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# Longitudinal association between social capital and self-esteem: A matter of context

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#### ABSTRACT

The aim of this study is to investigate the longitudinal association between indicators of different components of social capital at the individual, household, and area levels and self-esteem while adjusting for various confounders at multiple levels. Respondents participating in Wave 1 (2009) and 2 (2010) of the Seoul Welfare Panel Study were used in the analysis. The final sample for the current study includes a total of 5127 participants in 2738 households within 25 administrative areas. This study shows that only a small amount of variance in self-esteem was attributed to the area level (7.6%). On the other hand, a relatively large amount of variance in self-esteem was attributed to the household level (52.5%). It has also shown that all individual-level social capital indicators including perceived helpfulness, organizational participation, and volunteer work were positively associated with self-esteem. Among household-level indicators of social capital, only organizational participation was associated with self-esteem. However, none of the area-level social capital indicators were associated with self-esteem. The main finding of the current study suggested that the association between social capital and self-esteem varied depending on both dimensions and levels of social capital indicators.

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#### 1. Introduction

Since the social scientist Durkheim's work over a century ago (Durkheim, 1997), there is growing recognition that social environment is important for individuals' well-being and mental health (Donisi et al., 2013). Social capital is one such social environmental factor that has stimulated this relatively old debate and attracted many scholars in various fields (Stafford et al., 2008; Hamano et al., 2010; Eriksson et al., 2011; Poortinga, 2011). Many empirical studies found an association between social capital and various psychological well-being and health outcomes including self-rated health, dental status, life satisfaction, and psychological distress (Poortinga, 2006a; Aida et al., 2009; Song, 2010; Hurtado et al., 2011; Lee and Kim, 2013; Han et al., 2013).

Social capital is a multidimensional concept that has been defined as the resources available to both individuals and collectives through their social relationships (Putnam, 2000; Kawachi, 2006). Apart from this general definition, however, there is no consensual meaning of social capital. However, most of the definitions can be categorized into two social capital dimensions: a structural dimension, which is what people do, such as social

http://dx.doi.org/10.1016/j.psychres.2014.12.070 0165-1781/© 2015 Elsevier Ireland Ltd. All rights reserved. participation and cognitive dimension, which is what people feel, such as trust and norms of reciprocity (Harpham et al., 2002). The consideration of at least one variable per dimension is necessary as each dimension is hypothesized to affect psychological well-being outcomes through different pathways (De Silva et al., 2005; Giordano and Lindström, 2010).

There is still ongoing debate among scholars on which context is most appropriate for social capital to operate (Giordano et al., 2011). It is not uncommon to see administrative-area, state, or county level used as a main context because of data availability, which is a relatively larger spatial unit (Kawachi et al., 1999; Folland, 2007; Poortinga, 2011), and therefore may not represent individuals' social interactions (Snelgrove et al., 2009). One context of social capital which has been overlooked in literature is household and family (Poortinga, 2006b). Theoretically, household and family have been suggested as an essential source for the formation of social capital (Coleman, 1988; Fukuyama, 1995; Putnam, 2000). Given that home is where individuals spend a large amount of time (Bentley et al., 2011) and contextual-level social capital can precisely reflect individuals' social interactions with relatively smaller spatial units (Mohnen et al., 2011), there is no reason to believe that household does not affect the formation of social capital (Giordano et al., 2011). Indeed, several empirical studies on social capital suggest that household is an important context for studying social capital, as pointed out by relatively

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higher intra-class correlation (ICC) which refers to the proportion of the total variance in the outcome that is attributable to the group level being modeled (Hox, 2010) was found at the household level in individuals' outcomes (Poortinga, 2006b; Giordano et al., 2011; Han, 2013; Han et al., 2013). Thus, the consideration of household level social capital may play a role in explaining the variation in outcome measures.

To date, many studies have examined the association between social capital and physical health. On the other hand, few studies have examined the association between social capital and psychological well-being (Yip et al., 2007; Lindström and Mohseni, 2009; Han and Lee, 2013). Additionally, many of them were based on the cross-sectional designs which prevent causal inferences. Although some studies (Kouvonen et al., 2008; Oksanen et al., 2008) reported the results based on longitudinal designs, these studies chose the workplace as the main context, so it is difficult to generalize this to general population and social contexts. No previous study could be found which examined the association between the individual, household, and area levels of social capital and mental health or well-being outcomes based on longitudinal data. Longitudinal study is needed as the possibility of the reverse causality cannot be excluded based on cross-section study. Although it is assumed that social capital affects psychological well-being, it may also be possible that higher psychological wellbeing leads to higher social capital. Longitudinal study provides more appropriate causal inferences than cross-sectional study, as it enables evaluation of the temporal order between social capital and an outcome measure (i.e., social capital precedes an outcome measure).

This study selected self-esteem as an outcome measure among many psychological outcomes. Self-esteem has been defined as a person's global feelings of self-worth or adequacy as a person or generalized feelings of self-respect (Rosenberg, 1965). Investigating self-esteem is important as it has been suggested to be protective against negative physical and mental health and contribute to better physical and mental health and health behaviors (Dalgard et al., 2008; Veselska et al., 2011). Additionally, it has been suggested that social capital affects a series of well-being outcomes via self-esteem (Schultz et al., 2008). Moreover, self-esteem is considered as an important mental health outcome itself (Ryff, 1989). Finally, while several studies (Drukker et al., 2006; Haney, 2007) investigated the association between social capital and self-esteem, they are limited as they did not consider the family context.

The aim of this study is to investigate the longitudinal association between indicators of different components of social capital at the individual, household, and area levels and self-esteem while adjusting for various confounders at multiple levels using multilevel analysis which is the first study of its kind. This study modeled self-esteem at follow-up as a function of baseline characteristics.

#### 2. Methods

#### 2.1. Data source and study population

This study used data from the Seoul Welfare Panel Study (SWPS) conducted by the Seoul Welfare Foundation. The SWPS is an ongoing bi-annual longitudinal panel survey that began in 2008. The SWPS is comprised of a representative sample of households located in 25 administrative-areas in Seoul, South Korea uses households which were residing in Seoul in December 2008 based on the 2005 National census Registry as the sampling frame. The SWPS uses a two-stage stratified cluster sampling method to select households. Census tracts of Seoul were stratified based on dwelling size, education, and age to select a representative sample of households. By using systematic sampling with probability proportional to population size, census tracts were selected at the first stage. Households were selected within selected census tract using systematic sampling at the second

stage. Within the selected households, multiple interviews are conducted; thus all members of the household age 15 or older are interviewed where possible. Doorto-door visits and face-to-face interviews with respondents were conducted by trained interviewers. A total of 7761 individuals within 3655 households completed the interviews in Wave 1 (2009). Of these, 6304 respondents in 2893 household completed the interviews in a follow-up survey in Wave 2 (2010). This yielded participants rates for household 87.6% and household membership 87.5%. More details of the survey procedures and data are available elsewhere (http://panel.welfare.seoul.kr/).

This study restricted analysis to participants aged 20 or older in Wave 1 as health effects of social capital could be different between adults and adolescents (De Clercq et al., 2012). There was no practical difference between before and after inclusion of adolescents (results not shown). This study also excluded participants who moved districts or households between Wave 1 and Wave 2, who moved out of Seoul after Wave 1, and who newly participated in Wave 2. Of these, participants who had full information of the independent variables and dependent variable were used in the final analysis. This yielded a total of 5127 participants in 2738 households within 25 administrative areas. On average, there were approximately 205.1 households within administrative areas and 1.9 individuals within households. The number of singleton households was 881 (17.1%).

#### 2.2. Measures

#### 2.2.1. Self-esteem

The Rosenberg Self-Esteem Scale was used to measure self-esteem (Rosenberg, 1965) at Waves 1 and 2. The scale includes ten items to reflect global self-esteem. These items were rated on a five-point Likert scale with values ranging from "strongly agree" to "strongly disagree." Some examples of 10 items were "All in all, 1 am inclined to feel that I am a failure"; "On the whole, I am satisfied with myself"; "I feel that I am a person of worth, at least on an equal plane with other"; and "I wish I could have more respect for myself." Some items were recorded so that higher scores reflected higher self-esteem. Factor analyses revealed a one-factor solution for Waves 1 and 2. The scale's reliability coefficients were 0.83 at Wave 1 and 0.85 at Wave 2, respectively. The average scores were used in multilevel analysis. Self-esteem at Wave 1 was included as a covariate and self-esteem at Wave 2 was used an outcome measure for the current study.

#### 2.2.2. Social capital

All indicators of social capital including perceived helpfulness, organizational participation, and volunteer work were measured at Wave 1. Perceived helpfulness (Fujisawa et al., 2009; Habibov and Afandi, 2011), a cognitive dimension of social capital was assessed by asking respondents: There is no one whom I can get a help or lean on in times of trouble'. Respondents were asked to rate their agreement on this item using a five-point Likert scale (from strongly agree to total disagreement). A dummy variable was created with the three first alternatives representing low perceived helpfulness (coded=0) and the two latter alternatives representing high perceived helpfulness (coded=1).

Organizational participation (Snelgrove et al., 2009; Han and Lee, 2013; Park et al., 2013) was measured as a structural dimension of social capital by asking respondents about his or her involvement in 11 types of organizations, which include alumni association, hobby group, an association of people from the same province, a group composed of people with the same family name and the same family origin on the paternal line, religious group, civic/community group, volunteer or charity group, education/academic organization, tenants group, political party, professional organization. Respondents were asked to rate their level of involvement in each organization using a five-point Likert scale (from very actively participate to do not participate). Respondents who answered "not participate" for an organization were considered as non-participants in the organization and all other responses were considered as participation for the group. A dummy variable was created with one representing a group of respondents who were involved with in one or more organizations (coded=1) and the other representing those who were not involved with any organization (coded=0).

Volunteer work (Schultz et al., 2008; Giordano et al., 2011) was measured as another dimension of a social capital indicator by asking respondents: have you participated in any volunteer work during the past year? A dummy variable was constructed with respondents who answered "yes" (coded=1) and those answered "no" were coded "0".

These individual-level social capital indicators were used to construct social capital at the household and area levels. This study adopts ecometrics, deriving shrunken residuals from each individual level social capital measure for households and areas (Merlo et al., 2005; Mujahid et al., 2007). The shrunken residuals at household and area levels were then used in the multilevel analyses as household and area levels of social capital measures, respectively. This method considers the number of respondents per cluster. Thus, there will be more shrinkage toward the mean value if residual values obtained from household or areas which containing fewer respondents (Rabe-Hesketh and Skrondal, 2012).

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