



Neighbourhood walking and regeneration in deprived communities

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ABSTRACT

More frequent neighbourhood walking is a realistic goal for improving physical activity in deprived areas. We address regeneration activity by examining associations of residents' circumstances and perceptions of their local environment with frequent (5+ days/week) local walking (NW5) in 32 deprived neighbourhoods (Glasgow, UK), based on interview responses from a random stratified cross-sectional sample of 5657 residents. Associations were investigated by bivariate and multilevel, multivariate logistic regression. People living in low-rise flats or houses reported greater NW5 than those in multi-storey flats. Physical and social aspects of the neighbourhood were more strongly related to walking than perceptions of housing and neighbourhood, especially the neighbourhood's external reputation, and feelings of safety and belonging. Amenity use, especially of parks, play areas and general shops (mainly in the neighbourhood), was associated with more walking. Multidimensional regeneration of the physical, service, social and psychosocial environments of deprived communities therefore seems an appropriate strategy to boost walking.

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1. Introduction

Walking is one of the most popular forms of physical activity (PA). It is the third most common form of PA for adults in Scotland: 39% of men and 32% of women walked for a minimum of 10 min at least once in the last four weeks (Marryat, 2009). Likewise, in England, adults spend more hours walking per week than doing any other form of non-occupational PA: on average, 20% of men and 18% of women walk 'fairly briskly' or 'fast' for at least 10 min at a time on 5 or more days per week (HSE, 2009). Various US studies have found walking to be the most popular leisure time PA amongst adults (Siegel et al., 1995; Rafferty et al., 2000; Simpson et al., 2003). The generally substantial contribution that walking makes to the total amount of PA that people do means that broader evaluations of PA are often reporting largely on walking behaviours.

Physical inactivity has considerable detrimental effects, contributing to the growing prevalence of conditions such as cardiovascular disease, obesity and type 2 diabetes (Telford, 2007), coronary heart disease, colon and breast cancer, and stroke in developed countries (WHO, 2002). It also has substantial economic consequences, costing £8.2 billion a year in England (DCMS, 2002), including £1.01 billion costs directly to the National Health Service (Allender et al., 2007).

Conversely, physical activity is seen to have a range of positive effects on physical health (reviewed in Warburton et al., 2006). Specifically with respect to walking, research has identified several such benefits, e.g. prevention of cardiovascular and coronary heart disease (Lee et al., 2001; Manson et al., 2002; Tanasescu et al., 2002).

Mental health benefits are claimed for PA, including improved wellbeing (Cerin et al., 2009) and mood (Berger and Motl, 2000), and a lower likelihood of depression (Teychenne et al., 2008; Mead et al., 2009). In Scotland, walking may reduce the risk of psychological distress by 13–20% (Hamer et al., 2009). Walking can reduce levels of tension and tiredness (Ekkekakis et al., 2000), and improves energetic arousal (Saklofske et al., 1992), pleasure (Ekkekakis et al., 2008) and mood (Janisse et al., 2004).

There may be broader benefits of PA and walking than just those directly affecting health. Promoting PA aims to provide gains in economic capital from life years saved (PATF, 2003), facilitates participation in the workforce and yields health service savings (Morris, 1994; Probstfield, 2003). PA, and walking in particular, may form an important part of strategies to enhance people's social capital. In Halpern's 'Catherine wheel of social capital formation' (2005), boosting civic engagement and trust, and creating a vibrant community life are key elements at the 'meso' (neighbourhood) level. Walking may contribute to this in several ways: helping people feel more positive about where they live, and thus more inclined towards local engagement, giving people energy or vitality to do things (with others), and increasing the likelihood of meeting others, thus boosting familiarity and trust.

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Urban regeneration policies offer the possibility for public health interventions (MacGregor, 2010). In the UK, interest in influencing health outcomes for deprived communities as part of regeneration strategies has grown recently (Atkinson et al., 2006). Therefore, it is not surprising that regeneration would aim to stimulate PA, particularly higher rates of walking, among resident populations (Ogilvie et al., 2007). Since regeneration aims to produce 'sustainable communities' (Scottish Government, 2006), we can examine the relationship between PA and regeneration within a 'capitals framework' (Kearns et al., 2009), premised on the notion that public policy interventions should help individuals and communities build assets of various kinds as resources to invest in sustainable outcomes (Green et al., 2001).

Substantial gains from interventions are most necessary and perhaps most achievable in deprived areas, precisely because existing relative levels of PA and health, and components of economic, social and community capital tend to be worse than in less deprived areas. The Scottish Health Survey reported the fewest people achieving recommended PA levels in the most deprived areas¹: 38% of men and 28% of women (compared with 46% and 39%, respectively, in the least deprived areas) (Marryat, 2009). Furthermore, the numbers of people meeting the PA recommendation are lowest for women and second-lowest for men in Greater Glasgow (Gray, 2007), an area typified by particularly pronounced deprivation, and thus one ideal for study in this context.

Increased walking as a goal of regeneration may be more viable than trying to get people to take up sports activities, since it requires less time and is easier to fit into other daily routines (Ogilvie et al., 2007). Particularly in deprived communities, where many people are on low incomes, walking presents no barrier to participation in the form of additional expenditure on clothing and equipment, or on club and gym memberships.

To stimulate walking effectively, regeneration policy-makers and practitioners need to know what subjective and objective factors influence walking in deprived neighbourhoods. To this end, we can consider the neighbourhood not only as a set of physical, service and social environments (Kearns and Parkinson, 2001), but also as a psychosocial environment (Siegrist and Marmot, 2004). Many of these neighbourhood dimensions are known to influence walking rates. In the former case, this may be by making walking easier to accomplish (e.g. availability of better routes), providing destinations or other functional or social reasons to walk, and making it a more pleasant activity through the aesthetic or social pleasure it generates. In the latter case, it may arise from influencing how people feel about themselves, their status and quality of life, their self-efficacy and self-esteem—aspects that, in turn, may improve people's motivation and sense of security enough for them to walk locally.

Many aspects of the physical and built environments are known to increase walking (Owen et al., 2004): mixed land use (Leyden, 2003), high population densities and connectivity of street networks (Lund, 2002), aesthetically pleasant environments (both built and natural components) (Ball et al., 2001; Giles-Corti and Donovan, 2002), and sense of safety (Mendes de Leon et al., 2009). Provision of good street-lighting may aid walking by reducing the unease felt in poor neighbourhoods after dark, particularly among women, older people and some ethnic minorities (Kitchen et al., 2006). However, relatively little is known about how the types of buildings themselves and their distribution influence walking (Zimring et al., 2005).

With respect to the services environment, the level of neighbourhood accessibility of a range of services (e.g. supermarkets, banks, pharmacies and libraries) has been associated with higher levels of utilitarian walking, but lower levels of recreational walking (Riva et al., 2009). In a UK study, however, the presence of a post office was the only aspect of the service environment associated with increased walking rates (Poortinga, 2006).

In studies of walking, the social environment is often measured in terms of the social composition of areas. For example, walking rates have been found to be higher in neighbourhoods with higher levels of university education (Riva et al., 2009; Ross, 2000). Conversely, Ross found walking to be more common in poor neighbourhoods, for structural reasons (higher densities in poorer areas) and cultural reasons ('people hang[ing] out on the street').

Almost certainly there is a recursive relationship between walking and community. Sense of community was found to be positively related to frequency of 'leisurely' rather than 'brisk' walking and to people saying that they 'see neighbours when walking' (Wood et al., 2010). In the UK, Poortinga (2006) found that people who generally trusted others (not just their neighbours) and those who were involved in at least two clubs or organisations were likely to walk more often, whilst those who lacked social support walked less often.

Not many studies of neighbourhood influences upon walking have been conducted in the UK. Few of them have measured the effects of the neighbourhood simultaneously as physical, service, social and psychosocial environments, and even fewer have considered the special circumstances of deprived communities, where low levels of PA are of particular concern (Baker et al., 2008; Ogilvie et al., 2008). Our study seeks to address these gaps by considering the question: *Are levels of walking by people living in deprived communities influenced by perceptions and characteristics of their surrounding areas?* By looking at the role of human, economic, fixed, residential, environmental and social capitals, from an examination predominantly of residents' perceptual responses, we also address the question: *On what aspects of deprived neighbourhoods and communities might regeneration interventions focus in order to increase levels of walking?*

2. Methods

2.1. Study areas and sample

Our data are from an ongoing study of 14 deprived communities in Glasgow investigating health and wellbeing effects of housing investment and regeneration activity. Each area is an identifiable housing estate or distinct part thereof (Egan and Kearns, 2006). They are divided into 32 neighbourhoods on the basis of significant boundaries (e.g. access roads through estates) or concentrations of contrasting built forms. All areas have a large and, in some cases, dominant social housing presence. All are relatively deprived, with income deprivation² ranging from 25% to 54% of the resident population, compared with a Scottish average of 14% (Walsh, 2008). All but one of the areas is among the 15% most income-deprived in Scotland – areas that are receiving the closest attention from regeneration policy. The areas represent three types of location:

- *Inner-city mass housing estates:* Council estates from the 1960s and 1970s comprised mostly of multi-storey flats (MSFs³) and some deck-access, medium-rise blocks. Social (public) renting is the predominant tenure (typically > 90%), with populations of 1000–5000 people.

¹ Area deprivation for Scotland is a relative measure expressed by the Scottish Index of Multiple Deprivation. This is calculated by ranking the sums of weighted ranked scores of seven distinct domains of deprivation (income, employment, health, education, skills and training, housing, geographic access and crime). Studies variously consider the 10, 15 or 20% most deprived data zones (a geographical unit in which roughly 500–1000 people live in households) when referring to 'deprived areas'.

² Income deprivation is a measure of the proportion of the population in receipt of key income-related benefits (Walsh, 2008).

³ Residential buildings of five or more storeys.

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