

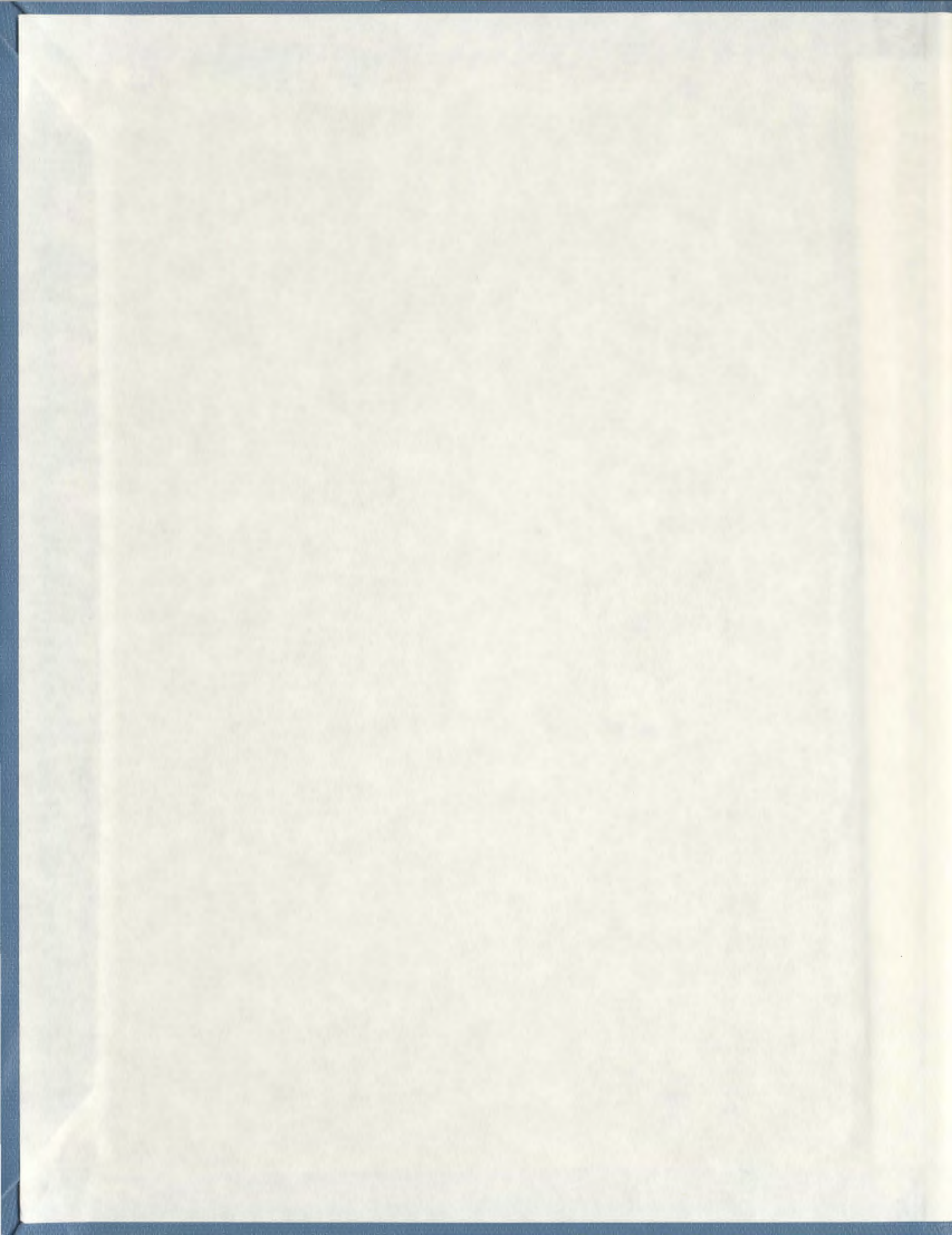
**THE RELATIONSHIP BETWEEN ATTITUDE AND
PARTICIPATION IN PHYSICAL ACTIVITY AMONG
OLDER WOMEN**

CENTRE FOR NEWFOUNDLAND STUDIES

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**THE RELATIONSHIP BETWEEN ATTITUDE AND PARTICIPATION IN
PHYSICAL ACTIVITY AMONG OLDER WOMEN**

BY

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Abstract

Physical activity is important for older women to maintain their health and to avoid the negative consequences of inactivity. The Theory of Reasoned Action (Ajzen, 1988) was selected as the conceptual framework for the research. The relationship between older women's attitude toward and participation in physical activity, together with some factors thought to influence the level of activity were studied using a descriptive design.

A convenience sample of 30 women aged 65 to 88 years from four senior's apartment complexes were self selected as participants. Data were collected using the Attitude Toward Physical Activity, Intention to Engage in Physical Activity, and the Modified 7-DAI questionnaires. Each participant had her weight measured. Descriptive statistics were used to analyze the data.

The findings suggest older women with lower incomes and education, with a disability, and who were most active in summer months had negative attitudes, less intentions, and lower levels of physical activity. Heavier women had more negative attitudes, low intentions, but higher physical activity levels than those who weighed less. Overall, women in this study spent less time in activities as the level of physical exertion increased. The low activity levels put older women in this study at risk for ill health and

decreased quality of life. The findings have implications for nursing practice, education, research, and policy.

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Chapter 1

Introduction

Physical activity provides multiple benefits to older women's health, well-being, and quality of life. However, many older women are sedentary which puts them at risk for health problems and disability. Despite the fact that there are benefits from physical activity and possible negative effects from inactivity, it is not well understood why older women do not participate in regular physical activity. Ajzen (1988) provides a possible explanation in that he postulated that attitudes determine behavior. Several other studies supported the belief that older women's attitude toward physical activity influenced whether or not they participated in some form of activity (Collette, Godin, Bradet, & Gionet, 1994; Courneya, 1995; Fried, Rosenberg, & Lipsitz, 1995; Wilcox & Storandt, 1996). An understanding of the determinants of physical activity is essential to effectively plan interventions to increase physical activity among older women (Conn, 1998). The purpose of this research is to identify to what extent attitude is associated with older women's participation in physical activity.

Scope of Problem

The proportion of women 65 years or older in the general population is increasing. In 1998 12.3% of Canada's total population was 65 years or older and by 2003 is projected to be 13.0%. The population of older women is projected to increase from 7.09% of Canada's total population in 1998 to 7.41% in 2003. In Newfoundland older women make up 6.31% of the total population and that proportion is expected to increase to 7.18% by 2003 (Statistics Canada, 1998). In St. John's, Newfoundland, 13.7% of the adult population is 65 years of age or older and 15.8% of these are female (Segovia, Edwards, & Bartlett, 1996). Older women are an increasing proportion of the adult population in Canada, Newfoundland, and St. John's.

Almost 68% (67.9%) of older women in Newfoundland, and 58.1% in St. John's are sedentary or participate in light physical activity only (Segovia et al., 1996). This lack of physical activity contributes to multiple health problems, decreased quality of life (Rader & Vaughn, 1994; Vorhies & Riley, 1993), and lower levels of cognitive functioning (Christensen et al., 1996). Conversely, older adults who participate in regular physical activity have improved health (Barry & Eathorne, 1994; Buchner, Beresford, Larson, LaCroix, & Wagner, 1992; Fowler, 1996; Lowenthal, Kirschner, Tumer

Scarpace, Pollock, & Graves, 1994; McCarter, 1995; McMurdo & Burnett, 1992; Mills, 1994; Moore & Bracegirdle, 1994; Morris & Hardman, 1997; Schell, Allolio, & Schonecke, 1994; Shephard, 1990; Thompson, 1994; Weyerer & Kupfer, 1994). Given that 96% of older Canadian women aged 65 years and older utilized services of health care professionals (Statistics Canada, 1994), older women are major health care consumers. Promoting physical activity, one aspect of health promotion, in this age group is important to prevent or reduce the risk of health problems associated with a sedentary lifestyle. Dean and Holstein (1991) stated that exercise and sports programs for older people are based on the assumption that physical exercise is good for older people and health promotion programs need priority in health policy.

Rationale

Health problems associated with a sedentary lifestyle among older women have been shown to contribute to increased utilization of health care services which increases the cost of providing health care to this population. Despite our knowledge of the negative health and financial effects of a sedentary lifestyle and the benefits that physical activity can bring, it is not well understood why a number of older

women do not participate in regular physical activity. To ensure that health promotion programs that promote physical activity are effective and reach older women, nurses need to understand factors that facilitate participation by this group and base these programs on scientific knowledge (Fowler, 1996). Attitude, an individual's evaluation of a specific behavior, is one factor that facilitates or inhibits participation in physical activity (Ajzen, 1988). It is therefore important to more clearly understand older women's attitudes and their relationship to physical activity. This study adds to the body of knowledge required to develop these programs which have been shown to contribute to decreased disability, improved quality of life, and reduced health care costs for older women.

Purpose

The purpose of this study is to identify to what extent attitude is associated with older women's participation in physical activity. The findings will provide an overview of attitude, intention, and levels of participation in physical activity among older women in seniors' apartment complexes in St. John's, Newfoundland as well as the relationship between the factors. The findings may improve our understanding of older women's physical activity patterns and may be used to

increase their participation in physical activity and improve the quality of their lives.

Research Objectives and Questions

Objectives of this research are:

1. To describe the attitude toward physical activity among a convenience sample of older women.
2. To describe the intentions of these older women to participate in physical activity during the next six months.
3. To describe the level of physical activity among this sample of older women.
4. To examine attitude and its relationship to participation in physical activity among this sample of older women.
5. To examine attitude and its relationship to this group of older women's intention to participate in physical activity.
6. To examine activity and its relationship to intention to participate in physical activity among this sample of older women.

Research questions include:

1. What is the relationship between older women's attitude and participation in physical activity?
2. What is the relationship between older women's attitude

and intention to participate in physical activity?

3. What is the relationship between older women's participation and intention to participate in physical activity?

4. What demographic variables, if any, are associated with older women's attitude toward physical activity?

5. What demographic variables, if any, are associated with older women's intention to participate in physical activity?

6. What demographic variables, if any, are associated with older women's participation in physical activity?

Theoretical Framework

The Theory of Reasoned Action, the schematic of which is provided in Figure 1, is chosen as the theoretical framework for this study. This framework is used to explain the relationship between attitude and physical activity among older women.

The Theory of Reasoned Action assumes that people behave in a rational manner. That is, people evaluate information and implications of a specific behavior to determine their intention prior to engaging in the behavior. The Theory of Reasoned Action suggests that intention is influenced by two factors: attitude and subjective norm. Attitude is a personal factor which "refers to the degree to which a person has a

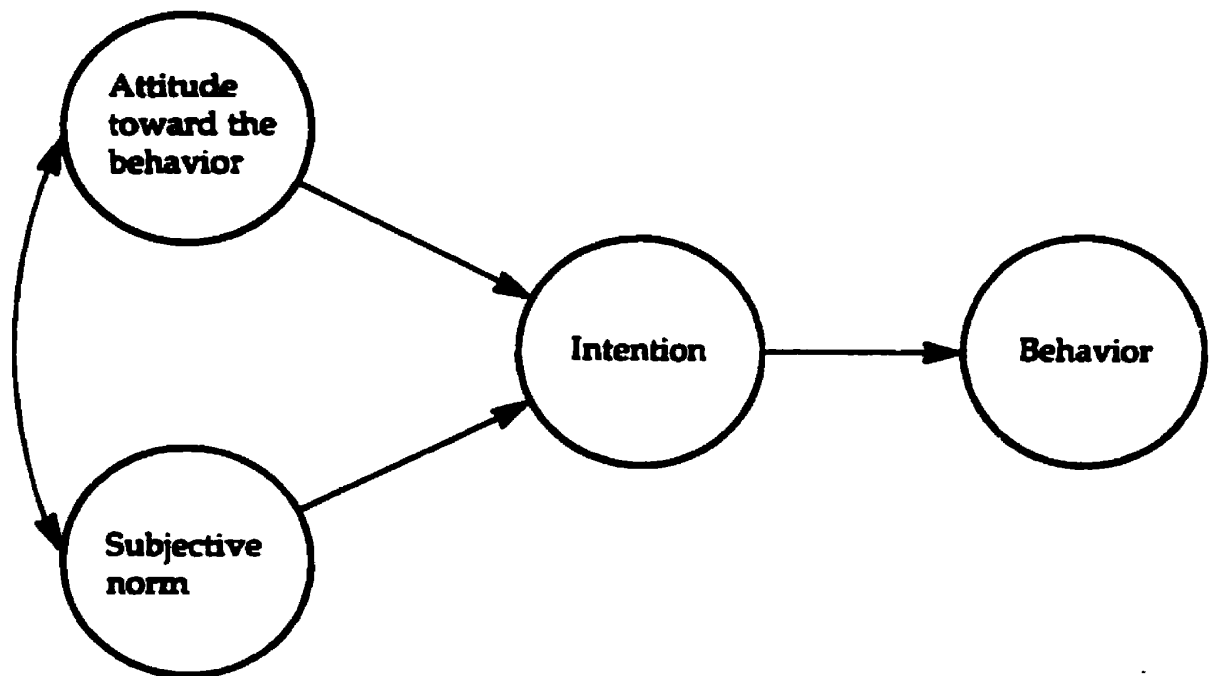


Figure 1. Theory of Reasoned Action. From: Ajzen, I. (1988) Attitudes, personality, and behavior (p. 118). Chicago, Illinois: Dorsey Press.

favourable or unfavourable evaluation of the behavior in question" (Ajzen & Madden, 1986, p. 454). Subjective norm is a social factor which "refers to the perceived social pressure to perform or not perform the behavior" (Ajzen & Madden, 1986, p. 454). Jointly, attitude toward the behavior and subjective norm predict intention to perform a specific behavior.

People's attitude toward a behavior is related to their beliefs that performing the behavior will result in specific consequences and their evaluation of those consequences. Therefore, beliefs determine behavior (Fishbein & Ajzen, 1975). These beliefs may be acquired through education, the opinions of significant others, and through personal experience. Individuals will plan to perform a behavior when, based on their beliefs, they positively evaluate the behavior (attitude toward the behavior) and believe others feel they should perform it (subjective norm).

Using the Theory of Reasoned Action to study physical activity among older women suggests that older women's decision to take part in physical activities will depend on the following: their attitude toward physical activity, beliefs regarding its value, perceived benefit that physical activity will have for them, their belief they will benefit, others' opinions toward them engaging in physical activity,

and the credibility given to the opinions of others pertaining to physical activity. The last two assertions deal with subjective norm and were not studied in this present research. Rather, this study focused on attitude and intention. The Theory of Reasoned Action postulates a relationship between older women's attitudes toward and their participation in physical activity.

It is recognized that older women are not a homogeneous group and factors other than age may have an impact on their physical activity. A number of sociodemographic variables that may affect older women's participation in physical activity were selected to look at variations among the women in the study. The variables may have an effect on their attitudes toward and intention to participate in physical activity (see Figure 2). These variables will be explored in the literature review.

Definitions

Older adult: Any person who is 65 years of age or older.

Physical activity: "Any bodily movement produced by skeletal muscles that results in energy expenditure" (Caspersen, Powell, & Christenson, 1985, p. 126). It includes all activities that require physical exertion, regardless of

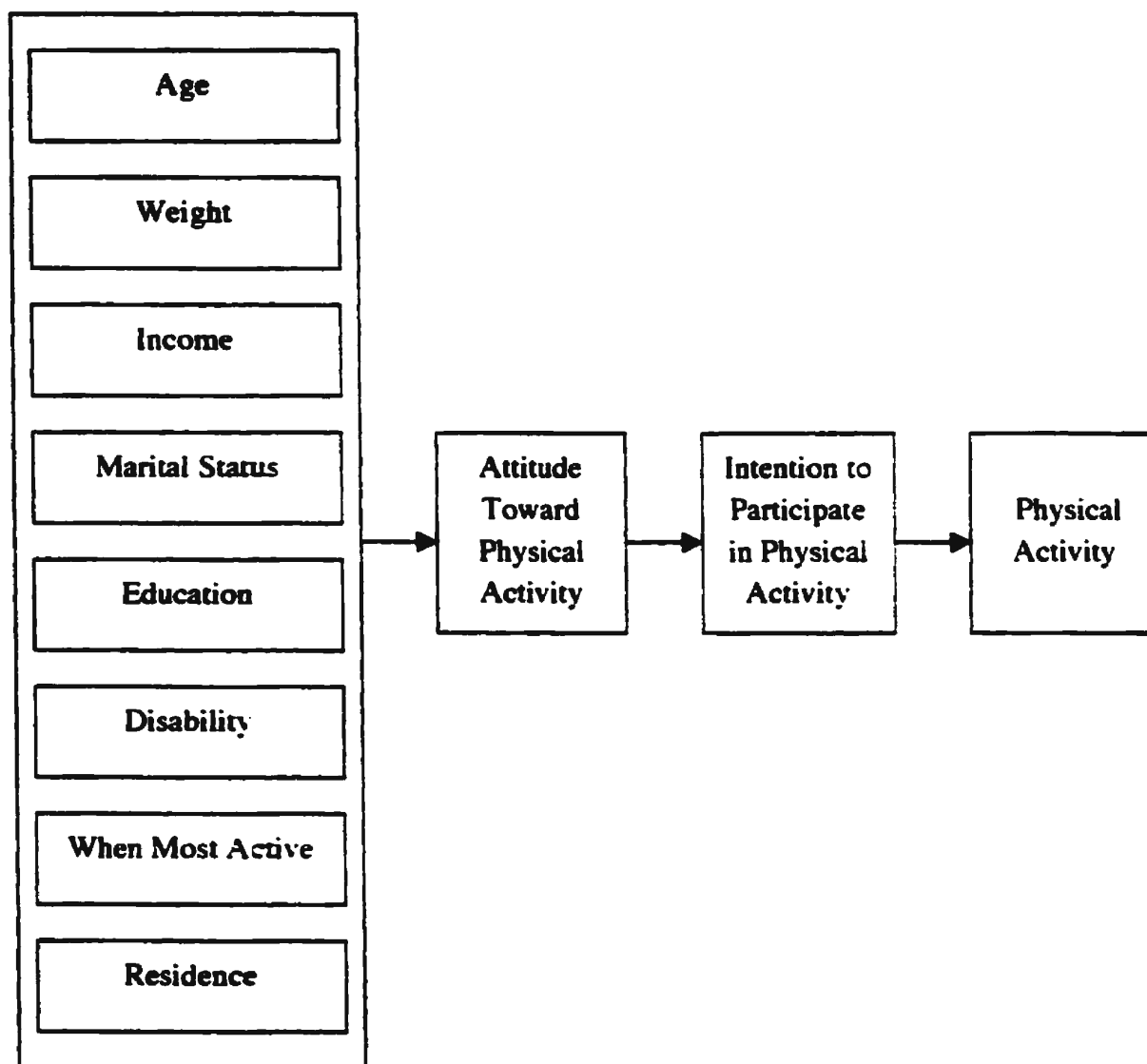


Figure 2. Conceptualization of variables examined.

when or where they are performed. Some examples include housework, gardening, woodworking, climbing stairs, walking, fishing, shopping, or sporting activities. Physical activity does not have to be planned, structured, or repetitive. Rather, it includes occupational, sporting, conditioning, household, and other activities (Redeker & Mason, 1994).

The definition of physical activity was operationalized through the use of the Modified 7-Day Activity Interview. Women who expended less than 2000 kcal.day⁻¹ were classified in the low activity level, those who expended 2000 to 2500 kcal.day⁻¹ and more than 2500 kcal.day⁻¹ were classified in the moderate and high activity levels respectively.

Attitude: A personal factor which refers to the degree to which a person evaluates a specific behavior favourably or unfavourably (Ajzen & Madden, 1986).

Intention: An individual's plan to perform a specific behavior.

Chapter 2

Literature Review

The literature review for this research on the attitude of older women toward physical activity and their participation in this activity is divided into four sections. The first section reviews the relationship between physical activity and health in older women. The second section contains research into older people's participation in physical activity. The third section reviews research on older people's attitudes toward physical activity. The fourth and final section is a review of factors that affect physical activity among this group.

While the research is on physical activity, a number of authors, even though they stated they measured physical activity, measured exercise behaviour. Physical activity is the broader of the concepts and includes all bodily movements that expend energy while exercise is defined as any planned, structured, and repetitive bodily movement, the goal of which is to improve or maintain physical fitness. Exercise therefore is one subset of physical activity (Caspersen et al., 1985). Due to the lack of literature on physical activity and older women, it was necessary to review

literature on exercise and older people in general for this research.

Physical Activity and Health

Inactivity or leading a sedentary lifestyle has a number of negative consequences for older women as a number of studies have indicated. Low levels of physical activity, rather than advancing age, is predictive of many health related problems experienced by older people. The effects of inactivity accumulate over time and it takes three times as long as the period of immobility for older people to become reconditioned (Rader & Vaughn, 1994). A number of authors examined the negative effects of a lack of physical activity in older adults.

Deconditioning, or the loss of physical strength with inactivity, is one of the negative consequences of not being physically active. Vorhies and Riley (1993) and Rader and Vaughn (1994) reviewed the literature to determine the effects of deconditioning on older people's health. Vorhies and Riley found that sedentary older people experienced shortness of breath, orthostatic hypotension, decreased muscle flexibility, strength, and endurance. In a frail elderly population, Rader and Vaughn suggested more widespread effects of deconditioning. They found older

deconditioned people experienced poor appetite, malnourishment, dehydration, impaired ability to perform activities of daily living and self-care, impaired ambulation, bowel/bladder incontinence, sensory impairments such as impaired speech, hearing, and vision, cognitive impairments, emotional distress, memory deficits, and increased risk for falls.

Not only are frail elderly people who do not engage in physical activity at increased risk for negative consequences, but individuals who have specific disease processes may also increase their health risks if inactive. Siscovick, LaPorte, and Newman (1985) reviewed the literature to determine the relationship between physical activity and exercise related to four specific diseases: coronary heart disease (CHD), hypertension, diabetes mellitus, and osteoporosis. Their review focused on all age groups in the adult population. They found that habitual physical activity was associated with overall reduced risk of CHD and sudden cardiac death, reduced risk of developing hypertension and improved control if it had already developed, improved blood sugar control for people who had type 2 diabetes mellitus, and slower rate of bone density loss in post-menopausal women which slows or prevents the onset of osteoporosis. Regular physical activity is beneficial to people who may have CHD,

hypertension, diabetes mellitus, or who are at risk for osteoporosis.

Rather than focus on the negative effects of inactivity, other authors examined the health benefits of physical activity and exercise among older adults. An abundance of literature supported participation in physical activity to promote health and well-being among this group. While most of the literature was on physiological benefits for health, work on the psychosocial benefits is increasing.

Some of the positive effects of participation in physical activity noted was improved endurance and stamina, blood pressure control, regulation of body weight, improved immunity, metabolism, glycemic control in people who had type 2 diabetes mellitus, reduced risk of arterial thrombosis, stronger bones (Morris & Hardman, 1997) and decreased rate of bone loss (Buchner et al., 1992). Regular physical activity also led to reduced risk of coronary heart disease (Francis, 1996; Morris & Hardman, 1997; Siscovick et al., 1985), increased high density lipoprotein cholesterol (Bijnen et al., 1996; Morris & Hardman, 1997), and functional improvements in balance, gait, strength, and relieved pain symptoms in people who had arthritis (Buchner et al., 1992). It has been suggested that physical activity may prevent severe physical deformity in people who have Parkinson's

disease (Fowler, 1997), reduce risk of endometrial cancer (Levi, La Vecchia, Negri, & Franceschi, 1993) and contribute to improved mental health (Buchner et al., 1992; Morris & Hardman, 1997). Physically active people experienced improved happiness (Travis, Duncan, & McAuley, 1996), reduced depression (Parent & Whall, 1984; Ruuskanen & Ruoppila, 1995), increased self-esteem (Parent & Whall, 1984), and improved cognitive status (Buchner et al., 1992). Travis et al. (1996) identified that physical activity increased social contacts, an important point given that many older people lose social contacts through retirement. Glass, Mendes de Leon, Marottoli, and Berkman (1999) found that social activities themselves led to improved health among older people.

In concluding a literature review on the effects of physical activity especially among older adults, Astrand (1987) stated, there is "unanimous agreement that regular exercise is essential for optimal function of the human body" (p. 305). Furthermore, older people respond favourably to physical activity by improving health. Exercise is important especially among older institutionalized people (Dawe & Curran-Smith, 1994). These authors suggest a number of positive effects of exercise on this population including both physiological and psychological effects. Less active

individuals may be at increased risk for morbidity and mortality.

Most of the work cited above refers to both men and women. Only one literature review was specific to women. Eyler et al. (1997) found that active women had more favourable cardiovascular risk profiles than inactive women in the areas of improved blood pressure, body mass indices, and blood lipid concentrations. Active women had decreased risk of colon and breast cancers and reduced risk of osteoporosis and improved psychological health. Increased activity among women enhanced mood, improved self-concept, and reduced depression and perceived levels of stress and anxiety. These authors suggested "older women have the lowest rates of aerobic activity of any sociodemographic group" (p. 37).

Intervention studies have frequently been used to examine the relationship between physical activity and health. Intervention studies attempt to look at the effect of specific treatments on a group and compare them to a group who do not receive that treatment. Thus, they help to study how a treatment or intervention such as exercise could benefit older adults.

McMurdo and Burnett (1992) randomly allocated 87 healthy volunteers aged 60 to 81 years into two groups: exercise

(n=44) and health education (n=43). Baseline and post-test measurements were performed. The education group showed improvements from baseline in physical activity levels, pulse, blood pressure, and mood. The exercise group showed improvements from baseline in knee and spine flexibility, back and leg strength, pulse, blood pressure, maximum physical exertion levels, mood, and perceived health status. The results showed that exercise and education were effective for older people but the exercise group showed additional improvements in health compared with the education only group.

In an intervention study using mostly women, Mills (1994) studied the effect of low-intensity aerobic exercise on muscle strength, flexibility, and balance among sedentary older people. A convenience sample of subjects aged 65 to 88 years was obtained from two seniors' apartment complexes and were randomly allocated to an experimental or comparison group. The experimental group (n=20) of women participated in eight weeks of low-intensity aerobic exercise. The comparison group (n=27) was made up of 26 women and one man who maintained their usual levels of physical activity. The experimental group showed improvements in flexibility of the ankles and right knee and improved balance by 22%. The

results showed that even at low intensities, physical activity led to improvements in health among older people.

Dawe and Moore-Orr (1995) used a random pre and post experimental design to study the effects of one 15 minute period of mild exercise on two tests of memory recall and one test of psychomotor performance. Tests were administered pre-intervention, immediately, and 30 minutes post-intervention to 20 nursing home residents (16 women and 4 men) whose ages ranged from 76 to 93 years. Subjects were randomly assigned to exercise (n=10) and control (n=10) groups. The results indicated exercise improved memory among older people in one of the two tests of memory recall. Memory was improved in the second test but not significantly. Mild exercise, such as range of motion, improves older people's recall abilities.

Another study that examined the effects of a low intensity exercise program on older women was done by Moore and Bracegirdle (1994). They used a pre and post experimental design to study the effects of a six week low-intensity exercise program on the psychological well-being of women aged 69 to 93 years living in the community. Subjects were randomly assigned to experimental (n=12) and control (n=15) groups. They found that women in the exercise group experienced improved happiness and well being but those in the control group did not.

In summary, there are many important physiological and psychosocial health benefits of participating in physical activity for older women. People who participated in physical activity reported better subjective health (Ruuskanen & Ruoppila, 1995; Travis et al., 1996). Morris and Hardman (1997) suggested that physical activity is an effective treatment and rehabilitation for many conditions and diseases that people experience. It is an effective strategy for health promotion, prevention, and treatment.

Participation in Physical Activity

Some authors and researchers looked at the degree to which older people actually participate in physical activity. In this work the authors were interested in measuring and documenting how active older people actually were. Older people's degree of physical activity is often compared with that of younger people and the most frequent research on this activity is by way of surveys.

Bijnen et al. (1996), Grand Concourse Authority (1995), Ruuskanen & Ruoppila (1995), Statistics Canada (1995), and Volden, Langemo, Adamson, and Oechsle (1990) all found that older adults were less physically active than their younger counterparts despite the benefits of physical activity. However, a survey to determine use of the St. John's walking

trails by the Grand Concourse Authority (1995) found that people in both the younger and older age groups were not utilizing the trails as much as middle-aged people.

Segovia et al. (1996) identified that women in St. John's, Newfoundland were at least twice as likely to be sedentary than men. They found that 58.1% of females, 65 years of age or older were sedentary or participated in light exercise only. The Grand Concourse Authority (1995) found that more females used the walking trails in the St. John's area than males but few women 65 years of age and older were regularly utilizing them. The results of this study are congruent with previous research. In general, both women and men participate in less physical activity with advancing age (Bijnen et al., 1996; Ruuskanen & Ruoppila, 1995; Statistics Canada, 1995; Volden et al., 1990).

One study on the degree of participation in physical activity focused on older women. Lee (1993) studied exercise patterns in 286 older Australian women using a cross-sectional random sample telephone survey of women aged 50-64 years. The results showed that a high proportion of respondents believed that exercise is not beneficial unless it hurts and is done each day. Forty percent of the respondents reported participation in regular, moderate exercise. Those women not involved in exercise were

significantly older than those who were planning to, or who were already involved in regular exercise.

In summary, several studies showed that many older people do not regularly participate in physical activity and two recent studies (Grand Concourse Authority, 1995; Segovia et al., 1996) conducted in St. John's found low participation rates in physical activity among older women. There are numerous serious consequences for older people, including women, who lead sedentary lifestyles. These consequences include decreased quality of life, dependence on others for assistance to perform activities of daily living, and increased incidence of disability. Many consequences of a sedentary lifestyle may be prevented or treated by participation in physical activity.

Attitude Toward Physical Activity

Few studies exclusively studied attitudes of older women (defined in the present study as 65 years of age and older) toward exercise or physical activity. Therefore, the following section includes literature on attitudes and perceptions of exercise and physical activity, sometimes of all adult age groups and of both women and men. Many studies such as those by Swift, Armstrong, Beerman, Campbell, and Pond-Smith (1995), and Wilcox and Storandt (1996) examined

the attitudes of people across many age groups toward exercise and suggested that age and positive attitude toward exercise were negatively related.

Devereaux Melillo et al. (1996) studied perceptions of physical fitness and exercise activity among 23 older adults aged 63 to 82 years. A qualitative research design was used in which nine women and 14 men were interviewed. They found that participants engaged in a wide variety of physical activities such as walking, swimming, dancing, gardening, and heavy housework and over 50% were categorized as active to very active. Participants consistently evaluated their participation in physical activities in terms of other people in their age group and felt they were more active than other older people. Older people themselves believe that seniors are not physically active on a regular basis. The participants saw their health status as having some impact, whether positive or negative, on their abilities for physical activity. Some felt their health was good and were able to be physically active while others felt that ill health contributed to cessation of physical activities. No subjects reported that they believed ill health can be improved by participation in physical activity. Rather, they saw it as prevention and health promotion, but did not see the

treatment aspect of physical activity for health related problems.

Focusing on older women, Conn (1998) interviewed participants 65 to 90 years of age to identify behavioral, perceived control, and normative beliefs which influence physical activity decisions. She found that social and psychological health were the most frequently mentioned advantages of physical activity such as improved social life, improved mood, independence, and ability to help other people (babysitting and volunteering). Physiological advantages such as improved quality of life, health, fitness, sleep, self-confidence, and feeling better physically were mentioned less frequently. Stress related to having too many commitments, not enough time, fear of injury, and feeling tired were cited as disadvantages by a small number of women only. Overall, the women in the study had positive attitudes about physical activity.

A Canadian study by Collette et al. (1994) used Fishbein and Ajzen's (1975) Theory of Reasoned Action to examine psychosocial factors that influenced subjects' intention to engage in physical activity. They surveyed 353 women and men aged 15 to 80 years. Fifty-three percent of the sample were women and 47% were men. They found that older subjects and subjects who had negative attitudes toward physical activity

had lower intentions to engage in physical activity. Also, attitude toward physical activity was found to strongly influence intention to participate in physical activity.

Courneya (1995) used Ajzen's Theory of Planned Behaviour to examine whether stage of readiness for regular physical activity was related to beliefs pertaining to attitude, intention, perceived social pressure, and perceived control among 288 people 60 years of age and older. Mean age of the participants was 71.5 years and 63% were women. He found that attitude, intention, and perceived control were related to stage of readiness. Also, older individuals and those not intending to engage in physical activity had more negative attitudes toward physical activity than younger individuals and those intending to participate in physical activity.

Since attitude toward physical activity may be affected by the presence of a disease, Swift et al. (1995) surveyed 83 people (58% of whom were women) who had Type 2 diabetes to determine attitudes and beliefs about exercise. The mean age was 59 years. They found that 52% of the participants exercised three or more times per week and those with negative attitudes exercised less.

Fried et al. (1995) used a descriptive study administered by mail survey to determine attitudes toward and practices of health promotion and advance planning activities

(including exercise) among 598 adults 65 years of age and older. Sixty-four percent of the participants were women. They found that older adults in their study had positive attitudes toward exercise and participated in high exercise levels. The subjects were members of the Harvard Cooperative Program on Aging, a registry of older adults who identified their wish to participate in studies about aging. Many subjects completed college and graduate school (Fried et al., 1995) which is a non-representative sample of the general population. It was likely that the respondents were highly biased in favour of health promotion (including exercise) because they were self-selected to both the registry and as participants to the study.

Michels and Kugler (1998) surveyed female and male military beneficiaries aged 65 to 70 years to predict exercise behavior among older Americans. The study was divided into two parts. Part one involved questions related to attitude, intention, social norm, perceived behavioral control and demographic variables. Part two was conducted four weeks after the initial face to face interview. Participant's engagement in physical activity during the previous two weeks was identified. Sample sizes were 431 and 394 for parts one and two respectively. One half of the sample were female. They found that attitude, social norm,

and perceived behavioral control were strongly associated with intention to exercise. Those with positive attitudes had higher intentions to participate in physical activity.

Rowland, Dickinson, Newman, Ford, and Ebrahim (1994) used an observational study design to evaluate the impact of a 20 hour Look After Your Heart health promotion program on health status, exercise knowledge, attitudes, and behavior of 739 retired women 65 years and older (mean age was 66 years). The program included exercise. They compared three groups of women: those in groups one and two were drawn from 12 retirement groups. Women in group one previously participated in the health promotion course whereas women in group two had not. Women in group three were randomly selected from 12 different retirement groups and had not participated in the program. They found that program participants (group one) had significantly more positive attitudes toward exercise than both groups of non-exercisers. Therefore, those with positive experiences with physical activity had more positive attitudes toward it. Younger respondents had more positive attitudes toward, and regular participation in exercise than older participants. As age increased, attitude toward and participation in exercise decreased.

In general, the literature on attitude toward physical activity identified that positive attitude is related to

increased participation in physical activity and as age increases, positive attitude toward, and participation in physical activity decreases. Attitudes toward physical activity vary among the older adults studied. This group appears to know many of the benefits of keeping active. However, a number of older adults have negative attitudes toward physical activity and it is frequently these negative attitudes that make it less likely an older person will be active. Negative attitude is one predictor of decreased physical activity among older people. Additional factors, other than attitude, that affect physical activity patterns among older people will be examined in the following section.

Factors Affecting Physical Activity in Older Persons

Other than negative attitudes toward physical activity researchers have examined what may be some of the factors important to taking part in physical activity.

Christensen et al. (1996) surveyed 858 community dwelling older people aged 70 to 89 years in Australia to study the role of activity on cognitive performance. One half of the sample were women. They used a cross-sectional design and randomly sampled subjects from the electoral role. They found that as age increased, activity levels decreased and that inactivity led to lower levels of cognitive performance

in older people. Increasing age does seem to make a difference.

Lee (1993) also found age was important. In a study of exercise patterns in 286 older Australian women aged 50-64 years, women not involved in exercise were significantly older than those who were planning to, or who were already involved in regular exercise.

The perceived state of health was also found to be an important predictor of partaking in physical activity, at least among women. Scharff, Homan, Kreuter, Brennan (1999) surveyed 653 women aged 18 to 75 years to determine rates and factors associated with physical activity. They found that older women performed less physical activity than their younger counterparts and women 60 years and older were least likely to perform physical activity but cited health as their most common motivator to be physically active.

Another factor found to be important was social contacts. Conn (1998) found, among women 65 to 90 years (n=30), that supportive social contacts (friends, family, and physicians) and environments for physical activity were seen as enablers whereas non-supportive social influences were cited as obstacles to being physically active.

The importance of a number of variables and the relationship of these variables with exercise was

investigated by Wilcox and Storandt (1996). They surveyed 121 women aged 20 to 85 years to determine relationships among age, exercise, and psychological variables. They found that older women had more negative attitudes toward, and were less likely to engage in exercise than younger women. As the age of non-exercising women increased, attitude toward exercise became more negative. Non-exercising older women did not believe that exercise would be enjoyable or beneficial. The study design was a descriptive survey administered through random digit telephone dialling in the St. Louis, Missouri area.

Burton, Shapiro, and German (1999) surveyed 2507 people aged 65 years and older to determine factors that led to initiation and maintenance of physical activity. They found that initiating and maintaining activity were associated with being younger, male, married, having better overall health, less disability, and the belief that being active is good for one's health. More active people also had higher education levels. Overall, they found that women were less physically active and those who had positive attitudes toward physical activity were more active.

Summary of Literature Review

The literature on the relationship between physical

activity and health in older women suggests that a lack of, or decrease in activity has a negative impact on these women's health. Both physical and psychological health is negatively affected by inactivity. Conversely, a number of authors concluded that taking part in physical activity brought both short and long term benefits to older women's health. Findings from intervention studies, which randomly assigned older people to either an exercise or control group (no increased activity), have supported that increased exercise can have positive benefits. However, a limitation of these studies is that most recruited small convenience samples.

One of the areas of research on older people and physical activity has been on how much activity this age group actually engages in on a daily basis. From this research it is difficult to ascertain the situation of older women because some researchers (e.g. Christensen et al., 1996) did not report on men and women separately. Therefore gender specific activity was not known. Studies that examined older women's level of physical activity found that participation rates among this age group is generally low. A limitation of these studies is that the researchers used varying age groups. The many definitions of older women makes comparisons more difficult.

The literature also identified that in general, older women have more negative attitudes toward physical activity, and those who participate in regular physical activity have more positive attitudes toward it. The literature also identified that as older women's attitude toward physical activity becomes more negative, participation in physical activity decreases as well.

There are a number of limitations in the research on the attitudes of older women toward exercise and physical activity. A number of the researchers recruited participants from social clubs (e.g. Courneya, 1995; Devereau Melillo et al., 1996) or members of programs on aging (e.g. Fried et al., 1995) which might be biased towards having participants with more positive attitudes toward physical activity. Other studies included too wide an age range (e.g. Wilcox & Storandt, 1996). Certain definitions of "exercisers" may be more suited to younger participants. Older women usually exercise at lower intensities than their younger counterparts. Therefore, some results may not accurately represent physical activity levels for older women.

The last area of research reviewed was on the factors (other than attitude) that might influence participation in physical activity among older persons. Increasing age was one of the most frequently found factors that predicted decreased

activity. However, increasing age may be a proxy for a number of other factors such as marital (partner) status, level of disability, and residence.

A limitation of studies on factors influencing participation in physical activity is that many of the researchers looked at the influence of age alone. Other factors that may be important frequently were not considered.

The present study was designed to overcome some of the limitations identified from the literature review. The study recruited participants 65 years or older to represent older individuals. The research also took into consideration the kind of activities that older people are likely to engage in on a regular basis. Finally, the study included a number of factors, age, weight, income, marital status, education, disability, seasonal variation in activity level, and residence that might be important to attitudes toward and intentions to participate in physical activity.

Chapter 3

Methodology

Research Design

A descriptive design was used to study the relationship between attitude toward and participation in physical activity among older women. Data were collected using an interview schedule made up of four sections: Attitude Toward Physical Activity; Intention to Engage in Physical Activity; Modified 7-Day Activity Interview (Modified 7-DAI); and Demographics. All sections were previously developed questionnaires except Intention to Engage in Physical Activity. Written permission to use all questionnaires was obtained and are provided in Appendix A.

Setting

Four seniors apartment complexes in St. John's, Newfoundland were selected as the setting for this investigation. Each complex differed in size with 139, 50, 50, and 152 units in complexes A to D respectively. Some units in complexes A, B, and D were partially subsidized by the Newfoundland Government and all units in complex C were subsidized. Participants were given the choice to be

interviewed in their apartments or at another location convenient for them. All but one participant met the researcher in their apartments. She met the researcher in the smoking lounge of the complex.

Sampling Plan

The target population for this research included all residents, both men and women who were 65 years and older, of the selected seniors' apartment complexes. Despite attempting to recruit men and women, only one man agreed to be a participant in the research. Because no comparisons could be made on the basis of gender, the researcher made the decision to include older women only in the study. Consequently, the population of interest became women aged 65 years and older. A convenience sample was used for this study and participants were self-selected.

Procedure

The research topic was briefly described by the investigator at each of the four seniors' apartment complexes at a social gathering and those present were invited to volunteer to be participants in the study. In complexes A and B the social was arranged by the investigator by posting notices on bulletin boards inviting residents to attend (see

Appendix B). In complexes C and D the researcher attended a regular meeting of the Fifty Plus Club, a local organization that provided weekly socialization and health information to seniors.

Information letters (Appendix C) and consent forms (Appendix D), in large print, were provided at the meeting to each woman interested in being a participant. This gave them the opportunity to read, think about, and discuss the study with family members prior to consenting to be participants. Names, telephone numbers, and apartment numbers of those interested were recorded and the researcher contacted each woman within two days of the meeting to arrange a time for a home visit.

Each participant was assigned an identification number which was recorded on the questionnaire. A list of participants' names and their identification numbers were compiled and stored on a computer disc. One paper copy was printed and filed separately from completed questionnaires. After all data were collected copies of both sources of the list were destroyed to ensure no link was made between participants and the information they provided.

Written consent from participants was obtained by the researcher at the beginning of the home visit prior to asking any survey questions. All survey questions were asked during

personal interviews which usually results in good quality data. The average duration of the interviews was approximately 45 minutes. Interview times varied depending upon the degree to which participants wanted to reminisce. A thank you note was sent to each participant within one week of the interview.

The first five interviews were used as the pilot test for the survey. No revisions were necessary and data from these were included in the final analysis.

Interview Schedule

The interview schedule consisted of 27 questions, some of which had several components. The components addressed attitude toward physical activity, intention to engage in physical activity, activity levels, and demographics (see Appendix E). A Respondent's Booklet was utilized as a visual aid to participants to answer questions related to attitude, intention, and household income (see Appendix F). With the exception of the questionnaire "Intention to Engage in Physical Activity" which was designed for the present study, all questionnaires had been previously developed and used. Written permission to use the latter was obtained from the authors (see Appendix A).

Attitude Toward Physical Activity

The six-part questionnaire used to measure attitude toward physical activity in this investigation was developed by Wilcox and Storandt (1996). It was based on the attitude component of Ajzen and Fishbein's (1980) Theory of Reasoned Action and a similar questionnaire developed by Godin and Shephard (1986), also based on the Theory of Reasoned Action. Participants were asked to chose a number between one and seven that most accurately reflected their opinions about physical activity for each of the six bipolar adjectives: unpleasant-pleasant, dull-interesting, boring-stimulating, unhealthy-healthy, bad-good, and useless-useful (see Appendix F for Respondent's Booklet).

Internal consistency (Cronbach's alpha) for the attitude questionnaire was 0.84 (Wilcox & Storandt, 1996). Cronbach's alpha for the attitude questionnaire in this study was also 0.84.

Intention to Engage in Physical Activity

Intention to participate in physical activity was measured using one question that was developed by the researcher according to the guidelines suggested by Ajzen (1988). Participants were asked to chose a number between one and seven that most accurately reflected their opinions about

their intentions to engage in physical activity for one pair of bipolar adjectives; unlikely and likely (see Appendix F for Respondent's Booklet).

Participation in Physical Activity

Older women's participation in physical activity was measured using the Modified 7-DAI developed by Hellman, Williams, and Thalken (1996). It estimated total daily energy expenditures (tkcal.day⁻¹) and was divided into six sections: sleeping, napping, light, moderate, hard, and very hard activities. Participants were asked to recall how much time over the past seven days they spent in specific activities within each activity category. Space was provided in each category for additional activities not listed in the interview tool. Activities related to home maintenance and golfing were removed from the Modified 7-DAI developed by Hellman et al. (1996) as they were felt to be inappropriate for the population being studied in this present research. All women lived in managed seniors apartment complexes and were not responsible for maintenance and no golf courses were open during the time of data collection. Activities removed included: raking the lawn, painting, home repair, mowing the lawn (with and without a riding mower), golfing (with and without a cart), and digging. In addition, participants could

list other activities and none of the women listed home maintenance or golfing.

The Modified 7-DAI is based on Blair's 7-Day Activity Interview which lacked sensitivity for use with older people. However, concurrent ($Z = -6.14, p < .0001$) and construct (Spearman's $\rho = 0.62, p < .0001$) validity were established for the Modified 7-DAI and was found to be appropriate for use with older people (Hellman et al., 1996). Internal consistency for the Modified 7-DAI in this study was Cronbach's $\alpha = 0.35$. This low reliability index may be related to changes in physical activity among the participants over time which Cronbach's α does not measure (Polit & Hungler, 1991).

Demographics

Several demographic questions were chosen from the Adult Health Survey 1995 (Segovia et al., 1996) to collect information about the participants in this study. The apartment complex name and each participant's weight were added to complete the information required for this research. Participants were asked 13 questions to obtain the following demographic data: age, weight, income, marital status, education level, disability, when most active, and residence.

Since gender was not a factor due to recruitment of women only, gender was dropped from the analysis.

Data Analysis

Answers to the interview questions for this study of the relationship between attitude and participation in physical activity among older women were coded and entered into a Statistical Package for Social Sciences (SPSS) computer program file. Descriptive statistics were used to analyse the data and answer the research questions.

Sample Characteristics

Descriptive statistics, means and standard deviations, described older women's characteristics including: age, weight, income, marital status, education level, disability, when most active, and residence. Each demographic variable, except residence, was collapsed into two categories. The following is a list of each demographic variable and the corresponding categories. Age: 75 years or less or 76 years or more; weight: less than 66 kg or 66 kg or more; income: less than \$10,000 per year or \$10,000 or more per year; marital status: living alone or living with significant other; education level: less than grade 9 or grades 9 to 12; post secondary education: yes or no; education type: trade

school or university (these last two variables were dropped from analysis as all women who attended post secondary education attended a trade school or diploma course); type of university degree: undergraduate, masters, or PhD (this variable was dropped from analysis as no women attended university); disability: yes or no; temporary disability: yes or no; equally active throughout the year: yes or no; (this variable was dropped from analysis as all women who were not equally active throughout the year were more active in summer. The variable was re-named "when most active"); more active in: winter or summer; and residence: one to four for complexes A to D respectively.

Descriptive statistics, means, standard deviations, and percentages described demographics, attitude, physical activity, and intention. Crosstabulation tables identified the frequency of occurrence with, and contingency coefficients determined relationships between Attitude, Intention, and Activity with each of the sample characteristics; and Attitude with Intention and Activity, Intention with Attitude and Activity, and Activity with Attitude and Intention. Analysis of the data is presented in the Findings chapter of this thesis.

Statistical Analysis

Frequency distributions were calculated for answers to each survey item. Responses to questions in the Attitude questionnaire were summed to obtain composite scores. The Attitude score was then categorized into negative (score of 24 or less) and positive (score of more than 24). Intention scores were recorded and then categorized into negative (score of four or less) and positive (score of more than four).

Responses to the Modified 7-DAI questionnaire were computed according to scoring instructions provided by Hellman et al. (1996) to determine the number of hours spent in each activity type and the total energy expenditure per day (tkcal.day^{-1}). The energy expenditure (Activity) was categorized into low (less than $2000 \text{ kcal.day}^{-1}$), moderate (2000 to $2500 \text{ kcal.day}^{-1}$), and high (more than $2500 \text{ kcal.day}^{-1}$). Crosstabulations were used to compare results of each section of the interview schedule: Attitude, Intention, and Activity with the sample characteristics and with each other. Contingency coefficients determined relationships between each of the survey sections and sample characteristics and between each of the sections.

Missing Data

Polit and Hungler (1991) stated that researchers frequently experience missing data. In this study two women chose not to answer the question on income in the demographics section of the interview schedule. This low incidence of missing data may be related to the fact the data were collected during a personal interview and the researcher was available to clarify questions.

Limitations

Data for this study were collected by self-report during a personal interview. Self-reports are often effective but the major drawback is that respondents may deliberately or unconsciously distort information (Polit & Hungler, 1991). Recently there has been a lot of attention given to the benefits of physical activity to older women's health. The women in this study may have answered the questions to reflect this information as opposed to how they felt about physical activity. External validity may be threatened because of this.

Ethical Considerations

Each participant was assigned an identification number which was recorded on the questionnaire. A list of

participants' names and their identification numbers were compiled and stored on a computer disc. One paper copy was printed and filed separately from completed questionnaires. After completion of data collection, copies of both sources of the list were destroyed to ensure no link was made between participants and information they provided.

Ethical approval was obtained from the Memorial University of Newfoundland Human Investigation Committee (see Appendix G) and consent to participate was obtained from each participant.

Participants were assured that the information they provided would be used for this research only and no identifying information about them would be in the completed thesis. They were told that a copy of the thesis would be in the Memorial University of Newfoundland Health Sciences Library if they wish to review the results.

Chapter 4

Findings

The findings of this study are reported in four sections. Section one describes the sample characteristics, section two provides descriptive summaries of attitude, intention and activity levels among older women, section three reports the relationships between characteristics of the sample and attitude, intention, and activity. The last section deals with relationships between attitude and intention, attitude and activity, and intention and activity.

Sample Characteristics

Descriptive statistics were used to describe participants in this study. Characteristics such as age, weight, income, marital status, education, and residence are presented. Table 1 provides an overview. Disability and when most active are also described and presented in tables 2 and 3 respectively.

Ages of the women in this study ranged from 65 to 88 years. The mean age was 77.0 years ($SD=6.44$). Weight of the 30 women ranged from 42.3 to 108.6 kilograms (kg). The mean weight was 65.6 kg, $SD=13.62$. Fifteen (50.0%) women weighed less than 66 kg and 15 (50.0%) weighed 66 kg or more.

Table 1: Sample Characteristics

Demographic Variables		n (n=30)	%
Age:			
	75 years or less	12	40.0
	76 years or more	18	60.0
Weight:			
	<66 kg	15	50.0
	66 kg or more	15	50.0
Income: *			
	< \$10,000	6	20.0
	\$10,000 or more	22	73.3
Marital Status:			
	Now married	2	6.7
	Single (Never married)	2	6.7
	Widowed	22	73.3
	Separated	2	6.7
	Divorced	2	6.7
	Living Alone	28	93.3
	Living with significant other	2	6.7
Education:			
Grade Completed:			
	< Grade 9	9	30.0
	Grades 9 to 12	21	70.0
Post secondary education:			
	Yes	13	43.3
	No	17	56.7
Residence:			
	Complex A	12	40.0
	Complex B	4	13.3
	Complex C	7	23.3
	Complex D	7	23.3

*two cases missing as two women chose not to answer the question

Table 2: Disability Among Sample

Disability	n (n=30)	%
Yes	21	70.0
No	9	30.0
Temporary Disability:		
Yes	2	6.7
No	19	63.3

Table 3: Activity Among Sample

Year	Equally Active Throughout the n (n=30)	%
Yes	13	43.3
No (more active in summer)	17	56.7

The annual household income for the 30 women ranged from \$6,000 to \$29,000. Six (20.0%) women had incomes below \$10,000, that which is considered low income (Statistics Canada, 1998) and 22 (73.3%) of the women were in the middle to higher income brackets with annual incomes of \$10,000 or more. Further analysis of income revealed that 20 (66.7%) women's incomes were between \$6,000 and \$13,000, eight

(26.5%) had incomes between \$14,000 and \$29,000 per year. Two of the 30 women chose not to answer the question.

Two women (6.7%) were married, 2 (6.7%) never married, 22 (73.3%) widowed, 2 (6.7%) separated, and 2 (6.7%) were divorced. Twenty-eight women (93.3%) were living alone and 2 (6.7%) were living with a partner. Marital status may explain why there was only one man who agreed to be a participant. However, it is not known how representative the sample was of all the residents where recruitment took place.

Grade nine was the mean grade completed in school ($SD=2.44$). One woman (3.3%) did not attend any formal education and one woman (3.3%) completed grade 12. Grade 11 was required to graduate from high school in Newfoundland prior to 1982. The one woman who completed grade 12 did so outside of Newfoundland. Nine women (30.0%) completed less than grade nine and 21 women (70.0%) completed grades 9 to 12. Thirteen women (43.3%) attended a trade school or received a diploma and none of them attended university.

Women in this study all lived in one of four seniors apartment complexes. Twelve women (40.0%) lived in complex A, 4 (13.3%) in complex B, 7 (23.3%) in complex C, and 7 (23.3%) lived in complex D.

Twenty-one (70.0%) of the women had a disability, 19 (63.3%) of whom stated their disability was permanent (see

Table 2). Thirteen women (43.3%) were equally active throughout the year and 17 (56.7%) were more active in summer. This is not surprising given that Newfoundland winters are characterised by ice and snow covered sidewalks and roads as well as cold temperatures. Perhaps, many seniors tend to stay inside for fear of falling in such conditions or because of cold weather (see Table 3).

Descriptive Summaries

Attitude Toward Physical Activity

Five (16.7%) women scored 42, the maximum attainable for the Attitude questionnaire by adding scores from each of the six items on the questionnaire. Scores ranged from 20 to 42 and the mean was 35.3 (SD=5.75). Three women (10.0%) scored 24 or less and 27 women (90.0%) scored more than 24 indicating that the majority had overall positive attitudes toward physical activity.

Scores for each item on the Attitude questionnaire were classified into two groups. Scores of four and less were categorised as negative and those more than four were considered positive. The lowest score possible was zero and 7 was the highest. Mean score for the unpleasant-pleasant variable was 5.7 (SD=1.53). Five women (16.7%) indicated that

physical activity would be unpleasant for them and 25 (83.3%) indicated it would be pleasant. Mean score on the dull-interesting variable was 6.1 (SD=1.23). Two women (6.7%) rated physical activity as dull and 28 (93.3%) rated it as interesting. Five women (16.7%) indicated that physical activity for them would be boring and 25 (83.3%) indicated it would be stimulating. Mean score on the boring-stimulating variable was 5.6 (SD=1.48). Twenty-six (86.7%) women indicated that physical activity would be healthy and four (13.3%) women indicated it would be unhealthy. The mean score was 5.9 (SD=1.25). Three (10.0%) women felt that physical activity would be bad for them and 27 (90.0%) felt it would be good. Mean score for the bad-good variable was 6.1 (SD=1.08). Three women (10.0%) indicated that physical activity would be useless and 27 women (90.0%) rated it as useful. Mean score for the useless-useful variable was 5.97 (SD=1.13).

Results of the Attitude questionnaire indicated that women in this study had positive attitudes toward physical activity. Analysis of each of the items on the questionnaire showed that the women in this study more frequently chose the positive adjective to rate participation in physical activity for them.

Intention to Participate in Physical Activity

Twenty-seven (90.0%) of the 30 women indicated they were intending to participate in physical activity during the next 6 months while three women (10.0%) indicated it would be unlikely. Mean score for the Intention to Participate in Physical Activity scale was 6.1 (SD=1.13).

Physical Activity Level

Women in this study on attitude and physical activity expended a mean of 2050.82 kcal.day⁻¹ (SD=538.06). The mean indicates that the women in this study were moderately active according to the definitions of activity levels provided in the definitions section of this thesis. However, for every two women in the moderate and high activity levels combined, there were three in the low level. Eighteen women (60.0%) were in the low physical activity group, seven (23.3%) in the moderately active group, and five (16.7%) in the high activity group. The results indicate that the majority of the women were sedentary.

Activity was divided into five types; sleeping, light, moderate, hard, and very hard. Women in this study spent an average of 6.53 (SD=1.83) hours per day sleeping, including naps. This is consistent with literature which stated that older people get an average of five to seven hours of sleep

per day (Martin-Grott, 1995). Five women (16.7%) spent less than five hours sleeping and 12 women (40.0%) slept more than seven hours per day.

Mean number of hours spent doing light activities among the women in this study was 13.42 (SD=2.50). Sixteen women (53.3%) spent less than the mean in light activities and 14 women (46.7%) spent more than the mean number of hours doing light activities.

Participants spent an average of 3.61 (SD=1.85) hours in moderate activities, 0.34 (SD=0.52) hours in hard activities, and 0.10 (SD=0.17) hours in very hard activities. The results show that time spent in each activity type (excluding sleep) decreased as the level of activity became harder. Older women in this study spent most of their time in activities that required minimal exertion. Table 4 identifies the average amount of time spent in each activity type among the sample of older women.

Sample Characteristics and Attitude, Intention, and Activity

Crosstabulations were done using the selected factors thought to be important to physical activity with attitude, intention, and activity. Each factor and the importance of that factor with the study variables are presented below.

Table 4

Mean Hours Per Day in Activity Type (N=30)

	Sleep	Light	Moderate	Hard	Very Hard
Mean	6.53	13.42	3.61	0.34	0.10
Hours					
Per Day	(1.83)	(2.50)	(1.85)	(0.52)	(0.17)
(SD)					

Age

Substantially more of the women with positive attitudes (40.7%), high intentions to participate in physical activity (44.4%), and those who participated in high levels of physical activity (60.0%) were in the younger age group (≤ 75 years). All of the women who had low intentions to participate in physical activity were older (≥ 76 years) (see Table 5).

Weight

More of the women in this study with positive attitudes (51.9%), low intention to participate in physical activity (66.7%), and low activity levels (77.8%) weighed less (< 66 kg.) than those with negative attitudes (33.3%), high intention to participate in physical activity (48.1%), and moderate (14.3%) or high (0.0%) activity levels. All of the women who participated in high activity levels (100.0%) were 66 kilograms or more compared to those who participated in low (22.2%) or moderate (85.7%) activity levels (see Table 6).

Income

More women with a positive attitude (80.0%), high intention to participate in physical activity (80.0%), and

Table 5

Crosstabulation Table of Attitude, Intention, and Activity by Age (N=30)

Age (years)	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
<=75	33.3	40.7	0.0	44.4	33.3	42.9	60.0
>=76	66.7	59.3	100.0	55.6	66.7	57.1	40.0

Table 6

Crosstabulation Table of Attitude, Intention, and Activity by Weight (N=30)

Weight	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
<66	33.3	51.9	66.7	48.1	77.8	14.3	0.0
>=66	66.7	48.1	33.3	51.9	22.2	85.7	100.0

high activity levels (100.0%) had incomes of \$10,000 or above (see Table 7).

Marital Status

More women with positive attitudes toward physical activity (96.3%), low intentions to participate (100.0%), and who were moderately active (100.0%) were living alone and those with negative attitudes (33.3%), high intentions to participate in physical activity (7.4%), and high activity levels (20.0%) live with a significant other (see Table 8).

Education Level

More of the women in this study who had negative attitudes, low intentions to participate in physical activity, and moderate activity levels had less education (<grade 9) compared to those with positive attitudes, high intentions to participate in physical activity, and low and high activity levels (see Table 9).

Disability

More women in this study with negative attitudes (100.0%), low intention to participate in physical activity (100.0%), and low activity levels (77.8%) had a disability.

Table 7

Crosstabulation Table of Attitude, Intention, and Activity by Income (N=28)

Income	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
<\$10,000	33.3	20.0	33.3	20.0	18.8	42.9	0.0
≥\$10,000	66.7	80.0	66.7	80.0	81.3	57.1	100.0

Table 8

Crosstabulation Table of Attitude, Intention, and Activity by Marital Status (N=30)

Marital Status	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
Living Alone	66.7	96.3	100.0	92.6	94.4	100.0	80.0
W. Sig. Other*	33.3	3.7	0.0	7.4	5.6	0.0	20.0

*Living with Significant Other

Table 9

Crosstabulation Table of Attitude, Intention, and Activity by Education Level (N=30)

Education	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
<grade 9	33.3	29.6	66.7	25.9	33.3	42.9	0.0
Grades 9-12	66.7	70.4	33.3	74.1	66.7	57.1	100.0

Sixty percent of the women who participated in high activity levels did not experience a disability (see Table 10).

When Most Active

More women in this study who had negative attitudes, low intentions to participate in physical activity, and low activity levels were more active during the summer months (see Table 11).

Residence

More women with positive attitudes lived in residences B (14.8%), and C (25.9%) whereas more with negative attitudes lived in residences A (66.7%) and D (33.3%). Women with low intentions to participate in physical activity lived in A (33.3%), B (0.0%), and D (0.0%). Substantially fewer women in this study who participated in low activity levels lived in residence B (5.6%) and no women who participated in high activity levels lived in residence D (see Table 12). Each complex differed in size with 139, 50, 50, and 152 units in complexes A to D respectively. Some units in complexes A, B, and D were partially subsidized by the Newfoundland Government and all units in complex C were subsidized.

Table 10

Crosstabulation Table of Attitude, Intention, and Activity by Disability (N=30)

Disability	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
Yes	100.0	66.7	100.0	66.7	77.8	71.4	40.0
No	0.0	33.3	0.0	33.3	22.2	28.6	60.0

Table 11

Crosstabulation Table of Attitude, Intention, and Activity by When Most Active

(N=30)

Equal	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
< 66	33.3	44.4	0.0	48.1	38.9	57.1	40.0
> = 66	66.7	55.6	100.0	51.9	61.1	42.9	60.0

Table 12

Crosstabulation Table of Attitude, Intention, and Activity by Residence (N=30)

Residence	%						
	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>		
	<u>Neg</u>	<u>Pos</u>	<u>Low</u>	<u>High</u>	<u>Low</u>	<u>Mod</u>	<u>High</u>
A	66.7	37.0	33.3	40.7	38.9	42.9	40.0
B	0.0	14.8	0.0	14.8	5.6	28.6	20.0
C	0.0	25.9	66.7	18.5	22.2	14.3	40.0
D	33.3	22.2	0.0	25.9	33.3	14.3	0.0

Association of Factors with Attitudes, Intention, and Activity

What associations, if any, were there between each of the factors thought to be related to physical activity and attitude, intention, and activity? To observe these associations contingency coefficients were examined.

There were no significant relationships between Attitude, Intention, or Activity and age, income, education level, disability, when most active, and residence (see Table 13). No significant relationships between Attitude or Intention and weight were found but Activity and weight were significantly related at, alpha .05, (contingency coefficient .57; significance .00) (see Table 13). Heavier women were significantly more active than those who weighed less. Only two women in this study lived with significant others. Thus, no contingency coefficient was calculated for marital status.

Relationships Between Attitude, Intention, and Activity

Objectives of this present research included examination of the relationships between the following: attitude and participation; attitude and intention; and activity and intention. The following presents the findings from these analyses.

Table 13

Contingency Coefficients (C) of Sample Characteristics and Attitude, Intention, and Activity

	<u>Attitude</u>		<u>Intention</u>		<u>Activity</u>	
	<u>C</u>	<u>Sig.</u>	<u>C</u>	<u>Sig.</u>	<u>C</u>	<u>Sig.</u>
Age	.05	.80	.26	.14	.20	.55
Weight	.11	.54	.11	.54	.57	.00*
Income	.10	.60	.10	.60	.33	.19
Education	.02	.89	.26	.14	.29	.25
Disability	.21	.23	.21	.23	.29	.26
When Most Active	.07	.71	.28	.11	.15	.70
Residence	.25	.58	.34	.27	.39	.51

* Significant at $p < .05$

Attitude

Substantially more women who had positive attitudes (92.6%) had high intentions and were moderately active (25.9%). More women who had negative attitudes participated in low activity levels (66.7%) (see Table 14).

Intention

More women who had high intentions to participate in physical activity had positive attitudes toward (92.6%), and participated in high activity levels (18.5%). No women who had low intentions to participate in physical activity engaged in high activity levels. Many women (66.7%) had low intentions and activity levels (see Table 15).

Activity

Eighty percent of women with high activity levels, 100.0% of those who engaged in moderate levels, and 88.9% whose activity was low had positive attitudes toward physical activity. Overall, the women in all activity groups had positive attitudes toward physical activity. All women who engaged in high activity levels also had high intentions to be physically active (see Table 16).

Table 14

Crosstabulation Table of Attitude by Intention and Activity

		%	
		<u>Attitude</u>	
		<u>Negative</u>	<u>Positive</u>
<u>Intention</u>			
Low		33.3	7.4
High		66.7	92.6
<u>Activity</u>			
Low		66.7	59.3
Mod		0.0	25.9
High		33.3	14.8

Note: No significant relationships at $p < .05$ using contingency coefficients.

Table 15

Crosstabulation Table of Intention by Attitude and Activity

		%	
		<u>Intention</u>	
		<u>Low</u>	<u>High</u>
<u>Attitude</u>			
Negative		33.3	7.4
Positive		66.7	92.6
<u>Activity</u>			
Low		66.7	59.3
Mod		33.3	22.2
High		0.0	18.5

Note: No significant relationships at $p < .05$ using contingency coefficients.

Table 16

Crosstabulation Table of Activity by Attitude and Intention

	%		
	<u>Attitude</u>		
	<u>Low</u>	<u>Moderate</u>	<u>High</u>
<hr/>			
<u>Attitude</u>			
Negative	11.1	0.0	20.0
Positive	88.9	100.0	80.0
<u>Intention</u>			
Low	11.1	14.3	0.0
High	88.9	85.7	100.0

Note: No significant relationships at $p < .05$ using contingency coefficients.

Chapter 5

Discussion

The purpose of this study was to identify to what extent attitude toward physical activity was associated with older women's participation in it. The interview schedule was comprised of the following 3 questionnaires: Attitude Toward Physical Activity developed by Wilcox and Storandt (1996); Intention to Participate in Physical Activity developed by the researcher based on Ajzen (1988); and The Modified 7-DAI developed by Hellman et al. (1996). The findings are discussed in relation to the research questions for this study.

Relationship Between Attitude and Participation in Physical Activity

Overall, the majority of the women who took part in this study had positive attitudes toward physical activity. None of the selected variables that may affect attitudes toward physical activity were significant between those with a positive attitude and those who had a less positive attitude. Even though the women held positive attitudes, most of these women were relatively sedentary.

Women in all activity groups, including all of those who

participated in moderate activities, had positive attitudes toward physical activity. Perhaps their experiences with physical activity were positive which was reflected in their attitudes. Those who were highly active but did not have positive attitudes may have felt constraints. Time, pain, lack of support for their activity, and feeling tired were disadvantages of physical exertion that Conn (1998) identified. In the present study, the women's attitudes toward physical activity were likely negatively affected by those factors. In addition, other factors such as those found by Burton et al. (1999), may have affected older women's participation in physical activity in this study. These factors, many of which cannot be modified, include age, gender, education, marital status, perceived health, and beliefs about physical activity. From this discussion it seems that attitude toward physical activity among the women in this study may have been affected by both modifiable and non-modifiable factors. Further research to evaluate the impact of each on attitude and participation in physical activity is necessary.

Attitude in this present study was not predictive of physical activity and therefore did not support The Theory of Reasoned Action (Ajzen, 1988). The low measure of reliability (Cronbach's $\alpha=.35$) of the Modified 7-DAI in this study

may explain why attitude was not predictive of physical activity. Also, subjective norm, a second variable that predicts behavior according to The Theory of Reasoned Action (Ajzen, 1988) may be a stronger predictor of physical activity among older women.

The actual level of physical activity among many women in the study as measured by energy expenditure was low. This finding is congruent with others who have looked at activity levels among this target population. Segovia et al. (1996) also found that nearly 60.0% (58.1%) of older women in St. John's were sedentary. Ninety percent of the women in this study had positive attitudes toward physical activity and they spent more time in moderate activities such as housework and walking than those with negative attitudes. This may explain why the mean attitude score for daily energy expenditure (2050.82 kcal.day⁻¹) was within the moderate level of physical activity. Although a significant relationship did not exist, women with negative attitudes spent almost 3 more hours per day doing sedentary activities such as watching television. Courneya (1995), Swift et al. (1995), and Wilcox and Storandt (1996) also found that adults who had negative attitudes toward physical activity did not engage in it. In addition, data collection for this study occurred during a period of cold, wet, and icy weather.

Activity levels among the women in this study may have been reduced because of weather and may not have reflected their usual activities.

Relationship Between Attitude and Intention to Participate in Physical Activity

Attitude and intention were not significantly related in this research. However, women with positive attitudes toward physical activity had high intentions to participate in it during the next six months. Most of the women had both positive attitudes and intentions to engage in physical activity. These findings supported the Theory of Reasoned Action (Ajzen, 1988) in that attitude predicted intention. Michels and Kugler (1998) also found that attitude is strongly associated with intention to exercise among older people and those with positive attitudes had high intentions to participate in it.

Relationship Between Activity and Intention to Participate in Physical Activity

Activity and intention were not significantly related in this study. In general, women were sedentary but had high intentions to be physically active during the following six months. This may have resulted from the investigator's

enthusiasm for physical activity and the women may have provided answers they felt would be acceptable to the researcher. Data regarding participants' activity levels were collected during winter months, a period during which most women reported they were less active. Their high intentions to be physically active during the following six months may have been related to the approaching summer months.

Sample Characteristics and Attitude Toward Physical Activity

While there were no significant relationships, some trends seemed evident and these may warrant further study. Women in this study who had positive attitudes toward physical activity were younger, weighed less, had higher incomes and education levels, did not have a disability, and were equally active throughout the year. Courneya (1995), Swift et al. (1995), and Wilcox and Storandt (1996) found that older women had more negative attitudes toward physical activity, implying that younger women had more positive attitudes. Devereaux Melillo et al. (1996) found that many older people felt that physical activity should be stopped during ill health, indicating that disability negatively affected older women's attitudes toward physical activity as may be suggested in this present study.

Sample Characteristics and Intention to Participate in Physical Activity

As with attitude, some trends were also suggested for the women in this study related to their intention to participate in physical activity. Women in this study with high intentions to participate in physical activity during the following six months were younger, heavier, had higher incomes and education levels, did not have a disability, and were equally active throughout the year. Collette et al (1994) found that older people had lower intentions to be physically active and Burton et al. (1999) also found that initiating and maintaining physical activity were related to being younger, married, less disability, and higher education. O'Brien Cousins (1998) suggested that less educated older people may not have the knowledge, skill, or habits related to physical activity. Therefore, less educated older women may have lower intentions to be physically active.

Sample Characteristics and Participation in Physical Activity

Women in this study who participated in high activity levels were younger, had higher incomes and education levels, no disability, and were equally active throughout the year.

Most women who lived alone had moderate activity levels. Burton et al. (1999) found that married people initiated and maintained activity in their study suggesting that social norm may have influenced their activity levels. The only significant association between the factors studied and actual participation was weight. Those women who weighed more were significantly more active than those weighing less. While this finding might be counter-intuitive, it may be related more to the social nature of many activities in which older people are more likely to engage. Refreshments are frequently served as was done during gatherings to recruit participants for this study and one woman stated that there must be food available to get people out.

Women in this study who had a disability were less active and this is consistent with the fact that people who develop a disability or become ill frequently become sedentary. Devereaux Melillo et al. (1996) found that participants did not believe that physical activity improved ill health. It is important that older women maintain moderate to high levels of activity during periods of illness, whenever possible, to prevent further decline in health and increased disability. During illness it is important for health care providers to encourage and promote physical activity among older women.

There was a marked decrease in the amount of time spent in moderate, hard, and very hard activities among the women in this study as compared with the amount of physical activity recommended for them. Canada's Physical Activity Guide to Healthy Active Living for Older Adults (Health Canada, 1999) recommends approximately 3.5 to 7 hours of moderate activity each week to improve health and fitness. In this present study 23.3% of the women spent, on average, 3.61 hours per day in moderate activities. However, 60.0% of all women in this study were sedentary.

Women in the older age group spent less time doing hard activities and many of them decreased activity levels during the winter. Several older women fear slipping on ice during winter but Canada's Physical Activity Guide to Healthy Active Living for Older Adults (Health Canada, 1999) suggests strategies to safely maintain activity during that time of the year. Many women in this study are at risk for health problems associated with a sedentary lifestyle.

Chapter 6

Conclusion, Limitations, and Implications

Conclusion

Older women who participated in this study on the relationship between attitude and participation in physical activity had positive attitudes toward and high intentions to participate in physical activity but were sedentary. Women who were older, had lower incomes and education, disability, and were most active in summer months had lower attitudes, intentions, and levels of physical activity. Heavier women had more negative attitudes, low intentions, but higher physical activity levels than those who weighed less. Those who lived alone had positive attitudes, high intentions to be physically active during the next six months, and were moderately active. Overall, women in this study spent less time in activities as the level of physical exertion increased. The overall low activity levels puts older women in this study at risk for ill health and decreased quality of life.

Attitude in this study did predict intention as Ajzen (1988) suggested in the Theory of Reasoned Action but intention did not predict physical activity. The Theory of

Reasoned Action postulates that attitude is based on beliefs which in turn determines behavior. Beliefs are acquired through education, opinions of significant others, and personal experiences with the behavior. This implies that attitude toward physical activity can be improved through education. Since the women in this study reported positive attitudes toward physical activity, providing them the opportunity to experience it may be more beneficial in promoting regular participation for improved health and wellness.

There are a number of implications for nursing practice and policy, as well as nursing education and research. These implications will be presented in this chapter. However, first it is important to consider limitations of the study.

Limitations of Study

Consideration should be given to the following limitations when examining the findings of this study:

1. The study utilized a convenience sample of older women who live in four seniors' apartment complexes in St. John's, Newfoundland. A total of 391 apartment units were in the four complexes and it is not known how many of them were occupied by women. The 30 women from the four complexes who agreed to participate in this study may not have been representative of

the population and there was no way to determine if the women who did not participate were different from the sample. This non-probability sampling method likely introduced selection bias which reduces the ability to explain if the variables affected the findings or if the outcomes were related to other factors.

2. The sample size in this study was small which leads to less accurate estimations of study variables and reduced chance of finding statistical significance (Polit & Hungler, 1991). In this study no statistically significant results were found except for weight and activity level. This may have been related to the small sample size. Although every effort was made to recruit a greater number of older adults it was not possible. It is not known if the topic had low saliency for the residents or if other factors were operating.

3. Women for this research were self-selected which may have threatened the internal validity and biased the results (Polit & Hungler, 1991).

4. Low reliability was demonstrated for the Modified 7-DAI. Cronbach's alpha was used to measure reliability.

5. One question was used to measure intention to participate in physical activity which may not have accurately measured this variable.

6. There may have been variations in women's understanding of activity levels. Some may have reported that a specific activity required moderate exertion while others may have reported it was hard. Sims, Smith, Duffy, and Hilton (1999) found that patients in their study tended to overestimate amounts of physical activity they participated in. This may have occurred in the present study. This study was also based on recall of activities and it is not known how accurate this recall might have been.
7. Data were collected during one interview and therefore, causality cannot be determined as previous attitudes, intentions, and activity levels were not known.

Implications for Nursing Practice

Despite the limitations the study does have a number of implications for nurses who work with elderly female clients. Nurses cannot always rely on older women's positive attitudes toward and intentions to participate in physical activity. Rather, the nurses need to provide care that will enable the women to be more active. One way to do this is to collaborate with individual older women to develop plans that would lead to increased physical activity.

Since health problems are associated with a sedentary lifestyle, and some of these problems can be reversed with

individualized activity programs (Vorhies & Riley, 1993), nurses working with older individuals could help to reduce disability and improve the quality of women's lives.

Nurses need to develop programs to increase physical activity. Such programs need to have an educational component that addresses specific needs of various groups within the over 65 years female population related to attitude, social norm, perceived control over activities, as well as disability, those living alone, low incomes and education, and for those who decrease activity levels during winter months. Additionally, the programs need to have a practical component that will provide positive experiences with activity. Nurses in all segments of clinical practice are well positioned and could act immediately to enable older women become more physically active. Their health and well being depends on it.

Implications for Policy

The value of physical activity to older women's health has received increasing attention during recent years. Publication and distribution of Canada's Physical Activity Guide to Healthy Active Living for Older Adults (Health Canada, 1999) is evidence of this. This present study showed that older women are not physically active but feel that

activity for them would be beneficial. To promote physical activity among older women policy makers may consider the following:

1. Collaborate with older women and health care providers to remove barriers and provide older women access to physical activity. Access may include transportation to and from the activity, subsidized or no enrollment fees, and individualized assistance to increase physical activity.
2. Design seniors' building complexes that will facilitate and encourage physical activity. If possible, implement programs that directly address this need.
3. Develop policies to do additional research regarding physical activity among older people and develop policies which will result in research based physical activity programs for older people. Nurses may then assist older people to become more physically active and reduce disability and health care costs.
4. Develop policies in hospitals and nursing homes that support maintaining and improving physical activity.
5. Mandate various health related associations and groups to actively promote physical activity among older women living in communities.

Implications for Nursing Education

Nursing education must prepare nurses to meet the challenges of caring for the increasing numbers of older women in our society. Initially, the education needs to provide information that increases attitudes among nurses and students toward physical activity for older women and should focus on the benefits of physical activity and the negative consequences of a sedentary lifestyle. Furthermore, nursing education must provide future nurses and those presently practicing with knowledge and skills to coach and motivate older women to be physically active as well as to adapt activities according to the needs of various sub-groups such as those with disabilities for example. Nurses also need to learn various activity skills such as range of motion and those appropriate for group and individual participation. Education must also provide them with strategies to use in everyday practice that will result in higher activity levels among older women. It is essential that nurses utilize the knowledge and skills they acquire through education so that older women may experience improved health, well-being, and quality of life.

Implications for Nursing Research

The following are some further research that could be done based on this study:

1. Do a replication of the research among community living older adults to increase sample size. Use a random selection of participants to increase generalizability.
2. Since women have positive attitudes toward physical activity but generally are sedentary, a study needs to be done that examines perceived barriers and strategies to overcome these barriers.
3. Examine the effects of social norms relating to physical activity among this group to see how they influence physical activity behaviour.
4. Do a study to determine what factors other than those examined in the current study that will predict a sedentary lifestyle among older adults.

All of the above studies need to recruit older men as well as older women.

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Appendix A

Written Permission to use Questionnaires

Oct. 29, 1997

To: Jeannie Skunkless

You have my permission to use
the six items about attitudes
forward exercise that I sent to
you and that I have used in
my research.



School of Nursing

November 5, 1997

Ms. Jeannie Stucklass
P.O. Box 51487
SS#3
St. John's, Newfoundland
Canada A1B4M2

RE: Modified 7-Day Activity Interview

Dear Ms. Stucklass:

I am writing to give you permission to use the Modified 7-Day Activity Interview in the research study you described in our telephone conversation of November 3, 1997. I have enclosed a copy of the Modified 7-Day Activity Interview. The instructions for scoring are on the last page. At the present time, the Light Activities information on page 1 is collected as additional background information and to validate the number of hours of light activity obtained via subtraction.

I have also enclosed two articles that described concurrent and construct validity of the Modified 7-Day Activity Interview among several samples of older adults. If you have additional questions or concerns, please do not hesitate to telephone me at (402) 280-2033. Good luck with your research!

Sincerely,

Esther A. Eellman, Ph.D., R.N.



Memorial

University of Newfoundland

101

Division of Community Health
Faculty of Medicine
The Health Sciences Centre

November 7, 1997

Ms. Jeannie Stuckless
Graduate Student Nursing
School of Nursing, MUN

Dear Ms. Stuckless:

Please consider this letter confirmation that you are permitted to use the demographic questions from our Adult Health Survey, Segovia J., Edwards A., Bartlett R.: "Newfoundland Panel on Health and Medical Care, 1995.

If you require further assistance, please do not hesitate to contact our office at extension 6693.

Sincerely,

for

Jorge Segovia, MD., MPH.
Professor of Social Medicine
Principal Investigator

/jb

SUPPORT



Appendix B

~~~~~

**ATTENTION TENANTS OF  
ST. CLARE MANOR**

~~~~~

**YOU ARE INVITED TO ATTEND A SOCIAL GATHERING
AT WHICH JEANNIE STUCKLESS WILL BRIEFLY SPEAK
ABOUT HER SURVEY ON PHYSICAL ACTIVITY**

DATE: MONDAY, MARCH 16, 1998

TIME: 7:30 PM

PLACE: SECOND FLOOR LOUNGE

REFRESHMENTS WILL BE SERVED

****ALL ARE WELCOME****

Appendix C

Information for Participants

My name is Jeannie Stuckless and I am a registered nurse. I am presently doing a Master's Degree in Nursing at Memorial University and am studying how people 65 years of age or older feel about physical activity and the types of activities in which they are involved. My supervisors are Doreen Dawe (737-7258) and Shirley Solberg (737-6679).

If you agree to participate in my study, I would like to visit you at your home to ask you some questions about activities you are involved in and how you feel about physical activity. The study has been approved by the Human Investigation Committee at Memorial University. A copy of the final report (thesis) will be available at the Health Sciences Library and I will present a summary of the results at the Seniors Resource Center. I will contact you by mail to let you know when I will present so that you can decide if you want to attend.

If you have any further questions please phone me at 437-6632. Thank you for your interest in my study.
Sincerely;

Jeannie Stuckless, R.N., B.N.

Appendix D
CONSENT TO PARTICIPATE IN RESEARCH

TITLE: The Relationship Between Attitude and
Participation in Physical Activity Among Older Adults

INVESTIGATOR: Jeannie Stuckless, R. N., B. N.

You have been asked to participate in a research study. Participation in this study is entirely voluntary. You may decide not to participate or may withdraw from the study at any time.

Confidentiality of information concerning participants will be maintained by the investigator. The investigator will be available during the study at all times should you have any problems or questions about the study.

Participant's initials _____

Consent form continued...

Information section

Purpose of study: The purpose of this study is to find out what relationship there is between how older people feel about physical activity and how much physical activity they do.

Description of procedures and tests: I will visit you at home to complete a form on physical activity by asking you questions and recording your answers. There are 4 sets of questions on the form.

Duration of participants participation: The interview should take about 45 minutes.

Participant's initials _____

Consent form continued...

Foreseeable risks, discomforts, or

inconveniences: No risk or discomfort is anticipated as a result of participating in this study. The major requirement for you will be time to answer the survey questions.

Benefits which the subject may receive: You may not receive any benefit from the study except the enjoyment of participating.

Participant's initials _____

Consent form continued...

Liability Disclaimer Statement: "Your signature on this form indicates that you have understood to your satisfaction the information regarding your participation in the research project and agree to participate as a subject. In no way does this waive your legal rights nor release the investigator, sponsors, or involved institutions from their legal and professional responsibilities."

Participant's initials _____

Consent form continued...

I, _____,
the undersigned, agree to my participation in the
research study described.

Any questions have been answered and I understand what
is involved in the study. I realise that participation
is voluntary and that there is no guarantee that I
will benefit from my involvement. I acknowledge that a
copy of this form has been given to me.

(Signature of Participant)

(Date)

(Witness Signature)

(Date)

To be signed by investigator:

To the best of my ability I have fully explained to
the subject the nature of this research study. I have
invited questions and provided answers. I believe that
the subject fully understands the implications and
voluntary nature of the study.

(Signature of Investigator)

(Date)

Phone Number _____

Appendix E

**The Relationship Between Attitude and Participation in Physical
Activity Among Older Adults**

QUESTIONNAIRE

Jeannie Stuckless

INTERVIEW SCHEDULE

Older Adults' Attitude and Participation in Physical Activity

Subject Identification:

Date of Interview:

yr. mo. dd.

Opening Statement:

I would like to ask you questions about physical activity.

When I say physical activity I mean anything that you do that requires you to use energy. Some examples include walking, bowling, housework, gardening, fishing, shovelling snow, dancing, or any kind of sports.

Do you have any questions before we begin?

ATTITUDE TOWARD PHYSICAL ACTIVITY

I would like to start by asking you some questions about physical activity. The booklet I have given you may help you in answering.

I will read a statement and then ask you to choose a number between 1 and 7 that you think reflects your opinion most accurately. You can point to the number in your booklet. Try to be as honest and accurate as possible. There are no right or wrong answers. (I need to find out what you truly think).

1. For you, to participate regularly in one or more physical activities during the next six months would be:

1	2	3	4	5	6	7
Unpleasant						Pleasant

2. For you, to participate regularly in one or more physical activities during the next six months would be:

1	2	3	4	5	6	7
Dull						Interesting

3. For you, to participate regularly in one or more physical activities during the next six months would be:

1	2	3	4	5	6	7
Boring						Stimulating

4. For you, to participate regularly in one or more physical activities during the next six months would be:

1 2 3 4 5 6 7
Unhealthy Healthy

5. For you, to participate regularly in one or more physical activities during the next six months would be:

1	2	3	4	5	6	7
Bad						Good

6. For you, to participate regularly in one or more physical activities during the next six months would be:

1	2	3	4	5	6	7
Useless						Useful

INTENTION TO ENGAGE IN PHYSICAL ACTIVITY

7. You intend to participate regularly in one or more physical activities during the next six months.

1	2	3	4	5	6	7
Unlikely						Likely

PARTICIPATION IN PHYSICAL ACTIVITY**MODIFIED 7-DAY ACTIVITY INTERVIEW**

I would like to know about your physical activity during the past 7 days; that is, the last 5 weekdays and last weekend, Saturday and Sunday. This should be a recall of your actual activities for the past week, not a history of what you usually do.

First, let me ask you about your sleeping habits.

- 8. How many hours did you sleep each night during the last 7 nights?
(Record to the nearest quarter-hour).**

_____ hours _____ minutes/night X _____ days/week.

- 9. Do you nap during the day? If yes, how much time do you spend napping?**

_____ hours _____ minutes/day X _____ days/week.

Now I am going to ask you about your physical activity during the past 7 days. I will be asking you to recall how much time you spent doing various activities. You must have spent at least 5 minutes doing the activity to include it. Do not include rest periods or breaks from the activity.

LIGHT ACTIVITIES

10. First, let's consider light activities or activities that involve sitting. How much time did you spend:

1) Watching TV _____ hours _____ minutes/day X _____ d/w

2) Reading _____ hours _____ minutes/day X _____ d/w

3) Ironing _____ hours _____ minutes/day X _____ d/w

4) Knitting _____ hours _____ minutes/day X _____ d/w

5) Playing Cards _____ hours _____ minutes/day X _____ d/w

6) Cooking, with
little activity _____ hours _____ minutes/day X _____ d/w

Can you think of any other activities that you did this past week that are of similar intensity?

_____ hours _____ minutes/day X _____ d/w
(List activity)

_____ hours _____ minutes/day X _____ d/w
(List activity)

MODERATE ACTIVITIES

11. Now let's look at moderate activities. How much time did you spend:

- 1) Cleaning _____ hours _____ minutes/day X _____ d/w
- 2) Kitchen work _____ hours _____ minutes/day X _____ d/w
- 3) Vacuuming,
slowly _____ hours _____ minutes/day X _____ d/w
- 4) Cooking with
much activity _____ hours _____ minutes/day X _____ d/w
- 5) Laundry _____ hours _____ minutes/day X _____ d/w
- 6) Shopping _____ hours _____ minutes/day X _____ d/w
- 7) Fishing _____ hours _____ minutes/day X _____ d/w .
- 8) Walking less
than 3 mph _____ hours _____ minutes/day X _____ d/w .

Can you think of any other activities that you did this past week that are of similar intensity to walking at a slow pace (1 mile in more than 20 minutes)?

_____ hours _____ minutes/day X _____ d/w
(List activity)

_____ hours _____ minutes/day X _____ d/w
(List activity)

HARD ACTIVITIES

12. Now let's look at hard activities. How much time did you spend:

1) Vacuuming,
quickly _____ hours _____ minutes/day X _____ d/w

2) Walking on level surface at least 3 miles per hour
_____ hours _____ minutes/day X _____ d/w

3) Scrubbing
floors _____ hours _____ minutes/day X _____ d/w

Can you think of any other activities that you did this past week that are of similar intensity to walking at a brisk pace (1 mile in 20 minutes or less)?

_____ hours _____ minutes/day X _____ d/w
(List activity)

_____ hours _____ minutes/day X _____ d/w
(List activity)

VERY HARD ACTIVITIES

13. Now let's look at very hard activities. How much time did you spend:

1) Swimming _____ hours _____ minutes/day X _____ d/w

2) Walking on a hilly terrain at least 3 miles per hour

_____ hours _____ minutes/day X _____ d/w

Can you think of any other activities that you did this past week that are of similar intensity to walking on a hilly terrain at a brisk pace (1 mile in 20 minutes or less)?

_____ hours _____ minutes/day X _____ d/w
(List activity)

_____ hours _____ minutes/day X _____ d/w
(List activity)

DEMOGRAPHICS

To complete the interview I need a few more details:

14. Are you now suffering from any disability?

PROBE: A CONDITION THAT STOPS YOU FROM DOING
YOUR ROUTINE ACTIVITIES.

YES _____ 1
NO _____ 2 If no, go to Q. 16.

15. Is it a temporary condition?

PROBE: A CONDITION THAT WILL DISAPPEAR IN A FEW
WEEKS.

YES _____ 1
NO _____ 2
DK _____ 8
N/A _____ 9

16. Are you equally active throughout the year?

YES _____ 1 If yes, go to Q. 18.
NO _____ 2
DK _____ 8

17. Are you more active in winter or summer?

WINTER _____ 1
SUMMER _____ 2
DK _____ 8
N/A _____ 10

18. Gender?

MALE _____ 1
FEMALE _____ 2

19. What is your current marital status?

Now married 1
Common-law 2
Single (never married) 3
Widowed 4
Separated 5
Divorced 6
Refused 9

20. What was the last grade you completed in school?

State grade _____ 1
Did not attend school _____ 2

21. Do you have any education beyond high school?

YES _____ 1
NO _____ 2 If no, go to Q. 24.

22. What kind of education is it?

Trade school, diploma courses, etc. _____ 1
University _____ 2
Not Applicable _____ 10

23. Do you have a university degree?

YES _____ 1

Type:

UNDERGRADUATE _____ 1

MASTERS _____ 2

PHD _____ 3

N/A _____ 10

NO _____ 2

24. What is your date of birth?

Write as stated _____, then
code.

YY MM DD

AGE: _____ years.

25. Turn to page 8 in the booklet I have given you. Point to the number that best describes the total income of all household members from all sources during the past year?

PROBE: ALL WAGES, SALARIES, PENSIONS, AND
ALLOWANCES.

AMOUNT

CODE

Under \$6000

01

\$6000-\$7999

02

\$8000-\$9999

03

\$10,000-\$11,999

04

\$12,000-\$13,999

05

\$14,000-\$15,999

06

\$16,000-\$17,999

07

\$18,000-\$19,999	08
\$20,000-\$21,999	09
\$22,000-\$23,999	10
\$24,000-\$25,999	11
\$26,000-\$27,999	12
\$28,000-\$29,999	13
\$30,000-\$31,999	14
\$32,000-\$33,999	15
\$34,000-\$35,999	16
\$36,000-\$37,999	17
\$38,000-\$39,999	18
\$40,000-\$44,999	19
\$45,000-\$49,999	20
\$50,000-\$54,999	21
\$55,000-\$59,999	22
\$60,000-\$64,999	23
\$65,000-\$69,999	24
\$70,000-\$74,999	25
\$75,000-\$79,999	26
\$80,000-\$84,999	27
\$85,000-\$89,999	28
\$90,000-\$94,999	29
\$95,000-\$99,999	30
\$100,000+	31
Don't know	98
Refusal	99

26. The last thing I need to do is to weigh you.

Weight (lbs) _____ = _____ kgs.

27. Name of apartment complex: _____

That completes the interview. Thank you very much for your time. I really appreciate it.

Appendix F

RESPONDENTS' BOOKLET

PAGE 1

1	2	3	4	5	6	7
Unpleasant						Pleasant

PAGE 2

1	2	3	4	5	6	7
Dull						Interesting

PAGE 3

1 2 3 4 5 6 7
Boring Stimulating

PAGE 4

1	2	3	4	5	6	7
Unhealthy						Healthy

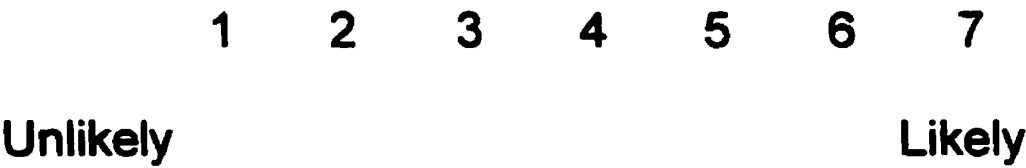
PAGE 5

1	2	3	4	5	6	7
Bad						Good

1 2 3 4 5 6 7

Useless Useful

PAGE 7



PAGE 8**AMOUNT****CODE**

Under \$6000	01
\$6000-\$7999	02
\$8000-\$9999	03
\$10,000-\$11,999	04
\$12,000-\$13,999	05
\$14,000-\$15,999	06
\$16,000-\$17,999	07
\$18,000-\$19,999	08
\$20,000-\$21,999	09
\$22,000-\$23,999	10
\$24,000-\$25,999	11
\$26,000-\$27,999	12
\$28,000-\$29,999	13
\$30,000-\$31,999	14
\$32,000-\$33,999	15
\$34,000-\$35,999	16
\$36,000-\$37,999	17
\$38,000-\$39,999	18
\$40,000-\$44,999	19
\$45,000-\$49,999	20
\$50,000-\$54,999	21
\$55,000-\$59,999	22
\$60,000-\$64,999	23
\$65,000-\$69,999	24
\$70,000-\$74,999	25
\$75,000-\$79,999	26
\$80,000-\$84,999	27
\$85,000-\$89,999	28
\$90,000-\$94,999	29
\$95,000-\$99,999	30
\$100,000+	31
Don't know	98
Refusal	99

Appendix G**Ethical Approval for Study**



Memorial

University of Newfoundland

Human Investigation Committee
Research and Graduate Studies
Faculty of Medicine
The Health Sciences Centre

FILE

24 March, 1998

KEYED

(Handwritten initials)

TO: Ms. Jeannie Stuckless

FROM: Dr. Verna M. Skanes, Assistant Dean
Research & Graduate Studies (Medicine)

SUBJECT: Application to the Human Investigation Committee - #98.16

////////////////////////////////////

The Human Investigation Committee of the Faculty of Medicine has reviewed your proposal for the study entitled "The Relationship Between Attitude and Participation in Physical Activity Among Older Adults".

Full approval has been granted for one year, from point of view of ethics as defined in the terms of reference of this Faculty Committee.

For a hospital-based study, it is your responsibility to seek necessary approval from the Health Care Corporation of St. John's.

Notwithstanding the approval of the HIC, the primary responsibility for the ethical conduct of the investigation remains with you.

Verna M. Skanes, PhD
Assistant Dean

cc: Dr. K.M.W. Keough, Vice-President (Research)
Dr. E. Parsons, Vice-President, Medical Services, HCC

SUPPORT



