

Physical activity acting as a resource for social support among older adults in Brazil

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ABSTRACT

Benedetti TRB, Schwingel A, Torres TL. Physical activity acting as a resource for social support among older adults in Brazil. *J. Hum. Sport Exerc.* Vol. 6, No. 2, pp. 452-461, 2011. As people age, their various social roles and relationships change. The aim of this study was to explore the impact of physical activity participation on social engagement among older adults living in Brazil. The participants of the study were selected using probabilistic sampling, stratified by Census tracts (neighborhoods) and gender. The participants' information was assessed by two standardized questionnaires: "Brazil Old Age Schedule" (BOAS) and "Physical Activities International Questionnaire" (IPAQ). A total of 875 older adults living in Southern Brazil participated in this study. Their average age was 71.6 (SD=7.9), 61.4% were married, and 66.6% of the individuals lived with their children. The results show that older adults who were more physically active had a satisfactory level of social relations with their family (84.8%), friends (97%), and neighbors (96%). Also, physically active older adults were four times more likely to engage in social clubs than their less active counterparts (OR = 3.82). Similar trends were observed when comparing more and less active older adults in regard to their participation in other social group opportunities in the community, such as residents' association (OR=1.97) and social interaction groups (OR=1.52). This study underscores the positive role of physical activity in older adults' perceptions and participation in social groups available in the community. **Key words:** PHYSICAL ACTIVITY, AGING, OLDER ADULTS, SOCIAL SUPPORT.

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INTRODUCTION

Many Latin American countries are aging rapidly due to an increase in longevity and decrease in fertility rates (Noronha & Andrade, 2005). Brazil is one of the most aged countries in the region, with approximately 11% of its population being older adults (IBGE, 2008).

From society to the individual, aging is associated with a number of social changes. From social engagement, people can draw support that encompasses instrumental, emotional and informational realms. This can be obtained through formal (e.g. public institutions) or informal (e.g. family, friends and neighbors) sources (Miller et al., 2001; Pierce et al., 1996). A study conducted by Baltes et al. (2001) showed that social interactions decrease with aging. In fact, older people may lose opportunities for informal social integration due to some critical events in their life's that frequently occur in old age (e.g. retirement). At the same time, their need for social support may increase because of changes in health, cognitive, and emotional status.

Several studies have suggested that successful aging is associated with maintaining good health, which can be obtained through physical, intellectual, and social activities. For instance, getting older adults to engage in productive activities or in social support exchanges appear to be crucial in maintaining good health, functional capacities and well-being (Fontaine, 1999; Couture et al., 2005; Avlund et al., 2004; Wagner et al., 2001). Studies, conducted in China and Spain, have suggested positive associations between social engagement and healthy lifestyle, such as being physically active (Lin et al., 2007; Calero-García et al., 2007; Kaplan et al., 2001; Wagner et al., 2001), especially among women (Chipperfield et al., 2008). Therefore, this study aims to explore the relationship between social engagement and physical activity participation among older adults from Brazil.

MATERIAL AND METHODS

This study was based on a representative survey entitled "Profile of Old Persons in the Municipality of Florianópolis" (Benedetti et al., 2004). Florianópolis is the capital of the State of Santa Catarina, in Southern Brazil. This in-home survey interviewed a total of 875 older adults with average age of 71.6 ± 7.9 years (437 men and 438 women). It represents 8.4% of the total population (342,315 inhabitants) of the city of Florianópolis. Census tracts (by neighborhoods and gender) and maps were supplied by The Brazilian Institute of Geography and Statistics (IBGE) to guide the probabilistic sampling of the study participants. All interviews were conducted by trained interviewers from August to November of 2002. The average time to conduct each in-home interview was 54 minutes.

This survey included two standard physical activity questionnaires, the International Physical Activity Questionnaire (IPAQ) (Marshall & Bauman, 2001; Craig et al., 2003) and the Brazil Old Age Schedule (BOAS) questionnaire (Veras et al., 1989; Veras & Dutra, 2001). IPAQ measured physical activity level in four domains (work, transportation, domestic tasks and leisure). For this report, the middle level proposed in the original IPAQ was suppressed, following the recommendations from previous surveys using IPAQ with older adults in Brazil (Benedetti et al., 2007, 2004). Therefore, older adults who carried out moderate or vigorous physical activities within the four domains for 150 minutes per week or over were classified as more active, whereas, those who did not reach 150 minutes per week were classified as less active. Information on sociodemographic variables, life conditions and social resources, were obtained using BOAS questionnaire. Household income was assessed as a proportion of the official Brazilian Minimum Monthly Salary (MMS) level which was \$300 Reais (approx \$150 US) at the time of data collection.

This research was approved by the Ethics Committee for Research on Human Beings (MS/CONEP/UFSC) through protocol number 051/2001. A statement of informed consent was obtained from all participants prior the initiation of data collection.

A chi-square test was used for the descriptive analyses of the variables. Logistic regression analyses, adjusted by gender (male and female) and age (in years), were applied to examine potential independent associations of social resources (presence vs. absence) and physical activity participation (less active, more active), as shown in model 1; and in model 2, associations of physical activity participation (less active vs. more active) and household income (up to 2MMS, 2.1– 6MMS, > 6MMS).

RESULTS

Table 1 shows the distribution of older adults by gender for the socioeconomic, disease, and physical activity variables. The average age was 71.6 years old ($s=7.9$), 61.3 were married, 54% had less than 8 years of education, including 20% who were illiterate. Household incomes up to 2 MMS were reported by 45% of the participants in the study. The source of income was primarily from retirement pensions.

As for disease, 71% of the participants reported a presence of at least one disease. Circulatory diseases were the most frequently cited, with arterial hypertension and cardiovascular conditions the most prevalent, followed by musculoskeletal and conjunctive tissue diseases (rheumatism, arthrosis/arthritis, joint pains and spinal column problems); and endocrine, nutritional and metabolic diseases (mainly diabetes and thyroid conditions).

The survey identified that 59% of the older adults were classified as more active. The mean time per week spent on moderate and vigorous physical activities was 521 ± 270 minutes.

The social insertion was an indication of a senior's health accessed by the Brazil Old Age Schedule – BOAS (Veras, 1994; Veras & Dutra, 2001). It investigates their participation in different social groups, such as clubs, residents' associations, social interaction groups, retirees, social movements, cultural resources, and leisure groups, among others. In addition, satisfaction with the social resources offered in the community, including informal support, was assessed (Table 2). The results indicate that the majority of the seniors were satisfied with their roommates (84.8%), with their friends (97%) and neighbors (96%).

Table 2 shows the participation of older men and women in social resources available in their community. Although representing a low percentage in social resources (18.7%), the majority of seniors engage in leisure activities that include parties, traveling, and bingo, seconded by an attachment to social groups (12%). It is observed that the number of elderly that participate in these social groups is still low and only a few of them have access to these types of groups or desire to search for them.

The logistic regression analysis adjusted by gender (men and women), age (in years), schooling (Illiterate, less than 8 years, 8 years or more) and household income (up to 2 MMS – minimum month salary; 2.1 to 6 MMS; 6 MMS or more) with physical activity level (less and more active) as the independent variable is shown in Table 3. Physical activity levels were shown to be independently associated with the participation in social groups.

Table 1. Social-demographic characteristics of elderly according with gender and physical activity.

Subject	Male		Female		Total	
	Less active	More active	Less active	More active	Less active	More active
Age group						
60-69	72 (16.4)	131 (29.9)	85 (19.4)	115 (26.3)	157 (17.9)	246 (28.1)
70-79	70 (16.1)	100 (22.9)	68 (15.5)	85 (19.4)	138 (15.8)	185 (21.2)
80 or over	17 (3.9)	47 (10.8)	44 (10.0)	41 (9.4)	61 (6.9)	88 (10.1)
Marital status						
Married	128 (29.3)	235 (53.8)	66 (15.1)	107 (24.4)	194 (22.2)	342 (39.1)
Widowed	18 (4.1)	25 (5.7)	116 (26.5)	92 (21.0)	134 (15.3)	117 (13.4)
Separated /divorced	10 (2.3)	12 (2.7)	10 (2.3)	26 (5.9)	20 (2.3)	38 (4.3)
Single	3 (0.7)	6 (1.4)	5 (1.1)	16 (3.7)	8 (0.9)	22 (2.5)
Schooling						
Illiterate	37 (8.5)	43 (9.8)	52 (11.8)	43 (9.8)	89 (10.2)	86 (9.8)
Less than 8 years	82 (18.8)	133 (30.5)	121 (27.6)	140 (31.9)	203 (23.2)	273 (31.2)
8 years or more	40 (9.1)	102 (23.3)	24 (5.4)	58 (13.2)	64 (7.3)	160 (18.3)
Household income						
Up to 2 MMS	64 (14.7)	78 (17.9)	125 (28.5)	131 (29.9)	189 (21.6)	209 (23.9)
2.1 to 6 MMS	42 (9.7)	73 (16.8)	37 (8.4)	59 (13.5)	79 (9.1)	132 (15.2)
6 MMS or over	46 (10.6)	121 (27.8)	32 (7.3)	49 (11.2)	78 (8.9)	170 (19.5)
Do not know	7 (1.4)	6 (1.1)	3 (0.7)	2 (0.5)	10 (1.0)	8 (0.8)
Disease						
Yes disease reported	119 (27.2)	162 (37.1)	166 (37.9)	170 (38.8)	285 (32.4)	332 (38.4)
None disease reported	40 (9.2)	116 (26.5)	31 (7.1)	71 (16.2)	71 (8.1)	187 (21.1)

* In combination with one or more of the forms listed. The five numbers may add to more than total sample and the percentages may add to more than 100 percent because individuals may report more than form of residence.

Table 2. Social resources participation and gender and physical activity.

Social resources	Male				Female				Overall			
	Less active		More active		Less active		More active		Less active		More active	
	n	%	n	%	n	%	n	%	n	%	n	%
Community group												
Yes	18	4.1	33	7.5	30	6.9	25	5.7	48	5.5	58	6.6
No	141	32.3	245	56.1	167	38.1	216	49.3	308	35.2	461	52.7
Association of retirees												
Yes	5	1.1	8	1.8	12	2.7	12	2.7	17	1.9	20	2.3
No	154	35.2	270	61.9	185	42.3	229	52.3	339	38.8	499	57
Residents' association												
Yes	4	0.9	15	3.5	11	2.5	12	2.7	15	1.7	27	3.1
No	155	35.5	263	60.1	186	42.5	229	52.3	341	39	492	56.2
Social movements												
Yes	3	0.7	3	0.7	2	0.5	3	0.7	5	0.6	6	0.7
No	156	35.7	275	62.9	195	44.5	238	54.3	351	40.1	513	58.6
Cultural resources												
Yes	2	0.5	10	2.3	1	0.2	13	3	3	0.4	23	2.6
No	157	35.9	268	61.3	196	44.7	228	52.1	353	40.3	496	56.7
Clubs												
Yes	5	1.1	12	2.7	7	1.6	19	4.3	12	1.4	31	3.5
No	154	35.3	266	60.9	190	43.4	222	50.7	344	39.3	488	55.8
Leisure												
Yes	29	6.6	46	10.5	46	10.5	43	9.8	75	8.6	89	10.2
No	130	29.8	232	53.1	151	34.5	198	45.2	281	32.1	430	49.1
Others services												
Yes	18	4.1	31	7.1	21	4.8	25	5.7	39	4.5	56	6.4
No	141	32.3	247	56.5	176	40.2	216	49.3	317	36.2	463	52.9

In Table 3, the categorical variable resources for participating in social and physical activity levels were shown to be independently associated with the participation in social groups. The model showed that more physically active older adults were four times more likely to engage in social clubs than their less active counterparts (OR = 3.82). Also, similar trends were observed when looking at more and less active older adults with regard to their participation in other social group opportunities in the community, such as residents' association (OR=1.97) and social interaction groups (OR=1.52). In other words, older adults who were engaged in one of these two groups were two times more likely to be active compared to those who did not participate.

Table 3. Logistic regression analysis for participates in social groups and physical activity.

Social resources	OR Brute (IC 95%)	P value	OR adjusted (IC 95%)	P value
Community group				
Yes	1.38 (0.90 – 2.12)	0.134	1.52 (0.98 – 2.38)	0.060
No	1		1	
Association of retirees				
Yes	2.57 (1.16 - 5.69)	0.020	1.85 (0.817 – 4.191)	0.140
No	1		1	
Association of residence				
Yes	2.61 (1.237 – 5.54)	0.012	1.97 (0.91 – 4.25)	0.083
No	1		1	
Social movements				
Yes	3.12 (0.67 – 14.54)	0.147	-	-
No	1		-	-
Cultural community resources				
Yes	1.89 (0.78 – 4.55)	0.153	-	-
No	1		-	-
Groups association				
Yes	5.54 (2.61 – 14.23)	0.000	3.82 (1.46 – 10.00)	0.006
No	1		1	
Leisure				
Yes	2.48 (1.68 – 3.64)	0.000	2.43 (1.64 – 3.60)	0.000
No	1		1	
Others services				
Yes	1.32 (0.85 – 2.07)	0.212	-	-
No	1		-	-
Family Support				
Yes	1			
No	1.07 (0.75 – 1.51)	0.723	-	-
Support from neighbors				
Yes	1.12 (0.25 – 5.04)		0.83 (0.18 – 3.91)	****
No	0.25 (0.03 – 1.82)	0.083	0.13 (0.02 – 1.03)	****
Do not have neighbor	1		1	
Friend Support				
Yes	4.99 (1.35 – 18.34)		5.53 (1.44 – 21.27)	****
No	6.67 (0.44 – 101.73)	0.115	5.19 (0.31 – 88.34)	****
Do not have friends	1		1	

Model adjusted by gender (men and women), age (in years), Schooling (Illiterate, less than 8 years, 8 years or more) and Household income (up to 2 MMS – minimum month salary; 2.1 to 6 MMS; 6 MMS or more). $p\text{-value}_{\text{model}} < 0.020$.

DISCUSSION

This study underscores that seniors do not have an interest to join formal activities and/or activities that demand much dedication. It is probably due to the lack of history of previous engagement to social movements making it difficult for them to do so in their older age. The seniors engaged in these social movements had, in most cases, a story of life as veterans.

Brazilian older adults seem to become more spontaneous with age in regards to the activities they choose as well as in the ways they express themselves. The data collected indicates this, showing that seniors participate in activities that they enjoy such as leisure activities and social groups. This has been supported by other research showing that the elderly prefer to be engaged in social activities where social support can be offered as the maintenance of a positive self-concept (Menec, 2003). Locher et al. (2005) also confirms the importance of social resources including a correlation between nutritional and social isolation where verified differences based on social support by Caucasian and African American seniors in the USA.

Recently, the number of social groups has gradually increased in Brazil (Mazo et al., 2005). This increase promotes interaction while the elderly, especially women, develop activities of leisure within the group. Members of these groups have the chance to participate in trips, parties and games, which are activities referred to by the elderly as positive. According to Motta et al. (2005), group leisure is an efficient resource in regard to the recovery of pleasures that were lost along their lifetime. It allows a change from an "inactive elderly to a dynamic elderly" rescuing the pleasure for meetings, dances and a stroll. The organization and functionality of the social groups in the neighbourhoods in Brazil began during the 90's, not only promoting its development but encouraging productive activities, while also stimulating the exercise of their citizenship and providing a better quality of life.

It seems that older adults are unsatisfied with some social resources available in the community such as the lack of city infrastructure (electric power, waste management, water supply, health services, public transportation etc), besides lack of investment of work for the youth or for expansion of leisure and sport centers.

Although it was confirmed, the relation between physical activity and engagement in social groups, the participation of seniors in social and physical activity must be stimulated. The social participation endorses a more active senior in the process of aging with a better quality of life as demonstrated by Mazo et al. (2005). A strong social participation along with diversified relations and exploration of social resources are very important factors in maintaining the senior's ability to function. Social support decreases the risk of compromising their functional activity while promoting their sense of protection and security especially for seniors over 80 years of age.

The present study highlights the fact that relationships with adult children were perceived as positive by most of the older adults in the study, reinforcing the closeness of Brazilian families. A study conducted by An et al. (2008) showed that older women living with married adult children had high self-esteem, high life satisfaction, and self-reported to be in good health. Some other studies about senior's social role involved in support networks demonstrate that they can contribute for the social support of families at the same time as they serve to support themselves. One example is an elderly woman from England that acts as a council member and helps the community and the families to maintain healthy habits (Boneham & Sixsmith, 2006). However, this co-relation needs to be supported by a value, efficient and reliable social resources. It is important to emphasize that social resources must be applied and developed according to characteristics of

seniors that live in the community. It needs to consider many aspects such as culture, social-economic situation, and agricultural or urban region as shown by the German research of Heyl, et al. (2005). The studies about the elderly population need to also reflect aspects of aging such as physical, psychological and social as well as the interaction between them.

CONCLUSIONS

The present study shows a strong association between social engagement and physical activity participation among older adults living in Brazil. The involvement of seniors in social activities remains very low, although their participation in groups has increased. Strategies must be developed to stimulate the development and participation of seniors in new groups, attentive to the fact that they must be organized in an active and democratic way aiming for older adults to experience personal growth. The work with senior engagement in social resources has proven that other types of groups are formed besides social ones like a physical activity group. Often social barriers are dismantled when the participation of the elderly is stimulated contributing to their acceptance and insertion in groups of physical activities. Social relation is the stimulant and main motivation to maintain the link between programs of physical activity and seniors.

The relation seems to be stimulated through social relationships at the same time it is consolidated by physical activity contributing to the development of social support networks. Others studies should deeply evaluate the association between seniors participation in physical activity groups and social relationships formed as the result, considering its high importance to the development of social support networks.

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REFERENCES

1. AN JY, AN K, O'CONNOR L, WEXLER S. Life Satisfaction, Self-Esteem, and Perceived Health Status Among Elder Korean Women: Focus on Living Arrangements. *J Transcult Nurs*. 2008; 19: 151-160. doi:[10.1177/1043659607313070](https://doi.org/10.1177/1043659607313070) [[Back to text](#)]
2. AVLUND K, LUND R, HOLSTEIN BE, DUE P. Social relations as determinant of onset of disability in aging. *Arch Gerontol Geriatr*. 2004; 38:85-99. doi:[10.1016/j.archger.2003.08.003](https://doi.org/10.1016/j.archger.2003.08.003) [[Back to text](#)]
3. BALTES MM, FREUND AM, HORGAS AL. Men and women in the Berlin Aging Study. In: PB Baltes, KU Mayer. *The Berlin Aging Study: aging from 70 to 100*. Cambridge: Cambridge University Press; 2001. [[Abstract](#)] [[Back to text](#)]
4. BENEDETTI TRB, ANTUNES PC, RODRIGUEZ-AÑEZ CR, MAZO GZ, PETROSKI EL. Reprodutibilidade e validade do questionário internacional de atividade física (IPAQ) em homens idosos. *Rev Bras Med Esporte*. 2007; 13(1):11-16. [[Full Text](#)] [[Back to text](#)]
5. BENEDETTI TRB, MAZO GZ, BARROS MVG. Aplicação do Questionário Internacional de Atividade Físicas para avaliação do nível de atividades físicas de mulheres idosas: validade concorrente e reprodutibilidade teste/reteste. *Rev Bras Ciên Mov*. 2004; 12(1):25-33. [[Full Text](#)] [[Back to text](#)]
6. BENEDETTI T.B, PETROSKI EL, GONÇALVES LT. *Perfil do Idoso*. Santa Maria: Editora Palloti; 2004. [[Back to text](#)]

7. BONEHAM MA, SIXSMITH JA. The voices of older woman in disadvantaged community: Issues of health and social capital. *Soc Sci Med*. 2006; 62:269-279. doi:10.1016/j.socscimed.2005.06.003 [Back to text]
8. CALERO-GARCÍA MD, NAVARRO-GONZÁLEZ E, MUÑOZ-MANZANO L. Influence of level of activity on cognitive performance and cognitive plasticity in elderly persons. *Arch Gerontol Geriatr*. 2007; 45:307-318. doi:10.1016/j.archger.2007.01.061 [Back to text]
9. CRAIG CL, MARSHALL AL, SJOSTROM M, BAUMAN A E, BOOTH ML, AINSWORTH BE, PRATT M, EKELUND ULF, YNGVE A, SALLIS JF, OJA P. International Physical Activity Questionnaire: 12-Country Reliability and Validity. *Med Sci Sports Exer*. 2003; 35(8):1381-1395. [Abstract] [Back to text]
10. CHIPPERFIELD JG, NEWALL NE, CHUCHMACH LP, SWIFT AV, HAYNES TL. Differential determinants of men's and women's of everyday physical activity in later life. *J Gerontol B Psychol Sci Soc Sci*. 2008; 63:S211-S218. [Abstract] [Back to text]
11. COUTURE M, LARIVIÈRE N, LEFRANÇOIS R. Psychological distress in older adults with low functional independence: a multidimensional perspective. *Arch Gerontol Geriatr*. 2005; 41:101-111. doi:10.1016/j.archger.2004.12.004 [Back to text]
12. FONTAINE R. Le maintien d'un engagement social, condition d'une viellisse réussie. In: R Fontaine. *Manuel de Psychologie du Vieillissement*. 1999. [Back to text]
13. HEYL V, WAHL RH, MOLLENKOPF H. Vision, out-of-home activities, and emotional well-being in old age: macro-contexts make a difference? *International Congress Series*. 2005; 1282:147-151. doi:10.1016/j.ics.2005.04.034 [Back to text]
14. IBGE. Pesquisa Nacional por Amostra de Domicílios. Síntese de Indicadores, 2007. Rio de Janeiro, 2008. Disponível em: <http://www.ibge.gov.br/home/estatistica/populacao/trabalhoerendimento/pnad2007/sintese_pnad2007.pdf>. Acesso em: 29 set. 2008. [Abstract] [Full Text] [Back to text]
15. KAPLAN MS, NEWSOM JT, MCFARLAND BH, LEINING L. Demographic and psychosocial correlates of physical activity in late life. *Am J Prev Med*. 2001; 21(4):306-312. [Abstract] [Back to text]
16. LIN Y, HUANG L, YOUNG HM. Beliefs about physical activity: focus group results of Chinese community elderly in Seattle and Taipei. *Geriatric Nursing*. 2007; 28(4):236-244. doi:10.1016/j.gerinurse.2006.12.003 [Back to text]
17. LOCHER JL, RITCHIE CS, ROTH DL, BAKER PS, BODNER EV, ALLMAN RM. Social isolation, support, and capital and nutritional in an older sample: ethnic and gender differences. *Soc Sci Med*. 2005; 60:747-761. [Full Text] [Back to text]
18. MARSHAL A, BAUMAN A. The International Physical Activity Questionnaire: Summary Report of the Reliability & Validity Studies. *IPAQ Executive Committee*. 2001. [Full Text] [Back to text]
19. MAZO GZ, MOTA J, GONÇALVES LHT, MATOS MG. Nível de atividade física, condições de saúde e características sócio-demográficas de mulheres idosas brasileiras. *Rev Port Cien Desp*. 2005; 2(V):202-212. [Abstract] [Back to text]
20. MENEZ V. The relation between everyday activities and successful aging: a 6 –years longitudinal study. *J Gerontol*. 2003; 58B(2):S74-82. [Abstract] [Back to text]
21. MILLER B, TOWNSEND A, CARPENTER E, MONTGOMERY RVJ, STULL D, YOUNG R. Social support and caregiver distress: a replication analysis. *J Gerontol B Psychol Sci Soc Sci*. 2001; 56B:S249-S256. [Abstract] [Back to text]
22. MOTTA M, BENNATI E, FERLITO L, MALAGUARNERA M, MOTTA L. Successful aging in centenarians: myths and reality. *Arch Gerontol Geriatr*. 2005; 40:241-251. doi:10.1016/j.archger.2004.09.002 [Back to text]

23. NORONHA KVMS, ANDRADE MV. Desigualdades sociais em saúde e na utilização dos serviços de saúde entre os idosos na América Latina. *Rev Panam Salud Publica*. 2005; 17(5/6):410–418. [[Full Text](#)] [[Back to text](#)]
24. PIERCE GR, SARASON BR, SARASON IG, JOSEPH HJ, HENDERSON CA. Conceptualizing and Assessing Social Support in the Context of the Family. In: GR Pierce, BR Sarason, GI Sarason. *Handbook of Social Support and the Family*. New York: Plenum Press; 1996. [[Abstract](#)] [[Full Text](#)] [[Back to text](#)]
25. VERAS RP, DUTRA S. (2001). Questionário BOAS (Brazil Old Age Schedule) versão 2000. Retrieved January 15, 207. [<http://www.unati.uerj.br>]. [[Abstract](#)] [[Full Text](#)] [[Back to text](#)]
26. VERAS RP. *País jovem com cabelos brancos*. Rio de Janeiro: Relume Dumará; 1994. [[Abstract](#)] [[Full Text](#)] [[Back to text](#)]
27. VERAS R, DUTR S, SOUZA CAM, MILIOLI R, VENTURA F. Proposta metodológica para inquérito domiciliar com populações idosas em um centro urbano do estado do Rio de Janeiro (Brasil). *Rev Saúde Pública*. 1989; 23:429-438. [[Full Text](#)] [[Back to text](#)]
28. WAGNER M, SCHÜTZE Y, LANG FR. Social Relationships in Old Age. In: PB Baltes, KU Mayer. *The Berlin Aging Study: aging from 70 to 100*. Cambridge: Cambridge University Press; 2001. [[Abstract](#)] [[Back to text](#)]