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Older people's health, outdoor activity and supportiveness of neighbourhood environments

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Abstract

It has been found that the quality of neighbourhood environments is associated with people's health. However, research so far is not conclusive as to mechanisms through which neighbourhood environments contribute to health in late life. The present study aims to understand the mechanisms by examining the relationships between health, outdoor activity and the quality of neighbourhood environments. A cross-sectional study was conducted to collect data from people over 65 living in Great Britain. A questionnaire was employed to obtain self-report measures of health status, time spent for walking and supportiveness of neighbourhood environments (SNE). Logistic regression analyses found that those who live in a supportive environment tended to walk more, and high-level walkers were more likely to be in good health. Analysis also indicated the association between SNE and health independent of activity. The results can be interpreted as showing that neighbourhood environments may contribute to older people's health in two ways. One is through the provision of opportunities to be active. The other way may be through the provision of places where people can meet with others and enjoy nature. The present study suggests that both the quantity and quality of outdoor activity are relevant to older people's health.

Keywords: Supportive environment; Walking; Personal projects analysis; Social interaction; Nature

1. Introduction

Recent studies have demonstrated that good quality neighbourhood environments have positive benefits for older people's health. A longitudinal study in Japan, for instance, has found that living near green spaces which are easy to walk around increases the 5-year survival rate of older people (Takano et al., 2002). Cummins et al. (2005) have shown that the quality of a residential environment (the degree of dilapidation) is associated with residents' self-rated health. A study in the Netherlands has also demonstrated that the amount of green space in a neighbourhood is positively correlated with people's health status, which is measured as the number of symptoms of illness (De Vries et al., 2003). Furthermore, it has been found that older people living in a well maintained neighbourhood tend to remain independent for a longer period (Wentzel et al., 2001). Although these studies differ in the way the quality of the environment is defined and measured, they have shown that neighbourhood environments have a bearing on people's health. However, research so far is not conclusive as to the mechanisms in which neighbourhood environments contribute to health in late life.

The present study aims to understand the underlying mechanisms through which neighbourhood environments enhance health in late life. Two hypothetical pathways are proposed and examined in this study. The first one involves outdoor activity as an agent that links neighbourhood environments and health. Abundant evidence indicates that participation in regular physical activity has substantial benefits for older people's physical and mental health and functioning (e.g., Bean et al., 2004; Keysor and Jette, 2001; Singh, 2002; Strawbridge et al., 2002; Weuve et al., 2004). The quality of neighbourhood environments is relevant in this respect. The provision of appropriate opportunities in a neighbourhood facilitates outdoor activity such as walking and biking, while various barriers in the surroundings make going outdoors difficult and unpleasant.

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A growing body of research in public health and planning has shown that environmental factors such as access to services, residential density, land-use mix, street connectivity, aesthetics, the quality of footpaths and traffic are associated with people's activity participation (e.g., Ainsworth et al., 2003; Duncan and Mummery, 2005; Frank et al., 2005; Giles-Corti and Donovan, 2002; Humpel et al., 2004; Pikora et al., 2006). The relevance of neighbourhood environments in the activity patterns of older people, who are more likely to be sensitive to contextual constraints, has also been demonstrated in recent studies (e.g., Joseph and Zimring, 2007; King et al., 2005; Li et al., 2005; Sugiyama and Ward Thompson, 2005). Thus, it can be postulated that good quality neighbourhood environments induce outdoor activity such as walking, which in turn is conducive to better health of older people. Different studies have shown the association between environments and activity and that between activity and health in a different context. The current study aims to demonstrate these sequential relationships within one setting.

The second or alternative pathway examined in the study does not involve activity participation. It is possible that getting outdoors helps improve the health of older people without being physically active. For instance, being outdoors may coincide with social interaction with other people such as friends and neighbours. It is well documented that having a larger number of social contacts and maintaining social engagement with other people can have positive effects on health (e.g., Cohen, 2004; Kawachi and Berkman, 2001). Research has illustrated how neighbourhood environmental characteristics can promote social interaction among neighbours by providing a suitable outdoor place to greet, meet and chat (e.g., Kuo et al., 1998; Leyden, 2003; Sullivan et al., 2004). Thus, the health benefits of neighbourhood environments may be attributable to the social interaction with others that occurs in the outdoor environment, independent of physical activity. Contact with natural elements in outdoor spaces (e.g., vegetation, water) may also serve as linkage between neighbourhood environments and health. Extensive research has shown the restorative effects of natural environments. It has been found that, for instance, the amount of time people spend in open, green spaces is correlated with a reduced risk of developing stress-related illnesses (Grahn and Stigdotter, 2003). Studies on therapeutic landscapes also suggest psychological benefits generated from gardening activities and contact with nature (e.g., Gesler, 2003; Milligan et al., 2004). Thus, having access to natural elements may contribute to better health. This study aims to assess to what extent this alternative explanation is relevant in the association of neighbourhood environments with older people's health.

2. Methods

2.1. Sample and data collection procedure

A cross-sectional survey was carried out to elicit data from people over 65 years old living in Great Britain. The methodology used in this study was a self-administered questionnaire. Three different strategies were employed to gain responses from a wide range of older people. Such a multi-method data collection was deemed necessary because we anticipated that older people who are not interested in outdoor activity were less likely to respond to a mail survey, which was our main data collection method, due to the nature of the questions. The sampling aimed to capture the diverse relationships between the neighbourhood environment and older people, which may differ depending on such factors as geographic location, living arrangements, functional status, socio-economic status and cultural backgrounds.

For the first strategy, a questionnaire was mailed directly to 2018 older people from 20 local authorities across Britain to reflect the geographical diversity of the population. The number of local authorities to be selected from 12 regions covering Great Britain was determined considering population distribution (17 from 10 regions in England, 2 from Scotland and 1 from Wales). Then authorities were chosen from each region so that they were diverse in geographic location, urban/rural areas, types of industry/employment, and the level of social deprivation. The national distribution was used where applicable (urban/rural areas, social deprivation) to match the chosen authorities with the population. The names and addresses of people randomly sampled from these authorities were purchased from a market research company. Despite efforts to increase the number of responses (shortening the questionnaire, offering a prize draw and conducting telephone follow-ups for about half of the sample), the response rate was low. The number of valid responses was 194, and the response rate after excluding 26 returned invalid responses (deceased, younger than 65, or wrong address) was 10%.

The second strategy targeted people living in sheltered housing, who are thought to be less likely to engage in outdoor activity. It was thought highly important to obtain data from people who do not get outdoors often because such people constitute a considerable proportion in the older population (e.g., Crombie et al., 2004). Sheltered housing is accommodation for older people, providing residents with various levels of support, such as an on-site manager and community alarm system. Thirteen organisations, which include both public and private service providers in the same 20 local authorities for the first sample, distributed the questionnaire in their sheltered housing schemes, and 102 responses were obtained.

The data collection for the third strategy was from ethnic minority groups. Since the first sample consisted almost entirely of white respondents, data from ethnic minority groups were collected to incorporate cultural diversity in the sample. A separate data collection was necessary also because many older people with ethnic minority backgrounds are not confident users of English. Through two translated sessions, in which participants were gathered at one place and asked questions in their own language, 22 responses from Chinese and Indian sub-continent communities were obtained. The same questionnaire was used to collect data from all of these sample groups. The total number of responses was 318.

2.2. Measures and instruments

One of the outcome variables of this research was participants' health status. Respondents were asked to recall the