A Social Ecological Exploration of Community Adult Playground Use Among Seniors in Northern Ontario

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.

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Abstract

Modifications to the built environment have recently gained momentum as an important method of supporting community wellbeing and physical activity. Outdoor adult playgrounds (OAPs) are one example of a physical activity infrastructure initiative that can improve access in opportunities to be physically active. Moreover, they have been recognized as potential features of an age-friendly community by specifically supporting older adults' physical activity. The global growth in OAP development as a tool to support community physical activity has yet to have been supported by a strong analysis of the community, environmental, or policy factors influencing OAP uptake, particularly for older adults. In view of this noted gap in the literature, the social ecological model represents a novel methodological approach for understanding multiple influences on OAP uptake. In this research project, I employed a case-study methodology informed by the social ecological model to: 1) explore how an OAP can support older adults' physical activity; and 2) explore the roles of community organizations and stakeholders as they relate to supporting OAP uptake by older adults. I collected data through semi-structured interviews (n=9), participant observations, and a review of relevant municipal policies and reports, and analyzed the data through a social ecological lens. While community members, and specifically the older adult population, faced noted challenges in using the OAP equipment, the OAP's setting could help to reduce income-related inequalities in access to physical activity infrastructure. Some of the participatory challenges encountered by prospective older adult users were similar to the challenges experienced "on the ground" at the OAP, which is a key finding of this research. The identified facilitators and barriers pertaining to the OAP's uptake in the community can be of use to prospective researchers, policymakers, and park planners, with a view toward informing future initiatives and programming.

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Table of Contents

Chapter 1: Introduction

Outdoor adult playgrounds (OAPs) have enjoyed a resurgence as of late in North America, with basic fitness trail concepts from the 1970's replaced by a proliferation of specialized outdoor park fitness equipment (Madren, 2013). Sometimes referred to in the literature as fitness zones (e.g., Cohen et al., 2012) or outdoor gym equipment (e.g., Bates, McCoy, Murphy, Kornyk, & Suckley, 2013; Nguyen & Raney, 2014), OAPs are one example of outdoor physical activity infrastructure that incorporates aerobic and strength-based training, and often in a design that promotes play-based activity. The equipment is intended to provide a free and accessible space for exercise in the community, often complimenting children's park equipment with equipment designed for adult and older users (Larkin, 2012). Older adults have been identified as potential beneficiaries of the equipment both for the physical benefits of exercise and for the social benefits of connecting with others (Larkin, 2012; Madren, 2013). At the same time, only 13% of older adults aged 60-79 participate in the recommended 150 minutes of moderate-to-vigorous physical activity per week (Statistics Canada, 2017), and the population is noted to often be unfamiliar with the exercise equipment found in OAPs (Chow, 2013). The individual decision to participate in physical activity is often produced as a "duty" ascribed to older adults to help facilitate healthy aging (Laliberte-Rudman, 2016). Outdoor adult playgrounds have been described in line with this duty as "a solution for keeping older populations healthy and engaged" (Larkin, 2012, p. 22), but also as an accessible physical activity infrastructure for residents living in lower-socioeconomic neighbourhoods (Madren, 2013).

The combined factors of a proliferation of OAPs across Canada (McGinn, 2011), municipal and policy endorsement of OAPs as a physical activity solution for older adults (e.g., Village of Keremeos, 2015), and a relative dearth of relevant literature in Canada points to a

need for research that engages with older adults users and community stakeholders involved with supporting OAP uptake. Recently, an urban centre in Northern Ontario, Canada, invested in the city's first OAP and located the park infrastructure in Deer Park[1]. The purpose of this research was to use the OAP located in Deer Park as a case study to explore the factors shaping older adults' use of outdoor physical activity infrastructure located in a relatively lower-socioeconomic neighbourhood. Previous research has yet to examine the role of community and organizations as they relate to OAP uptake; this represents a notable gap in the literature, as community factors hold an important role in supporting physical activity initiatives (Sallis et al., 2006). The social ecological model (SEM) is a theoretical framework used for understanding the multiple levels of influence (e.g., individual, community, policy, etc.) impacting healthy behaviours (McLeroy et al, 1988). The SEM is thus an appropriate and novel methodological framework for understanding the potential community or environmental factors, as well as individual factors, influencing OAP uptake. In addition, the Northern Ontario city, Wymont, has identified the all-ages (manufacturer label on equipment states ages 13+) OAP in Deer Park as a pilot project for future older adult-specific infrastructure spending (City of Wymont, 2015a), and will use the findings from this research to help inform future decision-making. This research was guided by the following four research questions:

1. What perceived social ecological factors influence older adults from a low-income neighbourhood to use an outdoor adult playground?
2. What benefits do older adults from a low-income neighbourhood expect to accrue from using an outdoor adult playground in a low-income neighbourhood?

[1] All community and park identifiers have been given pseudonyms to protect participant confidentiality

3. How are community organizations involved in the development, implementation, and continued support of an outdoor adult playground in a low-income neighbourhood?
4. How do governmental and community policies intersect to shape older adults' experiences with physical activity and the outdoor adult playground in a low-income neighbourhood?

To address these questions, I employed a case-study methodology informed by the SEM (McLeroy et al., 1988) to: 1) explore how the OAP supports older adults' physical activity; and 2) explore the roles of community organizations and stakeholders in supporting OAP uptake by older adults. I collected data through semi-structured interviews, participant observations, and a review of relevant municipal policies and reports (e.g., City of Wymont, 2015a), and analyzed the data through the dynamic levels of the SEM to explore the intersecting factors shaping older adults' use of OAPs. These intersecting personal and environmental factors are, according to McLeroy and colleagues (1988), represented in the SEM through five levels of influence that collectively impact health behaviours: intrapersonal factors, interpersonal processes and primary groups, institutional factors, community factors, and public policy. The environment's influence on health and well-being is conceptualized in this framework under multiple dimensions, including physical, social, and cultural (Stokols, 1996). To the best of my knowledge, there is no prior research that explored OAP uptake using a social ecological lens. Sallis and colleagues (2006) identified three ecological characteristics of physical activity interventions that are crucial to its success. The first characteristic, creating a space for safe and accessible physical activity, has been briefly examined in previous literature concerning OAPs through quantitative observational methods and semi-structured interviews (e.g., Chow, 2013; Copeland et al., 2017; Cohen et al., 2012). The two remaining characteristics – the presence of programs highlighting

the intervention, and the use of community organizations "to change social norms and culture" (Sallis et al., 2006, p. 299), have yet to be examined in the literature with regards to OAPs. Indeed, Cohen and colleagues (2012) and Copeland and colleagues (2017) identified a need for research that examines the effects of programming and marketing related to the uptake of newly installed OAPs. The lack of a critical examination of these two characteristics of an OAP, combined with mixed results concerning OAP uptake and efficacy for promoting physical activity (Copeland et al., 2017; Cranney et al., 2016), represents an important knowledge gap that this research addresses. The need for this research is amplified by the high cost of the equipment (upwards of $75,000) and the proliferation of the outdoor physical activity infrastructure across municipalities in Canada (McGinn, 2011). Research conducted outside of Canada (e.g., Cohen et al., 2012; Chow, 2013; Cranney et al., 2016; Nguyen & Raney, 2014) can provide helpful direction in understanding user demographics and barriers/enablers to use; however, as previously discussed, this body of research has largely not included an investigation into the community factors, including neighbourhood income, influencing OAP uptake, leaving a gap in the literature that this thesis research attempts to address. Further, research conducted in Taiwan, for example, may not be transferable to older adults in other regions due to cultural and environmental differences (Chow, 2013).

Description of the Setting

The age-friendly community initiative is a multilevel effort coordinated through the Public Health Agency of Canada and recognized by the World Health Organization's Global Network of Age-Friendly Cities (Plouffe & Kalache, 2011). A number of principles govern the age-friendly community initiative in Canada, including offering older adults of all socioeconomic and demographic backgrounds a voice in the planning and implementing of age-

friendly initiatives (Plouffe & Kalache, 2011). Age-friendly communities, according to the Federation of Canadian Municipalities (2013), "enable residents to age actively through supportive policies, services and infrastructure" (p. 5). In 2011, there were 560 communities in Canada that were designated "age-friendly," and this number continues to increase (Plouffe & Kalache, 2011). Wymont was recognized as an age-friendly community in 2011, in large part, as a response to its increasingly aging population (City of Wymont, 2015a). Research by the City determined that "providing an environment that promotes quality of life and independence for an aging population is thus an important obligation of the [Wymont] City Council" (Kelley, Wilford, Gaudet, Speziale, & McAnulty, 2010, p. 4). More recently, the age-friendly stakeholder committee report highlighted multiple opportunities for improving the age-friendly initiative in the city (City of Wymont, 2015a). Neighbourhood safety concerns, the timeliness of snow removal, and outdoor accessibility issues are three of several barriers noted in the "Age Friendly City Services Action Plan" (City of Wymont, 2015a). The city developed a number of action items in response to these barriers. Interestingly, action item 1.14 stated that future OAPs designed specifically for older adults will be installed in the city "based on the success of [a] Pilot Project" (p. 9). The Pilot Project referred to in the action plan is the outdoor exercise equipment installed in Deer Park. If determined a success by the city, future exercise equipment designed with healthy aging and older adults in mind will be considered for installation in 2018 and beyond (City of Wymont, 2015a). Thus far, there has been no other planned evaluation or programing for the OAP in Deer Park. As such, city officials have agreed that this research will be used as a tool to help guide decision-making related to future OAP investment.

I use the term "healthy aging" with the understanding that the socioeconomic and environmental structures influencing health are often outside of the control of older adults

(Raphael, 2016). In line with this acknowledgement, I concur with Laliberte-Rudman (2016), who argued that terms such as "active" or "successful" aging are (re)productions of neoliberal discourses "aimed at decreasing dependency on the state, activating groups who are situated as 'at risk' of state dependency and inactivity, and individualizing responsibility for a wide array of life areas" (Laliberte-Rudman, 2016, p. 124). Within this frame, the increasingly aging and retired population in Canada is often represented as risky to both the health of the economy and the health of the retired individual (Laliberte-Rudman, 2016). Older adults from marginalized or low-income communities are at a particular disadvantage of the "successful aging" paradigm, as they have often been subject to broad social and economic inequities throughout the lifecourse, yet, are expected to take responsibility for their own health in old age or risk being labelled "as failures" (Stephens, 2016, p. 2). In the literature review and indeed throughout the project, I avoid describing participation in an OAP or physical activity in general as a "responsibility" older adults have to successfully age. Rather my goal was to explore older adults' perspectives of a physical activity infrastructure initiative that considered the socially and economically constructed barriers, like income, to older adults' health. Income and other social determinants of health (SDOH) such as housing and social support "are critically important in determining whether Canada's seniors live healthy and rewarding lives" (Canadian Medical Association, 2015, p. 12).

Wymont and Deer Park

Much like the rest of the Province of Ontario and Canada as a whole, the City of Wymont has an ageing population. With a median age of 44.8, Wymont is more than three years older than the provincial median of 41.3 (Statistics Canada, 2017). The availability of outdoor spaces has been cited as a strength of the city, and the municipality is continually working towards

improving the accessibility of the outdoors for all ages (City of Wymont, 2015a). As a city located in Northern Ontario, there are challenges inherent to the geography; for example, snow and snow removal is identified (City of Wymont, 2015a) as a challenge to older adults' transportation when snow is present during the winter months (roughly November-March). Compounding transportations challenges is a relatively low population density, which can negatively influence active forms of transportation (Behan & Lee, 2010). The city has also taken steps towards addressing older adults' fear of neighbourhood crime. Wymont has the second highest crime severity index in Canada (Allen, 2016). As a response, the city has proposed a "safety and crime prevention awareness campaign for older adults" (City of Wymont, 2015a, p. 10). The Age-Friendly Wymont Steering Committee currently collaborates with the community's Crime Prevention Council to implement recommended crime prevention strategies (Wymont Crime Prevention Council, 2017)

The OAP situated in Deer Park is part of a larger park infrastructure officially adopted by the resident-led, community-based organization 'Strong Neighbourhood.' Strong Neighbourhood is involved with many projects with the goal of improving the social and economic capital of the residents living in their neighbourhood. Beyond adopting Deer Park and running multiple recreation programs, Strong Neighbourhood has been formally recognized by the City of Wymont for their crime prevention efforts in the community. For example, the changes they've advocated for can be seen in infrastructural improvements to Deer Park (e.g., more lighting throughout the park).

The OAP is just one of many park amenities publicly available at Deer Park. According to an interview with a municipal park planner, the OAP's location in Deer Park was a compromise between park stakeholders with the intention of giving the OAP good visibility to

the public while maintaining the pre-existing park amenities. The OAP opened in October of 2016, and is situated between the fencing of an outdoor pool, a road, and a children's playground area. The park planner interviewed for this research described the OAP's location as "shoehorned" (Werner) between other park amenities, yet still maintained ample room for the intended 10-15 users at a time. Equipment available at the OAP include resistance training pieces (chest and shoulder presses, and back pull down), an upright stationary bicycle, pull up and push up stations, a sit-up station, two plyometric "box jump" stations, a balance board, a leg-press station, and a knee raise station. The municipality, at a cost of approximately $75,000, funded the equipment and its installation, while the OAP's rubber flooring was partly funded by an Ontario Tire Council Grant. The rubber flooring was installed after the OAP's initial opening, in the summer of 2017, and improved the accessibility of the OAP. Certain pieces of equipment were designed to specifically accommodate wheelchair access. Overall, the municipality required the manufacturer to propose a design that could accommodate "a wide range of user ability and age" (Werner). Park users have access to the OAP, an outdoor pool at designated times, a children's playground, a small paved basketball court, and a large open field that can be used for various activities. In the winter months, an outdoor hockey rink is opened in part of the large field. All of these park amenities encircle a small building that is used by Strong Neighbourhood for youth programming all year round. Thus, Deer Park is a multi-use park area that can accommodate diverse activities and users. The only other quasi-park space in the immediate vicinity of Deer Park is green space at nearby public schools.

Deer Park is uniquely situated; as mentioned previously, there is great diversity in Wymont, and this includes diversity in neighbourhood income stratification. The census tract in which Deer Park and the surrounding community is part of represents one of the lowest income

areas in Wymont. The proportion of neighbourhood residents (26.3%) with an income below Statistics Canada after-tax low-income measure is nearly double that of the overall city prevalence of 13.8% (Statistics Canada, 2017). The population living within this census tract has decreased by 2.3% from 2011 to 2016 (Statistics Canada, 2017), which is more than the overall 0% change in the city's population. Deer Park's neighbourhood has a median age of 39.7, nearly four years younger than Wymont's overall median age (Statistics Canada, 2017). The decision to highlight Deer Park's OAP in the city's age-friendly initiative could perhaps be viewed as peculiar considering the relatively younger age distribution of the park's neighbourhood, yet Wymont's aging population as a whole points to a need to proactively develop and implement supports for older adults in all neighbourhoods. Indeed, the future age distribution in Wymont will affect the development and provision of municipal services, particularly considering the older adult population is expected to double in Wymont by 2036 (City of Wymont, 2015a). Investments in older-adult specific initiatives and infrastructure should thus be based on a strong body of literature. This research can be an important building block for municipal park development and infrastructure policy-makers.

Contribution to Public Health and the Community

As noted extensively in the literature and media alike, Canada has a population that is growing older and living longer (e.g., Chronicle Journal, 2015; Government of Ontario, 2017). While population ageing is often framed as a risk to, for example, the healthcare system (Jackson, Clemens, & Palacios, 2017), there are also discourses highlighting the strengths of an aging population, such as a strengthening of our "social fabric" (Carstairs & Keon, 2009, p. 8). Central to the tensions between the aging population and a (perceived) overburdened and unsustainable healthcare system (Morgan, Zamora, & Hindmarsh, 2007) are calls for older adults

to participate in the workforce longer and to "take up" behaviours that promote healthy aging (Laliberte-Rudman, 2016). One such behaviour is physical activity. Specifically, OAPs have, in some cases, been placed strategically in lower-income neighbourhoods as a method of increasing low-income residents' access to physical activity infrastructure (Madren, 2013). Improving access to free gyms (not necessarily *outdoor* gyms) to low-income urban women, for example, has been identified as one possible method of reducing "racial and socioeconomic disparities in physical activity" (Taylor et al., 2007, p. 61). If successful at reducing inequities in access to physical activity equipment, OAPs could represent an important community public health investment. Copeland and colleagues (2017) similarly pointed to OAPs as a potential public health investment. Only one existing study on OAPs identified or described the OAP's location as low-income (Nguyen & Raney, 2014). Nguyen and Raney's (2014) research study, however, did not explore in detail the effects of the neighbourhood on OAP uptake. Thus, the research undertaken in this thesis addresses an important gap in the public health field. I explored older adults' understanding of physical activity, the factors shaping their experiences with physical activity, and how wider environmental, political, and social factors can restrict or enable participation in physical activity. It is hoped that the current research contributes toward identifying facilitators and barriers pertaining to use with a view toward informing future initiatives and programming. Further, the results of this study (e.g., an identified improvement in access to physical activity infrastructure for low-income groups) may provide support on the basis of public health for the future funding of OAPs in low-income neighbourhoods.

Literature Review

Outdoor adult playgrounds designed for older adults have received little scholarly attention thus far, particularly those located in low-income neighbourhoods. Due to this gap in

the literature, I include the broader literature available that concerns free, and where possible, outdoor physical activity initiatives (PAI) designed specifically for older adults. In the following, I first provide an overview of OAPs, highlighting the equipment's uptake by community members generally and its identified enablers and barriers to use. Then, to gain a clearer understanding of the intersecting organizational, social, and intrapersonal factors of free PAIs such as OAPs, I review broader PAIs designed for older adults. Finally, I provide an overview of the socioeconomic and environmental factors that are often beyond the structure of a free PAI for older adults but which also influence participation or uptake.

Outdoor Adult Playgrounds

OAPs are physical activity infrastructural initiatives often funded by municipal governments and commonly located in parks or other freely accessible community areas (e.g., Madren, 2013). In recent years, OAPs have proliferated across Canada from urban areas such as Calgary (Webber, 2015) to as far north as Yellowknife (CBC News, 2013). These outdoor structures have evolved from basic fitness trails implemented in the 1970s to newer, more expensive infrastructure that includes easy to use, all-weather stationary exercise equipment (Madren, 2013). Pull-up bars, push-up stations, and cardio equipment such as stationary bikes are common pieces of equipment found in OAPs, although many OAPs now include more complex resistance training pieces. There are also age-specific equipment packages that are available through equipment providers. For example, the manufacturer of the OAP located in Wymont offers, on its company's website, an OAP package with equipment designed specifically for older adults; this includes equipment designed simply with assistive bars to enhance user balance. The OAP in Wymont is designed for all ages and includes pull-up and push-up bars, chest press, lateral pull-down, and leg press resistance equipment, as well as a

stationary bike and balance platforms. A trade-off of equipment found in OAPs is between their durability and all-weather design, and the lack of adaptability they offer to different users' sizes and strengths (Nguyen & Raney, 2014). For example, resistance settings and seat heights are often fixed in place. OAPs represent a significant investment by municipal governments: the equipment can cost upwards of $75,000 for its purchase and installation (CBC, 2016). Despite this cost and the cross-country interest in the playgrounds (McGinn, 2011), research examining OAPs have thus far remained within a relatively narrow scope of study, and the little research that does exist offers mixed results regarding community members' uptake and perception (Copeland et al., 2017).

Outdoor adult playgrounds are designed with the purpose of increasing public access to facilities that promote physical activity and community well-being (Copeland et al., 2017). Cohen and colleagues (2012) examined Family Fitness Zones (i.e., parks containing outdoor fitness equipment) in diverse neighbourhoods across Los Angeles and observed an increased use of parks with exercise equipment, which coincided with an increase in users' moderate-to-vigorous physical activity. The authors collected data on estimated energy expenditure of park users and "calculated the cost effectiveness of the Fitness Zones by determining the increment in METs [Metabolic Equivalent of Task] generated per cost of the equipment" (p. 3). Specifically, the authors employed the System for Observing Play and Recreation in Communities (SOPARC), which is a quantitative observation tool researchers use to measure typical park use as well as the characteristics and activity levels of park users (Cohen et al., 2012). The SOPARC tool is commonly used in OAP research, and is described further in the Methodology section. Through their observation of parks with fitness equipment, Cohen and colleagues (2012) argued that Fitness Zones could be a cost-effective method of increasing park users' physical activity.

In another study of outdoor gym equipment in Los Angeles, Nguyen and Raney (2014) implemented a 6-week exercise program in an OAP located in a community of relative low SES standing. The study participants were identified as previously sedentary, and benefitted from the OAP exercise program. Muscular and cardiorespiratory improvements were identified at the end of the 6 weeks. Nevertheless, Nguyen and Raney (2014) noted that the limited adjustability of the OAP equipment used in their study restricted the equipment's long-term effectiveness.

There are a number of enablers to OAP use identified in the literature. Bates and colleagues (2013), for example, identified accessibility of the equipment, improvements in overall health, and enjoyment as factors enabling community members' use of OAPs. Building social connections (Chow, 2013), appropriate equipment maintenance (Chow, 2013; Scott et al., 2014), mild weather conditions (Chow, 2013), and motivation to lose weight (Cohen et al., 2012) are other enablers to OAP use identified in previous research. While the above results are positive, there is similar research that describes limited success of OAPs. For example, Copeland and colleagues (2017) used mixed-methods design to study community use and public perceptions of two parks with exercise equipment and four without, located in a Western Canadian urban setting. Through the SOPARC observation tool, the authors found that in the parks with exercise equipment, only 2.7% of adult park goers were using equipment (Copeland et al., 2017). Such a low percentage of users would seemingly produce negative community perceptions of the costly equipment, yet community members instead maintained positive perceptions of the OAPs and its potential to produce positive health outcomes (Copeland et al., 2017). There were also gender and age differences identified in equipment users, as men were observed to use the equipment more than women, and age appeared to be negatively correlated with equipment uptake. Adults aged 60 and over were often observed in the parks that had

exercise equipment, yet few were observed actually using the park equipment (Copeland et al., 2017). Community members recommended increased advertising and the provision of exercise classes or instruction as future methods of increasing equipment uptake.

The majority of the above-described studies were undertaken in warm or southern climates [e.g., Australia: Scott et al., 2014; Taiwan: Chow, 2013; Los Angeles: Cohen et al., 2012). Chow (2013) identified mild weather as potential enablers of older adult OAP use. The authors of the sole Canadian study (Copeland et al., 2017) did not observe their two OAP sites in the winter months. The lack of observations at OAPs during winter months is notable, considering OAPs have been described as all-weather (Madren, 2013).

Outdoor adult playgrounds and older adults. One population group that may particularly benefit from OAPs are older adults (Larkin, 2012). It is recommended that older adults participate in strengthening exercises (i.e., resistance training) twice a week, and moderate-to-vigorous physical activity for at least 150 minutes each week (Canadian Society for Exercise Physiologists, 2011). Only 13% of older adults meet the physical activity guidelines in Canada, and this percentage has remained stable over the last decade (Statistics Canada, 2017). The playgrounds are supposed to "promote wellness and provide a solution for keeping older populations healthy and engaged" (Larkin, 2012, p. 22). Still, Copeland and colleagues (2017) observed that only 15% of OAP equipment users in their study were older adults. Considering OAP equipment uptake has been identified as relatively low in Canada (Copeland et al., 2017) and elsewhere (e.g., Cohen et al., 2012; Cranney et al., 2016), an increase in older adult participation with OAPs could enhance older adults' well-being and, through the increase in park usage, further justify the costs of the equipment. Multiple authors have identified instructional sessions as one potential method of increasing older adult engagement with OAPs (Chow,

Mowen, & Wu, 2017; Copeland et al., 2017; Madren, 2013; Stride, Cranney, Scott, & Hua, 2017). Instruction on how to use the often-unfamiliar equipment may boost older adults' confidence and safety with the OAP (Madren, 2013; Scott et al., 2014; Stride et al., 2017). Some form of OAP instruction may be essential for older adults, who "do not have clear ideas for using the machines and their functions" (Chow, 2013, p. 6). Further, OAP equipment that is designed to consider older adults' physical abilities and needs could further support older adult uptake (Stride et al., 2017). There are, however, factors beyond the design of equipment that may restrict or enable participation, such as factors related to community organizations or the economic make-up of the targeted population. Such factors have not been well explored in the literature, despite the rapid increase in OAPs across Canada and globally. This research thus provides a timely contribution to the literature.

With the identified gaps in the literature focussed on OAPs, an existing body of literature examining general older adult physical activity initiatives can be a valuable resource for helping to identify characteristics that might relate to the success of an OAP.

Older Adults and Physical Activity Initiatives

Policy developments in Canada are increasingly considering concepts of aging-in-place, or the ability of older adults to age independently in their homes (Fang et al., 2016). While modifying the built environment through initiatives such as OAPs is important for creating or maintaining a community that is accessible for older adults, "simply altering the built environment is insufficient for creating more inclusive environments for older persons" (Fang et al., 2016, p. 223). The built environment includes the physical spaces that influence how someone interacts with the environment, such as highways, sidewalks, and parks (Center for Disease Control and Prevention, 2011). Ecologically, Sallis and colleagues (2006) argued there

needs to be a multi-level effort that promotes and supports the continued operation of PAIs such as OAPs. There are many examples of PAIs designed for older adults. Indoor and outdoor walking, Tai Chi groups, exercise classes, and games such as horseshoes or shuffleboard are a few of the PAIs for older adults found in communities across Canada (e.g., Active Mississauga, 2009). Thus, I come to this examination of PAIs designed for older adults for the purposes of identifying components of successful PAIs and how they may relate to an OAP. While PAIs designed for older adults can vary dramatically in their substance and organization, I will draw largely from the literature concerning exercise initiatives for older adults due to their relevance to OAPs.

Exercise programs designed for older adults can be developed in a number of ways, yet all face similar barriers to success. Many older adults avoid initiating an exercise program and, if persuaded to join, tend to have low adherence rates (Picorelli et al., 2014). Unfortunately, the older adults who stand to benefit the most from exercise programs appear to be at greatest risk of dropping out of such programs (Jancey et al., 2007). Jancey and colleagues (2007) identified older adults who have a history of being physically inactive, have low self-efficacy, are of low-socioeconomic standing, or are with overweight as being at greatest risk of dropping out of an exercise program. Perceptions of aging, cost or transportation barriers, health, and a lack of available programs are further factors restricting older adults' participation in physical activity (Tam-Seto, Weir, & Dogra, 2016). Bethancourt, Rosenberg, Beatty, and Arterburn (2014) listed a number of barriers older adults perceive to restrict their participation with physical activity, including physical or mental health (e.g., pain, fear of injury); individual preferences (e.g., dislike of physical activity, lack of self or external motivation); interpersonal factors (e.g., lack of guidance from a professional, intimidation from others); physical environmental factors (e.g.,

unsafe neighbourhood, weather); and, structural and organizational factors (e.g., socioeconomic factors, inadequate available information). Many of these barriers are similarly noted in the City of Wymont's Age Friendly City Services Action Plan (2015). Adherence to exercise programs tends to be higher for older adults from higher SES (Picorelli et al., 2014). Further, lower-income neighbourhoods tend to have fewer free opportunities for participating in physical activity than high-income areas (Taylor et al., 2007). With the noted facilitation of physical activity for residents in lower income neighbourhoods through the installation of an OAP (Madren, 2013), it is possible that OAPs could help reduce such inequalities. In all, a plethora of interconnected barriers to participating in physical activity were identified in the literature. Considering only 13% of older adults living in Canada participate in the recommended amount of physical activity (Statistics Canada, 2017), the number of barriers identified in the literature is unsurprising. Nevertheless, several "best-practices" exist that support older adults continued engagement in physical activity, which can be used to inform uptake at OAPs.

Facilitators to older adults' physical activity. In a systematic review of qualitative literature that examined physical activity interventions designed for non-clinical, independent older adults, Devereux-Fitzgerald and colleagues (2016) identified four "factors affecting acceptability of physical activity interventions for older adults" (p. 18): the role of perceived value, enjoyment, impact of experience, and delivery of the program. While some may consider OAPs an "independent" intervention (i.e., not always programmed), the factors identified by Devereux-Fitzgerald may also inform the factors affecting OAP participation. The first factor, *the role of perceived value*, related to older adults' perception of physical activity and the related health benefits (e.g., prolonged independence, prevention of disease, etc.) they expected to accrue from participating in an exercise program. The organization/individual delivering the

program and a collaboratively designed program structure were identified as characteristics that increased older adults' acceptability of exercise programs. Programs delivered by organizations that older adults trust and programs supervised by medical professionals boosted the perceived value and safety of such programs. For this reason, the authors noted that an important function of a physical activity program designed for older adults is to ensure the participants continue to perceive physical activity to be a valuable part of their lives past the end of the program; this perceptual shift aligns with the ecological characteristic of changing social values and norms through PAIs (Sallis et al., 2006).

Devereux-Fitzgerald and colleagues (2016) identified *enjoyment* of the interpersonal interaction as well as the physical activity itself as the second factor influencing older adults' acceptability of exercise programs. Enjoyment "was seen as a distinct motivating factor both for engagement and maintenance of physical activity" (Devereux-Fitzgerald et al., 2016, p. 21). The third factor, *the impact of experience*, related to older adults experiencing first-hand the effects of physical activity on other areas of life. When these effects, such as increased energy outside of the program, were realized, some adults continued to participate in their respective program even if their enjoyment was low. In this case, the impact of experience was greater than the impact of enjoyment on continued participation with physical activity. The *delivery of the program* is the final factor identified by Devereux-Fitzgerald and colleagues (2016). Trust in the instructor, as well as incremental increases in program difficulty, collaboration, and accessibility are all characteristics of program delivery that positively influenced older adults' acceptability of physical activity programs. Taken together, the organization, location, and instructor delivering or supporting a physical activity intervention appear to have integral roles in shaping the

interventions' acceptability to older adults, which relates well to the ecological characteristics of a successful PAI as described by Sallis and colleagues (2006).

In addition to considering the four factors described above, PAIs developed in collaboration with older adults must consider the unique characteristics and challenges of the community where the program will be implemented. In particular, environmental characteristics of parks and the SES of communities contribute to unique challenges – and enablers – of community members' participation in physical activity. Authors of a 2012 review of physical activity initiatives around the world identified community-based, easily accessible, and free initiatives as the most promising (Bauman et al., 2012; Heath et al., 2012). Cost considerations are likely integral components to implementing a PAI in the community surrounding Deer Park; the importance of such a component may be reduced in more affluent neighbourhoods.

Socioeconomic and Environmental Influences on Physical Activity

I highlight SES and the environment due to its relatedness to my study area/population and the characteristics of the OAP site (outdoor park, community-based). Adults with lower income have disproportionately experienced poorer physical and mental health that has perhaps limited their ability to participate in physical activity (Dogra et al., 2015) while simultaneously increasing the benefits of such physical activity.

As previously iterated, older adults are often described as being reluctant to initiate and sustain physical activity participation (Taylor et al., 2004). Additionally, "it is clear that SES is a predictor of physical activity levels" (Dogra et al., 2015, p. 184). Dogra and colleagues (2015) argued that the expectations older adults of low SES have of their respective aging process will have an influence on a variety of health indicators, including physical activity participation. Indeed, SES and other social determinants of health can be better predictors of health outcomes

than biological or behavioural/lifestyle factors (Raphael, 2016). Physical activity interventions that fail to address the contextual factors (e.g., neighbourhood safety concerns) that affect the lives of low SES populations "may not [have an] impact on health status" (Nayak, Hubbard, Sidney, & Syme, 2016, p. 200). Developing and implementing a free PAI within a community of low SES can be a challenge. Many factors are outside of the control of the initiative developer/coordinator. In addition to safety concerns as suggested above, this includes income, housing, levels of education, employment opportunities, and physical and mental health - which all relate to SES (Public Health Ontario, 2013). Nevertheless, there are specific logistical features that a coordinator should take into consideration when working with older adults of low SES, one of which is cost (Toto et al., 2012). Toto and colleagues (2012) described cost considerations as "critical for successful development of community-based exercise and physical activity programs for older adults from low-income households" (p. 373). The authors noted the importance of reducing the costs of participating in the proposed exercise program, and location considerations of the program in an area that limits transportation costs. With the understanding that not all initiatives or programs have the luxury of being offered for free or in a highly accessible area, characteristics of the environment should also be taken into consideration by program coordinators.

In their discussion of the environment, older adults, and physical activity, Chaudhury and colleagues (2016) note that, "health promotion strategies should consider the relevance of the neighbourhood environment at the block level" (p. 110). Older adults have a tendency to participate in physical activity primarily in the immediate vicinity of their home (i.e., neighbourhood city block; Chaudhury et al., 2016). Even simple modifications to the environment, such as park benches, encourage older adults to participate in physical activity and

help support a socially cohesive neighbourhood (Ottoni, Sims-Gould, Winters, Heijnen, & McKay, 2016). Indeed, parks offer a range of benefits to older adults. Beyond a space for exercise, parks are an important setting to prevent social isolation among older adults and can "create a sense of place and attachment" (Loukaitou-Sideris, Levy-Storms, & Brozen, 2014, p. 2). This sense of place points to a conceptualization of outdoor parks beyond the social and physical characteristics of the environment; parks "mean different things to different people," – young and old alike – and a negotiated and changing sense of place is formed by the individual (Christensen, Mygind, & Bentsen, 2014, p. 591). Thus, the varying characteristics of the environment can collectively influence and create a feeling of place and attachment (Christensen et al., 2014). Parks can also become a social and communication hub for older adults when the proper supports, such as bulletin boards and park benches, are put in place (Loukaitou-Sideris et al., 2014). There is a recognized need to move towards parks that are designed from the outset with older adults in mind, including older adults of diverse incomes and ethnicities (Loukaitou-Sideris et al., 2014). This is challenged by both the varied abilities and characteristics of older adults as a population and by the age-inclusiveness mandates of policy developments (Loukaitou-Sideris et al., 2014). Unfortunately, but perhaps unsurprisingly, there are also challenges associated with neighbourhood environments in communities of low SES. The availability of attractive green spaces is often (positively) related to a community's SES (Ottoni et al., 2016). For families of low SES, "inadequate or no facilities, parks and/or playgrounds in their communities and lack of safe places to play" (Canadian Parks and Recreation Association, 2005, p. 1) can limit recreational opportunities for all ages.

It should also be noted that many of the characteristics influencing participation in a structured exercise setting are likely to influence participation in unstructured or unorganized

exercise. For example, characteristics of the built environment such as poor sidewalk infrastructure can act as a barrier to seniors participating in both organized physical activity programs (Bethancourt et al., 2014) and unorganized "routine" walking (Mitra, Siva, & Kehler, 2015).

In all, the ecological components of successful PAIs (Sallis et al., 2006) correspond well with the components of successful exercise programs outlined by Devereux-Fitzgerald and colleagues (2016). At the same time, the environmental and socioeconomic barriers identified in the literature may be mitigated by the low-cost and community-based characteristics of OAPs. While these characteristics of OAPs can be gleaned from the literature, certain questions regarding their uptake cannot be understood without further investigation. This thesis research contributes to the literature by exploring older adults' understanding and uptake of OAPs using a case-study methodology framed through a social ecological lens.

Methodology

I used a case study methodology in this research and collected data through semi-structured interviews with community stakeholders and older adult users, participant observations, and document analysis. In Chapter Two, I frame the results according to the SEM and report on the interplaying factors that may influence older adult uptake of the OAP. In Chapter Three, I reflexively report on the methodological challenges and successes encountered through the research project, with particular emphasis on issues of recruitment, the effects of researcher positionality[2] on building interpersonal relationships, and providing points of access

[2] Positionality refers to the notion that researchers' characteristics (e.g., ethnicity, religion, experiences, etc.) and perspectives "have implications for their research related understandings, beliefs and values, for the research paradigms they feel most comfortable with, and, thereby, for their research practice" (Sikes, 2004, p. 18).

to community members in a socioeconomically underprivileged neighbourhood. In the following section, I first situate myself in the research, and then describe case study methodology and the data collection methods employed.

Situating the Researcher

This research project was well situated and consistent with the experiences and knowledge I've acquired leading up to the development of the research questions and methodologies. In line with qualitative research methods, I recognize that my position influenced not only the direction of the research study, but also the processes involved throughout data collection, analysis, and report writing (Lincoln & Guba, 2000). A direct example of this influence can be viewed through my initial data collection methods. The original objective for semi-structured interviews was to interview ten older adult OAP users, along with additional relevant stakeholders in the community. Due to my previous personal experience working with largely affluent and active older adults, I perhaps too easily dismissed concerns from community stakeholders that reaching ten older adult users from the neighbourhood would be difficult. When it became apparent in the field that I would not be able to interview ten older adult equipment users, I was left with having to shift my data collection methods to interview more community stakeholders than anticipated.

My position as an outsider to both the physical location of the park and the cultural and socioeconomic make-up of the neighbourhood created further challenges – and areas of opportunity – for connecting with potential interviewees. As a young, white male with a background in exercise prescription and Human Kinetics, there were often contrasting differences between the participants I was observing and myself. The impact of these

contrasting demographic and socioeconomic characteristics on methodology is discussed at length in Chapter Three.

Academically, I situate my research within a social constructivist framework. The research I have pursued in my short academic career has been qualitative-focussed with a strong belief that knowledge and reality are socially produced and reproduced. In this research, my second research question states, "What benefits do older adults from a low-income neighbourhood expect to accrue from using an outdoor adult playground in a low-income neighbourhood?" Older adults – or anyone for that matter – perceive characteristics of the environment unique to their various experiences and abilities. Thus, I believe following a social constructivist approach is an appropriate framework for this research, and is described further below.

Case Study Methodology

Case study methodologies can be particularly useful to explore in-depth "an issue or problem using the case as a specific illustration" (Creswell, 2013, p. 117). Chow and colleagues (2017) employed a case study design to explore an OAP in Taiwan; these authors used the SOPARC method and video camera monitoring to collect observation data. Elsewhere, Brooks-Cleator and Giles (2016) used a case-study methodology to examine, through semi-structured interviews and archival analysis, the cultural relevancy of a physical activity program for older Aboriginal[3] adults in northern Canada. In this research, I used the single case of an OAP to explore the social ecological factors shaping older adults' uptake of OAPs. Yin (2014) identified realist and relativist (i.e., interpretivist) as the two epistemological orientations case study research generally follows. I followed a relativist orientation, and, more specifically, a social

[3] I use the term "Aboriginal" to stay consistent to the terminology used by the authors in the referenced article (Brooks-Cleator & Giles, 2016)

constructivist orientation, due to the multiple meanings individuals may ascribe to perceptions of physical activity, aging, and outdoor spaces. Social constructivist researchers believe that meanings are subjectively negotiated and produced through "interaction with others (hence social construction) and through historical and cultural norms that operate in individuals' lives" (Creswell, 2013, p. 47). There is a distinction between "constructivist" frameworks and "social constructivist" frameworks. Young and Collin (2004) viewed constructivist research in relation to the constructed meaning an individual prescribes to the social world, while social constructivism "emphasizes that the social and psychological worlds are made real (constructed) through social processes and interaction" (p. 375). Social constructivist epistemology challenges dominant productions of knowledge (e.g., dominant discourses) through an understanding of the social processes governing their creation (Burr, 2015).

Case study methodologies can be broadly defined through their scope and their features. A case study inquiry "investigates a contemporary phenomenon (the 'case') in depth and within its real-world context" (Yin, 2014, p. 16). With regards to its features, Yin (2014) argued that the case study methodology is unique in that multiple data collection tools are needed to succinctly capture the multiple variables bounded within the case. Creswell (2013) stated that data must be collected from multiple sources to present "an *in-depth understanding* of the case" (p. 120, italics in original). Case study research answers the "how" and "why" of research questions (Yin, 2014), particularly in contemporary events "over which a researcher has little or no control" (p. 14). I employed a case study methodology informed by the SEM (McLeroy, Bibeau, Steckler, & Glanz, 1988) to explore the "how" and "why" of my research questions.

Social Ecological Model

The SEM can be viewed "as an overarching framework, or set of theoretical principles, for understanding the interrelations among diverse personal and environmental factors in human health and illness" (Stokols, 1996, p. 283). McLeroy and colleagues (1988) argued that health behaviour could be determined through the ecological model on five levels of analysis: intrapersonal factors, interpersonal processes and primary groups, institutional factors, community factors, and public policy. Intrapersonal factors include individual characteristics "such as knowledge, attitudes, behaviour, self-concept, skills, etc," (McLeroy et al., 1988, p. 355), while interpersonal processes and primary groups are the "formal and informal social network and social support systems, including the family, work group, and friendship networks" (McLeroy et al., 1988, p. 355). In this research, interpersonal and primary groups refer to the socialization between equipment users, family roles and responsibilities, and relationships between OAP users and Strong Neighbourhood. Institutional factors include workplace and organizational mission and values. The fourth level of the model is community factors, which include community and organizational relationships. Public policies, the fifth level of the SEM, refer to policies implemented at the governmental level.

The SEM is flexible in that it can be modified to work with multiple health behaviours (Rowe, Shilbury, Ferkins, & Hinckson, 2013), including physical activity and sport (Rowe et al., 2013), family planning (Schölmerich & Kawachi, 2016), sedentary behaviours (Perchoux, 2016), and tobacco use (Dawson, Cargo, Stewart, Chong, & Daniel, 2012). Appendix A provides an example of how Sallis and colleagues (2006) modified the SEM to frame the issue of active living in communities. I use the SEM in my analysis to explore the intersecting factors within the various levels of the model that related to older adults' uptake of the OAP in Deer Park.

Yin is an often-cited author in the methodology sections of case-study research articles in areas of physical activity and older adults (e.g., Brooks-Cleator & Giles, 2016; Cannon, 2017). Following Yin's (2014) guidelines, there are five important components of a case study design. The first component, the case study's questions, is the "how" and "why" questions and are provided to the reader to give a clear picture of the study's scope and purpose. Questions to be answered in this study include:

1. What perceived social ecological factors influence older adults from a low-income neighbourhood to use an outdoor adult playground?
2. What benefits do older adults from a low-income neighbourhood expect to accrue from using an outdoor adult playground in a low-income neighbourhood?
3. How are community organizations involved in the development, implementation, and continued support of an outdoor adult playground in a low-income neighbourhood?
4. How do governmental and community policies intersect to shape older adults' experiences with physical activity and the outdoor adult playground in a low-income neighbourhood

The next component of the research design is outlining study propositions (Yin, 2014). Given the dearth in literature surrounding the topic of older adults' uptake of OAPs, this research can be considered an exploratory case study called for by several authors (e.g., Cohen et al., 2012; Copeland et al., 2017). The third component of case study research is defining the unit of analysis (i.e., the "case"; Yin, 2014). While there may be multiple variables of interest within the case, these variables must be clearly stated at the outset of the research process. The unit of analysis was the OAP, while the bounded variables included the individuals using the OAP, place (e.g., the OAP), and time. Linking data to the purpose is the fourth component, and this

was done through a thematic analysis of the data collected through participant observations, semi-structured interviews, and document analysis. Data were analyzed and themes generated using Braun and Clarke's (2006) six-step framework for thematic analysis. Finally, interpreting a case study's findings, the last stage of case study design, was framed through a social ecological lens (McLeroy et al., 1988). McLeroy and colleagues (1988) argued that the SEM is particularly useful for examining the environment's influence on behaviour and health promotion interventions. Considering the broader environmental and community influences on OAP uptake have not yet been examined in the literature, the SEM was an appropriate theoretical lens framing this case study research.

Ethical Approval

In accordance with Lakehead University Research Ethics Board, I received ethical approval on June 27, 2017, prior to beginning the study (Appendix B). Willing participants were fully informed of the research taking place and a consent form was signed prior to participation. The consent form included a description of the research taking place, what participation in the study entailed (e.g., length of interview), potential risks and benefits, steps taken to protect confidentiality and anonymity, and contact information. To accommodate all potential participants and reading levels, details of the consent form could also have been discussed verbally and verbal consent obtained through the audio-recorded interview. This proved to not be necessary. All participants who were willing to take part in a semi-structured interview received an emailed transcription of their interview to review before the data were used for analysis; this ensured that the interviewee was happy with the interview content and that it accurately reflected the interviewee's meanings. A copy of the consent form was provided to the participants in the format they choose (electronic or hard copy).

Knowledge will be disseminated within and outside the community in a number of ways. Stakeholders within departments of the City of Wymont will receive a copy of the completed thesis research, as will the research participants if desired. To accommodate reader understanding, I will also provide a plain word executive summary to interview participants. Further, the two chapters will be sent for publication in peer-reviewed journals and will be presented at academic conferences. We expect to submit Chapter Two for peer-review to the *Journal of Aging and Physical Activity*, and Chapter Three to *Qualitative Inquiry*.

Data Collection

Three methods of data collection were employed in this research: semi-structured interviews with older adult users and community stakeholders, participant observations at the OAP, and document analysis of relevant municipal policies and reports. In the following sections, I describe how I recruited research participants, the methods of data collection, and Braun and Clarke's (2006) guidelines to thematic analysis.

Recruitment. I recruited older adult participants during participant observations at the park. Participants were approached to gauge their interest in partaking in an interview, and, if interested, were provided with a consent form that outlined the research taking place and the time commitments (30-60 minutes) required for the interview. My inclusion criteria were that each older adult participant be age 55 or older and have used the OAP equipment at some point since its installation. Considering the OAP opened in October of 2016 and participant recruitment commenced in June of 2017, I expected most participants to be relatively new users. Due to a lack of observed older adult users during my time observing at the OAP, however, only two older adult users were observed using the equipment, and only one older adult user agreed to participate in a semi-structured interview. The interview occurred at a time of the participant's

choosing on a bench outside of his home, and the participant received $20 as a thank you for his/her time.

Stakeholders from Strong Neighbourhood, the City of Wymont, and other community organizations involved with supporting older adults physical activity were also contacted for an interview through the email or telephone information publicly available on their respective organization's website. Participants were selected based on their involvement with physical activity, older adults, and programing in the city. For example, park planners and recreational planners from the city were contacted. An identical consent form that described the study and the time commitments required for the interview was sent to stakeholders over email. I interviewed, in total, eight stakeholders from community organizations. As described in the consent form, each participant had the option of keeping his/her identity anonymous through the use of pseudonyms; however, they also had the option of keeping their identities known. Five of the stakeholders chose to keep their identities known (Werner, Rebecca, Nancy, Linda, and Lisa), as well as the lone older adult interviewee (Dave). The three stakeholders who wished to remain anonymous have been assigned pseudonyms (Megan, Debra, and Susan) to protect participant confidentiality.

Semi-Structured Interviews. Creswell (2013) described a number of steps for interviewing in qualitative research. In general, Creswell suggested identifying the type of interview, potential interviewees, and the research questions the researcher seeks to answer through the interview prior to developing an interview guide. I chose the in-person semi-structured interviews for its versatility and flexibility as an interview method (Kallio, Pietilä, Johnson, & Kangasniemi, 2016). The interviewees were the one older adult participant and eight community stakeholders. The interviews occurred from June 2017 to December 2017. I

developed separate interview guides for the older adult participant and the community stakeholders to reflect the research questions I was addressing. Kallio and colleagues (2016) described the development of an interview guide for semi-structured interviews to be crucial to the trustworthiness of the data collection and analysis. Trustworthy data, Lincoln and Guba (1985) asserted, are data that have been collected and analyzed using a number of steps to improve their "balance and fairness" (p. 108), such as data triangulation or prolonged field observations. The development of an interview guide is enhanced through a literature review of the subject of interest (Kallio et al., 2016) and through pilot testing of the questions both within the research team and with potential interviewees (Creswell, 2013; Kallio et al., 2016). Following these suggestions, the interview guides developed for this research (see Appendix C and D) considered the results of previous literature as well as the components of the SEM and remained open to restructuring or rephrasing based off of initial interviews with participants. The guide also was extensively redeveloped following consultations with the research committee. Beyond the interview guide, the multiple data collection methods employed in this research combined with the extensive time that was spent at the OAP setting further enhanced the trustworthiness of the research results (Creswell, 2013). Information was triangulated (Creswell, 2013) through participant observations, document analysis, and semi-structured interviews. Once written consent was given, the interviews took place in a setting of the participant's choosing, such as a coffee shop or the participant's work office. In addition, transcribed interviews were sent back to interviewees for validation. Each participant validated his or her respective interview either through email or verbally. While most participants returned the interview with either minor or no changes requested, one participant requested that considerable transcribed data be removed.

Participant observations. Participant observations have been used as a data collection method in previous research involving OAPs. Cohen and colleagues (2012) utilized the SOPARC method to measure user activity levels and note demographic characteristics. Copeland and colleagues (2017), as well as Cranney and colleagues (2016), implemented the same quantitative observation tool. While this data collection method may be useful for ascertaining general activity levels and characteristics of park users, it does not necessarily enable relationship building with park users. I employed the SOPARC observation schedule but only as a method to capture typical OAP use. Cohen and colleagues (2012) recommend researchers observe the park area two days throughout the week and on both days of the weekend with an hour observation time slot for the morning, afternoon, and evening for each day. In each time slot, the number of users is counted twice over an hour period, for a total of 3 hours of observation data per day. Through the three hours of observation data on each of the four days, a measure of typical park use for that week is estimated (Cohen et al., 2012). Due to the potential for skewed results based on, for example, weather (e.g., temperature, precipitation), I attempted to obtain observational data in each of the four seasons. Unfortunately, due to the constraints of graduate research, I was only able to observe for two weeks in the summer, one week in the fall, and one week in the winter. In total, approximately 48 hours of observations hours was spent at the OAP over a staggered four-week period.

The SOPARC tool "provides an assessment of park users' physical activity levels, gender, activity modes/types, and estimated age and race/ethnicity groupings" (McKenzie et al., n.d., para. 1). Due to my research purpose, design, and identified population group, I used a modified version of the SOPARC tool while using the same observation schedule. Chow, Mowen, and Wu (2017) similarly modified the SOPARC tool to suit their research needs; for

example, these authors, like myself, also did not measure physical activity intensity. I initially planned to note primarily how older adults were using the OAP equipment. Since so few older adults were observed using the equipment, I expanded my observations to include all OAP users, and noted the number, approximate age, and gender of each user. I also noted conversations with OAP users, if other park infrastructure was being used, and the ways in which OAP users were using the fitness equipment. These observations were recorded in a reflective journal immediately following each of the observation hours. The relative restricted space at the OAP in Deer Park, combined with my participation with the OAP equipment during observations, did not facilitate the real-time recording of observational data. To ensure consistency with my observations, the reflective journal I kept had open-ended subheadings that separated and organized my collected observational data (Appendix E). Combined with these observations, I used my time at the park to convenience sample interested participants for an interview. While some of the details I captured through interviews could have been examined within a quantitative frame, a social constructivist perspective demands an approach that goes beyond surface recording of participant characteristics or activity level details. Thus, this research both builds on the knowledge obtained through the quantitative methods employed by previous authors, and develops a deeper understanding of participants' experiences through participant observation, qualitative interviews and document review described below.

Document analysis. In addition to the semi-structured interviews and participant observations, I also identified and analyzed municipal documents and policies that related to older adults' physical activity and the OAP in Wymont. While research question four could certainly be partly addressed through interviews and perhaps participant observations, this step directly explored the influence of community policies at the most distant level of the SEM.

Policies are an integral piece of public health, as they can both restrict and facilitate community access to programs and healthy environments (McLeroy et al., 1988). Four publicly available documents from the municipal database and related community organization websites (Age Friendly Wymont 2017; City of Wymont 2015a, 2015b, 2017) were identified and included based on their relevance to the study population (e.g., older adults) and issue (e.g., physical activity and OAPs). The identified documents included municipal Age-friendly action plans and reports (Age Friendly Wymont 2017; City of Wymont 2015a), and municipal strategic planning documents (City of Wymont 2015b; 2017). While the content of the documents in their entirety was not always relevant to the research, the documents were fully reviewed and relevant chapters or sections were analyzed for common themes. These documents provided an additional source of data that could help to validate – or challenge – practices occurring "on the ground" at the OAP site.

Data Analysis

I followed Braun and Clarke's (2006) six-step guide to thematic analysis to analyze the collected data and "draw out the social-ecological determinants" (Mburu et al., 2014, p. 9) of older adults' uptake of OAPs. According to Braun and Clarke (2006), thematic analysis is a flexible qualitative strategy that can be employed within multiple qualitative approaches. An in-depth and comprehensive analysis "involves a constant moving back and forward between the entire data set, the coded extracts of data that you are analysing, and the analysis of the data that you are producing" (Braun & Clarke, 2006, p. 86). Through this analysis, several themes are presented that coalesce from the content of the data (Creswell, 2013). In this study, the themes identified through the thematic analysis were juxtaposed and analyzed against the five levels of the SEM.

Step one of my thematic analysis was an iterative process of *becoming familiar with the data*, which began during initial data collection in the summer of 2017 (Braun & Clarke, 2006). I then generated initial codes by thoroughly reviewing each of the data items I collected (i.e., interview transcripts, participant observation notes, documents and policies: Braun & Clarke, 2006). Individual codes were extracted manually from each source of data (e.g., electronically copied to a new document) and iteratively grouped with other codes I deemed as similar. In the initial review of data, I coded and extracted large pieces of data (e.g., paragraphs) for the purpose of maintaining context and understanding. Once a comprehensive list of codes was collected, I analyzed codes and sorted them into potential themes, subthemes, and overarching themes in step three: *searching for themes* (Braun & Clarke, 2006). If, after further review, certain codes were not well supported by the data, they were discarded or refined to shorter sentences/phrases (Braun & Clarke, 2006). *Reviewing themes* was the next step in thematic analysis and it involved two levels of refinement. The first level of refinement was to ensure each identified theme was appropriately and coherently supported by their respective codes. Following this refinement, I reviewed all the data and analyzed themes relative to the "data set as a whole" (Braun & Clarke, 2006, p. 91). Step five, *defining and naming themes*, involved defining my themes and subthemes within specific parameters. Subthemes enabled a hierarchical presentation of the findings (Braun & Clarke, 2006). Themes were further confirmed and triangulated by their presence in multiple data collection sources (e.g., themes identified in interview data and observation data). With the themes and subthemes defined and supported through the data, the final step was writing the thesis.

Thesis Format

There are four chapters to this thesis. The first chapter introduces the research questions, setting, and methodology. Chapter Two, *Outdoor Adult Playgrounds: A Case for Social Ecological Development*, is the first of two articles that are written in a publishable format. This chapter primarily addresses research questions three and four, "How are community organizations involved in the development, implementation, and continued support of outdoor adult playgrounds?", and "How do governmental and community policies intersect to shape older adults' experiences with physical activity and outdoor adult playgrounds?" A key finding of this article is the absence of users within the identified population demographic (older adults). During our observations sessions using the SOPARC tool, we observed very few older adults using the OAP equipment. We expected to recruit older adult interviewees through participant observations. Due to the few observed older adult users, we similarly had few older adult interviewees (i.e., only one). Therefore, observations of users more generally became a salient component of our observation data. A "one-size-fits-all" approach to physical activity equipment created gaps in access for certain user groups, while the physical location of the equipment acted as an enabler to physical activity for others. We discuss in this article the conflation of age-friendly and all-ages policy, and explore disconnects between policy and practice.

Chapter Three, *Fist Bumps and Conflicts: Insights in Doing Community-Based Physical Activity Research in a Socially Underserved Neighbourhood*, explores the dearth in observed older adult OAP users as a function of methodology and community. This chapter primarily addresses the first research question, "What perceived social ecological factors influence older adults from a low-income neighbourhood to use an outdoor adult playground? Here, we explore the effects of researcher positionality on both the methods of data collection and the data that can

be collected. A key finding of this research is that an "outsider" researcher position can create opportunities – and challenges – for methodology and "on the ground" practices. Some of the methodological challenges experienced at the OAP may also reflect the challenges experienced by prospective older adult users. The second research question, "What benefits do older adults expect to accrue from using an outdoor adult playground?" could not be answered through this thesis due to the aforementioned lack of older adult users.

The fourth and final Chapter in this thesis provides a discussion and conclusion of the overall research, including considerations for future research, policymakers, and municipal park planners.

Chapter 2: Outdoor Adult Playgrounds: A Case for Social Ecological Development

Abstract

Outdoor adult playgrounds (OAPs) are a growing park infrastructure initiative found in communities across Canada and globally. Older adults and low-income groups have been identified as population groups who could particularly benefit from this park-based physical activity infrastructure, yet little research has examined this claim. We thus explored older adults' uptake of an OAP recently installed in a low-income neighbourhood in Northern Ontario, Canada. The purpose of this research is two-fold: first, to explore how older adults use and perceive the OAP; and second, to explore the roles of community organizations, environment, and policy in supporting older adults' uptake with the OAP. We employed the social ecological model within a case-study methodology, and argued that the OAP's location may help to lower inequalities in access to physical activity infrastructure. We end this paper with a discussion into all-ages and age-friendly policy, and suggest novel ways of activating municipal parks for seniors.

Canada's aging population is discussed at length in policy (e.g., Federation of Canadian Municipalities, 2013; Government of Canada, 2012; Government of Canada, 2014; Government of Ontario, 2017), academic literature (e.g., Laliberte-Rudman, 2016; Morgan, Zamora, & Hindmarsh, 2007; Smith et al., 2012), and media (e.g., Benzie, 2017; Vis, 2017), with little agreement on the health and economic impact of this demographic change. Reported challenges to the healthcare system (Jackson, Clemens, & Palacios, 2017) and workforce (Government of Canada, 2012) are countered by discourse highlighting the strengths of an aging population, such as a strengthening of our "social fabric" (Carstairs & Keon, 2009, p. 8). Claims that an aging population, for example, is a risk to the economic welfare of Canada's healthcare system incorrectly homogenizes older adults' healthcare utilization. The high proportion of healthcare dollars (43.8%) consumed by the older adult population is a result of high healthcare utilization by small sub-groups of older adults with intensive care needs (Canadian Institute for Health Information, 2011). At the same time, seniors ages 55 and over are increasingly accounting for a larger percentage of Canada's labour force, with this population group estimated to account for 40% of the nation's workforce by 2026 (Fields, Uppal, & LaRochelle-Côté, 2017). The diversity among older adults in areas such as health status, labour force participation, and social connectivity, indicates the need for similarly diverse supports to help all older adults stay active and connected.

The age-friendly global movement is one strategy governments have adopted to support older adults' wellbeing. Plouffe and Kalache stated in 2011 that over 560 communities across Canada had been recognized as age-friendly. A community "age-friendly" designation requires buy-in from diverse community stakeholders to invest in needed age-friendly infrastructure, policies, and programming. Outdoor adult playgrounds (OAPs) have been highlighted as one

potential age-friendly infrastructure investment (Jeste et al., 2016). In this study, we explored older adults' use of an OAP that was highlighted in a Northern Ontario municipality's age-friendly policy (City of Wymont[1], 2015a). The municipality stated that if the OAP was deemed successful, future investments into OAPs would be considered with older adults specifically in mind (City of Wymont, 2015a). In recognition of the multi-faceted and dynamic factors impacting older adults' behaviours, we utilized the social ecological model (SEM) to explore the factors that influence older adults' uptake of the OAP. The purpose of this research is two-fold; first, to explore how older adults use and perceive the OAP; and second, to explore the roles of community organizations, environment, and policy in supporting older adults' uptake with the OAP. We begin with a review of the existing literature that has examined OAPs in North America and globally, then move to a description of the OAP's setting, Deer Park. Next, we describe the SEM and our case-study methodology. The results are then outlined and structured following the dynamic levels of the SEM. We end this paper with a discussion into all-ages and age-friendly policy directives, and suggest novel ways of activating municipal parks for seniors.

Outdoor Adult Playgrounds

Outdoor adult playgrounds are physical activity initiatives of both the past and the present. Popular in the 1970's, OAPs have enjoyed a resurgence of late in North America and globally (Madren, 2013). In Canada, hundreds of municipalities have invested in these kinds of infrastructures under various names like outdoor gyms, outdoor fitness equipment, family fitness zones, and outdoor adult playgrounds (e.g., McGinn, 2011). Despite differences in terminology, the initiatives have the shared goal of improving community access to free physical activity and

[1] We have given all community and park identifiers pseudonyms to protect participant confidentiality

play infrastructure. Characteristics such as durability, all-weather function, and stationary design are common across OAPs, while the specific design and scope of the infrastructures reflect the needs of the community combined with the availability of equipment from any one manufacturer. Cardio equipment, resistance training equipment, and equipment that incorporates both through play-based design can be found in OAPs in all regions of Canada (McGinn, 2011). Many communities have invested in play-based equipment designs with the understanding that there is added value in participating in outdoor play-based physical activity, such as Ping-Pong (Larkin, 2012). Some OAPs congregate equipment in one specific area, while others "spread out" equipment along a walking trail or route. In some cases, communities have invested in OAPs for the purpose of improving physical activity infrastructure access to specific populations: for example, older adults (Larkin, 2012) and low-income users (Madren, 2013). Participation in physical activity among older adults (Statistics Canada, 2017), low-income populations generally (Gilmour, 2007), and low-income older adults specifically (Dogra, Al-Sahab, Manson, & Tamin, 2015) is often limited. Considering that the cost of physical activity initiatives is a critical factor in determining low-income older adults' uptake (Toto et al., 2012), exploring the availability of free physical activity infrastructure, such as OAPs, might be helpful in increasing physical activity participation. Existing research has reported mixed finding into the effectiveness of OAPs in North America (Cohen et al., 2012; Copeland et al., 2017).

Copeland and colleagues (2017) examined two parks with outdoor fitness equipment in Western Canada and observed only 2.7% of the total adult park population using the available equipment. The fitness equipment was observed in only the spring, summer, and fall months, and observations ended once inclement winter weather was encountered (Copeland et al., 2017). Similarly, Cohen and colleagues (2012) observed 12 parks with outdoor fitness equipment in Los

Angeles. At first follow-up, 5.4% of the total park users were observed using the OAP equipment, compared to 5.6% at second follow-up (Cohen et al., 2012). Of the OAP users, only 3.8% and 5.5%, respectively, were older adults (Cohen et al., 2012). Outside of North America, Chow (2013) examined older adults' use of outdoor fitness equipment in Taiwan. Interestingly, the older adults interviewed by Chow (2013) often viewed the fitness equipment "as a 'playground' rather than a resource for 'exercise' equipment" (p. 4). The author also noted that the results of this study were perhaps not generalizable to older adults in other regions due to cultural and environmental differences. In Australia, a country that Canada often compares itself in relation to, Stride and colleagues (2017) interviewed older adults living in a relatively high-income area and identified high self-reported use of an outdoor gym; 42% of interviewees stated they had used the outdoor gym. The older adults in this study primarily used the outdoor gym to improve fitness, and identified fitness classes as potential enablers to use. Other research has also identified fitness classes or instruction as potential enablers of OAP use (Chow, Mowen, & Wu, 2017; Copeland et al., 2017; Madren, 2013). To the best of our knowledge, the only research that has described the location of the OAP as low-income is a six-week intervention study by Nguyen and Raney (2014) in Los Angeles, who did not examine in detail the effects of the environment on broader OAP uptake. This represents an important gap in the research, particularly considering some communities have purposely invested in OAP equipment in low-income neighbourhoods to improve access to physical activity infrastructure (Madren, 2013), which includes the OAP in this study.

Setting

The OAP under study is located in Deer Park and more broadly in a neighbourhood with unique demographic and socioeconomic characteristics. The OAP equipment was identified as

"all-weather" (CBC News, 2016), which is notable considering Wymont's weather can range from average summer highs in the mid-twenties degrees Celsius to average winter low's approaching negative twenty degrees Celsius. In 2010, 30.4% of the neighbourhood's population had an income below Statistics Canada after-tax low-income measure (Statistics Canada, 2011). In 2016, this percentage decreased to 26.3% (Statistics Canada, 2017), yet still remained almost double that of the overall city prevalence of 13.8%. Over that same period of time, the population decreased by 2.3% in the neighbourhood, compared to a citywide 0% net change in population (Statistics Canada, 2017). The neighbourhood's median age of 39.7 is approximately four years younger than the city's median age (Statistics Canada, 2017), but closer to the provincial median age of 41.3. Thus, compared to the overall city landscape, the neighbourhood is both lower-income and younger. The decision to highlight the OAP in the municipality's age-friendly initiative could perhaps be viewed as peculiar considering the relatively younger age distribution of the park's neighbourhood, yet the city's – and province's – aging population as a whole points to a need to proactively develop and implement supports for older adults in all neighbourhoods. Indeed, the future age distribution in the municipality will affect the development and provision of municipal services, particularly considering the older adult population is expected to double in the city by 2036 (City of Wymont, 2015a). Investments in older-adult specific initiatives and infrastructure should thus be based off of the best possible information. This research can be an important building block for municipal parks and infrastructure policy-makers.

It should also be noted that there is a neighbourhood association "Strong Neighbourhood" with an important presence in the social programming available to residents surrounding Deer Park. Strong Neighbourhood is involved in many youth outreach programs in the area and park.

Indeed, one of the reasons for installing the OAP in Deer Park was the presence of a strong community association that would help monitor and support its use. The OAP, opened in October of 2016, is just one of many park amenities publicly available at Deer Park. Situated between the fencing of an outdoor pool, a road, and a children's playground area, the park planner interviewed for this research described the OAP's location as "shoehorned" (Werner) between park amenities, yet still maintained ample room for the intended 10-15 users at a time. Equipment available at the OAP include resistance training pieces (chest and shoulder presses and back pull down), an upright stationary bicycle, pull up and push up stations, a sit-up station, two plyometric "box jump" stations, a balance board, a leg-press station, and a knee raise station. The municipality, at a cost of approximately $75,000, funded the equipment and its installation, while the OAP's rubber flooring was partly funded by an Ontario Tire Council Grant. Overall, the municipality required the manufacturer to propose a design that could accommodate "a wide range of user ability and age" (Werner). Park users have access to the OAP, an outdoor pool at designated times, a children's playground, a small paved basketball court, and a large open field that can be used for various activities. In the winter months, an outdoor hockey rink is opened in part of the large field. All of these park amenities encircle a small building that is used by Strong Neighbourhood for youth programming all year round. Thus, Deer Park is a multi-use park area that can accommodate diverse activities and users. The only other quasi-park space in the immediate vicinity of Deer Park is green space at nearby public schools.

Social Ecological Model

There are multiple factors that shape an older adult's decision to engage in physical activity. Perceptions of aging (Tam-Seto, Weir, & Dogra, 2016), cost of programming (Toto et al., 2012), and environmental factors such as access to safe outdoor space (Bethancourt,

Rosenberg, Beatty, & Arterburn, 2014) individually and collectively support or restrict physical activity participation. The SEM was designed to take into account the dynamic factors that interplay at different levels to influence healthy behaviours (McLeroy et al., 1988). The SEM is flexible in that it can be modified to work with multiple health behaviours (Rowe, Shilbury, Ferkins, & Hinckson, 2013), including physical activity and sport (Rowe et al., 2013), family planning (Schölmerich & Kawachi, 2016), sedentary behaviours (Perchoux, 2016), and tobacco use (Dawson, Cargo, Stewart, Chong, & Daniel, 2012). McLeroy and colleagues (1988) argued that health behaviour could be determined through the ecological model on five levels of analysis: intrapersonal factors, interpersonal processes and primary groups, institutional factors, community factors, and public policy. Rowe and colleagues (2013), comparatively, conceptualized the social ecological factors influencing cycling participation under individual factors, social factors, physical environment factors, and policy factors. In the context of recreational cycling participation, individual factors included gender and knowledge; social factors included network of friends and cycling partners; physical environment factors included weather conditions and cycling path safety; and policy factors recreation policies and transportation funding. To highlight the dynamic structure of the SEM, factors under each social ecological construct can change to reflect different health behaviours (i.e., cycling compared to smoking), and, as shown by Rowe and colleagues (2013), can change to reflect the different factors *within* health behaviours such as cycling (i.e., competitive cycling, recreational cycling, and cycling for transport).

Previous research has yet to examine the role of community and organizations as they relate to OAP uptake; this represents a notable gap in the literature, as community factors hold an important role in supporting physical activity initiatives (Sallis et al., 2006). Sallis and

colleagues (2006) identified three ecological characteristics of physical activity interventions that are crucial to its success. The first characteristic, creating a space for safe and accessible physical activity, has been briefly examined in previous literature concerning OAPs through quantitative observational methods or semi-structured interviews (e.g., Chow, 2013; Copeland et al., 2017; Cohen et al., 2012). The other two characteristics identified by Sallis and colleagues (2006), the presence of programs highlighting the intervention and the use of community organizations "to change social norms and culture" (Sallis et al., 2006, p. 299), have yet to be examined in the literature with regards to OAPs. We thus provide a novel contribution to the literature by exploring community organizations' roles in supporting older adults' use of the OAP.

Methodology

We employed a case-study methodology (Yin, 2014). Data were collected through participant observations, semi-structured interviews with older adult users and community stakeholders, and document analysis of relevant policies and reports. Four weeks of participant observations occurred over a 6-month period, with two weeks of observations in the summer, one week of observations in the fall, and one week of observations in the winter. Limitations associated with graduate research restricted observations in the spring. We used the System for Observing Play and Recreation in Communities (SOPARC) observation schedule to structure the participant observation periods (Cohen, Marsh, Williamson, Golinelli, & McKenzie, 2012). Over each week of observations, one of the authors was present two days of the week and both days of the weekend for an hour of observation in each of the morning, afternoon, and evening (Table 1). According to Cohen and colleagues (2012), this SOPARC observation schedule provides a valid measure of typical park use for the week. A total of 48 hours of participant

observations thus occurred over a four-week period at the OAP site. Participant observations served the dual purpose of recruiting older adult users for interviews. Observed older adult OAP users were approached and invited to participate in a semi-structured interview. Written field notes were captured using a reflective journal following each hour of observation (Appendix E). Community stakeholders involved with the development, implementation, or continued support of the OAP were also approached for an interview through the contact information found on their respective organizations' websites.

Policies and reports were identified through a search of the municipality's online document database. We included documents in our analysis if they discussed OAPs specifically or older adult physical activity strategies generally. To draw out themes from the varied data sources (i.e., participant observations, semi-structured interviews, municipal policies), we followed Braun and Clarke's (2006) six-step guide to thematic analysis. According to Braun and Clarke (2006), thematic analysis is a flexible qualitative strategy that can be employed within multiple qualitative approaches. An in-depth and comprehensive analysis "involves a constant moving back and forward between the entire data set, the coded extracts of data that you are analysing, and the analysis of the data that you are producing" (Braun & Clarke, 2006, p. 86). Through this analysis, several themes are presented that coalesce from the content of the data (Creswell, 2013). In this study, the themes identified through the thematic analysis were juxtaposed and analyzed against the SEM constructs. We also conceptualized the SEM using the data collected from this research, and developed a model based on the identified themes.

Codes were generated through an iterative process that was enabled by a strong familiarization with the data set (Braun & Clarke, 2006). Due to our multiple data collection methods, we could triangulate the codes and, subsequently, the themes that overlapped across the

differing data. For example, during participant observations we observed members from economically disadvantaged groups using the OAP equipment; a later interview with a community stakeholder confirmed the presence of these groups, and provided further detail into their use of the equipment.

Findings

In total, eight community stakeholders were interviewed, along with one older adult user (Dave[2]). Community stakeholders included one park planner with the municipal government (Werner), two stakeholders with the municipal government involved in older adults' physical activity (Lisa and Susan), two stakeholders from a community organization involved with community physical activity initiatives (Megan and Debra), one executive with Strong Neighbourhood (Linda), one city stakeholder that is also involved with the community's Age-Friendly organization (Rebecca), and one community stakeholder involved with supporting older adults' physical activity (Nancy). The scarcity in older adult interviewees was the result of a dearth in observed older adult users. We explore this dearth of older adult users in deeper detail in a paper elsewhere, and argue that the challenges encountered by prospective older adult users are similar to methodological challenges experienced "on the ground" at the OAP.

The varied data collection methods and sources produced a wide range of themes related to older adults and the OAP. We structured our results following the SEM, beginning with individual demographics observed at the OAP and ending with factors identified at the policy level. First, from a demographic point of view, we report on OAP use throughout the four weeks of participant observations. Due to the aforementioned dearth in older adult interviewees, we

[2] The interview participants who wished to remain anonymous have been assigned the pseudonyms "Megan," "Debra," and "Susan." All other participants wished to keep their identities known.

could not fully describe individual factors potentially influencing older adult OAP uptake, and instead reported on the population groups observed at the OAP. Factors identified under the "Social Environment/Interpersonal" level include "unintended park use" and "desire for social interaction." Factors under the "Built and Outdoor Environment" level include "outdoor weather," "one-size-fits-some," and "senior-specific equipment." Organizational/Community factors include "monitoring and evaluating use," "park programming/activating," "funding," and "perception of neighbourhood." Finally, policy factors include "conflation of policy directives" and "filling a void in older adult services".

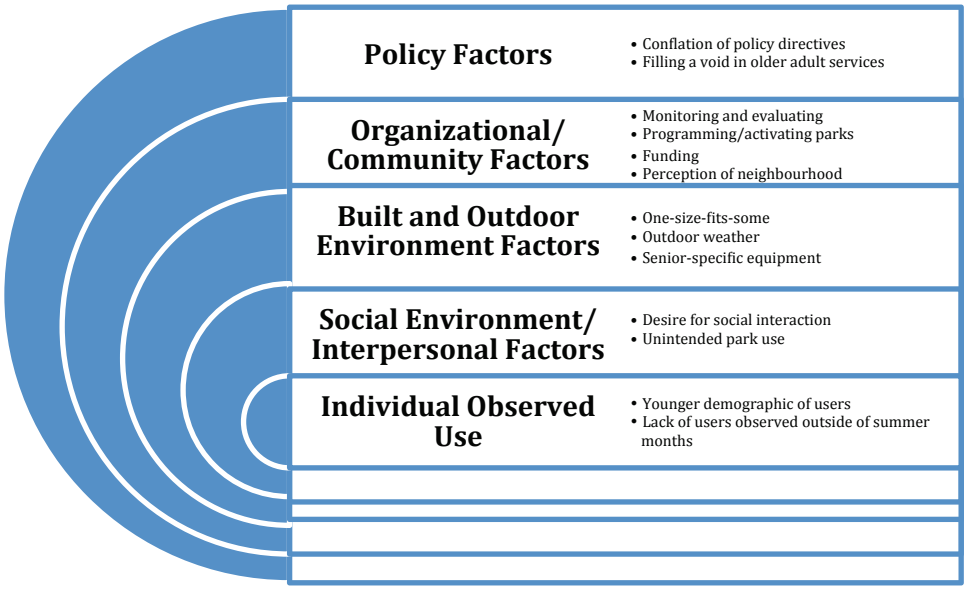

Figure 1. SEM Factors Influencing OAP Uptake

Individual Observed Use

Table 1 displays the number of users observed at the OAP over four separate weeks of observations. The participant observer estimated users' age into three groups (see Table 1), as well as estimated users' gender. Demographically, only two older adults were observed using the equipment during participant observations. Both were males, and only one had arrived at the

OAP with the intention of working out; the other male came with his grandchildren and was merely helping demonstrate to his grandchildren how the equipment functioned. The first older adult, who was also the lone older adult interviewee, confirmed the absence of an older demographic:

> "There's usually somebody else over there using the equipment when I go over there but they're usually, you know, in their 20s, 30s - younger. Which is great, but I haven't seen anybody – I'm 62, so I haven't seen anybody my age over there yet" (Dave).

Observed users indeed generally appeared to be males under the age of 55. Only 12 of the 63 (19%) observed users appeared to be female (Table 2). Other significant groups of users were teens and children. They were not the target population but often used the equipment for its intended purpose. The youth – or adults – who did not use the equipment for its intended purpose, but merely played on the equipment, were nevertheless included in the number of observed users. As previously noted, OAPs can be more than a place for exercise, and users who did not participate with the equipment as it was designed likely still accrued benefits related to physical activity or socialization. Thirty-nine of the 63 (61.9%) total participants appeared to be under the age of 18. It should also be noted that the 24 observed adult users (over 18 years of age) over 48 hours of observation time (0.5 adults per hour) is a relatively higher number of users compared to the research completed by Copeland and colleagues (2017), also in Canada. They observed 27 adult users over a longer observation period of 106 hours (0.25 adults per hour).

We previously discussed that OAPs have in some cases been strategically placed in areas to improve physical activity access to low-income groups (Madren, 2013). While we did not ask or have access to our observed users' income data, there were nevertheless indicators that low-

income groups were indeed accessing the equipment. In particular, we observed community members use the OAP while they waited for a soup truck, which regularly stopped close to the park in the summer. Nguyen and Raney's (2014) study is the only other identified research that explored the possible socioeconomic benefits of locating an OAP in a lower-income neighbourhood. As one community stakeholder noted, "I don't think a lot of folks would think folks using a soup truck would be using outdoor equipment, but they certainly do… you can see how they had such a great delight and ease of access" (Linda). Thus, it is not an indication of failure that a particular population group, in this case seniors, do not use the OAP; other user groups, including groups with individuals who may be economically marginalized, countered older adults' low uptake.

Table 1.

Observed Outdoor Adult Playground Users

	Weekday 1 Users	Weekday 2 Users	Saturday Users	Sunday Users	Total Observed Users
Summer Week A	14	2	4	10	30
Summer Week B	9	17	1	0	27
Fall Week C	0	0	3	2	5
Winter Week D	0	1	0	0	1
				Total Observed Users	63
				Total Older Adult Users	2

Table 2.
Observed Outdoor Adult Playground User Demographics

Age	Males	Females	Total
18 and younger	31	8	39
19-54	18	4	22
55 and older	2	0	2
Total	51	12	63

Social Environment/Interpersonal Factors

The factors identified at the social environment/interpersonal level included limiting use due to unintended use of park equipment and desire for social interaction. Thus, the OAP presented both opportunities for building connections between users, and barriers due to unintended use of park infrastructure.

Unintended park use. While this is explored more in depth in another article, behaviours that could be described or perceived as "challenging" were sometimes observed at the OAP. The challenging behaviours contributed to a sometimes-negative community perception of the neighbourhood discussed under "Organizational/Community Factors," and were described by Dave as a motivator for delaying use of the OAP. For example, youth vandalism was perceived as a barrier among some community members. Informal comments from community members such as, "A new gym! I hope the kids don't wreck it" were, as noted by Linda, part of a broader community "discussion of how things [OAP equipment] would be wrecked." A few minor incidents of vandalism did occur over the period of the research project, although not an amount that could be considered unusually high compared to other municipal parks. As another participant pointed out, "anywhere you put stuff in, it [park infrastructure] gets vandalized" (Nancy). Thus, the discussions surrounding vandalism in Deer Park is perhaps an unfounded perception that nevertheless posed as a barrier to participation.

Desire for social interaction. As a counter to the sometimes negative perception of the OAP's location, many interactions between observed OAP users created opportunities for sharing knowledge of the equipment, getting involved in and motivating each-others' workouts, and building connections among community members. These are, again, described at length in another article. The first author, for example, had many positive interactions with other OAP users, including younger individuals. Interactions include knowledge sharing between users on

exercise prescription and OAP equipment "best practices." These positive social interactions were not aligned with the negative perceptions held by some community members. As such, it was not only the *interactions* with the social environment that influenced equipment uptake, but also the *perception* of the social environment.

Built and Outdoor Environment Factors

Factors identified at the built and outdoor environment level included weather, one-size-fits-some equipment, and a lack of senior-specific equipment. A lack of senior-specific equipment is an unintended consequence of the one-size-fits-some factor, and was thus identified as a sub-factor.

Outdoor weather. Outdoor weather is one contributing factor to the environment's influence on OAP uptake. For example, the OAP received observably more use over the summer weeks (July) than in either the fall (September) or winter weeks (November/December). There was also a noted drop-off in users from the first weekend of observations in the summer (Week A) to the second weekend (Week B). The weekend of Week B had a heat warning in effect with temperatures over 30 degrees Celsius. On Sunday, when the temperature felt like 35 degrees Celsius with humidity, the field notes stated, "While the OAP is shaded, it is still extremely hot out. I wouldn't use the equipment in this heat" (B.4.2[3]). Weather was not the sole indicator of OAP use, however, as the afternoon and evening temperatures in the fall week of observations all rose to the mid to high teens. Similarly, the temperatures throughout the observed days in late November/early December never fell below -3 degrees Celsius. On the

[3] For confidentiality purposes, the participant observation and field note dates are omitted. Participant observation note identifiers are added to provide the reader with more information regarding the time and day the notes were taken. The Letters A, B, C, and D represent the week of observations, the following number signifies whether it was the 1st, 2nd, 3rd, or 4th day of observations of that week, while the second number represents the time of day the observations were taken (1 meaning morning, 2 meaning afternoon, and 3 meaning evening).

first observed winter weekday, during which no users were observed, we stated, "Really a beautiful day to be using the equipment" (D.1.2), as it was 6 degrees Celsius and sunny. Thus, the higher observed number of users in the summer months could likely be a result of more community members being off from school or on vacation from work. One factor that potentially reduced the number of users during the two summer observation weeks was construction at the OAP. There were multiple instances over the summer where the OAP would rotate being open for use then closed for a period of time for construction. Thus, it is possible that some residents delayed using the OAP due to the inconsistency of operation.

One-size-fits-some. The built environment – that is, the OAP equipment and surrounding park area – is designed by the manufacturers and park planners to be durable and functional across all seasons and over a period of many years. A trade-off of this durability is a lack of adjustability. The types of equipment available in any one OAP vary significantly depending on the needs of the community, the designs of the manufacturer, and likely the financial strength of the community installing the equipment (Larkin, 2012). At the OAP under study, the chest press, back pull-down, and shoulder press machines provided resistance through internal rubber bands. The upright bike provided uniform resistance through an internal magnet, and the leg press relied on the user's body weight for resistance. None of the equipment was adjustable to the size or strength of the user. This created both confusion and frustration to users, which was captured nicely through this field observation note: "His friend asked if the chest press & lat [back] pull down were 'fixed yet'. He then went on and tried it. It was still loose (as it is supposed to be), so he figured it was still broken" (A.4.3). The observed user thought that the machines' relative lack of resistance meant the machines were broken - they were, however, functioning as designed. A similar reaction was noted a week later: "The two men complained

about the chest press and [back] pull. Wished you could increase resistance. Said it must be for only beginners. Also didn't like the bike – no resistance… 'only the pull-up and push-ups stations are good'" (B.1.3). These users recognized that the machines were functioning properly, yet their designed function did not meet their needs. Beyond issues of resistance, there were also issues related to the size of some of the equipment. One male was observed, "trying to adjust the equipment to fit his size (tall); wondered if there were any free weights" (A.3.3). The first author encountered similar issues; as a taller than average male, there were multiple pieces of equipment that were not suitable for his size. On the opposite spectrum, some younger users were observed attempting to use the upright bicycle, yet they were too short to reach the pedals. All told, the one-size-fits-all approach to the OAP equipment had observed limitations. Some of these observed limitations could perhaps have been alleviated through clearer guidelines. Each piece of equipment had short instructional plaques showing how to use the equipment and which muscles the equipment activates. Confusion was noted among many new users who were unsure how to use the "wheelchair accessible" side of the stationary resistance machines. The plaques, for some users, "didn't really give me what I needed. I needed something more" (Nancy). Indeed, some users were observed staring "at the diagram for a while" (B.1.1) without being any more sure of the equipment's function or falsely assuming the equipment was broken (A.4.3). As a result, a significant component of the primary author's time spent at the OAP was helping users navigate the different pieces of equipment.

Senior specific equipment. Beyond the lack of adjustability or, at times, unclear instructional plaques, some modifications to the equipment or different OAP equipment altogether may have better benefitted an older population. A simple balance bar could have improved the accessibility of the springboard, for example. There were also other pieces of

equipment available from the manufacturer's website that were designed specifically with active aging in mind. The manufacturer displayed on the website a step around station, which was designed to "improve depth perception, joint mobility, balance and flexibility, particularly in the active aging community" (GameTime, n.d., para. 1). The OAP was made more accessible with smooth rubber flooring and some pieces of wheelchair-friendly equipment, yet there was certainly room for improvement in regards to the suitability of equipment for older users. As we will discuss further, this is perhaps a result of the tendency among policymakers to value all-ages over senior-specific infrastructure

Organizational and Community Factors

Factors at the organizational and community level are interrelated and often overlap, however for ease of overview they are separated by sub-factors. Organizational factors include, monitoring and evaluating use, park programming/activating, and funding. Community factors include perception of Deer Park.

Organizational monitoring and evaluating use. Multiple community stakeholders cited monitoring of park use as difficult to both quantify and justify. In terms of quantifying equipment uptake, a strain on organizational resources hinders the logistical capability of, for example, Strong Neighbourhood and the municipal government. When asked what the role their organization (i.e., Strong Neighbourhood) was expected to have when the equipment was installed, Linda replied, "Just the connection to the neighbourhood. Letting people know what was going on, that there was equipment coming. It would be watched, it would be monitored." While Strong Neighbourhood's presence at the park was in part intended to serve as a community champion of the OAP, no additional resources were provided to the organization for support or monitoring purposes. Thus, Linda viewed supporting the OAP as just "another thing

that I do," and monitoring as "challenging" to figure out. A representative from the municipal government stated that, with exception to outdoor hockey rinks, park infrastructure is monitored or measured "mostly anecdotally" (Werner). Werner described the challenges this may entail: "If I hear lots of either favourable or unfavourable comments, one-way or the other, that's sometimes the barometer [of success]. It's not the greatest one." On the other hand, however, this stakeholder challenged the purpose of a formal evaluation process:

> [T]o say that, OK, we have an average X number of users on a facility per day, what would be deemed a success and what would be deemed not a success? I don't know if anyone could give you an absolute number. If we've helped five people a day, is that enough justification to do another one [OAP]? Maybe not, maybe so. (Werner)

If the City, rightly or wrongly, does not measure park use, then there is a question as to how the municipality evaluates park infrastructure success and uses this evaluation to inform decision-making. As Werner notes, a simple count of park users is a limited method of evaluation. It does not capture the whole value of who is benefitting from the outdoor space and infrastructure or how. Similar to the Parks department, a City stakeholder pointed to the difficulties in gauging the success of the equipment:

> We hear in the community, I can only tell you what I hear, is that people use it, and they like it. So I have to assume that it's being well used and people like it and so therefore it's a good thing (Rebecca).

The stakeholder went on to describe how the success of OAPs in other communities supports the development of OAP's in Wymont: "when I see successes in other communities then I have to assume that the [Wymont] one park is a success. Why wouldn't it be?" (Rebecca)

Park programming/activating. Beyond monitoring, organizational responsibility for park programming was at times unclear. Other research has identified exercise classes or trainers as potential enablers of OAP use (e.g., Copeland et al., 2017). The Municipality described park infrastructure as "soft service" (Werner) that is "not necessarily programmed rigorously." Further, the municipal department responsible for recreation programming has been separated from park infrastructure, which is now grouped in with the Engineering and Operations department. Megan stated that putting on programming such as exercise classes is "not really [our organization's] role." Instead, they partner with community organizations interested in coordinating recreation or physical activity programming. On Strong Neighbourhood's part, Linda stated that,

> We need more instructors to come out and just be with the folks. Slowly gathering people together so they know, what do you do with this thing? We'll try and show them where the stickers are, and there's illustrations, but people don't always see that.

The Strong Neighbourhood director identified that volunteer support was needed for this. Similarly, Werner identified Strong Neighbourhood as perhaps the best-suited stakeholder to support the OAP through instruction,

> [T]hey [Strong Neighbourhood] directly engage members of the community, and if they had members of the community providing that service and instruction, I think there may be a lot more buy-in from the users, rather than some person that's from across town standing there.

While volunteers would accrue no cost they are heavily related to the issue of funding.

Organizational funding. A stakeholder in the municipal government responsible for community older adult physical activity programming cited a heavy reliance on volunteers for

free programs such as outdoor walking groups. Part of this reliance on volunteers for older adult community programming stems from municipal budgetary cuts. A Centre for older adults' recreation in the municipality recently lost two full-time positions due to cutbacks, while simultaneously relying on over 30 volunteers per day to run programming (Lisa). This reliance on volunteers and staffing reductions is occurring at a time where demand for programming is at an all-time high for the Centre (Lisa); over 200 older adults were on waiting lists for programs at the time of the interview. Thus, at a time where community-based physical activity programming could potentially alleviate some of the demands on service at the recreation Centre, budgetary cutbacks reduce the logistical capability for running such community programming. Transportation barriers further reduce the accessibility of programming at the Centre for South Side residents; the Centre is located across town in the North Side of town. According to the municipality's corporate strategic plan (City of Wymont, 2015b), however, the city will look into the feasibility of an additional Centre in the South Side.

Many municipal services action items were identified in the City Services Action Plan (2015a), including considering investing in more OAPs. Similarly, one community stakeholder (Rebecca) pointed out that the city has only recently started to invest in park infrastructure designed specifically for seniors, but that there is a recognized need for further funding in senior-specific programming and infrastructure. Both Werner and Rebecca pointed to funding challenges related to future investments, whether it was through a stagnation of the park's department budget, or a reduction in the municipal tax base. Taken together, there was recognition from multiple community stakeholders that in order to meet the growing needs of seniors in the City of Wymont, the municipality should further explore alternative forms of funding, such as corporate sponsorship (Nancy) or community-driven solutions (Rebecca). The

newly created Recreation & Facilities Master Plan (City of Wymont, 2017) did point to public-private partnerships as a growing method of funding new capital projects. Smaller scale public-private partnerships also already exist in the City of Wymont; for example, a private corporation partly funds a walking initiative for older adults in the city.

Community perception of Deer Park. A dearth in neighbourhood social programming commonly arose as a discussion point during interviews with the community stakeholders and the older adult user, as well as during informal discussions with other OAP users. The City's decision to invest in its first OAP structure in the Deer Park neighbourhood thus held dual meaning; it provided the intended free access to physical infrastructure; and it held meaning to residents that their neighbourhood was deserving of community investment. This recognition was not lost on community stakeholders, either, who acknowledged the perception that the South side of town was largely overlooked in terms of services and infrastructure:

> I remember talking to [anonymized] and he was saying like there's some backlash about people wanting it [the OAP] in like [Beach Side] or whatever, but you don't need equipment at [Beach Side]. People are driving to [Beach Side] to be active, […], so this was really nice that it [the OAP] was in the neighbourhood that probably didn't have anything else available to them. (Megan)

Beach Side is a community feature with walking trails and physical activity infrastructure located approximately 10 kilometres from the OAP in the North side of town. Linda, the director of Strong Neighbourhood, echoed similar sentiments: "We shouldn't all have to drive to [Beach Side] to go for a walk. You know, [Beach Side] is a lovely feature and there's different things, but I think we have to – I think it's important to have services in the neighbourhood." Linda then described how people outside of her neighbourhood:

were shocked – I know folks who aren't from the neighbourhood, there was a lot of discussion of how things [OAP equipment] would be wrecked […] It's difficult for folks to take on, but they don't live and enjoy our neighbourhood the way we do.

Indeed, community stakeholders recognized that "sometimes the South side of the City gets forgotten about" (Megan). A City stakeholder acknowledged that the OAP neighbourhood is a "project area" (Rebecca) for the City as a whole and for the Parks department specifically. Interestingly, while the stakeholder supported the current OAP's location in the South Side of town, she pointed out that, as an executive with the community's Age-Friendly organization, "our choice as Age-Friendly" for a future OAP instalment would be around Beach Side.

For residents of the neighbourhood surrounding the OAP, there appeared to be a genuine appreciation for the infrastructure's installation. When the lone older adult interviewee was told that the OAP he was using was the only OAP in the City, he said, "then I feel blessed that it was decided to be put here, that's perfect for me" (Dave). An adult male user told me "he wishes there was equipment like this when I was a kid" (A.3.3), while an older woman walking by the park said the "equipment looked great and that it was great it's free" (B.3.2).

Policy Factors

Two policy factors were identified: conflation of policy directives, and filling a void in older adult services.

Conflation of policy directives. There were at times a disconnect between what was stated in policy and what occurred "on the ground" at the OAP. This became apparent when comparing municipal documents with interviewee statements. In municipal documents, the City of Wymont considered investing in OAP's as a potential tool to support community age friendliness. In the City Services Action Plan (2015a), the City cites Deer Park's OAP as a pilot

project for future investments into OAP's "designed to help older adults stay mobile, healthy, and physically active in their communities" (p. 26). This document description of future OAP investment does not reflect municipal practices "on the ground," where all-ages design is valued. There was also an identified push towards "all-ages" policy compared to seniors-focussed policy. For example, the City Services Action Plan (2015a) identified the need to emphasize "parks and outdoor spaces designed for all ages, including older adults" (p. 8). Werner emphasized a focus on all-ages park infrastructure, with the exception of certain youth-focussed infrastructure. The stakeholder involved in Agefriendly Wymont also pointed out that while the "original intent of it [the OAP] was for seniors," (Rebecca) the infrastructure is built for all-ages. Thus, while age-friendly policies continue to be pushed at the municipal level, the all-ages design of the OAP in Wymont potentially created gaps in opportunity for some older adult users.

In a later Age-Friendly report, the authors cite the need to "develop and implement an evaluation process to assess the success of these Age Friendly projects" (Agefriendly Wymont, 2017, p. 31). Notwithstanding the previously described lack of evaluation process for park infrastructure, it is implicated in policy that future investments into age-friendly OAPs will undergo some sort of evaluation process. No discussion of evaluation processes or success markers were identified in municipal or age-friendly documents. Paradoxically, the City cited in policy that its decision on purchasing further OAP equipment is "based on success of [a] Pilot Project [Deer Park]" (City of Wymont, 2015a, p. 9). Indeed, Werner called into question the desirability of having a formal evaluation method, which would likely be limited to simple park user counts.

Filling a void in older adult services. Beyond the area immediately surrounding the OAP, there was also an acknowledgement that the OAP attempts to fill a void in services for the

older adult population in the city as a whole. For example, the older adult interviewee pointed to the tendency for outdoor spaces in the city to be largely youth-focussed: "in [the city] I don't know of any other place where adult, quality exercise equipment is really there. Jungle gyms, sort of, but nothing for the grown-ups" (Dave). As one community stakeholder pointed out, outdoor play structures for children "are all over" (Nancy), while play infrastructure for seniors is comparatively non-existent. Linda acknowledged, "we take for granted that there is equipment for children, babies, and youth. I think we haven't done the same for older adults." A City stakeholder interviewee also emphasized the greater need for seniors' recreation:

> But with the fact that our population is ageing, we know that we have to provide different forms of recreation for seniors. That's a given. That has to happen. We have to look at different programming. So to me, somewhere along the line we have to start putting more money into that sector of the population, and that is in [exercise] equipment. (Rebecca)

Werner described how the Parks department is trying to accommodate older adults' need for services by modifying existing park infrastructure, such as painting pickle ball lines on tennis courts. Broadening an infrastructure focus to include older adults' needs also presents a monetary challenge for the Department:

> We don't have a dedicated line item in the budget every year for outdoor fitness equipment. We have it for playground equipment, but it is all getting more and more expensive, and our budget hasn't increased in 15 years probably. And now with accessibility requirements, instead of being able to fix two playgrounds – like two kids' playgrounds a year, we're only doing one. (Werner)

Thus, in response to a demand for more older adults-focussed park infrastructure, novel ways of planning infrastructure and implementing programming is needed, particularly when there is no

increase in the budget for park infrastructure in sight. Such strategies will be explored in the discussion.

Discussion

We used the SEM to frame our results because we recognized that there varying levels of influence potentially affecting older adults' participation in physical activity. We reported on the factors identified at the social environment/interpersonal, built and outdoor environment, organizational/community, and policy levels, and identified notable gaps that may have hindered and continue to hinder older adults' uptake with the OAP. While the noted lack of older adult users and interview participants reduced our ability to explore from older adults' perspectives their perception of the equipment, we nevertheless gained a rich understanding of the OAP through the other levels of the SEM. For instance, the interaction between individuals and the social and built environments can have a significant impact on their ability to effectively use the equipment. Difficulties understanding the instructional plaques negatively impacted those who perhaps did not have an existing background with exercise equipment. Individual and neighbourhood socioeconomic status combined with the location of the OAP produced a situation where inequities in access to physical activity infrastructure may have been reduced; this partly supports previous research by Taylor and colleagues (2007), who identified improving access to free gyms (although not necessarily outdoor gyms) as one of many methods of reducing disparities in physical activity for low-income urban woman. On the other hand, characteristics of the OAP equipment (e.g., no balance bars on some of the pieces of equipment), along with perceived characteristics of the social environment, may have decreased access to some older adults.

All-Ages or Age-friendly?

There was an acknowledgement among some stakeholders that an all-ages approach to physical activity infrastructure and programming might be creating gaps in access or opportunity for older adults. Indeed, the municipality currently provides programming and infrastructure that remains "outside" of a strictly all-ages focus; notably, programming and infrastructure designed specifically for children and youth. As Megan noted, there are programs promoting physical activity to children specifically and the general population as a whole, yet little exclusive focus on older adults. A conflation of all-ages policy with seniors-focussed policy is a failure to recognize that many seniors do require specific programming or supports that cannot always be provided through an all-ages design. Larkin (2012) similarly noted, "Arguably the biggest area of discussion—and different points of view—surrounds the question of whether to create a playground for older adults or an intergenerational playground" (p. 28). Intergenerational parks, while good in intention, can have a tendency to support younger generations' physical activity over older generations (Larkin, 2012). As interviewee Dave pointed out, many parks have "Jungle gyms, sort of, but nothing for the grown-ups." Considering the proportion of seniors now outnumber youths in Ontario (Government of Ontario, 2017), it is clear that a broadening of focus is needed in the areas of seniors' recreation.

Future Considerations for Policymakers and Planners

A broadening of focus in seniors' recreation does not necessarily assume substantial changes to park budgets. Specific to OAPs, Cohen and colleagues (2012) calculated the cost effectiveness of an OAP relative to increases in observed users' physical activity, and identified encouraging but not significant results. Similarly, Madren (2013) highlighted the various sources of funding communities pursued in the United States to purchase OAP equipment. Interestingly, Madren (2013) also highlighted a park planner's belief that OAP equipment is one

of the most cost-effective park infrastructure investments. Relative to other park infrastructure, the park planner quoted by Madren (2013) argued that fitness equipment is cheaper to install and can benefit more members of a community. If cost remains a barrier for future investment into OAP equipment, the City of Wymont could look to other potential funding sources, whether through other levels of governments (e.g., Government of Ontario, 2018), or through corporate and private sponsorship. Indeed, stakeholders in this study did identify cost as a barrier to new park infrastructure for any age group, and thus novel ways of activating municipal parks for seniors is needed. One idea offered by a community stakeholder was to hire an "older adult specialist to work in the summer to activate parks and do things, training, with the outdoor gym" (Nancy). For the OAP in particular, there was a potential knowledge gap for users who were unsure how some of the equipment functioned. Better instructional plaques would clear up some confusion, as would a knowledgeable drop-in instructor. Other research has identified the use of trainers or exercise programs to support OAP participation (Chow, Mowen, & Wu, 2017; Copeland et al., 2017; Madren, 2013; Stride, Cranney, Scott, & Hua, 2017). Currently, many municipalities, including the municipality under study, already have youth summer programming at municipal parks that are run by staff. A similar framework could benefit older adults.

In the future, stakeholders tasked with developing and implementing an OAP would benefit from a strategic use of the SEM. Utilizing the SEM could help in identifying (with the goal of bringing together) stakeholders and users, define the roles necessary for supporting the OAP, and hopefully target strategies at increasing the number of older adults users at an OAP. Through our use of the SEM, we were able to identify potential factors beyond simply the design of the equipment that may help (e.g., location) or hinder (e.g., negative social perception) OAP uptake. As we explore elsewhere (Chapter Three), factors outside of the control of prospective

older adult users, such as unintended park use by other patrons, had a potential limiting effect on the OAP's uptake by older adults. By examining the varying factors that could influence an older adult's decision to use an OAP in any given neighbourhood or setting, there would be a better understanding of the supports needed for potential older adult users.

Conclusion

To best support older OAP users, better alignment between age-friendly policies, varying municipal interests, and the needs of neighbourhoods and potential users in those neighbourhoods is needed. A misalignment of the needs of older adults, the related lack of available supports to older adults, and interplaying contextual factors all combined to result in few older adults being observed using the equipment. Nevertheless, users from other population groups, coupled with the potential for increasing the future number of older adult users, point to an initiative that can be considered a success. The OAP certainly improved access to physical activity infrastructure for low-income groups, thus reducing inequalities in physical activity participation among income groups and, potentially and subsequently, reducing health inequalities between income groups. Had the OAP been located in a higher income neighbourhood or in a setting that was mostly accessible by vehicle only, the same impact on health inequalities is unlikely.

As governments and policymakers continue to warn of unsustainable cost increases to the healthcare system, further measures to support good health are needed. The relative short-term cost of making changes to the physical environment, including building outdoor physical activity infrastructure for older ages, can serve as one of many needed initiatives to lessen the larger long-term costs of physical inactivity. With consideration to the healthcare system in Canada, it would be in the best interest of provincial governments to continue to support municipal

investments into park infrastructure and recreation, as was highlighted previously (Government of Ontario, 2018). Furthermore, both municipal and provincial governments alike should not hesitate to invest in policies and infrastructures that are specific to seniors, rather than age-inclusive.

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Chapter 3: Fist Bumps and Conflicts: Insights in Doing Community-Based Physical Activity Research in a Socioeconomically Underserved Neighbourhood

Abstract

Outdoor adult playgrounds (OAPs) have in some cases been located in socioeconomically underserved neighbourhoods to improve community members' access to physical activity infrastructure. Older adults have been identified as one population group who could particularly benefit from OAP equipment. As part of a larger research project, we explored an OAP in a Northern Ontario city that was partly intended for older adult use; however, we observed relatively few older adults using the OAP. Here, we report on the methodological challenges faced as researchers at the OAP site, and discuss how some of these challenges may have similarly influenced older adults' (lack of) uptake of the OAP. Having a strong knowledge base of the equipment found in an OAP, along with knowledge of exercise prescription, can provide a point of access to community members, while unintended use of park equipment can present a challenge to both researchers and prospective users. We end this paper with a discussion into the effect of researcher status on data collection, and particularly in areas where challenging behaviours or unintended park use are potential sources of data. Considering existing research has yet to report on such methodological issues of note, this research provides a novel contribution to a growing body of literature examining OAPs.

Older adults represent one of the fastest growing demographics in Canada (Statistics Canada, 2017a). With 23% of the population set to be 65 and over by the year 2031 (Statistics Canada, 2017a), unique challenges and opportunities exist for Canadian policymakers at all levels of government. Frequently noted challenges to older adults' health include rising healthcare costs, low physical activity participation, and the prevalence of chronic health conditions (Canadian Medical Association, 2016; Federation of Canadian Municipalities, 2013; Government of Canada, 2014; Jackson, Clemens, & Palacios, 2017). Implementing preventative health measures, such as improving physical activity participation, is a strategy adopted by Canadian governments to counter these challenges to older adults' health (Federation of Canadian Municipalities, 2013; Government of Ontario, 2017). Canada's low rate of physical activity participation across all populations (Statistics Canada, 2017) reflects a need for change in current physical activity practices. Older adults in particular hold alarmingly low physical activity participation rates; only 13% of older adults in Canada participate in the recommended 150 minutes per week of moderate-vigorous physical activity (Statistics Canada, 2017). Within this population, low-income older adults, who are a growing subset of the older adult population (National Seniors Council, 2017), are less likely than higher-income older adults to participate in adequate levels of physical activity (Dogra, Al-Sahab, Manson, & Tamin, 2015).

Cost considerations related to physical activity programming and infrastructure (Toto et al., 2012), physical and mental health status (Dogra et al., 2015), and limited access to safe and appropriate spaces for physical activity (Loukaitou-Sideris, Levy-Storms, Chen, & Brozen, 2016) are all examples of barriers to low-income older adults' participation in physical activity. Neighbourhood factors such as poverty, social deprivation, and feelings of vulnerability to crime can negatively influence older adults' wellbeing (Scharf, Phillipson, & Smith, 2003), and limit

their use of outdoor public spaces (Scharf, Phillipson, Kingston, & Smith, 2001). At the same time, positive neighbourhood factors such as strong social cohesion can mediate the negative effects associated with low-income status on older adults' wellbeing (Cramm, van Dijk, & Nieboer, 2012). Therefore, when an outdoor physical activity initiative is introduced to an otherwise underserved neighbourhood and is partly designed for older adult use, contextual neighbourhood factors that are beyond the control of the individual have the potential to both negatively and positively influence the initiative's uptake.

The interplaying contextual factors affecting the decision of an older adult living in an underserved neighbourhood to participate in physical activity presents methodological challenges to researchers examining population-specific physical activity initiatives. Older adults from underserved neighbourhoods could be viewed as a population with the greatest potential for benefit from participating in physical activity. As Dogra and colleagues (2015) noted, "it is clear that SES is a predictor of physical activity levels" (p. 184) – low SES individuals tend to participate in less physical activity, as does the older adult population as a whole (Statistics Canada, 2017). Nevertheless, promoting physical activity participation to low-income older adults can be a challenge to practitioners, who must account for the varying contextual factors that affect physical activity uptake (Nayak et al., 2016). The same challenges exist for researchers, yet few authors have reported on these challenges, including in the setting of an outdoor adult playground (OAP). Outdoor adult playgrounds are a local infrastructural initiative response to low community physical activity participation. These playgrounds incorporate physical activity and/or play equipment designed for different adult population groups, including older adults (e.g., Jeste et al., 2016) and individuals with low-income (e.g., Madren, 2013). As part of a broader research project, *A Social Ecological Exploration of*

Community Adult Playground Use Among Seniors in Northern Ontario, we used the case of an OAP located in a low-income neighbourhood to explore older adults' uptake of the equipment.

In this paper, we reflexively report on the methodological challenges and successes encountered throughout the larger research project. First, an overview of the original study and its methodology are provided, including a discussion of reflexivity and positionality and their collective influence on the research process. This leads to an analysis of the methodological challenges and successes related to participant recruitment, the effects of research status on building interpersonal relationships, and positionality providing points of access to community members in a socioeconomically underprivileged neighbourhood. Finally, we conclude with a discussion into the importance of researcher status on participant observations, and provide direction for future researchers interested in this field of study. This research provides a novel contribution to the budding literature examining OAPs (e.g., Copeland et al., 2017; Sibson, Scherrer, & Ryan, 2018; Stride, Cranney, Scott, & Hua, 2017), with particular emphasis on research examining OAPs in a socioeconomically deprived neighbourhood.

Outdoor Adult Playgrounds and Ageing

Outdoor adult playgrounds are physical activity infrastructure initiatives commonly found in municipal parks across North America and globally. These initiatives provide community users of all ages with free access to durable, all-weather exercise equipment. One population group who have been identified as potential beneficiaries of the OAPs are older adults (Larkin, 2012; Stride et al., 2017). The playgrounds "promote wellness and provide a solution for keeping older populations healthy and engaged" (Larkin, 2012, p. 22). Outdoor fitness equipment can also contribute to neighbourhood green spaces and can be an important component of an age-friendly community (Jeste et al., 2016). Another potential population of

focus is low-income earners. OAPs have in some cases been strategically placed in low-income neighbourhoods to increase community members' access to physical activity infrastructure (Madren, 2013). Unfortunately, there is not a strong body of academic literature that has examined either older adults or low-income earners' uptake and experience with using the equipment found in an OAP, despite strong media attention (e.g., Abbit, 2015; Cohen, 2010; Harris, 2014; Linton, 2016). The original intent of this research was thus to explore an OAP recently installed in a low-income neighbourhood from older adults' (i.e., 55 years of age or older) perspectives. The municipality in which this OAP is located identified the equipment as a pilot project specific to older adults' wellbeing (City of Wymont[4], 2015). Despite a recent growth in the social capital of the neighbourhood in which the OAP is located, poverty in the neighbourhood has "increased at alarming rates" (Linda[5]); 26.3% of the neighbourhood's residents have incomes below Statistics Canada's after-tax low-income measure (Statistics Canada, 2017b).

Using a case study inquiry and the social ecological model (SEM), we investigated "a contemporary phenomenon (the 'case')" – adults engagement with an OAP – "in depth and within its real world context" (Yin, 2014, p. 16). In line with case study inquiry, multiple data collection tools were used, including participant observations, interviews with older adult users of the OAP combined with interviews with key community stakeholders, and document review. Multiple data collection methods also supported using the SEM, which is a framework for understanding multi-level influences (e.g., individual, environmental, community) on health behaviours (McLeroy et al., 1988). Over a six-month period, the first author spent

[4] Pseudonyms have been assigned to protect the confidentiality of the community
[5] The interview participants who wished to remain anonymous have been assigned the pseudonyms "Megan," "Debra," and "Susan." All other participants wished to keep their identities known.

approximately 48 hours at the OAP in Deer Park doing participant observations. We used the System for Observing Play and Recreation in Communities (SOPARC: Cohen, Marsh, Williamson, Golinelli, & McKenzie, 2012) participant observation schedule to measure OAP use for two weeks in the summer, one week in the fall, and one week in the winter. The SOPARC schedule, which provides an accurate measurement of typical park use over a one week period, requires observations two days throughout the week and on both days of the weekend with an hour observation time slot for the morning, afternoon, and evening of each day (Cohen et al., 2012). We used the SOPARC tool only for the observation schedule, and did not, for example, estimate park users' energy expenditure. Time restraints related to graduate research limited participant observations to only the summer (July), fall (September), and winter months (November/December). Through the time at the park, the first author had countless informal conversations with equipment users and other park infrastructure users. The OAP, opened in October of 2016 at a cost to the municipality of approximately $75,000, is just one of many park amenities publicly available at Deer Park. Park users have access to the OAP, an outdoor pool at designated times, a children's playground, a small paved basketball court, a large open field that can be used for various activities, and an outdoor hockey rink in the winter months. All of these park amenities encircle a small building that is used for youth programming all year round. Thus, Deer Park is a multi-use park area that can accommodate diverse activities and users. The OAP was similarly designed to accommodate diverse ages and physical activity abilities, with aerobic and resistance training equipment pieces available to 10-15 users at a time.

During participant observations, the first author consistently engaged with the OAP equipment and users, rather than record observations from a distance. Among all OAP users, however, there remained one notable population largely absent from the OAP: older adults.

Only one older adult user was formally interviewed, and only two older adults were observed throughout participant observations. Since we used participant observations as our simultaneous participant recruitment strategy, the lack of observed users in turn created a dearth in older adult interviewees. As a result, we interviewed more stakeholders (n=8) than originally planned, and the participant observations became a more salient part of the data gathering than first envisioned. Further, the focus of our participant observations shifted due to the aforementioned change in anticipated OAP user demographics. The framework originally developed for participant observations was focussed heavily on gathering observation data on older adult users, and thus was broadened to account for all (predominately younger) users. In the following sections, we will argue that the methodological challenges encountered throughout the research mirror some of the challenges faced by older adults interested in using the OAP.

Reflexivity and Positionality

Nayak and colleagues (2016) are correct in their assertion that community factors must be considered in planning physical activity initiatives for low-income older adults; however, an equally important consideration is the position of the researcher and the subsequent effect this can have on the research process. According to Ziegler and Scharf (2013), "reflexivity is a tool for raising awareness of our own assumptions" (p. 10). A reflexive investigation into the researcher's position in the phenomenon of study should hold bearing equal to that of the analysis of collected data (McCorkel & Myers, 2003). Likewise, the data that are collected can be influenced by the position the researcher assumes in the research process (Roulet et al., 2017). Creswell (2013) describes two parts to reflexively positioning the researcher. The first step requires the researcher to describe his or her personal experiences as they relate to the research at hand. The second step requires a discussion into "how these past experiences shape the

researcher's interpretation of the phenomenon" (Creswell, 2013, p. 238). During a conversation the first author had at Deer Park with a community stakeholder in the beginning stages of the research process, for example, a stakeholder had concerns that reaching ten older adults from the neighbourhood surrounding the OAP would be a difficult feat to achieve. Due to the author's prior experience with affluent and active older adults – who potentially would be a more receptive audience to outdoor physical activity infrastructure – the concerns were perhaps too easily dismissed. Prior experiences thus directly influenced the research methods (e.g., semi-structured interviews with ten older adult users) and subsequent results (due to a lack of interviewees).

There are also socio-demographic differences that should be noted between the research participants and the author "on the ground." The population of focus were older adults from a low-income neighbourhood. The first author is neither an older adult nor have has lived in a lower-income neighbourhood for any significant period of time. Had the author been an older adult from the neighbourhood in which the research took place, for example, the methodological challenges would certainly have changed. Indeed, the position held as a young, physically fit white male, influenced interactions with community members at the park. For example, a Kinesiology background aided in forming interpersonal relationships with participants by supporting or informing their interactions with the equipment. One stakeholder from the municipal government alluded to researcher status during an interview, saying that part of the challenges in doing research in the neighbourhood was a result of the outside researcher position: "if you [first author] would have been from there [the neighbourhood], you probably would get a lot more instant respect from especially the youth" (Werner). Thus, a significant challenge overlaying any challenges related to participant recruitment, neighbourhood safety, or equipment

uptake was the first author's static position as a young, white, and male outside researcher.

Of similar importance is the position held as a researcher during participant observations. While the first and second authors were known entities to community and park stakeholders prior and during the research, OAP users were largely unaware of any ongoing participant observations. In the following sections, we will explore how the position held during participant observations impacted the data that were and could be collected.

Methodological Insights

In Chapter Two, we argued that, in line with the SEM, multiple levels beyond and including the individual likely influenced OAP uptake. Similarly, issues and insights related to OAP research methodology were identified at multiple levels. The factors identified at the interpersonal, environmental, and intrapersonal levels individually and collectively provided methodological challenges – and enablers – in areas of participant recruitment, data collection, and data analysis. Interpersonal factors included knowledge of equipment and relationship building; environmental factors included unintended park use and community perceptions of the neighbourhood; and intrapersonal factors included distrust of the researcher. While this division provides helpful structure, the challenges are often interconnected and the boundaries between interpersonal, intrapersonal and environmental factors are blurred. For example, the interpersonal challenges related to forming relationships with OAP users are at least partly a function of intrapersonal factors.

Interpersonal Factors

Forming interpersonal relationships with OAP users was a significant methodological component of the participant observations employed in this research. Specifically, the original intention was to build relationships with older adult users during participant observations and

subsequently invite older users to participate in interviews. Due to the dearth of older adult users, this was not possible. Interpersonal relationships were instead formed with the often-younger male users. The first author's knowledge of the OAP equipment and exercise prescription became a critical point of access into forming interpersonal relationships with users. Exercising at the OAP was an ideal opportunity to informally discuss with users how they used the equipment and their thoughts regarding the equipment's effectiveness. The breadth of these interpersonal interactions was wide. On multiple occasions the first author was asked how certain pieces of equipment functioned, how the equipment can be modified to suit individual needs, and to demonstrate the proper way to use the equipment. Sometimes these questions required knowledge beyond capacity: "One man started to talk to me [the first author] after I finished doing pull ups. Said a tendon in his arm hurt when he did pull ups. Wanted to know if I knew how to modify pull ups so it wouldn't hurt" (field notes, A.4.3[6]). A strong knowledge base of the equipment and exercising "best practices" became a natural and effective method of forming relationships with community members. Mulhall (2002) described forming relationships and gaining access with participants as a "process" (p. 310) that involves the way one "dresses, speaks, or imparts particular knowledge" (p. 310), which, in this case, was the knowledge of the OAP equipment and exercise. During one summer evening, the first author was using the equipment with three other young men who had arrived as a group. Prior to this day, there had never been any interactions with these young men, yet within the relative small confines of the workout area, a supportive workout group was formed. One man in particular

[6] For confidentiality purposes, the participant observation and field note dates are omitted. Participant observation note identifiers are added to provide the reader with more information regarding the time and day the notes were taken. The Letters A, B, C, and D represent the week of observations, the following number signifies whether it was the 1st, 2nd, 3rd, or 4th day of observations of that week, while the second number represents the time of day the observations were taken (1 meaning morning, 2 meaning afternoon, and 3 meaning evening).

"chatted with me for quite a while. Talked about working out, then we started to workout together. He would push me to do more push-ups and I would do the same" (field notes, A.4.3). The first author soon learned that his new workout partners were using the OAP while waiting for the soup truck to come by, which it did every evening. A community stakeholder later confirmed, "the folks who use the soup trucks that comes there daily […] they're out there using the equipment all the time" (Linda). Building this relationship would perhaps not have been possible had first author assumed the research position of strictly engaging in observation rather than collaboratively using the equipment with other OAP users.

Interpersonal challenges. Forming interpersonal relationships while engaging in participant observations can also present challenges to researchers. For example, during the same evening at the OAP as described above (A.4.3), a conflict that nearly became physical occurred between two park users, one of whom was a workout partner. On a different evening (B.2.3), conflict between park users escalated to the point of a police presence being involved. These incidents were illuminating in terms of their potential for influencing older adults' perception of the OAP, yet were also an apt reminder of the risk that can be involved when doing participant observation. These risks can be both amplified or mitigated by participant observers through the status they assume in the research, for example, whether they are insiders or outsiders, or undergo covert or overt observations. The importance of research status on participant observations is further nuanced in the discussion.

The observation time spent at the park enabled multiple interactions with neighbourhood residents of all ages. Oftentimes, these interactions pointed to intergenerational tensions as it related to park use. One older woman walking by the park called out, while present in the park, "A new gym! I hope the kids don't wreck it." Similar sentiments were noted from both the lone

older adult interviewee as well as other park users. Indeed, there existed a perception among some older members of the community that other younger members of the community were using the park in unintended and perhaps undesired ways.

Environmental Factors

A common methodological challenge experienced at the OAP was unintended park use by some patrons. Some interviewees pointed to the park under study as potentially having an underlying negative perception among the broader community base: "I know folks who aren't from the neighbourhood. There was a lot of discussion of how things [at the OAP] would be wrecked" (Linda). Beyond a few minor incidents of vandalism, the OAP equipment had thus far remained unharmed. Nevertheless, other forms of unintended use of park infrastructure that likely influenced and potentially will influence future use of the equipment was observed. Unintended park use also brought forward questions related to responses as a researcher. For example, observing behaviours such as alcohol consumption at the OAP presented challenges to participation observations that might be similar to that experienced by a prospective older adult user; namely, staying and using the equipment was uncomfortable. The multiple occasions during which unintended park behaviours best described as "challenging" were observed raised ethical dilemmas as to the participant observer's response. While the participant observer avoided the behaviours and did not take any remedial action, simply leaving the park did little to promote park use by others, thereby enabling a pattern of park infrastructure misuse and, methodologically, further impeding participant observation and recruitment. In response to a physical confrontation in the nearby neighbourhood, one young adult female park user who appeared to be at the park with her children lamented, "it never ends *over here*" (field notes, B.2.3), pointing to at least a community *perception* of chronic park misuse. Thus, an issue

researchers should account for is the potential for unintended park use during participant observations, and the impact this can have on equipment uptake among population groups like older adults and, in this case, on research outcomes.

The above description of specific unintended park use should perhaps not be considered an outlier from wider legitimate municipal park use, but rather as merely a reflection of a larger pattern of challenging behaviours in municipal parks. During a discussion of park vandalism, one interviewee mentioned that many parks across the City no longer have benches due to vandalism, and stated, "anywhere you put stuff in, it [park infrastructure] gets vandalized" (Nancy). Another interviewee highlighted the fact that one of the municipality's highest profile parks suffered from continual bouts of vandalism. These examples are not used to downplay the potential participatory effects of unintended park use on the OAP, yet they do serve as a cautionary tale to municipal leaders, community stakeholders, and future researchers; unintended use of park infrastructure is not limited to low-income neighbourhoods, and as such this unintended use needs to be accounted for in any prospective site. A suggestion for future researchers is to devise an action plan prior to starting work in the field, and clearly state the actions to be taken if park misuse is encountered.

For older adult populations, feeling safe has been identified as an important factor for age-friendly communities (City of Wymont, 2015a). Fear of neighbourhood crime has been cited as a potential barrier to older adults' park use (Scharf et al., 2001). The identified – and perceived – unintended park use could thus be viewed as a potential barrier to older adults' use of the OAP, particularly to older adults in the surrounding neighbourhood who have previously observed undesired behaviours in the park. For example, the sole older adult interviewee alluded to vandalism as a reason for delaying his use of the equipment in the OAP:

"Well I started using it [the OAP] in May I guess it was…, and the only reason I put it off till then is, I know it's been established for a year, as I wanted to see if the equipment would last. I didn't want to start exercising and relying on it and then, you know, have to stop. So, it's taken everything those kids can hand out and survived, so I started using it." (Dave).

For this older adult participant, it was a fear of park users damaging the equipment that stood as a barrier to using the equipment. With only one older adult interviewed, we cannot say for certain the potential extent of this impact on use, yet other anecdotal evidence previously described (e.g., "it never ends over here") is also illuminating. For prospective researchers, it may be a difficult task to recruit older adults to use an OAP if there is an underlying perception that unintended use of park infrastructure will eventually render the equipment unusable.

Intrapersonal Factors

Researchers have contested the labelling of insider and outsider research status as two dichotomous concepts (Breen, 2007; Gair, 2012; Uldam & McCurdy, 2013). In this socioeconomically underserved neighbourhood, unique challenges related to researcher status were revealed. One summer evening, two young men yet to have been observed at the park approached the first author while he was using the OAP equipment. It soon became obvious that the two men perceived the first author as an outsider to the community, and one of them pointedly inquired "why are you here?" In field notes the author wrote, "He was almost sceptical or nervous around me. He assumed I was a lifeguard or a worker, didn't think I was there just to work out – outsider appearance?" (field notes, A.3.3). Once the man was told the reason for being there, we discussed the OAP at length and he stated that he "wishes there was equipment like this when I was a kid" (field notes, A.3.3). This interaction highlighted the

interplay between an outside position in the community, the importance of building interpersonal relationships in the field, and the effects of underlying community factors on participant observations. It was not solely the observer's relative obscurity to the men that arose scepticism, but rather the young men's perception that an outsider simply wouldn't be using the OAP equipment in *their* neighbourhood. In a high-income neighbourhood, it is reasonable to suggest that such a presence in a municipal park would not have immediately arisen suspicion among most community members. In a high-income neighbourhood, however, it is also reasonable to suggest that, due to observer-appearance, community members would not perceive me to be an outsider. Thus, the building of interpersonal relationships and, relatedly, participant recruitment strategies at an outdoor park site can be affected by both the status of the participant observer and by the underlying community socioeconomic factors.

Discussion

The purpose of this research was to describe the methodological challenges experienced "on the ground" at an OAP, with a look to informing future research. Interpersonal factors, and specifically forming relationships with other OAP users, arose as important enablers to data collection. Having a background in exercise prescription, combined with strong knowledge of the OAP equipment, served as points of access to forming relationships with OAP users. At the same time, environmental factors stood as a barrier to older adult participant recruitment by simultaneously serving as a likely barrier to older adult participation. Expanding the inclusion criteria to include older adults who are not observed using the equipment may reduce recruitment barriers; however, as Copeland and colleagues (2017) noted, discrepancies between self-reported use and actual observed use is possible, and should thus be considered in terms of data trustworthiness. Individual factors were the final identified methodological insights. Challenges

related to researcher characteristics call into question the position researchers should assume when present at an OAP. Considering that the current OAP research landscape largely focuses on the analysis of empirical data (e.g., through the SOPARC tool) and identifying enablers and barriers to use, a discussion into other research methodologies is warranted. During participant observations, for example, the decision to interact with the OAP equipment and OAP users versus observing from a distance may influence research questions, research design, and the data that are able to be collected. There are additional issues to consider related to insider and outsider status, covert and overt participation observations, and relationship building, which are all reflected by researcher status.

Research Status on Methodology

There are clearly many nuances of researcher status to consider when entering a field of research. During participant observations, the first author chose to engage with the OAP equipment and overtly be an OAP "user." Within a public setting, there is a "practical problem of how [...] to inform and obtain consent from everyone who might 'enter' the field of observation" (Mulhall, 2002, p. 309). Part of this problem stems from the role the researcher decides to take within the study, namely, whether the researcher is a known observer in the community, a complete participant in the community, or somewhere along the continuum from observer to participant (Mulhall, 2002). Negotiating where to fall along this continuum is an issue of both practicality and methodology. Practically, it is nearly impossible and unnecessary to inform each pedestrian walking through a park setting of ongoing participant observations. Methodologically, the position occupied along the researcher status continuum can, as we argued, have a significant effect on the data that are collected, particularly in neighbourhoods where challenging behaviours or unintended park use may become parts of the data. There is,

for example, a potential for behaviour change once participants are informed they are being observed, perhaps influencing the validity of observation data (Mulhall, 2002; Roulet et al., 2017). Copeland and colleagues (2017) questioned the validity of self-reported OAP use; self-reported usage of OAP equipment did not reflect actual observed use in the authors' study. Choosing to "set-up" as a researcher and inform all potential participants of one's status has the potential to drive away park users who are not strictly there to use the equipment, and may potentially drive away actual equipment users. It also has the potential to expel any opportunity of becoming more of an insider. Indeed, doing participant observations without informing every participant of researcher status "allows the researcher to experience firsthand the phenomena under study in the same way that the participants experience it" (Roulet et al., 2017, p. 492). Problematically, this can also increase the potential for observing unethical behaviours through covert or deceptive means (Roulet et al., 2017).

There exists an ethical tension when the distinction between overt and covert participant observations becomes blurred. Similar to a continuum of known observer to unknown participant, there is a continuum of participant observations from covert to overt (Roulet et al., 2017). Rarely, Roulet and colleagues (2017) argued, can participant observations be considered "fully covert or fully overt" (p. 497), but instead "somewhere between these two poles" (p. 497). Fully overt research requires "*everyone* who comes into contact with the research or the research site" to give consent (Uldam & McCurdy, 2013, emphasis in original). With consideration to the feasibility of this in a busy public setting, there is at least a measure of deception inherent to most participant observation studies (Roulet et al., 2017). According to Spicker (2011), however, covert research should not be blindly associated with deceptive research. Deception involves purposeful misrepresentation of the research (Spicker, 2011), which most covert

research does not entail. Instead, covert participant observations are often characterized by an *absence of disclosure* to participants of the ongoing observations or research (Spicker, 2011). In public settings such as parks, participant disclosure is an issue beyond practicality or methodology; there is often no obligation to obtain consent from individuals in such settings (Spicker, 2011). Nevertheless, the advantages of covert versus overt participant observations are parallel to the advantages – and disadvantages – of gaining insider versus outsider status (Uldam & McCurdy, 2013).

Boulton (2000) described the challenges faced by both insider and outsider researchers. Insiders may overlook the routine, or "what is taken for granted" (p. 91) within a collective insider group, while outsiders may struggle with identifying and separating what is "meaningful to insiders" (p. 91). Factors such as local dialect and slang, along with outward appearance, represent barriers that outsiders will not only have difficulty overcoming, but perhaps shouldn't attempt to overcome; attempting to adopt local slangs and traditions can be viewed as an intrusion into "their" (i.e., insiders') world (Boulton, 2000). Breen (2007) argued that depending on the researchers' prior experiences related to the phenomenon under study, outsider and insider status is replaced with a more fluid relationship dynamic between participants and researchers. Taken together, it is important to reflexively explore the relationships formed with OAP users and determine how the fluidity of this relationship could have affected interpretation of the events (Creswell, 2013). Indeed, Breen's (2007) description of a fluid relationship dynamic with participants is an apt reflection of many of the relationships formed at the OAP.

In the hyperlocalized relationship dynamic at the park, there was never an opportunity to become an insider. As one interviewee (Linda) pointed out, there is "built in care" in the neighbourhood, with neighbours "watching out" for one another. Thus, anyone not from the

surrounding neighbourhood is, in some form, an outsider simply because he or she is not easily recognized by the residents. Following Roulet and colleagues (2017) assertion that rarely are participant observations fully overt or covert, it is clear that the observations that took place in this research were closer to covert than overt. Community stakeholders were aware of the purpose of the first author's presence at the OAP, yet the "everyday" park users or pedestrians were not informed unless they were a prospective older adult interviewee, or if he was introduced by a community stakeholder to the park user. Along the continuum of insiders and outsiders, the first author gradually went from an unknown, suspicious entity, to an *accepted outsider* who used the OAP and could offer equipment advice. We argue that starting as an outsider certainly provided methodological challenges in terms of building interpersonal relationships with park users, yet being an outsider also offered insight into the hyperlocalized relationships between community members, which was reaffirmed by one interviewee's comment that being from their neighbourhood creates instant respect. Had the first author and participant observer been, from the start, closer to an insider or overt observer, it is possible that the "everyday things which are essential to an understanding of the world being researched would remain unnoticed" (Boulton, 2000, p. 91). Covert participant observations as an outsider in this setting was thus perhaps the most salient method of building relationships with community members and discussing their perceptions of the OAP equipment.

Conclusion

In this research, we explored the importance of researcher status on methodologies employed at an OAP setting, and particularly on the collection of participant observation data. On one hand, an education background and experience with exercise created an instant point of access into the community and the OAP users. In a neighbourhood where many of the residents

are socioeconomically underserved, this point of access served a crucial role in building relationships and subsequently understanding community members' perception of the park and exercise infrastructure. On the other hand, however, an outsider position created challenges when conflicts occurred in the park. It also raised questions concerning overt and covert participant observations, and where this research fell along this continuum. It is clear that researchers interested in OAPs should have a strong knowledge base of the equipment prior to beginning participant observations or participant recruitment. Future researchers should also strongly consider and report on the underlying community factors when developing their methodologies. Reporting on basic neighbourhood characteristics such as demographic and socioeconomic information is crucial for reader understanding. Such neighbourhood characteristics, many of which are readily accessible through government databases (e.g., Statistics Canada), can inform research methodologies and research questions, as well as data analysis.

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Chapter 4: Conclusion

Discussion

The purpose of this thesis was to explore older adults' use of an OAP located in a low-income neighbourhood, with particular emphasis on the roles of community organizations, the environment, and policies in supporting or restricting this use. The SEM was an apt theoretical framework to explore the research questions through two publishable format articles. These two chapters presented findings using the same data sources but with differing forms of analyses. Chapter Two analyzed the data through a social ecological lens to further our understandings of the multi-faceted factors influencing an OAP's uptake by different population groups. This chapter primarily address research questions three and four, "How are community organizations involved in the development, implementation, and continued support of an outdoor adult playground in a low-income neighbourhood?" and "How do governmental and community policies intersect to shape older adults' experiences with physical activity and the outdoor adult playground in a low-income neighbourhood?" Unfortunately, due to the lack of observed older adult users, research question 2, "What benefits do older adults from a low-income neighbourhood expect to accrue from using an outdoor adult playground in a low-income neighbourhood?" could not be answered. Despite the lack of observed older adult users, the location of the OAP improved access to lower-income and predominantly younger adult individuals

Chapter Three explored how the findings that could be obtained in Chapter Two were at least partly a function of the positionality of the researcher. This chapter primarily addressed the first research question, "What perceived social ecological factors influence older adults from a low-income neighbourhood to use an outdoor adult playground?" Here, we explored the effects of researcher positionality on both the methods of data collection and the data that can be

collected. A key finding of this research is that an "outsider" researcher position can create opportunities – and challenges – for methodology and "on the ground" practices. Chapters Two and Three, while separately publishable, complement each other and together provide a more nuanced and reflective framing of the data.

Certain themes were prevalent through both chapters and the literature review. Specifically, concepts related to the trust or "insider" status of potential OAP instructors was a theme that arose throughout the literature and collected data. Devereux and colleagues (2016) argued that the trust and familiarity of an organization/individual delivering a physical activity initiative could impact the acceptability of the initiative. Similarly, Werner stated that my outsider status may cause difficulties in connecting with community members and OAP users. As I discussed in both Chapters Two and Three, however, OAP users often willingly and enthusiastically involved me in their workout, and many asked me for advice on how to use the equipment without any prompting. Werner is likely correct in that an individual from the neighbourhood would conceivably have an easier time recruiting individuals to use the equipment, but the findings from this research showed that OAP users were willing to seek the advice of a relative unknown user. Other park users who had observed me using the equipment, and modifying the equipment to suit my exercise needs, sought my advice; this may have boosted the users' trust and feelings of safety with using the equipment, two important enablers to physical activity identified by Devereux-Fitzgerald and colleagues (2016). As noted in both Chapters Two and Three, there was general confusion noted among OAP users, perhaps amplifying the likelihood of individuals "seeking out" advice. If the City were to implement instruction or programming to "activate" the OAP, having an instructor from outside the

neighbourhood would not necessarily deter residents' participation, as reflected by my interactions with users.

One benefit of using the SEM in this research was learning how certain factors or perceptions were represented at multiple levels of the SEM. Specifically, negative perceptions of the OAP's location created barriers to some individuals' use (e.g., individual factors related to perception of social environment), and produced backlash from community members who argued that the equipment would better serve the community if placed elsewhere. Stakeholders could, however, also use the SEM to develop strategies at reducing negative perceptions. To reduce negative perceptions among the broader community, organizations and the municipality could highlight the success the OAP has had at increasing access to physical activity infrastructure to populations who might not be access gym equipment otherwise; for example due to cost or transportation barriers. It would also be worth highlighting that the infrastructure has suffered no or very little damage since its implementation. One strategy, for example, would be to invite members of the media to report on the successes the OAP has thus far enjoyed. This may help to counter some of the negative media attention and corresponding perceptions the neighbourhood has received, thereby reducing one identified barrier to participation.

The scope of this research did not include a gendered analysis of OAP uptake; nevertheless, it is clear that there were differences in uptake between genders. Of the 63 total observed users, 51 (81.0%) were identified as men. It is difficult to determine the cause of the imbalance in users according to gender. For example, I observed a knowledge gap in how to use the equipment for both men and women. Copeland and colleagues (2017) similarly identified males as the predominant OAP users. Designing or targeting specific equipment for females was noted as a potential enabler of female use (Copeland et al., 2017). Further research is required to

examine how to best support female's use of OAP equipment. Such research should examine factors beyond the individual, and explore how factors such as neighbourhood safety, community organizations, and policy directives promote or reduce discrepancies in OAP use according to gender.

Considering only one older adult user was interviewed for this research, a full picture of the intrapersonal factors influencing older adults' OAP uptake cannot be determined. Some factors, such as characteristics of the equipment, perceptions of the social environment, and lack of instruction or clarity of the equipment can at least partly explain the dearth in observed older users. Based on the OAP's location, it is possible that factors related to socioeconomic status played a determining role. For example, higher occupational physical activity demands during working years (e.g., "blue collar" jobs) is associated with reduced physical function into later years (Missikpode, Michael, & Wallace, 2016). It is possible that many of the largely low-income older adults living in the neighbourhood surrounding the OAP had physically demanding occupations throughout the lifespan, and may continue to be in the workforce. Indeed, the sole older adult interviewee identified former occupational demands as a physical barrier to current physical activity pursuits, including barriers to using some of the more complex equipment at the OAP. It is likely that this interviewee's physical barriers are not unique to the neighbourhood's older resident population. Future OAPs planned for low-income neighbourhoods and for seniors living in those neighbourhoods should consider barriers such as former occupational demands and adjust the designed equipment accordingly. Prolonged physically demanding work may act as a barrier if the OAP equipment installed does not reflect the physical capabilities of the older adult population.

Strengths and Limitations

There are strengths and limitations to both quantitative and qualitative research. One limitation that has been discussed at length is the low number of older adult user interviewees (i.e., only one interviewee). Expanded inclusion criteria to include neighbourhood older adults who were not observed using the OAP equipment could have potentially increased the number of older adult interviewees, yet may also have raised concerns related to self-reported use being unreflective of actual observed used (e.g., Copeland et al., 2017). Efforts were taken to ensure the one older adult's interview did not overly represent identified themes. For example, themes coded in the older adult's interview were triangulated across other data sources to enhance trustworthiness. There are also limitations inherent to participant observations. For example, users' age could only be estimated. Similarly, the income level of individual users could only be assumed based on neighbourhood-level statistics (e.g., Statistics Canada, 2017). Other indicators, such as soup truck use, supported assumptions surrounding income level. Constraints related to graduate research did not allow for participation observations in the spring months, while construction during the summer months may have negatively influenced residents participation at the OAP. Extending the research to include participant observations in a follow-up year (i.e., the following year) could have allowed for data comparison across years and further explored steps (if any) community organizations have taken to support the OAP. Lastly, the codes, themes and analysis were discussed at length between Dr. Møller and myself, while the committee thoroughly reviewed drafts of initial analysis. I completed all interviews, observation sessions (save one) and document reviews, the manual coding of the data and the initial analysis, as is common when conducting master's thesis research. Adding additional coders and analysts would add intercoder-reliability to the findings.

To the best of my knowledge, this research is the first to have utilized the SEM in an OAP setting. An improved understanding of the social ecological factors influencing OAP uptake, and specifically low-income older adults' uptake, can inform future initiatives and research, with the goal of supporting community members' use of the playground infrastructure. A further strength of this research is the observation that the OAP's location improved access to physical activity infrastructure for members of low-income population groups; such a finding supports descriptions of OAPs as a public health investment.

Conclusion

Since beginning this Master's thesis in the fall of 2016, new research examining OAPs continued to be published in diverse peer-reviewed journals. Research in Canada (Copeland et al., 2017), Taiwan (Chow, Mowen, & Wu, 2017), and Australia (Sibson, Scherrer, & Ryan, 2018; Stride, Cranney, Scott, & Hua, 2017) have added to what was a limited body of knowledge that examined OAPs across the globe (Chow, 2013; Cohen, Marsh, Williamson, Golinelli, & McKenzie, 2012; Cranney et al., 2016; Madren, 2013; Nguyen & Raney, 2014; Scott, Stride, Neville, & Hua, 2014). This increasing focus on OAPs is perhaps a reflection of a growing push towards modifying the built environment to support community physical activity. In Canada, there is governmental support for changes to the built environment, including investing in active transportation (Transport Canada, 2011), walkable communities (Transport Canada, 2009), and accessible public transportation (Federation of Canadian Municipalities, 2013). Investment into changing the built environment helps to "ensure that activities are accessible to all members of society, regardless of income or physical disability" (Transport Canada, 2011, p. 19). As this thesis research has shown, locating outdoor physical activity infrastructure in low-income neighbourhoods has the potential to similarly reduce inequalities in opportunities to be physically

active. The benefits of locating OAPs in lower-income neighbourhoods are not, however, without their challenges. Some perceived characteristics of the lower-income neighbourhood that were the focus of this research potentially created barriers to older adults' use, as simply installing exercise equipment does not unilaterally change residents' perceptions surrounding the park area, or make it possible for persons in the neighbourhood to take advantage of the equipment.

Previous research has shown relatively consistent results in determining uptake of OAPs among total park users. Cranney and colleagues (2016) observed 1.9% of total park users using the OAP equipment, Copeland and colleagues (2016) observed 2.7%, while Cohen and colleagues (2012) observed 5.6%. While the OAP's setting restricted my ability to calculate OAP users as a percentage of total park users, I did observe a similar number of adult OAP users as Copeland and colleagues (2017), yet over a shorter period observation; I observed 24 adults over 48 hours of observation (0.5 adults per hour), compared to 27 adults over 106 hours of observation (0.25 adults per hour) by Copeland and colleagues (2017). In the future, researchers should consider further reporting on the contextual and organizational factors that may be affecting OAP uptake. For example, Sallis and colleagues (2006) identified three characteristics of a successful physical activity initiative (i.e., safe and accessible space for physical activity, presence of programming, and changing social norms). To the best of my knowledge, this research is the first to have explored in-depth the potential effects of environmental (accessible space for physical activity), community, and policy factors on OAP uptake. Furthermore, an exploration of social norms, and specifically social perceptions of the OAP's neighbourhood, provided further context and analysis related to OAP uptake. Interviewing the community stakeholders involved in developing, implementing, and supporting the OAP thus provided a

novel approach to understanding OAP community uptake. Utilizing the SEM further enhanced this approach, as the framework demanded a broader investigation into the factors influencing OAP development and uptake. The SEM is a framework that should be considered by both researchers and municipal planners interested in OAPs. For example, the SEM conceptualized in Chapter Two pointed to participation barriers outside of the individual. Action at all levels of the SEM by community stakeholders is needed to better support users of different ages, including older adults. This includes more collaboration between community agencies such as city planners, public health, community advocacy, and action organizations such as Strong Neighbourhood and private funders/ businesses. This was highlighted in 2012 where a review examining physical activity initiatives around the world found that the most promising are those that are community-based, free, easily accessible, and involve collaboration between businesses, community organizations, and health, recreation, planning, and transport agencies (Bauman et al., 2012; Heath et al., 2012)

In Chapter Three, I explored the methodological challenges one may face while doing research in an outdoor park setting. Reporting on these challenges provides a further contribution to the literature examining OAPs; for example, I argued that researchers should have a strong knowledge base of the OAP equipment they are studying, as this knowledge can provide a critical point of access to community members. While the methods of participant observations (covert vs. overt) each have their advantages and disadvantages, researchers should describe which method they employ and their reasons for doing so. The status a participant observer has in the field can substantially influence the relationships they form with community members, and the observations they are able to make. The covert observations that took place in this research enabled a deeper understanding into the challenges a newcomer may face when

using community infrastructure. Future researchers undergoing covert observations should ensure their observations do not involve deceptive practices. In any public setting, undesired or illegal behaviours may occur within a researcher's field of observation. As such, an action plan should be devised prior to beginning research in the field that outlines steps to be taken if and when such behaviours are observed.

Contributions

The two publishable papers (Chapters Two and Three) will be sent for peer review with first author Gardam and Møller, Pearson, and Wiersma as co-authors. Dr. Helle Møller supported all aspects of the thesis development and analysis, and provided invaluable feedback and input throughout the writing process. Similarly, Drs. Pearson and Wiersma's contributions as committee members were reflected throughout the proposal and final thesis.

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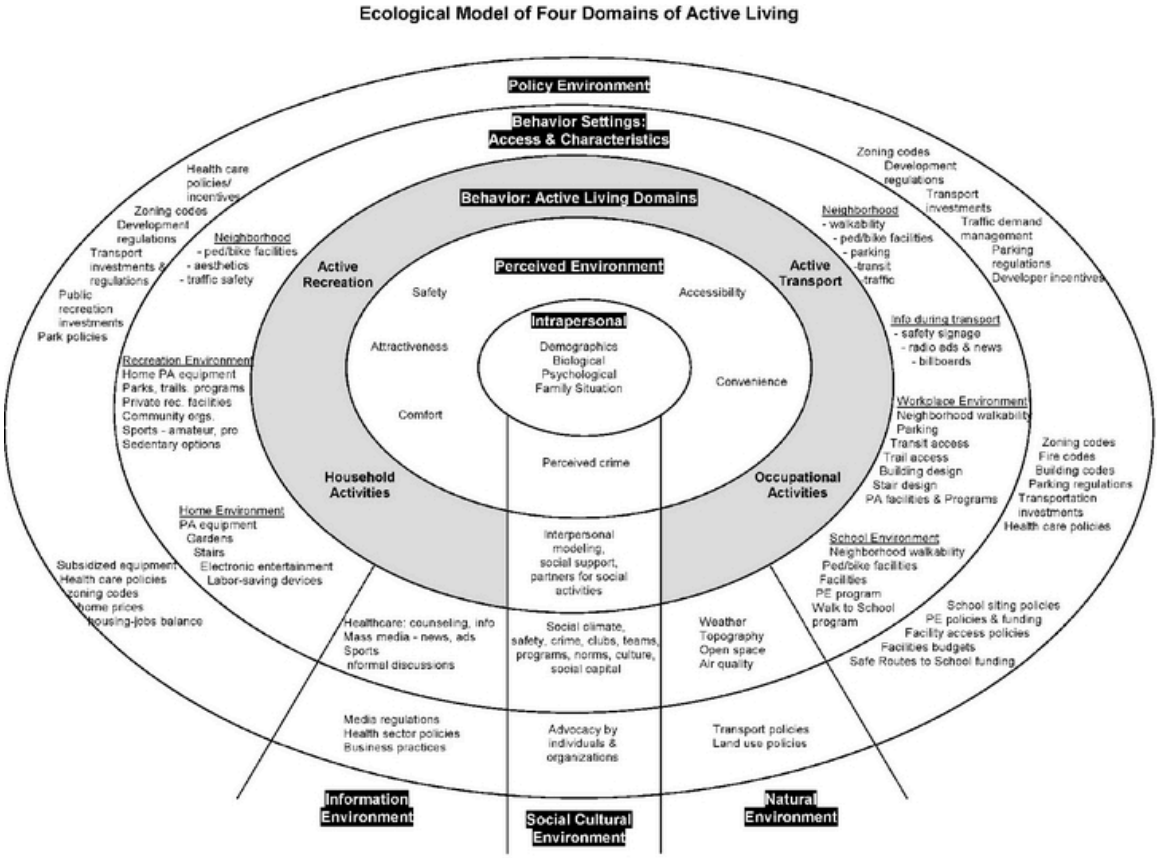
Appendix A

Example of social ecological model showing multilevel influences on active living (Sallis et al., 2006)



Sallis JF, et al. 2006.
Annu. Rev. Public Health 27:297–322

Appendix B

Research Ethics Board
t: (807) 343-8283
research@lakeheadu.ca

June 27, 2017

Principal Investigator: Dr. Helle Moeller
Student: K. Gardam
Faculty of Health and Behavioural Sciences
Lakehead University
955 Oliver Road
Thunder Bay, ON P7B 5E1

Dear Dr. Helle Moeller:

Re: REB Project #: 023 17-18 / Romeo File No: 1465868
Granting Agency: N/A
Agency Reference #: N/A

On behalf of the Research Ethics Board, I am pleased to grant ethical approval to your research project titled, "A Socioecological Exploration of Community Adult Playground Use Among Seniors in Northwestern Ontario".

Ethics approval is valid until June 27, 2018. Please submit a Request for Renewal to the Office of Research Services via the Romeo Research Portal by May 27, 2018 if your research involving human participants will continue for longer than one year. A Final Report must be submitted promptly upon completion of the project. Access the Romeo Research Portal by logging into myInfo at:

https://erpwp2.lakeheadu.ca/

During the course of the study, any modifications to the protocol or forms must not be initiated without prior written approval from the REB. You must promptly notify the REB of any adverse events that may occur.

Best wishes for a successful research project.

Sincerely,

Dr. Lori Chambers
Chair, Research Ethics Board

Appendix C

Interview Guide with Older Adult Participants

Background Information

1. Are you currently working (yes – what do you do?) No (are you retired, or are you looking for work?)?
2. Which area of [Wymont] do you live in?
3. Which bracket does your annual after-tax income fall into: under $26,600; between $26,600 and $44,700; between $44,700 and $67,100; between $67,100 and $100,900, or over $100,900? (Income quintiles generated from Statistics Canada "Income statistics by after-tax income decile, economic families and persons not in an economic family, 2014")

General Physical Activity and Parks Information

1. How was physical activity a part of your life in childhood?
    a. Probe: did you participate in organized sports, unstructured play, something else?
2. How has physical activity been a part of you life since childhood?
    a. Probe: do you still participate in organized sports/unstructured play? Playing with children/grandchildren? Yard work?
    b. Was/is physical activity a part of your employment?
3. What kinds of physical activity do you often currently participate in?
    a. Probe: Have the types of physical activity you participate in change as you age?
4. What are the benefits you enjoy from participating in physical activity?
    a. Probe: social aspect, health benefits, mental well-being?
5. How often do you use Wymont's parks?
    a. Probe: do you use the parks more or less in certain seasons? Do you use parks close to where you live or in other areas more? Why?
6. In what ways do you use the parks?
    a. Probe: socializing with friends, bringing grandchildren to playgrounds, feeding birds, for physical activity, enjoying the outdoors
7. How do you usually get to the parks you use?
    a. Probe: Walking, driving.
    b. Probe: How close are the parks you usually use to your house?
8. How much is physical activity an important aspect of the ways in which you use parks?
9. Do you often participate in physical activity outside of parks?
    a. Probe: Indoor physical activity vs. outdoor physical activity, individual/ group based? Formal/ informal
10. What kind of barriers do you have to participation in physical activity?
    a. Probe: outdoors and indoors, physical, economic, distance, transportation, lack of programming, lack of company, environment where person lives, safety
11. What helps you participate in physical activity?
    a. Probe: exercise classes, warmer weather

Outdoor Adult Playground

1. How did you find out about the Outdoor Adult Playground?
2. Have you ever heard of outdoor physical activity infrastructure such as this in Wymont or elsewhere?
3. What first interested you in trying the equipment?
    a. Probe: physical benefits, social aspect, part of larger park infrastructure
4. How do you like to use the equipment?
    a. Probe: are there some pieces of equipment you like more than others?
5. How will you plan to incorporate the OAP into your physical activity routines, if desired?
    a. Probe: Make stopping at the equipment a part of a daily neighbourhood walk, plan a trip specifically to use the equipment
6. How is the equipment suited for older adults?
7. How is the equipment not suited for older adults?
8. What benefits do you hope to gain from using the equipment at the playground?
9. How would you describe physical activity programming for older adults in the community?
    a. Probe: existing policies surrounding physical activity and older adults
10. How could physical activity programming for older adults in the community be improved?
    a. Probe: e.g., any changes to existing policies you would suggest?
11. What role do community organizations have in supporting older adults' participation in physical activity?
    a. Probe: what organizations do you feel help older adults participate in physical activity?
12. What role do community organizations have in supporting the outdoor adult playground?
13. Have you participated in any of Strong Neighbourhood's other community events? If yes, which ones?
14. How do you view the city's decision to invest this physical activity infrastructure in a relatively lower socioeconomic neighbourhood?
15. If the city were to install similar fitness equipment in another community park, what would you suggest they keep the same?
16. If the city were to install similar fitness equipment in another community park, what would you suggest they change?
17. Are there any other thoughts that you have related to the OAP in Deer Park?

Appendix D

Interview Guide with Stakeholders from Strong Neighbourhood, the City of Wymont, and other community organizations

Organization:
Position:
Length of time in position:

1. How is your organization involved with older adult physical activity programming in the City of Wymont?
    a. Probe: involvement related to development, implementation, or marketing/promotion
2. How are you specifically involved with older adults, physical activity, and community programming?
3. How much are older adults the focus of your organization's overall physical activity programming?
    a. Probe: Are there more youth or adult programs compared to older adult programs?
4. In what ways are socioeconomic factors considered when planning programming for older adults?
    a. Probe: Are certain programs subsidized to promote participation?
5. How are lower socioeconomic older adults represented in your organization's physical activity and community programming?
    a. Probe: How are lower socioeconomic neighbourhoods represented in community programming?
6. How was your organization involved in the outdoor adult playground/ outdoor fitness equipment project in Deer Park?
    a. Probe: involvement related to funding, development, promotion, continued support
7. What makes the OAP in Deer Park a project that can contribute to age friendliness in Wymont?
8. What characteristics of an initiative such as the OAP in Deer Park facilitate use among older adults?
9. What characteristics of an initiative such as the OAP in Deer Park restrict use among older adults?
10. How will your organization be involved in the future support of the OAP, if at all?
    a. Probe: Is there any ongoing marketing or support on behalf of your organization?
11. What organizational barriers restrict your support of older adults' use of the OAP?
12. How do you view the city's decision to invest this physical activity infrastructure in a relatively lower socioeconomic neighbourhood?
13. Are there any other thoughts that you have related to the OAP in Deer Park?

Appendix E

Participant Observations Reflective Journal: Deer Park

Date:_____ Time Slot: Morning / Afternoon / Evening Time:_____

Weather (e.g., 15 degrees and sunny):_____

Number of Equipment Users: ____

Number of Older Adult Users:____

Person Traffic in and around Deer Park

- Is the pool/other park infrastructure being used, and by who; are there people out walking in the neighbourhood?

Socialization Between Older Adult Users

- Users coming alone or in groups? Are the groups of similar ages?
- Are users socializing with others at the OAP?
- Are other groups (age, gender) also using the equipment? Does this affect socialization?

Gendered Differences in Older Adult Participation

Favoured Equipment Among Older Adults

- Are certain pieces of equipment favoured by user age or gender?

Conversations of Note

How the OAP is Incorporated in Daily Routines

- Are users stopping in for a quick workout, or are they staying for prolonged periods?
- Is the equipment being used in conjunction with other infrastructure (e.g., using the equipment before swimming)?

Other Observations of Note