A longitudinal study of the association between social capital and mortality in community-dwelling elderly Brazilians

Um estudo longitudinal da associação do capital social e mortalidade entre idosos brasileiros residentes em comunidade

Un estudio longitudinal sobre la asociación del capital social y mortalidad entre ancianos brasileños residentes en comunidades

Cristina Franco Gontijo [1]
Josélia Oliveira Araújo Firmo [1]
Maria Fernanda Lima-Costa [1]
Antônio Ignácio de Loyola Filho [1]

Abstract

The aim of this study was to verify whether social capital is a predictor of all-cause mortality in community-dwelling elderly Brazilians. Participation included 935 surviving elderly from the elderly cohort of the Bambui Project in 2004, who were followed until 2011. The outcome was all-cause mortality and the exposure of interest was social capital, measured in its two components, cognitive (social cohesion and social support) and structural (social participation and neighborhood satisfaction). Sociodemographic variables, health conditions, and smoking were included in the analysis for adjustment purposes. Data analysis was based on the Cox proportional hazards model, providing hazard ratios (HR) and 95% confidence intervals (95%CI). The social participation dimension of social capital's structural component was the only dimension independently associated with mortality: elderly Brazilians that did not participate in social groups or associations showed a two-fold higher risk of death (HR = 2.28; 95%CI: 1.49-3.49) compared to their peers. The study's results reveal the need to extend interventions beyond the specific field of health in order to promote longevity, focusing on environmental and social characteristics.

Social Capital; Mortality; Aged; Social Participation; Cohort Studies

Correspondence
A. I. Loyola Filho
Núcleo de Estudos em Saúde Pública e Envelhecimento, Instituto René Rachou, Fundação Oswaldo Cruz.
Av. Augusto de Lima 1715, 6º andar, Belo Horizonte, MG 30190-003, Brasil.
aloy@cpqrr.fiocruz.br

[1] *Instituto René Rachou, Fundação Oswaldo Cruz, Belo Horizonte, Brasil.*

Introduction

The notion that social relations and participation in groups have positive consequences on the individual and community is based on the idea that social interactions create networks, encourage trust, influence the formation of values, support norms and culture, and foster a sense of community [1]. Social capital emerges in this context, defined as an accessible resource for individuals based on their social networks [2]. Organized society has networks and norms that can improve its efficiency and facilitate coordinated actions that are beneficial for a social group's members [3].

The operationalization of social capital frequently considers two components, namely cognitive and structural. Cognitive social capital relates to individuals' perception of the level of interpersonal trust and satisfaction with relationships and the ways that norms of reciprocity (solidarity and social control) are established through contact within the social group. Meanwhile, structural social capital refers to individuals' externally observable behaviors and participatory activities within the social group, for example, neighborhood satisfaction and patterns of civic engagement [4,5].

The existence of a relationship between social capital and health has sparked the scientific community's curiosity for some time. Kawachi et al. [6], from a quantitative perspective, were the first to demonstrate the relations between social capital and health, in an ecological study of the U.S. adult population (≥ 18 years). They hypothesized that social capital played an important mediating role in the relationship between economic inequality and mortality (both all-cause and cause-specific). The authors concluded that the effect of socioeconomic inequality on mortality occurred through the lack of investment in social capital [6]. Since then, research on the subject has increased considerably, not limited to mortality [2].

In Brazil, recent research on this relationship (between social capital and health) has addressed a wide range of topics, including health behaviors [7], functional incapacity [8], oral health [9], mental health [10], and self-rated health [11], to mention a few. However, Brazilian studies on the role of social capital in predicting mortality are still incipient. As far as we know, only one study has been performed for this purpose, with 846 adults (≥ 18 years) living in a medium-sized city in the South of Brazil. The study showed a contextual effect (but not individual) from social capital on all-cause mortality. Adults with low social activity (low active engagement in seeking neighborhood improvements) had a higher overall risk of death [12]. We did not identify any Brazilian study that investigated this association specifically in the elderly.

In the current study, longitudinal data from the Bambuí Project elderly cohort were used to verify whether social capital was a predictor of all-cause mortality in this group of community-dwelling elderly Brazilians.

Methods

Study area and population

The Bambuí Project (The Bambuí Cohort Study of Aging) is a longitudinal population-based study developed in the city of Bambuí, Minas Gerais State, Southeast Brazil. When the project began, the city had 15,000 inhabitants, with a history of demographic stability in the three decades preceding the study (1970s to 1990s). Bambuí had a Human Development Index (HDI) of 0.74, with predominantly low schooling and low per capita income. The leading causes of death were stroke, Chagas disease, ischemic heart disease, and chronic obstructive pulmonary disease (COPD). The city's demographic stability (potentially minimizing the study's attrition rate), sociodemographic characteristics, and mortality profile, plus the population's familiarity with studies on Chagas disease (a facilitator for the residents' collaboration) were key criteria for choosing the study area [13].

The cohort's baseline was created in 1997, and participants were identified through a complete census of the municipality conducted by the project team. All residents sixty years or older as of January 1st, 1997 (n = 1,742), were invited to participate in the study, and 1,606 (92.2%) constituted the baseline cohort. Participants were followed yearly from 1997 to 2011 for the data collection and verification of vital status.

In the Bambuí Project, a more comprehensive measure of social capital was only introduced starting in the seventh wave (2004), so an eligibility criterion for the current study was elderly that were surviving as of that wave, for whom it was possible to obtain complete information on all the target items in social capital.

Study variables

At all the waves (2004-2011), each participant's vital status was verified and the surviving individuals were interviewed at home through a standardized questionnaire applied by interviewers and health technicians trained by the Bambuí Project research team [13].

Mortality in the elderly was defined as deaths from all causes that occurred from January 1st, 2004, to December 31st, 2011. Deaths were reported by the closest family respondent during the annual follow-up and confirmed in the Ministry of Health's Mortality Information System. The target exposure variable was "social capital", measured at baseline (in 2004) in its two components, cognitive and structural.

The cognitive component included the dimensions of social cohesion and social support. Social cohesion was measured with four questions: (1) "Do your neighbors help each other?"; (2) "Do you believe you can trust most people?"; (3) "Do you think people would take advantage of you if they could?"; and (4) "All things considered, how do you feel about your social relations?". The first three questions allowed yes/no answers, while the answer to the fourth question had to do with the degree of satisfaction with personal relations (very dissatisfied; dissatisfied; indifferent; satisfied; very satisfied). At least one negative answer to the first three questions or a report of being indifferent/dissatisfied/very dissatisfied with one's social relations indicated low social cohesion.

The social support dimension referred to the existence of one or more persons to whom the interviewee felt close, could trust, and from whom the interviewee could obtain support, including relatives and friends. Four questions were used: (1) "In the last twelve months, has this person offered you useful information, suggestions, and orientation?"; (2) "In the last twelve months, could you count on this person (was this person present when you needed him or her)?"; (3) "In the last twelve months, have you confided in this person?"; and (4) "In the last twelve months, has this person talked with you about his or her problems?". All four questions had dichotomous yes/no answers, and a negative answer to at least one of the questions was defined as low social support.

The structural component of social capital consisted of the dimensions of social participation and neighborhood satisfaction. Social participation was verified with two questions in the questionnaire: (1) "Do you have friends, acquaintances, or neighbors that visit you or that you visit?", considering the frequency (at least once a month) with which these visits occurred; and (2) "Do you belong to any association or social group?", with a yes/no answer. An elderly individual that reported fewer than one visit per month and/or that answered no to the question on belonging to an association or social group was classified as having low social participation.

The other dimension investigated in structural social capital was neighborhood satisfaction, assessed by yes/no answers to four questions: (1) "Do you feel comfortable in the neighborhood or block where you live, that is, do you feel at home?"; (2) "Is your neighborhood or block a good place to live?"; (3) "Do you like your neighborhood and your home?"; and (4) "Would you like to move away from where you live?". A negative answer to at least one of the first three questions and/or a positive answer to the fourth question indicated low social capital in this dimension.

Sociodemographic variables, health conditions, and smoking were used for adjustment purposes in assessing the association between social capital and mortality. Sociodemographic characteristics included sex, age (continuous), schooling (none; 1-3 years; 4-7; and ≥ 8 years), and marital status (married/cohabiting; widow(er); single/divorced). The health-related variables were self-rated health (very good/good; fair; bad/very bad) and functional disability (for instrumental activities of daily living-IADL and basic activities of daily living-BADL). Functional disability included three categories: independent, disable of IADL, and disable of BADL, and the individual was considered disable when he or she reported great difficulty or impossibility of performing at least one IADL or BADL for smoking, participants were classified as "non-smokers" (never smoked), "former smokers" (already smoked at least 100 cigarettes in life and not currently smoking), and "smokers" (already smoked at least 100 cigarettes in life and currently smoking).

Data analysis

The distribution of social capital and covariables in the total population was analyzed by means of relative frequencies. Mortality rates per 1,000 person-years were calculated. Censures occurred due to losses to follow-up and at the closing of follow-up in late 2011. Kaplan-Meier survival curves were used to describe the participants' survival as a function of each of the dimensions investigated in social capital. The analysis of social capital as a predictor of mortality was based on the Cox proportional hazards model, providing hazard ratios (HR) and 95% confidence intervals (95%CI) with verification of the assumption of proportional hazards (Schoenfeld residuals analysis). Sequential analyses were used, with variables introduced in blocks in the following order: (1) multiple model, with mutual adjustment of the dimensions of social capital; (2) addition of the sociodemographic variables; and (3) addition of the descriptor variables for health status and smoking. No statistical criterion was considered in the inclusion of variables in the multivariate models. Level of significance was set at 5%, and all the statistical analyses used the Stata package, version 13 (https://www.stata.com).

Ethical aspects

The original study in the Bambuí Project was approved by the Ethics Research Committee of the Oswaldo Cruz Foundation (Fiocruz) in Rio de Janeiro. Procedures not described in the initial project were reviewed and approved by the Ethics Research Committee of the René Rachou Research Center in Belo Horizonte, Minas Gerais State. Participants signed a free and informed consent form at the beginning of the project and at each subsequent visit, and family members authorized the verification of death certificates and medical records.

Results

A total of 1,084 survivors of the Bambuí elderly cohort were identified at the 2004 follow-up and were considered eligible for the study. The elderly included in this study were those that provided complete information on all the target variables (n = 935). The proportion of deaths was significantly higher (p < 0.05) among the individuals excluded from the study (n = 149). Compared to participants, the excluded individuals were older on average, with a significantly higher proportion of single and divorced individuals and functional disability for IADL and BADL, while smoking was less frequent among them (p < 0.05).

From 2004 to 2011 (the follow-up period), the mortality rate was 51/1,000 person-years (95%CI: 45.7-57.0). Over the course of the study, there were 60 (6.4%) censures due to losses, and at the end, 619 elderly (66.2%) were survivors (administrative censure). Table 1 presents the study population's characteristics and mortality rates per 1,000 person-years. The majority of the study population were females (64.3%), with ages from 67 to 74 years (58.7%), low education (51.9% had fewer than four years of schooling), and not married (58.8%). As for health-related variables, 13.6% rated their own health negatively; the majority of the participants (64.8%) had never smoked. Mortality rates were higher in men, increased with age, decreased with schooling, and were lower among married individuals. Participants with worse health conditions showed higher mortality rates, as did smokers (compared to former smokers and non-smokers) (Table 1).

Table 2 shows the study population's distribution and mortality rates according to the dimensions of social capital. Neighborhood satisfaction was the only dimension in which the majority of the participants (86%) displayed better social capital; in the other dimensions, elderly with worse social capital constituted the majority. Mortality rates were higher among the elderly with low social cohesion (55.2/1,000 person-years) and low social participation (58.3/1,000 person-years). On the other hand, participants that were satisfied with their neighborhood (51.7/1,000 person-years) and had social support (51.9/1,000 person-years) showed higher mortality rates than their peers. Figure 1 displays the results of the Kaplan-Meier survival curve for each of the four dimensions of social capital. Over the course of follow-up, survival was higher in the elderly with social participation when compared to the other dimensions (social cohesion, social support, and neighborhood satisfaction). Among the

Table 1

Distribution of the study population and mortality rates (per 1,000 person-years). Bambuí Project, Minas Gerais State, Brazil, 2004-2011.

Variables	Total population	Total deaths/Total person-years	Mortality rate/1,000 person-years (95%CI)
Sex			
Male	35.7	131/2,101.4	62.3 (52.5-74.0)
Female	64.3	185/4,093.0	45.2 (39.1-52.2)
Age (years)			
67-74	58.7	136/3,877.5	35.1 (29.6-41.5)
75-79	21.7	78/1,290.3	60.5 (48.4-75.5)
≥ 80	19.6	102/1,026.6	99.4 (81.8-120.6)
Schooling (years)			
None	27.9	101/1,714.8	58.9 (48.5-71.6)
1-3	34.0	107/2,124.6	50.4 (41.7-60.9)
4-7	29.4	83/1,815.7	45.7 (36.9-56.7)
≥ 8	8.7	25/539.3	46.4 (31.3-68.6)
Marital status			
Married/Living together	41.2	118/2,588.9	45.6 (38.1-54.6)
Widow(er)	47.3	160/2,907.2	55.0 (47.1-64.3)
Singe/Divorce	11.5	38/698.3	54.4 (39.6-74.8)
Self-rated health			
Very good/Good	40.1	94/2,613.0	36.0 (29.4-44.0)
Fair	46.3	162/2,817.4	57.5 (49.3-67.1)
Bad/Very bad	13.6	60/764.0	78.5 (61.0-101.1)
Functional incapacity			
No	76.3	191/4,918.5	38.8 (33.7-44.7)
Yes for IADL	13.9	77/715.8	107.6 (86.0-134.5)
Yes BADL	9.9	45/538.2	83.6 (62.4-112.0)
Smoking			
Never smoked	64.8	171/4,156.7	41.1 (35.4-47.8)
Former smoker	24.8	93/1,439.7	64.6 (52.7-79.2)
Current smoker	10.4	52/590.0	88.1 (67.2-115.7)

95%CI: 95% confidence interval; BADL: basic activities of daily living; IADL: for instrumental activities of daily living.

Note: the analysis included 935 elderly with complete information for all the study variables.

elderly with a positive assessment in the dimensions of social support and neighborhood satisfaction, 75% survived for six years, while among those with high social cohesion this same proportion of survivors was seen at seven years, and among the elderly with social participation, 85% were surviving at the end of the study (eight years).

Table 3 shows the results of the univariate and multivariate analyses of the association between social capital and mortality. The only dimension of social capital independently associated with mortality was social participation: elderly that did not participate in social groups or associations showed a more than two-fold higher risk of death (HR = 2.28; 95%CI: 1.49-3.49) compared to the elderly with social participation, after adjusting for the other dimensions of social capital and all the study's covariables.

Table 2

Distribution of study population according to dimensions of social capital and mortality rates (per 1,000 person-years). Bambuí Project, Minas Gerais State, Brazil, 2004-2011.

Variables	Total population	Total deaths/Total person-years	Mortality rate/1,000 person-years (95%CI)
Social cohesion			
High	27.9	73/1.795.8	40.6 (32.3-51.1)
Low	72.1	243/4.398.6	55.2 (48.7-62.6)
Social support			
Yes	41.1	134/2.583.0	51.9 (43.8-61.4)
No	58.9	182/3.611.4	50.4 (43.6-58.3)
Social participation			
Yes	17.4	24/1.189.5	20.2 (13.5-30.1)
No	82.6	292/5.004.9	58.3 (52.0-65.4)
Neighborhood satisfaction			
Yes	86.0	275/5.322.8	51.7 (45.9-58.1)
No	14.0	41/871.6	47.0 (34.6-63.9)

95%CI: 95% confidence interval.

Note: the analysis included 935 elderly with complete information for all the study variables.

Figure 1

Kaplan-Meier survival curve for the different dimensions of social capital. Bambuí Project, Minas Gerais, Brazil, 2004-2011.
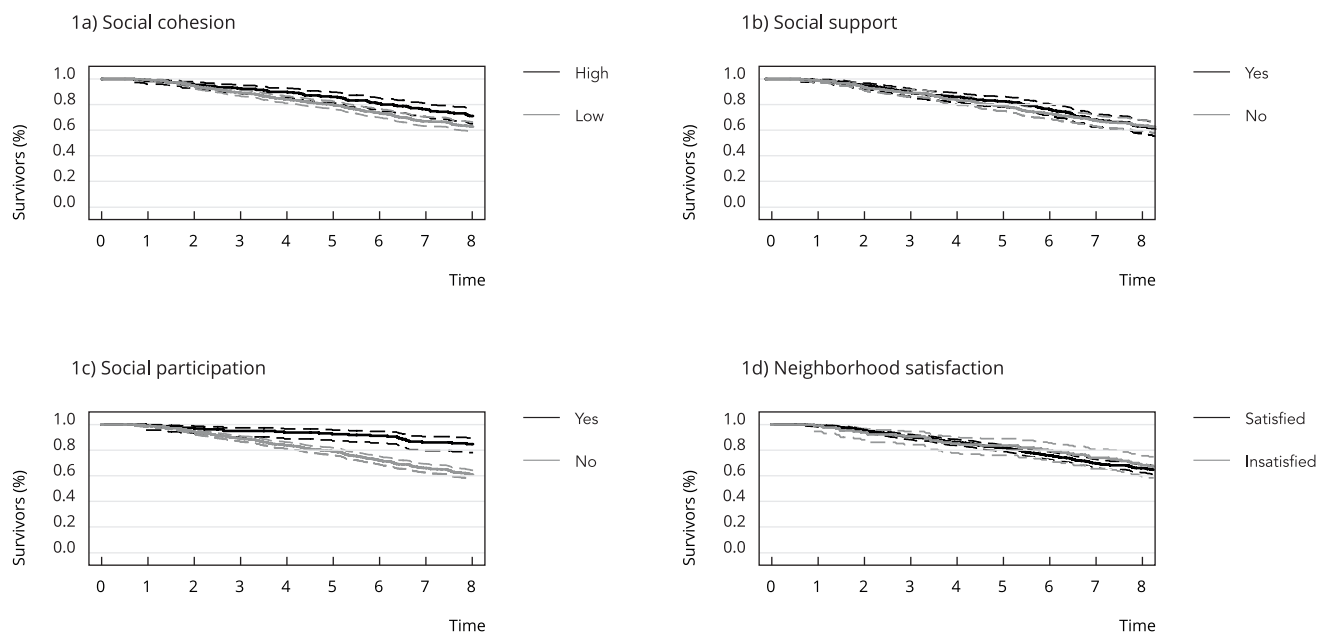
Table 3

Hazard ratios (HR) and 95% confidence intervals (95%CI) for the association between social capital and mortality. Bambuí Project, Minas Gerais, Brazil, 2004-2011.

Variables	Crude HR (95%CI)	HR (95%CI) Model 1	HR (95%CI) Model 2	HR (95%CI) Model 3
Social cohesion				
High	1.00	1.00	1.00	1.00
Low	1.38 (1.06-1.80)	1.30 (1.00-1.70)	1.26 (0.96-1.65)	1.13 (0.86-1.48)
Social support				
Yes	1.00	1.00	1.00	1.00
No	0.98 (0.78-1.22)	1.03 (0.82-1.30)	1.02 (0.81-1.28)	0.98 (0.78-1.24)
Social participation				
Yes	1.00	1.00	1.00	1.00
No	3.00 (1.98-4.55)	2.93 (1.93-4.45)	2.85 (1.87-4.34)	2.28 (1.49-3.49)
Neighborhood satisfaction				
Yes	1.00	1.00	1.00	1.00
No	0.91 (0.65-1.26)	0.83 (0.60-1.17)	0.90 (0.64-1.26)	0.92 (0.65-1.29)

Note: the analysis included 935 elderly with complete information for all the study variables.

Model 1 = neighborhood satisfaction + social cohesion + social support + social participation;

Model 2 = Model 1 + sex + age + schooling + marital status;

Model 3 = Model 2 + self-rated health + incapacity + smoking.

Discussion

As far as we know, this was the first Brazilian study to investigate the association between social capital and mortality exclusively in the elderly. According to the results, only the structural component of social capital (in the dimension of social participation) proved to be a predictor of mortality. None of the dimensions of social capital's cognitive component was associated with mortality. Even after multiple adjustment for other explanatory variables, social participation remained associated with all-cause mortality. Elderly individuals that did not participate in social groups or associations or that did not have friends, acquaintances, or neighbors that visited them or whom they visited at least once a month showed a risk of death more than twice as high as their peers.

Findings on the association between social capital and mortality in the elderly are controversial. Our results are in line with some studies that have observed a longitudinal association between social participation and mortality [14,15,16], but differ from other studies that did not detect such an association [17]. However, direct comparison of the results is hindered by methodological issues linked to the way social capital is measured and the analytical strategies adopted by the various studies. Among Swedish elderly, for example, social capital is assessed according to a single item (civic involvement), measured at the aggregate level (voting rate in the participant's residential area). Elderly Swedes with lower social capital showed higher risk of death [14]. Meanwhile, in Bambuí we measured social capital at the individual level, which is better for capturing this resource's multidimensional nature by including its different dimensions, besides minimizing potential confounding by considering subjective and objective health conditions in the adjustment, which was not done in the Swedish study.

In Asian studies, the associations between social participation and mortality were observed within the gender strata. In Japan [15], lower frequency of visits to and from friends was associated with higher risk of death in men, and lack of friendships increased the risk of death in women. In Taiwan [16], elderly women with less participation in religious groups showed higher risk of death. In our study, the association was seen in the entire elderly population, but we not stratified the analysis by sex.

Unlike our study, among elderly Danes [17], social capital and mortality were not associated with each other. However, in this Danish study, social capital was measured by scores, using the answers

to a set of items in the structural component. Our study used a measure with greater discriminatory power (where measurement reached the dimensions of social capital), but more sensitive: the answer to a single item was sufficient to classify social capital negatively. Besides, in the Danish study, the social capital score assigned to the participant was that calculated for the person's municipality of residence, while in Bambuí we used the individual-level measures.

In our study, only one dimension of the cognitive component of social capital (social cohesion) was associated with mortality, but only when analyzed individually. Elderly with lower social cohesion showed higher all-cause risk of death. When the other measures of social capital were considered (adjusted model 1), the association lost significance. Separate analyses showed that the loss of statistical significance occurred when adjustment was made by social participation. It is possible that in this population the measures of social cohesion and social participation were intertwined in some way. Our measures of social cohesion involved perception of trust and solidarity between members of the social group and degree of satisfaction with personal relationships. Such aspects are probably considered at the time of joining, remaining in, or leaving community groups or associations. Our results showed that in this population, social participation was a more important predictor of mortality than social cohesion.

A more direct explanation for the association between social capital and mortality does not appear simple. The most plausible explanation is that social capital affects mortality indirectly via its impact on health, mediated by a series of psychosocial [11] and economic components [6] that can vary between populations. Social capital is linked to health by various mechanisms. Social capital fosters the adoption of healthy behaviors and promotes social control over deviant behaviors, enhances greater access to health services, mitigates the effects of mental distress, and promotes more egalitarian standards of political participation, with positive results for the implementation of public policies targeting the community good [15]. In relation to social participation specifically, the health benefits are related to belonging to a given group, by increasing access to health-related information and reducing stress and the role the individual acquires or exercises in society, reinforcing their life's meaning and value [18]. Some authors have even conjectured that social participation can have physiological consequences by reducing known biomarkers for diseases, such as inflammation [19].

The current study has some limitations and strengths. One limitation is the fact that the measures of target exposure (social capital) were limited to the baseline, which did not allow detecting possible changes in exposure status over time. This was because social capital was not measured the same way in the subsequent follow-up waves. In addition, differential losses in relation to the event and some target characteristics may have altered our results. Finally, it is difficult to generalize our results to the entire elderly population in the same age bracket and residing at the time in Bambuí, since the study population consisted of survivors (in 2004) from the elderly cohort formed in 1997.

The study's strengths feature its use of measures that allowed producing more refined results at the level of the different dimensions of social capital's structural and cognitive components. This is an advantage over studies that have considered a single aspect of social capital or its overall definition, without distinguishing between its components/dimensions. It was thus possible for our study to detect the specificities that link the different dimensions of social capital to mortality. Another strength was the study's longitudinal design, which allows elucidating temporal relations between the exposure and event. Finally, the study is unique in that there were no previous Brazilian studies on this association specifically in the elderly.

According to our findings, social capital in this population was an independent predictor of mortality, although limited to its structural component. The study highlights the need for health services to focus heavily on promoting activities that encourage or enhance social capital in the elderly as a way of extending their longevity. Thus, interventions to reduce all-cause mortality should be expanded beyond the specific field of health, also addressing environmental and social characteristics that in some way help improve quality of life and health for the elderly.

Contributors

C. F. Gontijo participated in all stages of the study, including the conception, data analysis and interpretation, writing of the manuscript, and critical revision of the final version. J. O. A. Firmo participated in the data analysis, interpretation of the results, and critical revision of the final version. M. F. Lima-Costa participated in the study's conception, data collection, and critical revision of the manuscript. A. I. Loyola Filho participated in all stages of the study, including the conception, data analysis and interpretation, writing of the manuscript, and critical revision of the final version.

Additonal informations

ORCID: Cristina Franco Gontijo (0000-0002-8111-5322); Josélia Oliveira Araújo Firmo (0000-0002-3264-9627); Maria Fernanda Lima-Costa (0000-0002-3474-2980); Antônio Ignácio de Loyola Filho (0000-0002-7317-3477).

References

1. Poder T. What is really social capital? A critical review. Am Sociol 2011; 42:341-67.
2. Moore S, Kawachi I. Twenty years of social capital and health research: a glossary. J Epidemiol Community Health 2017; 71:513-7.
3. Putnam RD. The prosperous community: social capital and public life. Am Prospect 1993; 13:35-42.
4. Villalonga-Olives E, Kawachi I. The measurement of social capital. Gac Sanit 2015; 29:62-4.
5. Rostila M. The facets of social capital. J Theory Soc Behav 2010; 41:308-26.
6. Kawachi I, Kennedy BP, Lochner K, Prothrow-Stith D. Social capital, income inequality and mortality. Am J Public Health 1997; 87:1491-8.
7. Martins JG, Paiva HN, Paiva PCP, Ferreira RC, Pordeus IA, Zarzar PM, et al. New evidence about the "dark side" of social cohesion in promoting binge drinking among adolescents. PLoS One 2017; 12:e0178652.
8. Gontijo CF, Mambrini JVM, Luz TCB, Loyola Filho AI. Associação entre incapacidade funcional e capital social em idosos residentes em comunidade. Rev Bras Epidemiol 2016; 19:471-83.
9. Tomazoni F, Vettore MV, Zanatta FB, Tuchtenhagen S, Moreira CH, Ardenghi TM. The associations of socioeconomic status and social capital with gingival bleeding among schoolchildren. J Public Health Dent 2017; 77:21-9.
10. Pattussi MP, Olinto MT, Canuto R, Silva Garcez A, Paniz VM, Kawachi I. Workplace social capital, mental health and health behaviors among Brazilian female workers. Soc Psychiatry Psychiatr Epidemiol 2016; 51:1321-30.
11. Loch MR, Souza RKT, Mesas AE, González AD, Rodriguez-Artalejo F. Association between social capital and self-perception of health in Brazilian adults. Rev Saúde Pública 2015; 49:53.
12. Pattussi MP, Anselmo Olinto MT, Rower HB, Souza de Bairros F, Kawachi I. Individual and neighbourhood social capital and all-cause mortality in Brazilian adults: a prospective multilevel study. Public Health 2016; 134:3-11.
13. Lima-Costa MF, Firmo JOA, Uchôa E. The Bambuí Cohort Study of Aging: methodology and health profile of participants at baseline. Cad Saúde Pública 2011; 27 Suppl 3:S327-35.
14. Sundquist K, Hamano T, Li X, Kawakami N, Shiwaku K, Sundquist J. Linking social capital and mortality in the elderly: a Swedish national cohort study. Exp Gerontol 2014; 55:29-36.
15. Aida J, Kondo K, Hirai H, Subramanian SV, Murata C, Kondo N, et al. Assessing the association between all-cause mortality and multiple aspects of individual social capital among the older Japanese. BMC Public Health 2011; 11:499.
16. Hsu HC. Does social participation by the elderly reduce mortality and cognitive impairment? Aging Ment Health 2007; 11:699-707.
17. Poulsen T, Siersma VD, Lund R, Christensen U, Vass M, Avlund K. Impact of social capital on 8-year mortality among older people in 34 Danish municipalities. J Aging Health 2012; 24:1203-22.
18. Tomioka K, Kurumatani N, Hosoi H. Social participation and the prevention of decline in effectance among community-dwelling elderly: a population-based cohort study. PLoS One 2015; 10:e0139065.
19. Glei DA, Goldman N, Ryff CD, Lin YH, Weinstein M. Social relationships and inflammatory markers: an analysis of Taiwan and the U.S. Soc Sci Med 2012; 74:1891-9.

Resumo

O objetivo do estudo foi verificar se o capital social seria um preditor da mortalidade por todas as causas entre idosos brasileiros residentes em comunidade. Participaram 935 idosos sobreviventes da coorte idosa do Projeto Bambuí em 2004, que foram acompanhados até 2011. O desfecho foi a mortalidade por todas as causas e a exposição de interesse foi o capital social, mensurado em seus dois componentes, o cognitivo (coesão social e o suporte social) e estrutural (participação social e satisfação com a vizinhança). Variáveis sociodemográficas, de condições de saúde e tabagismo foram incluídas na análise para o propósito de ajuste. A análise dos dados baseou-se no modelo dos riscos proporcionais de Cox, que fornece hazard ratios *(HR) e intervalos de 95% de confiança (IC95%). O componente estrutural do capital social, na dimensão da participação social, foi o único independentemente associado à mortalidade: os idosos que não participavam de grupos sociais ou associações apresentaram um risco de morte duas vezes maior (HR = 2,28; IC95%: 1,49-3,49) que suas contrapartes. Os resultados desta investigação evidenciam a necessidade de estender as intervenções direcionadas à promoção da longevidade para além do campo específico de atuação da saúde, voltando-se também para características ambientais e sociais.*

Capital Social; Mortalidade; Idoso; Participação Social; Estudos de Coorte

Resumen

El objetivo del estudio fue verificar si el capital social sería un predictor de la mortalidad por todas las causas entre ancianos brasileños residentes en comunidades. Participaron 935 ancianos, supervivientes de la cohorte de ancianos del Proyecto Bambuí en 2004, a quienes se les realizó un seguimiento hasta 2011. El desenlace fue la mortalidad por todas las causas y la exposición de interés fue el capital social, medido en sus dos componentes, el cognitivo (cohesión social y apoyo social) y el estructural (participación social y satisfacción con el vecindario). Las variables sociodemográficas, de condiciones de salud, el tabaquismo, se incluyeron en el análisis para el propósito de ajuste. El análisis de los datos se basó en el modelo de riesgos proporcionales de Cox, que proporciona hazard ratios *(HR) e intervalos de 95% de confianza (IC95%). El componente estructural del capital social, en su dimensión de la participación social, fue el único independientemente asociado a la mortalidad: los ancianos que no participaban en grupos sociales o asociaciones presentaron un riesgo de muerte dos veces mayor (HR = 2,28; IC95%: 1,49-3,49) que sus contrapartes. Los resultados de esta investigación evidencian la necesidad de extender las intervenciones dirigidas a la promoción de la longevidad hacia más allá del campo específico de actuación de la salud, dirigiéndose también hacia características ambientales y sociales.*

Capital Social; Mortalidad; Anciano; Participación Social; Estudios de Cohortes