

FUNCTIONAL CAPACITY AND PROFILE OF ELDERLY PEOPLE AT EMERGENCY UNITS

CAPACIDADE FUNCIONAL E PERFIL DO IDOSO INTERNADO NO SERVIÇO DE EMERGÊNCIA

CAPACIDAD FUNCIONAL Y PERFIL DEL ANCIANO INTERNADO EN EL SERVICIO DE EMERGENCIAS

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Submitted on: 2014/02/10

Approved on: 2014/11/18

ABSTRACT

Many medical conditions related to the ageing process concern the loss of functional capacity that imposes a considerable economic burden on health care services. This study aimed to identify the epidemiological profile of elderly patients admitted to an emergency unit and to assess their ability to perform activities of daily living. It is a cross-sectional study of 200 individuals, aged over 60 years old admitted to a university hospital emergency department in São Paulo, Brazil. The ability to perform activities of daily living was measured by the Katz index. Data was statistically analysed using the analysis of variance (ANOVA), Bonferroni correction, chi-square test or the likelihood-ratio test. Most participants were assessed as independent (65%). The variables “older age” and “female sex” meant a greater dependence level, along with comorbidities and socioeconomic factors, such as low income and low educational level. Interventions addressed to this population group should be implemented so as to encourage self-care and independence considering their limits and their level of dependency.

Keywords: Elderly; Activities of Daily Living; Emergency Nursing; Health of the Elderly; Health Services for the Aged.

RESUMO

O processo de envelhecimento vem acompanhado por diversos problemas de saúde que na maioria das vezes alteram a capacidade funcional e estão associados ao aumento da utilização dos serviços de saúde. Este estudo teve como objetivo identificar o perfil epidemiológico e avaliar a capacidade para desenvolver as atividades de vida diária dos idosos internados no Serviço de Emergência. Trata-se de um estudo transversal realizado com 200 indivíduos com idade igual ou superior a 60 anos, internados no Serviço de Emergência de um hospital universitário do município de São Paulo, Brasil. A avaliação da capacidade para realizar atividades de vida diária foi mensurada pela escala de Katz. Os testes estatísticos utilizados foram a análise de variância (ANOVA), correção de Bonferroni, teste qui-quadrado ou teste da razão de verossimilhança. A maioria dos idosos foi classificada como independente (65%). A idade mais avançada e o sexo feminino foram fatores relacionados ao maior grau de dependência, assim como a comorbidades e a fatores socioeconômicos, como baixa renda e escolaridade. As intervenções para essa população devem ser planejadas de modo a incentivar o autocuidado e a autonomia do idoso, considerando seus limites e grau de dependência.

Palavras-chave: Idoso; Atividades Cotidianas; Enfermagem em Emergência; Saúde do Idoso; Serviços de Saúde para Idosos.

RESUMEN

El proceso de envejecimiento acarrea problemas de salud que suelen afectar la capacidad funcional de las personas y están asociados al aumento de uso de los servicios de salud. Este estudio tuvo como objetivo identificar el perfil epidemiológico y evaluar la capacidad de realizar las tareas cotidianas de ancianos ingresados en un servicio de emergencias. Se trata de un estudio transversal llevado a cabo con 200 individuos mayores de 60 años internados en el servicio de emergencias de un hospital universitario de San Pablo, Brasil. La evaluación de la capacidad de realizar actividades de la vida diaria se midió mediante la escala de Katz. Los análisis estadísticos se realizaron mediante análisis de la varianza (ANOVA), la corrección de Bonferroni, prueba chi-cuadrado o prueba de razón de verosimilitud. La mayoría de las personas de edad fueron clasificadas como independientes (65%). La edad más avanzada y el sexo femenino fueron factores relacionados con mayor grado de dependencia, al igual que a comorbilidades y a factores socioeconómicos tales como bajos ingresos y escolaridad. Las intervenciones para esta población deben planificarse a fin de fomentar el autocuidado y la autonomía del anciano, teniendo en cuenta sus límites y grado de dependencia.

Palabras clave: Ancianos; Actividades de edad avanzada de la vida diaria; Enfermería de Urgencias; Salud del Anciano; Servicios de Salud para Ancianos.

INTRODUCTION

Health problems related to the ageing process and caused by diseases and external causes, such as falls and pedestrian car accidents, affect functional capacity and are commonly associated with increased rates of mortality and hospitalization, which impose a considerable burden on social and health care services.¹

Health care focussing on these patients should prioritize their health recovery and life extension, as well as implement actions to preserve their functional capacity, so they can retain their autonomy and independence, for as long as possible.²

The functional capacity of the elderly can be measured through the assessment of their ability to perform activities of daily living (ADLs). The present study used the Katz index, an easily applied and widely recognized instrument to assess the functional status of elderly people.^{3,4}

The identification of the profile and degree of dependence of these individuals enable health professionals to be aware of the nursing care and multidisciplinary team needed to minimize or prevent loss of functional capacity and prevent complications.²

The present study aims at identifying the epidemiological profile of elderly patients admitted to an emergency unit and their ability to perform activities of daily living.

METHODOLOGY

This is an epidemiological cross-sectional study carried out at Hospital São Paulo (HSP) Emergency Unit between April and July 2013. The participants were patients over 60 years of age, classified by the United Nations (UN) as elderly people in developing countries.⁵

The research sample consisted of 200 male and female non-institutionalized patients admitted to the emergency services; the participants were explained the research objectives and signed the Term of Informed Consent. The research project was approved by the Research Ethics Committee of the UNIFESP (CEP 220 550).

Sample size was calculated using stratified random sampling, proportional to the average number of the 60 years old patients treated in the six months previous to the survey. Sample size calculation considered a $\geq 80\%$ confidence level and alpha level of 5%, based on *age, gender, educational level, marital status, profession, presence of a caregiver and comorbidities*. The result indicated the need of 200 patients to achieve the proposed objectives.

Data was collected through a questionnaire containing demographic information such as age, gender, educational level, household income, presence of caregiver, comorbidities, falls in the past year and current year and presence of pain. Pain was classified as acute (lasting less than six months) and chronic (continuous or recurrent and lasting up to six months).⁶

The Katz index was used to assess the elderly people ability to perform the activities of daily living (ADL). This instrument measures the performance and the level of dependency in six self-care activities: feeding, continence, transferring, toileting, dressing and bathing.⁴

Information on the ADLs was given by the patient, family members or caregivers. The final total is the sum of the totals of the six ADLs and ranges from zero (highly dependent) to six (independent). Patients were classified according to the total score of the Katz index as *very dependent* (less than 2 points), *dependents* (3 to 5 points) and *independent* (6 points).³

Interviews were conducted with the elderly or, in the case of those with a cognitive impairment, with caregivers. The reading of the instrument was performed by the same researcher and lasted, on average, 40 minutes.

Socio demographic and economic characteristics, presence of caregiver and the patients' comorbidities were characterized by using descriptive data analysis. Mean and standard deviation were calculated for the continuous variable *age*; frequency and percentage were calculated for categorical variables (*gender, skin colour, profession, educational level and monthly household income*). Analysis of variance (ANOVA) was used to compare *age* with the total score of the Katz index; the Bonferroni correction was used for multiple comparisons. Chi-square or likelihood ratio tests were used to compare categorical variables with the total score of the Katz index. Significance level was $p = 0.05$; data was calculated using *Statistica* version 10.

RESULTS

Socio demographic and economic characteristics of the study participants are shown in Table 1.

Hospitalization was mostly caused by: 76.0 infection (35.0%); 31.0 cerebrovascular diseases (15.5); 27.0 cardiovascular diseases (13.5%); 15.0 respiratory diseases (7.5%); 10.0 cancer (5.0%); 7.0 haematological diseases (3.5%); 6.0 other diseases (3.0%).

As for the medication used, 178 (89.4%) reported having used some medication; 110 (62.0%) used more than one drug. The majority (74.7%) reported the use of antihypertensives; 29.2% used antidiabetic drugs; 23.6% used lipid-lowering drugs; 16.3% used anti-ulcer agents; 12.9% were in psychotropic drugs or analgesics; 10.1% used acetylsalicylic acid; 5.6% warfarin; and 5.0% bronchodilators.

The previous year, 26.0% had reported a fall and 30.5% in the year of the study; 54.0% of the patients reported the presence of pain; of these 62.0% referred a chronic pain. The pain areas were often the lower limbs (45.8%) and the spinal column (36.4%).

The study participants were classified according to the level of dependence in activities of daily living: 65.0% were independent; 24.0% partially dependent; and 11.0% dependents.

Table 2 shows the variables associated with the Katz index.

Table 1 - Socio demographic and economic characteristics of elderly patients admitted to emergency unit, Sao Paulo, Brazil, 2013

Characteristics (n=200)	N° (%)
Age (±DP)	75.3 (± 8.9)
Sex	
Male	108.0 (54.0)
Female	92.0 (46.0)
Skin colour	
White	150.0 (75.0)
Black	23.0 (11.5)
Brown	25.0 (12.5)
Others	2.0 (1.0)
Occupation	
Retired	177.0 (88.5)
Active	14.0 (7.0)
Housewife	6.0 (3.0)
Unemployed	3.0 (1.5)
Educational level	
Illiterate	34.0 (17.0)
Primary school unfinished	113.0 (56.5)
Primary school	18.0 (9.0)
Secondary education unfinished	27.0 (13.5)
Undergraduate Education	8.0 (4.0)
Monthly household income	
No income	1.0 (0.5)
Less than the minimum wage	1.0 (0.5)
1 to 2 minimum wages	101.0 (50.5)
More than 3 minimum wages	97.0 (48.5)
Values expressed as number (%) and mean ± standard deviation (SD). National minimum wage was R \$ 678.00.	

DISCUSSION

The socio demographic and economic aspects found in the present study were similar to those of the survey carried out at the University of Ribeirão Preto Medical Center Emergency Unit. It assessed the profile of hospitalized elderly patients; retired white men, with low educational level and low income prevailed.⁷ The median age was 75.3 years. The high mean age of the sample may be related to the age structure of Brazilian society: an increase in life expectancy associated with the worsening of chronic diseases and recurrent need for hospitalizations.⁷

The present study detected the following prevalent causes of hospitalization: 76.0 infection (35.0%); 31.0 cerebrovascular diseases (15.5%) and cardiovascular diseases 27.0 (13.5%). Physiological changes related to the ageing process, age decline in immune response and concomitant diseases increased morbidity

and mortality amongst this group. Elderly people who have a high level of dependence are more likely to have infections, which may cause a cognitive impairment, disability and death.⁸

Table 2 - Variables associated with the Katz index, Sao Paulo, Brazil, 2013

Variables (n=200)	Very dependent	Dependent	Independent	p value
Median age (DP)	78.94 (9.42)	75.23 (8.19)	73.99 (8.63)	0.0045
Sex				
Male	19 (17.6%)	16 (14.8%)	73 (67.6%)	0.0252
Female	29 (31.5%)	6 (6.5%)	57 (62%)	
Presence of caregiver				
Yes	46 (28%)	20 (12.2%)	98 (59.8%)	0.0036
No	2 (5.6%)	2 (5.6%)	32 (88.9%)	
Occupation				
Employed	0 (0.0%)	0 (0.0%)	14 (100.0%)	0.0140
Unemployed	0 (0.0%)	0 (0.0%)	3 (100.0%)	
Retired	47 (26.6%)	21 (11.9%)	109 (61.6%)	
Housewife	1 (16.7%)	1 (16.7%)	4 (66.7%)	
Comorbidities				
Hypertension				
No	16 (26.2%)	12 (19.7%)	33 (54.1%)	0.0257
Yes	32 (23.5%)	10 (7.4%)	94 (69.1%)	
Cerebrovascular diseases				
No	29 (18.5%)	18 (11.5%)	110 (70.1%)	0.0006
Yes	19 (47.5%)	4 (10%)	17 (42.5%)	
Dementia				
No	40 (21.5%)	21 (11.3%)	125 (67.2%)	0.0016
Yes	8 (72.7%)	1 (9.1%)	2 (18.2%)	
Lower limbs pain				
No	10 (17.2%)	12 (20.7%)	36 (62.1%)	0.0323
Yes	18 (36.7%)	4 (8.2%)	27 (55.1%)	

Cerebrovascular diseases are highly prevalent. They can cause sequelae that limit physical and intellectual activity, hinder self-care abilities and generate high social costs and mortality rates.⁹ Cardiovascular diseases have been described as a major cause of death amongst elderly people, especially congestive heart failure and coronary syndromes. The control of risk factors (hypertension, diabetes *mellitus*, dyslipidaemias and a sedentary lifestyle) is extremely important for preventing and controlling cardiovascular diseases and for improving the quality of life of this population.¹⁰

Most of the participants reported the use of more than one medication (62.0%) and about 75.0% mentioned the use of antihypertensive drugs. Several studies demonstrate the risks of inappropriate polypharmacy, incorrect adherence to treatment, drug interactions and adverse effects.^{11,12}

Amongst the study participants, 26.0% reported a fall in the previous year and 30.5% in the year of the study. The authors demonstrate that falls are the most common type of trauma, followed by transportation accidents, assaults and other attacks.^{13,14} Falls account for 70% of accidental deaths amongst those aged 75 years or over and lead to restriction of activities, reduction of autonomy, decline in the quality of health, disability and risk of institutionalization. Fall-related injuries also increase health care costs due to the need of specialized services and the increase in hospital admissions.¹⁵

Chronic pain was repeatedly mentioned (61.7%). A survey on elderly users of a basic health unit in Londrina found that chronic pain prevailed in 62.21% of the sample, a similar result to the one described herein.¹⁶ Another survey carried out in the state of Rio Grande do Sul demonstrated that the participants had chronic pain in the lumbar spine (44.4%), legs (40, 7%), knee joint (25.9%), cervical spine and upper limbs (14.8%). In the present study, most of them complained of lower limbs pain (45.8%) and back pain (36.4%).⁶

Pain is basically associated with chronic disorders, such as musculoskeletal diseases including arthritis and osteoporosis. Furthermore, a higher incidence of cancer, the need of surgeries, pressure ulcers and cardiovascular diseases contribute to the increase of the pain complaint in this age group. It is important to highlight that the occurrence of pain leads to impairment in activities of daily living.¹³ Pain measurement and interventional pain management are actions that can contribute to minimize its negative impact on the elderly.¹⁷

Concerning the level of dependence in activities of daily living, 65% were considered *independent*; 11.0% *partially independent*; and 24.0% *dependent*. Such results are similar to those found in a study carried out in Belo Horizonte at a long-term care institution. Most of the participants in that study (50%) were assessed as *independent*; however the percentage of those *partially dependent* (36.9%) and *totally dependent* (13.1%) was different.¹⁸ These studies demonstrated that more than one third of the elderly were considered able to perform activities of daily living independently. The literature shows the importance of encouraging autonomy which can increase the quality of life, including of those assessed as more dependent.¹⁹

Table 2 shows that the highest level of dependence was associated with an older age; the female sex; the presence of a caregiver; retirement; being a housewife; hypertension, cerebrovascular disease, dementia and lower limbs pain. In this study, when the variable *age* is associated with *level of dependence*, independent participants were younger than very dependent ones.

A study carried out in Jequié, Bahia, which analysed the relationship between the level of physical activity and the quality of life of elderly women found out that an increase in life expectancy is not directly proportional to the improvement in

the quality of life.²⁰ The results of the present study are to some extent similar to those of another study that evaluated the factors associated with the functional capacity of elderly people. Results indicated that a high level of dependence was associated with elderly women, low income and low education.²¹

The association between *the presence of a caregiver* and dependence demonstrated in this study may be related to the unpreparedness of the caregiver who should supervise and assist the elderly when strictly necessary. This requires the caregiver to focus on maintaining functional capacity helping, therefore, older people retain autonomy and remain independent. Dependence is not a permanent state, but a dynamic process, which can be adapted, prevented or reduced. For this to happen, qualified professionals committed to the care of the elderly are needed.²²

There are several factors associated with functional capacity impairment in old age such as later old age, being a female, cognitive decline, various comorbidities and not having a social life.²³ The present study demonstrated that being a pensioner or a housewife were associated with higher levels of dependence. Such variables may be related to social isolation among the elderly.

The study results demonstrate that the elderly with more ADLs limitations were those with hypertension, cerebrovascular diseases and dementia. The prevalence of chronic diseases is higher among the elderly population and a major cause of disability and dependence.²⁴

Functional capacity may be limited by the presence of pain. A study suggests that pain in the elderly interferes with functional capacity given the relationship between pain and activities of daily living. This may explain the high level of dependence of elderly people with lower limb pain in this study.²⁵

The main limitation of the present study is the fact that it was performed at a university hospital, which serves public and private system patients that may not exemplify other realities.

Functional assessment of the elderly enables the nurse to better identify their ability to self-care and their care needs. Nurses' actions should be centred in educational actions addressed to elderly people and their families, aiming at functional independence, prevention of secondary complications and their adaptation to an impaired functional capacity.

CONCLUSIONS

Considering the present study objectives, we concluded that most elderly people were independent in performing activities of daily living. Most were hospitalized due to chronic degenerative diseases, which is consistent with the epidemiology of diseases of the Brazilian population. The study also demonstrated that most hospitalizations occurred among men, although the highest level of dependency and the oldest old were women. *Age, gender, presence of caregiver, retirement* and

being bound to housework duties were aspects related to a high level of dependence, as well as comorbidities.

The fact that the majority of the study participants were considered *independent* should lead the multidisciplinary team to plan activities to minimize or prevent loss of functional capacity and prevent complications. It is necessary to encourage self-care and autonomy amongst this population. Patients considered *dependent* or *partially dependent* must have a self-care plan that respects their pace and limitations; but if needs be, someone should act as care provider.

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