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# Social capital and health—Purely a question of context?

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ABSTRACT

Debate still surrounds which level of analysis (individual vs. contextual) is most appropriate to investigate the effects of social capital on health. Applying multilevel ecometric analyses to British Household Panel Survey data, we estimated fixed and random effects between five individual-, household- and small area-level social capital indicators and general health. We further compared the variance in health attributable to each level using intraclass correlations. Our results demonstrate that association between social capital and health depends on indicator type and level investigated, with one quarter of total individual-level health variance found at the household level. However, individual-level social capital variables and other health determinants appear to influence contextual-level variance the most.



## 1. Introduction

Having been introduced to the field of public health by Kawachi et al. (1999, 1997), social capital now seems to be an established health determinant. Social capital is theorised to positively influence health independently of other well-known determinants, including socio-economic status and behaviours such as smoking (d'Hombres et al., 2010; Fujiwara and Kawachi, 2008; Giordano and Lindström, 2010; Lochner et al., 2003; Schultz et al., 2008). However, many questions still surround this particular field, with the relevance of social capital on health outcomes often being contested by proponents stressing the importance of material conditions and public welfare policy (Muntaner, 2004; Pearce and Davey Smith, 2003).

To expand and clarify: numerous studies using an array of methodologies, demonstrate association between social capital measures and health (for a review of the literature see Islam et al., 2006). Social capital is considered a contextual phenomenon (Berkman and Kawachi, 2000). It cannot be directly observed or quantified, therefore individual-level proxies are commonly used instead, examples of which include: horizontal and vertical trust, social and civic participation, and perceived reciprocity. These proxies can be grouped into two social capital 'dimensions': a cognitive dimension (trust and norms of reciprocity) and a structural dimension (social networks and participation) (Harpham et al., 2002). As these dimensions are hypothesised to influence health via different pathways (Lindström, 2004; Nummela et al., 2008; Stolle, 2001; Giordano and Lindström, 2010), it is prudent to include at least one proxy from each dimension when investigating social capital and health.

There is, however, disparity among researchers regarding which *context* is most appropriate to investigate effects of social capital on health (Macinko and Starfield, 2001). This disparity stems mainly from lack of consensus regarding how one defines (and therefore conceptualises) social capital. Putnam (1993, p. 167) refers to social capital as 'features of social organisation, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions'. This definition implies that the 'collective level' is most appropriate for investigation of social capital effects. However, Portes (1998, p. 12) defines social capital as 'the capacity of individuals to command scarce resources by virtue of their membership in networks or broader social structures'. This definition justifies investigation of individual-level effects of social capital in health research.

Such diversity within the same field of research has certain repercussions: studies solely measuring individual-level social capital effects face criticism if they ignore potential contextual

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effects; conversely, studies that investigate only aggregated effects may be considered biased if they fail to adjust for individual-level social capital measures.

An obvious solution is to investigate both individual- and contextual-level social capital effects simultaneously (Poortinga, 2006a; Subramanian et al., 2002); however, this is not without its own issues. Individual-level social capital proxies are commonly aggregated to a context of interest, often a community-, state- or country-level. Yet these 'levels' are chosen more out of convenience and data availability than as accurate representations of individuals' day-to-day social interactions and networks. Social networks are an integral part of the definition of social capital (Coleman, 1990; Putnam, 1993; Portes, 1998; Berkman and Kawachi, 2000), so analysis of inappropriate contexts may fail to capture any effects. This point is clearly highlighted by interpretation of the intraclass correlation (ICC), often available in contextual studies. The ICC expresses the percentage of *total* variation in the dependent variable (in this case, self-rated health) attributable to the context being modelled (community, state or country). Similarities between individuals from the same context regarding the propensity for the outcome will result in a high ICC; the higher the ICC, the more important the context is for understanding variation in the individual outcome under investigation (Merlo et al., 2009).

In multilevel social capital studies, it is not uncommon to see that only 0–4% of *total* variation in individual health is attributable to the community, state or country context (for examples, see Fujisawa et al., 2009; Lindström et al., 2004; Poortinga, 2006b; Snelgrove et al., 2009). In response, researchers are seeking more relevant contexts in which to investigate the effects of social capital on health, one such example being the workplace (Oksanen et al., 2010; Suzuki et al., 2010). However, studies at this level can, by definition, only include working adults, and results are not easily extrapolated to general societal contexts.

Historically, generalised trust – considered a key social capital proxy – was often afforded only to individuals recognisable as members of a particular family in which high levels of trust were embedded 'collectively' (Coleman, 1990, p. 185). It has also been suggested that the family, a close proxy for the household in industrial and post-industrial western societies, still plays an important role in the formation of social capital (particularly societal 'norms' of trust and reciprocity) among future generations (Coleman, 1988). Furthermore, as members of the same household are more likely to perpetuate their own societal 'norms' irrespective of differing broader community 'norms' (Coleman, 1990, p. 603), we propose that the 'household' be considered an appropriate context to investigate social capital effects. There is no reason to believe that the maintenance and ongoing formation of trust in other people, trust in societal institutions, and the propensity to participate in civic and social activities are not affected by the close social context of the family and the household in which a person lives.

Though previous research has considered the household context as an influence on individual health, only measures of material conditions have been of interest thus far (for recent examples, see Aittomaki et al., 2010; Minh et al., 2010; Wong et al., 2010; Yang et al., 2009). To our knowledge, social capital measures clustered at the household level have yet to be investigated in health research. Furthermore, considering the debate surrounding the definition and conceptualization of social capital (see earlier), it seems necessary to investigate individual and contextual levels simultaneously. Therefore, the aim of this study is twofold: firstly, to investigate the strength of association (fixed effects) between five different proxies representing the two 'dimensions' of social capital on health at individual- and aggregated-levels, whilst adjusting for other health determinants; and secondly, to determine which context (household vs. small area-level) explains most of the variation (random effects) in individuals' self-rated health. We hypothesise that association between social capital and self-rated health will vary across the three levels investigated depending on the proxy, and that the household context will explain a greater amount of variation in individual-level health than geography alone.

## 2. Materials and methods

### 2.1. Data collection

The British Household Panel Survey (BHPS) is a survey of randomly selected private households, conducted by the UK's Economic and Social Research Centre. The raw data used for our study come from the BHPS 'Wave R' in 2008–2009. Datasets were merged to create the multilevel structure necessary for our investigation, and three 'levels' were identified: the individual-level ($N=10{,}992$), the household-level ($N=6201$) and the small area-level ($N=399$). Only household members who were 16 years of age or older could participate and the number of households containing singletons was around 14% ($N=1516$). The small area-level was defined by the postcode sector in which the household was located, one postcode sector typically containing 2500 households. Further details of the selection process, weighting and participation rates can be found on-line in the BHPS User manual (Taylor et al., 2010). The Research Centre fully adopted the Ethical Guidelines of the Social Research Association; informed consent was obtained from all participants and strict confidentiality protocols were adhered to throughout data collection and processing procedures.

### 2.2. Dependent variable

The dependent variable in this study is self-rated health. Self-rated health has been repeatedly found to be a valid predictor of mortality and morbidity (Idler and Benyamini, 1997). Respondents were asked: 'Compared to people your own age, would you say that your health over the past twelve months has been excellent, good, fair, poor or very poor?' These five outcomes were dichotomised into 'Good' (excellent/good) and 'Poor' (fair/poor/very poor) health. 'Good health' was the reference category (0) and the outcome of interest was 'Poor health' (1).

### 2.3. Independent variables

#### 2.3.1. Social capital variables

Generalised (horizontal) trust was assessed by asking people: 'Generally speaking, would you say that most people can be trusted, or that you can't be too careful?' Those respondents who stated that most people could be trusted were labelled 'can trust'; all other responses (including 'it depends') were labelled 'can't trust'.

Social participation was measured by asking respondents questions about being *active* members of community groups or any sports, hobby or leisure group activity found locally. Only those who answered positively to any of these were judged to participate, with all others being labelled 'No participation'.

Unpaid voluntary work was considered a social capital measure separate to social participation; individuals who answered positively to undertaking unpaid voluntary work were judged to volunteer.

Perceived reciprocity was measured by asking respondents whether they could readily borrow items from neighbours. Those who agreed that they could were labelled 'high reciprocity'; all others were labelled 'low reciprocity'.