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Neighborhood Factors Relevant for Walking in Older, Urban, African American Adults

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Abstract

The benefits of physical activity are well documented and include significant reductions in the risk of coronary heart disease, hypertension, obesity, diabetes, and insulin resistance, as well as improvements in muscle mass, bone density, psychological function, and cognition (Andersen, Schnohr, Schroll, & Hein, 2000; Bassett, Fitzhugh,

Crespo, King, & McLaughlin, 2002; Mazzeo & Tanaka, 2001; U.S. Department of Health and Human Services [USDHHS], 1996). Regular physical activity also helps prevent gait disorders (Alexander & Goldberg, 2005) and maintain walking ability (Simonsick, Guralnik, Volpato, Balfour, & Fried, 2005). Current physical activity recommendations for older adults include 150 min of moderate-intensity or 75 min of vigorous physical activity per week in addition to strength training, as well as engaging in balance training as needed (USDHHS, 2008).

Despite the well-recognized benefits of physical activity, many older adults do not achieve the recommended physical activity levels, and participation decreases with advancing age (Centers for Disease Control and Prevention [CDC], 2005; Shaw & Spokane, 2008). Only 27% of older adults achieve 150 min or more of leisure-time physical activity per week (Hughes, McDowell, & Brody, 2008), and no more than 25% walk on a regular basis (Eyler, Brownson, Bacak, & House-mann, 2003). Physical activity levels are lower in older African American adults, with approximately 14% over 65 years of age reporting participation in regular moderate-intensity physical activity compared with 23% of older White adults (Federal Interagency Forum on Aging-Related Statistics, 2004).

Walking is the most common type of moderate-intensity physical activity chosen by older adults of all ethnic backgrounds (Bassett et al., 2002; Hughes et al., 2008; Wong, Wong, Pang, Azizah, & Dass, 2003) and has many of the same health benefits as other forms of moderate-intensity physical activity (King, 2001; Manson et al., 2002). Walking is a good form of moderate-intensity physical activity in that it does not require specific skills, clothing, or equipment and can be easily adapted to daily activities and a variety of fitness levels (Henderson & Ainsworth, 2000; Lockett, Willis, & Edwards, 2005; Mazzeo & Tanaka, 2001; Wong et al.).

Older adult walking may be influenced by factors at both the individual and environmental level (Conn, 1998; King, Rejeski, & Buchner, 1998; Sallis et al., 2006; Satariano & McAuley, 2003). Individual factors may include demographic and behavioral characteristics including knowledge, attitudes, and beliefs about walking; behavioral skills; self-efficacy; outcome expectations; and perceived barriers to walking (Conn; King et al., 1998; Resnick & Nigg, 2003). Neighborhood environmental factors that may be relevant for older adults include aesthetics, sidewalk conditions, lighting, traffic, perception of neighborhood crime, or the presence of desired destinations within walking distance (Cunningham, Michael, Farquhar, & Lapidus, 2005; Strath, Isaacs, & Greenwald, 2007).

The influence of the environment has gained increased attention, in part because of the inadequacy of individual factors to fully explain or change physical activity prevalence (Saelens, Sallis, Black, & Chen, 2003; Sallis et al., 2006). Walking, because it can occur in one's own neighborhood, may be more influenced by environmental factors than other forms of physical activity. Older adult walkers may be more influenced by the neighborhood environment than younger adults because of differing perceptions of which environmental barriers are relevant (Lockett et al., 2005). Changes in functional capacity also may heighten the influence of environmental barriers on walking. For adults over the age of 65 years, 23% reported difficulty walking even a short distance without an assistive device (CDC, 2006). Mobility limitations, as well as deficits in hearing and vision, may limit older adults' ability to safely navigate their physical environment (Frank, Engelke, & Schmid, 2003). Avoidance of walking because of environmental constraints may limit opportunities for regular physical activity, potentially hastening the development of chronic disease or disability (Balfour & Kaplan, 2002; Clarke & George, 2005).

Traditional urban neighborhoods, with both pedestrian infrastructure and a mix of stores and services within walking distance, are associated with increased levels of walking or physical activity in older adults (Michael, Green, & Farquhar, 2006; Patterson & Chapman, 2003). For older adults with mobility limitations, crosswalk speed, presence of curbs or uneven surfaces, and other factors that increase the risk of falls or injury may be particularly relevant (Shumway-Cook et al., 2003).

Most research on the neighborhood environment's influence on physical activity in older adults has included samples of primarily middle-class Whites and has focused on leisure-time physical activity, without specification or examination of whether the physical activity takes place within or outside of the neighborhood environment. Few studies have examined how neighborhood factors specifically influence neighborhood walking, particularly in older African American adults (Belza et al., 2004; Bopp et al., 2007). Inclement weather, transportation, safety, dogs, traffic, and lighting have been identified as barriers to participating in physical activity (Belza et al.; Bopp et al.; Henderson & Ainsworth, 2000), and places to walk or be active were identified as physical activity enablers in ethnically diverse samples of older adults (Bopp et al.). The purpose of this study was to identify the environmental factors associated with neighborhood walking in urban African American adults over the age of 60, using photo-voice and focus groups.

Methods

Study Design

Focus-group and photo-voice methodology were used in this exploratory, qualitative study. Photo-voice is a technique in which photographs taken by community members are used to facilitate discussion between community members and others (Lockett et al., 2005; Wang & Burris, 1997). It can promote identification of environmental factors such as sidewalks or neighborhood stores that may be relevant for neighborhood walking but may not emerge during traditional interviews or focus groups (Lockett et al.; Wang & Burris). Because the participants take the photographs, select those to be discussed, and provide relevant context, variables may be identified that are critical to the participants but may not be as readily evident to the researchers (Lockett et al.). This may be particularly vital when working with older adults, who may identify different factors relevant to walking than younger adults (Lockett et al.), or with understudied groups such as older African Americans (Henderson & Ainsworth, 2000). The use of photographs also can enhance focus-group discussion by aiding recall of events or evoking related associations or ideas (Aschermann, Dannenberg, & Schulz, 1998; Nowell, Berkowitz, Deacon, & Foster-Fishman, 2006).

A convenience sample of older African Americans was recruited for this study from an urban senior center with an active outreach program across the city of Detroit. The largest city in Michigan, Detroit is home to approximately 834,000 individuals who are predominantly African American (81.6%), with 10.4% age 65 years and older (U.S. Census Bureau, 2000). Compared with national physical activity rates, Detroit residents are less physically active, with 33.4% reporting no participation in leisure-time physical activity, compared with 22% of adults nationally (Michigan Department of Community Health, 2008).

Study inclusion criteria included being an African American over 60 years of age who lived within the Detroit city limits, able to walk either with or without an assistive device, and able to speak and read English. Potential participants were excluded if they were unable to walk outside of the home because of their health. This study was approved by the university institutional review board.

Photo-Voice and Focus Groups

In this study, photo-voice was used in combination with focus groups. After providing informed consent, participants were instructed to use disposable cameras we provided to take pictures of anything that encouraged or discouraged neighborhood walking. They were instructed to take pictures in areas where they felt safe and be accompanied by another individual to minimize fall risk. Participants were asked to keep a log of the photographs taken with a description of why they took each picture.

Four focus groups of 2–11 participants each (total $N = 21$) were conducted for 60–90 min in the senior center using an outline of guiding questions. Sample prompts included, "Please explain why you took this picture" and "How does this encourage or discourage you from walking in your neighborhood?" During the ensuing

discussion, all participants were invited to contribute their thoughts and experiences. Photographs were displayed on a tabletop poster board or passed around to each member of the focus group. Approximately 30–50 photographs taken by participants were discussed at each session. Interpretation of each photograph was provided by the participant who had taken the photograph, with additional observations and discussion among the other participants.

Data Analysis

Focus-group data collection and initial analysis overlapped until saturation of responses was reached (Morse, 1994). Audiotapes of the focus-group sessions, supplemented with written notes, were transcribed, and transcripts were checked against the recordings for accuracy. Initial content analysis, performed by the first and third authors, consisted of reading and rereading the transcripts followed by line-by-line coding of neighborhood factors that influenced walking (Burns, 1989). The neighborhood factors were then independently grouped by the two researchers into categories of themes that reflected similar concepts (Sandelowski, 2000).

Neighborhood factors categorized differently by the two researchers were discussed within the research team until consensus was reached. Themes included both encouraging and discouraging neighborhood factors. For example, the theme neighborhood surroundings included attractive buildings as a characteristic that encouraged walking, whereas vacant lots discouraged walking. A few factors were included in more than one theme, depending on the context in which they were discussed. For example, people walking, biking, or jogging was included in the themes of presence of people, safety from crime, and public walking tracks and trails. The research team, including content experts in physical activity, environment, and aging minority populations, provided checks on content validity by examining the factors and themes. To minimize the impact of possible bias from the researchers, analysis of the photographs was provided by the participants during the focus-group discussions. The photographs taken by the participants and discussed in the focus groups were consistent with the themes identified during data analysis.

Results

Sample Characteristics

Participants ranged in age from 61 to 85 years ($M = 70 \pm 8.7$). Most (90%) were female and not married and had attended some college or vocational school (81%). Forty-three percent reported walking more than one block in their neighborhood on a regular basis (see Table 1).

Table 1 Sample Characteristics ($N = 21$)

Characteristic	Frequency, n (%)
Gender	
female	19 (90%)
male	2 (10%)
Marital status	
married	5 (24%)
divorced	6 (28.5%)
single	2 (9.5%)
widowed	8 (31%)
Level of education	
≤8th grade	1 (4.75%)
high school graduate	2 (9.5%)
some college or vocational school	17 (81%)
graduate degree	1 (4.75%)
Walking characteristics	

walks regularly >1 block at a time	9 (43%)
walks regularly <1 block at a time	4 (19%)
does not walk regularly in the neighborhood	8 (38%)

Themes

The common themes that emerged during the focus groups included presence of people, neighborhood surroundings, safety from crime, sidewalks and traffic, presence of animals, public walking tracks and trails, and weather (see Table 2). Each theme included factors that either encouraged or discouraged walking.

Table 2 Factors that Encouraged and Discouraged Neighborhood Walking

Encouraged walking	n (%)	Discouraged walking	n (%)
Presence of people, 13 (62% of sample)			
Familiar faces and neighbors	8 (38%)	Crowds	3 (14%)
People walking, biking, or jogging	7 (33%)	People from outside creating criminal activity	3 (14%)
Smiling, friendly people	6 (28.5%)	People asking for or demanding money	2 (9.5%)
Families with children	3 (14%)	Young people fighting	2 (9.5%)
Visitors/Workers enjoying parks	2 (9.5%)		
Neighborhood surroundings, 13 (62% of sample)			
Quiet, peaceful surroundings	9 (43%)	Vacant lots/houses	8 (38%)
Meaningful buildings/statues	6 (28.5%)	Vegetation overgrowth	8 (38%)
Parks	6 (28.5%)	Trash/Litter	8 (38%)
Gardens, trees, and shade	6 (28.5%)	Inadequate lighting	3 (14%)
Beauty/scenery	6 (28.5%)	Fallen trees or branches	2 (9.5%)
Attractive buildings/houses	5 (24%)		
Water—river or fountains	5 (24%)		
Places to rest/eat/use toilet	4 (19%)		
Variety of places to see and activities to be involved in	4 (19%)		
Safety from crime, 13 (62% of sample)			
People walking, biking, or jogging	7 (33%)	History of criminal victimization	8 (38%)
Area safe to walk in	5 (24%)	Criminal activity in neighborhood	6 (28.5%)
Senior patrol, police, or security presence	4 (19%)	Area not safe to walk in	4 (19%)
Safe in early morning	3 (15%)	Slow or inappropriate police response to crime	2 (9.5%)
Sidewalks and traffic, 10 (48% of sample)			
Shoveled sidewalks in winter	6 (28.5%)	Broken/Overgrown sidewalks	5 (24%)
Presence of sidewalks	2 (9.5%)	Have to walk in traffic when sidewalk ends	2 (9.5%)
Sidewalks kept clear	2 (9.5%)	Icy sidewalks	2 (9.5%)

Presence of animals, 9 (43% of sample)			
Enjoy birds, cats	5 (24%)	Afraid of loose dogs	6 (28.5%)
Public walking tracks and trails, 8 (38% of sample)			
Presence of tracks or trails	8 (38%)	Trails isolated from others	2 (9.5%)
People walking, biking, or jogging	7 (33%)	Some trails dangerous from crime	2 (9.5%)
Attractive scenery	5 (24%)	Woods too deep for visibility	2 (9.5%)
Trails are safe	3 (14%)		
Weather, 4 (19% of sample)			
Fresh air	3 (14%)	Cold or rainy weather	3 (14%)
Use indoor shopping areas	2 (9.5%)	Fear of falling on ice	2 (9.5%)

Presence of People

For many participants, the presence of people in the neighborhood encouraged walking. Seeing familiar faces and neighbors (38%); people walking, biking, or jogging (33%); and smiling, friendly people (28.5%) were most frequently reported, followed by the presence of families with children (14%) or visitors and downtown employees enjoying the local parks (9.5%). One woman said, “I walk every morning. There are people out there at this time of year, at 5:30 or 6:00 [a.m.], as soon as it’s light. They will say, ‘Hey, you’re late!’ Everybody knows each other.”

The presence of people was also mentioned as an inhibitor of walking, although less frequently. Large crowds (14%), people from outside the neighborhood generating criminal activity (14%), and individuals asking for or demanding money (9.5%) or young people fighting (9.5%) were mentioned as impediments to walking.

Neighborhood Surroundings

The most commonly reported enablers of neighborhood walking included quiet, peaceful surroundings (43%); buildings or statues with personal or historical meaning (28.5%); beauty or scenery (28.5%; Figure 1); parks (28.5%); and gardens, trees, and shade (28.5%). One participant stated, “I like looking at trees, nice homes being kept up well, gardens, and all that.” Another commented about the personal meaning of the buildings that he photographed in his neighborhood, “Most of these are of historical places. The old places.... This is the old Kresge’s five and dime.” Other factors that encouraged neighborhood walking included the presence of water and attractive buildings (24%); places to rest, eat, or use the toilet (19%); and a variety of sights and activities (19%).



Figure 1. Walking trail with attractive scenery and presence of water.

Vacant houses, overgrown lots, and trash were identified most frequently (38%) as inhibiting neighborhood walking, followed by inadequate lighting (14%) and fallen trees or branches (9.5%). One participant noted, “Poor street lighting would prevent me from walking in the evening. Overgrown bushes, shrubs ... sometimes you have abandoned homes, and the shrubbery has gotten out of control.”

Safety From Crime

People biking, walking, or jogging (33%); a safe walking area (24%); presence of a senior patrol, police, or security (19%); and walking early in the morning (15%) were identified as factors that encouraged neighborhood walking. A personal history of criminal victimization, either recent or in the past (38%); current neighborhood criminal activity (28.5%); a sense of an unsafe walking area (19%); and slow or inappropriate police response to neighborhood crime (9.5%) were identified as impediments to neighborhood walking. One regular walker said, “We walk around [the outside of] the hospital, because they have all kinds of cameras, and police there, and it’s safe, very safe.”

Sidewalks and Traffic

The presence and condition of neighborhood sidewalks influenced walking for many participants (48%). Six participants (28.5%) identified shoveled sidewalks as facilitating walking, whereas broken sidewalks (24%), sidewalks overgrown with weeds (24%; Figure 2), icy sidewalks (9.5%), and the abrupt ending of sidewalks forcing individuals to walk in the street with traffic (9.5%) were identified as barriers to walking. One woman said, “In some areas, there are no sidewalks, so you kind of have to go into the street. And you have to be careful of traffic, because it is coming both ways.”



Figure 2_Broken, overgrown sidewalk.

Presence of Animals

The presence of birds and squirrels in the area encouraged walking (24%), whereas fear of loose dogs (28.5%) discouraged participants from walking in their neighborhood. Comments included, "I love to hear the birds singing in the morning" and "If there was a track, I would still be leery of walking, because of animals, dogs.... I'm afraid of dogs."

Public Walking Tracks and Trails

The presence of public tracks and trails encouraged walking for 38% of the participants. Seeing others walking, biking, or jogging (33%); attractive scenery (24%); and a sense of safety (14%) encouraged walking along the tracks and trails. One walker said, "I walk around the track.... It is really nice, and you see people are running or jogging." Few participants identified tracks or trails as deterrents to walking, but those who did stated that isolated trails (9.5%), poor visibility in wooded areas (9.5%), and trails that were dangerous because of crime (9.5%) inhibited walking.

Weather

A desire to walk in the fresh air (14%) promoted walking, and cold or rainy weather (14%) and fear of falling on ice (9.5%) inhibited walking. One participant said, "I like [walking] both outside and inside, because when you're outside you're getting that fresh air, plenty of fresh air, but I don't like to walk in the rain."

Gender Differences

Only 2 of the 21 participants were male. They ($n = 2$) reported neighborhood environmental factors that were similar to those of the female respondents. In contrast to the female participants, the men did not discuss any factors related to safety from crime or sidewalks and traffic that discouraged neighborhood walking. The male participants also indicated that the presence of animals or public walking tracks and trails did not influence their neighborhood walking either positively or negatively. They were regular walkers and lived in the downtown area, whereas most of the female participants lived in neighborhoods with single-family homes or duplexes.

Discussion

Themes

The predominant themes that emerged for neighborhood walking in this sample of older, African American adults were the presence of people, neighborhood surroundings, safety from crime, sidewalks and traffic, animals, and public tracks and trails. Factors were included within these themes that both encouraged and discouraged neighborhood walking for this sample.

Presence of People

Similar to other findings (Chad et al., 2005), the presence of physically active people encouraged walking in this study. In addition, one unique finding was that the presence of familiar or friendly people in the neighborhood, whether or not engaged in physical activity, influenced walking. The presence of friendly or physically active people may be important to consider when planning physical activity or walking interventions or potential neighborhood changes designed to encourage physical activity or walking. For example, incorporating walking trails with other park features used by families, such as playgrounds, may facilitate neighborhood walking.

Some participants in this sample mentioned that people demonstrating potentially threatening behavior such as criminal activity, fighting, or asking for money discouraged neighborhood walking. This is consistent with the finding by Strath et al. (2007) that a sense of safety from harassment was important for older women who walked. This characteristic also overlapped with a sense of safety from crime.

Neighborhood Surroundings

The quality of the neighborhood surroundings, including the aesthetics of the natural and built environment, influenced walking in this study. Some factors related to the aesthetic character of the environment encouraged walking (quiet, peaceful surroundings; meaningful buildings/statues; parks; gardens, trees, and shade; and beauty/scenery), and others discouraged walking (vacant lots and houses, vegetation overgrowth, trash/litter). The aesthetic qualities of the environment, defined as landscape/aesthetics or pleasant surroundings, are commonly identified as factors that encourage walking and physical activity in older adults, although they are not always as influential as expected. Bopp et al. (2007) found that a nice place to walk was an important enabler of physical activity in African American women, but Eyler et al. (1998) did not. These studies did not focus on urban areas exclusively, and both focused on overall physical activity rather than neighborhood walking. Including different types of physical activity may have affected the influence of aesthetics in the studies. For physical activity that takes place outdoors, such as urban neighborhood walking, examined in this study, the positive influence of attractive scenery and buildings, as well as the negative influence of vacant lots or litter, may be stronger.

Other unique findings in this study included the importance of quiet, peaceful surroundings and buildings or statues with personal or historical meaning. Several participants reported walking early in the morning and in local parks to experience the city landmarks and peaceful surroundings. Parks, public spaces, and city landmarks can serve not just as places for recreation but also as concrete reminders of an individual's history with and connection to the community (Nowell et al., 2006). Many participants were longtime residents of the city, perhaps heightening the relevance of personal and city history and landmarks.

The presence of a variety of local sights, destinations, and amenities (places to eat, rest, and use the bathroom) encouraged walking in this study. Others have reported similar findings, including the importance of convenient destinations such as shops, businesses, and transit stops in encouraging walking (King et al., 2005; Lockett et al., 2005; Suminski, Poston, Petosa, Stevens, & Katzenmoyer, 2005). In contrast, Strath et al. (2007) did not find these characteristics to be as important an influence on walking as safety from traffic and falls.

An individual's reason for walking, whether recreation or transportation, may influence which neighborhood characteristics are relevant (Giles-Corti, Timperio, Bull, & Pikora, 2005; Saelens & Handy, 2008; Suminski et al., 2005). Although diversity of destinations and land-use mix have been associated with transportation walking in adults, the relationship with recreational walking is less consistent (Saelens & Handy). In this study, no differentiation was made between recreational and transportation walking. Because both can contribute to moderate-intensity physical activity, future research should examine the relevance of different neighborhood characteristics for recreational and transportation walking.

Safety From Crime

In most studies, perception of crime has been found to negatively affect physical activity or walking in the general adult population (Huston, Evenson, Bors, & Gizlice, 2003; Wilson, Kirtland, Ainsworth, & Addy, 2004) and in middle-aged and older women (Belza et al., 2004; Bopp et al., 2007; Eyler et al., 1998; Henderson & Ainsworth, 2000; King et al., 2000; Michael et al., 2006; Wilson et al.). A sense of safety from crime was identified as a facilitator of walking in older adults but was less influential than traffic, fall hazards, and sidewalks (Lockett et al., 2005). Strath et al. (2007) found that safety from crime and harassment was a problem among women but was identified less often than expected. In contrast, safety from crime was reported as a predominant theme in this study and was not limited to participants with a history of criminal victimization. Although most crimes (with the exception of personal larceny) are less common in this age group, older adults who are victims of a violent crime are more likely to suffer a serious injury than younger adults (U.S. Department of Justice [USDJ], 2006). The lower reporting of crime in this age group may reflect their reluctance to go out

during nighttime hours (USDJ), rather than reduced vulnerability. In this study, neighborhood crime did not serve as an absolute deterrent to walking. Some participants developed strategies to walk safely in their neighborhoods, such as walking only in the daytime or early morning hours when others were asleep. Awareness of safety is critical for planning and implementing effective interventions and policies designed to increase physical activity and neighborhood walking in older adults (Roman & Chafin, 2008).

Sidewalks and Traffic

Similar to other studies (Bopp et al., 2007; King et al., 2000; Lockett et al., 2005; Michael et al., 2006; Strath et al., 2007), participants in this study identified the presence and condition of sidewalks as influencing walking. Sidewalk continuity and maintenance (keeping clear of ice, snow, and overgrown weeds) encouraged walking in this sample, although it was not found to be as important as neighborhood surroundings, presence of other people, and safety from crime. Strath et al. found that infrastructure, including the presence and maintenance of sidewalks, paths, and trails, was an important determinant of walking for older adults. Most outdoor falls in older adults participating in leisure-time physical activity (73%) are caused by environmental factors related to sidewalk maintenance, such as uneven surfaces or tripping or slipping on objects (Li et al., 2006).

Safety from street traffic was noted less often than expected in this sample. Older adults account for 23% of all pedestrian fatalities, although they represent only 13% of the total U.S. population. Older adults face a higher risk of injury during winter months, as well as while crossing intersections and walking behind vehicles (Federal Highway Administration, 2006). High-speed traffic, incomplete sidewalk networks, and crosswalk lights timed for younger individuals can add to the dangers older adults face while walking in their neighborhoods (Frank et al., 2003; Langlois et al., 1996). Despite these risks, traffic was not identified as a predominant theme for neighborhood walking in this study as long as the sidewalks were intact and well maintained. Many participants reported the use of local tracks or trails where street traffic may not have been encountered. Others reported walking at times when traffic was light, such as in the early morning.

Presence of Animals

In this study, loose dogs roaming the neighborhood were reported as a barrier to walking, which is consistent with the findings of other studies of older adult walking (Bopp et al., 2007; Michael et al., 2006). In contrast, King et al. (2000) found the presence of loose dogs to be positively associated with physical activity in women over 40 years of age, perhaps due to an increased awareness of dogs by those who are physically active outside.

Public Walking Tracks and Trails

Walking tracks or trails, associated with either local public schools or public parks, were used by some of the participants in this study. Others engaging in physical activity, attractive scenery, and a perception of safety associated with tracks and trails encouraged walking, whereas a perception of some trails as isolated, unsafe, or too deeply wooded for easy visibility discouraged their use. These findings are consistent with other studies. Although we identified no studies that examined trail characteristics that specifically encouraged walking in older adults, trail use by all adults has been found to be associated with trail safety and scenery (Gordon, Zizzi, & Pauline, 2004; Granner, Sharpe, Hutto, Wilcox, & Addy, 2007; Reynolds et al., 2007). Continued research on factors that encourage track and trail use may help identify important factors that promote walking in older adults. The relatively uniform and obstacle-free surfaces of tracks and trails may make these especially appropriate for use by older adults, including those with early deficits in functional capacity (Shumway-Cook et al., 2003).

Weather

Some studies have identified inclement weather and rainfall as deterrents to walking (Cervero & Duncan, 2003; Henderson & Ainsworth, 2000). Other than the negative influence of icy or unshoveled sidewalks in the winter, weather was not mentioned as frequently as we expected by participants in this study. Most of the

participants did not report mobility difficulties, which may have increased confidence for walking in slippery conditions and diminished the influence of weather. In addition, several of the most active participants lived in the downtown area where the sidewalks were reported to be well maintained during the winter months. Finally, the focus groups were held in late summer when cold and rainy weather may not have been salient. Future research should explore seasonal effects on walking in this population. Weather may also become more relevant as declines in functional capacity occur. Deficits in vision, hearing, musculoskeletal strength, or balance may make it more difficult to navigate the environment and meet challenges such as slippery conditions (Frank et al., 2003).

Use of Focus-Group and Photo-Voice Methodology

The participatory nature of photo-voice, used in combination with focus groups, provides a unique process for identifying environmental variables relevant to walking among older, African American adults. Variables may be identified that are not apparent to the investigator but that may be important from the perspective of the participant, making it particularly useful in working with understudied groups such as older adults or African Americans (Henderson & Ainsworth, 2000; Lockett et al., 2005).

Interpretation of the photographs was provided by the participants to focus on their perception of their neighborhood environment, rather than on the researcher's ideas about what might encourage or discourage walking. For example, 1 participant who walked regularly in her neighborhood took photographs of her usual route. One photograph showed a vacant lot, a characteristic that had been cited by others in the focus groups as discouraging neighborhood walking. When the participant explained her photographs, however, she noted that two vacant houses had previously stood on the vacant lot, and the lawns and sidewalks had become overgrown. She avoided the lot due to the overgrowth on the sidewalk and fear of people who might be in the vacant homes. Recently, however, the houses had been torn down and the lots mowed, and she now felt much safer when she walked there.

As Wang and Burris (1997) note, "photographs are easy to gather but difficult to analyze" (p. 375). providing a large amount of complex data that can be difficult to digest. Because we left analysis of the photographic data to the participants describing characteristics that encouraged or discouraged walking, a framework for organizing the material grew out of the experiences of the participants rather than those of the researchers.

With the exception of the presence of animals and weather, each of the themes was captured by the photographs taken by the participants. However, some characteristics that discouraged walking were not captured by the photographs, particularly if they involved other people. For example, within the theme safety from crime, photographs showed other people walking, but no photographs were taken of people begging for money or fighting. Similarly, no pictures were taken of isolated or heavily wooded areas where participants felt unsafe or of neighborhood criminal activity. This was consistent with the instructions to the participants to take pictures only of situations where they felt safe.

Photo-voice is designed not only as a method of qualitative research but also as a means of increasing participants' knowledge and awareness (Wang & Burris, 1997). The photo-voice technique, through its emphasis on participants' perceptions, values the knowledge and expertise of the participants and allows for discussion of community assets and strengths, as well as needs and deficits (Wang & Burris). Lockett et al. (2005) found that the process of photographing hazards increased awareness of environmental hazards. Participants in this study expressed an increased awareness not only of the barriers to neighborhood walking but also of how and why the barriers influenced their own walking behavior. When participants discussed a barrier identified in a photograph, other members of the group often suggested strategies they had discovered for dealing with that barrier. Examples included walking early in the morning, finding an alternative route to a particular track, or

using the senior center's older adult advocacy program for transportation services. Photographs were returned to the participants.

Limitations

There are several limitations to this study. The sample was small and limited to older African Americans living in the city of Detroit; therefore the results may not be generalizable to other regions or those living in nonurban settings. The knowledge of neighborhood characteristics gained in this study can be used, however, in planning walking interventions and developing policy in this region.

Selection bias may have been present because of recruitment from one senior center in the city. Although the senior center draws participants from throughout the city, those who attend may differ from other city residents in socioeconomic or educational status, level of disability, or characteristics that may be relevant to neighborhood influences on walking. In addition, those at the center who chose to participate may have differed from those who did not. However, during recruitment it was emphasized that the researchers were interested in recruiting those who did and did not walk regularly. The sample was fairly evenly divided between walkers and nonwalkers, although most of the participants enrolled were women and had some college education.

The use of photo-voice, although intended to capture the perspective of the participants rather than that of the researcher, may be limited by what participants choose to photograph, or not to photograph, and why (Wang & Burris, 1997). This was likely minimized by the use of focus groups to discuss the photographs taken by the participants in this study. Typically, 30–50 photographs were discussed in a focus-group session, thereby creating a diverse discussion of the characteristics that promoted or inhibited neighborhood walking. Finally, a seasonal effect may have resulted from data collection only during the summer months.

Future Directions

Future research on older adult neighborhood walking should incorporate environmental factors into existing theoretical frameworks and examine the interaction between environmental and psychosocial factors, as well as the factors related to reasons for walking (recreation or transportation). Further instrument development is needed for quantitative assessment of neighborhood influences on walking. Finally, examining the influence of functional capacity and mobility limitations on neighborhood walking will help inform future interventions for older adults.

References

- Alexander NA, Goldberg A. Common gait disturbances: A clinical overview. In: Hausdorff JM, Alexander NB, editors. *Gait disorders: Evaluation and management*. Boca Raton, FL: Taylor & Francis; 2005. pp. 1–18.
- Andersen LB, Schnohr P, Schroll M, Hein HO. All-cause mortality associated with physical activity during leisure time, work, sports, and cycling to work. *Archives of Internal Medicine*. 2000;160:1621–1628.
- Aschermann E, Dannenberg U, Schulz A. Photographs as retrieval cues for children. *Applied Cognitive Psychology*. 1998;12:55–66.
- Balfour JL, Kaplan GA. Neighborhood environment and loss of physical function in older adults: Evidence from the Alameda County Study. *American Journal of Epidemiology*. 2002;155:507–515.
- Bassett DR, Fitzhugh EC, Crespo CJ, King GA, McLaughlin JE. Physical activity and ethnic differences in hypertension prevalence in the United States. *Preventive Medicine*. 2002;34:179–186.
- Belza B, Walwick J, Shiu-Thornton S, Schwartz S, Taylor M, LoGerfo J. Older adult perspectives on physical activity and exercise: Voices from multiple cultures. *Preventing Chronic Disease*. 2004;1(4):1–12.
- Bopp M, Lattimore D, Wilcox S, Laken M, McClorin L, Swinton R, et al. Understanding physical activity participation in members of an African American church: A qualitative study. *Health Education Research*. 2007;22:815–826.
- Burns N. Standards for qualitative research. *Nursing Science Quarterly*. 1989;2(1):44–52.

- Centers for Disease Control and Prevention. Trends in leisure-time physical inactivity by age, sex, and race/ethnicity: United States, 1994–2004. *Morbidity and Mortality Weekly Report*. 2005;54:991–994.
- Centers for Disease Control and Prevention. *Difficulty performing activities of daily living, by age, residence, sex, race and ethnicity: Medicare beneficiaries from the Medicare Current Beneficiary Survey, 1992–2005*. 2006. Retrieved September 9, 2008, from <http://205.207.175.93/aging/TableViewer/tableView.aspx?ReportId=471>.
- Cervero R, Duncan M. Walking, bicycling, and urban landscapes: Evidence from the San Francisco Bay area. *American Journal of Public Health*. 2003;93:1478–1486.
- Chad KE, Reeder BA, Harrison EL, Ashworth NL, Sheppard NM, Schultz SL, et al. Profile of physical activity levels in community-dwelling older adults. *Medicine and Science in Sports and Exercise*. 2005;37:1774–1784.
- Clarke P, George LK. The role of the built environment in the disablement process. *American Journal of Public Health*. 2005;95:1933–1939.
- Conn VS. Older adults and exercise: Path analysis of self-efficacy and related constructs. *Nursing Research*. 1998;47:180–189.
- Cunningham GO, Michael YL, Farquhar SA, Lapidus J. Developing a reliable senior walking assessment tool. *American Journal of Preventive Medicine*. 2005;29:215–217.
- Eyler AA, Baker E, Cromer L, King AC, Brownson RC, Donatelle RJ. Physical activity and minority women: A qualitative study. *Health Education & Behavior*. 1998;25:640–652.
- Eyler AA, Brownson RC, Bacak SJ, Housemann RA. The epidemiology of walking for physical activity in the United States. *Medicine and Science in Sports and Exercise*. 2003;35:1529–1536.
- Federal Highway Administration. *Facts and statistics*. 2006. Retrieved March 3, 2006, from http://safety.fhwa.dot.gov/ped_bike/ped/ped_facts.htm-fed.
- Federal Interagency Forum on Aging-Related Statistics. *Older Americans 2004. Key indicators of well-being*. Washington, DC: Federal Interagency Forum on Aging-Related Statistics, U.S. Government Printing Office; 2004.
- Frank LD, Engelke PO, Schmid TL. *Health and community design*. Washington, DC: Island Press; 2003.
- Giles-Corti B, Timperio A, Bull F, Pikora T. Understanding physical activity environmental correlates: Increased specificity for ecological models. *Exercise and Sport Sciences Reviews*. 2005;33:175–181.
- Gordon PM, Zizzi SJ, Pauline J. Use of a community trail among new and habitual exercisers: A preliminary assessment. *Preventing Chronic Disease*. 2004;1(4):2–11.
- Granner ML, Sharpe PA, Hutto B, Wilcox S, Addy CL. Perceived individual, social, and environmental factors for physical activity and walking. *Journal of Physical Activity and Health*. 2007;4:278–293.
- Henderson KA, Ainsworth BE. Enablers and constraints to walking for older African American and American Indian women: The Cultural Activity Participation Study. *Research Quarterly for Exercise and Sport*. 2000;71:313–321.
- Hughes JP, McDowell MA, Brody DJ. Leisure-time physical activity among U.S. adults 60 or more years of age: Results from NHANES 1999–2004. *Journal of Physical Activity and Health*. 2008;5:347–358.
- Huston SL, Evenson KR, Bors P, Gizlice Z. Neighborhood environment, access to places for activity, and leisure-time physical activity in a diverse North Carolina population. *American Journal of Health Promotion*. 2003;18(1):58–69.
- King AC. Interventions to promote physical activity by older adults. *The Journals of Gerontology. Series A, Biological Sciences and Medical Sciences*. 2001;56(2):36–46.
- King AC, Castro C, Wilcox S, Eyler AA, Sallis JF, Brownson RC. Personal and environmental factors associated with physical inactivity among different racial-ethnic groups of U.S. middle-aged and older-aged women. *Health Psychology*. 2000;19:354–364.
- King AC, Rejeski WJ, Buchner DM. Physical activity interventions targeting older adults: A critical review and recommendations. *American Journal of Preventive Medicine*. 1998;15:316–333.
- King WC, Belle SH, Brach JS, Simkin-Silverman LR, Soska T, Kriska AM. Objective measures of neighborhood environment and physical activity in older women. *American Journal of Preventive Medicine*. 2005;28:461–469.

- Langlois JA, Keyl PM, Guralnik JM, Foley DJ, Marattoli RA, Wallace RB. Characteristics of older pedestrians who have difficulty crossing the street. *American Journal of Public Health*. 1996;8:393–397.
- Li W, Keegan TH, Sternfeld B, Sidney S, Quesenberry CP, Kelsey JL. Outdoor falls among middle-aged and older adults: A neglected public health problem. *American Journal of Public Health*. 2006;96:1192–1200.
- Lockett D, Willis A, Edwards N. Through seniors' eyes: An exploratory qualitative study to identify environmental barriers to and facilitators of walking. *Canadian Journal of Nursing Research*. 2005;37:48–65.
- Manson JE, Greenland P, LaCroix AZ, Stefanick ML, Mouton CP, Oberman A, et al. Walking compared with vigorous exercise for the prevention of cardiovascular events in women. *The New England Journal of Medicine*. 2002;347:716–725.
- Mazzeo RS, Tanaka H. Exercise prescription for the elderly: Current recommendations. *Sports Medicine (Auckland, N.Z.)* 2001;31:809–818.
- Michael YL, Green MK, Farquhar SA. Neighborhood design and active aging. *Health & Place*. 2006;12:734–740.
- Michigan Department of Community Health. *Comparison of Michigan critical health indicators and Healthy People 2010 targets*. 2008. Retrieved July 19, 2008, from [www.michigan.gov/documents/mdch/MI CHI and HP2010 Comparison FINAL JM changes 4-2](http://www.michigan.gov/documents/mdch/MI_CHI_and_HP2010_Comparison_FINAL_JM_changes_4-2).
- Morse JM. "Emerging from the data": The cognitive processes of analysis in qualitative inquiry. In: Morse JM, editor. *Critical issues in qualitative research methods*. Thousand Oaks, CA: Sage; 1994. pp. 23–43.
- Nowell BL, Berkowitz SL, Deacon Z, Foster-Fishman P. Revealing the cues within community places: Stories of identity, history and possibility. *American Journal of Community Psychology*. 2006;37(1–2):29–46.
- Patterson PK, Chapman NJ. Urban form and older residents' service use, walking, driving, quality of life, and neighborhood satisfaction. *American Journal of Health Promotion*. 2003;19(1):45–52.
- Resnick B, Nigg C. Testing a theoretical model of exercise behavior for older adults. *Nursing Research*. 2003;52:80–88.
- Reynolds KD, Wolch J, Byrne J, Chou CP, Feng G, Weaver S, et al. Trail characteristics as correlates of urban trail use. *American Journal of Health Promotion*. 2007;21:335–345.
- Roman CG, Chafin A. Fear of walking outdoors: A multilevel ecologic analysis of crime and disorder. *American Journal of Preventive Medicine*. 2008;34:306–312.
- Saelens BE, Handy SL. Built environment correlates of walking: A review. *Medicine and Science in Sports and Exercise*. 2008;40:S550–S556.
- Saelens BE, Sallis JF, Black JB, Chen D. Neighborhood-based differences in physical activity: An environmental scale evaluation. *American Journal of Public Health*. 2003;93:1552–1558.
- Sallis JF, Cervero RB, Ascher W, Henderson KA, Kraft MK, Kerr J. An ecological approach to creating active living communities. *Annual Review of Public Health*. 2006;27:297–322.
- Sandelowski M. Whatever happened to qualitative description? *Research in Nursing & Health*. 2000;23:334–340.
- Satariano WA, McAuley E. Promoting physical activity among older adults: From ecology to the individual. *American Journal of Preventive Medicine*. 2003;25:184–192.
- Shaw BA, Spokane LS. Examining the association between education level and physical activity changes during early old age. *Journal of Aging and Health*. 2008;20:767–787.
- Shumway-Cook A, Patala A, Stewart A, Ferrucci L, Ciol MA, Guralnik JM. Environmental components of mobility disability in community-living older persons. *Journal of the American Geriatrics Society*. 2003;51:393–398.
- Simonsick EM, Guralnik JM, Volpato S, Balfour J, Fried LP. Just get out the door! Importance of walking outside the home for maintaining mobility: Findings from the Women's Health and Aging Study. *Journal of the American Geriatrics Society*. 2005;53:198–203.
- Strath S, Isaacs R, Greenwald MJ. Operationalizing environmental indicators for physical activity in older adults. *Journal of Aging and Physical Activity*. 2007;15:412–424.
- Suminski RR, Poston WSC, Petosa RL, Stevens E, Katzenmoyer LM. Features of the neighborhood environment and walking by U.S. adults. *American Journal of Preventive Medicine*. 2005;28:149–155.

- U.S. Census Bureau. *Population estimates, 2000 census of population and housing*. 2000. Retrieved April 29, 2009, from <http://quickfacts.census.gov/qfd/states/26/2622000.html>.
- U.S. Department of Health and Human Services. *2008 physical activity guidelines for Americans*. 2008. Retrieved October 10, 2008, from www.health.gov/PAGuidelines/pdf/paguide.pdf.
- U.S. Department of Health and Human Services. *Healthy people 2010. Chapter 22: Physical activity and fitness*. 1996. Retrieved July 19, 2008, from www.healthypeople.gov/document/html/volume2/22physical.htm.
- U.S. Department of Justice. *Crimes against persons age 65 or older, 1992–97*. 2006. Retrieved March 13, 2006, from www.ojp.gov/bjs/abstract/cpa6597.htmUS.
- Wang CC, Burris MA. Photovoice: Concept, methodology, and use for participatory needs. *Health Education & Behavior*. 1997;24:369–387.
- Wilson DK, Kirtland KA, Ainsworth BE, Addy CL. Socioeconomic status and perceptions of safety for physical activity. *Annals of Behavioral Medicine*. 2004;28(1):20–28.
- Wong CH, Wong SF, Pang WS, Azizah MY, Dass M. Habitual walking and its correlation to better physical function: Implications for prevention of physical disability in older persons. *The Journals of Gerontology. Series A, Biological Sciences & Medical Sciences*. 2003;58:555–560.