Original Article

Prevalence of dependency and associated risk factors in the elderly*

Prevalência de dependência em idosos e fatores de risco associados

Prevalencia de dependencia en ancianos y factores de riesgo asociados

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ABSTRACT

Objective: To verify the prevalence of dependence among elderly assisted by teams of the Family Health Strategy in the city of Cuiabá (MT) and the associated risk factors. **Methods:** A study with a transversal design, of the survey type. The study sample was of 352 elderly with data collection conducted in their homes between the months of June and September of 2010, using the Katz Index questionnaire and the Lawton and Brody Scale. **Results:** The prevalence of dependency among the elderly was 38.6%. The statistical analysis showed that the sociodemographic characteristics and health were significantly associated with dependence, and there were several levels of prevalence rates of dependence among the elderly. **Conclusion:** The prevalence of dependency of 38.6% identified among the elderly study participants was higher than that reported in similar studies and suggests that this dependence results from the influence of the sociodemographic characteristics and health presented by these elderly.

Keywords: Disabled persons; Geriatric assessment; Health of the elderly; Frail elderly; Risk factors

RESUMO

Objetivo: Verificar a prevalência de dependência entre idosos assistidos por equipes da Estratégia Saúde da Família na cidade de Cuiabá (MT) e os fatores de risco associados. **Métodos:** Estudo com delineamento transversal, tipo inquérito. A amostra estudada foi de 352 idosos com a coleta de dados realizada em seus domicílios entre os meses de junho e setembro de 2010, utilizando questionário, Índice de Katz e Escala de Lawton e Brody. **Resultados:** A prevalência de dependência entre os idosos foi de 38,6%. A análise estatística mostrou que as características sociodemográficas e de saúde estavam associadas significativamente à dependência e ocorreram vários graus de razão de prevalência da dependência entre os idosos. **Conclusão:** A prevalência de dependência de 38,6% identificada entre os idosos participantes do estudo foi superior à encontrada em estudos semelhantes e sugere que essa dependência sofra influência das características sociodemográficas e de saúde apresentadas por esses idosos.

Descritores: Pessoa com deficiência; Avaliação geriátrica; Saúde do idoso; Idoso fragilizado; Fatores de risco

RESUMEN

Objetivo: Verificar la prevalencia de dependencia en ancianos asistidos por equipos de la Estrategia Salud de la Familia en la ciudad de Cuiabá (MT) y los factores de riesgo asociados. **Métodos:** Se trata de un estudio de tipo transversal, contencioso. La muestra estudiada fue de 352 ancianos cuyos datos fueron recolectados en sus domicilios entre los meses de junio y setiembre del 2010, utilizando un cuestionario, Índice de Katz y Escala de Lawton y Brody. **Resultados:** La prevalencia de dependencia entre los ancianos fue de 38,6%. El análisis estadístico mostró que las características sociodemográficas y de salud estaban asociadas significativamente a la dependencia y ocurrieron varios grados de razón de prevalencia de dependencia entre los ancianos. **Conclusión:** La prevalencia de dependencia del 38,6% identificada entre los ancianos participantes en el estudio fue superior a la encontrada en estudios semejantes y sugiere que esa dependencia sufre influencia de las características sociodemográficas y de salud presentadas por esos ancianos.

Descriptores: Persona con discapacidad; Evaluación geriátrica. Salud del anciano; Anciano frágil; Factores de riesgo

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INTRODUCTION

The aging process does not necessarily imply that a person is sick or suffering from disabilities. There are seniors who, despite being carriers of a disease, preserve much of their autonomy and their independence [(1)]. In Brazil, in 2010, of the 20,590,599 people aged 60 or over, 12,584,638 were responsible for their households [(2)].

However, for a portion of the elderly, one or more physical, environmental, socioeconomic, or genetic factors and their lifestyle may lead to changes that eventually weaken them and damage bodily functions, their activities and participation in society. These impairments can have significant implications for the quality of life of older people and their families, since it causes dependency on other people or equipment, also bringing consequences to the community and the health system.

Since the 1990s, studies have shown that a significant proportion of the elderly require partial or total assistance to perform at least one activity of daily living (ADL) [(3-4)]. Data from the Ministry of Health showed that about 5% of people's capacity to perform everyday activities is affected at the age of 60 years, increasing by about 50% among seniors aged 90 years or more [(5)]. Approximately 5% of people, aged between 65 and 69 years, have trouble bathing, and this percentage increases to about 30% among seniors aged greater than 85 years [(6)].

Attention to functional capacity (FC) and the degree of dependency of the elderly appears as one of the main purposes of public policy and health care for this population. The actions should be provided, in particular, by the professionals of the Family Health Strategy (FHS) units, because their teams have access to homes where seniors and their families are present [(7)]. Among them, assessment of capacities and functional abilities of the elderly is fundamental, in order to prevent the loss of independence and maintenance of autonomy, as well as the reduction in hospitalizations and public spending.

Research on FC response of the elderly in Mato Grosso is still scarce. The occurrence of dependency among the elderly, as well as the associated risk factors, are unknown, in particular among the elderly assisted by the FHS teams.

When considering this reality, it is imperative that research is undertaken that responds to the real health needs of the elderly, their families and caregivers. In addition, considering that research should be conducted to meet the demands of each region, we conducted this study in order to determine the prevalence of dependency among the elderly assisted by the FHS teams in the city of Cuiabá (MT), and the associated risk factors.

METHODS

A cross-sectional survey study was conducted in the city of Cuiabá (MT), in the period between June and September of 2010, with 352 people aged 60 years or more (criterion adopted by the United Nations), who were assisted by FHS teams.

The sample size was determined, considering the total estimated elderly population in Cuiabá – 42,428 people [(8)], the number of the elderly enrolled in FHS units – 14,721 [(9)], the expected proportion of elderly who presented the trait of interest (disability) – 30% confidence interval (CI) of 95% (z = 1.96 of the normal distribution), allowing a sampling error of 5% and correction of 10% for possible losses in collection.

The number of FHS units that composed the sample in each region was determined by means of cluster sampling. After randomly selecting the FHS units, 32 elderly from each of them were chosen by means of Data Sheet A, following the inclusion criteria – to be an elderly person seen by the FHS, and the exclusion criteria – having cognitive and communication difficulties that prevented responding to the questions and those who, at the time of interview, did not have a family member or caregiver who could answer for them or assist them with the responses.

Data collection was conducted in the homes of the elderly, after reading and obtaining the signature of the study participants in the Terms of Free and Informed Consent. A previously tested and reformulated questionnaire was used, which contained questions about sociodemographic characteristics (gender, age range, color / ethnicity mentioned, marital status, education, occupation, income) for the elderly and about health (perception of health, health problems mentioned, hospitalization and reason for hospitalization). The degree of dependency was verified using the Katz Index that assesses the capacity that the elderly possess to perform the basic activities of daily living (ADL), and the Lawton and Brody Scale that determines the capacity to perform the instrumental activities of daily living (IADL). Both instruments were validated and adequate for the Brazilian reality, and were recommended by the Ministry of Health [(5)].

Data were organized and analyzed using the program, *EPI-INFO 3.5.1*. The studied variables were analyzed, using descriptive statistics by means of absolute and relative frequency.

In order to test the association between dependency of the elderly and the risk factors, the Pearson chi-square test was applied, considering the significance level $\alpha = 0.05$ and a 95% CI, aiming to verify which variables were shown to be statistically related to the degree of dependency of the elderly studied. The rela-

tionship between each risk factor and dependency was expressed by the prevalence ratio (PR). The theoretical reference on the subject was encountered in the literature researched, and served as a basis for interpreting the results.

The research project was approved by the Committee on Ethics in Research of HUJM, under Protocol No. 782/CEP – HUJM/10.

RESULTS

Of the 352 elderly patients studied, 61.6% were female, 49.1% were in the age range between 60 and 69 years, and 39.8% were aged between 70 and 79 years; 50.9% referred to themselves as being white, 55.7% were married, and 31.8% were widowed.

In relation to level of education, 50.0% had not completed primary education, 24.1% were illiterate, and 16.5% could read and write.

Regarding the FC of the elderly respondents, the prevalence of dependency among them was equal to 38.6%. The majority (61.4%) was independent for both ADL and IADL. Among the dependent, a major part (94.1%) had partial compromise for IADL, 3.7% had a partial compromise in both the ADL and the IADL. Only 2.2% of the elderly individuals presented total dependence for both types of activities (Table 1).

Table 1 – Elderly assisted by FHS teams, according to the degree and type of dependency. Cuiabá (MT) 2010. n = 352.

Functional capacity	n (%)
Degree of dependence	
Independent	216 (61.4)
Partial Dependent	133 (37.8)
Total Dependent	3 (00.8)
Dependency type	
Partial dependence for IADL	128 (94.1)
Partial dependence for ADL and IADL	5 (03.7)
Total dependence for ADL and IADL	003 (02.2)
Total	352 (100.0)

The data in Table 2 show the distribution of the independent and dependent elderly, according to their demographic and socioeconomic characteristics and health conditions. It is verified that among the independent elderly, 34.9% were women, 34.4% were in the age range of early old age, were married (36.9%) had up to four years of education (35.8%), were retired or pensioners (40.9%), and 39.2% received a minimum wage.

Table 2 – Independent and dependent elderly assisted by FHS teams, according to their demographic and socioeconomic characteristics and health conditions. Cuiabá (MT) 2010. n = 352

Variables	Independent n (%)	Dependent n (%)
Gender		
Female	123 (34.9)	94 (26.7)
Male	93 (26.4)	42 (11.9)
Age Range		
60 to 69 years	121 (34.4)	52 (14.8)
70 to 79 years	084 (23.8)	56 (15.9)
80 to 99 years	011 (03.1)	26 (07.4)
100 or more	—	02 (00.5)
Marital status		
Married	130 (36.9)	66 (18.7)
Single	27 (07.7)	17 (04.8)
Widower	59 (16.7)	53 (15.0)
Education		
Illiterate	68 (19.3)	75 (21.3)
Up to 4 years of study	126 (35.8)	56 (15.9)
Over 4 years of study	022 (06.2)	05 (1.4)
Occupational status		
Retired / pensioner	144 (40.9)	102 (28.9)
Retired working	14 (03.9)	003 (0.8)
Working without retirement or pension	25 (07.1)	003 (0.8)
Not retired / not pensioner / not working	33 (09.4)	28 (7.9)
Income		
Does not have	18 (05.1)	16 (04.5)
Up to half the minimum wage	4 (01.1)	001 (00.3)
Minimum wage	138 (39.2)	109 (30.9)
More than minimum wage	056 (15.9)	010 (02.8)
Perception of health		
Good	76 (21.6)	31 (08.8)
Great	54 (15.3)	15 (04.3)
Terrible	10 (02.8)	23 (06.5)
Regular	64 (18.2)	48 (13.6)
Poor	12 (03.4)	19 (05.4)
Health problems reported		
Only one disease	61 (17.3)	024 (06.8)
Comorbidities	122 (34.6)	106 (30.1)
Does not have	33 (09.4)	006 (01.7)

In relation to the dependent elderly, the largest part: consisted of women (26.7%), were married (18.7%), retired or pensioners (28.9%), of low income (30.9%) and education (37.2%), and were in the early range of old age (14.8% and 15.9%, respectively) (Table 2).

Regarding the perception that the elderly had about their health, 21.6% of the independent elderly related that they were good, while the dependent elderly rated their health as regular (13.6%). The results concerning the frequency of comorbidities among them were similar (34.6% and 30.1%, respectively) (Table 2).

In this study, the results of the bivariate analysis of the association of the risk factors for dependency permitted significant verification of association of dependence with gender ($p = 0.029$), age ($p < 0.001$), income, educational level, occupational status, and with marital status (the later with $p < 0.05$) (Table 3).

The prevalence of dependency in elderly females was higher than in males (PR = 1.39), and higher in the elderly aged 80 or more when compared to those aged between 60 and 79 years (PR = 2.08) (Table 3).

The PR of dependency among elderly with low incomes was higher and those who earned more than minimum wage, among the elderly with low education and those who had four or more years of study, among elderly retirees who did not work and those who were more active. The PR of the dependency among elderly who were single / widowed in relation to those who were married was, approximately, 1.33 (Table 3).

Finally, a significant association was observed between dependency and the number of morbidities noted, as well as how they perceived their health. The prevalence of dependency among elderly patients with comorbidities and those who perceived their health as regular / terrible was, approximately, two times more than that of the others (Table 3).

Table 3 – Association of risk factors for dependency between elderly and their respective p-values, PR and CI. Cuiaba-MT, 2010. n = 352

Variables	Dependents n (%)	p-value	RP	CI 95%
Gender				
Feminine	94 (26.7)	0.029	1.39	1.04 to 1.87
Masculine	42 (11.9)			
Age Range				
80 years or more	28 (7.9)	<0.001	2.08	1.62 to 2.67
60 to 79 years	108 (30.7)			
Marital status				
Single / widowed	70 (19.9)	0.032	1.33	1.02 to 1.73
Married	66 (18.7)			
Education				
Illiterate / up to four years of study	131 (37.2)	0.025	2.18	0.98 to 4.85
Four years or more	5 (01.4)			
Occupational status				
Inactive	130 (36.9)	< 0.001	3.18	1.49 to 6.77
Active	6 (01.7)			
Income				
Does not have / up to the minimum wage	126 (35.8)	< 0.001	2.91	1.62 to 5.22
More than minimum wage	10 (02.8)			
Perception of health				
Regular to Terrible	25.6	< 0.001	1.96	1.47 to 2.61
Good to great	13.0			
Health problems reported				
Comorbidities	106 (30.1)	< 0.001	1.92	1.37 to 2.70
Do not have	30 (08.5)			

* *p*-values obtained by Pearson Chi-square test.

DISCUSSION

Because of the few studies conducted with elderly people in the midwestern region, particularly in Mato Grosso, especially regarding FC of the elderly assisted by the FHS teams, the comparison of the results of this study with others in the region was limited. However, the findings were important as they demonstrated characteristics of these aged, particularly, the prevalence of functional dependence among them. Moreover, considering that the sample size was a relatively large population, the results could support future investigations about the elderly, providing data for calculating sampling of local and regional research, as well as providing information for the planning of health care programs for the elderly.

The sociodemographic characteristics of the 352 elderly in this study were similar to those of the majority of the oldest Brazilians researched in studies conducted in other cities of the country [10-16].

The prevalence of dependency verified in this study (38.6%) was almost 10% higher than the mean prevalence (30%) of functional disability presented in the literature. This is probably explained by the fact that the individuals studied were exclusively those attended by teams from FHS units, who faced not only physical barriers of aging, but also social ones. They were older, preponderantly, retirees or pensioners with little or no income, and, in the past, they had little chance to study, especially the women.

National and international research on the prevalence of FC of the elderly corroborate the findings, both of the independence and the partial and total dependency of this study [16-19]. A major dependency for the IADL verified in this population studied were consistent with the literature about aging, in which the authors assert that, generally, the loss of FC tends to occur initially for the IADL and, subsequently, for the ADL [20]. This turns out to reduce or prevent autonomy among the elderly and their capacity for managing their lives. Moreover, the dependency for ADL indicates a more advanced stage of the process of functional decline in which the elderly present growing demands for their care.

The results of this study demonstrated the influence of the variables of gender, age, marital status, education, occupational situation, income, and presence of comorbidities on the degree of dependency on the elderly surveyed. This influence was also observed in other studies [12,14,21-27].

Incapacity is a distinct phenomenon for men and women. Some differences are probably due to the fact that women have greater life expectancy and, consequently, more time to develop incapacitating chronic diseases [21] coming, mainly, from musculoskeletal problems (arthritis, arthrosis and osteoporosis) [26].

In this research, most of the independent elderly were in the age group of early old age (34.4%) when the decrease in FC may not yet be pronounced. According to the literature, this is a measure that, with increasing age, will demonstrate a reduction in the proportion of people with independence, because the functional decline increases about two times for every 10 years lived. Due to the progressive character of the reduction of FC, there is a greater probability of the elderly who are 80 years or more developing disability in comparison with the younger elderly [14,19,28].

Authors have found significant association of dependency with the marital status of the elderly. Some of them have indicated a higher prevalence of disability in the elderly who have lost their spouses, [28] and the elderly who are married or who maintain stable conjugal relationships present lower odds of functional limitation [29]. According to literature, the probability of widowers developing incapacity is greater due to the fact that widowhood is aggregated with financial and psychological issues related to the loss of a partner [25].

Seniors with low income and insufficient years of study are more vulnerable to the loss of the CF [24]. Better financial conditions permitted the access of the elderly to programs of prevention, treatment and rehabilitation, consequently, improving the possibility of preserving their functionality.

The reduction in work activities due to retirement and the frequent occurrence of chronic conditions, which entail reduction in their physical capacities in this period of life, is a possible reason for the prevalence of dependency among the retirees encountered in this study. Only 10% of people aged 65 and over are free from some sort of chronic injury to health, and over 10% reported not less than five concomitant chronic diseases [27], which means that they ended up needing some type of help to accomplish at least one of the principal activities of daily living.

Among the factors that are associated with successful aging, the self-assessment of health is one of them. Significant association among the way that the elderly perceive their health and dependency was found in this and another study [15]. This is because perceived health can impact, with relative precision, the state of health, especially on the decline of functionality [30]. Thus, the perception of the elderly due to being debilitated by a disease or condition could reflect on their self-image, leading them to be considered fragile and incapable of performing their daily activities.

One of the limitations of this study was due to the fact of this being a cross-sectional study, which

shows the process of dependency only at one certain place and time. Furthermore, the data permitted us to make associations, but no causal inferences. However, considering that studies of this type contribute to the assessment of health needs of populations, the results of this investigation can contribute to the planning and implementation of actions aimed at the current needs of this segment of the population.

Another limitation concerns the assessment of dependency that may have suffered bias in obtaining a measure of FC through the self-report of the elderly or when it was necessary to have the help of the family. However, the utilization of scales validated internationally and nationally, in addition to the rigorous training of the researcher and her assistant, contributed to its reduction.

CONCLUSION

In this study, the prevalence of dependency among the elderly assisted by the FHS in Cuiabá (MT) was found to be higher than that found in other studies. The degree of dependency of the elderly researched was influenced by the variables of gender, age, marital status, education, occupational situation, income, and presence of comorbidities. Moreover, there was a significant association among the way that the elderly perceived their health and dependency; as well as being varying degrees of PR to which these elderly presented functional disability.

These results point to new social and health demands arising from the elderly. We highlight the necessity for health professionals, particularly nurses, to include the assessment of FC of the people aged 60 or more in clinical care, by identifying their level of disability and related needs. Similarly, we believe that it is necessary to provide support for dependent elderly and their families, as well as offering subsidies to those in need, to acquire self-help devices, such as crutches and canes.

It is imperative that the government and society expand the actions to promote active aging in order to prevent disabilities, with a view toward maintaining the independence of the elderly who have not had their FC affected. For the dependent elderly, actions are necessary for the rehabilitation of compromised FC, and the maintenance of what still exists, in order to help them remain as independent as possible in performing their daily activities.

REFERENCES

1. Pavarini SC, Meniondo MS, Barham EJ, Varoto VA, Filizola CL. The art of caring for the elderly: gerontology as a profesion? Texto & Contexto Enferm. 2005; 14(3):398-402.
2. Instituto Brasileiro de Geografia e Estatística. Censo demográfico 2010 [Internet]. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; 2010 [citado 2012 Fev 27]. Disponível em:. http:// www.ibge.gov.br.pdf .
3. Paiva SO. Perfil sócio-demográfico e epidemiológico da população idosa do distrito estadual de Fernando de Noronha – PE [dissertação]. Recife: Fundação Oswaldo Cruz/Centro de Pesquisa Ageu Magalhães; 2004.
4. Brito FC, Rosa TE, Reymi A, Ramos E, Suzuki GS, Nishitani PT, et al. Campanha de vacinação de idosos e levantamento de dados para o sistema de local de informações do SUS. BIS Bol Inst Saúde. 2009; 47:56-60.
5. Ministério da Saúde. Caderno de Atenção Básica. Envelhecimento e saúde da pessoa idosa. Brasília: Ministério da Saúde; 2007.
6. Netto MP, Kein EL, Brito FC. Avaliação geriátrica multidimensional. 2a ed. Carvalho Filho ET, Netto MP. Geriatria: Fundamentos, clínica e terapêutica; São Paulo: Atheneu; 2006. Capítulo 6. p.73-85.
7. Gordilho A, Sérgio G, Silvestre J, Ramos LR, Freire MP, Espíndola N, et al. Desafios a serem enfrentados no terceiro milênio pelo setor saúde na atenção integral aos idosos. Superintendência de Estudos Econômicos e Sociais da Bahia. 2001; 10(4)138-53.
8. Instituto Brasileiro de Geografia e Estatística. Indicadores sociodemográficos e de saúde no Brasil – 2009 [Internet]. Rio de Janeiro: Instituto Brasileiro de Geografia e Estatística; 2009. (Estudos e Pesquisas- Informação Demográfica e Socioeconômica).[citado 2010 Abr 15]. Disponível em: http://ww.ibge.gov.br
9. Cuiabá. Secretaria Municipal de Saúde. Número de idosos atendidos por equipes de saúde da família. Cuiabá: Secretaria Municipal de Saúde; 2009.
10. Lima e Costa MF de, Guerra HL, Firmo JO, Uchôa E. Projeto Bambuí: um estudo epidemiológico de características sociodemográficas, suporte social e indicadores de condição de saúde dos idosos em comparação aos adultos jovens. Inf Epidemiol SUS. 2002; 11(2):91-105.
11. Lebrão ML, Laurenti R. [Health, well-being and aging: the SABE study in São Paulo], Brazil. Rev Bras Epidemiol. 2005; 8(2):127-41. Portuguese.
12. Pedrazzi EC, Rodrigues RA, Shiaveto FV. Morbidade referida e capacidade funcional de idosos. Cienc Cuid Saúde. 2007; 6(4):407-13.
13. Fundação Perseu Abramo/SESC São Paulo. Idosos no Brasil: vivências, desafios e expectativas na terceira idade. São Paulo: Fundação Perseu Abramo/SESC São Paulo; 2007. Perfil sócio-demográfico dos idosos brasileiros; Capitulo 1, p. 1-24.
14. Tavares DM, Pereira GA, Iwamoto HH, Miranzzi SS, Rodrigues LR, Machado AR. Limited functional capabilities among elders residing in an urban area of a rural county of Minas Gerais. Texto & Contexto Enferm.2007; 16(1):32-9.
15. Giacomin KC, Peixoto SV, Uchoa E, Lima-Costa MF. [A population-based study on factors associated with functional disability among older adults in the Great Metropolitan Belo Horizonte, Minas Gerais State, Brazil]. Cad Saúde Pública. 2008; 24(6):1260-70. Portuguese.
16. Nunes DP, Nakatani AY, Silveira EA, Bachion MM, Souza MR. Functional capacity, socioeconomic conditions and of health of elderly assisted by Family Health teams in Goiania (GO, Brazil). Ciênc Saúde Colet. 2010; 15(6):2887-98.
17. Reyes-Ortiz CA, Ostir GV, Pelaez M, Ottenbacher KJ. Cross-national compararison of disability in Latin American and

Caribbean persons aged 75 and older. Arch Gerontol Geriatr. 2006; 42(1):21-33.
18. Costa EC, Nakatani AY, Bachion MM. [Elder's community capacity to develop Daily Life Activities and Daily Instrumental Life Activities]. Acta Paul Enferm. 2006; 19(1):43-8. Portuguese.
19. Guerra RO, Flô CM, Perracini MR. Fisioterapia: teoria e prática clínica. Rio de Janeiro: Guanabara Koogan; 2009. Capítulo 1, Funcionalidade e Envelhecimento; p. 3-24.
20. Tang Z, Jiang J, Futatsuka M. An evaluation of transition in functional states among the elderly in Beijing, China. Environ Health Prev Med. 2002; 7(5):211-6.
21. Santos KA, Koszuoski R, Dias-da-Costa JS, Pattussi MP. [Factors associated with functional incapacity among the elderly in Guatambu, Santa Catarina State, Brazil]. Cad Saúde Pública 2007; 23(11):2781-8. Portuguese.
22. Donmez L, Gokkoca Z, Dedeoglu N. Disability and its effects on quality of life among older people living in Anatalya city Center, Turkey. Arch Gerontol Geriatr. 2005; 40(2):213-23.
23. Guedes DV, Silva KC, Banhato EF, Mota MM. Fatores associados à capacidade funcional de idosos da comunidade. HU Rev. 2007; 33(4):105-11.
24. Lima-Costa MF, Matos DL, Camarano AA. [Health inequality trends among Brazilian adults and old-aged: a study based on the National Household Sample Survey (PNAD 1998, 2003)]. Ciênc Saúde Colet. 2006; 11(4):941-50. Portuguese.
25. Del Duca, GF, Silva MC, Hallal PC. Disability relating to basic and instrumental activities of daily living among elderly subjects. Rev Saúde Pública. 2009; 43(5):796-805.
26. World Health Organization. The World Health Report 1998. Life in the 21st Century. A Vision for All. Geneva: WHO; 1998.
27. Ramos LR. Saúde pública e envelhecimento: o paradigma da capacidade funcional. Envelhecimento e saúde. BIS Bol Inst Saúde. 2009; 47:1511-812.
28. Rosa TE, Benício MH, Latorre MR, Ramos LR. Determinant factors of functional status among the elderly. Rev Saúde Pública. 2003; 37(1):40-8.
29. Maciel AC, Gerra RO. Influence of biopsychosocial factors on the functional capacity of the elderly living in Brazil's Northeast. Rev Bras Epidemiol. 2007; 10(2):178-89.
30. Nybo H, Peterson HC, Gaist D, Jeune B, Andersen K, McGue M, Vaupel JW, Christensen K. Predictors of mortality in 2, 249 nonagenarians – The Danish 1905 – Cohort Survey. J Am Geriatr Soc. 2003 ;51(10):1365-73.