Neighborhood Walkability: Older People’s Perspectives From Four Neighborhoods in Ottawa, Canada

Theresa L. Grant, Nancy Edwards, Heidi Sveistrup, Caroline Andrew, and Mary Egan

This qualitative study examined older people’s walking experiences in 4 Ottawa neighborhoods. Seventy-five adults age 65 years and older who had lived in their neighborhoods for at least 2 yr participated in focus groups and individual interviews. Four themes were identified through data analysis: multidimensional personal meanings, navigating hostile walking environments, experiencing ambiguity, and getting around. Neighborhood walking was experienced within the continuum of personal and environmental change. Findings indicated that the concept of pedestrian connectivity must incorporate aspects of both intersection regulation and design to ensure relevance for an aging population. Participants called for more clarity about policies that affect pedestrian safety for older people. The overarching theme of getting around indicated that walkability assessments must consider how walking fits within an integrated transportation system and how accessible this system is for older people.

Keywords: walking, outdoor environment, physical activity

Increasing urbanization and an aging North American society have prompted concerns about how cities can accommodate shifting demographics. To support the preference to age at home, attention is turning to the role of built and natural environments in supporting healthy aging. Walking provides older people with an accessible form of physical activity and a means of transport (Michael, Green, & Farquhar, 2006). Physical activity helps prevent chronic disease and disability among older people and has also been associated with improved mental health and cognitive function (Miller, Rejeski, Rebourssin, Ten Have, & Ettinger, 2000; Weuve et al., 2004). Despite its clear benefits, physical activity levels among most North Americans over the age of 65 fall short of recommended levels (Health Canada, 2002; Matthews et al., 2008; Troiano et al., 2008). Because individuals tend to spend more time in their local environments as they age, understanding how to make neighborhoods more walkable for older people is an important public health concern.

Grant is with the Institute of Population Health; Edwards, the School of Nursing; Sveistrup and Egan, the School of Rehabilitation Sciences; and Andrew, the School of Political Studies, University of Ottawa, Ottawa, ON, Canada.
The concept of walkability has emerged as ecological approaches to increase physical activity have gained attention. Southworth (2005) defined walkability in the following way:

Walkability is the extent to which the built environment supports and encourages walking by providing for pedestrian comfort and safety, connecting people with varied destinations within a reasonable amount of time and effort, and offering visual interest in journeys throughout the network. (p. 248)

Walkability has been operationalized in the development of walking indices using measures of intersection density, dwelling density, and land-use mix (Leslie et al., 2007; Vernez Moudon et al., 2007). Quantitative studies (Berke, Koepsell, Moudon, Hoskins, & Larson, 2007; Frank, Schmid, Sallis, Chapman, & Saelens 2005; King, 2008; Li, Fisher, & Brownson, 2005; Li, Fisher, Brownson, & Bosworth, 2005; Oakes, Forsyth, & Schmitz, 2007) have documented mixed effects of neighborhood built-environment characteristics on walking behavior. Some authors (Berke et al., 2007; Frank et al., 2005) have shown that short interconnected city blocks, mixed land use, and higher residential density (characteristics found in traditional inner-city neighborhoods) are associated with higher levels of walking than more automobile-oriented land-use or transportation designs typically found in the suburbs. However, other authors (King, 2008; Oakes et al., 2007) have found that characteristics of density and street connectivity associated with increased walking for transport are not associated with higher overall rates of daily walking or total physical activity and suggest the importance of other factors such as perceived safety and social cohesion.

Only a handful of qualitative studies have used the voices of older people themselves to examine how neighborhood context influences walking. Safety features that protect from falls and traffic hazards, convenient access to destinations, well-maintained pedestrian infrastructure, neighborhood attractiveness, and public transportation have all been identified as important aspects of the neighborhood walking context by older people (Day, 2008; Lockett, Willis, & Edwards, 2005; Michael et al., 2006; Strach, Isaacs, & Greenwald, 2007). Most of these studies asked older people how the physical environment influences physical activity or health. However, researchers have not focused on the walking experience as it occurs in the context of people’s daily lives. The objective of this study was to develop a more thorough understanding of older people’s neighborhood walking experiences with an emphasis on daily life. The intent of this approach was to allow older people’s voices to broaden our understanding of neighborhood walkability.

**Methods**

The findings presented in this article come from a larger comparative case study examining the sociopolitical context of older people’s walking experiences. This initial analysis examined older people’s walking experiences in four neighborhoods and identified themes common to these experiences. A comparison of differences in neighborhood walkability appears in a subsequent paper that combines data
from older people with key informants and quantitative information to provide a comprehensive understanding of the influences of neighborhood urban form and socioeconomic status.

The current study used interpretive description, which involves description and interpretation of a shared experience from the perspective of those who live it and “reflects a respect for knowledge about aggregates in a manner that does not render the individual case invisible” (Thorne, Reimer Kirkham, & MacDonald-Emes, 1997, p. 171). Although inductive in nature, this approach differs from traditional phenomenological approaches by drawing on existing knowledge and constructing conclusions on the basis of linkages with other research.

Study Setting

The study was conducted in Ottawa, the national capital of Canada, established in 1857. The civil service expanded after World War II, setting off a pattern of rapid urbanization that continued until the 1980s. In 2001, Ottawa was amalgamated with 11 surrounding municipalities, making it the fourth-largest city in Canada, with a population of 877,300. In 2001, 11.5% of the population were age 65 years and older. The main employers in Ottawa are the federal government and the technology sector, resulting in average incomes that are relatively high compared with other Canadian cities. Ottawa is also a city that receives a considerable amount of snow during the winter months.

Neighborhood Sampling

Neighborhoods were purposively selected to vary in socioeconomic status (SES) and urban form. Higher and lower SES contexts were defined by 2001 census data on mean household income, percentage of postsecondary graduates, and percentage of low-income households. City classifications (City of Ottawa, 2003) of urban form reflecting historical influences on built-environment type were used to divide inner-urban neighborhoods (primarily developed before 1950) from suburban neighborhoods (primarily developed after 1950). Typical of the pre-1950 era, the inner-urban neighborhoods were characterized by differing land uses including residential, commercial, office, and institutional uses within shared blocks. Street patterns were traditional rectilinear grids, and dwelling densities ranged from 49 to 140 units/hectare. Inner-urban neighborhoods contained a mix of housing types with lot widths ranging from 5 to 20 m. In contrast, suburban neighborhoods were characterized by a separation of land uses and a greater predominance of single-family homes. Street patterns were primarily curvilinear, including cul de sacs, although there was a modified grid pattern in one area of the lower income suburban neighborhood. Dwelling densities in the suburban neighborhoods ranged from 12 to 17 units/hectare with lot widths ranging from 20 to 30 m. Selection criteria within these two types of classification were that the neighborhoods provided the greatest contrast of SES while having a comparable percentage of residents who were 65 years and older (9–11%), as well as having an active community association. Table 1 provides an overview of neighborhood characteristics based on 2001 Canadian census data.
Participant Sampling

Participants in each of the four study neighborhoods were recruited using multiple strategies. Information sessions were conducted at seniors’ centers, during community events, and in housing cooperatives. Local newspapers were used to advertise, and a citywide newspaper ran a story about the study. Information posters were placed in recreation centers and apartment buildings. The recruitment strategy aimed to recruit older people with diverse views and experiences based on variations in mobility, SES, and length of neighborhood residence. Individuals were eligible to participate if they had lived in one of the neighborhoods for at least 2 years, had walked in their neighborhood at least once in the past year, and were 65 years of age or older.

Data were collected through focus groups and individual interviews. These were conducted in the study neighborhoods in readily accessible locations: seniors’ centers, community centers, and apartment meeting rooms. A few participants requested interviews in their homes. The interviewer also walked through each neighborhood to observe areas where participants had described problems. Field notes written after recruitment sessions were used in the planning of interviews and focus groups. Additional field notes were written after completing interviews and focus groups, as well as after walks through study neighborhoods.

Walkability was defined as anything in the outdoor environment that affected the safety, convenience, comfort, and enjoyment of walking. This definition was used in the consent form and the semistructured-interview guide that introduced the purpose of the study. The interview guide was structured on the a priori assumption that older people would have valuable insights on the questions listed in Figure 1. However, the questioning process was also guided by the assumption that what older people chose to emphasize about their walking experiences should be central to the interview so that the essence of this experience could be explored. For this reason, the researcher formulated other questions as the interview or focus group proceeded, depending on the participants’ responses. Individual interview questions asked were essentially the same as those posed during the focus group but allowed the researcher to probe issues in greater depth. An additional question regarding how the participants came to live in their neighborhood was included in

Table 1  Selected Neighborhood Characteristics

<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Residents age 65 years and older (%)</th>
<th>Postsecondary graduates (%)</th>
<th>Average household income (Canadian $)</th>
<th>LICO households (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner-urban, lower SES</td>
<td>11</td>
<td>51</td>
<td>41,007</td>
<td>39</td>
</tr>
<tr>
<td>Inner-urban, higher SES</td>
<td>9</td>
<td>79</td>
<td>99,313</td>
<td>10</td>
</tr>
<tr>
<td>Suburban, lower SES</td>
<td>11</td>
<td>49</td>
<td>44,453</td>
<td>35</td>
</tr>
<tr>
<td>Suburban, higher SES</td>
<td>10</td>
<td>73</td>
<td>108,602</td>
<td>7</td>
</tr>
</tbody>
</table>

Note. LICO = low-income cut-off; SES = socioeconomic status.
individual interviews, permitting further exploration of how the walking experience was viewed within a larger life context.

Interviews and focus groups were scheduled to last approximately 50 min and were audiotaped. All participants completed a short survey after the interview, which provided information on required walking aids, sample demographics, and self-reported walking levels. Most interviews were conducted during the spring, summer, and fall of 2007. All data were collected by one interviewer (the lead investigator), a practicing physiotherapist working in the field of geriatric and stroke rehabilitation, as part of a doctoral research program in population health. Debriefing sessions were held with members of the research team who had backgrounds in nursing, epidemiology, rehabilitation, and sociology.

Analysis

The analytical framework examining the everyday walking experiences described by the participants was not predefined but rather based on the incoming data. Focus-group and individual-interview recordings were transcribed verbatim. All transcripts were reread several times to allow the researcher to apprehend the overall picture. Field notes and reflective memos taken during data collection

Figure 1 — Questions used to guide focus groups and individual interviews.
were also reviewed to facilitate thinking about the data and to develop an initial coding strategy. A constant-comparative method (Strauss & Corbin, 1998) was used that involved breaking the data down into discrete sections to label concepts or categories and continuing to compare across these categories so that links and connections could be identified. Analysis moved from coding strategies (i.e., categorizing the data) to contextualizing strategies (i.e., considering relationships that link statements and events within a coherent whole). Rereading of the texts and discussion among members of the research team assisted in the integration of categories and the emergent thematic interpretation.

Preliminary analysis was performed by the lead investigator. Reliability was enhanced by having another member of the research team verify a sample (30%) of the transcripts to ensure a credible match between data and coding domains. Authenticity of interpretation was enhanced through feedback from study participants. Participants who provided contact information during the initial consent process (32% of the sample) were sent a copy of the final results and asked to let the researcher know if any of the selected quotes were used in a way that did not represent the intended meaning or constituted a threat to confidentiality. No one expressed concern regarding either of these points, but participants did respond through letters and e-mails indicating support for the findings.

**Results**

**Participants**

A total of 53 older adults participated in one of twelve focus groups (three per neighborhood), and another 22 participated in interviews (approximately 5 per neighborhood). Eighty-two percent of the sample were women, and the mean age was 75 years. Multiple recruitment strategies were used, resulting in participants from the following sources: 31% housing cooperatives and apartment buildings, 25% seniors’ centers, 17% newspaper, 13% community health center programs, 9% community events, and 5% neighborhood associations. The sample included a segment of older people who were more sedentary (i.e., 10.2% reported walking rarely and 21.1% reported walking less than 20 min/day), as well as a segment that was very active (i.e., 24.9% reported walking 5–7 days/week and 7.6% reported walking more than 60 min/day). Most participants reported walking 1–4 days/week (64.9%) and 20–60 min/day (71.3%). Slightly over half the participants had completed postsecondary education and owned their own homes. The mean length of neighborhood residence was 27 years (range 2–53 years). The sample included older people who had immigrated to Canada from other countries including China, Italy, Greece, Britain, Ukraine, and Chile. Table 2 summarizes participant characteristics for each neighborhood.

**Main Themes**

Figure 2 provides a schematic illustration of how broad question lines led to coding categories that were then integrated into four main themes along with key implications. Although categories are displayed to correspond with themes they informed most directly, overlap and links between categories also informed the identification of themes. For example, the categories on change are reflected in all four themes. This notion of category linkage is illustrated with overlapping circles in Figure 2.
<table>
<thead>
<tr>
<th>Neighborhood</th>
<th>Number of participants</th>
<th>Age (years, $M$)</th>
<th>Gender (% female)</th>
<th>Walking-aid use (%)</th>
<th>Length of neighborhood residence (years, $M$)</th>
<th>Owners (%)</th>
<th>Renters (%)</th>
<th>Postsecondary education (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inner-urban, lower SES</td>
<td>20</td>
<td>77</td>
<td>85</td>
<td>35</td>
<td>15</td>
<td>10</td>
<td>90</td>
<td>25</td>
</tr>
<tr>
<td>Inner-urban, higher SES</td>
<td>17</td>
<td>77</td>
<td>76</td>
<td>25</td>
<td>37</td>
<td>88</td>
<td>12</td>
<td>88</td>
</tr>
<tr>
<td>Suburban, lower SES</td>
<td>18</td>
<td>72</td>
<td>78</td>
<td>28</td>
<td>26</td>
<td>33</td>
<td>67</td>
<td>55</td>
</tr>
<tr>
<td>Suburban, higher SES</td>
<td>20</td>
<td>75</td>
<td>90</td>
<td>10</td>
<td>28</td>
<td>75</td>
<td>25</td>
<td>45</td>
</tr>
</tbody>
</table>
Figure 2 — Schematic illustrating the process of theme identification.
Multidimensional Personal Meanings. Interrelated dimensions of personal meaning included exercise, managing everyday life, contact with nature, social connection, and discovery. The significance of these dimensions was described through responses to questions regarding purposes, destinations, and routes. Older people perceived the experience of neighborhood walking as highly relevant to their health and well-being. Walking for exercise was usually described in combination with other walking purposes or benefits including reaching a destination or enjoying the company of a walking partner.

Contact with nature was a highly valued aspect of neighborhood walking described by many participants as bringing them positive gains in their state of mind or emotions. Nature was described while walking along streets as people enjoyed tree cover and gardens, as well as in parks:

I prefer to go to the Experimental Farm because that of course is a nice area. . . . It is very quiet of course, and I like just looking at the sky you know, it is wonderful, the big skies are so beautiful. I walk through the fields there. I go for the skies alone. (Woman, suburban lower SES neighborhood, focus group)

Some older people, however, felt that nature was inaccessible within the distance they were capable of walking. Park use was associated with more contingencies than the use of neighborhood streets for walking. For example, many people commented that parks were not accessible in winter. Female participants often said they felt more comfortable walking in natural areas with a walking partner: “Whereas really in the park . . . walking by myself, I do not feel it is dangerous because there are other people, but it is nice to have somebody with you anyway, no matter what” (woman, inner-urban lower-SES neighborhood, focus group).

The social dimension of neighborhood walking had both active and observational elements. In the case of active social connection, participants described both intentional meetings at places like seniors’ centers or coffee shops and spontaneous outdoor encounters with their neighbors, which often helped strengthen those relationships:

I tend to walk and bike, and I always stop and chat—of course I am retired now, so I have time to stop and chat—so I know everybody on the street and we chat and I have a relationship with them and sometimes I help them do something, . . . so walking has that. (Man, inner-urban higher SES neighborhood, interview)

Participants described both being an observer and being observed. Being an observer had benefits related to mental stimulation, as well as the acquisition of neighborhood knowledge. This knowledge was useful in that it allowed older people to know about new shops and services in the neighborhood that may be useful to them, as well as whether there were teenagers living close by that might be interested in being hired for odd jobs. “You know, if I could not shovel my own snow, I would know who to get” (man, inner-urban higher SES neighborhood, interview).

The benefits of being observed were related to the prevention of victimization and the provision of help in case of a health emergency or fall. Participants’ discussions on neighborhood walking revealed a dimension of contribution that
had both formal and informal elements. Some participants talked about walking to places like hospitals and churches where they engaged in volunteer activities such as visiting or administrative work. Others talked about how they sometimes helped their neighborhoods or provided surveillance for the neighborhood while walking. These examples illustrated that older people associated many different kinds of social connection with the walking experience, involving people they knew, as well as those they did not.

The concept of discovery emerged as an important aspect of neighborhood walking. Even in very familiar environments people used terms such as *exploration* and *adventure* to describe their walking experiences. Participants talked about how this dimension of neighborhood walking had benefits relevant to the provision of mental stimulation:

I like to see what everybody is doing. When you are walking, you can see landscaping in progress or things. It is very interesting because you pick up something every day. It is also for the mind, not just the body. (Woman, suburban higher SES neighborhood, interview)

Personal meanings changed over time, thus making the walking experience complex and dynamic. For example, changes in hearing, balance, and reaction time affected how comfortable people were in using shared recreational pathways. The death of a walking partner influenced how frequently participants walked in their neighborhoods, as well as the routes they chose:

Well I used to have a lot of friends in the neighborhood and I would walk to visit them or we would walk together, but some of them have moved away, or died, or something. . . . I don’t walk at the Experimental Farm anymore, I don’t usually have anybody to walk with anyway, but the Farm is right across Fisher [Street]. It is a nice walk among the trees and everything, but I just wouldn’t feel right going in there alone. Now I don’t go very far from home. (Woman, suburban lower income neighborhood, interview)

Navigating Hostile Walking Environments. Older people described dangerous walking environments as those characterized by multiple demands for attention or a combination of hazards. Hostile walking environments were most often described with reference to crossing main arterial roads and often associated with the recurring phrase *that is taking your life in your hands*. However, recreational pathways, public transit, and parking lots also presented situations that people tried to avoid. The problem of crossing arterial roads related to inconvenient crossing opportunities, inadequate signal times, long crossing distances across multiple lanes of traffic, intersection complexity, and aggressive driver behavior. People frequently commented that the green pedestrian crossing phase (i.e., light regulating a safe roadway crossing) was too short and that once the red warning signal started to flash (i.e., indicating that the safe crossing phase was coming to an end), there was a sense of urgency associated with completing the crossing. This sense of urgency appeared to compound the risk of falling in some instances: “I didn’t know how long [the crossing signal] had been green so I was hurrying up . . . but then I tripped on [the uneven pavement] . . . blood was on my face. My knee was bleeding too” (woman, inner-urban lower SES neighborhood, interview).
Participants who relied on public transit perceived the connectivity between sidewalks and public transport to be particularly hostile in winter:

At bus stops, well I think they have to stop, or get somebody out there to clear the bus stops. It is just too darn scary. You should not have to straddle a snow bank. I broke my thumb doing that. (Woman, lower income inner-urban neighborhood, interview)

Participants with mobility impairments identified busy roads, including arterial roads, as obstacles because crossing circumstances were not perceived as safe. For example, one woman remarked, “I think Gladstone Avenue is horrible. If you have to [cross] and get a parcel and bring your parcel back across that street, I dread it. I would rather leave my parcel there” (woman, inner-urban lower SES neighborhood, focus group). In another example, a woman described a grocery store that was within walking distance but that she thought of as inaccessible because of “the thought of having to cross all that traffic” (woman, suburban higher SES neighborhood, focus group).

Increases in neighborhood traffic and changes in driver behaviors were perceived as factors that had made crossing roadways more dangerous. Suburban participants frequently talked about how the recent growth of surrounding areas had increased traffic volumes either in their neighborhood or on its boundaries. Participants in all neighborhoods noted that drivers had become more aggressive and less attentive, especially at larger intersections. Many said they felt that the increased use of cell phones made drivers less apt to notice pedestrians. Some participants indicated that their visible signs of aging such as having gray hair or using a walking device made drivers more polite, but this was not a universal sentiment: “Drivers are wicked. . . . I [was] ready to go across with a go light and one young chap. . . . I really wanted to whack his car but then I was afraid he would get out and poke me one” (woman, suburban lower income neighborhood, focus group).

In inner-urban neighborhoods, people talked about how increasing demands on pedestrian infrastructure have presented new challenges to sidewalk safety. Greater numbers of newspaper boxes and vending displays on the sidewalks made negotiating sidewalks more difficult. Participants frequently expressed concerns about colliding with rollerbladers and skateboarders. Furthermore, increased vehicle volumes on the roads were felt to have forced more cyclists onto the sidewalk, making them more hazardous for older people. Many participants said that traffic exhaust made arterial roads unpleasant to walk along. Others pointed out how main arterial roads were more likely to have bus stops with benches, which allowed them to rest at regular intervals.

Hostile walking environments represented the most explicit tensions expressed by participants. Frequently these concerns were associated with arterial roads that bordered neighborhoods. For some participants these roads represented barriers that stopped them from accessing certain destinations on foot. For others, bordering arterial roads were environments that required extreme vigilance to navigate.

**Experiencing Ambiguity.** Participants identified ambiguities relating to the right-of-way among other modes of travel (e.g., other pedestrians, motor vehicles, bicycles), as well as those related to the interplay between built-environment design (e.g., lack of sidewalks, intersection design) and legislative regulation (e.g.,
yielding requirements for vehicles). People often asked about what the “rules” were concerning various issues and sometimes expressed the need for a “rule book for walking.” Discussions in inner-urban neighborhoods frequently focused on sidewalk etiquette and the question of who should yield to whom on the sidewalk. In suburban neighborhoods, ambiguities were discussed in reference to avoiding collisions with cyclists on shared recreational pathways. One man who grew up in Europe felt that these conflicts were partially the result of an underdeveloped walking and cycling culture in Canada:

When everybody does it, like in Europe in my town, there is no problem. They know exactly when to ring ahead of time; they know exactly where the people go and they know themselves where to go. This you do not learn in one day. It has to be the custom. (Man, suburban higher SES neighborhood, focus group)

Ambiguities often related to the interplay between built-environment design and legislative regulations. One woman made the point that walking on the street facing traffic, as required by law, resulted in exposures to other hazards such as ice, snow, and puddles. She described circumstances related to a fall that she had had while walking on a street with no sidewalks during the winter:

One chooses as best one can which way to go, . . . sometimes there is a big puddle on one side and not on the other. But on the other hand, if you are walking on the inappropriate side of the street because there are no puddles there, and a car comes along and hits you . . . enough said? (Woman, suburban lower SES neighborhood, interview)

It was often pointed out that when pedestrians have a regulated signal to allow walking they must remain vigilant for turning vehicles that also have a regulated signal to proceed. To avoid confusion over who had the right-of-way, many participants said that they automatically yield to vehicles in these instances. Walking across motor-vehicle merging lanes also represented an uncomfortable situation for participants. People felt there was ambiguity as to the yielding requirements of vehicles at these types of crossings (i.e., yielding to oncoming traffic vs. yielding to the pedestrian): “Sometimes there are pedestrian symbols that accompany these signs and sometimes there are not. . . . Usually I think that these signs only apply to traffic” (woman, inner-urban lower income suburban neighborhood, interview).

Ambiguities were also expressed with respect to the meaning of a pedestrian crosswalk. Some participants were originally from provinces in Canada where legislation governing crosswalks is different from that in Ontario. In Ontario, the Highway Traffic Act does not give pedestrians the priority anywhere except at regulated crossings (e.g., signalized, stop sign), whereas in some provinces and states motorists must yield to pedestrians at any type of marked pedestrian crossing. Therefore, in Ottawa, a crosswalk by itself does little to ensure pedestrian safety. One man who had come from outside Ontario talked about how he requested that a crosswalk be painted to allow residents of a seniors’ building to cross a busy collector road that intersected their residential street: “[I wrote a letter requesting] crosswalks, so you could put out your hand and the traffic would stop. . . . [The people from the city] came up, looked and said, ‘Thank you very much, it is not in our budget’” (man, suburban lower SES neighborhood, focus group).
city’s response confused the participant because he felt that painting was not a major budget item and the response did not help to clarify why a crosswalk was not provided. This example illustrates how differences in jurisdictional legislation governing roadway crossings can lead to differences in understanding of the safety a crosswalk might provide.

**Getting Around.** An overarching theme that emerged from the discourse on walkability concerned the challenges of getting around. Not all desired destinations were located within a walkable distance. Although some neighborhoods were more destination rich than others, participants in all neighborhoods described having to reach destinations that lay beyond their neighborhoods. Walking was viewed as part of an integrated transportation network, especially by participants who did not have access to a motor vehicle. For these participants, issues related to taking public transit became integral to the conversation on walkability. Individual changes associated with aging influenced the distance that some participants were able to walk, making them more reliant on public transit: “I used to be able to walk downtown no problem, but as you get old, you slow down, so now I gratefully have my senior’s pass and I use it” (woman, lower income suburban, focus group).

Findings indicated that the usefulness of public transit related to how conveniently the bus stops were located relative to shopping destinations:

> I think they put in a bus station, but they put it as far away as they possibly could [from the shopping mall]. In fact you need to be a really good walker to get to it. You have to cross cars’ lanes. (Woman, higher income suburban, focus group)

Connections between pedestrian infrastructure and transit were particularly problematic during winter months:

> You cannot get to the stop half the time because it is icy and if you walk down the road, you cannot climb up over the bank to get to where the bus stop is, because it is all filled up with ice. I find anywhere in the wintertime around here, any bus stop, they are not cleared out. (Woman, higher income suburban, focus group)

Participants were concerned that several older people had been killed in Ottawa from sliding under the wheels of the bus after exiting. As a result they described disobeying the “exit by rear” sign on buses, choosing instead to always exit at the front, where they were more visible to the bus driver.

Not owning a car or the decision to give up a car made walking more critical to getting around but introduced new challenges related to having to carry groceries or shopping bags. Participants described how neighborhood changes had also contributed to challenges in getting around. In three of the four neighborhoods, participants talked about how the loss of a local grocery store negatively affected the walkability of the neighborhood because it eliminated a useful walking destination and accompanying opportunities for spontaneous social interaction:

> The grocery store was just across the street. The bank, the liquor store, the hairdresser, and everybody just walked and met everyone. . . . It was quite pleasant. Today, we have to get into our cars. So, that has really changed. (Woman, suburban higher SES neighborhood, focus group)
This type of change meant that participants became more reliant on their cars or public transport. In cases where neither of these transport options was available, participants described how the organization of local grocery buses had been helpful. However, the buses were often available only 1 or 2 days per week, with capacity limitations for people and cargo. The ability to walk to a grocery store was preferred because it was associated with a greater degree of flexibility in terms of travel time and provided an opportunity to get some exercise with a purposeful destination.

Participants described the importance of getting around, managing everyday life, and living independently. Those who relied on automobiles expressed concern that they may not be able to drive in the future. This represented a worry because walking did not constitute a viable way to get around. The theme of “getting around” emphasizes how walking was viewed within the greater preoccupation of transportation in a large urban environment.

Discussion

Four distinct yet interdependent themes emerged from older people’s description of their walking experiences. Together these themes represent an intersection of perspective and environment that has implications for the conceptualization of walkability. The first theme highlighted how older people’s reasons for walking are influenced by overlapping personal meanings including exercise, managing everyday life, contact with nature, social connection, and discovery. Health-relevant aspects of neighborhood walking were consistent with previous conceptualizations on how outdoor environments affect older people’s health (Day, 2008; Sugiyama & Ward Thompson 2007). Key distinctions of this research however, had to do with the nuances of social connection associated with walking. “Being seen” was related to community cohesion implied by trusting anonymous others to help in case of an emergency. “Seeing” was more analogous to Granovetter’s theory (1983) on the importance of weak ties for social information because the incidental observations about local resources that older people made while walking in their neighborhoods can have implications for continued independent living. This research also indicated that being able to walk to volunteer activities promoted a continued level of societal engagement, particularly for older people without access to a vehicle. The opportunity for social participation has been identified as a critical element in prescriptions for “senior-friendly communities” (Feldman & Oberlink, 2003), as well as studies that have examined the broader perspectives on quality of life among older people (Richard, Laforest, Dufresne, & Sapinski, 2005).

A further distinction of this work from other qualitative work on older people’s walking experiences (Day, 2008; Lockett et al., 2005; Michael et al., 2006; Strach et al., 2007) has to do with the role of discovery in how older people described their walking experiences. The desire to see what was happening represented an underlying motivation to walk in many cases. Even in familiar environments people talked about how they were constantly observing small changes, which provided a source of mental stimulation associated with the walking experience. Previous studies have indicated that both mental exercise and walking may play a role in reducing cognitive impairment later in life (Studenski et al., 2006; Weuve et al., 2004). Our findings expand these studies in developing a greater understanding of how mental exercise and walking are interrelated and, in this way, underline the role
of neighborhood environments in supporting both of these complementary activities. A question for future research may be to investigate whether people who embrace discovery and are able to adapt their walking routine to changing conditions also preserve cognitive function. If so this would suggest additional health benefits to community walking versus walking around a track.

The fact that contact with nature was highly valued but inaccessible for some older people highlights the importance of preserving natural features like trees in the urban landscape and not only in separate parkland. Having trees and gardens in places that have multiple urban uses means that older people can have more exposure to nature over a greater variety of seasonal conditions and alleviates some worry about security in parks while walking alone. Urban programs aimed at preserving city trees and providing places to rest may have more benefits for older people than creating park space outside neighborhood boundaries by allowing exposure to natural elements within an achievable walking distance. Considering the empirical evidence that supports the health benefits of local walkable green spaces for older people (Takano, Nakamura, & Watanabe, 2002), it is important for municipalities to consider how to make these benefits accessible to people with limited walking radiiuses.

The theme of hostile walking environments illustrates how some environments were perceived as not only unsupportive of walking but also hazardous to life and health. By far the most common type of hostile walking environment was associated with crossing main vehicular-traffic arteries. Our findings indicate that many older people relied on regulated crossings (i.e., crossings regulated by a sign or light that legally required drivers to stop for pedestrians). Previous measures of walkability have defined pedestrian connectivity in terms of intersection density but have paid little attention to intersection regulation (Vernez Moudon et al., 2007). Filion and Hammond (2003) concluded that neighborhoods are often defined by main arterial roadways, yet the evolution of 20th-century planning has not improved intraneighborhood accessibility. The fact that many participants talked about walking to places beyond neighborhood boundaries highlights a need for better regulated pedestrian connections among neighborhoods, commercial areas, and parks.

Air quality was often given as a reason that participants avoided certain streets. This implies that air quality is a dimension highly relevant to measures of neighborhood walkability, which should be incorporated into studies examining the association between the built environment and physical activity. Despite a preference to avoid traffic exhaust, participants sometimes opted for exposure to access positive neighborhood attributes like bus-stop benches, which were more likely to be located at regular intervals along main arterial roads. This demonstrates how the notion of risk trade-off, as described by Lockett et al. (2005) with respect to falls and safety hazards, can also apply to other types of exposures influencing walking-route choice.

The theme of experiencing ambiguity suggests that older people are vigilant pedestrians concerned about the clarity of pedestrian-travel rules. Concerns regarding safety issues likely reflect the fact that fall-related injuries have more serious lifestyle implications with increasing age (Alexander, Frederick, & Wolf, 1992). This theme also suggests that accepted patterns of shared public space among various modes of travel have not been established in the study areas. Ambiguities often were described with regard to pedestrian etiquette on sidewalks and public
transit, suggesting a competing sense of entitlement among different types of users (e.g., older pedestrians, parents with child strollers, wheelchair users, etc.). Given the potential for public conflict on this issue there is a need for municipalities to establish and publicize guidelines about the rules for shared public space. Clarity is especially important with respect to space shared between pedestrians and vehicles. Results suggest that harmonizing jurisdictional regulations, or at least clear communications about existing regulations, may help reduce ambiguity for pedestrians and the hazards associated with it. Crossing designs can also make motorists’ obligation to pedestrians more obvious (Ewing, 1997).

The overarching theme of getting around indicated that participants viewed walking as part of an integrated transport system. Although walking as a mode of transport took on greater significance for some participants as they aged because of the decision to give up a private vehicle, it also became less feasible for others because of declining physical abilities or destinations moving farther away. This dominant theme highlights how the interface between pedestrian infrastructure, public transit, and destinations (shops, institutions, service buildings) is a critical element of walkability for older people because the overall size of most cities does not allow them to reach all desired destinations by foot. This interface included not only having a transit stop within walking distance but also being able to access public transit safely without having to worry about climbing over a snow bank or finding a seat before the bus started moving. Findings indicate that both accessibility of origin and accessibility of destination are important considerations for getting around. This theme relates to deeper concerns of being able to manage everyday life and live independently and points to the importance of accessible walking routes as a critical element in the overall transportation system.

Participants’ concerns about motor vehicles reflected the fact that they represent a primary mode of transport, as well as a principal safety hazard. Societal priority of automobile transport was reflected in examples of transportation-infrastructure design (e.g., vehicle turning lanes, discontinuous walking paths), provincial legislation (e.g., vehicle yielding requirements), and land use (e.g., convenient destinations) that affect walking conditions for older people. The inequality between automobile and pedestrian travel has potentially the greatest impact on those who do not have access to a private vehicle, which was often the case in lower income neighborhoods. Findings suggest that getting around by motor vehicle is perceived as a more feasible and legitimate form of transportation. Policies aimed at improving walking conditions for older people must address both of these considerations.

All four themes contained temporal elements illustrating that the relationship between older adults and their neighborhoods is not static. Findings indicated that age-related change, such as declines in hearing or balance, changes the kind of walking infrastructure that participants felt comfortable using. Although recreational pathways support physical activity among the mainstream population (Duncan & Mummery, 2005), pathways shared with bicycles may not be a neighborhood asset that encourages walking as older people become more frail. The types of individual and neighborhood changes discussed by participants in this study illustrated that both sets of changes compounded the difficulty of reaching meaningful destinations by foot. Examples of how retail expansion, transportation patterns, and technological product development (e.g., cell phones) affected older people’s
walking experiences illustrated that neighborhood walkability is subject to factors beyond the local level. Grocery-store expansion, for instance, reflects a wider quest for increasing economies of scale to maximize profits.

Although Golant (2003) conceptualized the importance of examining temporal aspects of both the individual and the environment, the conceptualization has mainly been applied to the design of indoor residential environments and care settings. Our research highlights the importance of looking at how individual and societal changes are experienced together in the context of neighborhood. Although the line of questioning for this research focused on asking participants for their perceptions of neighborhood change, responses indicated that these perceptions are intertwined with personal change (life-course and age related). The interplay between personal and environmental change warrants further exploration in future research.

Considerations for Transferability and Implications for Future Research

This study was conducted in Canada’s national capital, which has distinctions important for transferability of the findings. National-level organizations maintained green space that bordered all neighborhoods. The experiences identified by participants in this study must be interpreted in the context of an economically prosperous city with 20% of its total land use devoted to parks and green space. Challenges associated with winter walking described in this study are particular to cities with a climate similar to that of Ottawa. Purposive sampling of neighborhoods limited the study setting to suburban and inner-urban environments but did not include rural areas, where the experience of walking is likely to be vastly different for older people. As municipalities continue to grow, incorporating more rural areas, the question of how this process affects walking experiences will be an important one for future research.

These data reflect mainly a female perspective because 82% of the participants were women. Other research has revealed differences in walking patterns among men and women (Lee, 2005), as well as the perception that women are not legitimate users of public space after dark (Andrew, 2000). Our findings emphasizing concerns about getting around without a car may be more particular to older women because of their greater economic vulnerability (Smeeding & Sandstrom 2005). Having a walking partner may also be more important to women because of a greater sense of physical vulnerability. The small percentage of male participants prevented data saturation among this segment of the sample and, thus, our ability to do a gendered analysis. However, some men related a sense of purpose and usefulness associated with the walking experience that may be especially important after retirement. This idea warrants further exploration in a larger sample of men.

Conclusion

This study used the voices of older people to expand the knowledge and conceptualization of walkability. Findings indicate that neighborhood walking is experienced in the context of multiple, overlapping personal meanings and influenced by aspects of the built, social, and legislative environment. Neighborhood walkability means
not only being able to walk in the neighborhood but also being able to reach destinations beyond its borders. Hazards associated with crossing main arterial roads are of major concern to older people. Findings indicate that the concept of pedestrian connectivity must incorporate both intersection design and regulation to ensure relevance for an aging population. The level of certainty related to walking safety may become more important with advancing age or vulnerability. Participants called for more clarity about policies affecting pedestrian safety. Ensuring accessibility of pedestrian and public-transport-system connections will help older people manage everyday life and live independently. Future tools to assess walkability and urban planning must consider how well these connections allow older people to get around.

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