

Article

Social Capital and Self-Rated Health among Older Adults Living in Urban China: A Mediation Model

Nan Lu ^{1,2}  and Jingyue Zhang ^{3,4,*}

¹ Department of Social Work and Social Policy, School of Sociology and Population Studies, Renmin University of China, Beijing 100872, China; nalv9728@ruc.edu.cn or lunan@connect.hku.hk

² Sau Po Centre on Ageing, The University of Hong Kong, Hong Kong

³ Department of Sociology, School of Philosophy and Sociology, Jilin University, Changchun 130012, China

⁴ Institute of Gender and Culture, Changchun Normal University, Changchun 130052, China

* Correspondence: zjyz13@mails.jlu.edu.cn or zhangjingyue@mail.cncnc.edu.cn

Received: 25 August 2019; Accepted: 2 October 2019; Published: 10 October 2019



Abstract: Social capital and healthy aging are both crucial for social sustainability in China. The present study tested the role of structural social capital in self-rated health among older urban Chinese adults and the influence of cognitive social capital on this relationship. A sample of 456 older adults aged 60 or older in Suzhou, China, were recruited and completed the survey in 2015. Structural equation modeling was used to test the proposed model. Cognitive social capital had larger effects on self-rated health than structural social capital. The relationship between structural social capital and self-rated health was fully mediated by cognitive social capital, when sociodemographic characteristics, socioeconomic status, physical health conditions, and living arrangements were controlled. The culturally sensitive latent construct of community-based social capital proved to be a valid instrument in urban Chinese contexts. Structural social capital likely indirectly affects self-rated health through cognitive social capital. Policy and intervention implications are discussed.

Keywords: structural social capital; cognitive social capital; self-rated health

1. Introduction

China has experienced rapid population aging in the past few decades. The Chinese population aged 65 or older reached 158.31 million people in 2017, more than half of whom live in urban regions [1]. Meanwhile, traditional family-based aging care systems in China have encountered great challenges. The decline in average family size and extensive internal migration, for example, have weakened Chinese families' capacities to care for their older members [1]. Furthermore, national long-term care systems are still developing [2]. Under such circumstances, knowledge of social determinants of healthy aging are crucial for the development of evidence-based policies and interventions and the sustainable development of Chinese society.

Self-rated health (SRH) is one of the most widely used subjective measures of health status among older adults [3,4]. It was found to independently predict mortality, even after controlling for objective health measures [5]. Measurements of SRH are easy to implement and have proved valid across social and cultural contexts [5,6]. The literature has shown that sociodemographic characteristics (e.g., age, gender, and marital status), educational attainment, financial status, physical health conditions, chronic diseases, and surrounding living environment are important social determinants of SRH [5,7,8]. However, many of these determinants are difficult to modify in older age. Social capital is considered a modifiable determinant of SRH in later life that can be used to foster trust and reciprocity among neighbors, sustain local social networks, enhance the transfer of health knowledge and skills, and promote social participation and volunteering [9,10].

1.1. Defining Social Capital

In this study, we focused on a community-based social capital framework. Social capital can be conceptualized from either a collective (e.g., common features of community) or individual (e.g., social resources) perspective. Putnam defined social capital as “features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions” [11]. Coleman [12] conceptualized social capital as social resources made available through peoples’ connections with neighborhoods and local communities with which community members pursue personal or collective interests. Social capital can also be used to investigate information and transfer resources across different social networks or communities [13].

Furthermore, social capital is considered a multifaceted concept that can be further divided into cognitive social capital (i.e., subjective appraisals of social connections) and structural social capital (objective indicators of social connections) [14]. Trust and reciprocity are treated as key indicators of cognitive social capital. Social participation, membership in organizations, and volunteering are often used to measure structural social capital among studies in both developed and developing regions [9,15–18].

1.2. Cognitive Social Capital, Structural Social Capital, and SRH

Cognitive social capital indicators such as trust and reciprocity were found to have larger effects on SRH than structural social capital indicators (e.g., social participation) [19]. A recent systematic review showed that cognitive social capital generally predicts good SRH [20]. For example, the findings of longitudinal studies showed that social trust was a significant predictor of SRH in the United Kingdom and South Africa [21,22]. Trust and reciprocity in informal networks were also found to be associated with SRH in Australia, Finland, Poland, and Spain [7,23]. Similar findings were also identified in Chinese studies [8,9].

However, findings regarding structural social capital and SRH have been mixed. Some studies showed that community service group membership was a significant predictor of SRH in South Africa [22]. Low social participation was found to be associated with poor SRH in Australia and Germany [7,24]. However, the association between civic participation and SRH was found to be nonsignificant in the United Kingdom [21]. In a social capital intervention study using a longitudinal design, the findings showed that increased social capital did not lead to significant changes in SRH among older adults in Spain [25]. The association between structural social capital and SRH were also found to be nonsignificant in Chinese contexts [8]. These inconsistent findings might be because the lack of consensus regarding the measurement of structural social capital and the lack of studies examining the interactions between cognitive social capital and structural social capital and their influences on SRH [20].

Cognitive and structural social capital are closely related concepts [26,27]. The causal relationship between these two concepts could be bidirectional [26,27]. On one hand, high levels of social trust could lead to high frequencies of social participation, volunteering, and involvement in collective activities. On the other hand, organization memberships and social participation provide important opportunities for older residents to foster trust and reciprocity with their neighbors and friends in the communities. According to the resource hypothesis, an individual’s appraisal of his or her health status is influenced by not only physical health conditions, but also the availability of social supportive resources that could be used to change health [28,29]. In social capital intervention programs, it is also more practical to develop social capital through promoting its structural dimension (e.g., social participation and volunteering). Therefore, this study aimed to investigate whether structural social capital influences SRH through individuals’ subjective appraisals of trust, reciprocity, and social norms in the community (i.e., cognitive social capital). Based on the literature and social capital theory, we hypothesized that cognitive social capital plays a mediation role in the relationship between structural social capital and older adults’ SRH.

2. Materials and Methods

2.1. Sampling

The data were derived from a project titled Research on Social Capital and Life Satisfaction of Older Chinese Adults conducted by Renmin University of China in late 2015. Quota sampling was used to select older respondents from the Gusu district of Suzhou, a city in Jiangsu Province, China. In 2016, around a quarter of the 1 million residents living in Gusu (the central area of Suzhou) were aged 60 years or older. According to referrals from committees on aging, one or two communities were first selected from each of the 16 streets of Gusu. In the second stage, 25 respondents were identified and recruited through referrals from local community centers. We controlled the age and gender ratio of the older respondents according to the statistics of local representative samples from the most recent national census conducted in 2010. The inclusion and exclusion criteria were as follows: Respondents needed to (a) have local household registration status and lived in the local communities for at least 6 of the past 12 months; (b) be aged 60 or older; and (c) have adequate cognitive capacity and listening skills to complete the interview [30]. The respondents were screened by using a short portable mental status questionnaire (SPMSQ) [30,31]. For those with college education or higher educational attainments, the respondents were excluded from the survey if their SPMSQ scores (range = 0–10; higher scores indicate higher levels of cognitive impairments) were higher than 4. For those with high school education or less, they were excluded if their SPMSQ scores were higher than 3. By using the quota sampling, a total of 456 respondents were recruited and successfully completed the interviews, and included in the final analysis. The response rate was above 90% in all communities. Ethics approval has been obtained from the Ethics Committee of the University of Hong Kong. Research data are available in the Supplementary Materials, File S1.

2.2. Measurements

We used a simple question to measure SRH: “How do you feel about your health?” Respondents used a 5-point scale to answer the question (0 = very poor; 1 = poor; 2 = fair; 3 = good; 4 = excellent). To adjust for its skewed distribution, the measurement was further recoded as a binary variable (0 = fair, poor, or very poor, 1 = excellent, or good).

All the indicators of community-based social capital were selected from the short social capital assessment tool and the World Bank’s social capital questionnaire. The former was recommended by a recent systematic review of social capital measurements in low and middle income countries [17]. The latter was frequently adopted in social capital studies conducted in China [8,9]. Specifically, structural social capital was assessed by a latent variable featuring four factor indicators: social participation, volunteering, organization memberships, and citizenship activity [32,33]. The respondents were asked about their participation in social activities organized by the following organizations: political parties, women’s groups, labor unions, neighborhood committees, community associations, charitable organizations, religious groups, sports clubs, and credit groups. The answers ranged from 1 = never to 6 = more than twice per week. The respondents were also asked whether they had conducted any volunteer work organized by each organization in the past month (0 = no; 1 = yes). The number of memberships in these organizations was also calculated. Finally, the respondents were asked whether they had collaborated with other residents to handle a common problem in the past 12 months. The responses were recoded as a binary variable (0 = no; 1 = yes). Higher scores indicated a higher level of structural social capital (Cronbach’s alpha = 0.760).

Cognitive social capital was measured using a latent construct comprising four trust and reciprocity indicators: trust in the local community, perceived helpfulness of others, willingness to cooperate with others, and feelings of belongingness [32,33]. Specifically, the respondents were asked whether they agreed with the following statements: (a) “The majority of local residents living in this community can be trusted”; (b) “Local residents help one another when necessary”; (c) “Local residents not only care about their own benefits, but also care about others’ interests”; and (d) “The local community

feels like a big family and residents consider themselves to be members of the family.” The responses were measured using a 5-point Likert-type scale ranging from 1 = strongly disagree or never helpful to 5 = strongly agree or always helpful. Higher scores indicated a higher level of cognitive social capital (Cronbach’s alpha = 0.604).

The following covariates were also included in the final model: age, gender, marital status, education, monthly household income, living arrangements, number of chronic diseases, and number of children. Age was self-reported by individuals. Gender, marital status, education, and living arrangements were recoded as binary variables (1 = female; 1 = married; 1 = secondary school or higher; 1 = live with others). The respondents were asked about the number of living children and monthly household income. Finally, the respondents were asked to report the number of chronic diseases. The list included six major chronic diseases in later life in China, including respiratory system diseases, circulation system diseases, musculoskeletal diseases, cerebrovascular diseases, digestive system diseases, and endocrine and metabolic diseases.

2.3. Data Analysis

Structural equation modeling (SEM) was applied to estimate the parameters for the proposed model using Mplus 7.0 [34,35]. SEM can be used to not only estimate different coefficients of the associations between latent variables and their factor indicators, but also account for measurement errors in the model [34]. Measurement and structural models are two major steps in SEM [34]. Reliable measures of latent variables were established in the measurement model. Latent variables cannot be directly observed, but can be measured through a range of observed variables. In this study, the measurement model was tested using confirmatory factor analysis. Given the latent variables included categorical indicators, diagonally weighted least squares was the estimator [36,37]. The following fit indexes were adopted to assess the model fit: the chi-square test statistic, comparative fit index (CFI), Tucker–Lewis index (TLI), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and weighted root mean square residual (WRMR) [34,38]. At the next stage, two structural models were built. The first model was used to test the direct effect of structural social capital on SRH. The second model was used to examine the mediation effect of cognitive social capital on the relationship between structural social capital and SRH.

3. Results

3.1. Sample Characteristics

The characteristics of the respondents are presented in Table 1. The mean age of the respondents was 70.67. Nearly half were aged 60 to 69. The number of women (54.8%) was slightly higher than the number of men (45.2%). In terms of marital status, 75% were married. Around two thirds of the respondents completed secondary education or above. A large proportion reported that their monthly household income was below RMB5000 (45.8%; \$707 USD). In terms of SRH, around half of the respondents rated their health as fair, poor, or very poor.

Table 1. Characteristics of older adults (N = 456).

	N (%)	Mean (SD)
Age		70.67 (7.35)
60–69	221 (48.5)	
70–79	171 (37.5)	
80 and above	64 (14.0)	
Gender		
Men	206 (45.2)	
Women	250 (54.8)	
Marital status		
Married	342 (75.0)	
Other marital status	114 (25.0)	
Education		
Primary school or lower	159 (34.9)	
Secondary school or above	295 (64.7)	
Monthly household income		
Less than RMB5000	243 (53.3)	
RMB5000 or above	209 (45.8)	
Self-rated health		
Very good	47 (10.3)	
Good	186 (40.8)	
Fair	186 (40.8)	
Poor	32 (7.0)	
Very poor	4 (0.9)	
Number of children		1.89 (1.07)
Chronic disease		1.21 (1.03)
Had respiratory system diseases	28 (6.1)	
Had circulation system diseases	248 (54.4)	
Had musculoskeletal diseases	117 (25.7)	
Had cerebrovascular diseases	28 (6.1)	
Had digestive system diseases	67 (14.7)	
Had endocrine and metabolic diseases.	66 (14.5)	
Living alone	79 (17.3)	

3.2. Measurement Model

Correlations between cognitive social capital and structural social capital indicators are presented in Table 2. The two-factor measurement model was tested before the evaluation of the structural model. In the present study, each factor has four factor indicators. The results of the model test statistics were as follows: $\chi^2(19) = 28.100$, $p = 0.082$. The nonsignificant χ^2 indicates that the covariance matrix implied by the measurement model is consistent with the sample covariance matrix [34]. The values of the approximate fit indexes were also calculated. The results indicated an adequate overall model fit (RMSEA = 0.032 (0.000, 0.056); CFI = 0.985, TLI = 0.978; WRMR = 0.618). The standardized factor loading scores ranged from 0.437 to 0.776 for cognitive social capital and 0.606 to 0.731 for structural social capital.

Table 2. Correlation matrix of social capital factor indicators.

Factor indicator	M	SD	1	2	3	4	5	6	7	8
1. Trust in local community	4.12	0.82	1.00							
2. Perceived helpfulness of others	3.55	0.94	0.35 ***	1.00						
3. Willingness to cooperate with others	3.92	0.83	0.30 ***	0.59 ***	1.00					
4. Feelings of belonging	4.20	0.69	0.36 ***	0.50 ***	0.60 ***	1.00				
5. Organization memberships	1.73	1.39	0.09	0.18 ***	0.14 **	0.18 ***	1.00			
6. Volunteering	0.35	0.48	0.06	0.23 ***	0.14 **	0.13 **	0.30 ***	1.00		
7. Social participation	3.43	1.80	0.08	0.19 ***	0.13 **	0.15 **	0.48 ***	0.37 ***	1.00	
8. Citizenship activities	0.35	0.48	0.08	0.24 ***	0.13 **	0.12 *	0.36 ***	0.35 ***	0.35 ***	1.00

Notes: M = mean; SD = standard deviation; * $p < 0.05$ (two-tailed); ** $p < 0.01$ (two-tailed); *** $p < 0.001$ (two-tailed).

3.3. Direct Effect of Structural Social Capital on SRH

The first structural model tested the direct effect of structural social capital on SRH. The estimates of the fit statistics indicated an overall model fit: $\chi^2(28) = 23.656$, $p = 0.700$; RMSEA = 0.000 (0.000, 0.029); CFI = 1.000, TLI = 1.027; WRMR = 0.517). The results show that structural social capital was significantly associated with SRH ($\beta = 0.225$, $SD = 0.105$, $p < 0.05$).

3.4. Mediating Role of Cognitive Social Capital

Both cognitive and structural social capital were included in the final structural model. The results indicate an adequate model fit: $\chi^2(71) = 65.258$, $p = 0.670$; RMSEA = 0.000 (0.000, 0.023); CFI = 1.000, TLI = 1.013; WRMR = 0.564). The results suggest that cognitive social capital was a significant predictor of SRH ($\beta = 0.539$, $SD = 0.242$, $p < 0.05$). Variations in structural social capital significantly accounted for variations in cognitive social capital ($\beta = 0.190$, $SD = 0.042$, $p < 0.001$). It should be noted that structural social capital was no longer a significant predictor of SRH when controlling for cognitive social capital ($\beta = 0.119$, $SD = 0.117$, $p = 0.309$). Cognitive social capital fully mediated the relationship between structural social capital and SRH ($\beta = 0.103$, $SD = 0.050$, $p < 0.05$). Therefore, our hypothesis was supported. The results of the final structural model are presented in Figure 1.

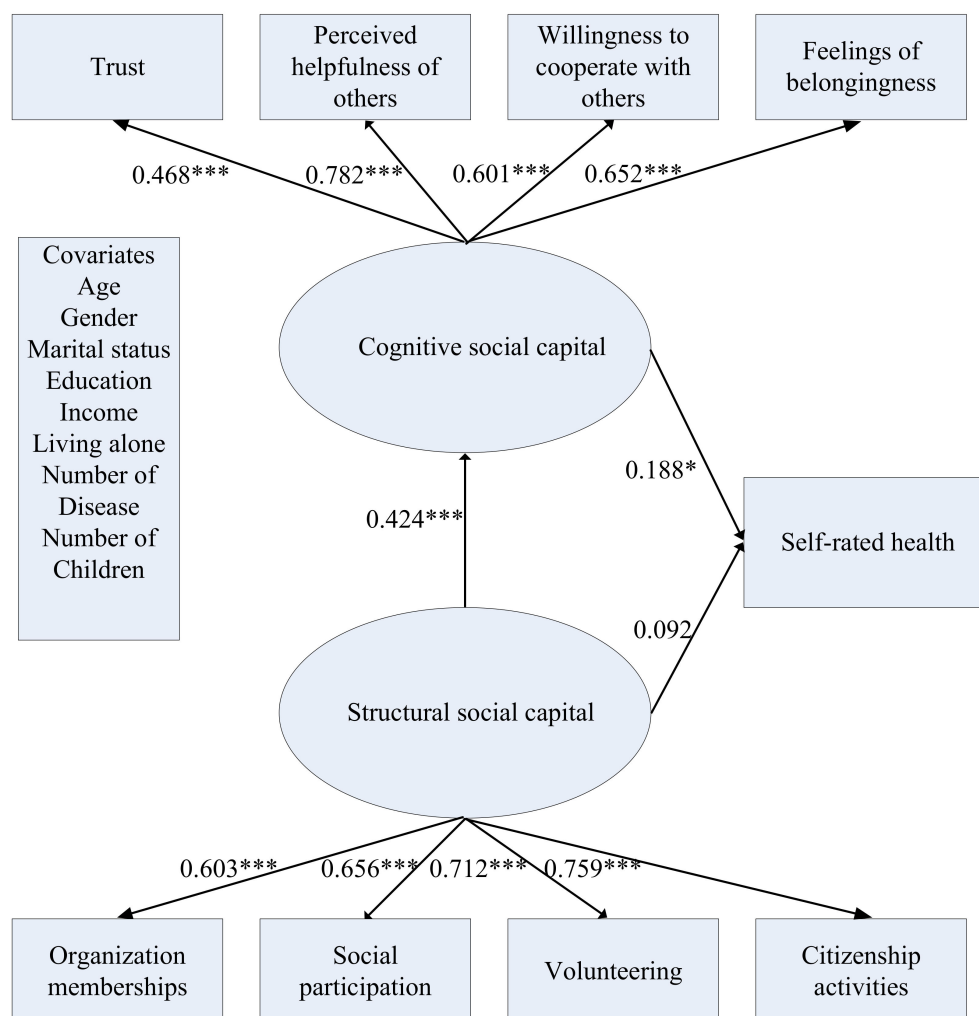


Figure 1. The structural model of the effects of social capital on self-rated health. Notes: Standardized factor loading of each factor indicator are shown. * $p < 0.05$ (two-tailed); *** $p < 0.001$ (two-tailed).

Regarding covariates, number of chronic diseases were significantly associated with SRH ($\beta = -0.303$, $SD = 0.050$, $p < 0.001$). Age, income, and educational attainments were significant predictors of structural social capital (Age: $\beta = -0.022$, $SD = 0.008$, $p < 0.01$; income: $\beta = 0.063$, $SD = 0.026$, $p < 0.05$; education: $\beta = 0.504$, $SD = 0.112$, $p < 0.001$).

4. Discussion

This study represents one of the first attempts to investigate the interplay between cognitive and structural social capital, their effect on SRH, and the underlying mechanisms in an urban Chinese context. We adopted culturally sensitive latent variables of social capital to assess community-based social capital in urban Chinese settings. By definition, high levels of cognitive social capital are associated with better social trust, reciprocity, and feelings of belonging, whereas high levels of structural social capital are associated with more organization memberships, higher levels of volunteering, and more frequent participation in community activities and citizenship activities [32,33]. The findings of this study provide new evidence from the Chinese context to support and expand the application of a social capital framework. We also propose important policy and intervention implications in terms of social capital and healthy aging in urban Chinese communities.

Consistent with previous studies, the findings support social capital theory and confirm the silent role of cognitive social capital in SRH as compared with structural social capital [20]. Although mixed findings of the relationship between structural social capital and SRH were noted in the previous literature [7,21,22,24,25], the findings of the present study indicate that high levels of structural social capital is associated with good SRH. We argue that social capital could influence health in later life through multiple pathways. Both forms of social capital, for example, could be used to promote older adults' health through transferring health-related information and promoting healthy lifestyles and behaviors. Older residents could also have better access to medical and daily care services and local amenities through the promotion of social capital in the community [18].

The findings of the present study represent new contributions to the literature, demonstrating the mediating role of cognitive social capital (i.e., implying that structural social capital indirectly affects SRH through cognitive social capital). We argue that urban older adults' trust and reciprocity with their neighbors might be promoted through their social involvements in the community. High levels of cognitive social capital could lead to better self-evaluation of the availability of social supportive resources in the community, which could contribute to better SRH [26,27].

Based on the findings of this study, we propose the following policy and intervention implications. First, cognitive and structural social capital should be used in screening tools to identify high risk populations in terms of poor SRH in urban China. Second, structural social capital can be promoted through developing local social organizations and increasing the frequencies of collective and volunteering activities. These organizations and activities should put great emphasis on fulfilling older adults' social needs and enhancing reciprocity in both informal and formal social networks. Third, the mechanism linking structural social capital to cognitive social capital should receive attention in the design of social capital interventions. In other words, relevant interventions should focus on not only promoting structural social capital, but also ensuring that older adults' cognitive social capital levels are enhanced through this process. Sense of belonging to local communities and feelings of trust and worthiness should be promoted through older residents' participation in social activities in local communities. Information on health-related services and knowledge, such as health self-management and local long-term care facilities, could be used to enrich the content of social capital interventions. Finally, we argue that the promotion of community-based social capital plays an important and compensatory role in sustaining family-based aged-care systems in China [2]. This is crucial for the social sustainability of the nation as a whole. Peer support programs and financial incentives in long-term care, for example, could be used to foster social capital and sustain health in later life.

This study has some limitations. First, given the cross-sectional nature of the data, we could not examine the direction of the causal relationship among cognitive social capital, structural social

capital, and SRH. However, we provided the theoretical and empirical rationales for the proposed model. Future longitudinal studies should be conducted to address this issue and explore underlying mechanisms in more details. Second, the data is based on self-reported indicators, which might result in inaccuracy and misclassification bias. Additionally, the present study assessed social capital at an individual level. Social capital at a community or regional level could affect SRH differently. Future studies should be conducted to test the latent construct of social capital at different levels. Moreover, the data were collected from naturally occurring retirement communities. The majority of the respondents were retired, and their main financial sources are their pensions. Future studies are needed to be conducted in different settings to further investigate the role of employment status in the relationship between social capital and self-rated health. Finally, the latent construct of social capital was only examined in urban settings. Future studies should test the construct in rural and suburban contexts.

5. Conclusions

This study aimed to investigate the mediating effect of cognitive social capital on the relationship between structural social capital and SRH among older urban Chinese adults. Two latent constructs of cognitive social capital and structural social capital were built and used to conduct a mediation model based on a structural equation modeling framework. The results showed that structural social capital was a significant determinant of SRH in later life. Cognitive social capital had a full mediation effect on the relationship between structural social capital and SRH. Social capital latent constructs should be used as screening tools to identify risky populations in urban communities. The interplay between cognitive social capital and structural social capital has important implications for future social capital intervention designs.

Supplementary Materials: The following are available online at <http://www.mdpi.com/2071-1050/11/20/5566/s1>: File S1: Research Data.

Author Contributions: N.L. contributed to original draft preparation and writing, and formal analysis. J.Z. contributed to study design, formal analysis, and paper writing, revision, and editing.

Funding: This study was supported by the Key Project of National Social Science Foundation of China “Social capital and the health among older populations in China: From the perspective of active aging framework” (Grant No. 19ASH018).

Conflicts of Interest: The authors declare no conflicts of interest. The funders had no role in the design of the study; in the collection, analyses, or interpretation of data; in the writing of the manuscript, or in the decision to publish the results.

References

1. National Bureau of Statistics of China. *China Statistical Yearbook–2018*; China Statistics Press: Beijing, China, 2018.
2. Shum, M.H.; Lou, V.W.; He, K.Z.; Chen, C.C.; Wang, J. The “Leap Forward” in Nursing Home Development in Urban China: Future Policy Directions. *J. Am. Med. Dir. Assoc.* **2015**, *16*, 784–789. [[CrossRef](#)] [[PubMed](#)]
3. Schnittker, J.; Bacak, V. The Increasing Predictive Validity of Self-Rated Health. *PLOS ONE* **2014**, *9*, e84933. [[CrossRef](#)] [[PubMed](#)]
4. Garbarski, D. Research in and Prospects for the Measurement of Health Using Self-Rated Health. *Public Opin. Q.* **2016**, *80*, 977–997. [[CrossRef](#)]
5. Haring, R.; Feng, Y.-S.; Moock, J.; Völzke, H.; Dörr, M.; Nauck, M.; Wallaschofski, H.; Kohlmann, T. Self-perceived quality of life predicts mortality risk better than a multi-biomarker panel, but the combination of both does best. *BMC Med. Res. Methodol.* **2011**, *11*, 103. [[CrossRef](#)] [[PubMed](#)]
6. Wu, S.; Wang, R.; Zhao, Y.; Ma, X.; Wu, M.; Yan, X.; He, J. The relationship between self-rated health and objective health status: A population-based study. *BMC Public Heal.* **2013**, *13*, 320. [[CrossRef](#)]
7. Yiengprugsawan, V.; Welsh, J.; Kendig, H. Social capital dynamics and health in mid to later life: Findings from Australia. *Qual. Life Res.* **2018**, *27*, 1277–1282. [[CrossRef](#)] [[PubMed](#)]
8. Yip, W.; Subramanian, S.; Mitchell, A.D.; Lee, D.T.; Wang, J.; Kawachi, I. Does social capital enhance health and well-being? Evidence from rural China. *Soc. Sci. Med.* **2007**, *64*, 35–49. [[CrossRef](#)]

9. Norstrand, J.A.; Xu, Q. Social Capital and Health Outcomes Among Older Adults in China: The Urban-Rural Dimension. *Gerontology* **2011**, *52*, 325–334. [[CrossRef](#)]
10. Schultz, J.; O'Brien, A.M.; Tadesse, B. Social capital and self-rated health: Results from the US 2006 social capital survey of one community. *Soc. Sci. Med.* **2008**, *67*, 606–617. [[CrossRef](#)]
11. LaPalombara, J.; Putnam, R.D. Making Democracy Work: Civic Traditions in Modern Italy. *Polit. Sci. Q.* **1993**, *108*, 549. [[CrossRef](#)]
12. Coleman, J.S. *Foundations of Social Theory*; Harvard University Press: Cambridge, MA, USA, 1990.
13. Lin, N. Building a network theory of social capital. *Connections* **1999**, *22*, 28–51.
14. Nyqvist, F.; Cattani, M.; Andersson, L.; Forsman, A.K.; Gustafson, Y. Social capital and loneliness among the very old living at home and in institutional settings: A comparative study. *J. Aging Health* **2013**, *25*, 1013–1035. [[CrossRef](#)]
15. Kawachi, I.; Kennedy, B.P.; Glass, R. Social capital and self-rated health: A contextual analysis. *Am. J. Public Health* **1999**, *89*, 1187–1193. [[CrossRef](#)] [[PubMed](#)]
16. Perry, M.; Williams, R.L.; Wallerstein, N.; Waitzkin, H. Social Capital and Health Care Experiences Among Low-Income Individuals. *Am. J. Public Health* **2008**, *98*, 330–336. [[CrossRef](#)] [[PubMed](#)]
17. Agampodi, T.C.; Agampodi, S.B.; Glozier, N.; Siribaddana, S. Measurement of social capital in relation to health in low and middle income countries (LMIC): A systematic review. *Soc. Sci. Med.* **2015**, *128*, 95–104. [[CrossRef](#)] [[PubMed](#)]
18. Poortinga, W.; Dunstan, F.D.; Fone, D.L. Neighbourhood deprivation and self-rated health: The role of perceptions of the neighbourhood and of housing problems. *Health Place* **2008**, *14*, 562–575. [[CrossRef](#)] [[PubMed](#)]
19. Gilbert, K.L.; Quinn, S.C.; Goodman, R.M.; Butler, J.; Wallace, J. A meta-analysis of social capital and health: A case for needed research. *J. Health Psychol.* **2013**, *18*, 1385–1399. [[CrossRef](#)] [[PubMed](#)]
20. Ehsan, A.; Klaas, H.S.; Bastianen, A.; Spini, D. Social capital and health: A systematic review of systematic reviews. *SSM Popul. Health* **2019**, *8*, 100425. [[CrossRef](#)]
21. Snelgrove, J.W.; Pikhart, H.; Stafford, M. A multilevel analysis of social capital and self-rated health: Evidence from the British Household Panel Survey. *Soc. Sci. Med.* **2009**, *68*, 1993–2001. [[CrossRef](#)] [[PubMed](#)]
22. Lau, Y.K.; E Ataguba, J. Investigating the relationship between self-rated health and social capital in South Africa: A multilevel panel data analysis. *BMC Public Health* **2015**, *15*, 266. [[CrossRef](#)]
23. Koutsogeorgou, E.; Nyqvist, F.; Nygard, M.; Cerniauskaite, M.; Quintas, R.; Raggi, A.; Leonardi, M. Social capital and self-rated health among older adults: A comparative analysis of Finland, Poland and Spain. *Ageing Soc.* **2015**, *35*, 653–667. [[CrossRef](#)]
24. Pollack, C.E.; Knesebeck, O.V.D. Social capital and health among the aged: Comparisons between the United States and Germany. *Health Place* **2004**, *10*, 383–391. [[CrossRef](#)] [[PubMed](#)]
25. Collplanas, L.; Gomez, G.D.V.; Bonilla, P.; Masat, T.; Puig, T.; Monteserin, R. Promoting social capital to alleviate loneliness and improve health among older people in Spain. *Health Soc. Care Comm.* **2017**, *25*, 145–157. [[CrossRef](#)] [[PubMed](#)]
26. Brehm, J.; Rahn, W. Individual-Level Evidence for the Causes and Consequences of Social Capital. *Am. J. Polit. Sci.* **1997**, *41*, 999. [[CrossRef](#)]
27. Lindström, M. Social capital, the miniaturisation of community and self-reported global and psychological health. *Soc. Sci. Med.* **2004**, *59*, 595–607. [[CrossRef](#)] [[PubMed](#)]
28. Benyamini, Y.; Idler, E.L. Self-Rated Health and Mortality: A Review of Twenty-Seven Community Studies. *J. Health Soc. Behav.* **1997**, *38*, 21.
29. Wolinsky, F.D.; Tierney, W.M. Self-Rated Health and Adverse Health Outcomes: An Exploration and Refinement of the Trajectory Hypothesis. *J. Gerontol. Ser. B* **1998**, *53*, S336–S340. [[CrossRef](#)]
30. Pfeiffer, E. A Short Portable Mental Status Questionnaire for the Assessment of Organic Brain Deficit in Elderly Patients†. *J. Am. Geriatr. Soc.* **1975**, *23*, 433–441. [[CrossRef](#)]
31. Chi, I.; Boey, K.W. Hong Kong Validation of Measuring Instruments of Mental Health Status of the Elderly. *Clin. Gerontol.* **1993**, *13*, 35–51. [[CrossRef](#)]
32. De Silva, M.J.; Huttly, S.R.; Harpham, T.; Kenward, M.G. Social capital and mental health: A comparative analysis of four low income countries. *Soc. Sci. Med.* **2007**, *64*, 5–20. [[CrossRef](#)]
33. Grootaert, C.; Narayan, D.; Jones, V.N.; Woolcock, M. *Integrated Questionnaire for the Measurement of Social Capital*; World Bank: Washington, DC, USA, 2004.

34. Kline, R.B. *Principles and Practice of Structural Equation Modeling*, 3rd ed.; The Guilford Press: New York, NY, USA, 2011.
35. Muthén, L.K.; Muthén, B. *Mplus User's Guide*, 6th ed.; Muthén & Muthén: Los Angeles, CA, USA, 2010.
36. Li, C.H. Confirmatory factor analysis with ordinal data: Comparing robust maximum likelihood and diagonally weighted least squares. *Behav. Res. Methods* **2016**, *48*, 936–949. [[CrossRef](#)] [[PubMed](#)]
37. Muthén, L.K.; Muthén, B. *Mplus User's Guide*, 7th ed.; Muthén & Muthén: Los Angeles, CA, USA, 2012.
38. Distefano, C.; Liu, J.; Jiang, N.; Shi, D. Examination of the Weighted Root Mean Square Residual: Evidence for trustworthiness? *Struct. Equ. Model.* **2018**, *25*, 453–466. [[CrossRef](#)]



© 2019 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<http://creativecommons.org/licenses/by/4.0/>).