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Commentary: Social capital and health: making the connections one step at a time

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The study by Tony Blakely *et al.*¹ in this issue of the journal adds to the growing international evidence suggesting that social capital matters less for the health of residents in comparatively egalitarian countries, in contrast to highly unequal societies with inadequate safety nets. Although New Zealand experienced dramatic surges in income inequality following the structural reforms of the 1980s and 1990s, the country, nonetheless, managed to preserve robust support for

public infrastructure (e.g. primary health care services, public education) that arguably helps to mitigate the consequences of rising inequality.

The New Zealand study is broadly consistent with the survey of literature on social capital and health carried out recently by Islam *et al.*² The authors identified 42 studies on social capital and health published between 1995 and 2005, including 30 single-level studies (either individual-level or ecological data) as well as 12 multilevel studies from different countries. Regardless of study design, the review found a fairly consistent fixed effect association between social capital and a range of health outcomes. However, in the multilevel studies, the

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between-area variance (random effect) in health tended to be substantially lower in egalitarian countries compared with that in unequal countries.² That is, the intra-class correlations (ICCs) for health outcomes were considerably lower in studies based in more egalitarian countries (e.g. Sweden) compared with those based in unequal countries such as the US. For example, ICCs from studies of neighbourhood influences on health typically range from 5 to 10% in US studies, but they tend to range between 1 and 2% for studies in Sweden.² One implication is that in egalitarian societies, with strong safety nets and adequate provision of public goods, neighbourhood contexts (including the level of social cohesion) may be less salient for the health of residents in contrast to segregated and unequal societies such as the US. Echoing this view, a recent panel-data multilevel study of 275 Swedish municipalities found a modest fixed effect association between voting participation (as a marker of social cohesion) and health-related quality of life.³ However, 98% of variation in health was attributed to the individual level and only 2% to the municipality level.³

The modest (or in the New Zealand case, null) association between social capital and health in more egalitarian societies is reminiscent of literature on income inequality and health, where null findings have been reported from countries such as Sweden,⁴ Denmark,⁵ Japan,⁶ New Zealand,⁷ and Canada.^{8,9} By contrast, an association between income inequality and worse health status has been reported in highly unequal societies, including the US,¹⁰ Chile,¹¹ and Ecuador.¹² One interpretation of the evidence is that both income inequality and social capital are aggregate markers of deeper political and social arrangements (e.g. neo-liberalism vs support for the welfare state,¹³ and/or provision of universal primary care services¹⁴) that are contingent on the history of each country. An alternative possibility is that there are non-linear effects of income inequality on population health,¹⁵ such that beyond a certain threshold limit of inequality, social cohesion breaks down, and with it, support for spending on public goods.¹⁶ Recent evidence from a public-goods experiment tends to support this theory.^{17,18} Anderson *et al.*¹⁷ carried out a public-goods experiment in which participants were forced to choose between investing their allotted monetary tokens to a private account or to a shared (public) account. The return on the public account was set as a linear function of the total amount contributed by players in the game; the greater the amounts paid into the public kitty, the higher the returns to each player. However, when there is free-riding and players do not trust each other, the optimal strategy is to keep all investments in individual accounts. The experiment is thus a variant on the classical prisoner's dilemma game: if each player acts selfishly and hoards their tokens in their private accounts, they would walk away from the game with a fixed and predictable amount of money, but that amount *would be less* than the money they would each have earned if they had cooperated instead and invested all their tokens in the public account. The dilemma consists of the fact that no player knows how much the others have invested in the public account. If an individual player invests heavily in the public account but nobody else does, she would end up with less money compared with what she would earn when pursuing the selfish strategy. Faced with this situation, most players hedge their bets and invest some

proportion of their tokens in the public account while holding back the remainder in their private accounts. The actual amount that players contribute to the public pool depends on cooperation between players and the extent to which they trust one another (i.e. believe that fellows are not free-riding).

The novel twist introduced into this game by Anderson *et al.* was to vary the distribution of the payments that each player was given when they showed up for the experiment. In some experiments, everybody received the exact same amount. In other experiments, some people received much more, while others received less. Furthermore, in half of the experiments, the initial distribution of payments was revealed to all players, but the actual payment given to each player was kept secret. In the other half, the actual payments awarded to each player were made public in a mock ceremony prior to the start of the game.

The results of this experiment support the theory that greater inequality in the distribution of incomes leads to less cooperative behaviour and lowered willingness to contribute to the public purse. Inequality in the distribution of initial payments consistently and significantly dampened the amount of contributions made to the public account, particularly when inequality was made salient to the players, i.e. in the experimental condition in which the distribution of rewards was publicly revealed at the beginning of the game.^{17,18}

'Cohesion' vs 'network' theories of social capital

One of the criticisms of the social capital literature has focused on the fairly widespread practice of using proxy indicators to measure area-level social capital.¹⁹

Lacking primary data, investigators have resorted to a diverse—and some say increasingly remote—set of proxy indicators ranging from voting behaviour, volunteering, local crime rates, perceptions of corruption, and even newspaper readership.¹⁹ Some of these indicators may be causal precursors or consequences of social capital, but they should not be confused with the concept of social capital itself.

Blakely *et al.*¹ are appropriately cautious about noting the limitations of their indicator of social capital, which was based upon a measure of volunteering activities among census respondents. In the Swedish study cited above,³ voting participation was used as the indicator of municipal social capital. The observation that voting and volunteering are proxies for social capital, however, begs the question of what is 'social capital'? The existing literature highlights two distinct conceptions of social capital. On the one hand, social capital has been conceptualized as the resources—for example, trust, norms, exercise of sanctions, and mutual assistance—available to members of tightly knit communities. We label this the 'social cohesion' school of social capital (Moore *et al.*²⁰ have also labelled this the 'communitarian' definition of social capital). The social cohesion definition tends to emphasize social capital as a group attribute (e.g. a property of communities or neighbourhoods) and to analyse it as a contextual influence on individual health.²¹ As many have pointed out (e.g. Portes²²), cohesion can produce both socially benign outcomes and undesirable outcomes, i.e. resources within tightly knit groups and communities are equally serviceable for

the production of social 'bads' as well as goods. A citation network analysis of social capital literature in public health found that researchers have 'privileged' the social cohesion definition of social capital.²⁰ The studies by Blakely *et al.*¹ as well as Islam *et al.*³ belong squarely within this tradition.

By contrast, the 'network' theory of social capital defines the concept in terms of resources—for example, instrumental support, information channels, social credentials—that are embedded within an individual's social network.²³ In contrast to measures of social cohesion, which typically rely upon survey items inquiring about perceptions of trust and reciprocity, and then aggregating the individual responses up to the group level, the network approach to social capital employs methods of sociometric analysis, i.e. either ego-centred network mapping or whole network analysis. Examples of measurement techniques for the former approach include Lin's Position Generator,²⁴ which asks individuals (egos) to nominate others in their network (alters) who provide them with access to valued resources, e.g. prestige, political connections. An alternative approach is the Resource Generator, developed by van der Gaag and Snijders,²⁵ which is a multidimensional index that taps an individual's access to resources across several domains of life (e.g. at home and in the work place) and spans across a range of goods from the material (e.g. borrowing money) to the symbolic (e.g. prestige, influence).

Distinct from these ego-centred sociometric approaches, whole network analysis involves saturation surveys of all existing social connections within a defined collective (e.g. a school or a workplace). The resulting data can then be manipulated to derive different structural properties of the network, several of which have relevance for social capital, e.g. 'cohesion', reciprocity, and centrality.²⁶ Moore *et al.*²⁰ contend that these network approaches have been marginalized and under-utilized in public health literature on social capital (although this claim might surprise some researchers who have utilized network analyses to explore the dark side of social capital—e.g. behavioural contagion—in studies of injection drug users,²⁷ tobacco, alcohol, and other drug use among adolescents,²⁸ and suicidal behaviour²⁹).

The difference between the 'network' and 'cohesion' definitions of social capital may superficially resemble the frequently drawn distinction between the individual vs collective definitions of social capital. As already alluded to above, the cohesion approach to social capital emphasizes it as a collective (and often spatially-bound) attribute. However, it would be a mistake to view social capital in mutually exclusive terms, as either an individual or a collective asset; clearly, it can be both.³⁰ To paraphrase Lin,²³ social relations with embedded resources can be expected to be beneficial (and occasionally harmful) to both the collective and the individuals in the collective. The challenge lies in better integrating theory and measurement across different levels of social interaction, from individuals interacting with others within their own networks to interactions between groups within a broader social context. For example, Durlauf³¹ cites a scenario using the example of race relations, where social capital might promote strong intra-group (within own network) interactions, but it might also increase the level of inter-group hostility and, thereby, contribute to diminished social cohesion. In this example, both

the individual and collective aspects of social capital are of substantive interest.

Bonding and bridging social capital

Additional insights into the mechanisms underlying social capital and health are likely to come from carefully distinguishing between so-called bonding and bridging/linking social capital.³² Bonding social capital refers to trusting and cooperative relations between members of a network who are similar in terms of social identity (e.g. race/ethnicity), whereas bridging/linking social capital refers to connections between individuals who are dissimilar with respect to social identity (bridging capital) or who interact across explicit power and authority gradients in society (linking capital).³² Although the New Zealand study did not incorporate measures to distinguish between these types of capital, a growing number of studies suggest that doing so may be critical for understanding the complex ways in which social capital may promote—and also harm—the health of individuals. In a cross-sectional study among residents of a disadvantaged, predominantly minority community in Birmingham, Alabama, Mitchell and LaGory³³ reported that while bridging social capital (measured by the strength of trust and associational ties with others of a different race and educational background as the respondent) was associated with lower levels of mental distress, bonding social capital was related to health in the opposite direction, i.e. greater distress. Additional studies from Baltimore, Maryland,³⁴ and Adelaide, Australia,³⁵ suggest that stronger bonding ties within disadvantaged communities may be a detriment to the health of residents. In the Baltimore study, lower maternal community attachment was associated with fewer behavioural and mental health problems among children living in low-income areas.³⁴ In a cross-sectional survey of a working class suburb in Adelaide, Ziersch and Baum³⁵ reported that involvement in community groups was associated with worse physical health as measured by the SF-12. Qualitative interviews with residents in the same study found that respondents were more apt to link their participation in community groups with negative mental and physical health outcomes.

The bottom line from these studies seems to be that closer ties with neighbours can have a net negative effect on the health of residents, especially in deprived communities. This phenomenon could be linked in turn to the observation that within disadvantaged communities, stronger bonding ties may involve higher expectations to assist neighbours in need, and hence higher levels of financial and mental strain. The key to promoting health in this situation is for individuals to be able to access resources outside their immediate social milieu. Testing such a hypothesis requires explicit measures of bridging and linking social capital, exemplified by concepts such as 'upper reachability', which is part of Lin's Position Generator instrument.²³

Next step

Beyond improving the conceptualization and measurement of social capital, future studies must additionally grapple with the thorny issues of causality. Existing studies, even those with a

panel design^{1,3} have not adequately dealt with the problem that social capital is endogenous. At the individual level, it is not completely established whether good health is the result of social capital or whether social capital is the result of good health and/or other unmeasured personal characteristics that determine both health status and patterns of social engagement. At the community level, social cohesion may be a reflection of the health status of residents (i.e. you have to be healthy to volunteer). Some people also choose where to live based on their preferences for social interactions with neighbours. To the extent that such preferences are also correlated with health, we have an endogeneity problem.

Solving these problems (which *in passim* are not unique to studies of social capital and health) will require study designs in which the exposure (social capital) can be manipulated through either natural experiments (instruments) or randomization (e.g. cluster community trials).³⁶ Though this is by no means an easy task—since there is plenty of debate about what causes social capital to rise or fall at either the individual or the community level—persuading policy makers of the relevance of social capital for health will probably hinge upon more convincing demonstrations of causality.

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