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"Walkable by Willpower": Resident perceptions of neighbourhood environments

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ABSTRACT

Resident perceptions of neighbourhood walkability, physical activity opportunities, food choice and factors influencing choice of neighbourhood were examined through focus group discussion in higher and lower walkability neighbourhoods. Almost all participants perceived their neighbourhoods as very or reasonably walkable with high food choice. Walking was described as primarily leisure or exercise focused and less frequently as destination or task-oriented. Factors influencing walking and physical activity included connectivity, path quality, weather and traffic. The ability to drive easily was a key factor in neighbourhood choice. Our findings identified important environmental factors perceived by residents as either positively or negatively influencing behaviour related to physical activity and food choice. Future research should examine the relationship between perceived and actual walkability features as well as residential selection.

1. Background

There is evidence supporting the relationship between the built environment and health behaviours such as physical activity (Duncan et al., 2005; Humpel et al., 2002; Owen et al., 2004; Saelens et al., 2003; Sallis et al., 2004) and food choice (Li et al., 2009; Moore et al., 2009; Moreland et al., 2002a). As such attention is being given to the influence of neighbourhood design in promoting or inhibiting these health behaviours. Central to this discussion is the influence of neighbourhood walkability, that is, how pleasant and easy it is to walk in a neighbourhood. Walkability can be assessed both objectively and through perceptions of the environment. Objective walkability measurement involves quantifying built environment features into indices found to be associated with walking. A frequently used index of objective walkability assesses density, diversity, design and area in retail use (Frank et al., 2010). Objective walkability features are associated with walking and physical activity, body mass index (BMI), food choice and obesity (Frank et al., 2004; Gauvin et al., 2005; Lopez, 2004; Papas et al., 2007; Powell et al., 2007; Sallis et al., 2009; Smith et al., 2008; Spence et al., 2008, 2009; Vandegrift and Yoked, 2004; Wang et al., 2007).

Perceived walkability is typically measured through self-report and includes questions related to built environment features such as residential density, proximity and access to stores and facilities (e.g., land-use mix diversity and access), street connectivity, aesthetics, facilities for walking and cycling and safety from traffic and crime (Cerin et al., 2005). Perceived residential density has been linked to physical activity (Atkinson et al., 2005) and perceived traffic linked to BMI (Berry et al., 2010a). Relationships between walking and other perceived environmental attributes such as aesthetics, weather and accessibility have also been demonstrated (Humpel et al., 2004). Studies indicate that different features may affect walking for particular purposes (e.g., exercise versus leisure or transport) in different ways, and among different population groups (Craig et al., 2002; Cerin et al., 2007; Humpel et al., 2004; Lovasi et al., 2008). Research examining agreement between perceived and objective walkability has been somewhat mixed. Australian research has found that residents rated attributes of residential density, land-use mix (access and diversity) and street connectivity consistently higher in high-walkability neighbourhoods than those in low-walkability neighbourhoods (Leslie et al., 2005). Other researchers, however, report poor agreement between perceived and objective walkability (McGinn et al., 2007) and non-concordance among adults based on individual and demographic characteristics (Gebel et al., 2009).

A factor complicating the relationship between the built environment and health behaviour is the issue of self-selection, identified as a major limitation to existing research (Boone-Heinonen

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et al., 2011). Central to self-selection is the question of whether walkable environments influence individuals to be active or whether individuals choose neighbourhoods that facilitate existing (active) lifestyles. Research examining neighbourhood and travel preferences showed that those who preferred and lived in a walkable neighbourhood walked the most in comparison to those who preferred and lived in a car dependent neighbourhood (Frank et al., 2007). Recent longitudinal research found that participants who ranked ease of walking as an important neighbourhood choice factor were more likely to have maintained a stable BMI over time compared to those who did not (Berry et al., 2010b).

While existing research has primarily examined walkability and related factors through the use of cross-sectional and longitudinal survey data (e.g., Frank et al., 2004; Lee et al., 2009; Sallis et al., 2009), there is an emerging body of research examining these topics qualitatively. Such research has identified important perceived barriers related to personal safety such as crime, dangerous people, traffic, animals, waste (garbage) and risk of falls (Burgoyne et al., 2007; Holt et al., 2009; Lockett et al., 2005). Qualitative researchers have also explored perceived purpose and value of walking and the development of walkable neighbourhoods. Research exploring resident experiences of a walkable community in Ontario, Canada found that residents valued and felt their behaviour was positively influenced by walkability features such as land use diversity (Kaczynski and Sharratt, 2010). Research in the United Kingdom has highlighted the importance of walking purpose and perceived value (Darker et al., 2007). Residents perceived walking as functional mode of transport and not a goal in and of itself or "proper" exercise, citing lack of time as a major barrier to walking for transportation. Research in Alberta, Canada examining key stakeholder perspectives on the development of walkable neighbourhoods revealed shared perception of barriers to health-focused development including economic constraints, existing social norms, attitudes and behaviours (Clark et al., 2010).

There is relatively little qualitative research examining perceptions of walkability, physical activity, food choice and neighbourhood selection. Therefore, the purpose of this research was to examine neighbourhood resident's definitions of walkability, how residents perceive their neighbourhoods for walking, physical activity and food choice, and what factors influence choice of neighbourhood. This examination was done through focus group discussion with residents living in objectively higher and lower walkable neighbourhoods.

2. Methods

2.1. Setting

The setting of this study is the capital city of Edmonton in the Western Canadian province of Alberta, home to a growing population within its 684 km^2, of over 730,372 inhabitants in 2006 (Statistics Canada, 2007). The median age of the population is 36.1 years, with 21.5% of the population over the age of 60 (Statistics Canada, 2007). The city is a central hub for many employed in Alberta's oil and gas industry. Edmonton is divided by the North Saskatchewan River and is characterised by an expansive river valley. At 7400 ha, it is the largest stretch of urban parkland in North America, with 22 major parks and over 150 km of trails (City of Edmonton, 2010). A recent survey showed that 58.8% of adult Albertans (59.4% of women and 57.7% of men) are sufficiently active to experience health benefits (Alberta Centre for Active Living, 2009). Edmontonians are frequent car-users with an estimated 79% of the total employed labour force travelling to work by car or truck, 12.7% using transit, 9% walking or biking and 1.4% using other modes (Statistics Canada, 2007). A 2008 report indicated that, of the people living in the 8 largest central metropolitan areas in Canada, individuals in Edmonton and Calgary were the most likely to have made all trips exclusively by automobile on the reference day (Turcotte, 2008). Seasonally, Edmonton is characterised by cold, snowy winters and warm summers, with average daily temperatures ranging from $-11.7\ ^{\circ}C$ in January to $17.5\ ^{\circ}C$ in July (Environment Canada, 2010).

2.2. Participants

Participants ($N=63$) were recruited based on participation in a cross-sectional survey in 2008. Those who agreed to future contact were clustered into geographic sampling groups based on objective neighbourhood walkability ranks (5 higher walkability and 6 lower walkability groups) established previously using participant postal codes (see Berry et al., 2010a for a full description of indices). Originally, it was hoped that sampling could be stratified to create four groups based on both neighbourhood walkability and neighbourhood SES (e.g., high walk/low SES, high walk/high SES, low walk/low SES, low walk/high SES); however, due to sampling constraints only neighbourhood walkability was used. As such, neighbourhood level SES ranged for each group. Of these 11 groups, six were comprised of participants from primarily lower to medium SES neighbourhoods, and five comprised of participants from primarily medium to high SES neighbourhoods. A maximum of 14 participants were recruited for each focus group, with final group sizes ranging from 4 to 9 participants. One group with low-turnout ($n=2$) was excluded from analysis, leaving a total of 10 groups.

2.3. Data collection

The focus group guide was developed through topics predetermined by the research team and during two pilot focus groups (one with graduate research assistants and university staff and the other with residents of Sherwood Park, a municipality sized hamlet 16 km east of Edmonton). Participants were provided with an information sheet in advance of the meeting along with the opportunity to discuss any questions with the researcher. All focus groups were conducted during the winter of 2010 by a researcher trained in qualitative methods and a research assistant. Focus groups were held in neighbourhood community leagues, typically lasting 90 min and were digitally recorded. Ethical clearance for the study was given by the institutional ethics board and all participants provided informed consent. Participants were asked to first define the term 'walkability', and were then given the objectively measured walkability rating for their area and asked to reflect on the relative walkability of their neighbourhood. They were asked how they felt their neighbourhood environment influenced physical activity (both personally and among others), and access to healthy, reasonably priced food close to home, as well as reasons for accessing food further away. They were also asked what factors influenced their choice of neighbourhood and for any suggestions concerning neighbourhood improvement related to physical activity and food choice. The focus group guide permitted structured exploration of these questions while remaining open to other related topics that arose. Probes were used where necessary to encourage discussion.

2.4. Data analysis

Focus groups were transcribed verbatim and managed electronically using NVivo 2.0 software. Data were analysed using the