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Area variation in mortality in Tasmania (Australia): the contributions of socioeconomic disadvantage, social capital and geographic remoteness

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Abstract

This study investigated the association between socioeconomic disadvantage, social capital, geographic remoteness and mortality in the Australian state of Tasmania. The analysis is based on death rates among persons aged 25–74 years in 41 statistical local areas (SLA) for the period 1998–2000. Multilevel binomial regression indicated that death rates were significantly higher in disadvantaged areas. There was little support for an association between social capital and mortality, thereby contesting the often held notion that social capital is universally important for explaining variations in population health. Similarly, we found little evidence of a link between geographic remoteness and mortality, which contrasts with that found in other Australian states; this probably reflects the small size of Tasmania, and limited variation in the degree of remoteness amongst its SLA.

Keywords: Socioeconomic disadvantage; Social capital; Mortality; Health inequalities

Introduction

It has long been observed in Australia that geographic areas differ in their health profiles. Studies have documented area variations in mortality (Quine et al., 1995; Turrell and Mengersen, 2000; Wilkinson et al., 2000; Yu et al., 2000), morbidity (Glover et al., 1999; Taylor et al., 1992; Mathers, 1994), health-related behaviours and risk factors (Phung et al., 2003; Mathers, 1994), and health service utilisation (Turrell et al., 2004a). These area-level heterogeneities in health have been established for different sized area-units ranging from states and territories (Wilkinson et al., 2000; Siahpush and Singh, 1999) down to statistical divisions (Dasvarma, 1980; Wilkinson et al., 2001), local government areas (Yu et al., 2000; Taylor et al., 1992), statistical local areas (SLA) (Turrell and Mathers, 2001; Glover et al., 1999) and census collectors' districts (Turrell et al., 2004b). In attempting to account for area differences in health, Australian researchers have to-date focused most of their attention on the contribution of socioeconomic factors, although some work has also

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examined the health consequences of living in rural areas of the country. Extant findings indicate that socioeconomically disadvantaged areas, and areas outside the major metropolitan regions (especially remote and very remote locales) exhibit the poorest health: these areas typically have the highest mortality rates, poorer physiological and psychosocial health, and more adverse risk factor and health-behaviour profiles.

Although important, socioeconomic disadvantage and geographic remoteness are unlikely to be the only determinants of area variations in health in Australia. Very possibly, social capital may also contribute to health differences between areas. Social capital has been defined as "*features of social organisation such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions*" (Putnam, 1993, p. 167). Defined this way, social capital is a characteristic of ecologic units—states, communities, neighbourhoods—and not individuals (Lochner et al., 1999). Although social capital has its genesis in relations among individuals, and the nature, extent of people's civic and political participation and organisational as well as group memberships, the concept transcends and emerges from these micro-processes to characterise the quality of the social fabric. Health researchers have conceptualised social capital in myriad ways, including (but not limited to) perceptions of trust and reciprocity, altruism, social integration, participation, and memberships (Lochner et al., 1999). In quantitative research, these concepts are very often measured using single data items from health or social surveys, with individuals' responses within geographic areas being aggregated to form an indicator of the amount or quality of social capital in the area. Importantly, recent multilevel work on the validity of these types of measures (where the compositional and contextual components of the aggregated constructs can be delineated) suggests that they do indeed capture to some extent an area's stock of social capital (Subramanian et al., 2003). Overseas studies have examined the relationship between social capital and mortality (Kawachi et al., 1997; Veenstra, 2002; Lochner et al., 2003; Skrabski et al., 2003), self-rated health (Subramanian et al., 2001a, b, 2002; Kawachi et al., 1999) violent crime (Kennedy et al., 1998; Galea et al., 2002) and health service use (Hendryx et al., 2002), and most of these show that health and well being are better in areas with higher levels of social capital, independent of the socioeconomic characteristics of the areas. Although we can still only speculate about how and why social capital is related to health, it is believed to influence population health through (among other things) collective action that secures necessary community resources or services, the efficient dissemination and diffusion of information, and via promoting and protecting psychosocial well being (Kawachi, 1999; Kawachi et al., 1999).

Within the Australian context, the number of publications by Australian writers that have dealt with the issue of social capital and health is relatively small and highly variable in focus. A search of the published health literature identified commentaries and discussions about the meaning, relevance, and importance of social capital for health (Cox, 1997; Leeder and Dominello, 1999; Baum, 2000; Hawe and Shiell, 2000; Vimpani, 2000; Henderson and Whiteford, 2003); a quantitative study of social and civic participation in community life and their links with SES and other demographic factors (Baum et al., 2000); a qualitative study of the role of people's perception of 'place' and the influence of this on community participation and health (Baum and Palmer, 2002); a glossary of key terms used in social capital discourse (Baum and Ziersch, 2003); and an individual-level study examining how the relationship between household income and self-rated health in three welfare states (US, Sweden and Australia) was differentially affected by adjustment for social capital (trust, altruism, and citizenship) and socially oriented behaviours (membership in organisations and political activity)(Smith and Polanyi, 2003). Only one Australian study was identified that used social capital as an ecologic construct and examined its relation to area-variation in health. Specifically, Siahpush and Singh (1999) investigated the association between social integration and mortality in the each of the Australian states and the Australian capital territory for the period 1990–1996 using five indicators of integration—percentage of people living alone, divorce rates, unemployment rates, proportion of people who were discouraged job seekers and unionisation rates. Independent of socioeconomic conditions, higher levels of social integration (with the exception of unionisation rates) were associated with lower all-cause mortality, greater life expectancy and lower death rates from a range of specific causes including cardiovascular disease, malignant neoplasms, respiratory disease and suicide. On the basis of just this study it is too early to declare that area-level social capital is important for population health in Australia as it seems to be in a number of other countries; clearly, there is a need for more Australian research, especially work focusing on smaller-sized areas than states or territories. In this paper, we respond to this need by examining small-area variation in all-cause mortality in the state of Tasmania among persons aged 25–74 for the period 1998–2000; and focus on whether and to what extent area-heterogeneity in death rates is the attributable area differences in social capital, socioeconomic disadvantage and geographic remoteness. Importantly, the inclusion of each of these three constructs will allow us to estimate the relative independent contribution of each factor to mortality variation between areas.