



Morbidities and life quality of elderly males in rural and urban areas

Darlene Mara dos Santos Tavares^{1*}, Nilce Maria de Freitas Santos², Flavia Aparecida Dias³, Jurema Ribeiro Luiz Gonçalves¹ and Letycia de Moraes Souza²

¹Departamento de Enfermagem em Educação e Saúde Comunitária, Universidade Federal do Triângulo Mineiro, Avenida Frei Paulino, 30, 38025-180, Abadia, Uberaba, Minas Gerais, Brazil. ²Universidade Federal do Triângulo Mineiro, Uberaba, Minas Gerais, Brazil. ³Programa de Pós-graduação em Atenção à Saúde, Universidade Federal do Triângulo Mineiro, Uberaba, Minas Gerais, Brazil. *Author for correspondence. E-mail: darlenetavares@enfermagem.ufm.edu.br

ABSTRACT. Current analysis compares the number of morbidities and the quality of life (QoL) of elderly males in urban and rural areas. The comparative, transversal and observational survey harvested data from the semi-structured instruments WHOQOL-BREF and WHOQOL-OLD. Descriptive analysis, chi-square and Student's t test ($\alpha < 0.05$) were employed. The average number of co-morbidities in urban areas was significantly higher than that in the rural one. The elderly in rural areas have significantly higher QoL scores in physical, psychological, social relationships and environment and in stances such as autonomy, past, present and future activities, social participation and intimacy. In urban areas, scores were higher in sensory abilities. Current study highlights the need for health strategies to improve the QoL of the elderly in urban areas. Actions are required in rural areas to assess the functioning of the senses for early corrective measures.

Keywords: elderly people, rural population, men's health.

Morbididades e qualidade de vida de homens idosos residentes nas áreas urbana e rural

RESUMO. O presente estudo teve como objetivo comparar o número de morbididades e qualidade de vida (QV) de homens idosos residentes em áreas urbanas e rurais. Trata-se de inquérito comparativo, transversal e observacional. Os dados foram coletados por meio de: instrumento semi-estruturado, WHOQOL-BREF e WHOQOL-OLD. Foi utilizada análise descritiva, qui-quadrado e teste *t* de Student ($\alpha < 0,05$). O número médio de morbididades na área urbana foi significativamente maior que na rural. Os idosos nas áreas rurais tiveram escores significativamente mais elevados de QV nos domínios físico, psicológico, relações sociais e meio ambiente e nas facetas autonomia, atividades passadas, presentes e futuras, participação social e intimidade. Nas áreas urbanas, os escores foram mais elevados na faceta funcionamento dos sentidos. Destaca-se no estudo a necessidade de estratégias de saúde para melhorar a QV dos idosos nas áreas urbanas. Nas áreas rurais, é necessário avaliar o funcionamento dos sentidos, permitindo medidas corretivas precoces.

Palavras-chave: idoso, população rural, saúde do homem.

Introduction

Scientific literature has shown that males are more vulnerable to diseases, especially in the case of serious and chronic illnesses (MALTA et al., 2011; ULBRICH et al., 2012). Greater vulnerability and higher rates of morbidity and mortality in males are related to the fact that men do not effectively seek primary care services (BRASIL, 2009).

The differences between the sexes have been analyzed recently and brought the discussion on the issue of masculinity and health care system from the viewpoint of men's difficulties to access health care and the dilemmas experienced by services to meet this demand (COUTO et al., 2010).

So that programs of health care maybe effective, the interrelationship between aging, health and

gender should not be overlooked. Likewise, studies on the particular position of elderly males and the impact of their behavior on their health condition should be promoted (CAMPOLINA et al., 2011; BORGES et al., 2012).

A National Policy for Integral Attention to Men's Health was established in Brazil in 2008. It takes into account differences such as age, socioeconomic status, place of residence, among others, as relevant aspects that should be considered for the development of strategies for health care aimed at this population (BRASIL, 2009). It must be highlighted that studies with elderly men are relevant since they may contribute to increase knowledge on the reduced risk of chronic diseases and premature mortality (FROST et al., 2012) as well as its impact on quality of life (QoL).

In recent decades there has been an increased production of knowledge on this subject focusing on the aging process, morbidities and QoL and its implications on health (PEREIRA et al., 2011; FROST et al., 2012; BELTRAME et al., 2012; LUDMAN et al., 2012; SILVA et al., 2013).

It is as well-known fact that environmental factors may influence the aging process specifically the mechanisms of homeostasis, resulting in the development of diseases (SANTANGELO et al., 2012), which may also impact QoL. It appears that the health-disease process may be distinguished and, consequently, the elderly people's QoL, according to the peculiarities of rural and urban contexts. Possible difficulties of access to health services among rural elderly people could negatively impact these aspects. Moreover, it may be underscored that rural elderly people have become more active than those living in urban areas.

There is a need to deepen knowledge on the above issue with contributions to health strategies to improve the QoL of elderly males in urban and rural areas by a specific tool for this age group. Current analysis compares the number of morbidities and QoL of elderly males residing in rural and urban areas in the municipality of Uberaba, Minas Gerais State, Brazil.

Material and methods

Current comparative, cross-sectional and observational study was conducted with elderly males in the rural and urban areas of the municipality of Uberaba.

Total elderly population living in rural areas in Uberaba, registered by the Family Health Strategy (FHS) and made available by the Primary Care Information System (SIAB), in May 2009, was 1.297 inhabitants. Further, 850 elderly people were interviewed. However, the following were excluded from current analysis: 105 who did not complete Mini Mental State Examination (MMSE) score; 75 elderly refused; 11 died; 57 were not found after a third visit; 117 had moved; 3 were hospitalized; 79 for other reasons.

A population sample retrieved by the Research Group on Public Health was used to define the population of the urban area. The sample was composed of 2.892 elderly people, with 95 confidence, 80 power of test, a 4% margin of error for interval estimates and an estimated proportion of $\pi = 0.5$ for the proportions of interest. In 2008, 2.142 respondent elderly people were included; the other 541 elderly people were excluded since 200 were not found after three visits, 174 refused, 142 died and 25 were hospitalized.

The inclusion criteria of this study were: residence in a rural or urban area in Uberaba, Minas Gerais State, Brazil, male, no cognitive decline and agreement to participate. In all, 44 elderly males living in rural area and 789 living in urban areas participated in the survey.

Data were collected in the rural areas between June 2010 and March 2011, whilst data from the urban area were harvested between August and December 2008. Subjects were interviewed at home. The location of rural residence was obtained with the collaboration of the Community Health Agents and the authorization of the City Health Department.

The elderly people's cognitive assessment was performed before starting the interview to assess their condition to answer the proposed questions. Cognitive assessment was performed with the MMSE, translated and validated in Brazil (BERTOLUCCI et al., 1994; ICAZA; ALBALA, 1999).

The following instruments were employed: structured Older Americans Resources and Services (OARS) (RAMOS et al., 1998), World Health Organization Quality of Life - BREF (WHOQOL-BREF) (FLECK et al., 2000) and World Health Organization Quality of Life for Older Adults Assessment (WHOQOL-OLD) (FLECK et al., 2006).

An electronic database in Excel[®] was constructed and the data from the interviews after the revision and codification were processed on a microcomputer, for two people, with a double entry. The consistency between the two databases was undertaken. When inconsistent data were found in the original interview, corrections were performed.

Descriptive analysis and Student *t* test ($\alpha < 0.05$) were employed with SPSS 17.0. The projects were approved by the Committee for Ethics in Research with Humans of the Federal University of the Triangulo Mineiro, Uberaba, Minas Gerais State, Brazil, Protocol n. 897 and n. 1477.

Results and discussion

Table 1 provides the socio-economic characteristics of the elderly according to place of dwelling.

In urban areas the proportion of the elderly aged 80 years or older, widowed and with higher education was higher in urban areas than in rural ones. Most had individual monthly income of a minimum wage in the two groups (Table 1).

The results are consistent with other research (IBGE, 2011; DAL PIZZOL et al., 2012).

Table 1. Frequency distribution of socio-economic variables of the elderly according to their place of dwelling. Uberaba, Minas Gerais State, 2011.

Variables		Rural		Urban	
		N	%	N	%
Age (years)	60-70	263	58.6	376	47.7
	70-80	143	31.8	294	37.3
	80 and over	43	9.6	119	15.1
Marital status	Married/living with a partner	330	73.5	540	68.4
	Separated/divorced	36	8	68	8.6
	widower	45	10	146	18.5
Schooling (in years)	Single	38	8.5	34	4.3
	no schooling	110	24.5	143	18.1
	1-4	135	30.1	242	30.7
	4-8	165	36.7	266	33.7
	8	16	3.6	40	5.1
	9 and over	23	5.1	93	11.8
Individual income (minimum wage)*	No income	15	3.3	32	4.1
	< 1	12	2.7	4	0.5
	1	187	41.6	391	49.6
	1-3	184	41	291	36.9
	3-5	36	8	42	5.3
	> 5	14	3.1	25	3.2

*The minimum wage ranged between R\$510 and R\$540. Source: Departamento Intersindical de Estatística e Estudos Socioeconômicos (DIEESE, 2012).

With regard to morbidities, the following were prevalent in the countryside: back problems (52.4%), sight problems (50.4%) and hypertension (47.4%). The same morbidities prevailed in the urban area, albeit with higher percentages, or rather, sight problems (76.3%), back problems (58.3%) and hypertension (53.9%). Mean number of morbidities in the urban area ($\bar{x} = 5.58$) was significantly higher than in the rural area ($\mu = 3.79$) ($t = -10.894$; $p < 0.001$). Percentages and different morbidities were found in other studies (TONEZER; LOPES, 2009; CAMPOLINA et al., 2011).

QoL was self-evaluated as good in rural (60.8%) and urban (66.6%) areas. The highest percentage in both groups satisfied with their health was 62.8% among the elderly in rural areas and 67.5% in the urban ones.

Positive evaluation of QoL evidences that the elderly have an emotional interpretation of facts, events and conditions of life (OLIVEIRA et al., 2013). Their positive satisfaction with their health may be related to the fact that elderly people are not characterized as individuals without disease but as people with more ability to act on the environment in which they live (FONSECA et al., 2010).

Table 2 compares QoL among elderly groups.

The comparison between groups (Table 2) showed that the elderly in the urban area had significantly lower QoL scores in the physical ($t = 12.116$; $p < 0.001$), psychological ($t = 6.242$; $p < 0.001$), social relationships ($t = 7.621$; $p < 0.001$) and environment ($t = 12.116$; $p = 0.037$).

Table 2. Quality of life of elderly people living in rural and urban areas according to WHOQOL-BREF and WHOQOL-OLD. Uberaba, Minas Gerais State, Brazil, 2011.

	Rural		Urban		t	p
	Average	SD	Average	SD		
WHOQOL-BREF						
Physical	72.2	15.08	61.03	16.48	12.116	<0.001
Psychological	72.81	11.77	68.56	11.36	6.242	<0.001
Social relationships	74.81	12.5	69.3	12.09	7.621	<0.001
Environment	64.71	11.38	63.28	11.82	2.083	0.037
WHOQOL-OLD						
Functioning of senses	74.68	21.5	80.13	19.52	-4.432	<0.001
Autonomy	70.43	14.11	61.18	13.54	11.364	<0.001
Activities in the past, present and future	71.03	12.43	65.69	13.15	7.007	<0.001
Social participation	69.42	12.4	64.39	15.48	6.225	<0.001
Death and dying	76.75	23.4	78.3	23.03	-1.125	0.261
Intimacy	74.49	16.75	69.15	16.21	5.496	<0.001

The lowest score in the physical domain in the urban area was different from that obtained in a study among elderly men in Concórdia, Santa Catarina State, Brazil, in which no significant difference was observed in the physical domain, SF-36 ($p > 0.05$) (BELTRAME et al., 2012). There may have been items related to the physical domain in the instrument used in this study that comprised many items such as pain and discomfort, energy and fatigue, sleep and rest, activities of daily living; dependence on medication or treatments and work capacity (FLECK et al., 2000) different from SF-36.

In this context, it should be noted that in the rural setting elderly males remain active for a longer period and perform their activities normally. It is an aspect observed during the data collection for current study, which contributes to the highest score in the domain. It should also be underscored that elderly males in the urban area had a greater number of comorbidities than those who resided in the rural environment, which may have also influenced the lower scores in the physical domain (FLECK et al., 2000).

The health team must investigate together with the urban elderly the reasons contributing towards the greater impact on the physical aspect of their QoL. group activities for discussion among the elderly on this issue may also be developed.

In the psychological domain, the lowest average obtained by elderly males in the urban area disagree with that obtained in the survey on elderly men in Concórdia, Santa Catarina State, Brazil, where no significant difference was observed in the emotional aspects and mental health, SF -36 ($p > 0.05$) (BELTRAME et al., 2012). However, taking into account the great impact on the physical aspect prevailing in younger elderly people, a larger number of morbidities and decrease of industrial activities in the urban area observed in current study highlights the need for in-depth discussions on the

transition from working life to retirement, situations of loss of partner and diagnosis of chronic degenerative diseases (MINAYO et al., 2012). These factors may be contributing to minimize the psychological aspect in the urban area.

Furthermore, a study among older men residing in urban areas underscored loss of the sense of life, isolation and feelings of worthlessness with the advent of retirement (MINAYO et al., 2012). The health team may strategically establish support groups to exchange experiences and socialization, to stimulate elderly man residing mainly in urban areas, to improve their self-esteem and positive feelings.

In terms of social relations, similar results were obtained for males in Concordia SC Brazil, where rural elderly males had higher scores with regard to the social aspect, SF-36 ($p < 0.05$) (BELTRAME et al., 2012). A research conducted in Barão de Melgaço, Mato Grosso State, Brazil, showed the elderly that kinship, friendship and identity connected people in their reciprocal relationships, highlighting links for the maintenance of health. Support networks are extended to cases of disease and access to health services (PIGNATTI et al., 2011). It may be inferred that in rural areas the ties of affection are more intense and may explain the above-mentioned results.

The highest score in the environment among the elderly in rural areas may be due to the greater violence and lack of security experienced by the elderly in urban areas (FLECK et al., 2000). Research conducted in Fortaleza identified that elderly people experienced situations of violence, degraded social context represented by the lack of urban infrastructure and lack of civility in conviviality, disrespect by younger people and others (NOGUEIRA et al., 2011). To the above one may add the problems resulting from pollution, noise and traffic characterizing urban areas (FLECK et al., 2000). Thus, it is believed that in the countryside these factors are less impacting. This fact would explain the higher score for the rural elderly. However, further research should be conducted to identify which factors are impacting the safety in the urban environment with great repercussions on the elderly. Joint strategies in the community may be hereby established to sensitize it with regard to these issues.

Table 2 shows that WHOQOL-OLD in the urban areas were higher than scores on sensory abilities ($t = -4.432$; $p < 0.001$) and lower in autonomy ($t = 11.364$; $p < 0.001$), past, present and future activities ($t = 7.007$; $p < 0.001$), social

participation ($t = 6.225$; $p < 0.001$) and intimacy ($t = 5.496$; $p < 0.001$).

In the case of the functioning of the senses, it is known that, with the aging process, several changes occur in the sense organs (GUERRA; CALDAS, 2010) which cause a decrease of its operation. In fact, they intervene in the elderly people's daily life. Through the senses, the body is able to perceive surrounding situations, contributing to its integration with the environment and enhancing the relationship of elderly people with the environment in which they live (GUERRA; CALDAS, 2010).

Living in urban perimeters may contribute to increase QoL scores with regard to certain issues. This is possibly due to better economic levels, facilitating access to the media, health, leisure and purchase of goods, among others (BELTRAME et al., 2012). It may be inferred that elderly people in rural areas had lower scores in the functioning of the senses due to the environment they live in, or rather, difficulties such as ergonomic and architectural barriers and the greater difficulty of physical access. The latter may prevent their interaction with the environment they live in. Another aspect that should be taken into account is the difficulty of access to health services providing diagnoses and medical resources.

Health professionals should assess whether the sensory changes in elderly people are not derived too from the physiological aging process. In rural areas, they should track elderly people to identify losses and refer them to the proper specialists.

Independence in old age, an aspect evaluated in the autonomy stance (FLECK et al., 2006), is considered a key factor for a good QoL. Since the family is heading towards autonomy, one should understand how it works between family relationships and the elderly, or rather, their role in the family and the extent to which autonomy establishes processes that provide respectability and power (TONEZER; LOPES, 2009). The domestic scenario should be an environment of safety where traditionally the elderly exercise their authority (NOGUEIRA et al., 2011). However, in urban areas the above aspect is impaired. In the rural setting the emotional ties and family may still be more present, which may explain the results given above.

In the case of past, present and future activities, it may be inferred that elderly people living in rural areas do not have a change of roles as intense as that experienced by the elderly residing in urban areas. The above is due to specific work activities. In urban areas, the retirement of the elderly has decreased their perspectives and they lost their power of production by becoming unproductive (COSTA;

CAMPOS, 2009). Survey among relatives of elderly men who committed suicide showed that the main difficulties in adjusting to retirement were related to the use of time and confinement at home. There were reports of suffering due to unemployment or involuntary loss of work when the family still needed their financial support. This fact led to feelings of humiliation and lack of perspectives (MINAYO et al., 2012).

Health professionals should investigate with the elderly how this change of roles is interfering in their satisfaction with the activities undertaken in the urban area (FLECK et al., 2006). Strategies may be established to cope with and face this new reality and its adaptation by the elderly, especially those living in the urban area.

The result on social participation in current study was unexpected since rural areas have greater scarcity of activities coupled to distance as a complicating factor of socialization. Whereas in current study urban elderly people present a low score in the field of social relations, it is inferred that this fact may also impact on their social participation. The social support provided by relationships with friends (demonstrating the importance of social and emotional relationships), especially friendship during aging (DORSI et al., 2011), may contribute towards an increased participation of the elderly in community activities and leisure.

The health team must investigate with the elderly living in the urban area the possibilities for social activities and encourage their participation according to their preferences.

It may be inferred that the low score in intimacy in urban areas is related to the high percentage of elderly widowers. Health professionals should be able to understand the reasons for the impact on personal relationships by the elderly and their possible needs due to the lack of a partner. Thus, one can contribute towards the development of cohabitation activities with the elderly who are experiencing the same situations. The expansion of relationships and frequent social gatherings impact positively their QoL (MARCHIORI et al., 2013). Consequently, it is necessary to prioritize activities that encourage respect for elderly people's decisions and participation in activities of their interest (SANTOS et al., 2013).

Conclusion

The health staff should intervene in the life of elderly males residing in the urban area through health strategies aimed to improve their QoL. They should emphasize the impact of morbidities and the inherent aspects of aging that may be minimizing their QoL.

In rural areas, activities to assess the functioning of the senses and the enabling of corrective measures are required. Due to the dispersion of elderly people and their poor access to health programs, the health care team may promote strategic spaces in the community to facilitate the care for the elderly.

Acknowledgements

Financial support: FAPEMIG (Research Support Foundation of Minas Gerais), FUNEPU (Uberaba Research Foundation), CNPq (National Research Council).

References

- BELTRAME, V. M.; CADER, A. S.; CORDAZZO, F.; DANTAS, E. H. M. Qualidade de vida de idosos da área urbana e rural do município de Concórdia, SC. **Revista de Geriatria e Gerontologia**, v. 15, n. 2, p. 223-231, 2012.
- BERTOLUCCI, P. H. F.; BRUCKI, S. M. D.; CAMPACCI, S. R.; JULIANO, Y. O mini-exame do estado mental em uma população geral: impacto da escolaridade. **Arquivo de Neuropsiquiatria**, v. 52, n. 1, p. 1-7, 1994.
- BORGES, L. M.; FLEURY, S.; MARIA, E. Percepções e comportamentos de cuidados com a saúde entre homens idosos. **Psicologia: Ciência e Profissão**, v. 32, n. 2, p. 66-81, 2012.
- BRASIL. Ministério da Saúde. **Política nacional de atenção integral à saúde do homem: princípios e diretrizes**. Brasília: Ministério da Saúde, 2009.
- CAMPOLINA, A. G.; DINI, O. S.; CICONELLI, R. M. Impacto da doença crônica na qualidade de vida de idosos da comunidade em São Paulo (SP, Brasil). **Ciência e Saúde Coletiva**, v. 16, n. 6, p. 2919-2925, 2011.
- COSTA, F. G.; CAMPOS, P. H. F. Representação social da velhice, exclusão e práticas institucionais. **Revista Eletrônica de Psicologia e Políticas Públicas**, v. 1, n. 1, p. 100-113, 2009.
- COUTO, M. T.; PINHEIRO, T. F.; VALENÇA, O.; MACHIN, R.; SILVA, G. S. N.; GOMES, R.; SCHRAIBER, L. B.; FIGUEIREDO, W. S. O homem na atenção primária à saúde: discutindo (in)visibilidade a partir da perspectiva do gênero. **Interface - Comunicação, Saúde e Educação**, v. 14, n. 33, p. 257-70, 2010.
- DAL PIZZOL, T. S.; PONS, E. S.; HUGO, F. N.; BOZZETTI, M. C.; SOUSA, M. L. R.; HILGERT, J. B. Uso de medicamentos entre idosos residentes em áreas urbanas e rurais de município no sul do Brasil: um estudo de base populacional. **Cadernos de Saúde Pública**, v. 28, n. 1, p. 104-114, 2012.
- DIEESE-Departamento Intersindical de Estatística e Estudos Socioeconômicos. **Salário mínimo nominal e necessário**. Available from: <<http://www.dieese.org.br/rel/rac/salminMenu09-05.xml>>. Access on: Feb. 3, 2012.
- DORSI, E.; XAVIER, A. J.; RAMOS, L. R. Trabalho, suporte social e lazer protegem idosos da perda funcional:

- estudo Epidoso. **Revista de Saúde Pública**, v. 45, n. 4, p. 685-695, 2011.
- FLECK, M. P. A.; CHACHAMOVICH, E.; TRENTINI, C. Development and validation of the Portuguese version of the WHOQOL-OLD module. **Revista Saúde Pública**, v. 40, n. 5, p. 785-791, 2006.
- FLECK, M. P. A.; LOUZADA, S.; XAVIER, M.; CHACHAMOVICH, E.; VIEIRA, G.; SANTOS, L.; PINZON, V. Aplicação da versão em português do instrumento abreviado de avaliação da qualidade de vida: "WHOQOL-bref". **Revista de Saúde Pública**, v. 34, n. 2, p. 178-183, 2000.
- FONSECA, M. G. U. P.; FIRMO, J. O. A.; LOYOLA FILHO, A. L.; UCHÔA, E. Papel da autonomia na auto-avaliação da saúde do idoso. **Revista de Saúde Pública**, v. 44, n. 1, p. 159-165, 2010.
- FROST, M.; WRAEE, K.; GUDEX, C.; NIELSEN, T.; BRIKEN, K.; HAGEN, C.; ANDERSEN, M. Chronic diseases in elderly men: underreporting and underdiagnosis. **Age and Ageing**, v. 41, n. 2, p. 177-183, 2012.
- GUERRA, A. C. L. C.; CALDAS, C. P. Dificuldades e recompensas no processo de envelhecimento: a percepção do sujeito idoso. **Ciência e Saúde Coletiva**, v. 15, n. 6, p. 2931-2940, 2010.
- IBGE-Instituto Brasileiro de Geografia e Estatística. **Censo demográfico 2010: características da população e dos domicílios**. Rio de Janeiro: IBGE, 2011.
- ICAZA, M. C.; ALBALA, C. **Minimental State Examination (MMSE) del estudio de dementia em Chile**. análisis estatístico. Washington: OPAS; 1999.
- LUDMAN, B.; ALES, L.; JONSÉN, E.; LÖVHEIM, H.; NYGREN, B.; SANTAMÁKI, F. R.; STRANDBERG, G.; NORBERG, A. Inner strength in relation to functional status, disease, living arrangements, and social relationships among people aged 85 years and older. **Geriatric Nursing**, v. 33, n. 3, p. 167-176, 2012.
- MALTA, D. C.; MOURA, E. C.; OLIVEIRA, M.; SANTOS, F. P. Usuários de planos de saúde: morbidade referida e uso de exames preventivos, por inquérito telefônico. **Cadernos de Saúde Pública**, v. 27, n. 1, p. 57-66, 2011.
- MARCHIORI, G. F.; DIAS, F. A.; TAVARES, D. M. S. Qualidade de vida entre idosos com e sem companheiro. **Revista de Enfermagem UFPE on line**, v. 7, n. 4, p. 1098-1106, 2013.
- MINAYO, M. C. S.; MENEGHEL, S. N.; CAVALCANTE, F. G. Suicídio de homens idosos no Brasil. **Ciência e Saúde Coletiva**, v. 17, n. 10, p. 2665-2674, 2012.
- NOGUEIRA, C. F.; FREITAS, M. C.; ALMEIDA, P. C. N. Violência contra idosos no município de Fortaleza, CE: uma análise documental. **Revista Brasileira de Geriatria e Gerontologia**, v. 14, n. 3, p. 543-554, 2011.
- OLIVEIRA, S. E. S.; HOHENDORFF, J. V.; MÜLLER, J. L.; BANDEIRA, D. R.; KOLLER, S. H.; FLECK, M. P. A.; TRENTINI, C. M. Association between self-perceived quality of life and socio-demographic, psychosocial, and health variables in a group of elderly. **Cadernos de Saúde Pública**, v. 29, n. 7, p. 1437-1448, 2013.
- PEREIRA, R. J.; COSTA, R. M.; FRANCESCHINI, S. C. C.; RIBEIRO, R. C. L.; SAMPAIO, R. F.; PRIORI, S. E.; CECON, P. R. Influência de fatores socio-sanitários na qualidade de vida dos idosos de um município do Sudeste do Brasil. **Ciência e Saúde Coletiva**, v. 16, n. 6, p. 2907-2917, 2011.
- PIGNATTI, M. G.; BRASAGLINI, R. A.; SENNA, G. D. Envelhecimento e rede de apoio social em território rural do Pantanal matogrossense. **Physis**, v. 21, n. 4, p. 1469-1491, 2011.
- RAMOS, L. R.; TONIOLO, N. J.; CENDOROGLO, M. J.; GARCIA, J. T.; NAJAS, M. S.; PERRACINI, M.; PAOLA, C. R.; SANTOS, F. C.; BILTON, T.; EBEL, S. J.; MACEDO, M. B. M.; AMADA, C. M.; MIRANDA, R. D.; GONÇALVES, A. L. P.; FRAIETTA, R.; VIVACQUA, I.; ALVES, L. M.; TUDISCO, E. S. Two-years follow-up study of elderly residents in S. Paulo, Brazil: methodology and preliminary results. **Revista de Saúde Pública**, v. 32, n. 5, p. 397-407, 1998.
- SANTANGELO, A.; ALBANI, S.; ATTERITANO, M.; CAPELLO, A.; MALAQUARNERA, M.; PAVANO, S.; PRIMAVERA, G.; TESTAI, M.; TOMARCHIO, M.; MAUGERI, D. Prevalence of cardiovascular pathologies in elderly population living in an industrialized area, compared to a control population residing in a rural area. **Archives of Gerontology and Geriatrics**, v. 55, n. 3, p. 702-705, 2012.
- SANTOS, N. M. F.; TAVARES, D. M. S.; DIAS, F. A.; DINIZ, M. A.; MARTINS, N. P. F. Functional capacity and quality of life of elderly people with a history of stroke. **Acta Scientiarum. Health Sciences**, v. 35, n. 1, p. 49-57, 2013.
- SILVA, E. F.; PANIZ, V. M. V.; LASTE, G.; TORRES, I. C. S. Prevalência de morbidades e sintomas em idosos: um estudo comparativo entre zonas rural e urbana. **Ciência e Saúde Coletiva**, v. 18, n. 4, p. 1029-1040, 2013.
- TONEZER, C.; LOPES, M. J. M. Efeitos da cobertura previdenciária na situação de vida de idosos rurais de Santana da Boa Vista – Rio Grande do Sul. **Revista Internacional Interdisciplinar INTERthesis**, v. 6, n. 2, p. 191-209, 2009.
- ULBRICH, A. Z.; BERTIN, R. L.; BOZZA, R.; NETO, A. S.; LIMA, G. Z. S.; CARVALHO, T.; CAMPOS, W. Probabilidade de hipertensão arterial a partir de indicadores antropométricos em adultos. **Arquivo Brasileiro de Endocrinologia Metabólica**, v. 56, n. 6, p. 351-357, 2012.

Received on May 7, 2014.

Accepted on November 19, 2014.

License information: This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.