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Are neighborhood bonding and bridging social capital protective against depressive mood in old age? A multilevel analysis in Japan

Hiroshi Murayama [a, b, *], Yu Nofuji [a], Eri Matsuo [a], Mariko Nishi [a], Yu Taniguchi [a], Yoshinori Fujiwara [a], Shoji Shinkai [a]

[a] Research Team for Social Participation and Community Health, Tokyo Metropolitan Institute of Gerontology, Tokyo, Japan
[b] University of Michigan School of Public Health, Ann Arbor, MI, USA

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ABSTRACT

While the importance of distinguishing between bonding and bridging social capital is now understood, evidence remains sparse on their contextual effects on health. We examined the associations of neighborhood bonding and bridging social capital with depressive mood among older Japanese. A questionnaire survey of all community residents aged 65 and older in the city of Yabu, Hyogo Prefecture, Japan was conducted in July and August 2012. Bonding and bridging social capital were assessed by evaluating individual homogeneous and heterogeneous social networks in relation to age, gender, and socioeconomic status. Individual responses in each neighborhood were aggregated to create an index of neighborhood-level bonding/bridging social capital. Odds ratios (ORs) and 95% confidence intervals (CIs) were calculated to evaluate the associations of such social capital with depressive mood using multilevel binomial logistic regression analysis. Of the 7271 questionnaires distributed, 6416 were analyzed (covering 152 administrative neighborhoods). Approximately 56.8% of respondents were women, and the mean age was 76.2 ± 7.1 years. Neighborhood-level bonding social capital was inversely associated with depressive mood (OR = 0.84, 95% CI = 0.75–0.94), but neighborhood-level bridging social capital was not. Gender-stratified analysis revealed that neighborhood-level bonding social capital was inversely associated with depressive mood in both genders (OR = 0.83, 95% CI = 0.72–0.96 for men; OR = 0.85, 95% CI = 0.72–0.99 for women), while neighborhood-level bridging social capital was positively associated with depressive mood in women (OR = 1.15, 95% CI = 1.00–1.34). There was also a significant interaction between individual- and neighborhood-level bonding social capital, indicating that people with a weaker homogeneous network and living in a neighborhood with weaker bonding social capital were more likely to have depressive mood. Our results suggest that neighborhood social capital does not necessarily benefit mental health in old age. These findings might stimulate further discussion on the relationship of bonding and bridging social capital with mental health.

1. Introduction

Social capital has been discussed in many academic fields. Putnam (1993) wrote that the term refers to “features of social organization, such as trust, norms and networks that can improve the efficacy of society by facilitating coordinated actions.” The association between social capital and health has been examined in a number of papers in the public health arena, particularly in social epidemiology. Social capital has been conceptualized using different approaches (Kawachi, 2006). In public health research to date, the most common approach is to define it as a contextual resource (social cohesion definition).

Because social capital is an umbrella concept, subclassification of its aspects and dimensions may help clarify its effects on health. One approach distinguishes between two main components—bonding and bridging social capital (Putnam, 2000). Szreter and Woolcock (2004) stated that bonding social capital refers to aspects of “inward-looking” social networks that reinforce exclusive identities and group homogeneity in social characteristics; while bridging social capital refers to “outward-looking” social

* Corresponding author. Research Team for Social Participation and Community Health, Tokyo Metropolitan Institute of Gerontology, 35-2 Sakae-cho, Itabashi-ku, Tokyo 173-0015, Japan.
E-mail address: murayama@tmig.or.jp (H. Murayama).

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networks, which extend across different social and ethnic groups that do not necessarily share similar identities. The importance of differentiating between these types of social capital has recently been understood, and empirical studies have investigated their effects on health.

Most previous studies focused on the relationship of individual-level bonding/bridging social capital with health outcomes. Beaudoin (2009) found that stronger bonding and bridging social capital—defined based on the relationships of an individual with people of (dis)similar race/ethnicity—were both associated with better self-rated health, and that stronger bonding social capital was associated with reduced stress among general adults living in various parts of the United States. Mitchell and LaGory (2002) defined these types of social capital as strength of trust and ties with others whose race and education are (dis)similar to those of the respondent, and reported interesting associations with mental distress. In an impoverished U.S. community, stronger bridging social capital was associated with lower levels of mental distress, opposite to greater bonding social capital.

Designs of earlier studies on the associations of bonding/bridging social capital with health can be improved in at least two respects. First, very few focused on their contextual effects on health with a multilevel analysis. Kim et al. (2006) focused on the contextual effects on health of bonding and bridging social capital, defined as above by Szreter and Woolcock (2004). They reported that, among U.S. adults, community-level bonding social capital (determined by examining the relationships of an individual with people of similar race/ethnicity, gender, and education) was associated with better self-rated health, while community-level bridging social capital was not. From China, Meng and Chen (2014) reported that county-level bridging trust was beneficial toward individuals' self-rated health in both urban and rural areas, and that particularly in urban areas, people who have high individual-level bonding trust and live in a county with a high level of bonding trust evaluated their health more favorably. Even some of the studies that focused on individual-level bonding/bridging social capital implicitly acknowledged the presence of their contextual effects Murayama et al., 2013; Poortinga, 2012). Murayama et al. (2013) reported that individual perception of neighborhood homogeneity (in relation to age, gender, and socioeconomic status [SES]) was inversely associated with poor self-rated health and depressive mood among older Japanese. As mentioned above, a great deal of public health research has treated social capital as a group-level attribute. Examination of the contextual effects of these types of social capital on health may yield new insights into the design of policies and community interventions to promote health.

A second shortcoming of previous studies on bonding/bridging social capital is that they were mainly limited to data derived from Western countries. To date, Meng and Chen (2014) has been the only work focusing on the contextual effect of these forms of social capital on health from Asian populations, but there are no Japan-based studies. In Japan—viewed as a relatively collectivist society on the whole, with strong group ties—residents within a community feel comfortable under systems of mutual assurance and monitoring (Nakane, 1970; Yamagishi et al., 1998; Yamagishi and Yamagishi, 1994). In view of the differences in background between the populations of Western countries and Japan, it is important to examine the effects of bonding/bridging social capital on health in Japan.

Previous studies on Western countries have defined bonding and bridging social capital based on relationships with racially or ethnically (dis)similar people (Beaudoin, 2009; Kim et al., 2006; Poortinga, 2012). However, because Japan has low racial/ethnic diversity, we considered this definition inappropriate for Japan. Moreover, the meaning of social relationships might differ between Japan and Western societies; it was reported that Japanese elderly had fewer social ties compared with U.S. elderly (Sugisawa et al., 1998). For example, in terms of age, because Japanese elderly tend to possess fewer networks with different generations as they age (Cabinet Office, 2009), connections with different age groups might have unique value as age advances. Regarding gender, because predominance of men over women remains rooted in Japanese society, particularly in rural areas and in old age (Gerteis, 2009), older people are apt to maintain relations with those of the same gender. Connections with the opposite gender can therefore be seen as heterogeneous relationships. Socioeconomic disparity has increasingly widened in Japan (Ministry of Health, Labour and Welfare, 2013), so ties among people with different socioeconomic positions may have a distinct meaning. Taken together, focus on the (dis)similarity of relationships with regard to age, gender, and SES seems more significant than race/ethnicity when considering bonding and bridging social capital in a study targeting Japan.

Another feature of this study is that we considered depressive mood in old age because elderly adults often experience changes in factors such as social functions, social relations, and physical condition (Müller-Spahn and Hock, 1994; Rowe and Kahn, 1997). In fact, scale-based studies of depression symptoms showed the rate of depression increases with age (Luppa et al., 2012; Stordal et al., 2001). Moreover, depression is a risk factor for functional decline in later life (Stuck et al., 1999). In Japan, the importance of preventing depression in old age has been recognized because measuring of depression has been considered a good indicator for developing public health policy, particularly for long-term care prevention (Ministry of Health, Labour and Welfare, 2012). Some studies have reported a preventive contextual effect of social capital on depressive mood (Aslund et al., 2010; Kouvonen et al., 2008; Tomita and Burns, 2013), but the contextual associations of bonding and bridging social capital with depressive mood have yet to be studied.

Given these considerations, to have valuable public health implications and develop population-/community-based approaches, a study exploring the contextual relationship with depressive mood among Japanese elderly appears of critical importance. In this study, we examined the relationship between neighborhood bonding and bridging social capital and depressive mood (i.e., contextual association) among older Japanese. Gender difference in the association between bonding/bridging social capital and health has also been found in some Japanese studies (Iwase et al., 2012; Kishimoto et al., 2013). For example, bridging social capital was found to have a stronger association with self-rated health in women than in men (Iwase et al., 2012). Moreover, some other studies reported a significant interaction between individual- and contextual-level social capital on health outcomes such as self-rated health (Han et al., 2012; Meng and Chen, 2014). This approach suggests that all individuals in areas or groups in a specific context (e.g., neighborhoods, workplaces, schools) are equally exposed, but that health effects may vary among individuals. However, there is little evidence of the interaction between these two different levels and depressive mood. Thus, this study has two purposes in addition to the main one: identify gender difference in the contextual associations of bonding and bridging social capital with depressive mood, and test the interaction between individual- and neighborhood-level bonding and bridging social capital on depressive mood.

We offer the following hypotheses. For older Japanese, (1) neighborhood bonding and bridging social capital are associated with depressive mood, and the net of individual social capital; (2) the associations of these two types of neighborhood social capital with depressive mood are different; (3) the association between