

PERCEIVED BENEFITS OF CURLING IN OLDER CANADIAN WOMEN

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Abstract

With an increasing proportion of older adults in Canada, factors that can facilitate healthy aging, such as physical activity and by extension sport, should be considered. Curling is a popular sport, enjoyed particularly by older adults, and as such this study sought to examine the experiences of older Canadian women who were regular participants in this sport. Seventeen women were interviewed to explore their perceptions of curling participation at a later stage of life.

Participants had a nuanced view of aging in that they simultaneously resisted, accepted, and ultimately redefined aging. These women uniquely identified the inclusive nature of the sport and the level of strategy required to find sporting success. Furthermore, both competition and the social aspect of the sport were highlighted as major drivers of participation and integral to the sporting experience. The results of this study extend our understanding of the potential value of sport for older adults.

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Background

Over the past several decades, the number of older Canadians (generally defined as 65 and above) as a proportion of the overall population has continuously increased. For instance, the population of older adults is projected to rise to 25% by 2024 from 17.2% in 2018 (Statistics Canada, 2015). This proportional increase in aging adults has also been observed globally, in countries such as Japan, Italy, Germany, France, and the United Kingdom where 18% of the total population of each country is comprised of older adults (Statistics Canada, 2015).

Both the number and proportion of older Canadians have increased, with older adults living longer than ever before (Shooshtari et al., 2020). This overall trend can be attributed to advancements in medical care (i.e., increased life-expectancy), better living conditions, better hygiene, and a global decrease in infant and child mortality (Baker et al., 2010; Brown, 2015; Geard et al., 2020). While life expectancy is often associated with prosperous or industrialized countries (e.g., Human Development Index), it may not be the best indicator of health and development (Roser, 2014). For instance, increased life expectancy is associated with increased disease, disability, and neurodegenerative decline resulting in a loss of independence and an overall decrease in the quality of life (Brown, 2015). All this to say, adults are living longer but may be doing so through extended periods of ill health due to chronic disease.

Healthy aging

Aging is a complex biopsychosocial experience and there exists a body of literature exploring the concept of ‘healthy aging’ (similar concepts include ‘positive aging’, ‘optimal aging’ and ‘successful aging’). The World Health Organization has defined healthy aging as, “the process of developing and maintaining the functional ability that enables well-being in older age” (World Health Organization, 2015, p. 28). Here, functional wellbeing refers to the

capabilities ‘that enable people to be and to do what they have reason to value’ (World Health Organization, 2015), including an individual’s ability to a) meet their basic needs, b) have the autonomy to make decisions, c) be mobile and independent, d) build and maintain relationships, and e) meaningfully contribute towards society (World Health Organization, 2020). More generally, well-being refers to a sense of happiness, satisfaction, and a feeling of fulfillment. Elsewhere, healthy aging has been referred to as being able to adapt, compensate and to function in all areas of life (Hansen-Kyle, 2005).

Taken together, healthy aging includes physical and psychosocial considerations. It has the potential to improve the quality of life for older adults and has the capacity to contribute towards the sustainability of the healthcare system by reducing costs, and given Canada’s current and projected population demographics, healthy aging has become a priority for Canada (Brown, 2015; Hamer et al., 2014; Shooshtari et al., 2020).

Healthy aging and physical activity. One key behaviour related to healthy aging is regular physical activity (PA) (Shooshtari et al., 2020). There is an abundance of information on the importance of a physically activity lifestyle. In general, PA is defined as any movement produced by the contraction of muscles increasing energy expenditure, has positive physiological effects for older adults (Chodzko-Zajko et al., 2009). Previous studies have found that regular PA among older adults can decrease the likelihood of developing a myriad of chronic diseases such as cardiovascular disease, type 2 diabetes, obesity, osteoporosis, arthritis, and certain cancers (Chodzko-Zajko et al., 2009). Moreover, older adults participating in PA can trigger skeletal muscle adaptations, improve body composition (i.e. less fat, higher muscle mass, and higher bone density), and decrease cardiovascular and metabolic stress (Chodzko-Zajko et al., 2009). Furthermore, older adults who are physically active report higher cognitive capacities,

improved mental health, and enhanced emotional and social well-being (Baker et al., 2009; Chodzko-Zajko et al., 2009). In light of recent and on-going events, it is important to mention that individuals with comorbidities such as hypertension, diabetes, and obesity are less likely to survive COVID-19 (Richardson et al., 2020). In summary, the general pattern of evidence in this area suggests the risk of these comorbidities can be mitigated with regular engagement in PA (Gayman et al., 2017; Schutzer & Graves, 2004).

Sport as a means of negotiating the aging process

Sport can be used by older adults as a tool to negotiate the aging process (Horton et al., 2018; Meisner et al., 2010). Wong et al. (2019) interviewed women above the age of 55 participating in competitive softball in the North Carolina Senior Games program. Their findings suggest that women participated in sport to delay or fight the negative aspects of aging. Similarly, other studies focusing exclusively on older women have found that sport is used as a vehicle to resist the negative effects of aging (Liechty et al., 2016; Litchfield & Dionigi, 2012; Pfister, 2012). Dionigi et al. (2013) interviewed men and women aged 56-90 at the 2009 WMG and one of the key findings was that older adults use sport to fight the aging process. Other mixed gender studies focusing on older adults support these findings (Dionigi, 2006; Dionigi & O'Flynn, 2007; Grant, 2001).

Dionigi et al. (2013) found that participants in their study cited the saying, 'use it, or lose', meaning that there existed a belief that without sport their overall quality of life would decline. Similarly, findings by Baker et al (2010) and Dionigi (2006) suggest a decrease in the quality of life would follow the cessation of sport.

Sport can function as a vehicle to establish or retain feelings of youthfulness (Dionigi, 2002; Horton et al., 2018). The women in Wong et al's (2019) study, for instance, reported

participating in softball to ‘stay young’ (see also Horton et al., 2018). Dionigi (2010) noted similar findings when interviewing women who participated in the 2001 Australian Masters Games. Through sport participation, women noted being able to express a youthful identity. Another study conducted on male and female participants at the Australian Masters Games, observed that sport was used to feel young(er), with some participants going so far as to state they were younger and trapped in an older body (Dionigi, 2002). Baker et al. (2010) argued that sport can facilitate feelings of youthfulness as older athletes were able to maintain physical and mental functioning and compete against younger adults.

Sport is linked to the acceptance of and adaptation to older age. In their study Wong et al. (2019) found women were excited to reach certain age milestones because it qualified them to participate in different cohorts in their sport. Like Wong et al. (2019), Litchfield and Dionigi (2013) found that older female field hockey players were proud to reach older age milestones as it reflected their ability to continue sport engagement in older age. Through her interviews, Dionigi (2010) found that older women adapted to their aging bodies by modifying their sport of choice or the method in which they participated, noting it was liberating for women to participate in sport in older age. These findings were reiterated in the work done by Horton et al. (2018) where female athletes were determined to participate in sport, modifying how they engaged in their sport to overcome barriers such as pain, disease, and illness.

Competitive sport

While sport falls under the umbrella of PA, sport is different from PA. In this study, sport refers to an activity that is physical, organized, involves competition, requires skill, is institutionalized, and often has a governing body (Jenny et al., 2017; Jonasson & Thiborg, 2010).

While we continuously build our knowledge on the value and importance of PA in general, we know little about higher levels of PA, particularly sport (Jenkin et al., 2017). Aging has traditionally been associated with disease, decline, and dependence (Dionigi, 2008; Gayman et al., 2017). Furthermore, aging, particularly in North America, is related to negative stereotypes such as loneliness, dependence and with decaying physical and mental capabilities (Dionigi, 2005). Hence, negative social stereotypes generally promote either disengagement from exercise (Meisner et al., 2013) or engagement at lower levels of PA (Jenkin, 2020). Without evidence, it was widely assumed that strenuous physical activity was harmful for older adults, consequently, activities such as lawn bowls, gardening, walking, bingo, crafts, and bridge were advertised as appropriate activities for older adults (Dionigi, 2006; Gard et al., 2017; Pfister, 2012). Comparatively, the promotion of sport as a means for older adults to engage in physical activity has been a recent phenomenon (Dionigi, 2006).

Interestingly, participation in high level sport or competitive sport has been on a continual rise since the 1980s (Pfister, 2012). Since the first World Masters Games (WMG) the number of participants has increased from 8305 to 30 000 in 2017 in Auckland (International Masters Games Association, 2020). While participation in the WMG has increased as a whole, women's participation has increased to more than 40% of overall athletes (Heuser, 2005). This rising interest in sport provides unique opportunities to study health and development across the lifespan. As such, a number of researchers have devoted their effort in studying competitively active older adults or Masters Athletes (Jenkin et al., 2018; Meisner et al., 2010). Masters athletes are individuals who continue to train and compete well beyond middle age (Weir et al., 2002).

Competitive sport for older adults is a focus for many researchers, especially in the area of physical or physiological health (Coggan et al., 1990; Cooper et al., 2007; Wiswell et al., 2001) and/or maintenance of performance (Kavanagh & Shephard, 1990; Reaburn & Dascombe, 2008; Tanaka et al., 1997; Tanaka & Seals, 2003; Tanaka et al., 1990; Wiswell et al., 2001). While physical health is important, it is only one component of health. For instance, the psychological and social health components are equally, if not more, crucial for health and development across the lifespan and comparatively, less is known about the psychological and social effects of competitive sport among older women.

Effects of competitive sport identified by older women. Despite the increased interest and participation in competitive sport, sport is still viewed as the realm of the young (Pfister, 2012). Older adults' participation in sport is characterized as participatory in nature (i.e., 'fun, friendship, [and] fitness'). Framing sport in this context is interesting as it can be argued that irrespective of level, recreational or serious sport, sport is competitive (Dionigi, 2010; Litchfield & Dionigi, 2012). This framework may partially explain why the women in Dionigi's (2010) study used competitive discourse to describe their sport participation but ultimately said they were not 'competitive' because they were not aggressive and did not believe in the win-at-all-costs mentality.

The very act of competing may be a factor in sport participation in this group (Berlin et al., 2018; Jenkin, 2020). In fact, the women in the study completed by Wong et al. (2019), were constantly seeking opportunities to be participate in competitive sport. Older women value the competitive nature of sport (Jenkin, 2020; Litchfield & Dionigi, 2012). Aiming for and achieving sporting success was an important aspect of sport participation (Dionigi, 2010; Litchfield & Dionigi, 2012; Pfister, 2012). In fact, in Heuser's (2005) study regarding women lawn bowlers, it

was discovered that participants who played competitively took great care to track the score, establish winners, and remained focus on winning throughout the game. Competition is an avenue to challenge the self, test their abilities and set new records (Dionigi, 2010; Litchfield & Dionigi, 2012).

Competitive sport participation by older women can result in psychological effects such as stress relief, improvement in mental health and an overall sense of well-being (Horton et al., 2018; Wong et al., 2019). From a social perspective, sport stands to offer an array of benefits. Wong et al. (2019) found that women derived significant social benefits from their participation in competitive softball including social connectedness, social support, camaraderie, and community. Likewise, Horton et al. (2018) interviewed 16 women, aged 70-86, competing at the WMG in Turin, Italy. These women listed competition and the social aspect of sport as major benefits of sport. Similar findings were observed in other studies targeting older women (Dionigi, 2010; Kirby & Kluge, 2013; Liechty et al., 2016; Litchfield & Dionigi, 2013). Competitive sport participation is linked to feelings of belonging to a team or to a group of like-minded individuals (Dionigi, 2010; Litchfield & Dionigi, 2013; Pfister, 2012). In addition, women created meaningful friendships that persisted on and off the field (Gayman et al., 2017; Horton et al., 2018; Litchfield & Dionigi, 2013). Although the women in Heuser's (2005) study were keen on competing, nevertheless, they enjoyed the social aspect of lawn bowls and used the time following a game to socialize and make friends.

Curling

Curling is a popular winter sport that is currently played in at least 44 countries (Mair, 2009), and was added to the Olympic Winter Games in 1998 (Potwarka & Wilson, 2015). It is thought that curling was brought to Canada by Scottish immigrants (Mair, 2009) and the first

curling club in North America was established in Montreal in 1807 (Willoughby & Kostuk, 2004).

Curling is one of the most popular sports in Canada (Brenzel et al., 2019). According to Mair (2009), curling grew in popularity in the west as the curling season followed the farming season. Canada's geography and climate naturally provided the conditions needed to curl (i.e., lakes and rivers froze during winter months to provide a solid surface to play on) (Wieting & Lamoureux, 2001). Perhaps the reason for its long-lasting popularity is that the ethos of the sport reflects that of the Canadian identity. The sport promotes values of sportsmanship, socialization, patience, skill and volunteerism, all aspects that are important to the Canadian identity (Allain, 2020; Brooks et al., 2017; Mair, 2009; Tate, 2011). Canada is known on the international stage for her curling prowess. In fact, the Canadian women's team has won 17 of the 40 women's world championships (Wieting & Lamoureux, 2001).

In 2015, Potwarka and Wilson created a profile of Canadian curlers and found that the majority of curlers were white and lived in Ontario. With respect to education, a little over 23% of curlers had university or non-university certification. Curling Canada, the governing body of curling, estimates that in 2015 approximately 1.5 million Canadians curled (Curling Canada, 2019), 20% of who were between the ages of 50-64.

The sport of curling is unique in that it requires minimal equipment and physical athleticism. Each team consists of four players, the lead, second, third (vice), and skip (captain). Curling is played indoors on a sheet of ice, 14 feet wide and 146 feet long. At the ends of the sheet are two 'houses' which consist of concentric circles of decreasing diameters (Willoughby & Kostuk, 2004). Players 'throw' (slide) rocks, 45 pounds of polished granite, across the ice (Willoughby & Kostuk, 2004). While all members must throw the rocks, the skip and third

primarily engage in strategizing, while the lead and second primarily sweep. Sweeping refers to using brooms to guide the rocks into position (Willoughby & Kostuk, 2004). Curling requires accuracy, strategy, and endurance (Bradley, 2009; Mair, 2009; Stone et al., 2018; Tate, 2011). The purpose of the game is to earn points by getting your teams' stones closer to the center of the house than the other teams' (Allain, 2020).

Players are expected to self-regulate and follow the rules (Allain, 2020). Following the end of the game, players (at least those playing in community contexts) are expected to socialize over a drink, typically a beer (Allain, 2020). The winning team would buy the losing team a drink, who would then return the favour (Allain, 2020).

Simplified, bonspiels are curling tournaments. Prizes, which are typically donated by volunteers and community members, are awarded to winning teams (Leipert et al., 2014). In order to play in bonspiels, players must pay a fee which is used by organizers in the planning and feeding of players and the club hosting the bonspiel is expected to be hospitable (Wieting & Lamoureux, 2001). As the season progresses, other clubs would return the hospitality as they become bonspiel hosts.

With respect to age, curling is viewed as an inclusive sport and is unique given that it celebrated older bodies and their athleticism (Allain, 2020). Additionally, it is seen as a sport anyone can play and play reasonably well (Potwarka & Wilson, 2015). Over the years, curling has introduced modifications to make the sport more accessible; for example, there is now wheelchair curling, vision impaired curling, the use of stabilizers, and stick curling, where the stick is used throw the rock instead of having to get down in the hack. These modifications have enabled more people to curl and in some cases curl for a longer period of time.

Interestingly, while curling is often viewed as a sport where physical fitness is not necessary, the sport is evolving with a new focus on physical fitness (Allain, 2020). Older male curlers in a recent qualitative study (Allain, 2020) argued that an over emphasis on physical fitness may promote unhealthy practices such as drug use and unfair practices. A side effect of this new focus on physical fitness has been more competitive curlers are foregoing the tradition of drinking in the post-match celebration, which participants believed negatively impacted the social aspect (as well as reduced revenue from bars needed to sustain the club).

The extensive history and popularity of the sport in Canada has given rise to a small but developing research base in a variety of areas, including coaching (Cormack & Gillman, 2021; Paquette & Sullivan, 2012; Willoughby & Kostuk, 2005), curling and its relationship to nationhood (Reid, 2010), elite curling (Brooks et al., 2017), performance (Kim & Han, 2021; Kraemer, 2009; Stewart & Hall, 2017), psychophysical benefits of curling (Stone et al., 2018), strategy in curling (Bradley, 2009; Collins & Durand-Bush, 2014; Kostuk et al., 2001; Kostuk & Willoughby, 2006; Willoughby & Kostuk, 2004, 2005), team building (Collins & Durand-Bush, 2019; Kim et al., 2017), and training methods (Behm, 2007).

To the author's knowledge, there have been only two studies focusing exclusively on women in curling. In the first, Leipert et al. (2011) studied the experiences of 15 women aged 12-75. The women were from two communities in southwestern Ontario while in the second, Leipert et al. (2014) recruited 45 women living in rural communities across Canada aged 12-75. In both studies, women spoke of the importance of building meaningful connections with other curlers and how this was integral to the curling experience. It contributed to a feeling of community and belonging. This theme of social connectivity can also be found in mixed gender studies (Brooks et al., 2017; Tate, 2011) and all male participant studies (Allain, 2020). Women

also noted that curling positively affected their physical, mental, and social health which contributed to their overall wellbeing. Interestingly, curling had a positive impact on their mental health because it gave them something to look forward to and something to participate in during the dark and (sometimes) isolating months of winter. Curling provided a social and sport outlet in rural communities contributing to greater feeling of community, belonging and rural identity. In this study gender also played a role in women's ability to curl; for example, women first had to balance their domestic duties in order to curl. Moreover, many participants engaged in curling participated in volunteering, which contributed to strengthened social ties but also led to burnout and fatigue. Finally, while participants took pride in their communities' history of curling and in their own curling, the future of the sport was viewed as precarious in their communities given that people are migrating from rural communities.

While both studies are informative, participants' ages ranged from 12-75 years, thereby limiting our understanding of the experiences of older Canadian women who curl. Furthermore, this study focused on women in rural communities and neglected the experiences of older Canadian women in more urban settings. While it stands to reason that curling may provide a myriad of benefits for older adults, research in this area, particularly among older Canadian women, is limited (Stone et al., 2018).

Study Rationale

While the literature concerning older adults and sport is gaining momentum, the literature on older women in sport is in its infancy, particularly with team sports (Kirby & Kluge, 2013; Liechty et al., 2016). Older women make up 54.7% of the older adult population in Canada yet they remain heavily understudied in relation to sport (Statistics Canada, 2016). If sport is truly an activity 'for all' then work needs to be done to understand how this population experiences sport.

Additionally, it is well known that women are generally less active than men at all life stages and understanding how sport is experienced in this population may have ramifications for how sport can be best promoted.

Moreover, much of the research has been conducted in Australia or parts of Europe, leaving the experiences of older women living in Canada undocumented (Sawrikar & Muir, 2010). Finally, curling is a popular sport in Canada and as such work needs to be done to investigate and understand the benefits derived from the sport (Leipert et al., 2011). The purpose of this project was to further explore the experiences of older Canadian women who participate in curling.

Methodology

As there is a lack of consensus regarding the age at which adults are considered ‘older adults’ (Hunsaker & Hargittai, 2018; Jenkin, 2020), this study will include participants aged 50 and above. For the purpose of this study, sport refers to bodily movement resulting in energy expenditure that is planned, structured and repetitive (Caspersen et al., 2013).

This project adopted a qualitative approach where participants were asked to participate in one-hour, semi-structured interviews over zoom. This approach allowed the interviewer flexibility to ask questions that best followed the flow of the conversation (Adams, 2015). This aspect, alongside the use of open-ended questions, gives the researcher freedom to probe responses (Adams, 2015; Horton et al., 2018). All interviews were audio recorded and then transcribed verbatim.

Initial calls for recruitment were posted to social media sites such as Twitter and Facebook. As this proved to be ineffective, a contact was made at the Toronto Curling Association who then shared study information with her personal and professional contacts.

There was also an element of snowball sampling as some interviewees recommended their friends into the study. It must be noted that data for this project was collected during the COVID-19 pandemic and this may have affected the results due to COVID's effects on sport programming and participation.

In total, 18 interviews were conducted with Canadian women aged 53-75. Four women identified as East Asian (Chinese, Japanese, Korean and others) and the remainder identified as Caucasian or European. Most of this sample was currently married, and 8 women had children. All participants lived in Ontario except three who lived in Manitoba. Most women had some level of college or university education, making this group highly educated. More than half the women in this sample (n=12) were retired. Half the women identified themselves as competitive curlers while the rest identified themselves as recreational; interestingly, one participant identified herself as both.

Theoretical Foundation

Critical realism (CR) was initially developed by Roy Bhaskar in the 1970s (Gorski, 2013). As a philosophy of science, CR argues that phenomena in the social and natural worlds have different properties and due to these inherent differences, varying approaches to ontology and epistemology are required (Gorski, 2013). On this basis, CR argues against aspects of positivism, interpretivism, and social constructivism (Gorski, 2013). More specifically, CR is positioned from the perspective that the focus of the investigation is 'real' (i.e., not simply a 'construction' of the viewer/perceiver) but that scientific investigations are limited to aspects of the phenomenon that are observable, and therefore understanding will be incomplete (i.e., since all aspects of the world are not readily observable). For proponents of CR, positivism falls short as ontological differences between the natural and social world are overlooked (Gorski, 2013).

Additionally, positivism requires the identification of general laws that enable us to predict phenomena.

While interpretivists argue that the natural and social worlds are different, they accept the positivist approach to studying the natural world and attempt to provide meaning in the social world. Furthermore, the social world is governed by linguistics (Gorski, 2013). Extreme social constructivists argue that both the natural and social worlds are based upon language and power (Gorski, 2013).

With respect to the social world, CR argues that differences between the natural and social worlds require the use of different strategies (Gorski, 2013). Here, a key difference between CR and other philosophies of science is the emphasis on ontology. Ontology in the social world is often overlooked which is why CR places an emphasis on learning what exists in the social world and how those phenomena behave. Importantly, the mechanisms underlying events in the social world are prone to a greater degree of change than those in the natural world. However, core social structures exist and human beings are capable of reflecting on and changing them.

From this perspective, this study takes place in the ‘real’ and it is accepted that our understanding of the phenomena may be incomplete. Moreover, as CR is concerned with learning about the way in which phenomena behave in the social world, attention was paid to understand how aspects of the curling experience impact the lives of these women. For example, if participants derived social benefits from sport participation, did that impact their experience of aging, if so, how?

Analysis

All interviews were audio recorded and transcribed verbatim, participants were given the option to pick their own pseudonyms for the study, however, some participants chose to use their real names. Additionally, all transcripts were sent to participants for their edits and approval. Data was analyzed using thematic analysis. Thematic analysis is considered a foundational technique in qualitative research and can be used with a range of theoretical frameworks (Braun & Clarke, 2006; Clarke & Braun, 2013). The process to thematic analysis proposed by Braun and Clarke (2006) was followed. Analysis began with familiarization of the data which involved multiple read throughs of transcripts with audio recordings. This was followed by an inductive approach to code the entire data set. This approach meant that the identified themes were closely tied to the data itself (Braun & Clarke, 2006). Codes were grouped into themes and subthemes (Braun & Clarke, 2006). A theme was defined as “a coherent and meaningful pattern in the data relevant to the research question” (Clarke & Braun, 2013, p. 3). Themes were defined and named and those relevant to the research question in this study are discussed below.

Results and Discussion

The overarching themes that emerged in this study include a nuanced view of aging, unique aspects of curling identified by older women, and the value of competition and social connection.

Aging: A tale of nuance

Participants noted several positive and negative aspects related to their aging experience. For example, they looked forward to increased leisure time with advancing age. They also acknowledged that with age comes experience (in relation to life and curling expertise), wisdom, maturity, and confidence. On the other hand, they identified concerns about physiological and cognitive decline and delayed recovery following injury. The sub-themes that emerged from the

interviews with the women in this study reflected a more nuanced view of aging that noted factors within and outside their control, both helping to create a new perspective on aging.

Factors within their control: Resisting aging. This subtheme reflected several participants' belief that some aspects of the aging process were well within their control. For example, it was believed that the negative effects of aging can be delayed through physical activity. For instance, one of the participants noted:

I'm hoping that I don't get sick. I think as you get older your body parts tend to rebel against you. And I'm hoping that doesn't really happen, doing all that fitness and working out, hoping that it slows down that, slows down anything that could happen. (Lilly)

Betty was even more passionate about her desire to resist elements she linked to the normal aging process:

I'm not afraid of dying. I'm afraid of not aging well. My aunt is confined to a wheelchair. She's lost her mind. I don't want to live like that. And I'm afraid that. So, those diseases, my aunt has Parkinson's, my mother had Parkinson's, my best friend's mom had Parkinson's, I'm really afraid of Parkinson's disease. So, I want to stay as healthy and as fit as I possibly can so that I can ward off any of these degenerative diseases as much as possible.

Although this entire group of women were participants in this study due to their engagement in curling, very few of them referred specifically to this sport as a way to delay the process of aging. Instead, the terminology used by participants (i.e., fitness, exercise, activity) indicated a broader goal of using all aspects of physical activity to exert control to delay/resist the aging process. This contrasts with the work done by Dionigi et al. (2013) where they found that sport was especially used by older adults to resist the aging process.

The common adage ‘use it or lose it’ was frequently used by participants in this study. As Amanda explained, “I mean the adage, if you don't use it, you lose it, is very true and that's, you know, that's a principle that you have to always be mindful of.” The use of this phrase implied that participants believed they had to work to keep certain factors related to the aging process under control. For example, the ‘use it or lose it’ trope implied that if ‘it’ was lost, women would be at risk of experiencing the negative aspects of aging. When it came to using ‘it’, the women in this study did not have an all-or-nothing approach, rather they maintained that it was important to adjust to any limitations and remain active, for example, Amanda explains,

So, I think you just have to be a little mindful of that and just be a little more careful, but also at the same time, not sit back and do nothing. Because I do have friends who have done less and less and less and then they find themselves not being able to do much.

This response and others like it imply that the cessation of physical and mental stimulation would place them at risk of becoming sedentary, experience physical and mental decline, risk reducing their performance in curling, and social disengagement. Dionigi (2006) studied the experiences of older adults competing at the 2001 Australian Masters Games. Her participants believed that the cessation of physical activity would lead to a decrease in their quality of life as they would lose their independence, health, and a sense of control. Similar to propositions by Baker et al. (2010), the responses from participants in this study also suggested the participants felt the way they are currently experiencing aging would drastically change if they were not active. Ultimately, many participants believed there were factors (i.e., physical activity) already within their control or believed these could be controlled to improve one's experience of aging.

Uncontrollable factors: Accepting aging. Paradoxically, and despite the experiences of some participants who actively attempted to control their aging experience (as discussed above), other participants accepted that getting older was just another phase of life, and some factors related to aging were simply outside their control. For instance, a new phase would bring with it new challenges and changes including the passing of loved ones, grappling with mortality, and to a certain degree, physical and cognitive decline. Importantly, all participants in this study had a positive attitude towards participating in sport at this stage of their lives. Participants noted that women participating in sport as older adults was more normalized. Moreover, some participants described that reaching certain age milestones qualified them for different competitions like the Masters or Grandmasters and this was something they were looking forward to with age.

Despite their participation in sport, women in this study believed that with increasing age they may face limitations outside their control. Interestingly, curling was used as a tool to accept and adapt to the limitations that accompany the natural aging process. Many women said they wanted to curl for the rest of their lives: for example, Giselle said point-blank, “Well, until I can’t”. However, they were cognizant of the changes their bodies may undergo with advancing age, as Amanda explains:

As long as I can? You know, I mean, it's unfortunate, a lot of people do end up having trouble with their knees, and, you know, I mean, we get older, we get arthritic. One of the beauties in curling in the last 10 years especially, is the introduction of stick curling... that's allowed people to stay curling, and to stay in the game and to stay with their friends. My father, he lost his vision and was legally blind, and he went to stick curling and he kept playing. I mean, he played till he was almost 90 years old, because he could

still go, and it keeps people in those communities, and it keeps them involved and it's really important.

Interestingly, Amanda and others shared that with advancing age they were willing to accept the modifications offered by the sport. Curlers, like Penny and Elizabeth, have already switched to using the stick. The idea of adapting sport to accommodate an individual's personal needs was found in mixed gender studies concerning older adults (Dionigi, 2002; Dionigi et al., 2013). Additionally, Dionigi (2010) found that older women accepted and adapted to their functional limitations in order to start or continue their sports participation. Similarly, Horton et al. (2018) found that older women overcame barriers to their sport participation by implementing a modified style of play.

The adaptations present in the sport of curling allow participants to adjust for factors related to the aging process outside of their control. Moreover, given the number of adaptations in curling and the general acceptance of using such adaptations among participants, this sport may proactively facilitate acceptance of certain aspects of aging (i.e., functional limitations). Additionally, women currently curling with a stick found that they can still feel successful, find joy in the sport, and remain socially engaged. These suggestions of 'unique aspects of curling' are explored more fully below.

Redefine aging. This paradoxical view of aging, where they simultaneously believed they can control and be controlled by different aging-related variables, facilitated a new perspective on aging. Dionigi (2006) argued that when older adults have negative expectations about the aging process and their personal experience differed from their preconceived notions (i.e., they thought it would be worse than it ended up being), they may perceive themselves to be an exception and therefore may experience feelings of satisfaction and personal empowerment.

Through their curling participation, women often stated that “age is *just* a number”, for example, Claire had this to say on the topic:

Age is just a number because I don't feel my age. I feel a lot younger than I am. I'm taking better care of myself in order not to age. To me, it's a number. I don't feel like I'm getting older. It's just a number.

By reducing the relevance of chronological age to *just* a number, women conveyed that their experience of aging did not reflect their preconceived notions/stereotypes of aging. As a result, and perhaps surprisingly given much of the rhetoric in this area (i.e., that age is directly related to declines in activity engagement, etc.), many women said that their age did not prevent them from pursuing activities they enjoyed. As Joanne pointed out, “I'm not afraid to do new things, because I am over 60 right. So, I'm not afraid to put myself out there”. This short quote encapsulates ideas presented by other participants who characterized older age as a period of learning, trying new things, and “liv[ing] life to the fullest”.

As older age is typically depicted as a time of loneliness and disengagement (Litchfield & Dionigi, 2013), for these women participation in curling has turned older adulthood into an era to pursue meaningful social connections. Additionally, participation in curling at this stage of their lives expanded the activities that older women can and should participate in. Jennie said, “My age has never held me back. At a time when my peer group is stepping back from competitive curling, I am still improving and playing better and better than many curlers in my league.” For this group, aging and competition were not viewed as mutually exclusive experiences.

The women in this study had a nuanced view of aging, however, this cannot be explicitly attributed to curling. Other studies focusing on older women have noted aspects where the aging process is resisted (Dionigi, 2010; Litchfield & Dionigi, 2013), accepted, and redefined (Liechty

et al., 2016); however this study is somewhat rare because all three aspects were identified by participants as existing simultaneously.

Unique aspects of curling for older women

Curling for all. Participants described curling as being very inclusive and welcoming, particularly towards older adults. Joanne noted, “I don't know whether other sports have such an active community of and welcomes their seniors like curling does”. Similar findings were observed by Allain (2020) who found that older male curlers perceived curling to be oriented towards older and middle-aged adults. In addition to the welcoming nature, curling was perceived as an inclusive sport anyone can play. Many participants discussed that in order to curl, players did not need to meet requirements surrounding fitness, body shape/physique, and athletic ability.

I call curling an equal opportunity employer, right, you can be you can be skinny, you can be fat, you can be fit, you can be unfit, it doesn't matter, you can still play. It depends on what level you want to play, right. And that's why I think I like curling so much.

(Betty)

You don't have to be like, you have to have some decent athletic ability to go out and play volleyball, or to play softball or to play certain things. Curling, you don't necessarily have to have as much athletic ability, you just have to have the desire to learn and not be afraid to learn it. (Giselle)

In describing the history of curling in North America, Tate (2011) wrote that the concept of inclusivity was inherent to the sport. Similarly, Leipert et al. (2011) studied the experiences of women curlers in rural communities and found that women perceived curling to be an inclusive

sport. Similar to this work, participants in the present study perceived curling to be an inclusive sport.

Curling has introduced numerous modifications to increase the accessibility of the sport including, stick curling, deaf curling, vision impaired curling, and wheelchair curling. As Giselle explained,

There are all kinds of adaptations in the sport of curling, that allow you to curl till you're 100 or more, right? The sport of curling has adapted and keeps on adapting to make sure that it's one of the most inclusive sports out there.

The adaptations curling provides are often seen as a point of pride, perceived as measures that enable individuals to curl well into later years of life. Overall, the perception of the sport from this group of curlers was that it is a welcoming sport accessible to just about anybody.

Chess on ice. There was some evidence that curling provided both physical and cognitive engagement, a combination that was attractive to many participants. An analogy that was repeatedly presented was, “It's like playing chess on ice” (Claire). Elsewhere, curling has been described as a mixture of bowling and chess (Ito et al., 2018; Kostuk et al., 2001). This linking it to chess relates to the strategy involved within the sport. Like chess, curlers strategize to anticipate their opponents’ throws and how they might respond to them. In curling, the overall strategy is dynamic in order to adjust for the successful and failed deliveries of rocks by both teams. Players are highly cognizant of the path that rocks take towards the house, as this can significantly change ice conditions impacting the speed of following deliveries. As curling requires players to think of the past and the future, multiple participants in this study described curling as a ‘memory game’. Discussions surrounding strategy take place on and off the ice.

Participant's report dissecting the strategies used by teams they have personally faced and professional teams and there is an emphasis placed on expanding knowledge regarding strategy.

The cognitive demands of curling make it a unique sport compared to more popular sports for older adults, like swimming and track and field, which do not require players to engage with dynamic strategy in the way the curling does. For these participants, findings suggest that individuals pursued curling at least in part for cognitive engagement.

The value of competition.

Early in the interview with Summer she explained, "Okay, so [competition is] probably first and foremost, and secondary, I think is the friendships and the camaraderie. *Funny, it's not first. First is actually going out and playing the game.*" This was an apt description of the importance of competition for more than half the participants in this study. In fact, some women pursued curling as an opportunity to compete against others in their age category, for example, Betty explained, "So, to me curling is the one sport where it's better to be older, because you can participate against older people, and maybe win". The ability to compete, specifically compete against same-age peers, was important to this group. Jenkin (2020) described the value in competing against same age peers and how this can act as a motivator for sport participation. In this study, competition was used as a tool to test their skills and be challenged in their curling. The very act of competing brought joy to this group of women and kept them coming back to the sport year after year.

Viewing sport for older adults only from a lens that focuses on participation (e.g., as only a form of exercise) negates the reality that competition is an important factor in their sport participation. Multiple studies, including the present one, have identified the significance of competition in relation to sport participation (Dionigi, 2010; Heuser, 2005; Jenkin et al., 2018;

Litchfield & Dionigi, 2012; Pfister, 2012). Furthermore, some (Baker et al., 2010) have suggested that when exercise or physical activity is promoted to older adults, the critical piece of competition is missing and may impact the number of older adults who then chose to become active.

A related element, achieving sporting success, was also an important aspect of the experiences of these curlers. For example, establishing a winning team was critical for Amanda:

[I]f we're going to go out and play a game, we're going to play a game. You know, there's, there's a certain crowd that says, oh, we don't need to keep score, and it's like, yeah, we do need to keep score. It's a game. There's a winner and there's a loser, we keep the score.

Amanda was not alone in her desire to remain competitive, track points, and establish a winning team, even during recreational games. Heuser (2005) observed similar behaviour in her study of women lawn bowlers where women were keen to win, tracking the scores to establish winners and losers.

Several women iterated that a winning performance consists of two parts: the individual performance and the team performance (i.e., supporting team members on their throws). As such, the desire to win was often accompanied by a desire to perform at their personal best. Giselle emphasized the nuance between winning as a team and personal performance, “I always want to try and go out and win. I like to win. I like to... be the best I can be. And I don't like when I perform poorly.” Interestingly, Dionigi and O’Flynn (2007) found that older adults were generally interested in competing against themselves; however, in this study participants were interested in competing against themselves as well as the opposing team. This may be because curling is a sport where whenever it is played, it is played against an opposing team insinuating a

certain level of competition. Although all sport is, by definition, competitive, the element of competition is more obvious and central in sports like curling compared to other popular Masters sports like track and field, and swimming.

Social Connection.

Curling was described by most participants as a very social sport. For instance, Summer described, “curling has grown my social circle like I would say that half of the people that I associate with are curling people.” Camille and others highlighted the value of curling and curling clubs for helping them to meet new people, particularly during retirement when opportunities for social interaction are more limited.

Social connections made through curling have been leveraged for employment, for example, Betty found employment through her curling friends. The social aspect of curling contributed towards feelings of camaraderie and have often transformed into meaningful and long-lasting friendships. Betty said her best friends were her curling friends. Teri and Jade explained how curling brought their “lifetime friends” into their lives, and Kate recalled creating friendships that might never have been, had it not been for curling. Claire went so far as to say, “[I]t's your team. They're like your second family, you know, it's a great feeling”. Comparing curling teammates to family was also noted by Leipert et al. (2011).

Several participants spoke of the social support they both received and provided in these friendships; for example, Joanne recalled recently participating in cooking meals for one of her friends whose husband had fallen terminally ill. Others, like Amanda and Jade, narrated incidents of support they had received,

I've had and have very good friendships through curling. So, when I've had, you know, difficult points in my life, when there's been milestones, positive milestones, sad milestones, you know, it's those friendships that have been there for me. (Amanda)

I don't know, this is kind of maybe silly, but in the years before my marriage fell apart, they were horrible years, and I would go to the curling club with a migraine, I can't tell you how many times my poor teammates were so supportive. (Jade)

Similar to the findings in this study, Mair (2009) found that curling provided an opportunity to build social connections and find social support.

It was evident that for our participants, curling provided considerable social benefits, and these social benefits were seen as important to their experience in sport. These findings may not be surprising as curling is often viewed as a social sport; however, these results extend the existing literature which positions the social benefits of sport as driving factors for sport participation in this demographic (Horton et al., 2018; Litchfield & Dionigi, 2013; Wong et al., 2019). Moreover, camaraderie (Horton et al., 2018; Wong et al., 2019), friendships and social support (Kirby & Kluge, 2013; Litchfield & Dionigi, 2013; Wong et al., 2019) are particular recurring themes in the limited literature concerning older women in sport.

General Discussion and Conclusion

This study sought to understand the experiences of older Canadian women curlers and our findings add to a budding literature regarding the effects of sport participation for older women. The results provided several intriguing findings including how these participants use sport, and perhaps physical activity more broadly, to simultaneously resist, accept and redefine the aging process. Further, this study reiterates previous work which positions curling as an inclusive sport (Tate, 2011). For the participants in this study, cognitive engagement through the

use of strategy and social connections in curling was a particularly important aspect of the sporting experience.

Another intriguing finding was that competition drove participation in curling in many of these participants. Future research should determine the role of competition in older women's participation in other sports. Importantly, both competition and social connection were viewed as integral aspects of the sporting experience for this group of women. If these results point to a general value of involvement in competitive activities in particular (the social value is widely supported in prior work), there may be important implications. For instance, this may influence the physical activity recommendations given to older women in Canada and, consequently, the number of older women who take up sport.

While this study is highly informative, there were some notable limitations to the study design. First, the qualitative nature of the investigation prevents us from generalizing beyond this sample to the general population. For instance, only English-speaking participants were recruited into the study and given that Canada is a bilingual country, we may have missed key perspectives from French speaking Canadians. Additionally, as the interviews took place over Zoom, only those individuals who felt comfortable using this technology participated.

Ultimately, we believe this work adds to the limited literature regarding older women in sport. Given the reverence women in this study had for curling and the multitude of benefits they derived from their participation, similar work with older men who curl would be valuable. Moreover, research on Masters sport has been criticized due to the limited sampling heterogeneity in this field as a whole (Patelia et al., 2021). As Canada is an increasingly diverse and multi-cultural country, studies on older women who identify as minorities and curl are needed.

In summary, sport participation was determined to be a vital aspect of the lives of this group of women as they identified significant cognitive and social benefits from their participation in curling. For these women, curling was used as a mechanism to negotiate the aging process. While these results are not generalizable, the ability of sport (in this case curling) to positively impact the aging process is intriguing and may have implications for the study of sport and aging.

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Appendices

Appendix A: Participant demographics.

Name	Age	Ethnicity	Marital status	Number of children	Province of residence	Highest level of education	Employment status	Identification as a player?
Amanda	60	White (Caucasian or European)	Married	0	Ontario	Bachelor's Degree	Retired	Competitive Curler
Beth	56	White (Caucasian or European)	Married	0	Ontario	Bachelor's Degree	Employed full-time	Recreational Curler
Betty	58	White (Caucasian or European)	Single	0	Ontario	Master's Degree	Retired	Recreational Curler
Camille	62	East Asian (Chinese, Japanese, Korean, and others)	Married	1-2	Ontario	High School	Retired	Recreational Curler
Cindy	60	White (Caucasian or European)	Common Law	0	Manitoba	Trade/technical/vocational training	Retired	Competitive Curler
Claire	53	White (Caucasian or European)	Separated	0	Manitoba	Trade/technical/vocational training	Employed full-time	Competitive Curler
Elizabeth	73	White (Caucasian or European)	Married	1-2	Ontario	Bachelor's Degree	Retired	Recreational Curler

Gabriella	64	East Asian (Chinese, Japanese, Korean, and others)	Married	1-2	Ontario	Master's Degree	Self- employ ed, semi- retired	Compet itive Curler
Giselle	67	White (Caucasia n or European)	Married	0	Ontario	Master's Degree	Retired	Compet itive Curler
Jade	64	White (Caucasia n or European)	Separate d	0	Ontario	College Degree	Retired	BOTH
Jennie	70	East Asian (Chinese, Japanese, Korean, and others)	Married	1-2	Ontario	College Degree	Retired	Compet itive Curler
Joanne	60	White (Caucasia n or European)	Married	3-4	Ontario	College Degree	Retired	Recreat ional Curler
Kate	63	White (Caucasia n or European)	Married	0	Ontario	Some Universit y	Retired	Recreat ional Curler
Lilly	56	East Asian (Chinese, Japanese, Korean, and others)	Married	1-2	Ontario	Bachelor' s Degree	Employ ed full- time	Compet itive Curler
Penny	75	White (Caucasia n or European)	Widowe d	1-2	Ontario	Universit y Diploma	Retired	Compet itive Curler
Summer	53	White (Caucasia n or European)	Common Law	1-2	Manitoba	Trade/tec hnical/vo cational training	Employ ed part- time	Compet itive Curler
Teri	68	White (Caucasia n or European)	Married	0	Ontario	College Degree	Retired	Recreat ional Curler

Appendix B: Interview guide.

1. Can you tell me a little about yourself?
 - a) Can you tell me about the type of day-to-day activities you take part in?
 - b) Ask participant to choose pseudonym to be used during transcription.
2. Tell me a little about your journey in sport.
 - a) Can you tell me about the experiences in sport that are most important to you?
 - b) If participant had children: How did motherhood affect your sporting journey?
 - c) If married: Did taking on the role of a (wife, mother) impact your sport participation?
3. How were you introduced to curling?
 - a) Why did you choose curling?
 - b) What position do you currently play? Do you have a preferred position?
 - c) Was there a moment/experience where you decided to pursue curling?
 - d) What do you think you get out of curling that perhaps you couldn't get out of other sport?
 - e) Are there things you dislike about curling?
 - f) How long do you see yourself in the sport?
 - g) When we talk about health, we often focus on the physical, but has your involvement in curling affected any other dimensions of your health such as socially, spiritually, etc.?
4. Has participation in curling impacted you in other areas of your life?
5. Do you prefer competing? Or playing recreationally? Why?
 - a) If competitive sportswoman, which level do you typically compete at? How often?
 - b) If recreational sportswoman, how often do you train? Where do you play?
 - c) Has COVID affected your training, competitions etc.? How?
 - d) How has not being able to curl impacted you?
 - e) What does training look like for you?
 - f) What is your definition of an athlete? Based on that definition, do you identify as an athlete? Do you think this impacts your identity?
6. How do you see yourself as you age?
 - a) What changes have you noticed in your day to day life as you have gotten older?
 - b) Are there aspects of getting older that excite you? Can you explain?
 - c) Is there something you are not looking forward to as you age? Why?
 - d) Do negative stereotypes regarding age in western society affect the way you see yourself? Affect your participation in curling?
 - e) When most people think of sport, they often think about young people and it's less often thought about as something adults do. How does it feel to be participating in sport at this stage of life?

7. Do you think that your gender has impacted your participation in curling?
 - a) If so, how? Can you provide examples?
 - b) Do you think gender norms have impacted your participation in curling?
8. Do you think you get social benefits from curling?
 - a) Can you provide some examples?
 - b) How do you think this is different from what your peers outside of curling experience?
 - c) Can you tell me about the individuals you share your sport experiences with besides your family?
 - d) Has your gender played a part in your social development related to sport? What about age?
 - e) Do you recall any positive/negative experiences that affected your social development?
9. Do you think you get psychological benefits from curling?
 - a) Can you provide some examples?
 - b) Do you think this is different from what your peers outside of curling experience? How?
 - c) Do you think these things are specific to females in curling?
 - d) Do you think your sport involvement influences this effect?
 - e) Do you recall any negative experiences that affected your psychological development?
10. Do you think the skills/assets gained from sport are unique to a person's gender?
 - a) Would the skills/assets be different/unique for males?
11. Do you believe the skills/assets you have developed as a result of curling impact the way you are aging?
 - a) Positive/negative impact?
 - b) Do these benefits/assets impact your day-to-day life outside of sport?
 - c) Do you think the skills you've acquired as a result of sport changed the way you view aging?
 - d) Have you faced any age-related barriers when participating in sport?
12. Are there any experiences that we may have not discussed that are important to you or unique to curling?
13. Do you have any questions for me?