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Rural Older Adult Physical Activity Participation and Promotion in Cape Breton, Nova Scotia

by

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Dedication

I dedicate my dissertation to the older adult 'legends' past and present; those within my immediate and extended families as well as other friends from whom I have learned many valuable lessons about aging and of life. My dissertation is also dedicated to the memories of former and current research participants who are no longer living but cared enough to assist me with my research in any way possible.

Abstract

Given the relatively high rates of physical inactivity among older adults in Nova Scotia (NS) (Statistics Canada, 2011), the purpose of this study was two-fold: 1. To examine the physical activity (PA) beliefs, perceptions and experiences of rural older adults in rural Cape Breton, NS and 2. To examine municipal, regional, and provincial-level stakeholders' perceptions of, and experiences with, PA promotion in NS. Data were obtained through semi-structured and group interviews with 20 older adults (M_{age} = 77.5 years, age range: 68-97 years) and 12 stakeholders (M_{age} = 49.8 years, age range: 33-74 years). Consistent with Corbin and Strauss (2007), elements of open coding and axial coding were used throughout the data analysis process, interwoven with ongoing data collection to produce an interpretive description (Thorne, 2008) of PA participation and promotion. Analysis resulted in the construction of two major categories. The first, "Factors that Influence Activity Prioritization" consisted of four concepts ("Historical Context of Activity, Work and Productivity," "Already Busy with Day-to-Day Activities," "Being/Staying on the Go," and "Cautionary Approach"). The second, "Promoting Physical Activity Among Older Adults," depicted strategies for the promotion of PA within the context of particular PA routines and prioritized activities. In terms of PA promotion, several factors appeared important including the prioritization of work-time/"productive" PA, conceptualizations of PA and norms, beliefs and perceptions of aging and PA. The findings of this study suggest PA needs to be culturally relevant and salient, identify a need for PA education and highlight the potential importance of

associating the relevance of PA with respect to physical function. Furthermore, with respect to promoting PA among rural older adults in Cape Breton, it appears prudent to shift the focus away from conventional/traditional methods of PA promotion (i.e., LTPA). Although this study generates a host of additional questions that merit further explanation, it serves as an important step toward understanding the nature of PA participation and promoting PA among rural older adults in NS.

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Chapter 1: Introduction

Overview of Study Rationale

The rationale underlying this study is built upon various related bodies of literature. For example, recent statistics indicate that Canada's population demographics are changing, resulting in higher proportions of older adults. As a result, greater attention has been paid to the possible impact of population aging on health care sustainability, population health, and rates of chronic disease. Regular participation in leisure-time physical activity (LTPA) is associated with a variety of physiological and functional health benefits but rates of participation are relatively low; particularly among older adults and within Atlantic Canada (Health Canada, 2012; Statistics Canada, 2011).

Beyond individual conceptualizations of health behaviour and physical activity (PA) participation that focus on cognitions, studies have demonstrated the importance of ecological conceptualizations which consider the influence of a variety of multi-level factors such as degree of urbanization, geographical location, and sociocultural influences on health and PA (Sallis, Owen & Fisher, 2008). Presently however, possible mechanisms which may help explain relatively low rates of LTPA within Atlantic Canada, especially among older adults, are not well understood. Following the operationalization of key terms, a synthesis of pertinent literature is presented, based upon the areas referred to above, which forms the foundation of this study.

Operationalization of Key Terms

Older adult. Individuals aged 65 and older, consistent with Statistics Canada (2007):

> …Using the age marker of 65 is probably one of the most practical ways of defining the senior population from a methodological point of view, as well as the most commonly used procedure (Chappell, Gee, McDonald & Stones, 2003). With the current sources of statistical data, using alternative definitions would be either very cumbersome or impossible. Secondly, from a conceptual point of view, defining seniors as individuals aged 65 and over also has the advantage that most persons recognize 65 years as the age at which individuals become senior citizens. Social institutions also recognize this as; for example, age 65 is recognized as the "normal" age of retirement and is the age at which individuals are entitled to receive full pension benefits in Canada, even if many people retire or receive full pension benefits from their former employers before that age (p.8).

Physical activity. For the purposes of this study, physical activity refers to, "bodily movement that is produced by the contraction of skeletal muscle and that substantially increases energy expenditure" (U.S. Department of Health and Human Services, 1996, p. 21).

Leisure-time physical activity. Leisure-time physical activity is, "an activity undertaken in the individual's discretionary time that increases the total daily energy expenditure" (Bouchard, Blair & Haskell, 2012, p. 12).

Work-related activity. This study's conceptualization of work-related activity is consistent with the definition of work used within Occupational Therapy during 1900-1940 as summarized by Harvey-Krefting (1985). This definition emphasizes an individual's, "intrinsic sense of productivity rather than paid employment" (p. 303).

Rural. Du Plessis, Beshiri and Bollman (2002) have outlined six possible definitions of rural: (a) Census rural areas, (b) rural and small town (RST)/Metropolitan area and census agglomeration Influenced Zones (MIZ), (c) Organization for Economic Co-operation and Development (OECD) rural communities, (d) OECD predominately rural regions, (e) non-metropolitan regions, and (f) rural postal codes. The locations in which data were provided satisfied at least five of the six rural definitions. Despite this study's use of objective criteria, the variation across a variety of Canadian contexts in terms of the nature of "rural" communities is acknowledged.

Census "rural areas." Population living outside places of 1,000 people or more OR population living outside places with densities of 400 or more people per square kilometre.

"Rural and small town (RST)/Metropolitan area and census agglomeration influenced zones (MIZ)." Population living outside the commuting zone of larger urban centres (of 10,000 or more). Urban areas with populations less than 10,000 are included in RST together with rural areas if they are outside the main commuting zones of larger urban centres. MIZ disaggregates

the RST population into four sub-groups based on the size of commuting flows to any larger urban centre (of 10,000 or more).

OECD "rural communities." Population in communities with densities less than 150 people per square kilometre.

OECD "predominately rural regions." Population in regions where more than 50 percent of the people live in an OECD "rural community."

"Non-metropolitan regions." Population living outside of regions with major urban settlements of 50,000 or more people. Non-metropolitan regions are subdivided into three groups based on settlement type, and a fourth based on location in the North. The groups based on settlement type are further divided into "metropolitan adjacent" and "not adjacent" categories. Non-metropolitan regions include urban settlements with populations of less than 50,000 people and areas with no urban settlements (where "urban settlements" are defined as places with a population of 2,500 or more).

"Rural postal codes". Areas serviced by rural route mail delivery from a post office or postal station ("0" in the second position of a postal code denotes a "rural" postal code).

Synthesis of Pertinent Literature

Over the past two decades, Canada has experienced a significant shift in its demographics. This shift is projected to become more pronounced in the future. These recent and predicted demographic trends can largely be attributed to the sharp rise in fertility rates post-W.W. II (from approximately 1947-1966 in Canada) (Foot & Stoffman, 2000), commonly referred to as the "baby boom." In

more recent years, the progressive decrease in fertility rates and increased life expectancy, coupled with members of the baby boom generation beginning to reach retirement age, has given rise to population aging ("the process by which older individuals become a proportionately larger share of the total population"; United Nations, 2002, p. 1)

Between 2006 and 2011, the number of older adults aged 65+ in Canada increased 14.1% to almost five million; the proportion of older adults aged 65+ increased from 13.7% in 2005 to 14.8% in 2011. By 2036, the number of older adults aged 65+ is projected to more than double, accounting for between 23 and 25% of the total population of Canada (Statistics Canada, 2010). The effect this "greying" (Mooney, Knox, Schacht & Nelson, 2004) may have on the population has garnered increased attention over the last 10-15 years as demographers, gerontologists, health economists, health care professionals and others have presented arguments to support (Barua & Rovere, 2012; Fuchs, 1999; Luke, 2001; Schneider & Guralnik, 1990) or refute (Canadian Health Services Research Foundation, 2011; Evans, McGrail, Morgan, Barer & Hertzman, 2001; Garrett & Martini, 2007; Gee & Gutman, 2000) claims that health care expenditures related to the diagnoses and treatment of age-associated disease/disability will increase substantially. Although the actual influence population aging will have on the health status of the older adult population and on the sustainability of health care remains unclear (Rechel, Doyle, Grundy & McKee, 2009), we can expect the effect of population aging to unfold differentially across multiple age categories as baby boomers grow older. Given the heterogeneity within current and future

older adult groups, it is important to build upon current understanding of aging-related issues.

Concerns over long-term health care sustainability as a result of population aging are often raised in light of current rates of chronic disease and functional decline among older adults. In Canada, the proportion of adults with at least one chronic illness increases with age. Overall, 81% of community-dwelling older adults (65+) have at least one chronic illness (Statistics Canada, 2006). Within this broad age group, the average prevalence of chronic conditions significantly increases from approximately 1.9, among those 65-74 years of age, to 2.5 among those 85 years of age and older. Approximately 20% of those aged 65+ have been diagnosed with heart disease and 13.5% have diabetes (Statistics Canada, 2006). In terms of functional health and mobility, a similar pattern exists. Although 95% of older adults aged 65-74 are independently mobile, 75-84 year olds are significantly more likely to have limited mobility compared to those 65-74. Similarly, those aged 85 years and older are significantly more likely to have limited mobility than those aged 75-84 (Statistics Canada, 2006).

As illustrated above, increased age is associated with declines in functional health and is the major risk factor for a number of chronic diseases such as heart disease and stroke (Heart & Stroke Foundation of Canada, 1999; Lloyd-Jones et al., 2010). However, it is important to keep in mind that the onset of chronic conditions such as heart disease and physical frailty are not a direct result of aging, per se. As Taylor et al. (2004) wrote,

> The interpretation of age-related decreases in endurance capacity is complicated by the generalized reduction in levels of physical activity...Many of [the changes in cardiovascular health] have been attributed to ageing and the development of cardiovascular pathology. However, the association of a physically inactive lifestyle with the development of these changes is highlighted by the observation that endurance training reverses many of these age-related adjustments (p. 707).

The advantages of improving the health status of older adults are unequivocal and regular PA participation, in particular, can play an important role in the health maintenance of older adults and help mitigate age-associated functional decline (Warburton, Whitney Nicol & Bredin, 2006). Despite early concerns in the field regarding, "…potential `catastrophic' cardiovascular risks of exercise" and that, "…strength-related activities were…too dangerous for older adults" (Paterson, 2011, p. 18) the last two decades of research have demonstrated the role of PA in maintaining, as well as improving, a variety of health outcome measures in older adults, in addition to preventing all-cause mortality (Nocon, Hiemann, Müller-Riemenschneider, Thalau, Roll & Willich, 2008; U.S. Department of Health and Human Services, 1996).

Regular participation in moderate levels of PA by older adults improves overall cardiovascular health (Shiroma & Lee, 2010; Thompson et al., 2003), glycemic control in type-II diabetics (Castaneda et al., 2002; Sigal et al., 2007), and functional impairment (Fiatarone Singh, 2002; Keysor, 2003; Paterson &

Warburton, 2010). Even among frail, institutionalized adults, strength training improves muscle strength/size and measures of functional mobility (Fiatarone, Marks, Ryan, Meredith, Lipsitz & Evans, 1990; Theou, Stathokostas, Roland, Jakobi, Patterson, Vandervoort & Jones, 2011) demonstrating that it is `never too late' to benefit from regular physical activity (Song, 2008). Regular participation in moderate levels of PA also reduces the incidence of falls among older adults (Sherrington, Lord & Finch, 2004; Sivan, Sawyer & Brown, 2010), which is an important public health issue in Canada since more than two billion dollars is spent annually to treat fall-related injuries among those aged 65+ (SmartRisk, 2009).

Despite the numerous benefits of regular PA participation, even among those with chronic disease or who are physically frail, rates of regular participation in leisure-time PA (LTPA) among older adults are relatively low. In fact, the majority of Canadians aged 65 years and older are physically inactive; over 58% do not participate in PA at a level sufficient for health benefits (Statistics Canada, 2011). Consequently, these older adults are more susceptible to chronic diseases such as heart disease, stroke and diabetes (Blair, 2009; Health Canada, 1999; Heart and Stroke Foundation of Canada, 2003; Kokkinos & Myers, 2010).

Given the relationship between individual behaviours and morbidity risk (Glanz, Rimer & Viswanath, 2008), population aging and the proliferation of chronic disease are two factors that have stimulated increased research attention focused on reducing chronic disease risk, improving quality of life by managing

chronic disease and preventing mortality through lifestyle interventions. Remarkable gains have been made in the understanding and application of health behaviour change at the individual level, which has given rise to reasonably successful behavioural interventions (Johnson, Scott-Sheldon & Carey, 2012; Orleans, 2000). However, the conceptualization of health behaviour *solely* in terms of individual level factors, such as cognitions, has been criticized in terms of its ability to bring about long-term maintenance of health behaviours, particularly at a population level. In response, King and Sallis (2009), Orleans (2000), Ory, Jordan and Bazzarre (2002), Sallis and Owen (1997, 2002), Sallis et al. (2008), Spence and Lee (2003) and others advocated for multi-level, ecological approaches to the conceptualization of health behaviour and health behaviour change.

As summarized by Sallis et al. (2008), ecological approaches conceptualize health behaviour as influenced by multiple levels including intrapersonal (biological, psychological), interpersonal (social, cultural), organizational, community, physical environment and policy. Such an interpretation means that beyond the individual–level, factors such as social environments, cultural contexts, characteristics of the community and physical environment, as well as existing policies and political forces can influence health behaviour.

A comprehensive ecological framework forms the basis of understanding the determinants of health behaviour based upon the interaction between, within and across these multiple levels of influence. In this manner, ecological

approaches are thought to maximize chances for successful behaviour change, given the multi-determined nature and complexity of behaviour (Sallis et al., 2008). Das and Horton (2012) have recently called for increased attention to social and physical environments toward greater adoption of regular physical activity participation.

Such an approach is consistent with long-standing health perspectives within public health where advocates have accepted the importance of the greater societal and environmental contexts to health and well-being (Ory et al., 2002; Raphael, 2009). This has resulted in an increased focus on health promotion within public health, in no small part a result of the Ottawa Charter for Health Promotion (World Health Organization, 1986) (Breslow, 1999). As Kickbusch explained (2003),

> The Ottawa charter initiated a redefinition and repositioning of institutions, epistemic communities, and actors at the `health' end of the disease-health continuum…In overcoming an individualistic understanding of *lifestyles* and in highlighting *social environments* and *policy*, the orientation of health promotion began to shift from focusing on the modification of individual risk factors or risk behaviors to addressing the `context and meaning' of health actions and the determinants that keep people healthy (p. 383).

Similar perspectives on PA promotion informed the guiding principles of the recently developed Toronto Charter for Physical Activity (Global Advocacy Council for Physical Activity, 2010). For example, principles of the charter

included, “address[ing] the environmental, social, and individual determinants of physical inactivity” and “ensur[ing] cultural sensitivity and adapt[ing] strategies to accommodate varying `local realities', contexts, and resources” (Global Advocacy Council for Physical Activity, 2010, p. S371).

Beyond an examination of the individual determinants of health, geographic location has received research attention within Canada in terms of the relationship between degree of urbanization or province of residence and health status. 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).

Disparities with respect to several health indicators also exist between Canadian provinces and across the four Atlantic Canadian provinces in particular. For instance, in 2009, Newfoundland and Labrador (NL) and Nova Scotia (NS) had a significantly higher prevalence of diabetes compared to the Canadian rate of 6% and prevalence rates of overweight or obese adults were significantly greater than the Canadian average (overweight males: 40.2%, overweight females: 27.2%; obese males: 19%, obese females: 16.7%) (Public Health Agency of Canada, 2011). In addition, Lee et al. (2009) reported that hypertension was most prevalent in New Brunswick (NB), followed by NS and NL.

Associated with the health disparities within Atlantic Canada are relatively high rates of leisure-time physical inactivity. Among those aged 12+, 58.1% of Canadians are physically inactive during leisure-time compared to 59.4% in NB (the highest rate in the country), 58.4% in NL (the second highest rate in the country) and 58.0% in Prince Edward Island (PE) (the fifth highest rate in the country). Rates in NS were slightly lower than the Canadian average (54.0%) (Health Canada, 2012). With respect to leisure-time physical inactivity among those aged 65+, a similar pattern was reported. Compared to the Canadian average, NL, PE and NS had higher rates (58.1% vs. 69.2%, 65.2% and 63.5% respectively); these were the three highest provincial rates in the country. The rate in NB was 61.6% (Statistics Canada, 2011). Noteworthy is the fact that all four provinces in Atlantic Canada have relatively high proportions of rural populations (each more than double the Canadian average of 18.9%) (Statistics Canada, 2012a) and of older adults aged 65+ (Statistics Canada, 2012b). NS has the highest proportion of older adults in Canada at 16.6%, followed by NB (16.5%), PE (16.3%) and NL (16.0%). The Canadian average is 14.8% (Statistics Canada, 2012b).

Cape Breton: Site Selection and Context

Site selection. Participants were recruited from rural counties within the Cape Breton region of NS based upon demographic and health characteristics. For example, the proportion of adults aged 60 years and over in the Cape Breton region is higher than in urban NS (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% and 11% respectively (Cape Breton District Health Authority, 2006; Hayward & Colman, 2003). Although the preceding information provides an academic-based rationale of why rural older adult Cape Bretoners were recruited as study participants, it is also important to contextualize such information toward developing a more complete picture of the region in which participants lived. Therefore, a brief overview of Cape Breton is presented in the following section.

Cape Breton. Cape Breton Island is separated from the mainland of the province of NS by the Strait of Canso. It was geographically separated until 1955 at which time the Canso Causeway was officially opened to allow vehicular traffic to pass between each point of land (Feintuch & Samson, 2010). Cape Breton's land area covers approximately 10, 416 km^2 and its population is 135,974, which declined 4.4% from 2006 to 2011 (Statistics Canada, 2012c).

Cape Breton was first inhabited by aboriginal peoples including the Algonquian and Mi'kmaq and early European settlement included those of Portuguese, British and French decent. By the 16th and 17th centuries, British and French fisherman established outposts in Cape Breton and by the early 19th century settlers included those of English, French, Scottish, Mi'kmaq, Irish and American ancestry. In particular, a wave of Scottish immigration occurred in the first half of the 19th century (Feintuch & Samson, 2010). The most common religious affiliations in Cape Breton are Catholic (the majority) and Protestant. Although Gaelic was once the dominant language in Cape Breton, its use declined throughout the 20th century although it is currently undergoing a revival (Feintuch

& Samson, 2010). Cape Breton is known for its cultural richness including its traditions with respect to music and writing. Residents have a strong attachment to the area and identities tied to local communities are also strong (Feintuch & Samson, 2010).

Coal mining was a major contributor to the local economy throughout the 19th and 20th centuries as coal was essential to steel production. However, although Cape Breton was a major player in the coal and steel industries both are now defunct (Feintuch & Samson, 2010). These closures eliminated many jobs and as a result, many individuals left the region to seek employment elsewhere. Cape Breton's population continues to decline (Statistics Canada, 2012c). Consistent with this pattern of outmigration is a relatively high median age of 47.0 years as proportions of older adults increase (compared to 43.7 in NS and 39.9 in Canada) (Statistics Canada, 2012b).

Rural Physical Activity Participation in Atlantic Canada

Despite increased chronic disease prevalence and lower rates of LTPA participation in Atlantic Canada, little research has focused on developing a greater understanding of factors that may help explain these differences. However, stakeholders from rural Canadian communities identified several PA barriers including those related to the upkeep of facilities and infrastructure, inadequate lighting and crime (Canadian Fitness & Lifestyle Research Institute, 2010). Furthermore, Witcher, Holt, Spence and Cousins (2007) emphasized the importance of developing a broader understanding of how past and present-day contexts could influence participation in LTPA among older adults in rural NL.

They advocated the use of inductive approaches to "ground" the understanding of LTPA participation in participants' experiences and perceptions, toward the development of effective LTPA promotion strategies. Therefore, although a variety of environmental barriers and contextual factors may influence area-specific participation in PA (e.g., historical influences, social norms, cultural milieu) in-depth understanding of PA promotion in rural Atlantic Canada (among older adults in particular) is in its infancy and underlying mechanisms are not well understood. In addition to understanding PA participation from the perspectives of rural older adults, it would appear prudent to obtain data from other sources (i.e., from those with local health/PA promotion experience and expertise) toward broadening understanding of PA promotion within Atlantic Canada, and among rural older adults in particular.

Rural older adults in general, who have limited access to health promotion resources, and older adult Atlantic Canadians more specifically, should garner special attention given current population trends. Due to a large out-migration of younger people, many rural Atlantic Canadian communities consist primarily of older adults who are, "aging in place" (Davenport, Rathwell & Rosenberg, 2009).

Purpose

This study's purpose was two-fold:

1. To examine the PA beliefs, perceptions and experiences of older adults in rural Cape Breton
2. To examine municipal, regional, and provincial-level stakeholders' perceptions of, and experiences with, PA promotion in Nova Scotia.

Both were undertaken toward advancing understanding regarding PA participation and applying the knowledge generated to develop strategies to guide PA promotion among older adults in rural Atlantic Canada. Data analysis focused on integrating concepts to construct an in-depth description of PA participation and contextualizing local PA participation by incorporating stakeholder data toward suggesting "grounded" PA promotion strategies for older adults.

Research Questions

Five research questions (RQs) guided data collection and analysis:

1. How have rural older adults experienced PA?
2. What beliefs and perceptions do rural older adults have regarding PA participation and how might these beliefs and perceptions influence current PA participation?
3. What are the challenges to, and opportunities for, PA participation and promotion among rural older adults in Cape Breton?
4. What are stakeholders' perceptions of PA promotion among rural older adults?
5. What have been stakeholders' experiences in undertaking previous PA promotion initiatives?

Chapter 2: Literature Review

Several bodies of knowledge informed the proposed study and are reviewed in the following sections. Section I presents a review of studies that assessed the health benefits of PA participation in older adult populations. Section II presents a review of studies that examined the determinants of PA participation among older adults. Section III presents a review of studies that examined the PA participation or perceptions among adults (both younger and older) who were residents of rural communities.

The health benefits of PA participation in older adults were reviewed because this body of literature forms the foundation of PA promotion among older adults. It demonstrates the variety of physiological and functional benefits of PA/exercise. Studies that examined the determinants of PA participation among older adults were reviewed to provide an overview of factors that have been identified in the literature to influence the PA participation of older adults. Finally, a review of studies that examined PA participation or perceptions among adults in rural areas was conducted to gain an understanding of levels of PA participation among rural adults, explore factors reported to be associated with PA in rural areas across adulthood and to examine the PA perceptions of adults from rural areas. These factors were reviewed across adulthood since a scan of the literature revealed a dearth of studies conducted on rural older adults specifically and exclusively.

This study's RQs build upon the literature reviewed below. For instance, there is a lack of Canadian data with respect to the PA perceptions and beliefs of

rural older adults and therefore it is unclear how these perceptions and beliefs may be similar to or different from data obtained from other rural contexts; only one study was completed in Atlantic Canada (Witcher et al., 2007). Furthermore, based upon the current literature, it is unclear how contextual factors may influence PA participation among rural older adults. Finally, the literature on rural older adult physical activity has not produced an integrated framework of older adult PA to guide PA promotion strategies nor have the majority of studies capitalized upon the knowledge of key stakeholders to inform our understanding of, and ability to promote, PA among rural older adults.

Section I - Health Benefits of PA/Exercise for Older Adults

Physical fitness. The benefits of regular exercise/PA include reductions in the risk of contracting cardiovascular disease (Shiroma & Lee, 2010**;** Thompson et al., 2003), hypertension (Pescatello et al., 2004) and type 2 diabetes (Sigal et al., 2007; Willey & Fiatarone Singh, 2003). Studies across diverse samples of older adults including "healthy," clinical and/or frail older adult participants have demonstrated reductions in disease risk profiles and improvements in a variety of physical fitness indicators (Nelson et al., 2007). For instance, to determine the influence of simple, progressive lower body exercise training on the functional abilities of frail older adults, Hruda, Hicks and McCartney (2003) randomly assigned 25 sedentary participants aged 75-94 to an experimental or control group. Those assigned to the experimental group participated in a 10-week exercise program which focused on simple, progressive lower-body resistance exercises. Control group participants were instructed to maintain current

activities. At the end of the study, experimental group participants demonstrated significant increases in leg extensor average power (eccentric, 44%; concentric, 60%), $p < .05$. Experimental participants also demonstrated significant improvements in measures of physical function including the 8-foot up-and-go (31%), chair stand (66%) and walk time (33%) tests whereas no differences were observed within control participants.

The effects of exercise training were investigated by Binder et al. (2002) who randomly assigned 115 physically frail older adults aged 78+ to an experimental or control group. Participants in the experimental group participated in three, three-month phases of exercise training which incorporated flexibility, balance, endurance and strength exercises while control participants participated primarily in low intensity, flexibility exercises. At the end of the program, as compared to control participants, experimental participants demonstrated significantly greater improvements in aerobic capacity (VO_2peak), functional status (as measured by questionnaire) and PPT (physical performance test) score (a composite of physical function measures such as the chair stand test and 50-foot floor walk). Additionally, experimental participants exhibited significant improvements in maximum voluntary knee extensor, knee flexor torque and one-leg stance time ($p < .05$).

Programs incorporating strength and flexibility exercises have also been evaluated within long-term care facilities. For example, Baum, Jarjoura, Polen, Faur and Rutecki (2003) randomly assigned 20 frail residents, aged 75-99, to an experimental or control group. Experimental participants participated in a 12-

month program consisting of seated range of motion (ROM) exercises and resistance training. Control participants participated in activities such as painting during the first six months before participating in ROM exercises and resistance training for the last six months. Experimental participants demonstrated significant improvements in the timed up-and-go (TUG) test and PPT measures as compared to control participants.

The benefits of exercise have also been reported among samples of medically deconditioned older adults. For instance, to determine the effectiveness of aerobic and strength training on aerobic endurance and muscle strength among cardiac transplant recipients, Haykowsky, Riess, Figgures, Kim, Warburton, Jones and Tymchak (2005) recruited 20 female transplant recipients aged 40-62 to participate in a 12-week exercise program. After 12 weeks of aerobic exercises (treadmill and cycling) and lower extremity strength training, participants demonstrated significant increases in aerobic endurance and leg strength compared to baseline data ($p < .05$).

To examine the responses of skeletal muscle to high-intensity, progressive weight training, Hagerman et al. (2000) randomly assigned 18 untrained male participants aged 60-75 to an experimental or control group. Experimental participants participated in a 16-week exercise program which focused on lower limb resistance training; control participants did not participate in exercise training. After 16 weeks of training, experimental participants demonstrated significant improvements in all strength measures (leg extension: 50.4%, leg press: 72.3%, half squat: 83.5%; $p < .0001$). Additionally, experimental

participants demonstrated significant improvements in aerobic responses (i.e., VO_2peak). No significant differences were found within control participants across baseline and post-program measures.

Cardiorespiratory fitness has also been assessed in terms of its ability to predict mortality among older adults. Older adults who engage in regular aerobic and resistance exercise demonstrate improvements in aerobic capacity and muscle strength respectively; those who exhibit higher levels of fitness also live longer. Aerobic fitness data (via a maximal exercise test) among 2603 participants aged 60-100 presented by Sui, LaMonte, Laditka, Hardin, Chase, Hooker and Blair (2007) demonstrated that fitness was a significant predictor of mortality, independent of abdominal adiposity. These data indicated a strong inverse association between level of cardiorespiratory fitness and mortality.

In addition to improvements in strength and aerobic capacity, exercise has also been shown to improve health indicators such as blood pressure and type 2 diabetes. To determine whether reductions in blood pressure in hypertensive adults aged 49-67 persisted for more than 2-3 hours under controlled conditions, Taylor-Tolbert, Dengel, Brown, McCole, Pratley, Ferrell and Hagberg (2000) recruited 11 participants to participate in a single aerobic exercise session. On one day, participants' ambulatory blood pressure was recorded within 30 minutes of completing 45 minutes of treadmill exercise at 70% of their VO_{2max}. Blood pressure was also recorded on another day in which no exercise was performed. Over a 24-hour period, participants' average systolic, diastolic and mean arterial

blood pressure was significantly lower on days in which they exercised ($p < .05$), compared to days in which no exercise was performed.

Longer term lowering of blood pressure parameters as a result of resistance training has also been reported. After 16 weeks of resistance training exercise, Castaneda et al. (2002) reported the systolic blood pressure of type 2 diabetic participants aged 55+ was significantly reduced, compared to control participants. Incorporating a healthy eating component in addition to high intensity resistance training, Dunstan, Daly, Owen, Jolley, de Courten, Shaw and Zimmet (2002) also demonstrated significant reductions in blood pressure after six months in type 2 diabetic participants aged 60-80 (systolic: 6.7 ± 10.0 mmHg, $p < .05$; diastolic: 4.4 ± 6.9 mmHg, $p < .05$). In addition to these data, as well as those demonstrating significant improvements in muscle strength, Castaneda et al. (2002) and Dunstan et al. (2002) reported significant reductions in plasma glycosylated haemoglobin levels vs. controls.

Mobility. A relatively recent area of research has investigated the role of PA/exercise in the prevention of falls among older adults. To determine the effects of moderate intensity exercise on falls, functional performance and physical disability, Faber, Bosscher, Chin A Paw and van Wieringen (2006) introduced two 20-week programs (experimental condition) at 15 randomly selected older adult facilities. The first program, “functional walking,” focused on balance, mobility and transfer training. The second program, “in balance,” was derived from principles of Tai Chi. A control group was also included, where participants were asked to maintain normal activity. At the end of the program,

participants categorized as “pre-frail” had reduced their rate of falls by 61%. Similarly, Lord, Castell, Corcoran, Dayhew, Matters, Shan, and Williams (2003) reported 22% fewer falls among those who were randomized to a 12-month weight-bearing group exercise condition compared to controls. These frail residents of retirement villages, aged 62-95, also performed significantly better in the 6-minute walking test compared to control participants.

Exercise training has also been shown to be effective among community-dwelling older adults with a history of severe falls. To determine the long-term outcome of a physical training program, Hauer, Pfisterer, Schuler, Bärtsch and Oster (2003) completed a 2-year follow-up of older adults, aged 75+, randomized to an experimental or control group. Three times per week for three months, experimental participants engaged in activities focused on improving strength, functional performance and balance while control participants engaged primarily in stretching exercises. After two years, experimental participants demonstrated significant improvements in gait speed, steps/minute, stair climbing, timed-up-and-go and the chair rise test compared to control participants.

Associated with falls prevention research is the evaluation of risk of hip fracture among older adults. Feskanich, Willett and Colditz (2002) and more recently Robbins et al. (2007) investigated factors associated with hip fracture in postmenopausal women. In two relatively large samples of adults (N = 61,200; aged 40-77) and (N = 93,676; aged 50-79) respectively, both studies reported a significant association between participation in PA and hip fracture risk. Furthermore, each study reported a dose-response relationship. That is, the odds

of developing a hip fracture were significantly reduced as METs (resting metabolic rates) increased (Robbins et al., 2007); every 3 MET-h/wk increase in PA (equivalent to 1 hr/wk of walking at a moderate pace) was associated with a 6% decrease in risk of hip fracture (Feskanich et al., 2002).

Consistent with the findings reviewed in this section, meta-analyses have demonstrated that resistance exercise is an effective way to increase lean body mass in older adults (1 kg increase associated with 20.5 weeks of resistance training) (Peterson, Sen & Gordon, 2011) and that exercise programs can reduce fall rates in older adults; overall reduction of 17% based on 44 trials and 9603 participants (Sherrington, Whitney, Lord, Herbert, Cumming & Close, 2008). Furthermore, a systematic review of Canada's PA guidelines revealed that regular aerobic activity and short-term exercise programs were associated with a reduced risk of functional limitations and disability in older adulthood (Paterson & Warburton, 2010). These data and the data reviewed in this section, are consistent with, and lend strong support to, the American College of Sports Medicine's Position Stand on Exercise and PA for older adults (Chodzko-Zajko, Proctor, Fiatarone Singh, Minson, Nigg, Salem & Skinner, 2009).

Summary. Based upon the literature reviewed, the physical health benefits of regular participation in PA are unequivocal. Across samples of community-dwelling, physically frail, institutionalized and medically deconditioned older adults (even of advanced age), participation in regular PA (aerobic activity and resistance training) improved aerobic capacity, muscular strength, physical function and mobility, prevented incidents of falls, decreased

risk of hip fracture, reduced blood pressure, improved glycemic control and reduced all-cause mortality.

Section II - Determinants of older adult PA participation

The following section presents a review of studies investigating factors associated with the PA behaviour of older adults. A synthesis of the findings reported from relatively contemporary studies (published over the last 9 years) is presented to inform the understanding of PA promotion among older adult populations. The findings have been categorized into "Correlates/Determinants" (factors associated with or that determine PA) and "Barriers/Enablers" (factors that impede or facilitate PA participation) sections. The "barriers/enablers" section may include data provided by older adult and/or stakeholder participants regarding PA participation and/or PA promotion among older adults.

Correlates/Determinants. Among adults aged 70+, Friis, Nomura, Ma and Swan (2003) assessed the socioepidemiologic and health-related correlates of walking one mile or more per week ("frequent walkers"). Socioepidemiologic correlates of walking included age, education and income. Adults aged 70-74 were more likely to be frequent walkers than older participants. College-educated participants were more likely to be frequent walkers than those less educated. Participants with higher levels of income ($\geq$ $20 000) were more likely to be frequent walkers (Friis et al., 2003). Perceived health status and perceived control of health were also associated with frequent walking. Forty-one percent of those who rated their health as very good or excellent were frequent walkers versus 6.9% of those in poor health. Similarly, nearly 40% of participants who reported

having a great deal of control over their health were frequent walkers versus 19% of participants reporting very little or no control over their health (Friis et al., 2003).

In addition to Friis et al. (2003), Umstattd, Wilcox, Saunders, Watkins and Dowda (2008) reported perceived health, income and education as significant correlates of PA among adults aged 50+ (M_{age} = 70.4 years). Orsini, Bellocco, Bottai, Pagano and Wolk (2007) reported age and education as significant predictors of total PA among women aged 48-83 (M_{age} = 62 $\pm$ 9 years). However, education was inversely associated with PA participation, likely due to the inclusion of household activities, which were more commonly performed by women who were less educated (Orsini et al., 2007). Age and self-rated (perceived) health were also significant predictors of LTPA among adults aged 50+ (M_{age} = 67.71 years) (Orsega-Smith, Payne, Mowen, Ho & Godbey, 2007). In addition, perceived health, self-efficacy and social support from family and friends were predictive of meeting PA recommendations. Participants who met or exceeded recommendations of participation in moderate to vigorous LTPA at least five days per week reported significantly higher levels of physical health, self-efficacy for PA and friend and family support, compared to those who did not meet these PA guidelines (Orsega-Smith et al., 2007).

Self-efficacy (the situation-specific confidence to engage in a particular behaviour) is an important correlate of PA participation. Assessing the long-term maintenance of PA after a 6-month exercise trial, McAuley, Jerome, Elavsky, Marquez and Ramsey (2003) demonstrated that for adults aged 60-75, self-

efficacy at program's end was predictive of activity level at 18 months post-program. In other words, participants who felt more efficacious about PA at program's end were more likely to continue to be physically active than those who were less efficacious at the end of the program. Self-efficacy has also been shown to predict physical performance. For instance, among older adults aged 65 to 80 (post-cardiac event), Allison and Keller (2004) observed a significant increase in the distance travelled by participants during the 6-minute walk test as self-efficacy scores (for walking, lifting, general activities, climbing stairs and work) increased. Umstattd et al. (2008) also reported significant associations between barriers self-efficacy and participation in moderate-to-vigorous intensity PA (MVPA) among adults aged 50+. Higher self-efficacy scores were associated with greater participation in MVPA. Umstattd et al. (2008) suggested that self-regulatory strategies partially mediated the relationship between self-efficacy and MVPA.

In several studies reviewed in Section II, as well as studies reviewed in the present section, social support was cited as a key PA enabler (Dye & Wilcox, 2006; Eyler et al., 1998; Eyler & Vest, 2002; Orsega-Smith et al., 2007). Similarly, among older adults aged 59 to 78, Litt, Kleppinger and Judge (2002) evaluated predictors of exercise adherence to an exercise program and long-term exercise behaviour. At the three-month mark, social support for exercise was a significant predictor of level of moderate exercise in the previous 30 days. In addition, those who had higher levels of social support for exercise at the 12-month point exercised on significantly more days than did those with lower levels

of support (Litt et al., 2002). McAuley et al. (2003) also demonstrated the significance of social support for exercise. Exercise program participants with higher levels of social support exercised more frequently than those who were not as well supported.

In a study involving physically frail, community-dwelling older adults aged 65+, Benjamin, Edwards and Bharti (2005) assessed the relationship between the Theory of Planned Behaviour constructs (attitude, subjective norm, perceived behavioural control and intention) and levels of PA (low or high). Significant predictors of being high versus low active were a strong intention to continue exercising, positive indirect attitudes about exercise, and having been advised by a doctor to exercise. Those advised by their doctor to exercise were 7.8 times more likely to be "high active" than those "low active." Neither perceived behavioural control nor subjective norm were significant predictors of PA (Benjamin et al., 2005).

In addition to psychosocial determinants of older adult PA participation, features of the physical environment have also been shown to predict PA participation and function. For example, Mota, Lacerda, Santos, Ribeiro and Carvalho (2007) interviewed urban-dwelling older adults (M_{age} = 77.9 years), about their work, sport and leisure activity participation and asked participants to complete a questionnaire that assessed neighbourhood environmental variables (e.g., access to destinations, street connectivity, neighbourhood safety). Participants' personal safety was significantly associated with total PA (an aggregate of work, sport and leisure PA) and LTPA. Sport activity was

significantly associated with concerns about traffic. Although not clearly stated in the published article, it appears as though increased concerns regarding crime and its impact on safety were associated with increased total PA and LTPA. Increased concerns regarding traffic and its impact on walking were associated with decreased PA participation (Mota et al., 2007).

Balfour and Kaplan (2002) also reported associations between features of the neighbourhood environment (neighbourhood problems) and loss of physical function in older adults aged 55+. Responses to six items assessing the seriousness of potential neighbourhood problems (crime, lighting, traffic, excessive noise, trash/litter and access to public transportation) were aggregated to produce an overall problem score which was entered into a regression analysis along with self-reported functional loss. Neighbourhood problems associated with the largest increase in risk of functional loss were excessive noise, inadequate lighting and heavy traffic. Participants who reported problematic neighbourhood environments had a greater risk of functional decline over one year, compared to those who evaluated their environments more positively.

Barriers/Enablers. To determine the barriers to PA participation for older Australians aged 60+, Booth, Bauman and Owen (2002) surveyed 402 participants who selected from a list, the three most important reasons for not being more physically active. When analysed by PA, a significantly higher proportion of “active” men and women ($\geq$ 800kcal/kg/wk) indicated, “I am already active enough” compared to “inactive” ($\leq$ 800kcal/kg/wk) men and women. “Poor health” was selected by a significantly greater proportion of

inactive men compared to active men and, “I’m too old” was selected by a significantly higher proportion of inactive women compared to active women (Booth et al., 2002). The same six barriers were selected by more than 10% of male and female participants: “already active enough,” “have an injury or disability,” “poor health,” “too old,” “don’t have enough time,” and “I’m not the sporty type.” The proportion of participants who perceived lack of time as a barrier decreased substantially with increased age. The proportion who indicated they were too old increased with increasing age (Booth et al., 2002).

Lees, Clark, Nigg and Newman (2005) used focus groups to determine barriers to exercise among older adult “exercisers” (participate in PA a minimum of three times per week for at least 20 minutes) and “nonexercisers” (do not meet the “exerciser” criterion) aged 65+. The most frequent cited barriers were similar among exercisers and nonexercisers including inertia (“laziness”), time constraints, physical ailments, inconvenience, social barriers, perceived capability and discomfort. However, time constraints were markedly more common among exercisers and fear of injury was not mentioned by exercisers (Lees et al., 2005).

To determine perceived barriers and motivators to exercise in adults aged 74-85, Cohen-Mansfield, Marx and Guralnik (2003) surveyed 324 participants regarding the circumstances or problems that keep one from walking or exercising more and the motivators which would increase one’s present level of exercise. Open-ended responses included health problems/pain, laziness/amotivation, too busy/no time, fatigue, bad weather and dislike for PA. Motivators for exercise

included feeling better/improved health, having someone to exercise with, having an organized program, having more time and good weather.

Over the course of the last decade, a number of reviews have investigated the determinants/correlates of PA among older adults. For example, Rhodes et al. (1999) reviewed studies that investigated individual factors associated with regular exercise among older adults. King (2001) reported on how personal characteristics, program or regimen-based factors and environmental factors may influence the PA participation of older adults. Cunningham and Michael (2004) and Li et al. (2005) reviewed the influence of aspects of the built environment on the PA behaviour of older adults. However, there are, currently, no consistent environmental correlates of PA among older adults (Bauman, Reis, Sallis, Wells, Loos & Martin, 2012). With respect to PA barriers/enablers, Schutzer and Graves (2004) reviewed barriers and motivations to exercise in older adults as did Baert, Gorus, Mets, Geerts and Bautmans (2011) among the oldest-old. These reviews support the findings of the literature reviewed above by reporting barriers such as, poor health, lack of access, lack of knowledge, feeling too old, and a fear of injury and enablers/motivators such as, health benefits, independence, social benefits, free/low cost and easy access to facilities (Baert et al., 2011; Schutzer & Graves, 2004).

Summary. The findings reviewed warrant the consideration of a number of factors associated with PA participation/promotion among older adults in general. Socioeconomic factors such as education and income, personal factors such as self-efficacy and social support and aspects of the physical environment

were shown to predict levels of PA participation. Studies also identified factors that impede and facilitate the PA participation of both "exercisers" and nonexercisers." Perceptions of one's health, physical capability and "age" may be particularly salient among older adults.

Section III – PA Participation Among Rural Adults

As of July 2012, 52 published empirical studies reported data pertaining to the PA participation or perceptions of rural adult participants. These studies can be broadly categorized as quantitative or qualitative in nature; in other words, studies that employed quantitative methods and present numerically-based PA participation data or studies that employed qualitative methods and present textually-based data regarding PA perceptions. A majority of quantitative studies report data provided by participants aged 18 and older. Others focus more exclusively on younger adults, older adults or on a narrower sample that includes younger and older participants. The quantitative literature is reviewed below, based upon these categories.

Quantitative studies.

Sampling across all adults. Eighteen quantitative studies have presented data, collected via surveys, regarding the PA participation of rural adults. Two of the earliest published works that analysed participation in PA by region are likely those published by Perrier Great Waters of France (1979) and the Miller Brewing Corporation (1983). The Perrier study reported that suburban areas contained higher proportions of exercisers (37%) compared to rural (32%) and urban (31%) areas. The report by Miller reported cities with populations of over one million

people contained the largest proportion of active people (28%) compared to 15% of those living in towns with populations under 2500. A subsequent paper written by Stephens, Jacobs and White (1985) reviewed several large surveys that collected data regarding participation in LTPA and was perhaps the first to recommend, "record[ing] the respondent's place of residence using standard census definitions that permit later aggregation in a variety of combinations, for example, urban-suburban, regions, and community size" (p. 157).

To evaluate the health practices of rural women in Kansas, aged 20+, Holcomb (1991) mailed a survey to 1,509 potential participants. The survey included one PA item, asking respondents to indicate how frequently they engaged in leisure-time activities, such as active sports, swimming, cycling, taking a long walk, working in the yard and/or gardening, doing callisthenic-type exercises, or dancing. Of 636 respondents, 44.5% indicated they participated in some form of LTPA three or more times per week.

Analyzing census data from 29,304 participants (aged 17+) from a rural county in New York State, Eaton, Nafziger, Strogatz and Pearson (1994) categorized participants as "nonsedentary" or "sedentary" based on an affirmative or negative response to the following question: "At least once a week, do you engage in any regular activity like brisk walking, jogging, bicycling, etc. long enough to work up a sweat?" Sedentary participants comprised 46.2% of the sample; 48.8% if work-time physical activity (WTPA) was excluded. However, a sub-analysis revealed a high level of PA participation among 46.4% of farmers who reported participating in "sweat activities" four or more times per week.

Malone (1997) investigated the prevalence of PA participation among 94 rural African Americans (aged 19-90) from a rural community in North Carolina via in-person surveys. Based on responses provided on a modified version of the Minnesota Leisure Time Physical Activities Questionnaire (Taylor, Jacobs, Schucker, Knudson & Leon, 1978), the total median amount of PA among participants was 1500 minutes/week. Among residents of a rural county in South Carolina, however, Hooker, Wilson, Griffin and Ainsworth (2005) reported more than 59% of participants aged 18-96 did not meet recommended levels of PA or walking (based on 30 minutes or more per day for 5 days or more per week of moderate intensity PA or 20 minutes or more per session for 3 days or more per week of vigorous-intensity PA). No differences in PA participation were found between African American and Caucasian respondents.

Other studies have investigated the proportion of rural respondents meeting recommendations for PA participation. In 12 rural counties within Missouri, Brownson, Housemann, Brown, Jackson-Thompson, King, Malone and Sallis (2000) surveyed 1,269 participants, aged 18+, regarding walking behaviour in the past month. Participants were asked to specify the number of times per week they walked at least 30 minutes in duration. The proportion of participants who were “regular walkers” (those who walked 5 or more times per week for 30 minutes or more in duration) was analysed by age: 17.3% of those aged 18-39, 17.1% of those aged 40-59 and 24.2% of those aged 60+. Using the same criterion for moderate physical activities (engagement in moderate PA for 150 minutes or more per week) Osuji, Lovegreen, Elliott and Brownson (2006) conducted a

telephone survey among 2510 female residents across portions of rural Missouri, Tennessee and Arkansas. Less than 35% of respondents met the recommendation for moderate PA. In a previously published analysis of data collected for the same project among 278 diabetics aged 20+, Deshpande, Baker, Lovegreen and Brownson (2005) reported 49.6% of the sample engaged in regular PA and 37.2% engaged in no PA. Similarly, in a study investigating the correlates of PA and participation levels among adults aged 18+ from rural Appalachia, Virginia, Zizzi et al. (2006) surveyed 1,239 men and women as part of a church-based colorectal cancer control intervention. Forty-two percent of participants met the recommended guidelines for PA (accumulated five or more activities with MET value $\geq$ 3 for a total of $\geq$ 150 min, or, three or more activities with MET value > 4 and a total of $\geq$ 60 min weekly). Barriers to PA participation included lack of time, health problems and a lack of access to facilities.

In addition to the studies presented thus far, which have exclusively sampled rural adults to investigate participants' PA participation, other studies have sampled across a variety of geographical areas to compare the PA participation of participants by varying degrees of urbanisation. These studies often report data obtained from the U.S. BRFSS (Behavioral Risk Factor Surveillance System) or other large-scale surveys and provide comparisons of PA participation by degree of urbanisation. For example, to determine whether area of residence impacts PA participation, Cook et al. (1998) analysed 1996 BRFSS data provided by 118,778 respondents across the U.S. Leisure-time physical inactivity was highest in rural areas (36.6%) and lowest in central metropolitan

areas (27.4%). Similarly, an analysis of data provided by 178,161 respondents from the 2000 BRFSS by Levin Martin et al. (2005) demonstrated PA participation was lowest among individuals from the most rural category (33.1%). The odds of being physically inactive were 43% higher among those from the most rural category when compared to those from the most urban category (Levin Martin et al., 2005). An analysis of data from the 2001 BRFSS (N = 137,359) by Reis, Bowles, Ainsworth, Dubose, Smith and Laditka (2004) revealed similar results. The prevalence of physical inactivity was highest in rural areas (24.1%) and lowest in large urban areas (14.1%). Finally, an analysis of data collected from the 1998 National Health Interview Survey Sample Adult and Adult Prevention Module in the U.S. (N = 32,440) conducted by Patterson, Moore, Probst and Shinogle (2004), demonstrated that rural adults were less physically active than urban adults (59.3% vs. 62.8%).

Other studies have utilized relatively smaller samples in order to assess the PA participation of participants by urbanisation. For instance, to determine whether differences existed between the PA participation of individuals from urban, suburban and rural areas, Parks, Housemann and Brownson (2003) conducted 1,818 telephone surveys, across various U.S locations. Rural residents were the least physically active (49.9%) and suburban residents (56.2%) the most physically active. In a study that compared selected health-related behaviours of rural and urban residents (aged 18+) in Alberta, Canada, Johnson, Ratner and Bottorff (1995) conducted 853 telephone surveys with residents of two urban cities, several smaller cities, towns and rural areas. Sixty-four percent of the entire

sample reported engaging in “vigorous exercise” at least once per week. Nearly 19% of respondents from a city, 10.5% of those from a small city, 17.5% of those from towns and 19.7% from rural areas participated in vigorous exercise 5-7 times per week. The proportion of respondents who had never engaged in vigorous exercise by location was 29.2%, 32.3%, 35.0% and 31.4% respectively (Johnson et al., 1995). Although somewhat unclear, it appears likely that Johnson et al. (1995) usage of “vigorous exercise” captured both leisure-time and work-time exercise.

Sampling of younger and older adults. To evaluate the PA patterns of women aged 39+ from two rural, predominately African American communities in Alabama, Sanderson et al. (2003a) conducted 585 face-to-face community surveys. Participants were classified as active ($\geq$ 150 minutes of at least moderate intensity activity per week), low active ($\leq$ 150 minutes of at least moderate intensity activity per week) and inactive ($\leq$ 10 minutes of at least moderate intensity activity per week). Based on this classification, 35% of participants were “active” and 36 % of participants were “inactive.” The PA behaviours of midlife and older women were also examined by Hageman et al. (2005) who surveyed 225 women aged 50-69 from rural counties in Nebraska. Based on a $\geq$ 150 minutes of moderate PA criterion, 43.1% were physically active. Measures of average daily energy expenditure were low (30.74 ± 10.63 kcal $\cdot$ kg^{-1} $\cdot$ day^{-1}) and VO_{2max} values below average (20.12 ± 7.81 ml $\cdot$ kg^{-1} $\cdot$ min^{-1}); only 28.9% and 14.2% participated in 2 or more days per week of flexibility and strength exercises respectively (Hageman et al., 2005). Noble Walker et al. (2006)

conducted an additional analysis of the relationship between these data and selected behaviour-specific determinants (benefits of/barriers to PA). Perceived benefits included: improved function, increased fitness, improved mood and perceived barriers included: tiring, hard work and too time consuming. Finally, Kaiser, Brown and Baumann (2010) conducted 137 face-to-face interviews among rural, low-income adults (aged < 30 – 70+) in Wisconsin. Based upon a moderate-intensity PA recommendation of 30 minutes, five times per week and vigorous-intensity PA recommendation of 20 minutes, three times per week, 38% met the moderate PA recommendation and 31% met the vigorous PA recommendation. Overall, 52% of respondents met one of the two recommendations (Kaiser et al., 2010).

To assess the PA behaviours of adults aged 25-74 in rural Australia, Vaughan et al. (2008) conducted a survey of 1,546 people residing within the Greater Green Triangle region of Australia; an area in south-east Australia that extends west to the Coorong in South Australia, east to Apollo Bay in Victoria, south along the coast in between and extends north of Horsham in Victoria (Greater Green Triangle University Department of Rural Health, 2009). Participation in LTPA was categorized as highly active (four or more times per week), moderately active (between one and three times per week) and inactive (less than once per week or not at all). Overall, 17.8% of participants were highly active, 65.4% moderately active and 16.8% inactive. The PA of participants aged 50+ was also assessed by Wilcox, Bopp, Oberrecht, Kammermann and McElmurray (2003) who surveyed 102 women from rural South Carolina.

Analysed by race, 16.7% of African American participants participated in "moderate sport or recreation" over the previous seven days, compared to 10.0% of Caucasians. Participation in "strenuous sport or recreation" over the previous seven days was reported by 21.4% of African American participants and 23.3% of Caucasians (Wilcox et al., 2003).

Three studies have directly compared the PA participation of rural and urban samples consisting of younger and older adults. To describe and compare the health behaviours of rural and urban women, Kernoff Mansfield, Bray Preston and Crawford (1989) conducted telephone surveys with rural and urban residents of Pennsylvania. Wilcox, Castro, King, Housemann and Brownson (2000) also surveyed the LTPA of rural and urban women across the U.S. To evaluate participation in exercise, Kernoff Mansfield et al. (1989) asked participants aged 30+ to respond to the following question, "Do you do anything regularly, that is, at least three times a week, that helps keep you physically fit?" There was no difference between the responses of rural and urban participants; 49% of each group of participants exercised regularly. To assess LTPA among participants aged 40+, Wilcox et al. (2000) asked participants if they engaged in any of a number of aerobic activities in the past two weeks. If participants answered yes, they were also asked to indicate the number of sessions, minutes per session, and perception of increase in heart rate or breathing they experienced from the activity. Participants were classified as "sedentary" (no reported sports or exercise in the past two weeks, or no increase in heart rate reported from any listed activities), "active" (either three or more sessions per week of jogging/running,

hiking, biking, swimming or dance, for at least 20 minutes per session, resulting in a medium to large increase in reported heart rate, or, five or more sessions per week, for at least 30 minutes per session, of any physical activities that resulted in at least some reported increase in heart rate) or "underactive" (not meeting the criteria for sedentary or active). Based on these criteria, 56.0% of rural and 48.7% of urban women were sedentary ($p < .001$); 8.5% of rural and 10.2 % of urban women were regularly active (Wilcox et al., 2000). Finally, Van Dyck, Cardon, Deforche and Bourdeaudhuij (2010) used an objective measure of PA through the use of pedometers to compare the step counts of rural and urban Belgian adults aged 20-65 (N = 350). Citizens residing in urban areas took significantly more steps on weekdays (9,933) compared to those from rural areas (9,111) ($p < .05$) and overall, urban participants took more steps per day (9,323) than rural participants (8,775) ($p < 0.1$) (Van Dyck et al., 2010).

Sampling of "younger" adults. Studies published by Sanderson, Foushee, Bittner, Cornell, Stalker, Shelton, and Pulley (2003b) and Eyler (2003) used telephone surveys to obtain information regarding the PA participation of rural female participants aged 20-50 years. Both studies categorized participants by PA level, based on the following classification: sufficiently active (moderately active for 30 minutes at a time for 5 to 7 days a week or vigorously active for 20 minutes at a time for 3 to 7 days a week), insufficiently active (perform some activity but not enough to be classified as sufficiently active), and inactive (no participation in any moderate or vigorous PA for at least 10 minutes at a time in a usual week). Based on these criteria, 39% of African American participants from Alabama (N

= 567) were sufficiently active, 46% insufficiently active and 15% inactive (Sanderson et al., 2003b). Fifty-two percent of rural Midwestern participants from Missouri and Illinois (N = 1,000) were sufficiently active, 40.1% insufficiently active and 7.9% inactive (Eyler, 2003). Kirby, Lévesque Wabano and Robertson-Wilson (2007) surveyed 263 Aboriginal participants from a rural, Northern region of Ontario and classified participants' PA participation in terms of meeting recommendations for moderate intensity (≥ 30 minutes at least five days per week)or light intensity (≥ 60 minutes at least 5 days per week) PA. Based on these criteria, 30.4% met either the moderate or light PA recommendation and 30% of participants met the recommendation for walking (based upon ≥ 30 minutes, at least five days per week) (Kirby et al., 2007). Adachi-Mejia et al. (2010) reported on the PA participation of mothers aged 20-50+ from rural areas in New Hampshire and Vermont. Based on telephone interviews with 1,691 participants, 44.77% were physically active (for at least 60 minutes per day) four or more days during the past week and 34.83% were physically active between one and three days during the past week (Adachi-Mejia et al., 2010).

Cook, Alberts and Lambert (2011) used an objective measure of PA generated through the use of pedometers to assess adherence to PA guidelines from the ACSM and Institute of Medicine (IOM) based upon a conversion of ≥ 10,000 steps/day. Based upon data from 775 rural South African adults, 36.2% and 21.3% of participants met the ACSM and IOM guidelines respectively (based on four to five days per week of ≥10,000 steps per day). When a more stringent criterion of six to seven days per week of ≥10,000 steps per day was applied,

14.3% and 73.8% of participants met the ACSM and IOM guidelines respectively (Cook, Alberts & Lambert, 2011).

To categorize the PA level of 4,866 middle-aged parents in Québec, Potvin, Gauvin and Nguyen (1997) used the transtheoretical model to categorize participants' activity in accordance with the stages of change framework. Based on the proportion of individuals within the "action" stage, people living in rural areas were reported as being more active than those in suburban and inner-city neighbourhoods. Forty-seven percent of rural participants were in the action stage, compared to 28.2% of suburban and 28.3% of inner-city participants. Potvin et al. (1997) appear to have assessed current PA but did not present these data. Cleland, Ball, King and Crawford (2012) also compared PA between rural and urban participants. Based upon a survey of 3,669 women aged 18-45, rural women participated in significantly more LTPA than urban women (3.5 hr/wk vs. 3.3 hr/wk respectively; $p = .04$) and urban women participated in significantly more transport-related PA than rural women (3.1 hr/wk vs. 2.9 hr/wk respectively; $p = .02$) (Cleland et al., 2012).

Sampling of adults aged 55 years and older. To determine the leisure practices of a sample of older adults (aged 65+) from the Midwestern U.S., Mobily, Leslie, Lemke, Wallace and Kohout (1987) surveyed 3097 participants regarding 15 leisure activities. Participants indicated his/her frequency of participation in PA (vigorous exercise, moderate exercise and walking) by selecting "daily", "several times a week", "several times a month", "once a month or less", or "do not do." Among male participants less than 74 years of age,

15.4% participated in regular vigorous exercise, 9.9% participated in regular moderate exercise and 58.1% participated in regular walking (regular participation was defined as “several times a week” or more). Among males older than 74, 8.2% participated in regular vigorous exercise, 7.7% in regular moderate exercise and 49.5% in regular walking. Among female participants less than 74 years of age, 13.9% participated in regular vigorous exercise, 2.4% participated in regular moderate exercise and 56.7% participated in regular walking. Among females older than 74, 4.0% participated in regular vigorous exercise, 1.1% in regular moderate exercise and 48.7% in regular walking. To describe age-related change in PA/recreational participation among rural older adults, Swenson, Marshall, Mikulich-Gilbertson, Baxter and Morgenstern (2005) conducted a longitudinal follow-up of 903 participants aged 55-80. Post-retirement, recreational activity among men stabilized or increased before tapering off with increased age. However, in women, recreational activity declined after age 55.

To describe the PA of rural older adults with diabetes, Arcury et al. (2006) conducted in-home interviews with 701 participants aged 65+ from two rural North Carolina counties. Participants indicated if they had participated in PA over the past year at a particular frequency (choosing between “yes, at least about once per week on average” and “no, less than once per week”) as well as the number of days of at least 30 minutes of continuous PA participation in the last seven days. Overall, 52.5% of participants had engaged in PA in the past year and of those, 42.5% were not physically active in the last seven days. Shores, West, Theriault and Davison (2009) surveyed 454 rural older adults (aged 65+) in North Carolina

regarding their physical activity levels based upon their seven-day recall of moderate and vigorous aerobic physical activity. Based upon ACSM guidelines of $\geq$ 30 minutes of moderate-intensity aerobic activity per day for five or more days per week or $\geq$ 20 minutes of vigorous-intensity aerobic activity for three or more days per week, 29.9% of participants met recommendations (Shores et al., 2009).

In an analysis of health promoting lifestyle behaviours, Pullen, Noble Walker and Fiandt (2001) conducted 102 telephone surveys with women aged 65+ from rural Nebraska. Eight items assessed PA behaviour and participants were asked to indicated the frequency of participation (anchored by never = 1 and routinely = 4). Although an analysis of participation by individual PA items was not provided, among the health-promoting lifestyles measured, participants scored lowest on the items related to PA ($M = 2.18$, $SD = 0.73$). In a similar study, Johnson (1991) assessed the "health care practices" of 250 rural adults aged 65+ via a mail-out survey. Eighty-two percent of participants did not currently have an exercise program and 81.6% had never played sports or participated in PA at least three times per week.

One study has directly compared the PA participation of rural and urban older adults aged 65+. Morgan, Armstrong, Huppert, Brayne and Solomou (2000) compared the exercise participation among residents of rural Cambridgeshire ($N = 1,021$) and urban Nottingham ($N = 1,020$), England. Although "total exercise" over a two-week period (comprised of walking, gardening and other activities) was not different between rural and urban participants, urban participants walked significantly more often than rural participants (7.0 hr vs. 4.7 hr, $p < .001$). Strain

and Chappell (1982) examined the outdoor recreational participation of rural older adults in Manitoba (N = 80; aged 60+) and found that 56% walked daily, 34% weekly, 3% monthly and 6% never.

Qualitative studies.

In the preceding section, quantitative studies were reviewed with particular emphasis placed upon rates of PA participation among rural adults. The following section reviews qualitative studies with particular emphasis placed upon the beliefs and perceptions of PA among rural adults.

Sampling across all adults. To examine the health beliefs, values and practices of Canadians, Thomlinson, McDonagh, Baird Crooks and Lees (2004) conducted ethnographic interviews with 55 rural participants (aged 19-84) from Alberta and Manitoba. Participants indicated that maintaining a balanced lifestyle, eating healthy foods, drinking lots of water, getting plenty of sleep, avoiding food with dyes, quitting smoking, getting annual flu shots, using a dust mask to prevent respiratory problems, walking and biking were important health seeking behaviours. Thomlinson et al. (2004) did not report additional insights with respect to participant's views on walking, biking or general PA participation.

Kruger, Swanson, Davis, Wright, Dollarhide and Schoenberg (2012) investigated the PA perceptions of adults in rural Appalachia (eastern Kentucky) through the use of interviews and focus groups with 114 participants. Some participants associated exercise with pain and one participant in particular was quoted as remarking,

> Even though I know I need to exercise, and I know it's going to help me, and it will make me feel better, I feel guilty for doing it because I feel like I should be doing something else in the house or for the kids or for someone other than myself (Kruger et al., 2012, p.147).

Participants also expressed concerns about the travel time required to access PA facilities and with respect to PA programming, stakeholders recommended tailoring to the needs and culture of rural Appalachian Kentucky (Kruger et al., 2012).

Gangeness (2010) explored the perceptions of rural American women (aged 18-50+) regarding the conduciveness of the local built environment to PA. Participants were reported to adapt to the rural environment in various ways. For example, with respect to infrastructure, one participant remarked,

> Yes, it [walking] is pretty much on the streets. Sidewalks…by the post office…are uneven and they are cracked. I think if somebody is actually out for a walk they will probably just walk on the street…sidewalks just aren't taken care of (Gangeness, 2010, p.408).

Participants also indicated walking inside public schools were an option when weather was not favourable, discussed the importance of wearing brightly coloured vests to alert oncoming traffic and tried to include children into their physical activities (Gangeness, 2010).

Sampling of younger and older adults. To identify the patterns of PA among minority women, Eyler et al. (1998) conducted 10 focus groups with participants from rural California and Missouri. Participants indicated they were

currently sufficiently physically active but not "exercisers." Participants also talked about how their ethnic background detracted from leading a physically active lifestyle, due to care giving duties, housekeeping and so on. Chinese and Filipino participants indicated that PA needed to be purposeful, "I think aerobics…is a waste of time…you're not accomplishing anything. If you were dusting, and carpet sweeping the floor, or vacuuming, you're doing something" (p. 644). Participants cited a number of barriers to PA including lack of time, health concerns, lack of self-motivation, lack of social network, safety concerns and the cost of programs. Enablers included social support (Eyler et al., 1998).

In rural South Carolina, Wilcox, Oberrecht, Bopp, Kammermann and McElmurray (2005) conducted six focus groups with 39 participants, age 50+, to examine participants' perceptions of what PA and exercise meant and to explore barriers and enablers to PA participation. Consistent with the typical use of these terms, participants viewed "PA" as broader than "exercise." However, leisure activities such as playing cards and knitting were also considered physical activities. In terms of current PA recommendations, many participants indicated that one should not "overdo it" when engaged in PA. In terms of perceived barriers, consistent with Eyler et al. (1998) participants indicated that current health problems would interfere with exercise and talked about not having a lot of time to exercise/be physically active. Participants also expressed concern about being too old and "wearing out." Also consistent with Eyler et al. (1998), social support was viewed as important in the promotion of PA; increasing the likelihood of participating by making it more enjoyable.

Sampling of "younger" adults. In a study that explored correlates of PA among rural Caucasian women, Eyler and Vest (2002) conducted six focus groups consisting of 33 participants aged 20-50 from rural Missouri and Illinois. Participants in this study equated being physically active with being busy. Most participants acknowledged they did not "exercise" enough but indicated that they were "active" enough. Similar to Eyler et al.'s (1998) study, social support was considered an important determinant of engagement in PA by Eyler and Vest (2002). In certain instances, however, participants considered a family member or spouse a deterrent to PA; for example, when a husband hindered his wife's ability to take time out to be physically active. Participants also cited family responsibilities as a barrier to PA participation (Eyler &Vest, 2002). Consistent with Eyler et al. (1998) some participants expressed the need to be doing something more productive than, for example, watching an exercise video (Eyler & Vest, 2002).

Exploring the perceptions of PA among rural African American women, Sanderson, Littleton and Pulley (2002) conducted six focus groups with 61 participants, aged 20-50, from rural Alabama. Consistent with Eyler at al. (1998) and Wilcox et al. (2005), participants cited poor health as a deterrent to participating in PA although others cited having medical conditions as an enabler. Social support was also seen as an important motivator but the social aspects of one's surroundings were seen to discourage PA participation. For example, participants cited cat calls and jokes made by others in the neighbourhood as discouraging and/or a safety concern. Other participants speculated whether

socioeconomic factors may help explain why African American women were less active than those from other cultures. Evans (2011) explored southern, rural American women's thoughts about exercise among participants aged 40-58 through qualitative interviews. Some participants spoke about the benefits of exercise but others believed one, "should exercise some, but not too much" (p. 203) as, "too much" exercise could damage one's heart (Evans, 2011). Similar another participant believed she could not exercise due to high blood pressure, "…you have to be very careful so it [exercise] won't hurt your heart" (Evans, 2011, p. 203). Most participants were not aware of PA recommendations (Evans, 2011).

In addition to motivational or personal barriers to PA, studies have also been undertaken to explore barriers within the physical environment. For example, Bove and Olson (2006) conducted interviews with 28 low-income rural women aged 19-48 from New York State. Participants cited inadequate transportation as a significant barrier to PA participation in addition to features of the actual physical environment (e.g., lack of sidewalks, streetlights). Similarly, Eyler et al. (1998) and Sanderson et al. (2002) reported neighbourhood safety was a concern among participants. Rural Caucasian women also cited a lack of access to exercise facilities as a barrier to participation (Eyler & Vest, 2002), as did rural African American women (Sanderson et al., 2002). Maley, Warren and Devine (2010) conducted qualitative interviews focus groups and photo elicitations with 27 adult participants from upstate New York to understand perceptions of how various environments may affect food choice and PA behaviour. Participants

indicated it was more difficult to be active in rural areas as opposed to urban areas, as illustrated by the following quotations: “You think because there’s all this open space it’d be easier (to exercise) but it’s not because you have to go somewhere to exercise rather than just walking out the door“(p. 188). “I think people are used to not walking because you have to get into a vehicle to get anywhere around” (p. 188). “There’s a community park…but it’s pretty crummy” (p. 188). “Winters are long and everyone just incubates in the house” (Maley et al., 2010, p.188).

Sampling of adults aged 65 years and older. To explore contextual factors related to PA among rural “senior citizens,” Aronson and Oman (2004) conducted two focus groups (N = 26) in rural Oklahoma. In contrast to findings reported by Wilcox et al. (2005), participants described PA as being more strenuous than exercise (Aronson & Oman, 2004). Consistent with some of the studies described previously, participants cited current health status, safety and a lack of sidewalks as barriers to being physically active (Aronson & Oman, 2004).

Older adults’ beliefs and perceptions about health maintenance behaviours have also been investigated. Arcury, Quandt and Bell (2001) conducted 145 interviews with residents aged 70+ from rural North Carolina. Among the most salient health maintenance behaviours, participants referred to “taking” exercise and staying busy. With respect to exercise, participants spoke of their involvement in formal classes, taking walks and general movement. In addition to exercise/PA, participants also valued saying busy. For some participants, this meant being physically active, but for others staying busy referred to remaining

independent and not being idle (Arcury et al., 2001). Similar to Wilcox et al. (2005), older adult participants valued not over-exerting oneself.

To examine the perceptions of PA among rural older adults aged 65+, Dye and Wilcox (2006) conducted four focus groups with 28 participants. Participants with a history of PA were more likely to state they were currently physically active. To emphasize this point, Dye and Wilcox (2006) quoted a female participant who spoke about growing up on a farm where, "you worked from daylight to dark. You didn't have leisure time. You worked" (p. 123). This statement may also highlight the importance of understanding how prior PA experiences may impact current norms for PA. As in other studies cited previously, participants also expressed concerns regarding overdoing it, when it came to exercise and indicated current health problems might interfere with PA participation. Social cognitive variables, such as self-efficacy as well as social support were also important enablers/barriers (Dye & Wilcox, 2006).

To assess participants' perceptions of LTPA and examine these perceptions from a historical perspective, Witcher et al. (2007) conducted 10 interviews (plus five additional follow-up interviews) with older adults aged 70-94 from rural NL. Participants talked about being involved in work activities from an early age and suggested work-related activities held priority over participation in leisure activities. These comments support the findings of Dye and Wilcox (2006). Participants also commented on the importance of staying busy or being "active" which corroborates the findings of Arcury et al. (2001). Based on these findings, Witcher et al. (2007) stressed the importance of developing a broader

understanding of how past and present-day contexts may influence participation in LTPA.

Summary. Data collected via large-scale national surveys, interviews and focus groups have begun to shed light on the nature of PA participation among residents of rural communities. Findings indicated that the majority of rural adults are not regularly physically active. Most studies also indicated rural adults are less physically active than adults who reside in urban areas. Over the last decade, more researchers have begun to sharpen their gaze toward rural older adults' beliefs and perceptions regarding PA. Norms regarding activity and leisure, interpretations of what it means to be physically active, beliefs about aging and past activity experiences appear to have potential to deepen our understanding of rural adult PA participation and impact future health promotion initiatives.

A minority of the studies reviewed sampled older adults exclusively (N = 12; aged 55+) or utilized qualitative methods (N = 14). Furthermore, only four quantitative and two qualitative studies reviewed presented data provided in Canada; one study presented data from Atlantic Canada (Witcher et al., 2007). Therefore, a number of knowledge gaps within the literature remain; particularly those pertaining to the beliefs and perceptions of rural older adults across Canada and, more specifically, within Atlantic Canada.

Chapter 3: Method

Methodology: Interpretive Description

This study adopted an interpretive description approach (Thorne, 2008) to guide data collection and analysis; the result of which was thick and rich description of concepts pertaining to the nature of PA participation toward developing PA promotion strategies. Interpretive description, "…is a strategy for excavating, illuminating, articulating, and disseminating the kind of knowledge that sits somewhere between fact and conjecture, but which is of central importance to the applied disciplines…" (p. 15). Interpretive description was therefore selected as an approach because it, "extend[s] beyond mere description and into the domain of the 'so what' that drives all applied disciplines" (Thorne, 2008, p.33). This approach was consistent with broadening the understanding of PA participation to inform the development of PA promotion strategies.

Sampling and Recruitment Criteria

Rationale. Rural counties within the Cape Breton region were selected on the basis of demographic and health characteristics. As previously mentioned, the proportion of adults aged 60 years and over in the Cape Breton region is higher than in urban NS (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% and 11% respectively (Cape Breton District Health Authority, 2006; Hayward & Colman, 2003). The inclusion of stakeholders was based upon the belief that these individuals would offer a unique perspective on health/PA promotion and therefore broaden the understanding of local health/PA

promotion. Data collection within rural Cape Breton built upon previous research conducted in rural NL (Witcher et al., 2007), by capturing multiple voices of rural older adults and community stakeholders across distinct geographical regions within Atlantic Canada.

Purposeful sampling. Data were provided by older adults and stakeholders in two data collection phases (March 3 – March 30, 2009 and October 26 – November 27, 2009) and was guided by a purposeful sampling approach (Patton, 2002). Quota sampling, a purposeful sampling strategy in which cases are selected based upon particular eligibility criteria (Morgan, 2008), was used to facilitate initial recruitment for semi-structured interviews. For example, initial selection of older adult participants was based on the following criteria: men and women aged 65+ who were permanent residents of rural Cape Breton communities and had lived in rural NS for the majority of their life. Initial selection of stakeholder participants was based on the following criteria: adult men and women who currently lived in NS and worked within the health/PA promotion field or contributed to the development of health promotion policy. In addition, older adult and stakeholder participants were selected based upon the perceived potential to provide information-rich data and insight with respect to the study's RQs.

A quota sampling approach was also utilized to recruit group interview participants, based upon a preliminary analysis of both the initial interview data and of reflexive notes taken during data collection. An invitation to participate in a group interview was extended to those judged most likely to provide insightful,

in-depth discussion within a group interview setting. Purposeful/quota sampling served as the primary participant sampling technique, although a secondary strategy, chain referral (snowball) sampling (Coleman, 1958), was also used. In this case, additional participants were sampled based upon previously interviewed participants' recommendation that he or she would likely offer information-rich data.

Analysis of data provided in phase 1 revealed a high proportion of older adults in the "young-old" category (65-74) who appeared to engage in more physical activity than area-specific indicators suggested was the case. In addition, a majority of participants (70%) were women. Consistent with a theoretical sampling strategy, and to increase the amount of variation accounted for by the data provided, phase 2 of data collection focused on sampling male participants, older adults aged 80+, and those who were believed to engage in relatively little physical activity.

Recruitment. Professional relationships with various individuals in Cape Breton/NS who had an interest in health/PA promotion were fostered over the course of approximately 1.5 years prior to data collection, toward facilitating participant recruitment for the present study. In early 2009, a request was sent to these key informants to informally begin evaluating communities and residents that met this study's eligibility criteria. Key informants accessed personal contacts and used their knowledge of local communities to generate a list of potential older adults who resided in rural communities and stakeholder participants who worked in Cape Breton/NS, prior to both phases of data collection. This list was also used

as the primary means of recruiting additional participants, although a secondary strategy, chain referral (snowball) sampling (Coleman, 1958), as described previously, was also used. At the onset of phase 2 of data collection, as explained previously, sampling focused on older adult participants (aged 80+; men in particular) who were judged to be relatively physically inactive. Recruitment of such individuals was facilitated by key informants who were asked to provide a list of names and contact information of older adults who appeared to satisfy these criteria.

To increase the effectiveness of participant recruitment in phase 2, permission to speak before a community health board in the Cape Breton region and local older adult fitness class was sought and granted. During these brief information sessions, the nature of the study was explained to members of the health board and fitness class participants respectively. All were asked to provide names and contact information of potential participants if any were to come to mind.

All recruitment and data collection methods associated with this study were reviewed and received approval from the Faculties of Physical Education and Recreation and Agricultural, Life & Environmental Sciences Research Ethics Board and the Cape Breton District Health Authority Research Ethics Board. Once ethical approval was granted in February 2009, formal participant recruitment began for the initial phase of data collection, facilitated by the key informants mentioned above and other contacts made during phase 1 of data collection in Cape Breton from March 3 – March 30, 2009.

Participants

Older adults. Data were provided by a total of 20 participants (10 men and 10 women), (M_{age} = 77.5 years, age range: 68-97 years) who resided in 14 communities across several rural regions within Cape Breton including Cape Breton, Inverness, Richmond and Victoria counties. Interviews were conducted with 16 individuals and two couples.

Although exact ancestry was unknown to participants in some cases, a majority of participants were of Scottish decent. Four participants were of French Acadian decent and spoke French as well as English. In terms of educational background, 50% of participants had obtained Grade 12 or higher, ranging from Grade 5 to a Master's degree. Two women completed teacher's 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).

All men had retired from work. Women who previously had careers were also retired although one participant still accepted short-term contracts related to her background from time to time. Three women and ten men were employed outside the home prior to retirement. Seven women were homemakers. Participants had worked in a variety of occupational fields including education, health care, engineering, maintenance, food preparation, administration, law enforcement, forestry and the fishery. Five participants received military training prior, or during, World War II, and one participant saw active duty in Europe.

Among men, one participant was unmarried and nine others had previously married. Among men who had married, seven currently lived with

their wives and two were widowers. Among women, all had previously married. Currently, one woman was no longer married, five others were widowed and four currently lived with their husbands.

Stakeholders. Data were provided by 12 stakeholder participants (M_{age} = 49.8 years, age range: 33-74 years); most of whom resided and were employed in Cape Breton. Two participants were employed by the province of NS and resided in the Halifax Regional Municipality. Seven participants were relatively new to their respective position (1.5 years or less); four others between 4-10 years and one participant had served in their position for 29 years. In terms of education, four participants had obtained a Master's degree (nine participants had at least a Bachelor's degree), and all participants had pursued some level of post-secondary education (e.g., trades, college, university). Two participants were currently single and ten were currently married. Stakeholder participants were employed in the following broad fields at the municipal, regional or provincial level: physical activity promotion, continuing care, community health, rural health, health promotion, chronic disease management, population health, municipal governance and municipal planning.

Procedure

Data collection.

Semi-structured interviews. Key informants were contacted regarding participant recruitment. Informants provided a list of names and contact information of potential older adult and stakeholder participants which was used to contact each person individually by telephone. During the telephone call, the

details of the study were explained and each individual was asked if he or she would be interested in participating. Individuals who declined the invitation were thanked for their time and the telephone call was terminated. Those who expressed a willingness to participate were asked to indicate a convenient time in which an in-person meeting could be held, and assuming consent was given, conduct an in-person interview. This procedure was followed to recruit both older adult and stakeholder participants.

Upon meeting, each potential participant was given an information letter that described the study (See Appendix A) and was provided an opportunity to ask any questions he or she had. In all cases, participants gave informed written consent to participate in the study and to audio-record the interview. This was the precursor to beginning the formal interview process. All older adult participants indicated a preference to meet at, and be interviewed in, their own home. Initial meetings and subsequent interviews with stakeholder participants usually took place in the workplace. However, in some cases the meeting and subsequent interview took place at a mutually agreed upon off-site location such as a University classroom. As was the case with older adult participants, all stakeholder participants agreed to participate in the study upon meeting and reviewing pertinent information. Informed written consent was given and the interview began.

Interviews followed a semi-structured interview guide which underwent revisions as new ideas, deemed to require additional description and examination were introduced by participants. For older adults, initial questions broadly focused

on the rural environment, health, aging and lifecourse activity. In addition, a portion of the interview was devoted to assessing older adult participants' awareness and perceptions of Canada's PA Guidelines for Older Adults (Health Canada, 1999)[1] (see Appendix B). A revised version of the initial interview guide was used to begin Phase 2 (see Appendix B). Questions broadly focused on routine activity, activity preferences, Canada's PA Guidelines (Health Canada, 1999) for Older Adults and barriers/facilitators of physical activity.

For stakeholders, initial questions broadly focused on rural health promotion, rural aging and experiences with respect to health/PA promotion (see Appendix B). The stakeholder interview guide remained similar throughout the interview process. However, a new interview guide was introduced to guide municipal councillor stakeholder interviews (see Appendix B). All interviews were audio-recorded and transcribed and were, on average, 100 minutes in duration.

In Phase 1, a total of 14 semi-structured interviews were conducted. Nine interviews were conducted with older adults (eight individual and one couple interview) and five individual stakeholder interviews. In Phase 2, a total of 15 semi-structured interviews were conducted. Nine interviews were conducted with older adults (eight individual and one couple interview) and six interviews with stakeholders (five individual and one couple interview).

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

Group interviews. One older adult and one stakeholder group interview, consisting of two women participants each (who were previously interviewed in Phase 1) was held nearing the completion of Phase 2 individual, semi-structured interviews. The older adult group interview was held at the home of one of the older adult participants who volunteered to host. The stakeholder group interview took place in a University classroom. A semi-structured interview guide was used. Questions to participants focused on providing insight and clarification with respect to concepts and categories identified in Phase 1 and 2 (See Appendix B). As previously described, written informed consent was given prior to beginning each group interview and data were audio-recorded and subsequently transcribed. Group interviews were, on average, 70 minutes in duration.

Data Analysis

Overview. Consistent with Thorne (2008), a variety of analytical strategies were used throughout the data analysis process toward the development of, "…meaningful and grounded conceptualizations" (p. 162) of PA participation and promotion. Although Thorne (2008) clearly pointed out that analysis strategies ought not to be used in a linear, "cookbook," fashion, she did offer several to guide data analysis including Corbin and Strauss' (2007) open coding and axial coding. Elements of these two general analysis strategies were used throughout the analysis process, interwoven with ongoing data collection. Reflexive writing, in the form of analytic memos, was also used to aid in the analysis process.

Category development and integration. Individual and group interview data were initially `broken apart' by identifying and labelling `chunks' of data. Specifically, all data were reviewed and passages were labelled based on an interpretation of possible meaning(s). This constituted the beginning of the data coding process whereby meaning units were coded and assigned a code or codes based upon concepts. As analysis progressed, a more general type of *open coding* was undertaken whereby codes were refined by subsequent data collection and through a closer examination of coded meaning units. An important part of this process involved comparing concepts with each other (*axial coding*) from which additional questions were generated. Through the use of these analysis strategies, the number of data codes was reduced toward constructing overarching data categories with well-developed properties and dimensions.

The following example is presented to illustrate the general analysis process described above: During an interview, an older adult participant remarked, “No, I was quite active before. I couldn’t be more active. So, [I] didn’t really change that way. But since I’m not working now I walk. I never used to walk.” A line-by-line coding of these data resulted in the following codes: “active,” “change” and “walking.” Later in the analysis process, this quote was interpreted to represent a broader concept: “perception of current PA level.” Interaction with data such as these produced memos which `opened up' the analysis, refined categories and guided subsequent data collection. For example, in this case the following memo was created:

Memo 7 – Perception of past/current physical activity (or "activity") participation level

- The perception of PA/"activity" participation level refers to participants' indication of how "active" or physically active they are or were.
    - This quote seems contradictory. Although this participant, "couldn't be more active" she, "never used to walk." There may be two ideas here, namely, "physical activity" and "activity" of a more general sense. So, an older adult can be very active in his/her community, engaged and "busy" but not necessarily be particularly "physically active." What does being "active" mean? What does being "physically active" mean? Is there a prioritization or degree of importance placed upon being "active" vs. "physically active?" Is perhaps "exercise" a less ambiguous term (when contrasted with "activity")?

Specific procedures, tools and techniques. Various tools and techniques facilitated the data analysis process. For example, a document for older adult and another for stakeholder data was created which contained a list of codes generated throughout the analysis process. Next, a second set of documents were created, organized by codes. Within each document, codes served as headings and quotes from participants representative of each code were grouped according to the appropriate code/heading. Another document containing memos was created. Its function was to specify the meaning of each code/concept and foster reflexive writing toward identifying areas requiring follow-up and illuminating

relationships between concepts. Examining quotes categorized by codes and writing analytic/reflexive memos were two important techniques that allowed reorganization of data toward constructing higher-order categories; identified as overarching in terms of salience, by virtue of well-developed properties and dimensions. The creation of summary tables and sketching of diagrams also aided in this process. Throughout the data analysis process, a series of tables were used to organize the emergent conceptualization of concepts and categories. Similarly, diagramming helped to clarify conceptualization and relationships.

The use of specific analytic tools was also an important part of the data analysis process including, “confirming your bases” (Thorne, 2008), exploring “various meanings” (Corbin & Strauss, 2007), “testing relationships” (Thorne, 2008), making “constant comparisons” (Corbin & Strauss, 2007) and “looking for the negative case” (Corbin & Strauss, 2007). Various questions were posed throughout the data collection/data analysis process to assist in concept and category development toward “confirming bases.” For example, questions such as, “What is going on here?”; “What am I seeing?”; “Why am I seeing that?” aided in the examination and refinement of codes. Other questions tested relationships between concepts and within categories and explored various meanings including, “What does this passage or code mean?”; “Are these concepts related?”; “How are these concepts related?”; “Is the meaning here the same or different than code x?”; “What overarching category or categories capture these concepts?” Finally, other questions related to data collection/analysis in a more direct manner such as, “What does the term x

mean?"; "How do participants conceptualize x?" Specific examples of questions used as tools in this study included, "What does `active' mean? Does `active' mean `physically active'?"; "Are `active' and `busy' synonymous?"; "How do participants conceptualize an `active' older adulthood?

Comparative analysis, through constant comparisons (Glaser & Strauss, 1967) was an essential component of the data analysis process. Throughout, `chunks' of data were compared to each other to illuminate similarities and differences. This assisted in the organization of codes and construction of overarching categories, as data units interpreted to be similar were grouped together under a common category. With respect to exploring various meanings, the question cited above regarding `active' provides a good example from the present analysis. In this case, it was important to explore the potentially various meanings of `active' and `busy' within the context of `physical activity.' Finally, with respect to looking for negative cases, examples were identified from the data that were interpreted to not fit the typical pattern. In this study, it was important to consider older adult "success cases;" participants who incorporated structured PA into their regular routines. This was atypical among older adult participants and examining these cases illuminated issues related to PA promotion.

Saturation. The major categories presented are richly-described, identify relationships between concepts and demonstrate variation along several dimensions; all of which are evidence of saturation as defined by Corbin and Strauss (2007),

> A researcher knows when sufficient sampling has occurred when the major categories show depth and variation in terms of their development…if a researcher determines that a category offers considerable depth and breadth of understanding about a phenomenon, and relationships to other categories have been made clear, then he or she can say sufficient sampling has occurred… (p. 148).

Data Quality/Credibility/Validity

Morse, Barrett, Mayan, Olson and Spiers (2002) argued for, "…a return to validity as a means for obtaining rigor through using techniques of verification" (p. 14). As opposed to post-hoc evaluations of validity, Morse et al. (2002) advocated the use of verification strategies that were built into the qualitative research process including: methodological coherence, appropriate sampling, and concurrent data collection and analysis. So that the findings from this study can be viewed as credible, the verification strategies listed above have been built into this study's design.

Methodological coherence. The aim of methodological coherence is to ensure congruence between the research question and the components of the method (Morse et al., 2002). The decision to use two modes of data collection and two groups of participants was made in order to effectively and appropriately answer this study's RQs.

Appropriate sampling. A sample is deemed appropriate when participants who best represent or have knowledge of the research topic have been included (Morse et al., 2002). In this study, key informants helped increase the

likelihood that appropriate and knowledgeable older adult participants were recruited. Although subsequent sampling sometimes relied upon previous participants for further recruitment, all “recruiters” were instructed to provide names of individuals who were likely to provide rich data. In addition, obtaining data from stakeholders provided a broader perspective on PA participation in rural NS.

Concurrent data collection and analyses. Finally, Morse et al. (2002) argued for an iterative interaction between data collection and analysis. During fieldwork, every attempt was made to ensure data analysis did not unfold linearly, nor independent of, data collection; rather, initial data collection and analysis informed subsequent data collection.

Chapter 4: Results

The results of this study are a product of the integration of concepts pertaining to the nature of PA participation among older adult participants and PA promotion among stakeholder participants. “Grounding” a study in these data provides the foundation necessary to advance understanding regarding PA promotion among rural older adults in NS. Two major categories are presented. Consistent with the first purpose of this study, the first major category relates to factors that influence the prioritization of activities and is based on data provided by older adults. The second major category refers to promoting PA and includes `success stories' from some older adults and stakeholders’ experiences with and views on PA promotion (consistent with the second purpose of this study). Combined, the major categories provide insights that can be used to promote PA among older adults.

The integrative presentation of the results is based upon data provided that addressed each of the study’s five RQs. Although the categories and concepts presented do not correspond to a completely discrete grouping based upon each research question, data that inform respective RQs can be generally understood as follows: RQ 1: `Historical context of activity, work and productivity'; RQ 2 & 3: `Already busy with day-to-day activities', `Being/staying on the go', `Cautionary approach'; RQ 3: `Promoting PA Among Older Adults'; RQ 4 & 5: `Stakeholder’s Perceptions of, and Experiences with, PA Promotion.'

Factors That Influence Activity Prioritization

The first major category refers to historical, social, and personal factors that appeared to influence ways in which older adults prioritized activities (including but not limited to PA) and provides insights into key issues that should be considered in the promotion of PA. The following four concepts represent this category: *Historical context of activity, work and productivity; Already busy with day-to-day activities; Being/staying on the go; and Cautionary approach.* Each concept is described below and ways in which it may influence PA are explained.

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 concept 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. Participants suggested LTPA was a relatively recent concept. Josh[2] 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…

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

[2] Pseudonyms are presented throughout to protect the identity of research participants.

> 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.

A potential reason for the participants' unfamiliarity of LTPA/"exercise" was that work-related activity was a priority. 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/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?

The historical prioritization of purposeful and productive activities appeared to influence the ways in which participants were active in their older adulthood. For example, Bernard continued to "…[make] kindlings. And [take] the wood in" while Gary emphasized his desire to "keep things in repair around

the home." Activities such as these were prioritized and became important components of participants' daily routine.

Historically then, for many of these 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 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, 'some day 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 summer time 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, the historical context in which participants grew up provided insight into participants' current experiences, beliefs 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 concept "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), 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.'

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, 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 physical 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…

Consistent with this perspective, but highlighting the importance of his current choice of activities, Gary made the following comment,

> 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, participants often did not incorporate regular PA participation within their regular day-to-day activity routines because they were 'already busy.' Given the value often placed upon these regular day-to-day activities, participants may be 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 PA into their daily activities, there was also a belief they kept 'on the go' (i.e., active) by virtue of participation in these 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, that'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 seemed 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, '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 a vitally important thing to her. Perhaps not surprisingly then, when asked about their 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 pretty

well every day for a walk." However, when prompted, participants used the term "PA" 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 wood working activities, Josh responded, "Well, for my age and my ah, 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]."

Cautionary approach. The previous concepts in this category have revealed some of the historical and social complexities that influence 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' toward PA. 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, participants also expressed concerns about their ability to engage in PA. Some participants thought the benefits of PA varied when considering the role of age. From Gary's perspective [Gary was 85 years old], "certain exercise[s] you could build up strength 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]." It seemed that participants had a "Cautionary Approach" to PA, which meant they were careful to limit their exertion and

questioned their participation in a variety of physical activities due to concerns about the perceived harmful effects.

Several participants were concerned about the potential 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 over-exertion appeared important to others as well. For example, Amanda had this advice 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 over exert 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, "…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. 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.

Participants also reported concerns that they may be physically unable (or at least 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 seriously doubted their abilities as well. 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 ten. 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 thirty minutes but I could – go for a walk," Jack replied, "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, fifty 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. '" At least in some cases then, participants appeared to feel incapable of engaging in even light to moderate forms of PA. At the same time, these concerns could not be automatically dismissed as it was likely that many participants had a limited capacity to perform such activity.

Promoting PA Among Older Adults

The second major category depicts some strategies for the promotion of PA that may be useful within the context of particular PA routines and factors that influenced the prioritization of activity.

Despite the challenges reported previously, some participants did incorporate PA into their daily routines. For instance, Larry explained, "Every morning I do seventeen minutes of exercise…" and Jack, "lift[ed] one weight one day and [went] on the [exercise] bike the next." Others, like Amanda, enjoyed walking, "Now, I get up in the morning I walk my dog…we'll go five miles" as well as Andy, "I still go for my daily walk…three miles is about a minimum walk." Wilson walked every day with two other friends, "we go - I go walking if it rains, snows, sleet – and we're out there." These participants demonstrated a commitment to PA participation beyond that of the majority of participants. In

Larry's and Jack's case, each participated in daily PA. Amanda, Andy and Wilson were dedicated to walking regularly.

Success Cases: Incorporating physically active routines. In order to work toward the identification of strategies for PA promotion, six participants were selected as `success cases' because they had successfully found ways to incorporate formal PA into their regular routines (despite some of the challenges with respect to activity prioritization). These cases were viewed as particular successes given their pursuit of formal PA classes or facilities. The experiences of these participants offered insight into PA promotion more broadly.

Mabel (68 year-old female). Mabel was trained and worked as a nurse in a long-term care facility. Although retired from that position, she continued to do some teaching at a local community college. Upon retiring, Mabel vowed, "never to do anything physical again…I was so exhausted." However, "that didn't last." Mabel wanted to remain "active" to, "stave [arthritis] off for a while" and she "enrolled in a new sort of an easy exercise program…called Qigong." Mabel was no longer married and lived alone.

Amy (68 year-old female). Amy was trained as a nurse but worked as one only briefly. She also completed a course in public health. In addition to homemaking, Amy helped to run the family business with her husband. With respect to PA, Amy attended a local fitness centre, "I like to do my own thing…it's relaxing to go to the gym." In terms of physical benefits and motivation, she explained, "Well, I know or from what everybody says, it's good

for your bones. So I suppose that would be [the motivation]. And it makes you feel good." Amy was married.

Tina (76 year-old female). Tina moved away from Cape Breton to Ontario and worked there for several years. Shortly upon marrying her husband they returned to Cape Breton. There, Tina worked as a cook in a local facility for 28 years before retiring. Tina's PA involvement included attending a local fitness centre ("I always go"), more recently Qigong, and a fitness class that included yoga. When asked how she became interested in giving the fitness centre a try, she responded, "…because I wanted to keep active…and first we'd go and weigh ourselves here every week, see if anybody was gaining or losing…" Tina's husband passed away several years ago and she was living alone.

Carol (81 year-old female). Carol attended teacher's college and taught for a short time before marriage. She currently attended a fitness class in a nearby community. During the class, "we get aerobics…we also get rubber bands…and we end with yoga…that's a pretty vigorous program that we do…I love it." Carol's husband passed away several years ago and she was living alone.

Frank (88 year-old male). Frank was a WWII veteran and upon returning to Canada from Europe took a machinist course, worked in a foundry in Ontario for two years, as a baker back in Cape Breton for six years and then worked, until retirement, as a police officer in Cape Breton. He attended a fitness centre five days a week for the last eight years based on the advice of his physician. Frank explained, "Well, actually it was the doctor's orders…'I've done all I can for you…I want you to go and sign up with a gym.' I looked at him. Are you

kidding?" Asked if he would have considered going to the fitness centre without being advised to do so, Frank replied, "If [my doctor] hadn't mentioned it, no. Absolutely no. And am I ever glad he did." Frank's wife had passed away and he was living alone.

Betty (68 year-old female). Betty worked as a secretary and part-time as a book-keeper, once her children were of school age, until retirement. Betty's PA involvement included attending a fitness class twice a week. She said, "I enjoy being active. I always have…I find that the fitness [class] helps…greatly with the strength that I have." Betty's husband passed away several years ago and she was living alone.

Analysis of success cases. Data provided by participants were insufficient to allow for a definitive conclusion with respect to the preceding `successes,' although several tentative explanations are plausible.

Gender. First, a consideration of gender appeared important. For example, with respect to aerobics classes, Wilson said, "…there's a macho thing about men…the aerobics, that's women. I mean, I don't know if you'll find any men doing aerobics." Crystal agreed, "Ah, I think a lot of men around here would see it [attending aerobic classes] as women's stuff. There's still that divide…" Betty indicated, "it certainly is not advertised that it's, you know, women only. Ah, but it– it's a given. In the community, I mean, men just don't-don't go…it's a women's thing." Speculating as to why men did not seem interested in structured fitness classes, Crystal said, "I think men – in my experience, in this community, tend to like recreational sports, as opposed to going to an organized place…"

Crystal's point of view appeared to be supported by Ben's thoughts on fitness centres. He indicated they were "boring" and added,

> …If I'm chasing a little golf ball around the course, swinging at a baseball, or playing hockey, I can do that – boxing or whatever, I can do that…forever. But, to get there and lift weights and that I just, like, I tried it. And I can't, I just can't do it.

Wilson did not participate in sports and preferred unstructured PA outside. When asked why going to a fitness centre would not be appealing, Wilson replied that he, "hat[ed] gyms" and would rather walk outdoors. He added, "…you know, you get there, and you gotta sweat…I can't see myself, ah, if I go to a gym, I'm there and I'm working away, uh?" Additional interpretation with respect to gender's role in PA participation was beyond the scope of data provided by participants. However, it appeared noteworthy that in addition to being female, a majority of participants who participated in formal PA were widows/widowers.

Positive outlook. Those participants who incorporated formal PA into their activity routines may have been more likely to do so based upon a more positive attitude toward, and outlook with respect to, aging. For example, Amy explained, "I don't think age makes any difference, you know, as long as you're feeling good…I think [aging is] great myself. I don't mind it." Mabel appeared open-minded about aging as well,

> …you have to be retired to age because it takes all kinds of effort to keep yourself mobile and keep your head in order and…that's my perspective –

> although that's not to say that it's a downer. It is…interesting but it takes effort.

Similarly, aging was viewed as, "a great experience" for Carol, and Betty articulated a view of aging not defined by chronological age, "I'm more convinced that [being old is not about age] as the years go by. I mean, I know people who are old at fifty. So, it's not age-related at all…"

Tina drew a sharp distinction between her and other acquaintances and in doing so provided valuable insight into how views on aging and one's outlook may affect PA participation. For example, Tina told the following story,

> One night in [a nearby community] I was trying to get this fellow out to dance a square set. And ah…I said, 'Do you dance?' He said, 'No, I'm too old.' And I said, 'For God's, I'm seventy years old and I'm still dancing.' That was five years ago and, oh he said, 'you're just fooling yourself, acting like a teenager.'

As Tina explained, "there are people that keep on doing what they always did. But there's other people, they say, 'Well I'm just too old to do this,' and 'too told to do that.'" Frank offered this opinion on PA participation,

> It's important if you can do it. If you can't do it, you're ninety years old and you're too old, you can't do it - that's different, you know? Just settle back and die. But, if you can do it at all, do it…if you're ninety, if you're a hundred!

Stakeholder's Perceptions of, and Experiences with, PA Promotion

Information gleaned from stakeholders provided insight with respect to perspectives on health and PA promotion, the past and current climate of health behaviour and PA participation, the representation and measurement of PA, and perceptions of the nature of rural older adult PA participation. A couple of prominent stakeholders shared similar perspectives on health/PA promotion, rejecting relatively simplistic, individual-based conceptualizations. For example, with respect to perspectives on health and health promotion, Erin explained,

> …we're bombarded with education and as an individual I know that there's lots of things that I hear that – you know, just because I hear it am I'm going to do it? No, it's way more complex than that…because I think, you know, it's got to start with awareness and so, even though in the individual context I might be sitting in front of someone who'll say, well no, I know that's important but I'm not doing that yet. The fact that I'm thinking about it is all part of that stage. And then, it's that kind of critical mass when you get to that point where things really start to happen? And so – I think that that's an interesting shift and-and it is happening. But…because we are very focused on individuals…all the resources have gone to sort of – looking at that individualized kind of tailored plan of care. And so, stepping back from that, and really trying to look at that…from an ecological point of view and what is similar and what's different about a population - sort of focus planning and service delivery. That's very interesting.

Similarly, with respect to PA promotion Martin explained,

> … it has to involve, you know, some aspect of their social environments, their built environments, and an awareness component. Those are the three things together – and you can't just do one and expect to get the results that you want…it's only the comprehensiveness to all of this that is likely to have that population impact. So we can do all the media campaigns we want, and if we don't match it on…physical environments that provide opportunities and facilities that provide opportunities then you're not going to [have the desired impact]…

Stakeholder participants also pointed out that promoting PA purely from a physical health benefits perspective (and being physically active for the sake of it) may not motivate rural older adults. For example, Jason remarked,

> …they did an Ipsos Reid poll here last year – I think they talked to three hundred and some individuals throughout the county – there was a perceived need for more infrastructure and more programs - more things to do in general. But not necessarily related to PA. More within a recreation context and…what I'm finding…individuals aren't necessarily motivated by the benefits of PA. They're more motivated by other issues…which might be social or health or leisure or whatever and I think that's the big challenge – is finding some kind of common language. Ahm, otherwise we fall into demoralizing and telling people to do it, you know, for their own good.

Levi also discussed approaches to PA promotion that focused on health and illness prevention,

> I would say, yes, there's more realization and receptiveness in communities that – you know, [efforts to promote PA] just aren't fairy, warm and fuzzy things. These are really important to the quality of our life…communities may see it a different way – they may have a different reason for engaging. And personalizing what it means to them. You know, for us…it's all about health promotion and illness prevention and that sort of thing. Ah, but you go to where the communities are and…for the most part, when we speak in general about communities, it's around quality of life.

Regardless of older adults' motivations to engage in PA, it was clear that a portion of the population was interested in obtaining additional PA opportunities for her or his community. For example, according to Cindy, a stakeholder,

> Yeah, I think there's a need for some more programming. For, specifically, to older adults…with speaking to some of the seniors groups and some of the seniors around, they've indicated that they'd like a little bit more in that area. And, I find that a lot of the groups…are try[ing] hard to get things going and fill out grants and different things…to increase their capacity to be able to be more active. So I think there's motivation to do that.

Based upon the efforts of older adult community members, Cindy also recognized the need for PA leaders,

> …some of the senior's clubs may be applying for some of these grants to…increase their programs or things like that. Now I know [a local senior's club] hired a personal trainer to…run some fitness classes, with hand weights, and different things like that…they applied for a grant to pay a person to help them because, the barrier that they had was that they had fitness equipment there they had treadmills, and a variety of fitness equipment but there were issues around safety, and how to use them, and different things like that. So they hired a trainer to help them with all that, and lead them through a structured class…we've identified a need, certainly…with respect to older adults we've identified a need for increasing the number of PA leaders and fitness leaders with an older adult specialization.

Both Martin and Helen were able to shed light on some of the physical fitness initiatives available to older adults in NS. Martin talked about an older adult module incorporated within offerings by the Fitness Leader's Training Association and referenced another older adult fitness leader program with National accreditation. Similarly, Helen spoke about a local physiotherapist who was working to increase the number of physical activity opportunities for older adults.

Cindy elaborated further with respect to issues related to service provision and PA leadership in rural NS. In terms of service provision, she spoke of the challenge of providing community members with accessible PA opportunities,

> [A certain local community] is usually…seen as more of a…central place in [this county]…but, if you're coming from as far as [a more remote community]…I mean that may not feel very central to them. So there's all kinds of different areas you have to think of, and you have to think of the people that are in that area and how it's affecting them.

With respect to providing PA leadership, Cindy added,

> …but maybe, training people in specific, you know [geographical areas]…to become a fitness leader…might be the smartest thing to do. Because, a lot of the times…it's difficult to get your instructors to travel from one location [to another that is far away]…so maybe training people in their area…but then again, finding the people that would be interested in doing something like that too, you know, is going to be – there's going to be challenges with that too.

Being creative in terms of providing PA opportunities in small rural communities was important in terms of facilities as well as personnel. Cindy explained,

> … as far as accessing facilities, like we don't – in [this] county there isn't a recreation centre per se. We use the schools…the schools in the different communities. We access their school gyms and different things like that. Sometimes, community halls are used to run some of the senior's yoga

> classes…I think people have to be somewhat creative too, in what they're doing. So there may be, you know, a lot of walking and use of community halls and things like that.

Emma also spoke of creativity in this manner,

> …communities realize that often times, it's just impossible to get new infrastructure. So, how can we use what we've got in new and different ways? If you look at [one local community] – they put fitness centres in their schools that are open to the general public. So you're using a physical space that we're already heating, we're already paying for. So I think there are creative ways, but it does take volunteers and it takes leadership.

The preceding comments demonstrated a relatively recent change in the health and PA promotion landscape, both in terms of PA programming but also with respect to the apparent mindset of community members. Several quotes from Karen follow that provide insightful, rich description of several issues that appeared important to her and were also consistent with data provided by older adults and/or proposed implications for PA promotion. For instance, according to Karen, local residents (a large proportion of them older adults) had accepted a greater responsibility for their health and well-being compared to years past,

> …it was a culture of, doctor would take care of you and I don't really have to worry about it because if I go to my doctor, they are going to tell me what I need to do and everything is going to be fine. When there was a doctor shortage here, and this is just the start of it, in ninety-four, ninety-

> three and that area, what happened was that the onus was put back on the patient. Not only that `I don't have a doctor,' but they came to realize that if I don't start taking care of myself I can't run to doctor, to know what is really going to go on…that was one part of our storm. The next part was the disappearing of the coal mines. And also disappearing of the steel. And so that put people into a really peculiar spot that not only did they [not] have a doctor, but they didn't have a job, and so it was a real focus on themselves of, 'what are were going to do now?' Slowly but surely, people started to realize that they didn't know a lot of things to keep themselves healthy… It shocked them to know, or to start to think about themselves – `I need to start thinking about me, my family, and how to get through this'…people needed a reason to start taking care of themselves. And this was an indirect reason of how the shift started. And then, when they got a little bit of a taste of the education that was out there, or the tools that they thought they knew but they didn't know, it got them more confident in knowing, `well, I can make these little changes.' So, now we have a community that is so willing to change that I was scrambling to find programs to help them along to get on the wave of education.

Returning specifically to older adult PA participation, Karen raised some important points with respect to the representation and measurement of PA in rural areas, "I just don't think they're capturing it." She continued,

> I think there has to be a more creative way of capturing how much people are doing here…I know from my experience doing the chronic disease

> workshops, and really getting a lot of talking back and forth of how they think about activity. People have no idea what [physical] activity means.

Karen also wondered about the relevance of Canada's PA Guidelines for Older Adults,

> …It's a good document for certain types of people…then there's a whole other group that we would have to change the whole guide even to get them to understand the first couple of words. So, this guide is great for people who are high functioning already who are already active, that have the leisure activity of walking or golfing or things like that, that they can actually see themselves reflected in it. The middle group – that is where it is a real issue for me. Because the activity guide – actually, I can see it put worry on their face. Because they can't see themselves in it…what I would really like to see…would…be things that are everyday things for people…like you know, hanging out your clothes, carrying the heavy bed clothes up stairs - that is probably more than ten pounds, in a basket. Bringing it out, hanging it up. You're still using a lot of muscle activity. Taking it in, folding it, putting it away.

Karen's views were consistent with the interpretation of data from this study; that is, that promoting PA participation through a more conventional/traditional portrayal of PA, within a leisure context, may be ineffective among rural older adults given older adults' apparent prioritization of productive/useful activities.

Cindy also corroborated an interpretation regarding the importance of work/productive activities and highlighted activity prioritization,

> I think there's a value for sure placed on work and like, keeping busy with your day. Whether it be housework or, you know. So I think there is definitely – people place a value on that. In comparison to being lei – you know, to having, all of your, or, majority of your day being leisurely. You know, so I think there's a kind of the old work ethic thing kicking in around here…I find around our areas that – our older population – they're very-very busy. They stay very-very busy…and they're very concerned about getting a certain amount done in a day and you have to be productive…that work ethic is very…the older adult population really places that value on getting things accomplished in a day and it has to be purposeful… I think everybody's on board with it – that [PA] is good. That's positive, but, when you really look at what you're doing in your day – are you putting the value on it, are you making it a priority? Then I think when you look at what people are actually doing, they're not so much placing that as a top priority…

The preceding data provided by stakeholder participants highlight several issues pertaining to PA promotion in NS. For instance, responses from participants with respect to conceptualization ranged from ecological to individualized approaches. In addition, participants provided insight with respect to motivation for PA opportunities, at the community level. Several comments from Cindy highlighted the perceived need for additional PA programming as well as fitness leaders. Finally, Karen's comments raised a number of relevant issues which appear to relate to rural, older adult-specific PA promotion.

Chapter 5: Discussion

The purpose of this study was twofold:

1. To examine the PA beliefs, perceptions and experiences of older adults in rural Cape Breton.

2. To examine municipal, regional, and provincial-level stakeholders' perceptions of, and experiences with, PA promotion in Nova Scotia.

Data analysis focused on integrating concepts to construct an in-depth description of PA participation and contextualizing local PA participation by incorporating stakeholder data toward suggesting "grounded" PA promotion strategies. Data were organized into two major categories: 1. "Factors that influence activity prioritization" and 2. "Promoting PA among older adults."

Overview of Key Findings

This study offers unique insight into the nature of PA participation and promotion among rural older adults within a culturally distinct rural region of NS. Importantly, it captures the voices of rural older adult participants; voices that are underrepresented within the physical activity and aging field of inquiry (Grant, 2010). The inclusion of stakeholder participants also provided a valuable and unique perspective in terms of the local context of PA promotion. The results of this study specifically highlight a number of important issues that advance understanding of the promotion of PA. For example, older adults from rural settings may not value participation in conventional/traditional forms of LTPA and, instead, may prefer forms of PA that are more salient (purposeful and productive). It would appear that the historical context is a key contributor to a

more in-depth understanding of PA participation/promotion given that most if not all of participants' lives were spent prioritizing work over leisure activities. Additional theoretical insight is offered by the application of the "Protestant Work Ethic" (participation in labour is divine) (Weber, 1958) and "Busy Ethic" (the importance of remaining busy and engaged in retirement) (Ekerdt, 1986) to PA participation and promotion.

The findings reveal a complex representation of Atlantic Canadian rural older adult PA participation. Participants grew up prioritizing work activities, those that were productive and useful, and throughout their lives had relatively few leisure activity experiences. Presently, participants were busy with a variety of tasks and appeared resistant to incorporating additional activities into their "busy" lives. By virtue of being/staying busy, participants perceived themselves as quite "active," sufficiently so. Perceptions and beliefs regarding one's current activity-status were informed by perceptions and beliefs about aging and PA. A limited set of activities appeared to be perceived as realistic and participants, consequently, placed priority on activities perceived to be relatively low risk and not to cause health complications due to physical overexertion. In light of these findings, the following section tentatively presents strategies to promote PA in rural Cape Breton, based upon data provided by participants; conceptualized as ways to negotiate the prioritization of an "active" older adulthood.

Strategies to Promote PA

PA types and salience: Promotion of work-related activity and PPA. Throughout both data collection phases, it was readily apparent that participants

strongly valued being/staying engaged in life ("active"). Participants of this study did not aspire to sit in a rocking chair and watch the years go by and although PA participation was not a priority for participants, it would be misguided to assume that participants were idle. Karen, a stakeholder, recognized this and expressed concerns regarding national-level statistics' depiction of PA participation of participants in the area. She felt strongly that a variety of activities were being missed by national-level statistics and indicators. Although it is inappropriate to use the data provided to generalize to the population, it does bear mentioning that the majority of participants in this study were not regularly physically active. However, it would be inaccurate to conclude that participants spent the majority of their time doing nothing. Karen's comments also raised an additional point – that is, the potential of national-level PA participation data to inaccurately reflect overall PA participation due to issues related to instrumentation, interpretation of specific questions on the part of the respondent, or both.

Although being "active" often did not include PA participation, participants valued being "active" and were committed to using their time in a productive and useful way. This often meant that participants prioritized work-related activities; those perceived to be productive and useful. Based upon the various historical and cultural forces previously discussed, leisure activities were often not prioritized and were sometimes perceived to not be a good use of one's time. This finding is consistent with the values one can assume would be associated with growing up, coming of age and working in rural Cape Breton. Given Cape Breton's blue-collar industrial history, one would expect participants

from this era to value purposeful and productive activities. Furthermore, participants from this era also likely engaged in relatively large amounts of WTPA but relatively little LTPA.

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 Cape Breton. One obvious implication is that the promotion of traditional/conventional LTPA such as joining a fitness centre or participating in various sports may not be particularly effective in increasing older adult PA participation in rural Cape Breton. Activities such as these may not be salient for many and participation in such activities may be perceived as time not well spent. Therefore, it would appear that PA promotional efforts would be better focused on promoting physical activities perceived as relevant and seems logical to promote activities within a "work," rather than purely a leisure context. Physical activities need to be contextualized since participants may not be motivated to participate in LTPA, "for the sake of it."

In light of the prioritization of "work" tasks that are perceived as productive and useful, appropriate strategies to promote PA may include the promotion of specific "rural lifestyle" activities and the promotion of particular physical activities as ones that would aid in the performance of various prioritized, culturally relevant "work" activities. Specific activities that have a physical component and that appear to be culturally relevant include wood piling, hanging clothes on a line, snow shovelling, gardening tasks such as trenching and raking and kneading dough. Beyond promoting specific activities, it would appear

important to highlight how certain physical activities can play a role in maintaining the physical ability to perform valued "work" activities. For instance, it may be useful for PA promotional initiatives to emphasize how various endurance, strength and flexibility activities can improve one's ability to perform activities such as those listed above. A PA promotion approach such as this may result in less need for trained PA leaders, a concern raised by Cindy, a stakeholder. Furthermore, the strategies outlined above are consistent with reminders offered by stakeholders Jason and Levi who pointed out that rural residents were not necessarily motivated to seek out PA opportunities due to health reasons. The above strategies emphasize physical function as opposed to health benefits per se.

PA conceptualization and education. Staying "active," busy and engaged with life was clearly important for participants. As discussed, this can be attributed to longstanding and deep-rooted norms and values with respect to avoiding idleness and being/staying productive. Beyond explanations related to the innate importance of purposeful activity engagement, participants also appeared to value being/staying "on the go," based on its perceived contribution to well-being. However, participants often understood a host of "active" activities to be synonymous with "PA" although in reality, many of these activities would not be consistent with the U.S. Department of Health and Human Services' (1996) definition. Participants used the term "active" in a very broad and inclusive sense to include a variety of activities outside the definition of "PA." Therefore, although participants viewed "PA" engagement beneficial, they were often not

physically active at levels sufficient for physical health benefits. Participants also appeared to overestimate the physical health benefits associated with being active/on the go.

In light of these findings, educating older adults with respect to what activities constitute "PA," the health benefits associated with regular participation in PA and promoting awareness of current Canadian guidelines for older adults (Tremblay et al., 2011) should be considered fundamental to promoting PA among rural older adults in Cape Breton. 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.

PA and aging expectations and promoting independence. Although efforts to educate older adults 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' expectations regarding aging and PA. In many cases, participants questioned the health benefits associated with PA in old age, expressed concerns regarding physical overexertion, worried that current medical conditions would be exacerbated with additional PA and questioned their physical capabilities.

In light of these views and concerns, efforts must be taken to enable older adults to consider alternative conceptualizations of aging with respect to PA participation. Among participants in this study, maintaining physical

independence was paramount and PA promotion initiatives that highlight PA's role in maintaining physical function may hold potential to bring about alternative conceptualizations of older adult PA participation. In this manner, older adults may be more willing to consider alternative conceptualizations of what it means to be "active" and a wider variety of physical activities.

Implications for PA Promotion. This study's purposes were undertaken toward advancing understanding regarding PA participation and applying the knowledge generated to develop strategies to guide PA promotion among older adults in rural Cape Breton. In light of the preceding strategies offered, it appears important to consider particular activities that are valued and salient, the way in which "activity" and "PA" is conceptualized and expectations with respect to PA and aging. Application of these factors inform the development of PA promotional strategies through targeting and promoting work-related and productive PA (PPA), PA education and emphasizing PA's role in maintaining physical independence.

Contribution and Relevance to the Literature

One important contribution of this study is its expansion of the PA and aging research agenda by incorporating interpretative approaches and grounded knowledge translation. This specifically addresses calls by Grant (2010) and Grant and Kluge (2007). Others have adopted interpretive approaches to examine rural older adults' PA (e.g., Arcury et al., 2001; Aronson & Oman, 2004; Dye & Wilcox, 2006; Evans, 2011; Gangeness, 2010; Kruger et al., 2012; Maley et al., 2010; Wilcox et al., 2005) and the results of this study corroborate the findings of

these studies, and others, in several ways. For example, similar to studies conducted by Dye and Wilcox (2006), Leavy and Åberg (2010) and Witcher et al. (2007), participants' adult lives were largely devoid of LTPA. Participants did engage in a variety of LTPA as children (i.e., playing ball, skating, etc.), but during adulthood, participants engaged primarily in work-related activity and most PA occurred within a work context. Work-related activity was prioritized over leisure and PA experiences were largely work-based as opposed to carried out within a leisure context. This illustrates the importance of understanding participants' beliefs and perceptions regarding PA and their activity experiences in context.

Perceiving oneself as lacking the necessary time and being "too busy" to engage in PA is a commonly cited barrier to physical activity participation among adults (Baert et al., 2011). Older adults have also indicated they don't have the time to be physically active (Conn, Tripp-Reimer & Maas, 2003; Costello, Kafchinski, Vrazel & Sullivan, 2011; Schutzer & Graves, 2004; Wilcox et al., 2003). Similarly, the following quotation from Carol captured how many participants in this study perceived their adult lives, "…you were so busy. Totally busy…the period of my twenties and my thirties were so busy…" However, other contextual factors offered additional explanation with respect to current patterns of activity participation beyond perceptions of being too busy or lacking time. For instance, many participants emphasized the importance of "work" and there was clearly a priority placed upon completing work-related activity. Furthermore, it appeared important to participants to spend their time in a productive manner,

doing something “useful.” This finding corroborates the findings of Eyler et al. (1998), Eyler and Vest (2002), Witcher et al. (2007) and Gullifer and Thompson (2006), who reported the importance of feeling productive and useful among older adult farmers.

Historically, the lives of participants in this study were largely, if not entirely, spent prioritizing work over leisure activities. Engaging in work activities was viewed as important and prioritized; these were activities with a purpose. LTPA, on the other hand, may be perceived by older adults as activity out of context, without a greater purpose. Therefore, although a perceived lack of time or being too busy may help explain a lack of PA participation in adulthood, a consideration of lifecourse activity experiences and activity prioritization offered additional, contextual, explanation. Jack offered the reminder that “exercising” was, after all, a relatively recent concept.

Based upon the historical and cultural context, leisure activities were often not prioritized and were sometimes perceived to not be a good use of one’s time. This behaviour is consistent with Weber’s (1958) “Protestant work ethic;” 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 predominantly remained busy by carrying out various “work” tasks and this appeared to be an important part of their day-to-day routines. This resembled Ekerdt’s (1986) “Busy ethic” in which older adults emphasized keeping busy in retirement. Both the Protestant work ethic and Busy ethic reflect 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 rural older adults in Newfoundland.

Arcury et al. (2001), Grant (2008), Terrill and Gullifer (2010) and Witcher et al. (2007) have documented the importance of being/staying busy to older adults. Participants in this study believed idleness was counterproductive to healthy aging and conceptualized healthy aging, through maintaining physical function, in terms of being/remaining busy rather than in terms of PA or exercise. Grant (2008) reported the same phenomenon among older adults (aged 70+) in New Zealand who believed functional health was achieved through being a "busy body" (p. 825).

Through being busy and being/staying "active," participants believed they were doing enough in order to maintain their health and physical independence. Participants often did not distinguish between "activity" and "PA" and did not have an informed understanding of what the term, "PA" entailed nor were they aware of the Canadian PA guidelines for older adults. This corroborates the findings of Booth et al. (2002) and Eyler and Vest (2002) in which participants believed they were already sufficiently physically active as well as Eyler and Vest (2002) and Costello et al. (2011) who reported that some older adult participants conceptualized PA as being "busy." With respect to awareness of PA guidelines,

Evans (2011) and Witcher et al. (2007) reported older adults' unfamiliarity of Canadian PA guidelines for older adults.

Similarly, although participants in this study viewed "PA" engagement beneficial, they were often not physically active at levels sufficient for physical health benefits. Participants also appeared to overestimate the physical health benefits associated with being active/on the go. This corroborates the findings of a study conducted by Crombie, Irvine, Williams, McGinnis, Slane, Alder and McMurdo (2004). In their study, 79% of a randomly selected sample of older adults believed they were physically active enough to keep healthy although 53% reported less than two hours of LTPA per week.

Generally, participants in this study believed PA was beneficial, but some did not believe it would offer much health benefit at their age (e.g., "too old"), corroborating the findings of Booth et al. (2002), Grant (2008), Leavy and Åberg (2010), Wilcox et al. (2005) and Witcher et al. (2007). In many cases, participants questioned the health benefits associated with PA in old age, expressed concerns regarding physical overexertion, worried that current medical conditions would be exacerbated with additional PA and questioned their physical capabilities. These views and concerns of participants corroborate the findings of others. For example, O'Brien Cousins (2000) reported various health risks of PA cited by women aged 70+ as well as concerns regarding aggravating current medical conditions. Evans (2011) also reported that some female participants were concerned that too much exercise could damage their heart. Similarly, Booth et al.

(2002), Wilcox et al. (2005) and Witcher et al. (2007) reported older adults' concerns regarding overexertion and being "too old" for PA.

As previously mentioned, this study contributes to the knowledge base of rural older adult physical activity promotion by adopting a "grounded" interpretive approach which expanded its examination of rural older adult PA to Cape Breton. This builds upon Witcher et al.'s (2007) study which investigated rural older adult physical activity on Fogo Island, NL and along with Witcher et al. (2007) becomes the only known studies to interpretively examine the PA perceptions beliefs and experience of rural older adult Atlantic Canadians. Furthermore, the findings reported here, and the strategies suggested to guide PA promotion based upon these findings, serve as an important next step toward developing a comprehensive, integrated framework of rural older adult PA promotion.

An Ecological Perspective on PA Promotion. The purpose of this study was to examine beliefs, perceptions and experiences. Therefore, to a large extent, the data presented emphasized individual-level concepts pertaining to the nature and promotion of PA. Furthermore, older adult participants typically discussed concepts related to PA in individual-level terms (i.e., motivation, ability, etc.) as opposed to offering broader conceptual perspectives. However, with respect to strategies to promote PA, the findings of this study suggest that physical activities must be understood through a contextualized lens since participants may not be motivated to participate in LTPA, "for the sake of it." For example, consistent with an ecological perspective, participants' beliefs, perceptions and experiences

were influenced by a historical context of activity, work and productivity. The rural context in which participants came of age influenced the activity experiences of participants. Participants' activity experiences were primarily work-based, which was prioritized throughout the lifecourse; engaging in productive activities was considered very important. This corroborates the work of Miller (1965), who argued that leisure activities must be infused with aspects of work activity that are culturally esteemed in order to be appealing. Similarly, Kruger et al. (2012) highlighted the importance of culturally relevant leisure activity to rural adult participants. Initiatives focused on promoting PA must address these contextual influences and their effect on PA routines, preferences and prioritization.

Adopting an ecological perspective is also important with respect to understanding beliefs and perceptions of aging and PA. Although participants did not discuss differences between rural and urban PA in-depth, data provided suggested a relatively conservative view regarding aging as a time to be cautious with respect to exertion. Gender also appeared to be important, especially with respect to certain types of PA participation (e.g., fitness classes). Although neither factor is exclusively the domain of rural communities, both may be part of the past and present sociocultural milieu in rural Cape Breton which could help explain why norms of appropriate activity participation may be defined in terms of age and gender. PA promotion initiatives must consider how the rural context may shape these views and implement initiatives that are sensitive to such realities, rather than implement a "one-size-fits-all" approach. Data from this study suggest that a traditional approach to physical activity promotion through

fitness classes, programs and gym attendance may fail to make a meaningful population-level impact on rates of PA participation.

Contribution of Stakeholder Data. As previously mentioned, the inclusion of stakeholder participants was a strength of this study as they provided valuable insight in terms of the local context of PA promotion. On a personal note, stakeholders were enthusiastic about, and appeared to put a great amount of effort into, their respective professions. Promoting health and well-being within their constituencies appeared important to all stakeholders. The unique insight provided by stakeholders made an important contribution to the study as well as to the literature.

For example, when asked about local PA promotion, responses from stakeholders suggested PA promotion may often be guided by a conventional/traditional approach (e.g., funding for older adult fitness classes, purchase of fitness equipment, etc.). This is not to say these initiatives were unimportant or ill-conceived. In fact, there was some indication that certain individuals and community groups accessed these opportunities, including several of the "success cases" introduced in the results section. However, in light of the preferences and prioritization of older adults in this study, this also served to highlight the opportunity for additional tailoring in terms of PA programming within a specific sector (i.e., older adult population).

Although sector-specific approaches to PA promotion may present challenges to bodies responsible for PA strategy development, these types of approaches, ecologically-based and grounded in evidence (such as the data

presented in this study) are required in order to sustain increased PA levels (Craig, 2011). Consistent with Craig (2011), Spence et al. (2009) also advocated for specific strategies that targeted different segments of the population for PA promotion campaigns such as ParticipACTION. Therefore, in order to increase PA participation, PA promotion initiatives should focus on developing tailored strategies that are grounded in older adult data. Data from this study suggested that no comprehensive strategy for older adult (or rural older adults) PA promotion currently existed in NS.

Several stakeholders emphasized the importance of environments that were supportive of increased PA participation through providing additional PA opportunities, more personnel with PA-specific training and additional PA infrastructure. This is consistent with an ecological approach to PA promotion. However, older adult participants in this study talked little about these topics. Therefore, although the findings suggest supportive environments are important, there is a discrepancy between its conceptualization of "supportive environments" versus a more conventional view. Based on the data provided in this study, it would appear more important to conceptualize a "supportive environment" as one that facilitates PA participation through the promotion of culturally relevant PA rather than through the provision of traditional PA opportunities and PA leadership training.

An additional point relates to stakeholders' experiences with community interest in PA opportunities. Stakeholders suggested that community-driven requests for PA opportunities were often motivated by leisure as opposed to

health. For older adults, this appears inconsistent on at least one level but helps highlight an important distinction on another. On the one level, most older adult participants did not appear to spend much time engaging in “conventional” leisure and it does not appear likely that most older adults would be motivated to seek such opportunities. Older adults in this study appeared to prefer “work” activities; those perceived to be purposeful and have a tangible outcome. On another level, older adult participants perceived themselves as sufficiently active by virtue of current activity participation and appeared to associate this “active” engagement with health. Therefore, although indirectly, older adults may be motivated, in part, to engage in activity due to the generalized health benefits associated with being “on the go.” However, most older adults did not appear to be motivated to participate in PA for its physical health benefits.

Strengths and Limitations

Researcher Flexibility. Conducting fieldwork in several rural communities that were unfamiliar, remote and somewhat isolated necessitated researcher flexibility. For example, initial participant recruitment was dependent upon key informants. In addition, a decision was made to accommodate the recruitment and home/work-based interviewing of participants within a wide, relatively large geographical area across many communities. Flexibility was also important with respect to recruiting participants to focus groups. A decision was made to run one older adult (N = 2) and one stakeholder (N = 2) *group interview* based upon participant availability.

Field experiences such as those described above demonstrated the importance of researcher flexibility as one moves from the research proposal to the field work stage of a study. In light of these experiences, this study's findings were based upon several analytical strategies and techniques consistent with interpretive description (Thorne, 2008), used to produce thick and rich description of concepts pertaining to the nature of PA participation toward developing PA promotion strategies.

Additional Strengths. Research flexibility ensured that deviating from the original data collection plan did not compromise the integrity of the study. This study had a number of additional strengths. For example, major categories were well developed; based upon information-rich data provided by older adult participants across several predominately rural counties. An equal number of older adult men and women were represented, across a wide age range. In addition, data from stakeholders provided valuable insight, especially in terms of the local context of PA promotion. Another strength was this study's emphasis on the applicability of categories and concepts to local PA promotion strategies. Perhaps most importantly, this study captured the "voices" (beliefs, perceptions) of rural older adults and interprets them with a focus on community-based PA initiatives and policy. In this way, 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, it is important to acknowledge several limitations. 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. As described previously, flexibility was important; in this case, so that a balance could be maintained between the iterative process of data collection and analysis, theoretical sampling and completing interviews.

Another limitation related to group interview participant recruitment. An older adult and stakeholder group interview was held but low participation in each (N = 2) limited their usefulness. A final limitation concerned the interpretations from this study. They must be approached with due caution since the data provided may not capture the voices of the hard to reach (and likely sedentary) particularly well; whose data may be particularly 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."

Future Directions

The interpretations offered raise additional questions that future research should address. First, with respect to PA promotion, future research should investigate the strategies proposed to promote work-related/productive physical activity (PPA) toward evaluating their effectiveness to increase PA participation. For example, would a focus on work contexts and PPA be an effective PA promotion strategy among rural older adults in Cape Breton and/or in other rural locations?

Second, although an in-depth understanding of gender was not possible based on the present data, “success cases” (participants who had incorporated structured PA into their daily routines) served to illuminate the issue. For example, gender appeared important with respect to accessing structured PA opportunities since, with one exception, all success cases were women. This is consistent with the perceptions of other female participants who indicated that older men were conspicuously absent from structured PA classes and data from male participants indicating that such structured activity was unappealing.

O’Brien Cousins (1998) quoted older men observing an older women’s fitness class as saying, “that’s not for me” (p.80) and, “it makes [a man] feel foolish” (p.93), suggesting that women’s exercises were too “sissy” for them (O’Brien Cousins, 2003). Similarly, Kruger et al. (2012) quoted a health department administrator who remarked, “You also have to think about the people. What would they like to do? Yoga for [coal] miners would not go very well” (p. 148). Despite these points, there appears to be a lack of information within the literature with respect to the possible appeal of more organized PA opportunities (such as fitness centres) for rural women. Information also appears to be lacking with respect to how masculinity may affect the PA preferences of older adult men.

The issues presented above regarding gender raise additional questions that merit future investigation: For example, what role may gender play with respect to PA participation among rural older adults? Are rural older adult women more likely than men to participate in structured PA such as fitness classes? Is

structured LTPA perceived as predominately the domain of women? Do ideas of masculinity affect the PA preferences of rural older adult men and if so, how? Is the promotion of structured PA among older men an unwise investment?

Third, it appeared noteworthy that, with one exception, each success case was currently single and that each appeared to view aging in a relatively positive light. This also raises additional questions. For instance, are single rural older adults (and women in particular) more likely to access organized PA opportunities? Is it more likely for a single/widowed older woman to engage in organized LTPA and if so, what are the factors associated with this phenomenon? Cohen-Mansfield, Marx, Biddison and Guralnik (2004) speculated that unmarried older adults (who are more likely to be widowed) may access such opportunities due to their social appeal as a means to combat loneliness. This claim merits further investigation. Other questions include, what is the relationship between perceptions of aging and PA participation? Are older adults who evaluate aging more positively more likely to be regularly physically active?

Fourth, the application of an ecological lens to this study's findings creates a number of additional questions. For example, is there a rural "culture" of PA participation/physical inactivity and, if so, what are the contextual reasons that may help explain this? Also, how have historical and social forces shaped perspectives on PA and aging? Are current rural socio-cultural environments reinforcing particular ideas about PA and aging? Answers to the preceding questions will help build a comprehensive understanding of the nature of rural older adult PA participation and inform PA promotion initiatives.

Fifth, a question remains with respect to the generalizability of the present findings. To what extent are the interpretations applicable to older adults in other rural contexts (both within Atlantic Canada and elsewhere - e.g., Canadian farming communities)? The answer is currently unclear and future research should investigate the relevance of categories and concepts presented in this study to older adults in other rural contexts. Furthermore, it would be prudent to examine the relevance of these categories and concepts among urban older adults. To what extent are the findings and suggestions for PA promotion rural context-specific? Finally, with respect to the current body of work, research should progress toward 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 Cape Breton.

Summary

This study makes several important contributions to the literature and advances the physical activity and aging field of inquiry. For instance, it expands the PA and aging research agenda by incorporating interpretative approaches and grounded knowledge translation. In addition, it captures the voices of rural older adult participants; voices that are often underrepresented (Grant, 2010) and includes data from community stakeholders. This study also draws attention to the importance of promoting alternative physical activities given that rural older adults may not value participation in conventional/traditional forms of LTPA. Furthermore, this study makes an important contribution to the development of a

more comprehensive framework of PA promotion among rural older adults which includes the application of the "Protestant Work Ethic" (Weber, 1958) and "Busy Ethic" (Ekerdt, 1986) to PA participation and promotion.

The findings and proposed strategies to guide PA promotion based upon these findings, serve as an important next step toward developing a comprehensive, integrated framework of rural PA promotion in Atlantic Canada. In terms of promoting PA among rural older adults in Cape Breton, several factors appeared important to consider including the prioritization of work-related PA/PPA, conceptualizations of "PA" and norms, beliefs and perceptions of aging and PA. PA promotion initiatives that are sensitive to these factors and can foster environments that are supportive and encouraging of older adult PA participation within the context of rural Cape Breton may result in increased PA participation.

Specifically, the findings of this study suggest PA needs to be culturally relevant and salient, identify a need for PA education and highlight the potential importance of associating the relevance of PA with respect to physical function. Furthermore, with respect to promoting PA among rural older adults in Cape Breton, it appears prudent to shift the focus away from conventional/traditional methods of PA promotion (i.e., LTPA). In a minority of cases, participants in this study associated LTPA participation with health. However, the association between work-related PA participation and health may be more salient, and perhaps especially so for rural older adult men. Although this study generates a host of additional questions that merit further explanation, it serves as an

important step toward understanding the nature of PA participation and promoting PA among rural older adults in Cape Breton/NS.

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Appendix A

Semi-Structured Interview Information Letter: Older Adults

INFORMATION SHEET

Title of Project: Older Adult Physical Activity Promotion in Rural Atlantic Canada

Research Assistant (main contact): Mr. Chad Witcher
Doctoral Student, Faculty of Physical Education and Recreation, University of Alberta
902-574-9521; cwitcher@ualberta.ca

Principal Investigator: Dr. John C. Spence
Associate Professor, Faculty of Physical Education and Recreation, University of Alberta
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Co-Investigator: Dr. Nicholas L. Holt
Associate Professor, Faculty of Physical Education and Recreation, University of Alberta
780-492-7386; nicholas.holt@ualberta.ca

Other investigators: Dr. Chris Blanchard, Dalhousie; Ms. Donna Murnaghan, UPEI; Dr. Renée Lyons, Dalhousie

Hello,

We are trying to learn more about rural older adults' background in physical activity, their thoughts and feelings about taking part in physical activity and the ways to be physically active in your area. Atlantic Canada has a lot of rural areas and the number of people 65 years of age and older is getting larger. We need to know more about these and other things about your area so that we can learn how to improve the health of rural older adults in this area. So, we are asking those 65 years of age and older, who are permanent, long-term residents of Nova Scotia or Prince Edward Island to take part in our study. Taking part in an audio-recorded 60-90 minute interview will help us understand your thoughts and feelings about physical activity. This will give us a better idea of what things are important to you and how we might do a better job of encouraging physical activity among older adults in rural areas in Atlantic Canada.

Everything you say during the interview will be kept private. This information will be typed up, but always kept in a secure location. No one will have access to the information other than me, Chad Witcher, and my co-supervisors, Dr. John C. Spence and Dr. Nicholas Holt from the University of Alberta. The information you provide may be presented at academic conferences or published in reports and/or academic journals. However, your name will not be linked to this

information because each person in this study will be assigned a fake name. We may choose to keep the information you provide for several years for future analysis.

We do not think that being in an interview will be uncomfortable for you, and feel as though it may be useful by giving you an opportunity to help us understand your thoughts and feelings about physical activity. However, if at any time you should feel uncomfortable during the interview or feel like leaving, just let Chad know. You can choose not to answer any or all questions without consequence. Any information you provide can also be erased upon request.

If you have any questions about this project, please feel free to contact Mr. Chad Witcher at (902) 574-9521 or cwitcher@ualberta.ca. Alternatively, you may contact Dr. John Spence or Dr. Nicholas Holt (see contact info. above). If you have further concerns about this study, you may contact Dr. Wendy Rodgers, Chair of the Faculty Research Ethics Board, at (780) 492-8126. Dr. Rodgers has no direct involvement with this project.

Note: This research has been reviewed and approved by the Cape Breton District Health Authority's Research Ethics Board. If you have any questions or concerns about the study, you may contact the Chair of the Research Ethics Board at (902) 563-1833.

Thank you.

Semi-Structured Interview Information Letter: Stakeholders

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Hello,

We are researching rural older adults' physical activity (PA) experiences, their beliefs about taking part in PA, their motivations for PA and the opportunities to be physically active in your area. Statistics show that Atlantic Canada has a high percentage of rural areas and that the percentage of people 65 years of age and older is increasing. We need to know more about these and other unique features of your area so that we can do a good job of promoting health in your region. Therefore, we are inviting individuals who work in the health/physical activity promotion field or who contribute to the development of health promotion policy and are interested in aging and/or rural health issues to participate in our study. In particular, we are interested in obtaining your perspective on PA promotion, hearing about your experiences with, and perceptions of, PA promotion and about the challenges to and opportunities for effective PA promotion among rural older adults in your region. Participating in an audio-recorded 60-90 minute interview will help us capture your unique perspective on these issues. This will help us understand how we might improve efforts to promote PA and health among older adult groups in rural areas in Atlantic Canada.

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information you provide may be presented at academic conferences or published in reports and/or academic journals. However, your name will not be linked to this information because each participant in this study will be assigned a fake name. We may choose to keep the information you provide indefinitely for future analysis.

We do not think that being interviewed will be uncomfortable for you, and feel as though it may be beneficial by giving you an opportunity to help us understand your thoughts and feelings about physical activity promotion. However, if at any time you should feel uncomfortable during the interview or feel like stopping, just let Chad know. You can skip any question you don't feel like answering and are free to withdraw from this study at any time without consequence. The information you provide can also be erased upon request.

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Thank you.

Appendix B

Interview Guides

Initial semi-structured interview guide – Older adults.

Introductions, ice-breakers…

- □ What's it like to live here?
- □ Did you grow up around here? What was that like?
- □ Please tell me about your work background

Rural

- □ So, why do you live here as opposed to someplace else?
- □ What can you tell me about this community/area? Can you describe it for me? Are other communities near here similar? Different? How so?
- □ What are the different types of communities that are in this area/region/province?

Health

- □ What does being "healthy" mean to you?
- □ Please tell me about your own health over your lifetime. How about the health of others you know? Friends, family…

Aging

- □ How would you describe aging/getting older? For you? For others?
- □ Do you feel different now compared to 20, 30 years ago?

Activity

- □ What types of activities did/do you take part in/take an interest in when you were growing up? As an adult? Since retirement?

- □ What does being “active” mean to you?
- □ Please tell me about your priorities now that you’ve retired…what’s important to you right now? Probe: What is less important?
- □ Do you think there is a difference between “physical activity” and “exercise?” What do these terms/concepts mean to you?
- □ Are you familiar with Canada’s PA Guide for Older Adults? What do you think of the recommendations?

Summary

- □ What do you think of promoting health among older adults?
- □ What is it that you think I should know about getting older…?
- □ Is there anything you’d like to add?

Second iteration of semi-structured interview guide – Older adults.

Introductions, ice-breakers…

- □ What's it like to live here?
- □ Did you grow up around here? What was that like?
- □ Please tell me about your work background

Rural

- □ So, why do you live here as opposed to someplace else?
- □ What can you tell me about this community/area? Can you describe it for me? Are other communities near here similar? Different? How so?
- □ What are the different types of communities that are in this area/region/province?

Health

- □ How would you describe aging/getting older? For you? For others?
- □ What does being "healthy" mean to you?
- □ *Is participating in "work activity" healthy?*
- □ Please tell me about your own health over your lifetime. How about the health of others you know? Friends, family…
- □ *Do you pay more attention to your health now than in years past?*
- □ *Where do you obtain health information?*

Aging

- □ How would you describe aging/getting older? For you? For others?
- □ Do you feel different now compared to 20, 30 years ago?
- □ *How did people from previous generations (e.g., parent, grandparent)view aging/getting older?*

- *As you get older do the benefits of physical activity change?*
- *Are there differences in how older men and women think about getting older and participating in physical activity?*

Activity

- What types of activities did/do you take part in/take an interest in when you were growing up? As an adult? Since retirement?
- What does being "active" mean to you?
- Please tell me about your priorities now that you've retired…what's important to you right now? Probe: What is less important?
- Do you think there is a difference between "physical activity" and "exercise?" What do these terms/concepts mean to you?
- *Are there differences in terms of activity preferences for older men and women?*
- *Is it important for people around here to be "active"; "physically active?"*
- *Why do you think more people don't go to the gym?*
- *Is it important that all activities have a tangible purpose?*
- *Are there activities you believe are beyond your capabilities?*

Summary

- What do you think of promoting health among older adults?
- What is it that you think I should know about getting older…?
- Is there anything you'd like to add?

Major revision of semi-structured interview guide – Older adults.

Intro

Demographics
What's it like to live here?
What kinds of things did you do growing up?
Recreation/Leisure? Games? Sports?

1. (a.) What does a typical day look like for you? What is your typical daily routine?

Probes: How would you categorize these activities? Work activity? Leisure/Recreation?

(b.) What about for your parents? Were their activities similar? Different?

Probes: Reasons why same/different? In work, in leisure, in "retirement?"

2. So, how "active" are you? Is being "busy" important to you? (does being "active" mean something different?)

Is there a difference between saying someone is an "active" 70/80/90 year old?

3. What are some of the things that have changed for you as you've gotten older/retired?

Do you feel differently now than say 5, 10, 10, 30 years ago?

Probes: What things have remained the same? "Slowed down", Naturally occurring? Done on purpose? Brought on by external factor(s)?

Are there things you pay more or less attention to now compared to when you were raising a family (if applicable)?

4. (a.) What do you think about getting older?

Probe: What's your outlook/attitude toward aging/getting older/on life?

Do you consider yourself to be "old?" What does being "young for your age" mean?

Probes: When is a person "old?" What keeps you "young"?

(b.) Have you ever stopped to think about your health? Do you think there are things you can do to improve your health? What are some of the things you are doing to maintain/improve your health? Do you talk to others about issues related to health?

(c.) If someone described a person you knew as 'healthy,' what do they mean?

Probes: When is someone healthy? When is someone not healthy? Does your perception of "healthy" change over time?

PA Guide

Do you believe you can meet the recommendations of Canada's Physical Activity Guide for Older Adults?

Are these recommendations realistic? Why/Why not?

Are there things that could interfere or help you?

What types of activities are you/could you engage in to help meet these recommendations?

What do you think of these recommendations?

5. (a.) Do you think it's important to be physically active/exercise? Why? Why not? When I ask you about "exercise,"

what things come to mind? Other activities?

Probes: Is it important for people your age? Is it more or less important to you now compared to other times in your life?

(b.) Are you physically active? Do you exercise? Why/why not? Have you ever exercised? Types of physical activities? Exercise? Sports?

Probes: How much physical activity/exercise should you do? What day-to-day activities of yours can be considered physical activity/exercise? How

physically active are people your age (How much exercise do they do?) Has that changed over time?

(c.) What are some of the important things someone your age needs to think about when it comes to being 'physically active"/exercising?

Probe: Do you worry about over exerting yourself?

6. What types of physical activities/exercise do you/would you prefer to do?

Probes: Are appealing? Are appropriate/inappropriate? Always wanted to try? Always disliked? Good at/Not good at?

Would you be interested in going to a fitness centre? Would you be interested in doing physical activity/exercises at home? Outside?

Probes: Indoor/outdoor? Group vs. Individual, Does the time of year make a difference? Sport? Fitness centre?

7. (a.) What do you see as things that prevent you from being more physically active/exercising?

Probes: Falling, injury, income, access

(b.) What do you think would encourage people your age to be more physically active (to exercise more)? What would get someone motivated? What would encourage/motivate you?

Probes: What about in the winter? Aspects of competition...sport...gyms...

8. (a.) Do you think there are certain physical activities that are more for men/women?

(b.) Do you feel like there are activities that are not appropriate for someone your age?

Probe: Do you think if you chose to do certain activities that people might think it is humorous/strange/peculiar/unusual?

9. (a.) Is the lifestyle here similar or different compared to in large cities? How so? Do you think

the physical activities (or the exercise that people do) of men/women here are the same or different than in large cities? Are people physically active/do people exercise in different ways here compared to large cities?
Probes: Do you think people who were born and raised in a city have been more or less physically active (have exercised more) throughout their life compared to people in rural communities? How about in retirement?
(b.) How would your physical activity (exercise) change if you moved to Halifax? Toronto?

10. Is there anything you'd like to add? Anything I didn't ask you that you think is important...?

Second iteration of revised semi-structured interview guide – Older adults.

Intro

Demographics
What's it like to live here?
What kinds of things did you do growing up?
Recreation/Leisure? Games? Sports?

1. (a.) What does a typical day look like for you? What is your typical daily routine?

Probes: How would you categorize these activities? Work activity? Leisure/Recreation?

(b.) What about for your parents? Were their activities similar? Different?

Probes: Reasons why same/different? In work, in leisure, in "retirement?"

2. So, how "active" are you? Is being "busy" important to you? (does being "active" mean something different?)

Is there a difference between saying someone is an "active" 70/80/90 year old?

3. What are some of the things that have changed for you as you've gotten older/retired?

Do you feel differently now than say 5, 10, 10, 30 years ago?

Probes: What things have remained the same? "Slowed down", Naturally occurring? Done on purpose? Brought on by external factor(s)?

Are there things you pay more or less attention to now compared to when you were raising a family (if applicable)?

What are your thoughts on "hard work?"

4. (a.) What do you think about getting older?

Probe: What's your outlook/attitude toward aging/getting older/on life?

Do you consider yourself to be "old?" What does being "young for your age" mean?

Probes: When is a person "old?" What keeps you "young"?

Did you ever think about getting older when you were younger?

(b.) Have you ever stopped to think about your health? Do you think there are things you can do to improve your health? What are some of the things you are doing to maintain/improve your health? Do you talk to others about issues related to health?

(c.) If someone described a person you knew as 'healthy,' what do they mean?

Probes: When is someone healthy? When is someone not healthy? Does your perception of "healthy" change over time?

PA Guide

Do you believe you can meet the recommendations of Canada's Physical Activity Guide for Older Adults?

Are these recommendations realistic? Why/Why not?

Are there things that could interfere or help you?

What types of activities are you/could you engage in to help meet these recommendations?

What do you think of these recommendations?

5. (a.) Do you think it's important to be physically active/exercise? Why? Why not? When I ask you about "exercise,"

what things come to mind? Other activities?

Probes: Is it important for people your age? Is it more or less important to you now compared to other times in your life?

What about in advanced age?

(b.) Are you physically active? Do you exercise? Why/why not? Have you ever exercised? Types of physical activities? Exercise? Sports?

Probes: How much physical activity/exercise should you do? What day-to-day activities of yours can be considered physical activity/exercise? How physically active are people your age (How much exercise do they do?) Has that changed over time?

(c.) What are some of the important things someone your age needs to think about when it comes to being 'physically active"/exercising?

Probe: Do you worry about over exerting yourself?

Do you see physical activity/exercising as "time well spent?" (Productive/Useful)…

6. What types of physical activities/exercise do you/would you prefer to do?

Probes: Are appealing? Are appropriate/inappropriate? Always wanted to try? Always disliked? Good at/Not good at?

Would you be interested in going to a fitness centre? Would you be interested in doing physical activity/exercises at home? Outside?

Probes: Indoor/outdoor? Group vs. Individual, Does the time of year make a difference? Sport? Fitness centre?

7. (a.) What do you see as things that prevent you from being more physically active/exercising?

Probes: Falling, injury, income, access

(b.) What do you think would encourage people your age to be more physically active (to exercise more)? What would get someone motivated? What would encourage/motivate you?

Probes: What about in the winter? Aspects of competition...sport...gyms...

8. (a.) Do you think there are certain physical activities that are more for men/women?

(b.) Do you feel like there are activities that are not appropriate for someone your age?

Probe: Do you think if you chose to do certain activities that people might think it is humorous/strange/peculiar/unusual?

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the physical activities (or the exercise that people do) of men/women here are the same or different than in large cities? Are people physically active/do people exercise in different ways here compared to large cities?

Probes: Do you think people who were born and raised in a city have been more or less physically active (have exercised more) throughout their life compared to people in rural communities? How about in retirement?

(b.) How would your physical activity (exercise) change if you moved to Halifax? Toronto?

10. Is there anything you'd like to add? Anything I didn't ask you that you think is important...?

Semi-structured Interview Guide – Stakeholders: General

Introductions, ice breakers to start…

Rural

- □ What's it like here for an older adult? What's "rural aging" like?
- □ What are some of the benefits of living in rural areas? Challenges?

Aging & Health

- □ What are some of the specific issues associated with rural health (in older adult populations in particular)?
- □ What types of health initiatives are currently in place municipally, provincially for older adults?

Activity Promotion

- □ Could you talk about your experiences as a health promoter/ community health representative/physical activity coordinator/policy maker?
- □ Are you aware of any specific physical activity (PA) initiatives/programs/campaigns locally or provincially?
- □ What do you think are some of the important considerations regarding promoting in rural communities? Among older adults in particular?
- □ Could you tell me about some of the strengths/weaknesses of past/current initiatives to promote health/wellness/PA among older adults in the region?
- □ Based on your experiences, what are some of the types of things that may be particularly effective/ineffective in terms of promoting health/wellness/PA among older adults in the region?

- If you could wave a magic wand, what initiatives/programs would you/like to see put in place to serve older adults in rural communities? How should they be implemented?

Summary

- Is there anything you'd like to add? Something you think is important they we may not have covered?

Semi-structured Interview Guide – Stakeholders: Councillors

Background – Role as councillor, responsibilities, etc.

1. What are the current priorities of the municipality?

2. How can the municipality play a role in enhancing the health and well-being of the community?

3. What are some of the things the municipality is doing?

4. What are some of the things that the municipality is responsible for?

5. What is being planned or is currently happening that may impact health/wellness

6. Do you see yourself as having a role to play in terms of community health promotion? How does your position fit?

7. In what ways does the municipality have an impact on the levels of PA/amounts of PA participation among community members?

8. Have you participated in or lobbied for any initiative in particular? Do you receive requests from community members re: health/wellness initiatives? PA?

9. Within your role, what are some of the ways in which you may affect policy related to PA promotion?

What are the similarities/differences between serving as a municipal councillor here as opposed to Halifax?/Sydney?

Needs of Seniors?

Challenges/Opportunities in rural areas?

Group Interview Guide – Older adults

Opening:

I'd like to facilitate some discussion and get your feedback on some of the things

I've been hearing… Before we get going, do you have updates for me? Anything

regarding what you've been up to or…?

General questions:

1. I spoke with a man earlier this week and he was talking about walking and he said, well, why would I go and put my energy into walking when it doesn't really serve any purpose? I'd rather use that energy and put it into something else I enjoy doing. What do you think about that? The idea that the walking wasn't useful or that he wasn't getting anything out of it was his point…

2. Another thing I've heard is, well, I just like to do my own thing. If you looked at people in general that you know of, I wonder – is it more appealing to be busy with your own routine, compared to going to a fitness class or going to yoga or…?

3. Do you think that men may see fitness classes as something for women?

4. Do you think people have a good idea of what's important for their health, what to do, not do, what types of activities they should be doing, and for how long? Do you think people even think of these things? Are you more likely to think about these things as you get older?

5. I've heard a lot of people say, I can't do "this", whatever the activity may be - because I have arthritis, or my flexibility is compromised, or I have high blood pressure, or I have a heart condition or what have you – I wonder if people ever flip it around and think about it the other way – well, maybe if I start to do a certain thing it may help me improve my flexibility or might help me manage my blood pressure better or that sort of thing?

6. Do you think people may have a tendency sometimes to blame certain things on age when maybe it's not just age per se, but perhaps also a factor of, for example, not being physically active over the past ten or twenty years?

7. Do you think there's still that view that as you get older you should do certain things and not do other things?

8. If we were thinking about ways to encourage people to be more physically active or to get them interested in becoming more physically active, do you think

that promoting different work activities as opposed to fitness classes may be more effective?

9. An older man told me that being physically active was important as people get older, but only up until you are ninety and after that it would be less important. What are your views about that?

10. Do you think your attitude toward aging and getting older may affect an older person's activities?

11. Do you think there are differences between rural areas and urban areas in terms of physical activity participation? I was told about the notion of packing a little bag for your husband with his shoes and a lunch or whatever, as he makes his way to the gym/fitness centre, and how that would seem silly here…

12. Are there gender differences when it comes to motivation for physical activity? Some people have told me that a woman's motivation is primarily for weight loss for example…Would you say that's a motivator for women? To walk because they want to stay slim?

13. Other important issues?

Group Interview Guide – Stakeholders

1. Please talk a little about what you've been involved in over the last eight to ten months…

2. In terms of PA, I get the sense that people in general don't have a very good idea of how much they should do, what types of activities are appropriate and so on. Would you agree that that piece is probably something that needs to be addressed?

3. Regarding partnerships: Are there opportunities for you to collaborate on projects and programs? Does that work fairly well right now? Are there opportunities for partnerships with academics/university members?

4. Do you feel stretched in terms of your day to day activities associated with your position?

5. Could you give me your sense with respect to what older adults in the community want, and what they might be coming to you and talking to you about?