Physical Activity Perceptions and Influences among Older Adults in Rural Nova Scotia*,†

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RÉSUMÉ

Cette étude a identifié les facteurs qui influencent la participation à l'activité physique (AP) chez les adultes âgés de milieu rural en Nouvelle-Écosse, et a étudié comment le contexte rural peut influer sur la participation et la promotion de l'AP. Les données ont été recueillies au moyen d'entrevues semi-structurées individuelles avec 20 adultes plus âgés ($Âge_m$ = 77,5 ans) des régions rurales du Cap-Breton, Nouvelle-Écosse, et soumis à des procédures d'analyse thématique (Braun & Clarke, 2006). Quatre thèmes représentant facteurs qui influent sur la priorisation des AP ont été identifiés: (1) Le contexte historique de l'activité, le travail et la productivité; (2) déjà s'etant occupé avec les activités au jour le jour; (3) étant / restant sur la route; et (4) une approche prudente. Ces résultats suggèrent que la promotion de l'AP devrait être contextuellement saillant, et ils soulignent la nécessité d'une compréhension commune entre les personnes âgées en milieu rural et les promoteurs de l'AP sur ce qui constitue être «physiquement actif." La promotion effective de l'AP chez les adultes ruraux âgés peut nécessitent le déplacement de méthodes contemporaines de cette promotion.

ABSTRACT

This study identified factors that influenced physical activity (PA) participation among older adults from rural settings in Nova Scotia Canada and explored how the rural context may influence PA participation and promotion. Data were collected via individual semistructured interviews with 20 older adults (M_{age} = 77.5 years) from rural areas of Cape Breton and subjected to thematic analysis procedures (Braun & Clarke, 2006). Four themes representing factors that influence the prioritization of PA were identified: (1) historical context of activity, work, and productivity; (2) already busy with day-to-day activities; (3) being/staying on the go; and (4) cautionary approach. These findings suggest that PA promotion should be contextually salient, and highlight the need for a shared understanding between rural older adults and PA promoters regarding what constitutes being "physically active". Effective promotion of PA among rural older adults may require a shift away from contemporary methods of PA promotion.

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Physical activity (PA) plays an important role in maintaining, as well as improving, a variety of health outcomes in older adults (Nocon et al., 2008; Paterson & Warburton, 2010; Warburton, Whitney Nicol, & Bredin, 2006). However, despite the numerous benefits of regular PA, even among those with chronic disease or who are physically frail, rates of participation among older adults are relatively low. In fact, the majority of Canadians aged 60 and older are physically inactive; approximately 13 per cent achieve 150 minutes of moderate-to-vigorous PA per week, and only 20 per cent take 10,000 or more steps per day (Colley et al., 2011). Furthermore, regional disparities in PA participation exist. For example, among Canadians aged 65 and older, rates of leisure-time physical inactivity are lowest in Canada's most western province (British Columbia – 46.3%) and highest in its most eastern province (Newfoundland and Labrador – 69.2%) (Statistics Canada, 2011).

Although a comprehensive examination of why such geographical disparities exist has not been undertaken, studies have explored the relationship between degree of urbanization and health status within Canada. For example, Mitura and Bollman (2003) reported rural residents were more likely to smoke and be overweight compared to urban residents. In addition, lower proportions of rural Canadians reported their health as "excellent" compared to those from urban regions (Mitura & Bollman, 2003). Similarly, Pong, DesMeules, and Lagacé (2009) reported that rural Canadians tended to have poorer health than those in urban areas; health status indicators were poorest among those residing in the most rural areas (Pong et al., 2009).

With respect to PA, a similar rural disadvantage has been reported in the United States, Great Britain, and Europe. For example, Wilcox, Castro, King, Housemann, and Brownson (2000) reported the frequency, duration, and intensity of a variety of aerobic activities engaged in by adults over a two-week period. Fifty-six per cent of rural and 48.7 per cent of urban American women were sedentary ($p < .001$); 8.5 per cent of rural and 10.2 per cent of urban women were regularly active (Wilcox et al., 2000). Similarly, Van Dyck, Cardon, Deforche, and Bourdeaudhuij (2010) used an objective measure of PA, obtained by pedometers, to compare the step counts of rural and urban Belgian adults aged 20–65 and reported that citizens residing in urban areas took significantly more steps on weekdays (9,933) compared to those from rural areas (9,111) ($p < .05$); overall, urban participants took more steps per day (9,323) than rural participants (8,775) ($p < 0.1$) (Van Dyck et al., 2010). Among older adults aged 65 and older, Morgan, Armstrong, Huppert, Brayne, and Solomou (2000) compared the exercise participation of rural Cambridgeshire ($n = 1,021$) and urban Nottingham ($n = 1,020$), England. Over a two-week period, urban participants walked significantly more often than rural participants (7.0 hrs vs. 4.7 hrs, $p < .001$) (Morgan et al., 2000).

The findings with respect to health status and PA reflect a fairly consistent pattern within the literature; that is, an urban-rural disparity in health status and participation in PA across adulthood. More specifically, the health status of rural populations tends to be poorer than, and participation in leisure-time PA (LTPA) lower than, the health status and rates of LTPA among urban populations (Keating, Swindle, & Fletcher, 2011; Levin Martin et al., 2005). This is a particularly relevant issue within rural older adult populations; many of whom are "aging in place" (Davenport, Rathwell, & Rosenberg, 2009). Exploring the factors that may help explain this discrepancy and increase rates of PA participation, among rural older adults in particular, may assist in improving health outcomes.

Ecological frameworks provide a way to conceptualize and understand an individual's behaviour in context by positing that behaviour (e.g., PA participation) is best understood as occurring within, impacted by, and influencing a series of dimensions or systems ranging from the micro (e.g., biological, psychological) to the macro (e.g., climate, societal values, and norms) (Sallis, Owen, & Fisher, 2008; Spence & Lee, 2003). A relatively large number of studies that have adopted an ecological approach report quantitative findings with respect to aspects of the physical environment and how these are conducive to, or detract from, PA (e.g., neighbourhood characteristics) (McCormack & Shiell, 2011). Although important, an emphasis on other macro elements (e.g., norms and values related to PA within the larger historical context) is required to broaden current understanding regarding rural older adult PA participation.

To contribute to what is currently known in the literature regarding rural older adult PA participation, we utilized qualitative methods in this study to identify factors that influenced PA participation among older adults from rural settings in Nova Scotia, Canada, and to explore how the rural context may influence PA participation and promotion. As such, this study responds to calls from Witcher, Holt, Spence, and O'Brien Cousins (2007), who emphasized the importance of adopting research approaches and methods (e.g., qualitative) better suited to explore factors not easily captured by quantitative data, towards developing a broader understanding of participation in PA among rural older adults.

Method

The Case for Physical Activity Research among Older Adults in Nova Scotia

Data were provided by residents of Cape Breton, a distinct region located in northeast Nova Scotia on Canada's

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east coast. The province of Nova Scotia has the highest proportion of residents aged 65 and older (16.6%; Statistics Canada, 2012a), more than double the national average proportion of rural residents (> 40%; Statistics Canada, 2012b), and the third highest rate of physical inactivity among those aged 65 and older in Canada (63.5%; Statistics Canada, 2011). These trends are associated with a significantly higher prevalence of diabetes and hypertension in Nova Scotia, compared to the national average (Lee et al., 2009; Public Health Agency of Canada, 2011). Cape Breton has a land area of 10,416 km^2 and population of 135,974, which declined 4.4 per cent from 2006 to 2011 (Statistics Canada, 2012c). Specifically, the proportion of adults aged 60 and older in the Cape Breton region is higher than in urban Nova Scotia (21% vs. 15%); rates of chronic disease such as high blood pressure and diabetes are also disproportionately high in Cape Breton with incidence rates of 25 per cent and 11 per cent respectively (Cape Breton District Health Authority, 2006; Hayward & Colman, 2003).

Recruitment

Quota sampling, a purposeful sampling strategy in which cases are selected based upon particular eligibility criteria (Morgan, 2008), was used to facilitate participant recruitment. Eligible participants were (a) men or women aged 65 and older who were (b) community-dwelling, permanent residents of rural Cape Breton communities and had lived in rural Nova Scotia for the majority (if not entirety) of their life. Consistent with a purposeful sampling approach (Patton, 2002), the lead researcher relied upon personal contacts to recruit participants considered likely to provide information-rich data and insight with respect to the study's purpose. To safeguard against the recruitment of a very narrow range of participants (i.e., only those perceived to be "active"), the lead researcher emphasized the importance of speaking with participants who may have had, but also with those who may not have had, a history of PA participation. Specifically, community stakeholders, community health board members, and attendees of a local fitness class provided the lead researcher with a list of names and contact information of individuals deemed likely to provide a thoughtful and rich account of their perceptions and experiences. Upon receiving this information, the lead researcher extended an invitation to each potential participant via telephone or by personal visit. All recruitment and data collection methods were reviewed by, and received approval from, a University Research Ethics Board and a District Health Authority Research Ethics Board.

Participants

A total of 20 older adults (10 men and 10 women), (M_{age} = 77.5 years, age range: 68–97) were recruited. Participants resided in 14 Cape Breton communities within several rural counties, including Cape Breton, Inverness, Richmond, and Victoria. Nineteen participants were currently or previously married. Seven participants who were previously married were currently living alone due to the death of her/his partner. Two other participants lived alone. Eleven participants currently lived with a spouse. Half of the participants had obtained a Grade 12 education or higher; collectively, education ranged from Grade 5 to a master's degree. Two participants completed teachers' college but did not pursue a career in teaching. Nine participants pursued post-secondary education at various levels (i.e., university, college, and trade school courses).

Thirteen participants were employed outside the home prior to retirement. Seven female participants were homemakers. Participants had worked in a variety of occupational fields including education, health care, engineering, maintenance, food preparation, administration, law enforcement, forestry, and fishing. Five participants received military training prior to, or during, World War II, and one participant saw active duty in Europe during World War II.

Data Collection

Data were provided during two fieldwork trips to Cape Breton (3–30 March 2009 and 26 October–27 November 2009). Participants completed individual semistructured interviews at his or her home, conducted by the lead researcher. Participants were asked questions about his or her place of residence and childhood experiences, health, aging, routine activities, activity preferences, and life course activity. In addition, a portion of the interview was devoted to assessing older adult participants' awareness and perceptions of Canada's Physical Activity Guide to Healthy Active Living for Older Adults (Health Canada, 1999).[1] All interviews were digitally recorded and were, on average, 100 minutes in duration.

Data Analysis

Digital audio files were transcribed verbatim.[2] Participants were assigned pseudonyms and transcripts were stripped of any personal identifying information. Interview data were then subjected to a thematic analysis approach (Braun & Clarke, 2006) whereby we identified and constructed patterns (themes) through an inductive, iterative process, moving back and forth between data collection and analysis phases (Braun & Clarke, 2006; Morse, Barrett, Mayan, Olson, & Spiers, 2002) during both fieldwork trips. In this manner, theoretical sampling (Corbin & Strauss, 2007) was undertaken by systematically checking data we obtained early on in the process to guide subsequent data collection towards confirming (or challenging) interpretations

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(Morse et al., 2002). Between fieldwork trips 1 and 2, our analysis focused on identifying categories that were not yet saturated – the point at which all concepts were well defined and explained (Corbin & Strauss, 2007) and flagging for follow-up any other information deemed potentially important; both tasks informed the design of subsequent interviews during the second fieldwork trip.

The process by which we defined and labeled the final themes produced, involved an initial "breaking apart" of all interview data by reading and reviewing each transcript, followed by generating initial codes created to denote and describe "chunks" of text deemed meaningful and/or noteworthy. Once all transcripts had been coded in this manner, the analysis progressed towards searching for, and identifying, preliminary patterns (themes) based upon similar chunks of data across the entire data set. Upon creating an initial set of themes, our analysis shifted towards identifying broader patterns in the data – that is, establishing the number of themes deemed sufficient to capture the essence of the main patterns contained within the data set, followed by creating a label and description of each. Through this process, themes deemed sufficiently similar to one another were combined. Analysis cycled through waves of code development or refinement and theme development or refinement, guided by constant comparison (Glaser & Strauss, 1967) towards the final selection of themes. This iterative approach to data collection and analysis facilitated saturation whereby all themes were well defined, explained, and developed sufficiently to account for variation (Corbin & Strauss, 2007).

Validity

Following Morse et al. (2002), we built techniques for validity and verification into the research design including the following: (a) methodological coherence (ensuring congruence between the research question and the components of the method), (b) the selection of an appropriate sample (participants who best represented or had knowledge of the research topic), (c) concurrent data collection and analysis (iterative interaction between data and analysis), and (d) thinking theoretically (ideas emerging from data and reconfirmed in new data).

With respect to methodological coherence, we conducted semistructured qualitative interviews to obtain richly described data, and thematically analyzed data which informed an under-researched topic (Braun & Clarke, 2006), both of which aligned with the study's research questions (focused on identifying factors that influenced PA participation and exploring how the rural context may have influenced PA participation and promotion).

We ensured that our sample was appropriate by recruiting participants who had knowledge of the research topic and could provide information-rich data. Concurrent data collection and analysis was addressed in the manner described previously – by moving back and forth between data collection and analysis phases. This process also demonstrated "theoretical thinking" by specifically guiding subsequent data collection to confirm (or challenge) current interpretations. Additionally, consistent with analytical trustworthiness (Rodham, Fox, & Doran, 2013) and interpretive rigor (Denzin & Lincoln, 2000), the lead researcher engaged in discussion and debate with doctoral supervisory committee members throughout the research process by sharing his field notes and memos, interview transcripts, and various data coding procedures towards reaching researcher consensus regarding interpretations and representations. In this way, members of the doctoral supervisory committee acted as "critical friends" (Costa & Kallick, 1993; Faulkner & Sparkes, 1999; Manning, 1997).

Results

Factors that Influence Activity Prioritization

Our analysis resulted in the construction of four main themes that represented the "Factors that Influence Activity Prioritization". Specifically, this overarching category referred to historical, social, and personal factors that appeared to influence ways in which older adults prioritized activities (including but not limited to PA) and provided insight into key issues that should be considered in the promotion of PA. The following four identified themes, which represented this overarching category, were (a) historical context of activity, work, and productivity; (b) already busy with day-to-day activities; (c) being or staying on the go; and (d) cautionary approach. We describe each theme in turn and explain the ways in which it may influence PA.

Historical Context of Activity, Work, and Productivity

Participants' earlier life experiences appeared to influence current patterns of activity participation in terms of how they prioritized work-related activity and productive tasks. Therefore, the theme of "historical context of activity, work, and productivity" referred to the historical and cultural milieu as it related to work and leisure-time activity participation. Several participants suggested LTPA was a relatively recent concept. Study participant Josh explained:

> Yes, there are more people walking now, just for the sake of walking … In my time you never heard of that. And of course everybody walked wherever they went anyway. But ah … you know, not just for – for the sake of things …

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Jack offered a similar perspective:

> We never did any exercise … Now they've got – ice rinks everywhere, eh? … There's places to exercise. There's soccer and baseball, all kinds of games, eh? We had nothing. So you can see the difference … what chance did I have to exercise? [I] never knew anything about exercise. No televisions or anything. We never saw that. Today it's altogether different. Didn't know what exercise was, really. Someone say, "exercise." You … you did walking or running, but that's about all you knew. No, I don't think I ever saw – when I was young, ever saw any – any kind of exercise. Maybe never heard the word.

The possibility that exercise in particular, and PA participation within a leisure context more generally, could be foreign concepts, directed our data collection and subsequent analysis towards investigating reasons which might help explain this novel finding. Based on our analysis, one potential reason for participants' unfamiliarity with LTPA or "exercise" was the prioritization of work-related activity. For example, Gary pointed out that during his youth, "We didn't have enough time to be bored, we had to work or do something." Participants' early activity experiences were primarily work-centered. Work tasks were seen to be purposeful and productive activities, whereas PA "for the sake of it" was largely irrelevant for these participants. For example, Josh suggested the importance of a particular work-related activity for him was due to its "usefulness"; an activity perceived to be purposeful and productive:

> If I can use that energy producing something – I'd rather do that … unless it's productive, you know, why waste it? If you can use the same time or the same energy doing something productive, why do something that doesn't matter [like walking], you know?

Of particular interest was how this historical prioritization of purposeful and productive activities may have influenced the ways in which participants were active in their older adulthood. For example, Bernard continued to "[make] kindling. And [take] the wood in", whereas Gary emphasized his desire to "keep things in repair around the home". Activities such as these were prioritized in older adulthood and became important components of participants' daily routine.

Historically then, for many participants, PA was associated with being productive through physical labour. Several participants articulated the importance of such work-related PA. For example, Amanda viewed PA from the perspective of the ability to perform work tasks. She said:

> At the time … I knew it was important to exercise to be in shape, to build your muscles … I said [to my sons], "someday you're going to be working, maybe in the lumberyard or whatever, you're going to need muscles." So, I guess that's basically what I, and – and my parents were always, you know, for that too.

Jack also drew a comparison between work-related activity and exercise from the point of view of health when he said, "A man who's working hard – he doesn't need much exercise." Amanda made it clear that participation in work-related activity remained important to her when she discussed a recent heart attack: "it was in the summertime and we were busy making hay and they needed me on the tractor. I couldn't go [to rehab exercises for a heart attack] … [the doctor] said it was OK [not to go and to make hay]."

In summary, an examination of the historical context in which participants grew up provided insight into participants' current experiences and perceptions of activity. With respect to PA experiences, participants were relatively less familiar with forms of LTPA participation in their youth and adult lives compared to participation in activity within a work context; participants placed particular value upon work-related PA.

Already Busy with Day-to-Day Activities

The theme "already busy with day-to-day activities" was constructed based upon discussions with participants regarding their current routines and reflected an examination of the (in)flexibility to introduce new activities in which particular routine activities appeared to be valued over others. "Already busy with day-to-day activities" referred to participants' reluctance to incorporate additional PA into their daily routines because they perceived themselves to be too busy with other activities and lacking time. For example, when asked to comment on Canada's PA Guidelines for Older Adults (Health Canada, 1999) and asked to consider how she might meet the minimum recommendations for endurance, strength, and flexibility activities, Amy said:

> Well, see, I'm not looking for anything extra to do. Like my time is really taken up [with activities such as helping with the family business, yard work, and walking]. But I suppose if I would be looking, or had extra time, yeah, I would, I would look at it, yes I would.

Similarly, Crystal expressed concerns regarding fitness classes becoming a barrier to participating in other activities:

> But just to go and do routine exercises every day without some kind of feeling that, "why am I wasting my time at this?" I think it's probably where I was a little bit. Because … I had so many other things on my plate. And I'd be cancelling and everything … I think, when you get to be 70 you probably think, "Oh, I'm just going to do my own thing."

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Amanda also had concerns regarding completing other activities if she were to join a fitness class:

> Now, it's funny how you asked that because there is an activity group in [my community] and they're doing physical exercises and they're trying to get a group together. They didn't ask me, but I was kind of thinking, ah, maybe I should, you know? But then I got thinking, oh no, then I can't work, I can't, when [my daughter] calls I can't go. So I said no, I'm not going to do that, I'll just go for my walks and, ah, try and do my own. Because [otherwise], it might interrupt my schedule. But that's the only reason. Otherwise, I would have been interested in doing it.

Similarly, when asked about his capability of performing endurance, strength, and flexibility activities as depicted by Canada's PA Guidelines for Older Adults, Josh remarked:

> Oh, I suppose that there are probably quite the few that I could do, but again, the willingness to do it, you know, I feel that I have a lot of things I need to do before I go permanently and if I want to get as many of those done as possible. I don't know why, but that's – that's life as far as I'm concerned. But ah, no, I'm not ah – I don't think that I'd be willing to go after activities you know, walking or, doing other types of functions – physical functions … I don't think that there's anything wrong with them. I think they're fine, you know. Especially if you have nothing to keep yourself occupied. But in my case I can't see where there's … time for this …

Participants' comments reflected a perceived inability to adopt additional physical activities due to already being busy with other day-to-day activities. Consistent with this perspective, Gary emphasized the importance of his current choice of activities:

> What I'm getting at – I go out in the morning, say nine o'clock, and all the things you have to do around a home – prepare for … get everything ready for the summer. And get everything in the fall ready for the winter … well, I'm busy enough summer and in the spring and in the summer and in the fall doing all these things that I don't need exercise because I'm active enough to take the place of them because it's not – I don't do just one type of work – today probably I'm out doing something … working from nine o'clock in the morning until one in the afternoon.

In summary, although some participants did sporadically participate in some forms of light-intensity PA (e.g., walking, yard work), he or she often did not incorporate PA on a regular basis as part of their regular day-to-day activity routines because he or she was "already busy". Given the value often placed upon these regular day-to-day activities, participants appeared resistant to change. These data, again, speak to the challenges of promoting PA among older adults because those in this study often did not value PA for its own sake.

Being/Staying on the Go

In addition to the concept that participants already perceived themselves as too busy and lacking time to incorporate most forms of regular PA into their daily activities, there was also a belief he or she kept "on the go" (i.e., "active") by virtue of participation in these prioritized daily activities. In fact, participants generally placed a high value on the need to be "on the go". For example, it was clear that Amanda believed she should not be idle nor sit and use her time inefficiently: "If I sit in the kitchen on the couch I'm finished. I'll fall asleep. You know, I don't want that." Similarly, Amelie explained, "I just can't sit and do nothing. I can't – you know. Yeah, have to keep going." Consistent with this philosophy, Larry said of being active:

> [It's] a great thing to do. The old saying is – if you want something done, ask somebody that's busy. If you want something done, ask somebody that's busy they'll do it for you. Somebody that's lazy, [who's] doing nothing, is not going to do anything.

Again, participants valued being active seemingly due to the importance placed on the engagement in purposeful and productive activities. For Gary, it was work rather than PA. He said, "I got to – I feel better when I'm working … Every day since I retired, I – if I feel good enough, I've got something planned … I'd go crazy if I [couldn't] work." Echoing similar sentiments, Josh remarked, "I don't like to see things left undone. And it's almost an obligation in your mind. You feel guilty if you don't do it, ah? Yeah. And … that's upbringing, eh? Yeah." From the point of view of participants, it was important not to be idle, to make good use of one's time, and to remain engaged with life through activity.

It appeared that participants almost feared the consequences of *not* being on the go. For example, Tina said:

> ["Active"] means I can be on the go all the time. And, that's it. As far as I can see. To be able to run out and be independent and do your own thing. You know, some nights I go to bed [and think], "what if something came over you really fast?" And ah, you couldn't, you know, you couldn't be independent anymore. That would be terrible.

From Tina's perspective, her current activities were a key part of maintaining her independence, which was clearly vitally important to her. Perhaps not surprisingly, then, when asked about his or her current level of PA participation, many participants perceived themselves to be "pretty active". For example, Bernard replied, "Hmmm … well I think I'm fairly active. I go out

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pretty well every day for a walk." However, when prompted, participants used the term "physical activity" very broadly and in such a way as to equate being on the go or "active" with "physically active". For instance, when referring to his woodworking activities, Josh responded, "Well, for my age and my physical condition I'm as active as I can be. I go – I'm all day down there." Josh reinforced his perception of the physically active nature of his activity by remarking, "of course, you walk around, back and forth – when you're down there you don't sit down. You move – you're going, pretty much all the time … " and made his thoughts on its contribution to health clear, "I feel you can get enough exercise if you do it around home. Do the things you have – need – to do." Similarly, Jacob considered his wife and himself

> as active as people in our age group. You know, you – there's exceptions to all these rules. There's people eighty years old still playing hockey but I mean that's an exception. Yeah, no, we – we're out and about. We maintain our own property … grass mowing, painting …

Some participants stayed on the go by volunteering in their respective communities, like Carol who said she was "involved with the hospital auxiliary" and Andy, who said, "I more or less volunteer my time around." Similarly, Amanda "help[ed] out the neighbours, [attended] mass everyday … join[ed] whatever [she could] … to help out in the community." For Crystal, being active included "do[ing] all my own baking … attend[ing] … community meeting[s] or a church meeting", and for Gary, completing "everything you have to do around the home" for winter was an important part of being active. This included "putting markers out and putting ropes and stuff around the trees to keep the moose and that from tearing them up" and during the winter working from the basement, "tak[ing] [things] apart and fix[ing] it." Also working from his basement, Josh indicated he was "as active as I can be. I'm all day down [in my workshop]."

In summary, participants clearly communicated the importance of being/staying on the go and did so by engaging in various forms of tasks and activities. Although we do not discount the value of such engagement, a critical assessment of these findings revealed that participants did not view regular participation in PA as part of this active engagement (i.e., being/staying on the go) and were at best, sporadically engaged in mostly light-intensity PA. Thus, although participants indicated being idle was not desirable, they did not appear to value regular participation in PA as a way to be active.

Cautionary Approach

These themes revealed some of the historical and social complexities that influenced PA promotion for the participants in this study. In addition to these complexities, participants had other personal beliefs about the value of PA and concerns about their capabilities that suggested many took a "cautionary approach" towards PA; which meant they were careful to limit their exertion and questioned the usefulness of participating in a variety of physical activities due to concerns about their capabilities and the perceived harmful effects.

Most participants did believe that being physically active was "good for you". For example, Bernard said that PA was "good for your health and it gets your blood flowing good too … get a sweat on, and, if you do it for a while, all of that is good." Andy recognized the mental benefits of PA: "not only is it good for the body, it's good for the mind", and Larry stressed that "when you're walking, if you're smart, you're thinking about doing something." However, several participants were concerned about their ability to engage in PA due to their age. For example, from Gary's perspective [Gary was 85 years old], "certain exercise[s] you could build up strength [as a result] but I mean, not me that much now." Similarly, although Jack said "exercise is not going to hurt you. It's going to help you", he admitted that "after you get over 90 I don't think ah, there's too much [improvement]." Participants' views highlighted a paradox: although he or she appeared to value PA and exercise, they also suggested it would probably be pointless for them.

A number of participants also voiced concerns about the potential physical risks of PA. For example, when asked about a local fitness centre, Wilson remarked:

> Well, I mean, that's why I don't like the gym. Ah, the exertion part. Ah … and I don't know, you see, again, my age – I don't consider myself old. But ah … I don't know if exertion would be good for me. You know, that's the other side of it.

Wilson's concerns appeared to relate to perceptions regarding appropriate activity at his age. Gary expressed similar sentiments when asked to comment on Canada's PA Guidelines for Older Adults, although it was less clear if his concerns were due to age or health:

> I couldn't lift or build up, ah, here, like this, with weights or things because I'm scared I would damage my heart. And this – I'm not supposed to, I'm not supposed to reach over my head. So, I don't think it would be, at the age I am now, or not my age, just, the state my body is in, that it would, it would help me. I'd be scared it would probably do me more harm than good. I'd be rocking the boat I think if I tried to do push-ups or things like that.

Guarding against overexertion appeared important to others as well. For example, Amanda had this advice

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for her husband: "I just tell him, you do, what you, what your body tells you. If you're tired, you stop. You know? You don't overexert yourself." Similarly, Larry indicated, "I wouldn't want to ah – overdo it. You gotta know your limitations, that's about the size of it", and Crystal spoke of a senior's fitness class which she found "was a little bit too strenuous."

Generally, the comments made by participants were consistent with a view of old age as a barrier to PA participation; that is, participants considered themselves "too old" to be physically active. Old age and ill-health were often used in a mutually inclusive way, and several participants expressed concerns over specific health problems. For example, when asked if he thought it was too late to start getting back into shape, Jacob responded:

> To whip myself back in shape, I don't know what avenue I'd have to take … I don't want to end up in a pile on the floor up there. "Ah, the poor bastard, we didn't know he had a heart problem. Ah, he's dead!"

Bernard was also concerned about PA, in light of his diabetes:

> If I did too much, sweating, start sweating and everything, my sugar may go too low. And if that happens you feel terrible altogether. … So that would be one thing I'd have to – kind of consider, if I was doing too much altogether.

Several participants doubted they were physically able (or at least perceived themselves to be very limited) in terms of performing particular physically active tasks. Jacob expressed this idea very succinctly: "Yeah, well, can I do it? – is the first question comes to mind." With respect to visiting a local fitness centre, he continued:

> [The fitness centre] has been there for five or six years. And there's lots of people around me that go. But I never darkened the door of the place, because I was a little reluctant … I didn't know if I could – if they put me on a treadmill or something, I know I can't do that very good, you know.

Other participants also seriously doubted their ability to engage in PA. For example, Bernard spoke of doing push-ups in the past and when asked about doing them now, replied, "Oh, I couldn't do a lot of them anymore, but I could do maybe – maybe 10. At the most. Or I'd get tired like. My arms and that," and with respect to taking a 30-minute walk responded, "No, I don't think I could [go for a walk] for thirty minutes. Not without stopping … on account of my legs. I could do some of it but not that long." Similarly, Hilda said, "I don't think I could do 30 minutes but I could – go for a walk." Jack replied to the question of walking with "I can't walk", and Jacob responded:

> I know I'd work awful hard to get up to be able to walk a-a mile. … that wouldn't happen overnight. Now whether I'd ever be able to do it I don't know. Yeah, I'm ah, 50 pounds over my normal weight.

Similarly, Gary spoke of running in the past and said:

> There's no way I could do that today. There's no way I could even – on the level, run any distance. In fact, my legs wouldn't let me do it along with my heart. I notice a difference in my legs down there this year, but, other than that, it's – you gotta accept I guess what's dealt out for you.

A couple of participants provided particular insight into local older adults' real or perceived limitations with respect to PA participation. Mabel had this to say with regards to participating in a formal PA setting:

> Seniors need a little extra motivation. Mostly because some of us feel, well, we really can't do that … I think seniors need to know that it's not like a competition. It's something you're going to do for you. I know the basis for all of activities should be for you, but, I think with older people we feel that maybe we're not up to the task.

Andy spoke very frankly about his sincere belief that "there are a lot of people around here that … 'round my age that if they tried to do … any strenuous exercise of any kind they'd – they probably wouldn't handle it. I honestly believe it."

In summary, some participants appeared to feel incapable of engaging in even light to moderate intensity PA, and others expressed concern that at their age, such activity would be pointless. PA for most was considered potentially harmful, even risky; the safe option was to "take it easy". Although we recognize that a certain level of caution towards PA is prudent at any age, it appeared as though the study participants overestimated the risks associated with even light forms of PA and underestimated their physical capabilities.

Discussion

We used semistructured, qualitative interviews to identify factors that influenced PA participation among older adults from rural settings in Nova Scotia and explored how the rural context may influence PA participation and promotion. By (re)presenting comments from interviews with rural older adult participants, our findings revealed a complex representation of factors that appeared to influence rural PA participation and promotion in Cape Breton. The perspectives portrayed by these comments are often underrepresented within research on PA and aging (Grant, 2010). By highlighting these perspectives, this study has responded to calls to expand the gerontological research agenda by incorporating interpretative approaches and grounded knowledge translation (Grant, 2010; Grant & Kluge, 2007).

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Theoretical Relevance

Several theoretical ideas represented in the literature inform the understanding of our findings. For instance, consistent with ecological frameworks (Sallis et al., 2008; Spence & Lee, 2003), it is important to interpret PA perceptions and behaviour through a contextual lens so as to understand the individual in context (in this case, older adults and the historical nature of activity). By adopting an ecological lens, we considered the influence of the historical context in which participants were raised and continued to reside, on her/his perceptions about, and preferences for, PA. In particular, the context was influential in that participants' previous PA experiences were largely work-based as opposed to leisure-based; PA within a leisure context was an unfamiliar concept for some. Consequently, participants prioritized work-related activities over leisure ones. For participants, "work" activities were highly valued, perceived as productive and useful, while relatively less value was placed on "leisure" activities – often viewed as lacking purpose. This finding supports other studies which reported older adults' preferences for certain activities over others (Dye & Wilcox, 2006; Leavy & Åberg, 2010; Witcher et al., 2007) and illuminates the importance of not applying a "one size fits all" approach to understanding PA behaviour across populations and settings; we must understand PA behaviour in context. As will be discussed later, this finding has implications for PA promotion.

With respect to participants' prioritization of work or work-related activities over leisure activities, the "Protestant work ethic" (Weber, 1958) has informed the interpretations of our findings, particularly the idea that participation in labour is divine and wasting one's time immoral. This phenomenon has been reported among older adults elsewhere (e.g., Bassett, Bourbonnais, & McDowell, 2007). In older adulthood, participants in this study predominantly remained busy or active by carrying out various work tasks which appeared to be an important part of his or her day-to-day routines towards maintaining health. This finding resembled Ekerdt's (1986) notion of the "busy ethic" in which older adults emphasized keeping busy in retirement.

Both the Protestant work ethic and busy ethic were reflected in the historical context of Cape Breton. Participants in this study grew up during a time where demanding physical labour was the norm, and priority was placed upon completing tasks deemed necessary to sustain day-to-day family life (Feintuch & Samson, 2010). This is consistent with the findings reported by Witcher et al. (2007), based upon data provided by older adults in a rural setting and supports other studies that reported the importance to older adults of being/staying busy (e.g., Arcury, Quandt, & Bell, 2001; Grant, 2008; Terrill & Gullifer, 2010), as well as the importance of engaging in activity perceived to be productive and useful to rural adults (e.g., Eyler & Vest, 2002; Gullifer & Thompson, 2006). Such explanations contextualize PA barriers commonly cited by older adults such as being "too busy" (Baert, Gorus, Mets, Geerts, & Bautmans, 2011) or not having sufficient time (Conn, Tripp-Reimer, & Maas, 2003; Costello, Kafchinski, Vrazel, & Sullivan, 2011; Schutzer & Graves, 2004; Wilcox, Bopp, Oberrecht, Kammermann, & McElmurray, 2003); additionally, these explanations support theoretical work and offer guidance with respect to PA promotion strategies.

Implications for PA Promotion

An important next step is to consider how our findings may guide the development of PA promotion strategies. Although we acknowledge that additional data collection across a variety of rural contexts would broaden understanding of the nature of PA among older adults, we believe the interpretations we present here are contextually grounded, reflecting perceptions and experiences that may have relevance to other locations. Therefore, we present the implications of our findings for PA promotion.

Promotion of Salient Physical Activities

Participants' prioritization of work-related activities and preference for activities that were productive and useful has implications for the promotion of PA among rural older adults in rural settings. One obvious implication is that the promotion of traditional or conventional LTPA such as joining a fitness centre, or participating in various sports, will not be particularly effective in increasing older adult PA participation. Activities such as these are not salient for many, and participation in such activities may be perceived as time not well spent. Therefore, PA promotional efforts would be better focused on promoting physical activities perceived as relevant and to promote activities within an instrumental or "work", rather than a purely leisure, context. Physical activities need to be contextualized since participants may not be motivated to participate in LTPA, "for the sake of it", as a way to maintain health.

In light of the prioritization of work tasks that are perceived as productive and useful, appropriate strategies to promote PA should include the promotion of specific activities consistent with a "rural lifestyle" and the promotion of particular physical activities as ones that would aid in the performance of various prioritized, contextually relevant work activities. Specific activities that have a physical component and are culturally relevant may include wood piling, hanging clothes on a line, snow shovelling, walking to friends'

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houses, gardening tasks such as trenching and raking, and domestic tasks such as kneading dough. Beyond promoting specific activities, it is important to highlight how certain physical activities can play an important role in maintaining the ability to perform valued work activities into advanced age. For instance, PA promotional initiatives should emphasize how various endurance, strength, and flexibility activities can improve one's ability to perform various valued activities such as those listed.

Fostering a Shared Understanding of "Physical Activity"

Participants used the term *active* in a very broad and inclusive sense to include a variety of activities outside the definition of physical activity. Therefore, although participants viewed PA engagement as beneficial, they did not adhere to Canadian guidelines with respect to engaging in endurance, strength, and flexibility activities and were often not physically active at levels sufficient for physical health benefits. Furthermore, participants expressed concerns with respect to it being too late for PA to offer much benefit. Importantly, however, participants did not desire to sit idly by in their retirement years, content to do nothing. Rather, participants believed idleness was counterproductive to healthy aging; they conceptualized healthy aging in terms of remaining engaged with life and sought out opportunities to be and stay active. Such activity or "busyness" was perceived to be a means to maintain physical function, as opposed to participation in PA or exercise. Grant (2008) reported the same phenomenon among older adults (aged 70 and older) in New Zealand who believed functional health was achieved through being a "busy body" (p. 825).

Canada's Physical Activity Guidelines

As promoters of PA in the Canadian context, we adhered to the evidence-based guidelines developed collaboratively by the Active Living Coalition for Older Adults and Canadian Society for Exercise Physiology (Health Canada, 1999).[1] Discussing these guidelines (and the accompanying handbook) with participants revealed a paradox. That is, despite the perception that he or she was sufficiently physically active to maintain good health, no participants were previously aware of Canada's PA guidelines for older adults, nor did they demonstrate an informed understanding of the definition of PA. This corroborates the findings of others. For example, Evans (2011) and Witcher et al. (2007) also reported older adults' unfamiliarity of Canadian PA guidelines for older adults. With respect to perceptions of PA, many older adults believe they are sufficiently active (Crombie et al., 2004). This runs contrary to national-level data which suggest the majority of older adult Canadians are insufficiently active (Colley et al., 2011; Statistics Canada, 2011) but is consistent with concerns regarding frequent overestimates of self-reported activity among individuals (Dishman, Heath, & Lee, 2013).

Findings such as these illuminate the importance of educating older adults regarding the activities that constitute physical activity and the health benefits associated with regular participation in PA. Furthermore, promoting awareness of current Canadian PA guidelines for older adults (Tremblay et al., 2011) should be considered fundamental to promoting PA among rural older adults. However, PA promotion needs to be sensitive with respect to the value placed upon an active engagement with life, as this is important in its own right and not to be discounted.

Our findings also have invited a critical assessment of the information presented within the guide's accompanying handbook (Health Canada, 1999). Although we believe the handbook was an important accompaniment, as it targeted older adults specifically, contextually relevant and salient physical activities for rural older adults (such as those previously described) were conspicuously absent. Furthermore, Canada's current PA and sedentary behaviour guidelines handbook (Canadian Society for Exercise Physiology, 2015) addresses all age groups more generally (as opposed to offering an older adult-specific handbook). Consequently, compared to the original handbook, information specifically pertaining to older adults has been drastically reduced. As was the case in the previous handbook, contextually relevant information for rural older adults (and for all rural Canadians for that matter) remains absent in the current handbook.

Since our findings suggest there is a disconnect between traditional or conventional portrayals of PA, (as represented in the handbook by structured exercise classes and the use of fitness equipment) and its salience for rural older adults, we believe it is important for materials which accompany the PA guidelines to be inclusive of rural older adults' preferences – for example, work-related, productive physical activities. In summary, we believe it is important to increase awareness of current PA guidelines among rural older adults but also to improve the relevance of the supplemental information currently available.

Facilitating Sustained Behaviour Change

Although efforts to educate older adults and promote awareness of PA guidelines are essential, they will likely not be sufficient to bring about long-term behaviour change (Brawley, Rejeski, & King, 2003; King, 2001). Indeed, data from this study illuminated the complexity of this issue. For example, in addition to considering the type and salience of PA, as well as its conceptualization, one must consider participants' beliefs regarding aging

and PA. Our findings indicate that although participants perceived themselves as "active," they approached any PA in an overly cautious manner. For example, there were a limited set of mostly light-intensity activities that participants perceived as realistic and appropriate for someone their age; participants also questioned the health benefits associated with PA at their age. Consequently, participants placed priority on activities perceived to be relatively low risk: those perceived unlikely to cause harm or exacerbate current health conditions. Participants were particularly concerned about overexertion.

Several studies (e.g., Booth, Bauman, & Owen, 2002; Grant, 2008; Leavy & Åberg, 2010; Wilcox, Oberrecht, Bopp, Kammermann, & McElmurray, 2005; Witcher et al., 2007) revealed older participants' scepticism regarding the health benefits of PA at their age as well as concerns regarding overexertion and being "too old" for PA (Booth et al., 2002; Wilcox et al., 2005; Witcher et al., 2007). Participants' concerns regarding physical overexertion and current medical conditions that would be exacerbated with additional PA, as well as doubts regarding their physical capabilities to participate in PA, were also reported by McGannon, Busanich, Witcher, and Schinke (2014) and O'Brien Cousins (2000). In O'Brien Cousins' (2000) study, women aged 70 and older identified various health risks of PA and cited concerns regarding aggravating current medical conditions with PA. Similarly, in a study conducted by Evans (2011), some female participants were concerned that too much exercise could damage their heart.

In light of participants' views and concerns, efforts must be taken to enable older adults to consider alternative conceptualizations of aging with respect to PA participation. This is not to suggest older adults' physical limitations should be trivialized; however, our findings suggested that participants underestimated their physical capabilities and may not have recognized that regular PA offers health benefits at any age. Since participants in this study considered maintaining physical independence to be paramount, PA promotion initiatives that highlight PA's role in maintaining physical function should hold potential to change older adults' perceptions regarding PA participation in older adulthood. By adopting such an approach, older adults may be more willing to consider alternative conceptualizations of what it means to be "active" and adopt a wider variety of physical activities considered appropriate.

Strengths and Limitations

Strengths

This study had a number of strengths. For example, themes were constructed from information-rich, thickly described data provided by older adult participants across several rural counties. An equal number of older adult men and women were represented across a wide age range. Another strength was this study's emphasis on the applicability of themes and concepts to PA promotion strategies at both community, regional, and national policy levels. By obtaining thickly described data and emphasizing their applicability to PA promotion, this study responds to calls to expand the PA and aging research agenda by incorporating interpretative approaches and grounded knowledge translation (Grant, 2010; Grant & Kluge, 2007).

Limitations

Despite the strengths identified, several limitations must be acknowledged. For example, as previously mentioned, data collection took place across a wide, relatively large geographical area across many communities. Consequently, the iterative process of data collection and analysis was, at times, limited; at times this also limited the ability to theoretically sample (Corbin & Strauss, 2007). Researcher flexibility was important, in this case, to maintain a balance between the iterative process of data collection and analysis, theoretical sampling, and completing interviews within a limited time frame. Furthermore, we acknowledge that although we believe saturation was achieved, it is possible that continuing our research indefinitely may have contributed to our understanding of one or more themes.

Another limitation related to group-interview participant recruitment. An older adult group interview was held, but low participation (n = 2) limited its usefulness. An additional limitation related to participants' perceptions regarding their PA engagement. Although obtaining objective measures of PA was not the focus of the study and beyond its scope, we acknowledge the importance of such data to complement data such as those obtained in our study.

A final limitation concerned the interpretations from this study. They must be approached with due caution since the data provided may not represent the perceptions of the hard to reach (and likely sedentary) older adults particularly well; yet their insight may be especially valuable. Although PA participation among participants was limited, it appeared participant recruitment may have resulted in a large proportion of older adult participants judged by key informants to be "active". Furthermore, given the purpose of this study and its methodology, we acknowledge that although we believe our findings make a unique contribution to the field, readers are cautioned against generalizing across all rural contexts, as it is yet unclear to what extent our findings may be regionally specific. This is, of course, an important question but beyond the scope of the present study.

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Future Directions

Many questions remain unanswered at the conclusion of this study. As acknowledged in noting our study's limitations, an important question is, "To what extent are the interpretations applicable to older adults in other rural contexts?" The answer is currently unclear, and future research should investigate the relevance of themes and concepts we have presented to older adults in other rural contexts. Furthermore, it would be prudent to examine the relevance of these themes and concepts among urban older adults. To what extent are the findings and suggestions for PA promotion specific to a rural context? Another important question relates to the concordance between participants' reported and actual PA: what are the objectively measured rates of PA among rural older adults in Cape Breton? Finally, with respect to the current body of work, research should progress towards developing an integrative and comprehensive theoretical framework to guide future rural PA promotion. This study makes a particular contribution to broadening our understanding of PA participation and promotion among older adults in rural regions such as Cape Breton.

Conclusion

This study identified factors that influenced PA participation among rural older adults in Cape Breton, Nova Scotia, and explored how the rural historical context may influence PA participation and promotion. The historical context in which participants were raised was influential in that participants prioritized work-related activity over leisure. Therefore, it is important to consider what physical activities may be salient for rural older adults when planning PA initiatives or interventions. For example, it appears prudent to shift the focus away from the promotion of conventional (i.e., leisure-time) PA promotion among rural older adults. Furthermore, with respect to PA promotion, it is also important to consider the way in which rural older adults conceptualize "activity" and "physical activity" and his or her expectations with respect to PA and aging; that is, does one perceive PA as inappropriate due to age? It is likely that these findings and strategies are relevant to other rural settings but to what extent, and to which particular regions, is currently unclear. Therefore, future studies should investigate how the factors identified and proposed strategies in this study can inform the development of local PA promotion initiatives within other rural contexts.

Notes

1 This study used old guidelines (Health Canada, 1999) because it was conducted prior to the release of the 2011 guidelines (Tremblay et al., 2011).

2 Interview transcripts were not strictly "verbatim" but "relatively verbatim" accounts, as elements such as non-verbal communication were not captured (Poland, 1995, p. 307). Consistent with Poland, quotations were edited to remove "ums", "uhs", etc. The authors share the view of MacLean, Meyer, and Estable (2004) that these conversation fillers can detract from content and portray participants as inarticulate.

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