

Everyday outdoor mobility in old age: Focus group interviews with active senior citizens

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Abstract

Background: Senior citizens are over-represented in injury statistics, and fall-related injuries are globally recognized as a major threat to their health and wellbeing. Outdoor falls are likely to occur among those who are active and healthy when walking or cycling. The objective of this study was to explore active senior citizens' experiences and perceptions of how their safety could be increased and their risk reduced in outdoor environments.

Methods: Six focus-group interviews with 31 healthy and active senior citizens were conducted in northern Sweden. Data were analyzed via a qualitative content analysis method.

Results: Participants adjusted to age-related changes in order to stay safe during outdoor mobility. Outdoor activities were facilitated by having confidence of safety within the environment, and by using safety devices. Fear of, for example, falling and dangerous environments, such as uneven surfaces, as well as the shortcomings of safety devices, were constraining elements for outdoor activity.

Conclusions: It is of great importance to raise awareness of healthy aging and to illuminate directions for environmental changes. Asking old people about their experiences allows the researcher to identify with their perspective, and may give a more comprehensive understanding of the most appropriate recommendations for health and safety improvements.

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Introduction

Senior citizens are the fastest growing population in Europe, and one in four persons will be 65 years or older by the year 2030 [1]. They are over-represented in injury statistics, and fall-related injuries are recognized globally as a major threat to health and wellbeing [2, 3]. By definition, for most people, aging means a decline in personal, physical, cognitive, and social resources or capacity, for example, a decrease in mobility, muscle strength, and balance [4, 5].

Falls among senior citizens account for more than half of injury-related hospital admissions and almost half

of all deaths from injury, and are costly for health services to treat [2, 6]. Hip fractures are the single most common injury and, along with head injuries, the most severe fall-related injury [7, 8]. Additionally, falls have not only physical effects, but also significant psychological consequences that can devastate the individual who falls and their family members. A fall can create fear and increase the risk of further falls, loss of self-confidence, and avoidance of physical activity [9, 10].

Falls occur frequently and approximately half of all falls among senior citizens occur in outdoor environments [11, 12]. Outdoor falls are likely to

occur during everyday mobility [13], e.g. when walking, cycling, or participating in leisure activities. Falls often occur in familiar areas [9]. The causes are often aspects related to the physical environment and human impact, e.g., dizziness and lack of own responsibility [14]. Despite these factors, outdoor fall prevention has been neglected since most research has focused on falls occurring in the home or hospital environment [15, 16]. Risk factors differ between outdoor and indoor falls, e.g. risk exposure [17, 18]. For Swedish professionals, e.g. district nurses, there are recommended prevention strategies for indoor falls [19] including the provision of information to install grab rails, remove rugs, and improve lighting in hallways. Specific recommendations for prevention of outdoor falls seem lacking. Thus, there is also a lack of knowledge about fall prevention reducing injuries in the outdoor environment [20].

The framework of injury prevention, developed by Haddon Jr. [21], linked injuries and injury events systematically to the epidemiological principles used in public health. Injuries are a result of unwanted transmission of energy in such an amount that the person's injury threshold is passed. Injury prevention is to prevent the energy to reach the person and to minimize the consequences of the injuries that still occurs. Passive or automatically working measures are usually the most effective. Additionally, Haddon proposed 10 countermeasures that would prevent or reduce the transfer of energy and reduce the consequences of sustained injuries [22].

Outdoor mobility is more likely to be associated with people who are in good health and are physically fit [20, 23]. However, walking is an important mode of transportation for those who can no longer drive a car or use public transport [24-26]. Therefore, walking is important for maintaining the health and wellbeing of senior citizens; various safety-related possibilities and barriers in the environment affect their mobility.

Research on how outdoor environments influence senior citizens' health is limited but shows that outdoor environments are important for health and activity [27]. In order to add to the knowledge base of fall prevention, this study provides self-reported data from senior citizens who are mobile in everyday activities. They have first-hand experience of the relationship between themselves, their everyday

mobility, and the outdoor environment. Preventive suggestions from senior citizens may clarify the most appropriate strategies for environmental and human change to support healthy aging.

The aim of this study was to explore active senior citizens' experiences and perceptions of how their safety may be increased and their fall risk reduced in outdoor environments.

Methods

Context

The study was conducted in a medium-sized municipality in northern Sweden with approximately 120,000 inhabitants, of which 70,000 live in the inner city. In northern Sweden, the climate can get close sub-arctic conditions; in winter temperatures can fall as low as -30°C while in summer the temperature may rise up to 30°C . However, summers are no longer than three months per year. During some of the winter months the sun almost never rises above the horizon and most of the day is dark. Additionally, during some of the summer months, the sun is almost always above the horizon, and both day and night are bright.

Participants

A purposive sampling strategy was employed. We were interested in recruiting active, healthy participants with a diversity of experiences and perceptions, who were mobile in everyday activities, and most likely to spend time outdoors. Participants were recruited on two occasions: at an annual meeting of the Swedish Automobile Association, and at a Senior Safety Day in the city. On these occasions, the researcher briefly introduced the study and invited senior citizens to take part in focus group interviews. Information sheets about the study background, purpose, and method were distributed. The information also contained a written informed consent form, which was signed by those who wanted to participate. Sixteen men and 15 women took part in the study, ranging in age between 65 and 83 years; the mean age for women was 73 years and for men, 70 years.

Procedure

The six focus group interviews, comprising four to eight people in each group, were carried out approximately two weeks after recruitment [28]. The interviews were conducted in a meeting room at the university. Each one lasted an average of 85 minutes (range 70-100 minutes), and was audio-recorded and transcribed verbatim. The first author, accompanied by the second author or a research assistant, led the focus-group interviews. At the beginning of each interview, participants were reminded of the purpose of the study and guaranteed confidentiality. Further, they were told to show respect for others' views and take turns in speaking. The participants were encouraged to interact with each other, with the author intervening solely to keep the discussion on topic, and to encourage the more reserved members of the group to speak. Interviews began with a general discussion of mobility in the local outdoor environment and then progressed to safety and risk issues.

Analysis

We undertook qualitative content analysis using the approach and practice described by Graneheim and Lundman [29]. First, the entire transcript was read repeatedly to get a sense of the whole conversation. Next, the text was divided into meaning units, i.e. one, several, or parts of sentences having the same content were selected. In order not to lose the context and avoid fragmentary units, the surrounding text was also included. Only texts that were relevant to the aim were selected; a few were therefore excluded. The next step was to condense the meaning units to shorten the text while preserving the content to make the text more manageable. Furthermore, the condensed meaning units were coded with a few words describing the content. These codes were then grouped into subcategories and brought together to form categories. To make the material more manageable and orderly, the program Open Code [30] was used. Both authors analyzed the focus group interviews.

Ethics

The study was approved by the Research Ethics Committee in Umeå (2012-490-31Ö). To ensure confidentiality in the analysis of data, the participants' identities were concealed in the focus groups' verbatim transcriptions by omitting participants' names and other potentially identifiable characteristics, e.g., the road name of their current address.

Results

Results emerged in three categories: 'to adjust to age-related changes', 'to facilitate possibilities', and 'constraining elements for outdoor mobility'.

Seven subcategories emerged. Two of them, 'be aware' and 'take responsibility', explore the ways in which participants adjust to age-related changes in terms of their outdoor mobility. The other five subcategories: 'feeling safe within the environment', 'use of safety devices', 'fear', 'dangerous environments', and 'shortcomings of safety devices', explore issues that either facilitate or constrain outdoor mobility.

To adjust to age-related changes

- Be aware

Despite being aged 65 years and older, participants' did not want to call themselves old. As long as they felt healthy, they continued their usual activities in the same way as when they were younger and did not wish to ask for help. With age, participants reported that they have more time for outdoor activities, to keep fit and exercise than they did earlier in life, and they describe outdoor activities as good for their health and wellbeing. Participants would not wish to be without their outdoor activities, even though they risked injury and pain - they believe it is still worth it. They discussed how outdoor activities may have preventive effects on falling and its consequences.

Participants who were older and had experienced a greater extent of age-related changes said they were aware of the risk of falling. With higher age, they have started to think about the possible consequences of an injury occurring outdoors, especially if alone.

Nevertheless, they said, aging and staying mobile outdoors is about accepting the physical changes that take place, such as reduced strength and greater limitations. It is no longer embarrassing to use safety aids, e.g., a walker or canes.

“I do not know when it begins - maybe at the age of 55 or 60 when one thinks, “should I put on the spikes? It looks so old and unstylish! No, I’ll go without.” Until one day you ignore the reasons and use [the spikes] anyway.” (Female, 81)

Participants recounted that age-related changes have made them more aware of their limited abilities, and that some activities take longer now than they used to. They describe their balance and agility as worse than before; they may, for example, have trouble standing on one leg, and think this could influence a fall. They believe they fall more abruptly. Dizziness is experienced, which is a fall-risk, and they are concerned about how some side-effects of medications can make them even dizzy. They recognize that their vision has changed, and that night vision is reduced. Those with impaired hearing described difficulties in detecting others in complex situations, for example when using pedestrian and bicycle pathways.

“When you were younger and would go to the choir, and the snow had been removed, it was very slippery. I would slip and wave my arms like a windmill so as not to fall, but now, when you become older, it’s as if it does not work - one falls down immediately.” (Female, 73)

Take responsibility

Outdoor mobility requires common sense, and participants recounted that they tried not to expose themselves to unnecessary dangers. They described a necessity to be prepared and think ahead, for example, storing spikes in the car in case of slippery parking lots, or checking the outdoor temperature before going outside. They said it was their responsibility to have and use safety devices to be able to master hazards in the outdoor environment. However, they reported that they had only learned this by experience, and not all participants thought they had become wiser with age.

In their efforts to take responsibility for their own safety, participants recounted how they would report hazards and suggest improvements to municipal authorities and the police, but that they felt their suggestions were not heard. They do not get an answer or see changes in the environment. Instead, they find going to the newspaper to be more effective.

“It feels like it requires a compound force behind an argument for there to be a change.” (Male, 80)

To facilitate possibilities for outdoor mobility

- Feeling safe in the environment

Participants report that the feeling of being safe in their environment facilitates their walking, cycling, skiing, and other outdoor activities. Performing activities together with others also enables them to do outdoor activities; participants described this as a ‘safety strategy’. Feeling at home with one’s environment increases the feeling of safety. Proximity to others or facilities, such as cafés and toilets, increases the feeling of being safe, as does knowing there is a defibrillator nearby.

“...if we are together and if he falls, I know what happened or I can tell if he put his foot down somewhere deceptively uneven.” (Female, 68)

In summertime, bright, ice-free conditions facilitate outdoor mobility since it makes senior citizens feel safer than in winter conditions. Soft surfaces, such as forest trails are also perceived as being safer since they might mitigate the effects of a fall. These trails are often not accessible year round as they change to ski trails during the winter. Participants suggested that they should have the opportunity to walk on soft surfaces year round; perhaps there could be trails beside the ski trails that are accessible for people who want to walk with sticks/canes.

- Usage of safety devices

Participants reported that they use safety devices such as spikes and sticks/canes as methods of fall prevention and injury protection. Safety devices were described as necessary for outdoor mobility.

Sticks/canes and walkers are regarded as tools for keeping balance, but are also used as protective devices. Assault alarms and mobile phones are also used preventively. Use of these devices for preventative purposes made both the participants and their families feel more secure in case of an injury or incident.

“...And if a dog runs loose, I need not be afraid. I just swing at the dogs with the sticks then, you know.” (Male, 73)

Participants said their use of safety devices is facilitated by having the devices close at hand, and also by making a habit of using them. The group discussed the “path of least resistance,” and concluded that safety devices must be easy to use. They said greater uptake of safety products might occur if they had a fashionable design to make them more desirable. Participants recommended that adult outerwear should be equipped with reflectors, just as children’s wear is, thus eliminating the need to accessorize outerwear with reflectors.

Constraining elements for outdoor mobility

- Fear

According to the senior citizens in our focus groups, fear is a constraining element for outdoor mobility. Fear of falling, particularly associated with ice, makes participants hesitate, or cease doing certain outdoor activities altogether. Fear of assaults, being injured, or not being found were other fear factors that can cause participants to stop or change their outdoor habits; for example, some reported that they did not walk in the dark or alone.

“After the injury, I will never ever go outdoors again.” (Female, 68)

Participants perceived that road users (pedestrians, cyclists, car-drivers) lacked the attention needed to prevent risky situations in traffic. As pedestrians, they described cyclists as frightening and considered them a constraining element for outdoor mobility. The senior citizens we interviewed were fearful of cyclists passing at high speeds or not using lights or bells. They perceived cyclists using headsets as even more unobservant to other road users since they were isolated from the “real world.” Participants described

the relationship between pedestrians and cyclists as complicated; for example, the cyclists do not clearly show where they are heading.

Putting themselves in the other party’s shoes, however, participants described pedestrians’ behavior in the outdoor environment as risky. Pedestrians seem to take for granted that car-drivers will stop when crossing roads, and that they are visible in the dark even without reflectors. There also seems to be a lack of knowledge about traffic rules or adherence to traffic rules by pedestrians and cyclists, thus causing hazardous situations. The focus group participants suggested that people needed more education to learn about traffic rules.

- Dangerous environment

Uneven surfaces, such as potholes, cobblestones, and raised manhole covers, are dangerous elements and perceived as fall risks for pedestrians, cyclists, and for those who use walkers or wheelchairs. Additionally, dips in the road accumulate water such that patches of ice form when temperatures drop below freezing. The participants in our focus groups suggested to level out the uneven surfaces on pathways to increase their safety during outdoor walks.

“It’s so uncertain; you do not see the unevenness. I’m so careful that I do not see the people I meet - I’m just concentrating on the street so I do not fall.” (Female, 83)

Inconsistencies in the construction of paths create uncertainty when walking and cycling. The participants discussed high curbs versus sloping transitions: high curbs were seen as problematic for the old people since they need to take a “big” step up or down the pavement, but the alternative - to walk on the sloping transitions - may be dangerous because cyclists pass at high speeds. High curbs were also seen as problematic for those who use walkers or wheelchairs. Sloping transitions were therefore considered preferable, but might be slippery during winter. Another uncertainty the participants discussed was the poor clarity and ambiguity of instructions at pedestrian and cycle pathways. They suggested there ought to be consistency in path construction, with clear instructions for safe walking and cycling.

Winter conditions are an additional constraining factor for the mobility of old people. When the temperature fluctuates between being frozen one day and thawing the next, conditions become even more dangerous. Slippery surfaces and insufficient graveling were reasons cited for staying indoors. At certain locations in the study area, heating coils were used to prevent ice forming in the road. However, these do not always remove all the ice and instead create “ice bumps” at the transition from warm to cold surfaces, which participants described as an increased risk to falling. A lack of snow removal on pavements was cited as a barrier to walking, and which sometimes forced them to walk in the middle of the street. On the other hand, the removal of snow was also considered dangerous since it sometimes creates slippery, grooved or hard-packed snow that makes it difficult for them to get around. Snow removal can also result in packed snow forming against the pavement, which makes it difficult to get up and down from the pavement.

In order to overcome the constraints of darkness, which is made more fearful when participants are unsure of their surroundings or when the paving construction is inconsistent, participants suggested the installation of bright lights on pavements and pedestrian and cycle paths.

- Shortcoming of safety devices

Participants described the shortcomings of safety devices, which limit their outdoor mobility. One hidden drawback of the safety devices was that they created a false sense of security. Participants described how they could exceed their walking capacity or not pay enough attention to slippery surfaces when using spikes or sticks/canes. Measuring the quality of the devices was difficult, and interviewees felt that they declined in function over time. Safety devices also often require individual adjustments that might not be possible to do without help from others.

Participants revealed the hidden drawbacks of using spikes. One difficulty was in putting them on and taking them off, since they often needed to be put on over the shoes. This required finger strength and a chair to sit on. Participants suggested that stores could place chairs at their entrances to facilitate the use of

spikes for senior citizens. Another difficulty was when to use spikes; participant discussed how they were less inclined to use them if going shopping, because as they knew they would have to take them off before entering the store (spikes can become slippery indoors or get caught in carpets). Lastly, participants were unsure how to store their spikes after use - if they knew they would have to carry them around, they were less likely to use them.

“You’re just as likely to fall while taking off and putting on spikes as you are while standing and wobbling on one leg” (Male, 75)

Discussion

The aim of this study was to explore active senior citizens’ experiences and perceptions of the ways in which their safety can be increased, and their risk reduced, in outdoor environments. To achieve a comprehensive understanding of what it means to be old and active outdoors, there is a need to ask old people directly about their experiences; for the researcher to put themselves in the senior citizens’ shoes. In doing so, we can learn about and obtain ideas for health promotion and injury prevention.

To explore and understand how senior citizens adjust to age-related changes, and what elements contribute to facilitating or constraining their outdoor mobility, theories of healthy aging are used [31-32]. The results of our study will also be discussed from the systematic structures of the 10 strategies for injury prevention developed by Haddon Jr. [22], in order to suggest safety improvements and risk reduction interventions in the outdoor environment.

In this study, we found that participants needed to properly adjust to the age-related changes they experienced in order to continue to be active outdoors. Participants valued their outdoor mobility and strongly associated it with health and well-being. However, healthy and active individuals are more prone to injuries during outdoor activities than their less active counterparts who stay at home [20]. Therefore, safe mobility is essential for old people to stay healthy and manage everyday activities [33, 34]. Safe mobility is also essential for societal participation and opportunities to maintain social contacts [35].

Our results can be compared with theories about healthy aging as they describe aging as finding a good balance between abilities and requirements, to choose and find ways to optimize possibilities and to compensate for age-related losses. People who still contribute to society will retain independence and freedom, quality of life, and confidence [32]. Therefore, we see it as important to take advantage of the healthy aging and promote mobility, and thereby increase participation in safe outdoor activities.

Our results showed that feeling safe within the environment enable outdoor mobility. Taking part in outdoor activities together with someone else, or having facilities close by, increased both outdoor mobility and perception of safety. Those who reside in more favorable and barrier-free environments are more likely to be physically active and independent in terms of daily living activities [36]. In healthy aging theories [31, 37], it is pointed out that contribution to society is most likely to be achieved when physical environments and communities are safe, and support the adoption and maintenance of individuals' attitudes and behaviors that are known to promote health and well-being [31, 38]. Our results indicate the importance of raising attention to environmental changes for supporting healthy aging and to illuminate directions for policy change.

The results of our interviews revealed that fear of falling was a constraining element for outdoor mobility. Participants report that icy surfaces were unreliable and subject to sudden change. In nearby sub-arctic areas such as the Nordic countries, Russia, parts of the American continent and several other countries in the world, the relationship between the outdoor temperature and fall-related hospital admissions due to ice and snow is correlated [39]. To compare our result with Haddon's 2nd strategy [22] - to separate risk in time or place so that a person does not come into harmful contact with the risk - it is necessary to keep people away from icy surfaces that occur suddenly. According to Haddon [21], it also seems to be more efficient to use passive and automatic measures to protect a person from injury, rather than safety measures that an individual must use actively. One passive solution, though not realistic to implement everywhere, is to solve the problem of icy roads with heated walkways. Another more rational, yet not completely passive solution, is to use

innovative systems such as a smartphone text messaging service to inform people about changing weather conditions, especially to those in need of such information.

The lack of attention that cyclists and pedestrians often exhibit towards other road users was highlighted in our results as a risky behavior. Attentional deficits increase when using ear buds or cell phones at the same time as riding a bicycle [40, 41]. According to Haddon [21], it seems to be easier to make environmental changes rather than to try to change human behaviors. However, risky behavior might be less dangerous when considering Haddon's 5th and 6th strategies, i.e. separating the risk in time or place so that a person does not come into contact with a given risk, or enclosing the risk with a physical barrier so that the risk and the person may be close to each other, but without the danger arising. Separating walkways from bicycle pathways might be one strategy, and indeed, this was studied by Rolfsman et al [42]. Rolfsman and colleagues investigated modifications, such as speed reducing markings and clear walking and cycling instructions, to the area at the start of a bridge, with the aim of reducing injuries. However, these modifications were found to be unsuccessful since there was, in fact, an increase in severe injuries occurring at this site [42]. The findings of this study complement our results, indicating the importance of how people's behavior and infrastructure may influence safety. Greater attention is needed to influence mobility and safety.

In our study, participants described dangerous environments such as uneven surfaces, a lack of snow removal, insufficient graveling, and darkness, as constraining elements for outdoor mobility. Other studies have described winter conditions as barriers to good access to the outdoor environment [33, 43]. It is not only vulnerable people who voice concerns about winter weather barriers, but people of all ages and without functional limitations. The fact that people of all ages are concerned about accessibility to the environment indicates that barriers to outdoor mobility could be considered a public health priority [44]. In line with Haddon's 4th strategy [22], this indicates the importance of modifying risk by removing or reducing dangerous elements in the environment. There is a need to address good examples of efficient snow and ice removal from

sidewalks, and to consider the construction of the sidewalks for optimally safe walking.

The present study shows that participants follow “the path of least resistance” when considering safety, and therefore do not properly adhere to instructions for the use of safety devices. Despite the range of models of safety devices, most were found to have shortcomings. This finding is in line with other studies of the use of safety devices [45]. Haddon’s 5th strategy of injury prevention indicates the need for adequate equipment to handle injury risk situations. A recent review of fall prevention [46] states that anti-slip shoe devices are effective for fall reduction among old people who walk outdoors in icy conditions. Anti-slip shoe devices should, therefore, be recommended to ambulatory seniors who walk outdoors under icy conditions. However, the development of optimal footwear needs to be done in collaboration with those who are in most need of them, i.e. senior citizens.

In this study we preferred to include old people, aged 65 and older, who were healthy and active since we believe this demographic has the most insight into the issues raised by the study. One limitation of our study was that only citizens of Swedish origin were included; it is possible that there may be cultural differences in terms of safety and outdoor activities for people of other ethnicities. Because the study was conducted during the winter, this might have influenced the participants to talk mostly about winter issues. Nevertheless, all interviews also included discussions of conditions in summer.

Conclusions

As the number of old people around the world is expected to more than triple over the next 50 years, there will be significant challenges for maintaining the participation, health, and mobility of seniors. Safe physical environments that invite outdoor mobility are of utmost importance. In planning for this, it is useful to collaborate and listen to health care professionals and the experiences of mobile, healthy old people. To achieve safe accessibility to outdoor environments for all citizens, interdisciplinary collaborations with health care professionals and municipal organizers are recommended.

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