



## “Benches become like porches”: Built and social environment influences on older adults’ experiences of mobility and well-being



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### ABSTRACT

Neighbourhood environments significantly influence health and well-being, especially as people age. Our study uniquely highlights how one microscale feature (benches) influence older adults experiences of mobility and well-being, from their perspective. We also explore how these experiences affect and are affected by the social environment of the neighbourhoods where older adults live. We conducted one-on-one seated and walk-along interviews with individuals aged 60+ that live in three adjacent neighbourhoods in Vancouver, Canada. We collected data at two time points (n = 28, 2012; n = 22, 2014). We found that benches positively contributed to older adults’ mobility experiences by: (i) enhancing their use and enjoyment of green and blue spaces, (ii) serving as a mobility aid, and (iii) contributing to social cohesion and social capital. To address the increased needs of an aging demographic, urban planners might consider the quality and presence of microfeatures as part of an immediate and inexpensive strategy to create supportive neighbourhoods for people of all ages and abilities.

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### 1. Introduction

Neighbourhood environments significantly influence health and well-being, especially as people age (Beard et al., 2009; Evans and Phil, 2011). Both built and social environments influence patterns of behaviour and experiences of human activity within urban settings (Graham et al., 2014; McNeill et al., 2006). Given the unprecedented demographic shift toward an aging population worldwide (World Health Organization, 2015), research on built and social environments and their relationship with older adult health has gained momentum (Stahl et al., 2013). Cities that adapt to be more “accessible to, and inclusive of, older people with varying needs and capacities” are integral to health promotion (World Health Organization, 2007). Adaptability is paramount, given that most older adults wish to ‘age in place’ in their chosen homes and neighbourhoods (Lord and Luxembourg, 2007), and most health and social systems cannot sustain any other approach.

Public health officials and urban planners can gain practical insights from an in-depth understanding of how built environment and social factors interrelate to affect the health and well-being of older adults (Beard and Bloom, 2015; Hanson et al., 2012).

#### 1.1. The built environment and older adult mobility

Maintaining mobility is considered the best guarantee of older adults being able to cope and remain in their homes and communities (Fried et al., 2004; World Health Organization, 2015). The evidence is clear – the built environment affects older adult mobility (Frank et al., 2010; King et al., 2011; Rosso et al., 2011; Winters et al., 2015). Depending on built environment research focus area, mobility may be defined as walking or active transportation (King et al., 2011; Rosso et al., 2011; Yen and Anderson, 2012); or calculated using travel behaviour measures, typically trips per day (often both motorised and no-motorised) and distance travelled (Collia et al., 2003; Su and Bell, 2009). We operationalize mobility as: one’s ability to physically move throughout one’s home and neighbourhood, either independently or using a mobility aid, to engage in daily activities, and access resources.

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Highly “walkable” neighbourhoods are associated with greater mobility among older adults (Clarke et al., 2008; Michael et al., 2006; Nagel et al., 2008). We define walkability as the extent to which built and social environments facilitate or hinder walking for purposes of daily living (Andrews et al., 2012). The practical and health related importance of walking increases as individuals grow older (Mendes de Leon et al., 2009; Ståhl et al., 2013). Built environment features that influence older adults' walking include: increased density, mixed land-use, presence of amenities, and perceived safety (Mahmood et al., 2012; Ståhl et al., 2013).

A number of factors contribute to older adults' particular susceptibility to the built environment's impact on their health. Neighbourhood built environments interact with individual physical capacities to impede or enhance mobility (Clarke et al., 2009; Webber et al., 2010). Mobility impairments increase with age and may cause one to walk less far without stopping to rest, and take longer when crossing at intersections (Carlson et al., 2012; King et al., 2003). Built environments that limit mobility also negatively affect older adults' mental health, as the inability to ‘get out and about’ and engage in social and daily-living activities can be detrimental for well-being (Richard et al., 2013; World Health Organization, 2015).

Simple alterations to the built environment may help individuals to maintain their mobility despite physical decline. This strategy is especially important for promoting older adult health at a population level, as built environment changes may be relatively easier to implement and have greater reach, than efforts to change individual health risk factors (Clarke et al., 2009; Van Cauwenberg et al., 2014). From this perspective, we are particularly interested in microscale but impactful features of the built environment that surface as impactful for older adults.

### 1.2. Social environment and older adult mobility

Researchers recognize factors that comprise the social environment (social factors), as significant to understand the ‘full picture’ of barriers and facilitators to older adult mobility (Franke et al., 2013; Gardner, 2014; Hanson et al., 2012). Social exchanges and familiar routines may encourage older adult mobility (Franke et al., 2013; Yen et al., 2014). Also, strong social relations may reduce the risks of older adults' limited mobility (Gardner, 2014).

Research suggests strong interconnections between built and social environments, as the built environment may influence behaviour patterns and opportunities for social connection (Kweon et al., 1998). As one example, older adults who lived in vital urban areas (described as areas with lively pedestrian activity on the street), took more trips and were therefore more engaged in activities than those who lived in non-vital ones (Marquet and Miralles-Guasch, 2015). This may have positive effect on both physical and mental health (Marquet and Miralles-Guasch, 2015). Finally, Mehta identified sitting space as one of the most important neighbourhood characteristics to retain people and support social behaviour (Mehta, 2009). Despite these interconnections, relatively few studies focused on both built and social environments in relation to older adult mobility (Hanson et al., 2012).

### 1.3. Guiding framework and objectives

While social and health scientists seek to isolate variables to understand their impacts and how they factor into complex systems, urban theorists similarly considered built and social environment interconnections. Notably, the seminal work of Jane Jacobs speaks to multiple factors that comprise neighbourhood environments: “a city ecosystem is composed of physical-economic-ethical [author's italics] processes active at a given time within a city and

its close dependencies” (Jacobs, 1961). Human experience is both an influencer and influenced by city ecosystems. Jacobs contends that higher density, pedestrian oriented mixed-used developments are features of a ‘good’ or successful neighbourhoods (White, 2014). Jacobs wrote this in response to mid-20th century modernist planning principles. However, as we consider the importance of creating environments that enable mobility in the 21st century, some of Jacobs' key concepts are more relevant than ever. Still, a reliance on objective measurement tools such as environmental audits, or cross-sectional survey data, dominate the built environment literature (Cain et al., 2014; Cerin et al., 2014; King, 2008); a focus that does not adequately capture the complex influences that shape human behaviour in urban environments.

Thus, we situate our research within a social-ecological framework that acknowledges the interplay of individual, societal, and built environment factors that influence health (Annear et al., 2014; Haggis et al., 2013; Stokols, 1996; Van Cauwenberg et al., 2014). We conceptualize social environment as per L.H. McNeill: “interpersonal relationships (e.g. social support and social networks), social inequalities (e.g. socioeconomic position and income in equality, and racial, gender, or age discrimination), and neighbourhood and community characteristics (e.g., social cohesion and social capital)” (McNeill et al., 2006). We draw on social constructivist theory to interpret meaning from how social interactions, rooted in neighbourhood ‘places’, impact older adult participants.

Our study objectives are to explore: (i) how a specific microscale feature of the built environment (benches) influence older adults' experiences of mobility and well-being, from the perspective of older adults, and (ii) how these experiences both affect and are affected by the social environment of their neighbourhood.

## 2. Data collection and methods

### 2.1. Context

This study draws on qualitative data from a subset of participants recruited via a larger mixed-methods project Active Streets, Active People (ASAP). ASAP focused on the mobility and social interactions of 192 community-dwelling older adults in Vancouver's urban core. We include participants who reside in one of three adjacent neighbourhoods Vancouver's West End, Yaletown and Downtown (Fig. 1), that are home to approximately 100,000 people, about 16% of whom are aged 60 years and older (City of Vancouver (2013)). University of British Columbia Behavioural Research Ethics Board (H12-00593) and Simon Fraser University Research Ethics Board (2012s0435) granted ethics approval for this study.

Walk Score<sup>®</sup> ([www.walkscore.com](http://www.walkscore.com)) is a publicly available tool that generates a score based on distance to nearby amenities, intersection density and block length (Cole et al., 2015). Using this tool, our study area was rated one of Canada's most walkable areas (Walk Scores<sup>®</sup> of 94–97/100; (Walk Score<sup>®</sup>, 2014). Since highly walkable neighbourhoods are more ‘unusual than usual’ in North America, this context provided a unique opportunity to study the influence of living in a “Walker's Paradise” (Walk Score<sup>®</sup>, 2014) on older adult mobility.

### 2.2. Data

#### 2.2.1. Quantitative assessment

The larger ASAP project fitted participants with tri-axial accelerometers (ActiGraph GT3Xp, ActiGraph LLC, Pensacola, FL, USA) that they wore as per standard protocol for 7 days. We report physical activity as step counts/day (mean).



Fig. 1. Active Streets, Active People study area.

### 2.2.2. Qualitative assessment

Upon completion of the quantitative assessment, we sent a letter of introduction (and a consent form) inviting participants to also participate in follow-up interviews. One week later, research assistants randomly selected and telephoned participants who provided us permission to contact them. To compensate participants for their time, we provided each participant with a \$20 grocery gift card.

Directed by participant preference, interviews took place in either the participants' home or private room in a community centre. Each interview took approximately 60–90 min to complete. The interviewer used a semi-structured interview guide informed by Webber's conceptual framework of older adults' mobility (Webber et al., 2010). At both T1 and T2 the interviewer asked about participants' health, physical activity, travel behaviours, and their local built and social environments. Based on thematic review of transcripts at T1, we adapted the T2 interview guide to incorporate a priori knowledge and discuss how any individual or neighbourhood level changes may have impacted their mobility. Interviews were digitally recorded and transcribed verbatim by a professional transcription agency.

After the sit-down interview, participants were invited to participate in a voluntary walk-along interview. Kusenbach (2003) identified 5 themes that a walk-along interview (also referred to in the literature as the go-along interview) is well suited for exploring, three of which are particularly relevant for our area of inquiry: (i) informants' perceptions of their everyday experiences of their social and physical environment, (ii) the spatial practices of how people engage with their environment, and (iii) the social architecture of natural settings (how place shapes the nature of interaction) (Carpiano, 2009). Thus, with its potential to reveal deeper

insights (Evans and Phil, 2011), this method is complimentary to the sit-down interview.

The interviewer invited participants to take them and a trained note taker on a 'typical walking route.' The walk was explicitly presented as voluntary, and the note taker recorded why certain individuals declined. Participants determined the direction and length of walk, and if the route was typically motivated by either utilitarian and/or leisure purposes. Our approach combined semi-structured interview methods (based on the same framework as the interview guide), inductive ad hoc questions (based on what emerged while on the walk), and participant observation (of both the individual's physical mobility and their interactions with their environment). A research assistant took detailed field notes of both substantive content discussed between the lead interviewer and the subject, and participant and environmental observations. The interviewer recorded their observations of the walk-along interview as part of their immediate post-interview memoing practice. Our approach was guided by Kusenbach (2003) who stresses that the immediate composition of in-depth field notes to capture what the interviewer witnessed and preliminarily analyzed is more important than the method of documenting walk-along interviews (Kusenbach, 2003). The interviewer and a trained note-taker composed detailed field notes within twenty-four hours of the sit down and walk-along interview.

### 2.3. Processing & analysis

We used framework analysis to review the data. Observational field notes from both sit-down and walk-along interviews were reviewed in tandem with transcripts, including reasons why select individuals chose to not participate in a walking interview. Framework analysis is designed for research that uses specific

questions, with a pre-designed sample (e.g. older adults) and a priori topics (e.g. built environment and mobility). This technique allows researchers to describe and interpret what is happening in a particular setting (Ritchie and Spencer, 2002) by anchoring and guiding the research within the original accounts and observations of participants. Further, framework analysis is comprehensive and allows within-case and between-case analysis (Srivastava and Thomson, 2009). For analysis, we sifted, charted and sorted data based on key issues and themes using five steps: 1) familiarize, 2) identify a thematic framework, 3) index, 4) chart, and 5) map and interpret (Ritchie and Spencer, 2002; Srivastava and Thomson, 2009). We briefly discuss these steps below.

Each interview was fully transcribed verbatim. Initially two team members read through transcripts to obtain a sense of the interviews (*familiarize*). To develop a thematic framework we combined inductive and deductive approaches. We were guided by themes of significance identified in our literature review, and also by those that emerged as strong during transcript review and in discussion at team meetings; notably the intersection of the built environment and participants' experiences of health, mobility, and social environments (*identify a thematic framework*). We identified sub-themes inductively based on what emerged from the data, and by cross-referencing themes with objectively measured participant demographic and physical activity (step-count) characteristics (*index and chart*). To compare and contrast themes within and across groups we adopted the constant comparison method (Glaser and Strauss, 1967) which allowed us to discover similarities and differences in the data (*map and interpret*).

We used a number of strategies to reinforce the rigor of our study. These included cross-checking full transcripts against original audio files for quality and completeness and reflexive memoing throughout data generation and data analysis processes. Framework analysis guided our reading of transcripts and field notes to discuss and identify cases that were either related across themes or did not "fit" within themes. Using NVivo, the principal author and a research assistant coded interviews based on the thematic framework as full paragraphs so that contextual meaning was not lost.

### 3. Findings

#### 3.1. Study participants

We interviewed 28 participants in 2012 (T1) and 22 of the same cohort in 2014 (T2). Participants ranged in age from 61 to 89 in T1, with 25% (n = 7) in the Elderly Seniors age range of 75 years or older. In T2, 36% (n = 8) of participants were in the Elderly Seniors age range of 75 years or older. This age stratification is based on a consideration of age related physical decline (Paterson et al., 2007).

In T1, 93% of participants (n = 26) were of European descent (described as Caucasian/white-skinned), 3.5% First Nations (n = 1), and 3.5% West Indian. In T2, 95% (n = 21) were of European descent, and 5% (n = 1) West Indian. Their average income ranged from low-income 25% (n = 7), medium income 43% (n = 12), and high income 18% (n = 5) in T1, and low-income 9% (n = 2), medium income 55% (n = 12), and high income 23% (n = 5) in T2. Income categories are based on Statistics Canada indicators for Seniors (65+) (Canada, 2015). At T1, the group's average step-count was 7,357, and at T2 the group's average step-count was 5,952. We provide complete demographic data in Table 1. We replace real names with pseudonyms to report our findings and in our discussion.

#### 3.2. Benches and older adult mobility

During semi-structured interviews, at T1 (n = 16 (58%)) and T2 (n = 14 (63%)) participants discussed benches as a feature of their

**Table 1**

Demographic characteristics of Active Streets, Active People qualitative study participants.

Variable	T1		T2	
	N	%	N	%
All	28	100	22	100
<b>Age</b>				
<75	21	75	14	64
>=75	7	25	8	36
<b>Gender</b>				
Men	11	39	10	45
Women	17	61	12	55
<b>Marital status</b>				
Single	6	21	6	27
Married	11	39	10	45
Widow	1	4	1	6
Separated	2	7	0	0
Divorced	7	25	4	18
<b>Education</b>				
Secondary School or Less	2	7	3	14
Trade School	8	29	6	27
University or Graduate School	18	64	12	55
No response	0	0	1	5
<b>Income</b>				
Low <\$25,000	7	25	2	9
Medium \$25,000-\$74,999	12	43	12	55
High ≥\$75,000	5	18	3	14
No response	4	14	5	23
<b>Mobility aid</b>	6	21	3	14
<b>Valid driver's license</b>	22	79	18	82

neighbourhood built environment that relates to their mobility. Those participants that did not mention benches suggested that other factors were of greater importance. Activities such as spending time with family or friends who live outside their neighbourhood (n = 4), going to the pub (n = 1), going to the gym (n = 6), or not going outside because of injury (n = 1) featured more prominently than benches in relation to their mobility. However, findings from City of Vancouver's (City) community consultations conducted in our study area prior to beginning our investigation indicate that older adults identified benches as 'the top priority' to consider when making improvements to their neighbourhood (Vancouver, 2012). In between T1 and T2, the City installed approximately 85 pieces of additional street furniture (benches, individual seats, and tables) along the Comox-Helmcken Greenway that runs through our study area (see Fig. 1) (Vancouver, 2016).

We also acknowledge that other micro and macro features are important to consider in relation to older adult mobility, however we aim for a unique, in-depth exploration of this 'priority' feature. Further, despite the addition of street-furniture between T1 and T2 participants' activities and experiences in their neighbourhood in relation to benches were largely consistent over time. They had established routines based on benches that existed in T1. We note when participants discuss the 'new' street furniture.

We frame our findings around three overlapping themes: (i) importance of benches for those with physical mobility impairment, (ii) benches in green and blue spaces, and (iii) benches and the social environment.

#### 3.2.1. Importance of benches for those with physical mobility impairment

Two key examples from our data illustrate how benches serve as a critical support for managing chronic disease and/or physical mobility impairment. Nina (aged 71 years) explained how after a back injury, she chose her walking routes based on the location of benches:

*“When my back problem was at its worst, my doctor got me to do the thing about walk and rest and walk and rest. I got to know where every single bench is in the West End ... There are a whole lot of benches in this community.”*

Diana (aged 64 years) was similarly dependent on benches as a mobility aid. She explained:

*“I have arthritis in my knees, so I try to walk where the walking is easy and there are benches to sit on ... I like to walk where I can stop to rest if I have to.”*

Both women incorporated bench use into their neighbourhood walking routines.

### 3.2.2. Benches in green and blue spaces

Of participants who discussed benches, many used them to enjoy their neighbourhood's green and blue spaces. We define green space as trees, grass and other flora and fauna and blue space as water features such as lakes, rivers, oceans, and ponds.

Seawall benches were perceived to be in particularly high demand (see Fig. 2). The Seawall is an uninterrupted 28 km pathway that runs around the perimeter of our study area (see Fig. 1).

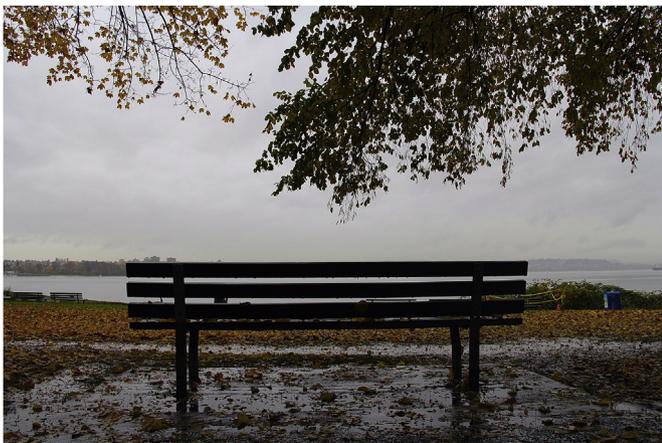
During a walking interview, Diana (aged 74 years) guided the research team to her favourite bench along the seawall where she went to watch herons. She remarked that this activity reminded her of living in the countryside and made her feel calm.

Participants also suggested that benches located away from the Seawall, but surrounded by ‘green features’ were attractive characteristics of leisure and utilitarian walking routes. When asked what encouraged her to take one particular route for her leisure-time walks, Leonie explained:

*“There's a nice little bench there where there's loads of wrens ... and they're taking turns to have a little bath in the pool in the log there. It's kind of nice.”*

Gary (aged 71 years), described how he incorporated bench use into his utilitarian walking routine:

*“And if I'm going [grocery shopping], I'll very likely go on the seawall to the yellow chairs and then down Richards or whatever street [the grocery store] is on.”*



**Fig. 2.** Bench located on The Seawall, taken by a research assistant after Diana's T1 walking interview.

He would stop on the ‘yellow chairs’ (public street furniture) for leisure and then resume with his utilitarian trip.

Of those participants who talked about benches, most suggested that their neighbourhood had multiple options in green and blue spaces. Lane (aged 66 years), commented:

*“I find that we are spoiled ... I think we have a lot of places to sit. We have a couple of community gardens ... we've got the park right there. Got Coal Harbour ... Green and sandy and watery spaces all around us.”*

Examples of other benches in green and blue spaces identified by participants include: potted plants, flowers, large bushes, a fountain, a community garden.

### 3.2.3. Benches and the social environment

Benches that animated sidewalks with human activity contributed to participants' positive experiences of their neighbourhood. Nina (aged 72 years) explained how a high prevalence of benches adds to her neighbourhood's character:

*“There are a whole lot of benches in this community ... because there are so many apartments, **they become like porches**, you know, people sit there and you talk as you go by and it's a very friendly neighbourhood.”*

A related example, Lane (aged 66 years) describes how she views the new benches installed as part of the Comox-Helmcken Greenway:

*“I think it encourages people to come out of their apartments and sit on benches, especially if they have a bit of sun. I'm always happy to see public spaces used because it means that we'll keep them.”*

Shirley (aged 64 years) regularly sat on a bench on a popular retail street to feel socially connected:

*“... I sit on the corner ... because we have such a variety of people now it's interesting to see. I can look at their clothes. What language they are talking and so on, and I find that interesting ... You're still part of the world, yeah.”*

Similarly, a corner bench was “vital” for Beatrice (aged 85 years) and her older adult neighbours' social interactions. She discusses her regular use of this bench, a few meters from where she lives:

*“I often stop after doing my errands. And then a whole stream of people that I know come by ... It's an excellent spot as far as interacting with other people is concerned.”*

Participants commented on how “street peoples” use of benches influenced their experiences. Beatrice describes how she negotiates the use of the new street furniture installed by the City:

*“...we have a lot of old people in the neighbourhood, but we also have street people. So who shall sit? [Laughs] There are street people that sort of park there for the day. I did not want it taken over totally, so I would occasionally ask somebody, “Could you move? I would like to sit for a while.” And other old ladies didn't have the nerve to do that so– they sit there waiting for somebody to leave. [Laughs]”*

Nina (aged 72), observed older adults who changed activity patterns rather than negotiate use:

*“There’s a little square with benches on it and that was a popular spot for seniors and suddenly seniors weren’t there anymore because it was all the street people with their carts and everything and even that’s not so bad. But they left a mess.”*

In contrast to this negative experience, Evy (aged 89 years) explained while on a walking interview that she regularly interacted with a man who lived on the street who sat out-front a nearby convenience store. Evy would stop during her walk to chat and give him fruit. Between T1 and T2 this activity became more comfortable for her, as street furniture was installed where she previously sat perched on the edge of flower plant box. Evy lived alone, with no close social ties in the City and suggested this was a particularly meaningful social interaction (See Fig. 3).

#### 4. Discussion

##### 4.1. Benches as a ‘mobility aid’

Our data clearly show that for individuals who have chronic disease and physical mobility limitations, benches critically facilitate their mobility. Although different in age (64 versus 71 years), Diana and Nina were similar in that they suffered from physical impairments, and accrued less than 5000 steps/day, on average; classified as sedentary (Tudor-Locke et al., 2011). Benches impacted their experiences of mobility as they similarly adapted their behaviours based on the location of benches, and relied on this micro-feature to continue to engage with their neighbourhood during leisure and utilitarian walking. Thus, benches may be as important a mobility aid as walkers (for example), in that they allow those with mobility impairments to walk in their community when that may otherwise not be possible. This finding is important to consider as previous research suggests that older adults who are able to change behaviours to remain physically active, despite the need to adapt their behaviour in response to physical limitations, have significantly better health than their inactive counterparts (Annear et al., 2014).

##### 4.2. Benches in green and blue spaces

Benches in green and blue spaces positively contributed to participants’ experiences of mobility as they: (i) served as an attractive

mid-point or final destination feature for leisure and utilitarian walking routes, and (ii) provided a place to enjoy time close to nature. Previous research suggests that green and blue spaces have therapeutic qualities (Hordyk et al., 2015), and improve the mental health of older adults (Finlay et al., 2015; Hordyk et al., 2015; Ward Thompson, 2011). Also, exercising in outdoor green spaces may have better health outcomes than does exercising indoors (Thompson Coon et al., 2011). Our data add to this previous research by illustrating how benches in green and blue spaces enhanced participant enjoyment of outdoor mobility and feelings of well-being.

Participants both younger and older than age 75, with both high and low step-counts, commented favourably on benches in green and blue spaces, in a range of locations (e.g. seawall, fountain, community gardens). This variability, suggests that the high prevalence of benches in our study area supported older adults to adapt their behaviours based on their mobility capabilities and individual preferences – they could walk a short or long distance and be able to find an attractive bench. However, one participant who suffered a back injury had severe mobility restrictions which prevented her from walking outside more than very short distances. She sat and watched ‘nature’ (green of the trees and the birds) from inside her living room window. She did not have a bench on her block and we may speculate, that a bench closer by might encourage her to go outside. Nonetheless, previous research suggests that green spaces within close proximity encourages walking and recreational activities among older adults (Takano et al., 2002; Ward Thompson, 2011). We extend this body of research to suggest that the addition of benches to these spaces contributes to its accessibility for older adults across an older age and mobility spectrum.

It is important to consider the socio economic context (SES) of our study area and participant experiences. Our data supports previous research that suggests that attractive green urban spaces are commonly associated with economic and social privilege (Pearsall and Joseph, 2010). Study participant Lane’s comment that she felt ‘spoiled’ to be surrounded by so many options in relation to green and blue spaces, suggests a subtle societal norm that green and blue spaces have status as a special neighbourhood feature rather than as a fundamental attribute. While our study cohort experienced minimal barriers to accessing green and blue spaces, participants are predominantly of European descent (Caucasian/white-skinned), and live in a middle income neighbourhood with amenities.



Fig. 3. Popular street furniture location described by Beatrice in her interview. Photo taken by research assistant after Beatrice’s T2 sit-down interview.

### 4.3. Benches and the social environment

Benches positively contributed to the social environment of our study area and participants related experiences of mobility. Nina's comment that "benches become porches" exemplifies how this neighbourhood feature encourages human activity on the street and adds to social cohesion (safety). Our study area, is comprised of three high density urban neighbourhoods, with very few private lawns. Therefore we may speculate that activities such as chatting with a friend are less likely to take place 'privately' in an enclosed yard or porch, as these spaces are uncommon (Leyden, 2003). Rather, in our study, participants commented on how social activities occurred in the public realm of benches on sidewalks. We may relate this to Jacobs' theory that a central tenet of neighbourhood social inclusion, safety from crime, is generated through amicable 'citizen surveillance'. Where, people are "using and enjoying the streets voluntarily and are least conscious, normally, that they are policing" (Jacobs, 1961). In our study, Nina and Lane (and the other participants who shared their view), welcomed and valued the amicable 'citizen surveillance' that bench use encouraged.

Benches also cultivated social capital (relationships) by facilitating opportunity to interact. 'Social capital' is described as "connections among individuals – social networks and the norms of reciprocity that arise from them" (Putnam, 2000, p. 19). Even small interactions, contribute to social capital and may be viewed as a feature of a health enabling environment (Eriksson and Emmelin, 2013). We extend previous research and suggest that participants' social interactions while either passing by people on benches, or sitting on benches themselves, animated their mobility experiences, and contributed to experiences of well-being. These data taken together suggest that benches enrichment of both neighbourhood social cohesion and social capital enhanced older adults' positive experiences of mobility.

A deeper examination of our data suggests that benches were of particular importance for sedentary women (with <5000 steps per day) who lived alone. Shirley (aged 64 years), indicated her vulnerability to increased isolation when she described how she simply watches people walk by to feel as though she is "*still part of the world*." The word *still* connotes that she is on the precarious edge of no longer being socially engaged. In addition, Beatrice talked at length of how the potential of social interaction clearly motivates her to leave her house and walk to her favourite bench, less than a block away. As Beatrice has limited physical mobility, close proximity to a bench is of particular importance. Given the high risk of social isolation among older adults, especially those with limited mobility (Brown et al., 2010), accessible benches that encourage social interaction may be simple, effective environmental solutions.

Participants' interactions with "street people" speaks to the complexity of how social environments influence individuals across different socioeconomic strata. Beatrice asking "street people" to move off her favourite bench is at once an act of social participation in her neighbourhood, but one that further excludes others. While Beatrice may be considered marginalized based on her age (89 years) or mobility status (daily step count that classifies her as sedentary; uses a walker), she retains privilege in relation to the social status of "street people". She asserts this privilege to use the benches. However, unlike Beatrice, other participants, like Nina, feel pushed out by the presence of "street people," which contributes negatively to their experience of walking in their neighbourhood. However, for individuals like Evy, regular interaction with a "street person" was an important social connection, transcended SES divisions, and positively contributed to her experience of mobility. Overall we found that participants did not perceive the activity of "street people" as a threat to their well-being, nor did

they serve as a significant barrier to neighbourhood residents leaving their homes to engage with their neighbourhood. However, we contend that these findings should not minimize the need to reduce homelessness and its related negative social and health consequences (Amster, 2003).

The many comments referring to "street people" from participants reflects the complex SES and geographic context of our study area. Simply stated, we were in an idyllic 'Walker's Paradise' of predominantly middle SES neighbourhood within Vancouver's urban core, adjacent to one of the most impoverished neighbourhoods in Canada, with high rates of drug use and homelessness (Ley, 2008). Thus, benches become a site of social struggle and power negotiation between two-groups; both vulnerable to pronounced social exclusion. Irrespective of the urban politics of benches, we observed that the addition of them provided meaningful spaces for social participation for people across age and income brackets.

### 5. Conclusion

Benches, although a small feature of the built environment, held great meaning for older adults and epitomized landmarks where physical mobility and social environments intersect. Thus, our data suggest it is important to examine built and social environments in tandem, as together they provide insights into 'if', 'how' and 'why' older adults engage with their neighbourhood. Older adults suggested that the City's relatively simple provision of benches, positively contributed to their experiences of mobility across ages and physical capacities, and was of heightened importance for those older adults at high risk for social isolation. Given that even short bouts of physical activity, and casual social interactions have positive physical and mental health benefits for older adults, this a prudent investment.

We acknowledge the factors that limit the generalizability of our findings. First, our inclusion criteria dictated that participants left their homes 3 to 4 times per week (to assess how they interacted with their neighbourhoods). Therefore, our study findings are largely not applicable to older adults with severe mobility limitations, who do not leave their homes. Second, we acknowledge the influence of SES and neighbourhood context on our participants' experiences. They lived in predominantly medium SES neighbourhoods, and participants were mostly (T1 = 91%, T2 = 95%) of European descent (described as a Caucasian/white skinned person). Thus, to deepen understandings of the margins of social inclusion and mobility intersections for older adults, future studies may benefit from a comparative examination of SES, ethnic, and racial indicators of difference within neighbourhoods of similar walkability index, and across neighbourhoods with different walkability indices. Third, our data suggests that benches were particularly important for mobility and well-being of women with physical limitations. However, we are unable to make this statement of men as none had severe mobility limitations. As older men are actually more prone to health impairment and social isolation, and less likely to ask for help (Courtenay, 2000), future studies might adopt a more in-depth ethnographic observational approach to examine the intersection of gender and built-environment features, particularly for men's experiences of mobility. Finally, we also call for future studies to longitudinally assess older adult experiences in a low-walkability neighbourhood with no or few benches at baseline, where benches are then added as an intervention. This context may further reveal the impact and limitations of how benches contribute to a neighbourhood's social environment and related experiences of older adult mobility.

As we rethink how best to support North America's aging demographic through neighbourhood design it is imperative to

consider that relatively small-scale neighbourhood features may have a relatively large impact. Microscale features have potential to allow older adults to accommodate their personal preferences, mobility needs and limitations (which may change daily), adapt without impediment, maintain their mobility and age in their neighbourhood of choice. Thus, this highlights an important role for municipal planners, policy makers, engineers and land-use developers in the realm of health promotion, given the close link between built and social environments, and older adult health and well-being.

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