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Supportive environments for physical activity in deprived communities in the United Kingdom: A qualitative study using photo elicitation

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ABSTRACT

The health benefits of regular physical activity are substantial and well-established. However, population activity levels are insufficient to obtain health benefits in the United Kingdom (UK), and strategies to increase activity, particularly in income-deprived communities, are sought. Socioecological models of physical activity posit that activity levels are influenced by social, physical and wider environmental factors. In line with a growing evidence base, there is a need to understand the factors that contribute to an activity-supportive neighbourhood within deprived settings within the UK. This study used photo-elicitation qualitative interviews to explore environmental facilitators and barriers to neighbourhood-based, outdoor physical activity in 23 adults living in two income-deprived neighbourhoods in Glasgow, UK. Data were collected between June and October 2015, and were explored using thematic analysis.

Five themes were identified: 'diversity of destinations in the neighbourhood', 'provision of services to support healthy environments', 'ownership of public space and facilities to encourage physical activity', 'collective control of public space to prevent disorder' and 'perceived value of the neighbourhood'. Findings highlighted the close interaction between these themes and more broadly between social and physical facets of neighbourhood environments that were unsupportive of physical activity. Discourse about economic aspects was pervasive and emerged as deeply affecting characteristics of the social and physical environment and upstream influences on physical activity. This study supports evidence that multi-faceted interventions addressing aspects of the social, physical and economic environment may be needed to support outdoor physical activity in deprived communities.

1. Introduction

Participation in physical activity is associated with numerous physical and psychosocial health benefits, yet population activity levels in developed nations remain low (Allender et al., 2007; Mueller et al., 2015; Reiner et al., 2013; World Health Organisation, 2014). In the United Kingdom (UK) levels of inactivity (not meeting national physical activity guidelines (Chief Medical Office, n.d.) are particularly high among socioeconomically deprived groups. Data from the 2013 Active People Survey in England revealed that levels of self-reported physical inactivity were almost 10% higher in local authorities with the highest levels of socioeconomic deprivation compared with authorities with the lowest levels (UK Active, 2014). Education has also been found to be inversely related to objectively-measured physical activity in a population-based cohort in England (Hamer et al., 2012). Increasing levels of activity, even slightly, could lead to substantial health benefits. A European cohort study including 334,161 adults estimated that moving individuals from inactivity to moderate activity (equivalent to a daily 20-min walk) produced reductions in all-cause mortality by 7.35%, a significant amount at population level (Ekelund et al., 2015). Walking in particular has been identified by the National Institute for Health and Care Excellence (NICE) as a key mechanism to increase physical activity in adults in the UK as it is low-cost, accessible and achievable for individuals in deprived communities (National Institute for Health and Care Excellence, 2012).

Intervening to promote physical activity using environmental rather than individual strategies offers the opportunity to create sustainable change in large numbers of people. Socioecological frameworks of

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physical activity, which posit that individual factors (e.g. attitudes, beliefs), social factors (e.g. relationships, safety), physical factors (e.g. facilities, aesthetics) and political factors (e.g. transport investment, urban planning policies) have independent and interactive influences on activity, support interventions which target multiple levels of environmental influence on activity (Sallis et al., 2006). Socioecological influences on activity are conceptualised in Kumanyika et al.'s (2012) framework of influences on physical activity and diet for ethnic minority groups. This framework reflects the prominent role of social and cultural influences, highlighting the multiple levels of the environment (social, cultural, physical, historical and political) which work together to encourage, or discourage, healthy lifestyles. Understanding the social and physical environmental factors that constrain or support physical activity, particularly in populations with the lowest activity levels, could inform the development of interventions to increase physical activity, and is therefore a public health priority.

Physical environments encompass natural environments, such as green and blue space, and indoor and outdoor built environments, including the function, structure, condition or aesthetics of residential or commercial buildings, public open space and streets or walkways (Sallis et al., 2012). Physical metrics such as land use mix, connectivity, residential density (Saelens and Handy, 2008) and aesthetics (Neckerman et al., 2009; Thornton et al., 2016) have been found to be associated with neighbourhood walkability and activity. The social environment captures constructs such as social networks, social control, safety and social cohesion (Moore and Kawachi, 2017). Recent quantitative studies and reviews suggest that environments with high levels of social control, social cohesion, trust and reciprocity between neighbours and a sense of community are related to increased levels of physical activity (McNeill et al., 2006; Samuel et al., 2014). Perceived safety has also been found to have an effect on activity, although the relationship is inconsistently reported (Foster and Giles-Corti, 2008).

Qualitative research provides a richer understanding of associations, highlighting the simultaneous role of social and physical factors in creating activity-supportive environments. For example, a myriad of physical, social and cultural environmental factors influenced physical activity in a sample of 35 adults living in four neighbourhoods in Canada, reinforcing broad, socioecological approaches to physical activity (Belon et al., 2014). A recent meta-synthesis of ten qualitative studies examining environmental influences on adults' walking identified four key themes: 'safety and security', 'environmental aesthetics', 'social relations' and 'convenience and efficiency' (Dadpour et al., 2016). However, only one of these focused on deprived settings (Burgoyne et al., 2007). This study involved focus groups including 53 adult residents, and found that social barriers such as anti-social behaviour and perceived neglect of the area by local authorities prevailed over physical facilitators of using a new walking route in the neighbourhood. The findings reflected those obtained by Seaman et al.'s study of urban greenspace in two deprived neighbourhoods in Glasgow, UK (Seaman et al., 2010). Similar to Burgoyne et al. this study was specific to use of a particular amenity (walking route and greenspace, respectively), not physical activity *per se*; authors reported that social cohesion and integration could mitigate negative social factors such as anti-social behaviour and bolster physical accessibility of greenspace.

A growing international literature examines how the wider neighbourhood environment can support or discourage physical activity within a deprived setting. A concept mapping study with 59 adults in Atlanta, USA, identified 'pride in the neighbourhood' and 'safety' as key targets for a housing initiative in low-income communities (Dunlin Keita et al., 2016). Social factors including safety and social networks were also perceived as central to increasing levels of physical activity in African American adults living in a low-income neighbourhood in South Carolina (Griffin et al., 2008). However, there remains a need to examine these influences in deprived contexts in the UK.

The aim of this study was to explore perceived environmental factors contributing to the creation of an activity-supportive neighbourhood in a deprived setting in the UK. Findings will inform further conceptualisation of independent and interactive neighbourhood influences on neighbourhood-based, outdoor physical activity in deprived communities, as posited by socioecological models (Sallis et al., 2006), and identify possible levers for intervention.

2. Methods

Participant photography was used in face-to-face, semi-structured photo-elicitation interviews. Photo-elicitation interviews have advantages over other interview styles in inviting participants to take a more active role in both data collection and the interview process by informing the direction of the interview with participant-produced photography. Such techniques can provide a deeper insight into the lived experiences of the participant (Wang and Burris, 1997) and have been used successfully to explore neighbourhood effects on physical activity in other contexts (Belon et al., 2014; Mahmood et al., 2012).

Informed written consent for participation in the study and publication of participant photography was obtained from all participants.

2.1. Setting and participants

Two neighbourhoods in Glasgow, UK, were selected for recruitment: Govan, situated approximately 4 km west of the city centre; and Drumchapel, situated approximately 9 km northwest of the city centre. These neighbourhoods were both classified as having high levels of deprivation but different physical environment characteristics (e.g. access to blue space, predominant built form). Both neighbourhoods had been involved in previous research and the researchers could use existing contacts with community organisations to facilitate recruitment. Neighbourhoods were matched in terms of income deprivation (i.e. percentage of residents receiving income-related state benefits): 42% and 43% of the population were classed as income-deprived, respectively, higher than averages for Glasgow (25%) and Scotland (14%) (Crawford and Walsh, 2010).

Participants were recruited by the lead researcher ([Anonymous]) approaching members of community organisations (e.g. arts groups, community well-being hubs and residents' associations) and through advertisements displayed in community facilities (e.g. libraries, sports centres, churches). Participants were eligible if they were aged $\geq$16 years, had lived in the neighbourhood for $\geq$12 months and lived in accommodation provided by a local housing association (not-for-profit organisations providing low-cost social housing). An approximately equal distribution of participants across neighbourhoods was sought with at least 10 participants from each neighbourhood.

2.2. Photo-elicitation process and interview framework

At an initial meeting participants completed a self-report questionnaire capturing sociodemographic characteristics and were given a photography briefing and a disposable, 27-exposure camera. The photography briefing asked participants to consider what got them 'out and about' in the neighbourhood and to take photographs of facilitators and barriers to physical activity. Guidance on safe photography practice, e.g. not putting oneself in dangerous situations, was included. Neighbourhood boundaries were self-defined by the participant. The researcher verbally explained the purpose of the study and that the neighbourhood environment could include natural or manmade physical environments and social environment constructs such as relationships, networks and resources shared by community members. Physical activity was described as any outdoor structured (e.g. planned exercise) or unstructured (e.g. part of daily living) activity, including recreational or functional activities of daily life such as walking, gardening or shopping. Two participants were permitted to use a digital instead of a disposable camera, due to personal preference. Participants were given 7 days to take photographs of their neighbourhood, after