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Résumé

Du point de vue des personnes âgées : étude qualitative exploratoire visant à déterminer les entraves et les aides à la marche dans le milieu environnant

Donna Lockett, Alette Willis et Nancy Edwards

Cette étude qualitative exploratoire examine les facteurs environnementaux influant sur les habitudes de marche des personnes âgées en utilisant l'approche de messages par l'image (photovoice). Au total, 13 personnes âgées d'Ottawa, Canada, ont pris des photos des éléments qui compliquaient ou facilitaient la marche dans leurs quartiers. Les photos ont été exposées dans le cadre de trois séances de groupes de discussions, où elles ont servi de point de départ pour la discussion. Ont participé aux groupes de discussions 22 personnes âgées au total, dont 8 des 13 photographes. Les résultats montrent que les dangers environnants liés à la circulation et aux risques de chute peuvent constituer des entraves importantes à la marche chez les personnes âgées et que pour celles-ci, la connectivité ne peut réellement exister que si des parcours convenables et sans danger sont disponibles. Les résultats indiquent également que de simples commodités, comme des bancs et des toilettes, pourraient faciliter la marche chez les personnes âgées. Un quartier dont les activités prennent en considération les personnes âgées sera aussi pour toutes et tous un bon endroit où vivre, travailler et se divertir. L'utilisation de la méthode de messages par l'image a été bien accueillie par les participants et a fourni une riche information qui n'aurait peut-être pas pu être recueillie par d'autres moyens.

Mots clés : messages par l'image (photovoice), vie active, marche, personnes âgées, aides et entraves dans le milieu environnant

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Through Seniors' Eyes: An Exploratory Qualitative Study to Identify Environmental Barriers to and Facilitators of Walking

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This qualitative exploratory study examined environmental factors influencing the walking choices of elderly people using the photovoice approach. A total of 13 seniors in Ottawa, Canada, took photographs of barriers to and facilitators of walking in their neighbourhoods. These photos were displayed during 3 focus-group sessions and served as touchstones for discussion. A total of 22 seniors, including 8 of the 13 photographers, participated in the focus-group sessions. The findings show that environmental hazards related to traffic and falls risks can be significant barriers to walking for seniors, and that connectivity can truly exist for the elderly only if convenience, hazard-free routes are available. They also indicate that simple amenities such as benches and washrooms might facilitate walking for seniors. A neighbourhood that is activity-friendly for seniors will also be a good place for everyone else to live, work, and play. The use of photovoice as a method was well received by the participants and provided rich information that may not have been captured through other means.

Keywords: photovoice, active living, walking, seniors, environmental facilitators, barriers

Introduction

Older adults represent the fastest-growing segment of the Canadian population (Everitt & Rosenberg, 2001). The quality of life of older adults is a critical element of the social fabric of communities. Physical activity is an indicator of this quality of life. However, despite overall gains in life expectancy, researchers are seeing a trend towards higher rates of inactivity amongst older adults in Canada (Canadian Fitness and Lifestyle Research Institute [CFLRI], 1996). Inactivity has important implications for the health and well-being of seniors. Inactive seniors are at increased risk for falling and for developing chronic health conditions such as cardiovascular disease and diabetes and, in general, experience a lower quality of life than their active counterparts (Campbell et al., 1997; Christmas & Andersen, 2000).

Integrating walking into everyday activities has been identified as an excellent strategy for increasing the physical-activity levels of sedentary

older adults (Christmas & Andersen, 2000). Walking is the preferred mode of exercise for Canadian older adults (CFLRI, 1998). It is an effective way to improve cardiovascular fitness as well as strength and balance (Woolf-May, Bird, & Owen, 1997). Our research suggests that seniors who walk on a regular basis have a lower rate of falling than those who do not (Lockett, Edwards, & Sveistrup, 2003). Being able to walk places is also important for seniors' sense of independence, especially if they do not drive, have lost their driver's licence, or wish to limit their driving (Frank & Engelke, 2000; Traffic Safety Center, 2002).

When promoting active living, including walking, we know that it is not enough to simply tell people they should be active. Their personal choices need to be supported by amenable physical, social, and cultural environments (Giles-Corti & Donovan, 2003; Health Canada, 2002). It has been suggested that promoting the safe use of the environment among seniors may increase their levels of physical activity (CFLRI, 1997). And in surveys of the general public, although respondents mention both personal and environmental barriers to active means of transportation (Environics, 1998; Frank & Engelke, 2000), they also argue that interventions to alter the physical environment have greater potential for increasing physical activity than those aimed at changing individual behaviour (Frank & Engelke).

The physical environment comprises both the built and natural environments. Ideally, the two co-exist to create a sense of place, order, and beauty. The physical environment consists of human-built structures (e.g., buildings, roads, furniture) and naturally occurring features (e.g., topography, flora and fauna). Its spatial, aesthetic, and physical dimensions create a tacit context for living (Seamon, 2000). Several studies with younger populations have shown that features of the built environment (e.g., accessibility of stairs, public-transportation infrastructure) can affect the extent to which people choose to walk (Cervero & Radisch, 1996; Filion, McSpurren, & Huether, 2000; Fisher & Dunphy, 1994; Frank & Engelke, 2000; Frank & Pivo, 1994; Friedman, Gordon, & Peers, 1994; Furuseth, 1999; Handy, 1996; Shriver, 1997; Zacharias, 1997). However, seniors' perceptions of barriers to walking may differ from those of younger populations. It has been found that perceived risk of crime in a neighbourhood adversely influences the physical activity patterns of older adults more than younger adults (Centers for Disease Control and Prevention, 1999).

The literature exploring the influences of the built environment on active living choices is small, since this is an emerging field (Frank & Engelke, 2000; Giles-Corti & Donovan, 2003; Jackson, 2003; Leyden, 2003; Pikora, Giles-Corti, Bull, Jamrozik, & Donovan, 2003). Researchers have documented the combined importance of individual, social, and

environmental factors for walking among the general population. Given that seniors are particularly vulnerable to environmental stresses (Lawton, 1982), and given that the well-being of community-dwelling seniors depends upon their mobility within the community (Metz, 2000), addressing barriers to and facilitators of walking for seniors should be of paramount importance to health promoters, urban planners, and decision-makers. This paper describes a qualitative exploratory study of environmental factors influencing seniors' walking choices.

Methods

The study was guided by a qualitative data-collection method referred to as photovoice (Wang & Burris, 1994). In this method, members of the community take photographs and then use the images to facilitate dialogue between themselves and outside groups. In contrast with studies that employ photographs taken by the researcher, in studies that use photovoice the camera is placed in the hands of the participant (Wang & Burris, 1994, 1997). The camera provides older adults with a means to describe features of their environment that likely would not be disclosed through an interview format. A discussion of a photograph taken by a participant provides the researcher with "direct entry into their point of view" (Radley & Taylor, 2003; Wang, Burris, & Ping, 1996). Photographs also trigger feelings and impressions (Cronin & Gale, 1996). Nurse researchers have used photographs to elicit rich data on people's lived experiences (Berman, Ford-Gilboe, Moutrey, & Cekia, 2001; LeClerc, Wells, Craig, & Wilson, 2002; Wang, Yi, Tao, & Carovano, 1998). However, the literature includes no reports on the use of photovoice to capture seniors' perspectives on how the environment influences their levels of physical activity.

Seniors from across the city of Ottawa, Ontario, Canada, were recruited through seniors' centres. A convenience sampling frame of three centres was initially selected from different regions of the city, to give the researchers access to a sample of seniors representing distinct and varied geographical domains. The research team had established rapport with managers in the selected centres while conducting previous studies; this facilitated access. Two urban centres (one French-speaking, one English-speaking) and one rural centre (English-speaking) were selected, affording a sample reflective of the two dominant cultures in Canada. At each recruitment site, seniors were invited to participate in the study by taking photographs and/or by joining one of three follow-up focus groups designed to facilitate discussion around environmental barriers to and facilitators of walking. A total of 13 seniors took 86 photographs of environmental barriers to and facilitators of walking. Of these seniors, 8

Table 1 ***Participant Profiles by Recruitment Site* (n = 27)**

	Urban English	Urban French	Rural English	Rural French
Level of participation				
Photographs and focus group	33	2	3	8
Focus group only	1	2	11	14
Photographs only[a]	2	1	2	5
Total	**6**	**5**	**16**	**27**
Age (mean)	71.0	70.8	79.4	76.0
Gender				
Male	1	0	3	4
Female	3	4	11	18
Missing	2	1	2	5
Preferred language				
English	4	0	13	17
French	0	4	0	4
Missing	2	1	3	6
History of falls in previous year				
Yes	2	1	2	5
No	2	3	9	14
Missing	4	1	5	8
Walk regularly				
Yes	3	3	6	12
No	0	1	8	9
Missing	3	1	2	6

participated in the focus-group sessions. Seniors who took cameras were asked to keep a log of what they had photographed. These logs were returned with the cameras. An additional 14 seniors participated in the sessions but did not take photographs. A breakdown of participation by recruitment site is provided in Table 1. As can be seen, the distribution of participants who took photographs is similar for each focus group. However, a disproportionately large number of seniors who had not taken photographs participated in the rural focus-group session.[1]

The focus-group sessions were held in specific geographical locations, the intention being that participants would have shared knowledge of a particular community. One was held in English in an inner suburb, one in French in central Ottawa, and one in English in a rural community south of the city. Ethics approval for the study was obtained through the University of Ottawa.

Three weeks prior to the focus-group sessions, the photographer volunteers completed a consent form and were asked to photograph areas in their neighbourhood where they felt safe and comfortable or where they thought other seniors might feel safe and comfortable pursuing leisure activities such as walking. They were encouraged to photograph only what they were comfortable shooting and to avoid putting themselves at risk when taking photographs. Each participant was provided with a 12-exposure disposable camera. Two weeks later the cameras were collected and the films were developed. Both printed photographs and digital versions on CD were produced for all of the returned cameras. Duplicate prints were made for participants who requested copies of their own shots. The digital photos were loaded onto a laptop computer according to the identification number of the participant who had returned the camera.

During the focus-group sessions, seniors who had taken photographs were asked to select, from among the prints of their photographs, the one that best represented a barrier to being active outside the home (in particular, walking) and the one that best represented a facilitator. The two photographs were then projected onto a screen using an LCD projector attached to the laptop, to enable all participants to view the images. Focus-group participants were asked to complete a brief questionnaire on socio-demographic characteristics, activity levels, and falls.

The focus-group discussions centred on the selected photographs. First, each volunteer photographer was asked to explain why the image he or she had selected was a good example of what facilitates or hinders

[1] This may be attributable to the fact that a snowstorm developed during the morning when the focus-group session was held, leaving several patrons of the seniors' centre stranded there for the morning.

physical activity among seniors. Following these individual descriptions, discussion was generated among the group. Probes were used to clarify which features of the photographed environment facilitated or hindered activity and, where discussion centred around a photograph, whether there was anything significant about the location that could not be captured in the image. All comments were audiotaped and data were transcribed verbatim. Transcripts, logs, and the photographs themselves were analyzed qualitatively using Atlas.ti version Win 4.2 software (Scientific Software Development, 1997). This software enables researchers to content code and retrieve not just textual data but also specific components of visual data, such as that provided by the photographs. Rather than forcing data into categories, the researchers allowed the categories to emerge from the data (Strauss, 1987).

Findings

Focus-Group Profile

The majority of the focus-group participants were female (18 out of 22). The youngest was 60 and the oldest 90, with an average age of 76. Five participants (26.3%) reported having fallen during the previous year, with representation in all three focus groups. Most participants were physically active and the most common activity reported was walking (57% reported walking regularly). Of note, the proportion of participants who walked on a regular basis was higher in rural areas (85.7%) as compared to urban areas (42.8%).

Barriers to Walking

In total, 39 photographs of barriers to walking were taken. Participating seniors identified safety as the main consideration for choosing whether and where to walk. Although a couple of participants identified personal safety related to crime as deterring them from walking in their environment, risks related to traffic and falls hazards emerged as the predominant safety issues.

Traffic hazards were featured in nine photographs. Discussions around these images revealed that the seniors were concerned about being hit or splashed by a car, having insufficient time to traverse intersections, poor visibility in busy intersections, and traffic lights located at inconvenient spots on a route, forcing them to either walk out of their way or risk traffic and jaywalk:

> *I feel that we need…something…because in the winter you don't want to hurry across the street when you see there's no traffic… It's fine once you get to the crossing, but there may be long, long, long distances.*

Pedestrian crosswalks were also identified as a hazard. Participants identified insufficient time to cross the street, speeding traffic, and vehicles that did not stop when signalled to do so at crosswalks as particularly hazardous:

> *It's almost worse, because people will stop because of the pedestrian [crossing]. The pedestrian thinks they're safe. But the motor crowd doesn't think it's anything to even bother with. And there's not enough enforcement. So there are more people hurt on pedestrian crossings. People have a false feeling of safety.*

Falls hazards were featured in 27 photographs. Discussions around falls hazards revealed that seniors' concerns included sidewalks that were cracked and had uneven or slanted surfaces that made it difficult to ambulate, especially when using an assistive device such as a walker. In some cases, particularly in rural areas, there were no sidewalks. A rural-dwelling woman with osteoporosis described her choices:

> *You can go on the…paved roads, but it's dangerous because cars go by at 100 kilometres an hour. So you go out on the country roads. And here…you have the rocks.*

In other cases, sidewalks would just end, "dumping" seniors into a parking lot. This appeared to be a particular concern in areas adjacent to shopping malls and grocery stores. Participants acknowledged that occasionally there were ramps linking sidewalks to parking lots. However, the ramps were frequently cracked, uneven, or steeply sloped with no railings, and did not resolve the problem of an older pedestrian being forced to cross a parking lot:

> *The entrance of the shopping centre…is not constructed with pedestrians in mind. So [for] someone that doesn't have a car and walks to the store, they are stuck and really have to watch for themselves.*

Inaccessible stairs and entranceways were also identified as a barrier. One woman who used an assistive device could not open the door to her apartment building and had to rely on another person being there when she wanted to enter or leave the building. Seniors living in rural areas also reported that some public buildings were inaccessible. One woman took a photograph of a narrow staircase, which she described during the focus-group session:

> *One of the most dangerous places…for seniors is going down to our pharmacy…. They put it down in the basement of the health centre…there was a lady broke her leg on those stairs… Also, the hearing centre is down [there].*

Another senior described the town hall building:

> *The way the town hall is built is that you come in on one level and you go up to pay your tax bill. Or you go down to access the offices that are down below. So when you arrive there isn't an access door that will open automatically for you. You have to struggle with that.... There is a ramp to get up to the outside door, but then you've got to fight like mad to get the door open on your own. And once you get in there, you're stuck unless you can walk upstairs or downstairs.*

Many of the exterior falls hazards identified were intensified by the presence of snow and ice. One particularly poignant series of photographs (Figure 1) documents a senior's odyssey in getting from her home to the mall and back, a round trip of no more than 600 metres. If one were to examine the route on a map, the woman's apartment building and the mall would appear to be well connected by streets and an intersection with traffic lights. From the perspective of an elderly person using a walker, however, walking the short distance involved navigating a number of almost insurmountable barriers: snow and ice on the sidewalk, a sloping sidewalk, curbs almost impossible to negotiate using a walker, and a parking lot with its attendant risk of being hit by a car.

Figure 1 ***A Participant's 600-Metre Round Trip to the Mall Using a Walker***

The sidewalk outside the woman's apartment building is covered in snow and ice.

This woman must cross a wide intersection to get to the mall; she often finds herself stuck in the median because the timing of the lights does not permit her to finish crossing.

Photograph 3: The doors to the mall are heavy and difficult to open; there is a lip on the threshold that the woman often trips over with her walker.
Photograph 4: On her way home, the woman must mount curbs that have no ramps and must cross a parking lot.

The sidewalk the woman must use to return home is sloped and in poor repair.

Facilitators of Walking

In total, 47 photographs of facilitators of walking were taken. Facilitators that were photographed and discussed included amenities in close proximity that provided a convenient and efficient destination for a walk — for example, mailboxes, newspaper boxes, and shops. Some seniors said that having good public transit was important so that they could consider bus transportation when planning their route. For example, one man described how he integrated physical activity into his daily routine:

> *[I live] close enough… So I walk downtown. And when I get downtown I hop on a bus back… It's convenient.*

Others identified the need for safe options when weather conditions are poor and places that are free from falls hazards, traffic, and crime year round:

> *[I like to walk in] places where snow has been cleared…because our winters are very long and very depressing…and, apart from needing exercise, we need to be out in the light and fresh air.*

Amenities such as washrooms and places to sit were seen as important in facilitating walking connectivity between places for seniors who require frequent rest stops:

> *I like to walk in…[the] park. It's a good place to walk as it has picnic tables, paved trails, washrooms, water fountains, and…easy access. And it has beautiful waterfalls. [translated from French]*

Finally, aesthetic qualities increased the enjoyment of the walking experience for the seniors:

> *There's that little walk-through to the post office, down towards the back of the shopping centre. …it's in through the trees. It's a nice, almost covered, area you can go through… You can escape the rush of the cars and trucks and go down there for a while.*

Discussion

The seniors who participated in this study were engaged in both organized and non-organized physical activities outside the home. More than half walked regularly, and in all three focus groups walking was described as the most common form of physical activity. This finding is consistent with data reported from Canada-wide surveys of seniors (CFLRI, 1996). The participants walked for exercise specifically, for recreation, and as a means of getting from one place to another.

Safe environments and aesthetically pleasing routes have been identified as important determinants of walking in two previous studies (Environics, 1998; Frank & Engelke, 2000), as well as in a recent survey of seniors in the Ottawa area (CFLRI, 2003). Our findings are consistent with those reported in these studies, suggesting that, for seniors, walking is facilitated by aesthetically pleasing environments, convenient routes, and efficient and readily accessible transit services. Our findings also suggest that walking among seniors is facilitated by amenities, such as public washrooms and benches for the elderly to rest when they become fatigued. In addition, our findings indicate that attention to environmental hazards related to traffic and falls is essential for the promotion of safe walking among older people.

The use of photovoice and focus-group discussions revealed that key barriers to walking among older adults include insufficient time to traverse intersections, failure of drivers to stop at crosswalks, lack of sidewalks and pedestrian connections, and poor maintenance of sidewalks, including clearing of snow and ice. Participants also identified access barriers related to unsafe stairs and entranceways. Depending upon an individual's physical abilities, obstacles that for some seniors repre-

sented falls hazards were for others partial or complete barriers. A senior who is unable to leave her apartment building is effectively hindered from being physically active in her neighbourhood.

The literature on environmental features, particularly that on hazards related to falls, focuses on individual hazards in space, as if they existed in isolation (Gallagher & Scott, 1997; Speechley & Tinetti, 1991). The use of photography demonstrates that these hazards exist in context. An interesting theme to emerge from the use of photovoice in the present study was that seniors are often forced to consciously trade one form of risk for another. For example, one woman's photograph of a gravel shoulder abutting the asphalt pavement illustrated the choices faced by a senior who wishes to walk in a rural area; she can either take her chances on the gravel and risk falling, or step onto the road and risk getting hit by a vehicle. Similarly, many of the urban photographs highlighted falls hazards on sidewalks. While the seniors categorized these as falls hazards but not as traffic hazards, the images illustrated something that could be lost in text: sidewalks are adjacent to streets. If an elderly person steps into the street to avoid the risk of falling posed by a cracked sidewalk, the crack becomes a traffic hazard. Conversely, if she chooses to risk traversing the cracked sidewalk to avoid being hit by a car, traffic becomes a falls hazard. A visual image captures the inseparability of these two concepts better than a purely verbal or textual description ever could.

Another theme that emerged through the use of photovoice was the need for efficient, barrier-free *routes* between destinations. In some instances, individual photographs managed to capture site-specific gaps in safe routes, especially as related to links (or lack thereof) between sidewalks and commercial buildings. Parking lots posed a hazard when pedestrians were forced to cross them in order to reach a mall or a store. In a broader context, maintenance issues such as broken sidewalks can also be understood as breaks in connectivity between points for pedestrians. The series of photographs illustrating one woman's 600-metre journey to the mall and back powerfully conveys the importance of understanding hazards in terms of their placement on routes. Hazards must not only be analyzed and treated in terms of their immediate surroundings, but also be understood in relation to broader routes and destinations.

Finally, although many of the photographs and much of the discussion regarding factors influencing physical activity pertained to features of the physical environment, some descriptions of social environmental factors also surfaced. Examples included concerns about crime and the failure of drivers to respect pedestrians at crosswalks.

Although rich information was captured through use of the photovoice technique, this approach has several limitations. First, had we asked the seniors to photograph not only features of their community that made it easy or difficult for them to be active, but also social factors that encouraged or discouraged them from engaging in physical activity, we may have elicited a wider range of images. Second, since patterns of physical activity may change markedly from one season to another, a longer study period, allowing seniors to take photographs during both winter and summer, would be useful. Third, because the cameras were in the hands of the participants, what they chose not to photograph was, for the most part, excluded knowledge. In future studies it may be useful to have the researcher accompany some of the participants as they take photographs, in order to inquire about what they have not chosen to photograph.

Conclusions

Most previous studies on physical activity among older adults have used quantitative data-collection methods (Markula, Grant, & Denison, 2001). Although these studies have contributed to our understanding of behavioural and social influences on physical activity, photovoice is a qualitative method that furthers our understanding of contextual influences on active living. Cameras provided a different "lens" or orientation through which seniors could document their experiences of place.

Overall, photovoice was well suited for our area of inquiry, as it allowed seniors to note features of the environment that are important but risk being overlooked in semi-structured interviews that elicit narrative stories. The use of photovoice as a data-collection method provided a contextual perspective for our research on active living and environmental hazards. Photovoice allowed us to not only identify individual hazards and facilitators of walking among community-dwelling seniors, but also gain an understanding of how these factors related to each other and to the broader environment, which included routes linking destinations. Although we did not specifically ask the participants for feedback on the use of photovoice as a technique, their comments were overwhelmingly positive and suggested that they felt empowered by the experience. Remarks made by participants indicated that photographing hazards served to heighten their awareness of the prevalence of falls hazards, thereby increasing their likelihood of not only avoiding hazards but also reporting them. Future work is needed to explore how photovoice may be used to raise awareness around environmental hazards. Photovoice has the potential to mobilize seniors to take action on environmental hazards, as evidenced by its previous use

in social action research (Gallagher & Scott, 1997; Killion & Wang, 2000; McIntyre, 2003; Wang, 1999). It is a promising method for community-based research with older adults and a way for seniors to become involved in identifying and reporting hazards in their neighbourhood. If used more extensively, photovoice may provide a tool for action-oriented surveillance by seniors, an "environmental watch" strategy to encourage timely modifications to the built environment.

Finally, the findings indicate the need for intersectoral collaboration in order to make neighbourhoods more walker-friendly for seniors. Nurses can play a key role by proactively working across sectors and advocating for changes to the built environment. It is important that nurses be aware of the breadth of intersectoral strategies needed to alter the built environment in order to support safe walking for seniors. For example, transportation engineers can reduce friction at intersections and crosswalks, through the use of a temporal strategy (traffic lights), to restrict access to different times, and can designate certain spaces on the street as spaces where pedestrians have right of way. Planners can implement traffic-calming strategies, and police can ensure that traffic speeds are monitored and pedestrian rights are respected. Municipal officials need to be encouraged to enforce bylaws related to safe passage-ways and snow/ice clearing. Parks professionals and local environmental groups could be strong allies in lobbying for the provision and upkeep of areas that are, or are likely to be, frequented by seniors. Finally, intersectoral collaboration requires that nurses be familiar with fiscal priorities and budgetary decisions that impact on environmental safety.

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