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IMPACT OF SOCIODEMOGRAPHIC AND HEALTH VARIABLES ON THE FUNCTIONAL CAPACITY OF LOW-INCOME ELDERLY

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ABSTRACT
The present study aims to examine the relationship of functional capacity with sociodemographic and health conditions in low-income elderly. This is an analytical cross-sectional survey, with a sample of 150 elderly people, residing in Jequié/BA. The instrument consisted of sociodemographic and health data; Mini-Mental State Examination/MMSE, Barthel Index and Lawton Scale. The project was approvedby the Ethics Committee(Protocol027/10).Through the Student t-test it was found a statistically significant difference between the averages of the basic activities of daily living and health problems (*p=0.014*) and between instrumental activities of daily living, with marital status (*p=0.040*), occupation time free (*p=0.019*), income (*p = 0.027*), amount of income (*p=0.015*), age (*p=0.047*), health problems (*p=0.036*) and presence of sequels (*p<0.001*). From the results it is evident that the conditions sociodemographic interfere only in instrumental activities of daily living.

Keywords: Aged.Activities of daily living.Social conditions. Health status.

INTRODUCTION

The Brazilian population is aging very fast since the beginning of the 60s, when the dicrease in fertility rates began to change their age structure, gradually narrowing the base of the population pyramid[1].

The increase in elderly population brings some implications in this new demographic scenario. On one hand, there is a population with an accumulation of experiences, although not always valued by the society. On the other hand, the changes inherent in age, associated with the social exile have contributed to the development of some chronic degenerative diseases that can compromise the functional capacity of the elderly[2].

The functional capacity represents the independence of the individual living, perform physical and mental activities necessary for maintaining their basic and instrumental activities, that is: bathing, dressing, perform personal hygiene, moving, feed, keep continence, prepare meals, control finances, take medication, clean the house, go shopping, use public transportation, use phone and walking some distance[3].

The loss of functional capacity is associated with the prediction of fragility, dependence, institutionalization, increased risk of falls and death. Otherwise, mobility problems bring complications over time, generating long-stay care and high cost due to the need for medical care and risk of hospitalization, contributing significantly to the current crisis in the health system[4].

As longevity increases, the dependency tends to increase as a result of multiple factors, although it cannot be established a direct relationship of cause and effect. The organic, functional and psychological changes resulting from normal aging are varied and depend on how each one was prepared to this stage of life, of his physical ability, the maintenance of activities that provide pleasure and intellectual and personal development of the social network that contributes to the maintenance of their autonomy. Actually, it is not the advancement of age that marks the most significant stages of life, but rather a continuous process of reconstruction[5].

Functional capacity, in addition to suffer influences of increased longevity, it also suffers sociodemographic variables interference like sex, marital status, income and education. Study

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on the interior of Santa Catarina has demonstrated that the prevalence of impairment of functional capacity was higher in women, elderly with high age, low income and education, and lower classes[4]. Low educational levels and worse economic conditions are associated with higher risks of addiction and death[3].

Several studies demonstrate significant associations between health problems and functional incapacity of the elderly[2-4]. The presence of hypertension increases by 39% the chance of the elderly being dependent in activities of daily living and heart disease increase by 82%[6].

Population studies show that about 40% of the elderly of 65 years old or olderneed some kind of help to perform instrumental activities of daily living, how to take care of finances, prepare meals and clean the house, and a smaller but significant amount of 10%need assistance to perform basic tasks like bathing, dressing, going to the toilet, feeding and even sitting and stand up from chairs and beds[7].

The purpose of this study was to verify the existence of differences between the averages of the functional capacity (basic and instrumental activities of daily living) with the categories of sociodemographic and health conditions in low income elderly people. The survey of such information makes it possible to trace the functional profile, serving as reference to justify programs targeted strategies to promote health in elderly people of economically underprivileged communities, aimed at keeping the elderly in the community for as long as possible, with maximum independence. With this in mind, the present study aims to analyze the relationship of functional capacity with sociodemographic and health conditions in low income elderly people.

The study of functional capacity in elderly is important to understanding how people live the life that additional years they won with the increase in longevity. This phenomenon has occurred in many parts of the world, but in those countries where the process of aging is not recent, there is more knowledge about the patterns of functional capacity in the elderly population[1]. In Brazil, there are few studies on this thematic, being appropriate to study it in low income elderly, once the development of functionality between these elderly takes place within a context of fragile institutions, poverty and social inequality[2-5].

MATERIALS AND METHODS

It is an analytical type research with cross-sectional delineation, held in the city of Jequié, located in the interior of Bahia, Northeast of Brazil. The population of the study was represented by 1500 registered elderly in Health Units in the Neighborhood of Jequiezinho, 10% of these elderly being included as a sample in this study, selected randomly, through drawing with replacement, in the period from January to March 2012.

The criteria for inclusion in the study were to present mental conditions (score above 23 points on the MMSE)[1] to respond to the survey instrument, agree to participate in the survey or have their participation authorized by the caregiver, singing the informed consent and have low incomes (≤ 1 minimum wage).

The data collection instrument had three parts. The first part represented by the sociodemographic characteristics: age group (≥ 74 and <74 years); sex (male and female); education (literate and illiterate); income (with income and without income); marital status (married, divorced, widowed and unmarried); occupation of free time (with or withoutfree time occupation); and health conditions (presence or absence of health problems and sequels). The second part on the Mini-Mental State Examination/MMSE[5] to evaluate the cognitive state of the elderly (score above 23 points), being this instrument applied to the elderly. And the third part composed of the Barthel index[8] and Lawton Scale[9], used to assess functional capacity.

The Barthel index is used to evaluate the functional capacity, being composed of 10 basic activities of daily living: feeding, bathing, personal hygiene, dressing, intestines, bladder, intimate hygiene, transfer-chair and bed, walking and climbing stairs. The score corresponding to the sum of all points obtained, being considered the independent individual who reaches the total score, that is, 100 points. Scores below 50 indicate dependency in activities of daily life[8].

The Lawton Scale is used to assess functional capacity, including more complex activities necessary for a more autonomous social life, such as: call, shopping, preparing meals, cleaning the house or the yard, home repairs, washing and ironing, use means of transport, use medication and manage private finances and/or from the house, being these activities called instrumental activities of daily living[9]. For each issue the first answer means independence, the second partial dependence or ability with help and the third dependence. The maximum score is 27 points[9].

The data collected were organized into electronic database by typing in the Statistical Program SPSS, spreadsheet version 13.0. The analysis was done by descriptive statistics (calculation of absolute and relative frequency, mean values and standard deviation) and inferential Statistics with Student's t-test application of averages. The significance level adopted was 5%.

This research follows the ethical principles in the declaration of Helsinki and in Resolution 196/96 of the National Health Council. Research protocols have been assessed and approved by the Ethics Committee in Research of Human Beings at the Universidade Estadual do Sudoeste da Bahia (Protocol 027/10).

RESULTSAND DISCUSSION

Of 150 elderly studied, 68 (7%) were female, with an average age of 74.5 (9.4 ±) years old, being the minimum of 60 and maximum of 106 years old. In the level of education 61.3% were illiterate, with 46.7% married and 33.3% widowed, according to Table 1.

Table 1 - Distribution of the elderly according to sociodemographic characterization. Jequié/BA, 2012.

Sociodemographic Characteristics	N	%
Gender		
Female	103	68,7
Male	47	31,3
Education		
Illiterate	92	61,3
Literate	58	38,7
Marital Status		
Married	70	46,7
Single	15	10,0
Widowed	50	33,3
Divorced	15	10,0
Free time occupation		
Nothing	118	78,7
Take care if the house	17	11,3
Watch TV+Radio	8	5,3
Work	5	3,3
Church+TV	2	1,3
Type of income		
Retired	110	73,3
Allowance	15	10,0
Retired and Allowance	2	1,3
No	22	14,7
Total	150	100,0

Source: Research Data.

This data is supported by a study conducted in Guarapuava, where from 359 elderly respondents, 64.4% are women and 35.6% are male, with an average age of 68.8 ± 9.09 years old, ranging between 60 and 98 years old.For the results of the marital status variable 57.7% are married or living together and 34.5% are widowed[10].

48.7% of the elderly were farmers and 24.7% were domestic. Currently, 73.3% are retired and only 14.7% have not own rent, and 83.3% receive only a minimum wage. As

regards the use of free time 78.7% of the elderly reported not performing activities to pass the time. These data are similar to the study in Uberaba, in which most have individual income of minimum wage (62.7%) from retirement (61.6%) and allowance (32.8%)[11].

About health conditions, 94.0% of the elderly reported health problems and most of them, 76.7% have drug treatment. The most frequent disorders were Hypertension (SAH) 22.7%, Diabetes and HAS11.3% and Osteoarthritis associated to HAS 8.00%. The presence of sequels has been verified in 21.3% of the elderly, being more observed the neurological (15.3%). These data are corroborated by a study with 277 elderly, in which a prevalence of 21.3% of the elderly as suffering from sequels were found[10].

In relation to the basic activities of daily living, 78.00% of the elderly were classified as dependent, being the average 63.2 points (29.6 ±). As the instrumental activities of daily living, 99.3% of the elderly were classified as dependants, averaging 20.0 points (± 6.92). These data are contradictory to the one found in the study in Pelotas in which the prevalence of disability for basic activities was 26.8% (IC 95%: 23.0; 30.8) and 28.8% (IC 95%: 24.5; 33.1) for instrumental activities. The intraclass correlation coefficients were respectively, 0.015 and 0.073, with 1.10 and 1.36design effects. Most of the elderly people (60%) did not submit incapability to none of the domains, 11% presented dependence only for basic activities, 13% instrumental activities and only 16% were unable to both domains.

Studies indicate that the prevalence of functional disability in the elderly physical mobility are differentiated among the demographic groups, being found a greater prevalence in the elderly that have low sociodemographic conditions[13-15].

The predominant impairment of functional capacity observed in the elderly from the present study is also found in the literature of Brazil and other countries[13-14]. Study conducted in the United Kingdom showed a restraining order of activities, beginning for the bath, locomotion, dress, hygiene and, finally, the feeding[11]. Longitudinal study conducted in the United States with 5151 elderly revealed decreased functional capacity mainly in relation to the bath, hygiene, personal care, dressing and locomotion[14].

Results of a research conducted in the municipality of São Paulo showed that more than half of the population studied (53.0%) were referred to partial or complete assistance required to perform at least one of the activities of daily living. It was also detected that 29% of the elderly required partial or complete assistance to perform up to three of these activities, and 17% needed help to achieve four or more activities of daily living[5].

With the implementation of Student's t-Test between the averages of the basic activities of daily living (BADL) and the categories of sociodemographic variables, no statistically significant difference was found, as shown in Table 2. However, with instrumental activities of daily living (IADL) statistical significant differences were found between the averages, with marital status ($p = 0.040$), free time occupation ($p = 0.019$), type of income ($p = 0.027$), income value ($p = 0.015$) and age group ($p = 0.047$). Table 2.

By the Student's t-Test between the functional capacity and health conditions, significant statistical differences were found between the averages of the BADL commitment and health problems ($p = 0.014$). In relation to the IADL compromised, statistical differences were found with health problems ($p = 0.036$) and presence of sequel ($p < 0.001$), as shown in Table 3. In this way, it is evidenced that the elderly who have health problems present commitment of basic activities of daily living and that elderly with presence of sequels present commitment of instrumental activities of daily living.

Among the sociodemographic and health characteristics analyzed, the presence of health problems have been reported related to the decreasing ability to perform basic activities of daily living. Progressive difficulties in carrying out the basic functional activities increase with age and often arise from physiological changes of aging process,

disease and/or problems associated with this age group. After 70 years old, 30.0% of the elderly have some chronic disease and among them, about 50.0% have some kind of limitation or disability[15].

Table 2 - Distribution of the averages of the Student t-Test between functional capacities and sociodemographic variables.Jequié/BA, 2012.

Functional Capacity	Sociodemographic Variables	n	Average	S.D.	t	*P*
	Gender					
BADL	Female	103	64,3	27,9	0,631	*0,530*
	Male	47	60,7	33,6		
IADL	Female	103	19,9	6,8	0,389	*0,827*
	Male	47	20,2	7,2		
	Marital Status					
BADL	Others	135	61,9	29,7	1,593	*0,113*
	Single	15	74,7	28,6		
IADL	Others	135	19,6	6,9	2,076	*0,040**
	Single	15	23,5	6,4		
	Time occupation					
ABLD	With occupation	32	63,7	34,9	0,125	*0,901*
	Without occupation	118	63,0	28,2		
IADL	With occupation	32	22,5	6,3	2,382	*0,019*
	Without occupation	118	19,3	6,9		
	Income					
BADL	With Income	127	62,5	28,9	0,627	*0,532*
	Without Income	23	66,7	33,7		
IADL	With Income	127	19,4	7,0	2,233	*0,027**
	Without Income	23	22,9	5,9		
	Age group					
BADL	≥74years old	80	65,0	24,5	0,791	*0,430*
	< 74 years old	70	61,1	34,6		
IADL	≥74 years old	80	18,9	6,9	2,005	*0,047**
	< 74 years old	70	21,2	6,8		
	Education					
BADL	Illitetate	58	62,9	30,7	0,077	*0,939*
	Literate	92	63,3	29,1		
IADL	Illitetate	58	21,0	6,9	1,454	*0,148*
	Literate	92	19,3	6,8		

Source: research data. *Statistical significant difference.

Through the analysis of the Student's t-Test showed that sociodemographic variables such as income, marital status, occupation of free time and age were related to the commitment of instrumental activities of daily living. Studies show that sociodemographic factors like age, gender and marital status have influence on the functional capacity of the elderly[16-19].

Most of the elderly respondents presented low monthly household income. The literature states that there is strong association between good financial condition and less functional impairment[19]. In marital status, the married, widowed and separated predominated in this sample. It is known that the state of widowhood can influence negatively in the functional capacity of the elderly, in addition, studies show that the widowed elderly have more functional limitations than when compared to single people[16].

In general, it is expected that there is a decline in ability to perform instrumental activities of daily living with advancing chronological age. Elderly of higher age group showed a higher prevalence of functional incapacity. In general, functional limitations are more frequent in older individuals by

longevity[6]. The little involvement of the group studied in activities for free time occupation is worrisome, because the mental and physical inactivity are factors which accelerate the functional decline in the elderly.

Table 3 - Distribution of averagesof Student´s t-Test between functional capacity and health conditions.Jequié/BA, 2012.

Functional Capacity	Health conditions	n	Average	S.D.	t	*P*
	Health Problems					
ADL	No	9	86,7	21,9	2,497	*0,014*
	Yes	141	61,7	29,5		
IADL	No	9	24,7	7,3	2,117	*0,036*
	Yes	141	19,7	6,8		
	Sequels					
ADL	No	118	64,6	30,8	1,120	*0,265*
	Yes	32	58,0	24,6		
IADL	No	118	21,4	6,6	5,237	*<0,001*
	Yes	32	14,7	5,5		

Source: research data.

In the health condition, all variables (health problems and sequels) showed relationship with the commitment of instrumental activities of daily living. A study conducted in the 90s, in the municipality of São Paulo, with the aim to characterize the profile of the elderly revealed that 86.0% of respondents reported at least the presence of one disease, 47.0% required partial or complete assistance to perform at least one of the activities of daily living, demanding constant assistance and relatively specialized[18]. The fact of having sequels, due to some illness or accident, is closely related to functional impairment[19].

The functional incapacity in conducting basic and instrumental activities of daily living, in addition to harming the social life of the elderly, potentially implies disorders for him and his family, which, depending on the activity, they are going to have to mobilize greater time available, energy and financial resources to meet existing demands.

FINAL CONSIDERATIONS

It was noted in this study a high degree of impairment of functional capacity instrumental and basic activities of daily life in the elderly searched. It was evidenced that sociodemographic variables (income, marital status, occupation of free time and age) and health conditions (health problems and sequels) influence in the instrumental activities of daily living; and that presence of health problems influence on basic activities of daily living.

The conservation of functional capacity may have important implications for the quality of life of the elderly, to be linked with the ability to occupy in everyday activities and/or enjoyable activities. Therefore, it is necessary to devise specific programs for the maintenance and recovery of functionality. In planning new ways of prevention and treatment, within a multidisciplinary approach, physical therapy would play an important role, through the deployment/implementation of Physiotherapeutic intervention programs, both preventive and rehabilitative, aiming at greater independence and autonomy, determinants of good health and quality of life for this population.

Among the limitations of this study, there is the research design, in which the fact of being a cross-sectional study prevents ensure implicit relations of causality between the variables studied. However, through the reasons found in the literature, with regard to the degree of association and of the causal relationships between variables, it allows to infer that the results of this study seem to support the evidence of explanatory models of generation of functional limitations in the elderly population.

IMPACTO DAS VARIÁVEIS SOCIODEMOGRÁFICAS E DE SAÚDE NA CAPACIDADE FUNCIONAL DE IDOSOS DE BAIXA RENDA

RESUMO

O presente estudo tem por objetivo analisar a relação da capacidade funcional com as condições sociodemográficas e de saúde em idosos de baixa renda. Trata-se de uma pesquisa analítica com delineamento transversal, tendo amostra de 150 idosos, residente no município de Jequié/BA. O instrumentoconstou de dados sociodemográficos e de saúde; Mini-exame do Estado Mental/MEEM; Índice de Barthel e Escala de Lawton.O projeto foi aprovado pelo Comitê de Ética (Protocolo nº 027/10). Através do Teste t-Student encontrou-se diferença estatística significativa entre as médias das atividades básicas de vida diária e problemas de saúde *(p= 0,014)* e entreatividades instrumentais de vida diária, com estado civil *(p = 0,040),* ocupação do tempo livre *(p = 0,019),* tipo de renda *(p = 0,027),* valor da renda *(p = 0,015)*, faixa etária *(p = 0,047),* problema de saúde *(p= 0,036)* epresença de sequela *(p< 0,001)*. Diante dos resultados fica evidenciado que as condições sociodemográficas interferem apenas nas atividades instrumentais de vida diária.

Palavras-chave: Idoso. Atividades cotidianas. Condições sociais. Nível de saúde.

IMPACTO DE LAS VARIABLES SOCIODEMOGRÁFICASY DE LA SALUDENLA CAPACIDADFUNCIONAL DELOS ANCIANOS DE RENTABAJA

RESUMEN

El presente estudiotiene como objetivo examinarla relaciónde la capacidad funcionalde las condicionessociodemográficasy de salud deancianos de bajos recursos. Se trata deun sistema analítico deencuesta transversal, con una muestra de150 personasde edad avanzada, con domicilio en Jequié/BA.El instrumento constade variables sociodemográficasy de salud;Mini Examen del EstadoMental-/ MMSE, Barthel Indexy la Escala deLawton.Elproyecto fue aprobado porel Comité de Ética(Protocolo N º 027/10). A través de laprueba t de Studentse encontró una diferenciaestadísticamentesignificativa entrelos promedios de lasactividades básicas de lavida diariaylos problemas desalud (*p=0,014*)y entre las actividadesinstrumentales de la vidadiaria, conel estado civil (*p=0,040*), el tiempo de ocupaciónlibre(*p=0,019*), el ingreso (*p=0,027*), la cantidad de ingresos (*p=0,015*), la edad (*p=0,047*), problemas de salud (*p=0,036*)y la presenciade secuelas(*p<0,001*).De los resultadoses evidente quelos factores sociodemográficosinterfierensólo en las actividadesinstrumentales de la vidadiaria.

Palabras clave: Anciano. Actividades cotidianas. Condiciones sociales. Estado de salud.

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