



Social disorganization/social fragmentation and risk of depression among older people in Japan: Multilevel investigation of indices of social distance

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ARTICLE INFO

Article history:

Available online 11 January 2013

Keywords:

Japan
Social distance
Social disorganization
Social fragmentation
Social capital
Depression
Older people
Multilevel analysis

ABSTRACT

Previous studies reported that social disorganization/fragmentation could predict mental well-being of residents in a community. The aim of this study is to examine how area and individual level of social distance could predict likelihood of mental health among older people in Japan. We empirically derived an index of “social distance” by taking averaged differences in sociodemographic characteristics that are income, education, hometown of origin, the duration of residency, and life stage, between the study participants and their neighbors. We used the study participants ($n = 9147$) from the Aichi Gerontological Evaluation Study, which targeted residents with aged 65 years or over in a central part in Japan. Depressive symptoms of the study participants were assessed using the short version of the Geriatric Depression Scale (GDS-15). We also tested if area-level social capital would moderate the association between social distance and depressive symptoms. Using multilevel analyses, we found that higher social distance from neighbors was associated with increased depressive symptoms, independently of respondents' own values of income and educational attainment. At the individual level, each standard deviation in income-based and education-based social distance was associated with an odds ratio for depressive symptoms of 1.15 (95% CI: 1.01–1.30) and 1.17 (95% CI: 1.03–1.32), respectively. However, the area-aggregated indices of social distance were not associated with depressive symptoms. Additionally, area-level social capital indicating higher levels of trust between neighbors and social participation, buffered the adverse effect of social distance on depressive risk. In an instance of the “dark side” of social capital, we also found that stronger social cohesion increased depressive symptoms for residents whose hometown of origin differed from the communities where they currently resided.

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Introduction

Social disorganization theory, as originally proposed by the Chicago School researchers [Shaw and McKay \(1942\)](#), posits that neighborhoods with a high degree of heterogeneity experience difficulty realizing the common values of their residents ([Shaw & McKay, 1942](#)) and maintaining effective social control ([Sampson & Groves, 1989](#)). The theory was originally developed to explain

community variations in the rate of crime; highly heterogeneous neighborhoods (with respect to residents' socioeconomic status, racial/ethnic backgrounds and immigrant status) lack the ability to exercise informal social control to prevent the occurrence of delinquency and deviant behaviors. According to [Shaw & McKay](#), neighborhoods characterized by high residential heterogeneity tend to exhibit persistent patterns of crime over time, even though individuals may move in and out of these neighborhoods. In U.S. studies, racial/ethnic composition has been shown to be one of the most important dimensions of residential heterogeneity. Neighborhoods composed of residents from diverse racial/ethnic backgrounds tend to be associated with decreased opportunities for social interactions among residents. In the field of criminology, a robust association has been reported between crime rates and

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neighborhoods with a high degree of racial/ethnic heterogeneity (Rountree & Warner, 1999; Sampson & Groves, 1989; Smith, Frazee, & Davison, 2000; Warner & Rountree, 1997). In addition to racial and ethnic diversity, residents' heterogeneity according to income, educational attainment, age, immigrant status, and duration of residence in the locality have been shown to decrease social interactions among residents (Hipp, 2010).

According to Hipp (2010), the degree of heterogeneity among neighborhood residents (and, hence, the extent of a community's social disorganization) can be operationalized and quantified according to an index of "social distance", calculated as the averaged difference of all pair-wise comparisons of social characteristics among individuals residing within a geographic boundary.

Although originally proposed to explain community variations in the rate of crime, social disorganization theory (and its theoretical analogs) has been extended to examine area variations in health outcomes. In the field of public health, empirical research has focused on the related construct of social fragmentation as a contextual determinant of a population's health outcomes. Social fragmentation (derived from Emile Durkheim's theory of *anomie*, or normlessness) has been operationalized in terms of communities that are characterized by high proportions of single-parent families and renters (as opposed to home owners) as well as high residential turnover (Whitley, Gunnell, Dorling, & Davey Smith, 1999). Socially fragmented communities are characterized by a loosening of social bonds between residents accompanied by a rejection of self-regulatory values. In turn, social fragmentation has been suggested as a contextual determinant of suicide and poor mental health (Fagg et al., 2008; Fagg, Curtis, Stansfeld, & Congdon, 2006; Ivory, Collings, Blakely, & Dew, 2011) as well as lower levels of physical activity among youth (Pabayo, Belsky, Gauvin, & Curtis, 2011).

Social disorganization theory has also been discussed in relation to the construct of social cohesion (or "social capital"). According to Putnam (1995), social capital consists of "features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit" (1995, p. 67). Close network ties within a group generate higher levels of trust and give rise to the norm of reciprocity. Trust and reciprocity, in turn, encourage cooperative behaviors, manifested as collective efficacy and informal social control, which have been hypothesized to yield many positive benefits, particularly the prevention of crime (Healy, Cote, Helliwell, & Held, 2001; Putnam, 2000). Besides Putnam, Bourdieu (1986) defined social capital as "the aggregate of the actual or potential resources which are linked to possession of a durable network of more or less institutionalized relationships of mutual acquaintance or recognition" (1986, p. 248). It is particularly important to note that Putnam views social capital as a public good that contributes to collective gains among people who are embedded in local communities or groups, whereas Bourdieu sees social capital as a private good that contributes to private gains. Social capital is linked to neighborhood-level health outcomes mediated by mutual support between neighbors or collective efficacy (Kawachi, Subramanian, & Kim, 2008). From this viewpoint, social capital has often been treated as a public good in the field of public health. The present study considers neighborhood-level social capital a public good that potentially affects the health of people embedded in a particular social context.

Sampson (1995) argued that the depletion of social capital (as indicated by reduced levels of interpersonal trust between residents and perceptions of living in a close-knit community) is a distinctive feature of socially disorganized neighborhoods. However, social disorganization and social capital are not interchangeable constructs. At least theoretically, the presence of "bridging" types of social capital (defined as the bonds that connect

residents who are heterogeneous with respect to background characteristics such as race and socioeconomic status) may buffer the deleterious influence of social fragmentation and social disorganization (Bellair, 2000; Putnam, 2000). That is, in neighborhoods characterized by large social distances (or diversity) between residents, social capital may function as the glue that bonds people from disparate backgrounds in "socially disadvantaged" neighborhoods.

The purpose of the present study was to examine the contextual influence of neighborhood social disorganization (as operationalized by the index of "social distance" proposed by Hipp) on the risk of depression among older residents in a study based in Japan. We further examined whether neighborhood differences in social capital could buffer the impact of social disorganization, allowing the mental health status of residents of disorganized neighborhoods to "catch up" to the level of less fragmented communities.

The purpose of testing these ideas in Japan was to examine the generalizability of the empirical findings, which have been reported in predominantly western settings (in particular, the U.S., where the population is characterized by marked heterogeneity in socioeconomic status and race/ethnicity). For example, Kaplan, Pamuk, Lynch, Cohen, and Balfour (1996) reported that income inequality is associated with all causes of mortality and other health indicators using state-level data in the U.S. In contrast to the U.S. (and the U.K.), Japanese society is more homogeneous in ethnic terms as well as in terms of income disparities. Although previous research in Japan has demonstrated that area-level variations in income inequality (as well as social cohesion) predict health status (Ichida et al., 2009), we are not aware of studies that have examined social fragmentation/disorganization along other social dimensions, such as educational background, hometown of origin, age, marital status, presence of children, or duration of residence in a community. In this analysis, we propose to conduct a multilevel analysis that incorporates individual-level social distance indices that represent each resident's deviation from his/her neighbors' social characteristics as well as community-level social distance indices (at level-2) that represent the aggregated scores of individual-level social distance measures. The second aim of our study is to investigate the effects of social capital on residents who exhibit a large disparity (social distance) from their neighbors. We are interested in whether community-level social capital indices have interaction effects with individual-level social distance indices; that is, we examine whether social capital functions as a "bridge" for people who are socially distant from their neighbors.

Methods

Data

Data from the Aichi Gerontological Evaluation Study (AGES) project (Kondo, 2010) were used for this study. In 2006, investigators for the AGES project mailed a postal survey to every resident over the age of 65 years residing in 9 municipalities in Aichi, Nara and Kochi Prefectures, Japan (The prefectures of Japan are the country's 47 subnational jurisdictions. Prefectures are governmental bodies larger than cities, towns and villages – comparable to the states in the U.S.). The sampling frame was based upon the residential registers maintained by the municipal offices of the target areas (in Japan, every resident is required to register their addresses with the local municipal authorities). Out of 65,398 baseline surveys that were mailed out, the response rate was 60.8%. Our study protocol and informed consent procedure were approved by the Ethics Committee in Research of Human Subjects at Nihon Fukushi University. Because the present study examined the effect of social distance and social capital at both the individual- and

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