an electronic database, in Microsoft Office Excel® 2007 program, processed in a microcomputer, by two individuals, double entry. It was verified the existence of duplicate records and the consistency of the fields between the two databases. When data was inconsistent, the original instrument was corrected. Later, the database was imported into the software

Statistical Package for Social Sciences version 17.0, for data analysis.

A descriptive statistical analysis was performed to characterize the groups according to the cognitive status, from absolute frequencies and percentage. To compare the variables, the chi-square test was used, considering the significant associations when $p < 0.05$.

The study complied with the formal requirements contained in the national and international regulatory standards for research, involving human beings.

Results

In the total of assessed chips, it was observed that most of the elderly were women, in both groups, with (76.9%) and without cognitive decline (60.0%); however in the group with the cognitive decline, the percentage of female elderly was higher.

Concerning age, it was verified that among elderly aged 80 years and older, prevailed those with cognitive decline (56.8%) and without cognitive decline 70 †80 years (41%). As for marital status, it obtained higher prevalence of widowed elderly with cognitive decline (51.9%). It is noteworthy that among those without cognitive decline was the greatest percentage of those living with spouse/partner (40.0%).

In living arrangement, the highest percentage of elderly with cognitive decline, lived with their children (36.5%), whereas without cognitive decline, lived alone (30.0%).

Concerning schooling, the majority of elderly with cognitive decline, had one to three years (37.3%) and those without decline, from four to seven years of education (30.0%). About individual income, the highest percentage in both groups was of one minimum wage, with cognitive decline (53.8%) and without (38.5%); the financial resources came from, predominantly, retirement (61.5%) in the group with cognitive decline and (50.0%) without.

Regarding dependence in basic activities of daily life, prevail in the activities of dressing, bathing and continence among the elderly with cognitive decline, and without cognitive decline, for continence and dressing (Table 1).

Regarding the dependence in instrumental activities of daily living, prevailed among the elderly with cognitive decline, the activities related to handling money, housework and preparing meals; and for those without cognitive decline, trips, preparing meals and housework (Table 2).

Table 1 - Functional capacity of elderly in basic activities of daily living, according to the cognitive state

Activities	Cognitive Decline	
	With n=52 (%)	Without n=40 (%)
Bathing		
Do not receives assistance	40 (76.9)	40 (100.0)
Receives assistance in the bath, only in one part of the body	3 (5.8)	-
Receives assistance in the bath, in more than one part of the body	9 (17.3)	-
Dressing		
Gets the clothes and dresses completely	40 (76.9)	39 (97.5)
Gets the clothes and dress without assistance, except to tie the shoes	1 (1.9)	-
Receives assistance to get the clothes or to dress up or remains partially or completely undressed	11 (21.3)	1 (2.5)
Toileting		
Go to the bathroom, sanitize and dresses after the elimination without assistance	41 (78.8)	40 (100.0)
Receives assistance to go to the bathroom or sanitize or dressing after elimination or to use the urinal or bedpan overnight	10 (19.3)	-
Do not go to the bathroom to urinate or evacuate	1 (1.9)	-
Transferring		
Lay down and get up from bed or chair without assistance	46 (88.5)	39 (97.5)
Lay down and get up from bed or chair with assistance	5 (9.6)	1 (2.5)
Do not get out of bed	1 (1.9)	-
Continence		
Have control over the functions urinate and evacuate	37 (71.2)	26 (65.0)
Have occasional "accidents"	9 (17.3)	11 (27.5)
Supervision to control urine and feces; uses catheterization or is incontinent	6 (11.5)	3 (7.5)
Feeding		
Feeding without assistance	49 (94.2)	40 (100.0)
Feeding without assistance, except for cutting meat or buttering bread	3 (5.8)	-

Table 2 - Functional capacity of the elderly in instrumental activities of daily life according to cognitive status

Activities	Cognitive Decline	
	With n=52 (%)	Without n=40 (%)
Using telephone		
Receive and make calls without assistance	27 (51.9)	35 (87.5)
Needs assistance to make phone calls	14 (26.9)	3 (7.5)
Do not have habit or is unable to use the telephone	11 (21.2)	2 (5.0)
Makes trips		
Makes trips alone	15 (28.8)	22 (55.0)
Only with companion	19 (36.5)	11 (27.5)
Do not have habit or unable to travel	18 (34.7)	7 (17.5)
Do shopping		
Do shopping, when transport is provided	16 (30.8)	30 (75.0)
Do shopping only with companion	21 (40.4)	6 (15.0)
Do not have habit or unable to do shopping	15 (28.8)	4 (10.0)
Meal preparation		
Planning and cooking full meals	32 (62.7)	31 (77.5)
Prepares only small meals or with help	-	3 (7.5)
Do not have habit or unable to prepare their meals	19 (37.3)	6 (15.0)
Housework		
Performs heavy tasks	18 (34.6)	20 (50.0)
Performs light tasks, needing help in the heavy ones	14 (26.9)	15 (37.5)
Do not have habit or unable to perform housework	20 (38.5)	5 (12.5)
Taking medication		
Makes use of medications without assistance	26 (50.0)	34 (85.0)
Needs reminders or assistance	11 (21.2)	4 (10.0)
Is unable to control the medications use alone	15 (28.8)	2 (5.0)
Handling money		
Fills checks and pays bills without help	19 (36.5)	35 (87.5)
Needs assistance to use checks and bills	12 (23.1)	4 (10.0)
Do not have habit of dealing with money or is unable to handle money and bills	21 (40.4)	1 (2.5)

The association of cognition with the functionality identified that the proportion of elderly with cognitive decline dependent in basic activities of daily living ($p=0.043$) and instrumental activities of daily living ($p=0.008$) was higher than those without cognitive decline, Table 3. The depression indicative appeared unrelated to cognitive decline ($p=0.437$), Table 3.

Table 3 - Functional capacity for basic and instrumental activities of daily living and depression indicative among elderly according to cognitive status

Variables	Cognitive Decline		χ^2	p
	With n (%)	Without n (%)		
Basic activities of daily living			4.114	0.043
Independent	38 (73.1)	36 (90.0)		
Dependent	14 (26.9)	4 (10.0)		
Instrumental activities of daily living			7.062	0.008
Independent	18 (34.6)	25 (62.5)		
Dependent	34 (65.4)	15 (37.5)		
Depression Indicative			0.603	0.437
No	31 (59.6)	27 (67.9)		
Yes	21 (40.4)	13 (32.5)		

Discussion

About gender, a similar result was found in the survey of elderly attended the outpatient clinic of a university hospital in *Rio Grande do Sul*⁽³⁾. Another study in a geriatric service in *Belo Horizonte* also showed a higher percentage of women in the group of elderly with dementia and control⁽¹³⁾. The higher prevalence of female can be justified by the longer life expectancy of women; according to estimates by the Brazilian Institute of Geography and Statistics, they had expectancy 78.5 years while men, 71.2 years, in 2013⁽¹⁴⁾.

Concerning age group, in *Rio Grande do Sul* it was found a larger number of older elderly in the group

with a cognitive deficit⁽³⁾ suitable for this investigation. It is noteworthy that the scientific literature shows that increasing age is related to cognitive decline in the elderly; the presence of cognitive decline is two times higher in those aged 80 and over⁽⁵⁾.

About marital status, similar to this study, research in the South found that in the group with cognitive decline prevailed elderly without a companion and without cognitive decline with a companion⁽³⁾. But in the geriatric service in *Belo Horizonte*, the highest percentage in both groups, with and without dementia, were married⁽¹³⁾, partially suitable to the obtained in this survey. The presence of a companion can be as a support for the difficulties caused by cognitive decline and incentive to search the necessary care.

The unipersonal arrangement prevalent among elderly without cognitive decline can be justified by the choice of living alone, for representing greater autonomy, favorable financial conditions and good health⁽¹⁵⁾, considering that for living alone is only relevant that the cognition is preserved. However, in Brazil prevails living arrangement formed by the elderly and children (30.7%)⁽¹⁴⁾. In this sense, considering the possible support to the elderly with cognitive decline, health care should include the family in care. Nurses in the elderly approach can use this resource, during nursing visits.

Concerning schooling, a survey performed by elderly in outpatient care in the South, found that the group with cognitive decline had less education compared to those without cognitive decline⁽³⁾, similar to this research. But in the geriatric service in *Belo Horizonte*, the highest percentage in both groups, with and without dementia, showed up to four years of education⁽¹⁴⁾, diverging this study. In this sense, health professionals, especially nurses, should evaluate the ability to understand and interpret written and spoken information from elderly with low education⁽³⁾ aiming that the service is compatible with their understanding.

Regarding monthly income, a study with elderly

attended at the clinic, was divergent and most received more than one minimum wage in both groups⁽³⁾. In Brazil most elderly have a monthly income of a half to one minimum wage (38.3%)⁽¹⁴⁾, being the main income at retirement or pension (67.6%)⁽¹⁴⁾, a fact that may justify the results in this study.

Regarding the basic activities of daily living, a survey with the elderly in a Basic Health Family Unit in *São Paulo* found more difficult to urinary continence (22.6%), and this result was suitable for those without a cognitive decline of this study⁽⁸⁾. It is noteworthy that know specifically the elderly's performance in each basic activity of daily living, contributed in planning and systematization of the professional health care, about the elderly, whether to seek strategies to assist them in this function and/or the restoration, when possible. Also, it could work at maintaining those basic activities that the elderly still presents no difficulties.

The highest percentage of dependence in instrumental activities of daily living among community elderly, with mild cognitive commitment in Pennsylvania, was for domestic work (14.8%) followed by shopping (8.8%); for those without cognitive decline, the same activities, but with lower percentage (9.4% and 2.5%, respectively)⁽¹⁶⁾, divergent data of the present study.

A study performed by elderly who attend Living Centers for Elderly in *Santos, São Paulo*, received no association between the functional capacity for basic activities of daily living and cognitive status ($p=0.812$)⁽¹⁷⁾, divergent of this research. However, a similar result was found in research conducted with elderly residents of *Lafaiete Coutinho, Bahia* ($p=0.013$)⁽⁴⁾.

Community elderly with mild cognitive commitment in Pennsylvania showed higher dependence in instrumental activities of daily living than those without cognitive decline ($p<0.001$)⁽¹⁶⁾, a similar finding to this research. Another survey with elderly of Basic Health Care services in *Bagé, Rio Grande do Sul*, found that the probability of presenting cognitive decline was greater in those with disability in instrumental activities of daily

living ($p<0.001$), however, not allowing to establish causal relationships because cross-sectional cutting⁽⁵⁾. However, a longitudinal study with 70 years or older individuals in Australia showed that the functionality in instrumental activities of daily living, specifically those with high cognitive demand, were predictors of cognitive decline and dementia during follow-up⁽¹⁸⁾.

Whereas most elderly of this study with cognitive decline, were dependent and resided with children and it is necessary to be assessed during outpatient visits support network. The nurse can, together with the family and other professionals, to develop an action plan to maximize the functionality of the elderly and delay losses of less complex activities.

A survey performed with community elderly in Sydney, found no association between depression and the presence of cognitive decline ($p=0.528$)⁽¹⁸⁾ as well as a survey of assisted elderly in a gerontology-geriatric service in *Pernambuco* ($p>0.999$)⁽¹⁹⁾, data suitable for this research. However, divergent results were obtained in a survey of elderly performed in Hong Kong, which verified no association between depression and lower scores on the Mini Examination of Mental State ($p<0.001$)⁽⁷⁾.

The limitations of this study are related to the limited number of evaluations of the elderly, which resulted in a relatively small sample. Also, the cross-sectional design does not allow establishing causal relationships between cognitive decline, functional capacity and depression indicative. It also highlights the scarcity of studies on national and international literature about the theme.

Conclusion

Among the elderly evaluations predominated, regardless of cognitive status, female, the individual income up to one minimum wage and financial resources coming from retirement. Among the elderly with cognitive decline, the highest prevalence was for those aged ≥ 80 years, widowed, living with children and one to three years of study. It was found

that elderly with cognitive decline showed higher functional dependence in basic and instrumental activities of daily living than those without cognitive decline; the proportion of depression indicative was similar between groups.

Knowledge of the relationship between functionality and depression indicative with cognition can contribute elderly care and favor the improvement of nursing care to this outpatient population. In addition to the elucidation of this relationship, the study directs the development of other research in the health sector on this issue.

Collaborations

Nunes WA contributed to the design work, data interpretation, and article writing. Dias FA, Nascimento JS, Gomes NC and Tavares DMS participated in the construction of the project, work design, data collection, analysis, data interpretation and article writing. All authors contributed to the critical review and final approval of the version to be published

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