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An evaluation of older adults' perceptions of psychological well-being when participating in community centre programs

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AN EVALUATION OF OLDER ADULTS' PERCEPTIONS OF PSYCHOLOGICAL WELL-
BEING WHEN PARTICIPATING IN COMMUNITY CENTRE PROGRAMS

by

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THESIS

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Master of Kinesiology

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Abstract

Multi-purpose organizations, such as community centres, provide opportunities for individuals to participate in various physical and social activities. Although, it has been well established that community centres provide the opportunity and environment to promote health behaviour changes among older adults (Jones et al., 2013; Stewart, 1997; Wallace et al., 1998), there is a dearth of research differentiating between physically active and non-active community centre programming. The purpose of the current study was to evaluate whether participating in community centre programming influenced four key measures of perceived psychological well-being, as well as, to evaluate whether the perceived psychological well-being of community centre program participants was differentially influenced by their participation in physically active based programs or non-active based programs. Data was collected at two time points, once at the beginning of the fall programming and once at the end of the fall programming at the community centres, using several questionnaires. A total of 45 participants, 31 females and 14 males, between the ages of 65 and 90 years, completed the study ($M=75.67$, $SD=7.67$). Results indicated that although the participants at the community centres were already stable in their assessment of their perceived psychological well-being, due to their experience and longevity of attending the community centres, older adults who participated in physically active community centre programs had significantly higher levels of perceived functional independence compared to older adults who participated in non-active community centre programs. The results of the current study provide insight into the important role community centres play on both an individual level for many older adults and on a global level as well, for our healthcare system (Older Adult Centres Association of Ontario, 2010).

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Chapter 1: Introduction

A healthy, active lifestyle, that includes regular physical activity, plays a vital role in an individual's health, well-being, and overall quality of life (Center for Disease Control and Prevention, 2015). Warburton, Nicol, and Bredin (2006) suggested that increased physical activity may lead to reduced risk in depression, stress, anxiety, cancer, diabetes, obesity, cardiovascular disease, osteoporosis, and high blood pressure. Additionally, increased physical activity has been related to lower overall morbidity and mortality (Kokkinos, 2012). Despite the surplus of empirical evidence supporting the benefits of physical activity, only 32% of Canadians aged 18 to 39, 18% of Canadians aged 40 to 59, and 12% of Canadians aged 60 to 79, are meeting the Canadian Physical Activity Guidelines of 150 minutes of moderate-to-vigorous physical activity a week (Statistics Canada, 2015). Specifically, older adults are the least physically active of any age group with only 13% of males and 11% of females, 60 to 79 years of age, meeting these guidelines (Statistics Canada, 2015), highlighting the need for health behaviour changes within this population.

In 2016, approximately 16.9% of Canadians were aged 65 and older, and by 2030 this number is projected to increase to 23% (Statistics Canada, 2014; Statistics Canada, 2017). This continuous growth can be attributed to two factors: longer life spans and aging baby boomers, made up of individuals born between 1946 and 1964 (Lamanna, Riedmann, & Stewart, 2014). As life expectancy increases and treatments for life-threatening diseases become more effective, the issue of maintaining well-being well into old age is becoming more significant. Although the average life expectancy for older adults is continuously increasing, they may not be living active, healthy, and independent lives (Christensen, Doblhammer, Rau, & Vaupel, 2009).

An indicator that accounts for an individual's quality of years, by representing the average number of years a person can expect to live in good health, is the health-adjusted life expectancy (HALE) indicator. In 2007, the most recent year for which HALE data was available, Canada's general life expectancy was 80.7 years, but the average number of years that Canadians could expect to live in optimal health was 73 years (The Conference Board of Canada, 2011).

There is concern regarding the ability of Canada's healthcare system to meet the rising healthcare needs of the aging population. The limited capacity and ability of the current medical healthcare system to address increased health demands necessitates that older adult healthcare will need to occur outside of the healthcare sector and focus on community programs and services to support healthy aging (Health and Health Care for an Aging Population, 2013). The Public Health Agency of Canada (PHAC) defines healthy aging as "the process of optimizing opportunities for physical, social, and mental health to enable older adults to take an active part in society without discrimination and to enjoy independence and quality of life" (PHAC, 2010, p. 1). It will take a multifaceted, multi-sector approach to promote healthy aging in Canada.

Multi-purpose organizations, such as community centres, provide opportunities for individuals to participate in various physical and social activities. Evidence has highlighted the positive relationship between participating in community based activities and an individual's perceived well-being (Hunter, Neiger, & West, 2011; Jones, Kimberlee, Deave, & Evans, 2013; Renton et al., 2012). However, much of the research on healthcare services and community organizations investigate community centre activities as a secondary or minor concern, with limited research on the impact of community centre activities and programs on health and well-being (Jones et al., 2013).

In order to address the limited research, Jones et al. (2013) examined the role that community centre activities play in promoting adult well-being and healthy lifestyles. Activities within the community centre included leisure, exercise, cooking, befriending, arts, and crafts programs. Six hundred and eighty-seven adults, ranging in age from 18-70+, completed a questionnaire administered at baseline and at the end of their engagement or completion of an activity period within the community centre. The questionnaire evaluated the participant's general health, social well-being, personal well-being, mental well-being, healthy eating, and physical activity. Results demonstrated positive changes in their self-reported general health, mental well-being, personal well-being, social well-being, diet, and physical activity at the end of their engagement or completion of an activity period within the community centre. The researchers suggested that community centre activities offered benefits that are generically supportive of health behaviour changes (Jones et al., 2013). Despite evidence highlighting the positive influence community centre involvement has on individual's well-being, regardless of activity type (e.g., active or non-active), little attention has been focused on differentiating between physically active and non-active community centre programming. Thus, this paper seeks to compare individuals enrolled in physically active based programs with those enrolled in non-active based programs.

Providing available, appropriate, affordable, and supportive physical activity programs within the community that are specifically targeted towards older adults is crucial to optimizing physical activity participation (Stewart et al., 1997). Justine, Azizan, Hassan, Salleh, and Manaf (2013) identified barriers to physical activity and exercise participation among one hundred and twenty middle-aged (45-59 years) and older adult (≥ 60 years) individuals. The cross-sectional study identified that the most common external barriers (i.e., factors beyond an individual's

control) among middle-aged and older adult respondents were ‘not enough time’, ‘no one to exercise with’, and ‘lack of facilities’. Additionally, the most common internal barriers (i.e., factors determined by an individual’s personal decision) for older adult respondents were ‘too tired’, ‘lack of motivation’, and ‘already active enough’ (Justine et al., 2013). In order to overcome these common barriers that older adults may face in regards to regular physical activity participation, community centres provide the opportunity for social interaction, social support, education, accessibility, skills, and information necessary to promote physical activity, making community centres an essential environment for health-promotion activities (Jones et al., 2013).

Differentiating between physically active and non-active community centre programming activities is crucial as literature has emphasized the important role physical activity has on older adults well-being (Jones et al., 2013). Specifically, the literature has shown that many older adults consider the ability to perform activities of daily living (ADLs) (i.e., functional independence) to play a crucial role in their well-being (Paterson, Govindasamy, Vidmar, Cunningham, Koval, 2004). Annually, 10% of nondisabled community dwelling older adults lose the ability to maintain functional independence, with older adults having four times as many physical limitations than individuals less than 60 years of age (Milanović, Pantelić, Trajković, Sporiš, Kostić, & James, 2013; Paterson et al., 2004). However, numerous studies have supported the important role that physical activity can play in maintaining functional independence in older adults (Paterson et al., 2004). Specifically, Paterson and Warburton (2010) conducted a systematic review on the relationship between physical activity of older adults and outcomes of functional independence and functional limitations. The authors reviewed 66 studies that met the criteria for the relationship between physical activity and functional independence.

Consistent findings across the studies indicated that moderate and high levels of physical activity was associated with higher functional independence by effectively reducing the risk of functional limitations or disabilities (Paterson & Warburton, 2010).

Although, the majority of participants utilized in psychological well-being and physical activity studies have been young or middle-aged adults (e.g., Brown, Pearson, Braithwaite, Brown, & Biddle, 2013; Edwards, 2006; Eime, Young, Harvey, Charity, & Payne, 2013; Ussher, Owen, Cook & Whincup, 2007), psychological well-being and physical activity research is continuously growing within the older adult population. Specifically, a meta-analysis examining data from 36 studies evaluating physical activity and well-being in older adults was conducted by Netz, Wu, Becker, and Tenenbaum (2005). The study considered four general components of psychological well-being: (a) emotional well-being (e.g., state and trait anxiety, stress), (b) self-perceptions (e.g., self-efficacy, self-esteem, self-worth), (c) bodily well-being (e.g., pain and perceptions of physical symptoms), and (d) global perceptions (e.g., life-satisfaction and overall well-being). Results suggested a causal effect for physical activity on psychological well-being enhancement. Specifically, physical activity had the strongest effects on older adult's self-efficacy, overall well-being, and view of self. The authors concluded that regular physical activity and exercise may help to maintain and enhance older adults psychological well-being in old age (Netz et al., 2005). Further, Ruuskanen and Ruoppila (1995) analyzed the relationship between physical activity and psychological well-being (i.e., perceptions of functional capacity, meaningfulness of life, memory, mental agility, and depression) among individual's aged 65 to 84 years. The results suggested that involvement in physical exercise may promote positive perceptions of psychological well-being among older adults. Specifically, self-related

meaningfulness of life and better subjective health were significantly related to regular and intensive physical exercise (Ruuskanen & Ruoppila, 1995).

Collectively, these results highlight the important role physical activity plays in the development and maintenance of psychological well-being. However, what is less understood and what this study seeks to investigate is whether older adults (65 years of age and older) who self-select community centre programming activities (i.e., physically active programming vs. non-active programming) differ in terms of their psychological well-being.

Psychological well-being is a multifaceted phenomenon, particularly in older adults, and the literature suggests a myriad of operational definitions for “psychological well-being” (Netz et al., 2005). Although, conceptual frameworks propose examining certain constructs when evaluating psychological well-being in older adults, a universal measurement does not exist when examining older adult’s psychological well-being. Previous research examining the effects of physical activity on psychological well-being have strongly focused on emotions, specifically anxiety and depression (Netz et al., 2005). Additionally, several studies have been based on the comprehensive framework conceptualized by Steward and King (1991) which proposes well-being outcomes of relevance for physical activity research with older adults, specifically emphasizing self-perception (e.g., self-efficacy and self-esteem) and global well-being (e.g., life satisfaction).

Thus, based on previous literature and conceptual frameworks proposed for evaluating psychological well-being in older adults, this study aims to examine concepts of psychological well-being relevant to an aging population. Body satisfaction, self-esteem, self-acceptance, and functional independence, have each been demonstrated to be effectively enhanced by physical activity in older adults (Edwards, Ngcobo, Edwards, and Palavar, 2005; Elavsky, 2010;

Opdenacker, Delecluse, & Boen, 2009; Umstadd, Wilcox, and Dowda, 2011; Wolinsky et al., 2011). Body satisfaction was selected as there is a lack of understanding and knowledge concerning body satisfaction among older adults despite literature emphasizing that older adult's appraisal and feelings towards their bodies plays a vital role in their well-being (Mangweth-Matzek et al., 2006; Roy & Payette, 2012). Self-esteem was selected because despite the fact that empirical evidence has highlighted that individuals who maintained high self-esteem in old age managed the effects of health decline more effectively than individuals with low self-esteem, little attention in the literature has been focused on the importance of self-esteem among older adults (Opdenacker et al., 2009; Sargent-Cox, Anstey & Luszcz, 2012). Self-acceptance was selected as the literature has indicated that older adults emphasized the importance of achieving self-acceptance when discussing successful aging (Reichstadt, Sengupta, Depp, Palinkas & Jeste, 2010). Lastly, functional independence was selected as the literature has shown that many older adults consider the ability to maintain functional independence, to play a crucial role in their well-being (Paterson, Govindasamy, Vidmar, Cunningham, Koval, 2004).

1.1 Body Satisfaction

Body satisfaction is defined as “an individual's self-perceptions and attitudes regarding their bodies” and plays an important role in an individual's well-being (Rudiger, Cash, Roehrig, & Thompson, 2007, p.1; Donaghue, 2009; Barreto, Ferrandez, & Guihard-Costa, 2011). It is a complex, multidimensional, subjective, representation of oneself that affects men and women throughout their lives (Pruzinky & Cash, 1990). Psychological and sociological frameworks of body satisfaction originated in the work of Paul Schilder in the 1920's. Prior to his work, researchers limited body satisfaction to the study of distorted body perceptions caused by brain damage (Schilder, 1950). It was after Schilder's work in the 20's that perceptions and

experiences of body satisfaction research began (Grogan, 1999). According to O'Brien (1980), body satisfaction and body image are now viewed as constructs that develops throughout one's life as a result of "sensory and behavioural experiences, physical appearance, somatic changes, societal norms, and the reactions of other people" (p. 1).

An individual's overall body satisfaction can range from very satisfied to very dissatisfied. Individuals who are satisfied with the way they look and who feel good about their body are considered to be satisfied with their body. Individuals who are very dissatisfied with the way they look and who do not feel good about their body are considered to be dissatisfied with their body (Bailey, Cline, & Gammage, 2016). Body dissatisfaction has been linked with numerous mental and physical health consequences among children, adolescents, young and middle-aged adults (Roy & Payette, 2012).

Empirical evidence examining adolescents has highlighted that body weight perception rather than actual weight status of the individual was associated with suicidal ideation and suicide attempts (Eaton, Lowry, Brener, Galuska, & Crosby, 2005; Pesa, Syre, & Jones, 2000). Further, adolescent's body dissatisfaction had been linked to eating problems, eating disorders, depression, and decreased psychological well-being (Jansen, Van de Looij-Jansen, De Wilde, & Brug, 2008; Kelly, Wall, Eisenberg, Story, & Neumark-Sztainer, 2005).

Despite the surplus of research investigating body satisfaction among children, adolescents, young and middle-aged adults, there is a lack of understanding and knowledge concerning body satisfaction among older adults (Roy & Payette, 2012). Understanding older adult's body satisfaction is particularly important to examine, as the bodily changes they experience may come along with many psychological consequences (e.g., body dissatisfaction,

low self-esteem, depression). At the same time, their age may have an effect on how their bodies are viewed and treated (e.g., weak, disrespected, frail) (Roy & Payette, 2012).

A study conducted by Mangweth-Matzek et al. (2006) examined eating behaviour and body attitude in older adult women. A randomly selected sample of 475 women, aged 60-70 years, was included in the analyses. Each participant completed a survey evaluating current eating behaviour, weight history, weight control, body attitude, and disordered eating. Results indicated that more than 80% controlled their weight and over 60% stated body dissatisfaction. These findings emphasize the importance of understanding body satisfaction in this population, as it is evident that older adult's appraisal and feelings towards their bodies plays a vital role in their overall well-being. Thus, the importance of developing and maintaining body satisfaction in old age is crucial to an individual's well-being (Mangweth et al., 2006).

Similarly, Umstattd et al. (2011) examined the predictors of change in body appearance satisfaction and body function satisfaction in a large adult sample. Participants (n=1830), with a mean age of 69, participated in a physical activity behaviour change program. The behaviour change program tailored physical activity plans and physical activity counseling towards each participant. The authors evaluated predictors of change in body function satisfaction and body appearance satisfaction. Results indicated that a greater improvement in body function satisfaction and body appearance satisfaction was associated with greater increases in physical activity. These findings suggest the vital role physical activity plays in increasing and maintaining high body satisfaction within older adults (Umstattd et al., 2011).

1.2 Self-Esteem

Self-esteem is defined as an individual's confidence in his/her own worth or abilities (Beckmann & Elbe, 2015). It is a subjective evaluation and attitude towards his or her

capabilities and limitations (Mayo Clinic, 2014). Self-esteem is highly correlated to an individual's overall life satisfaction and has been linked to increase motivation in regards to working hard and succeeding (Glenn, 2001; Moksnes & Espnes, 2012). Those who possess high self-esteem may therefore be more likely to engage in healthy behaviours (e.g., physical activity) (Glenn, 2001).

Sargent-Cox et al. (2012) examined the influence of psychological resources in maintaining positive self-perceptions of aging in the face of declining health in older adults. Medical conditions, physical functioning (ADLs), and psychological resources (expectancy of control and self-esteem) on change in self-perceptions of aging were examined in 1,569 older adults (65+), over 16 years. Results demonstrated that maintaining self-esteem can buffer the effects of declining physical functioning on perceptions of aging. Further, a study conducted by Orth, Trzesniewski, and Robins (2010) examined the development of self-esteem from young adulthood to old age. The data came from the Americans' Changing Lives study, which is a national four-wave panel survey of 3,617 individuals aged 25 years to 104 years. Results indicated that self-esteem continuously increases during young and middle adulthood, reaching a peak at age sixty years, and declines in old age. Additionally, the results suggest that the self-esteem decline in old age is partially accounted for by unfavourable changes in income, employment status, and health experiences, specifically physical health (Orth et al., 2010).

Little attention has been focused on the importance of developing and maintaining self-esteem among older adults, despite the fact that Sargent-Cox et al. (2012) found that individuals who maintained high self-esteem in old age managed the effects of health decline more effectively than individuals with low self-esteem. Further, research has highlighted the important role physical activity plays in enhancing various aspects of psychological well-being, including

self-esteem (Elavsky, 2010; Opdenacker et al., 2009). Thus, due to the lack of studies evaluating the effect of physical activity on self-esteem within older adult, Opdenacker et al. (2009) conducted a study to evaluate the long-term effects of a lifestyle physical activity intervention ($n = 60$), a structured exercise intervention ($n = 60$), and a control group ($n = 66$) on physical self-perceptions and self-esteem in older adults, 60 years and older. The lifestyle physical activity intervention consisted of an individualized physical activity program, which consisted of home-based endurance, strength, flexibility, and balance exercises which were integrated into the participants' daily routines. Participants in this intervention received phone calls from the instructors and information from a psychologist. The structured exercise intervention consisted of three sessions of 60-90 minute each week in a fitness center, with an instructor, to complete their individualized program, which consisted of endurance, strength, flexibility, and balance training. The control group participated only in the measurements and did not receive any feedback on their health status or any information on physical activity until the end of the study.

Results showed both the lifestyle intervention and structured exercise interventions had significant positive effects on the participant's physical self-perceptions and self-esteem, compared to the control group. Immediately after the 11-month intervention, the lifestyle group demonstrated significant improvements in self-perceived physical condition, sport competence, body attractiveness, and physical self-worth. The structured exercise group demonstrated significant improvements on physical condition and sport competence. One year later, the lifestyle program had significant effects on body attractiveness and global self-esteem, and the structured group experienced significant improvements in physical condition, sport competence, and body attractiveness (Opdenacker et al., 2009). These findings highlight the important role

physical activity plays in increasing and maintaining high self-esteem within the older adult population (Elavsky, 2010; Opdenacker et al., 2009).

1.3 Self-Acceptance

Self-acceptance is an appraisal of an individual's satisfaction or happiness with oneself (Shepard, 1979). It refers to the attitudes and satisfaction individuals have about themselves, their past behaviours, and the choices that they have made (Ryff & Keyes, 1995). An individual's self-acceptance can range from low to high. Characteristics of high self-acceptance include a positive attitude toward the self by acknowledging and accepting both their good and bad qualities. Individuals with high self-acceptance typically feel positive and satisfied with the past and are capable of strong empathy, affection, and intimacy, which typically results in the ability to develop satisfying and trusting relationships with others (Giacalone & Promislo, 2014). Conversely, individuals that demonstrate characteristics of low self-acceptance often feel dissatisfied with the self and bothered by certain qualities they exhibit. They typically feel negative and disappointed about the past and find it difficult to be open and concerned about others, which may result in having only a few satisfying and trusting relationships with others (Giacalone & Promislo, 2014).

Interestingly, Reichstadt et al. (2010) conducted a qualitative study to obtain older adult's perspectives on what constituted successful aging. They conducted 22 interviews with community-dwelling adults over the age of 60, with a range of 64-96 years of age, who were able to sign an informed consent. Results indicated that two overarching themes were self-acceptance and engagement/self-growth. Acceptance was described in terms of a comfort with the self and one's past experiences. Engagement was described in terms of personal growth and the pursuit of active engagement, including selection of activities that contributed to individual

growth, personal enjoyment and fulfillment. The authors concluded that having positive self-acceptance may be necessary for productive social relationships throughout the lifespan (Reichstadt et al., 2010).

Physical activity and exercise may play a significant role in influencing an individual's self-acceptance by promoting a more positive view about him/herself. Physical activity and exercise play a vital role in improving individual's well-being and thus may influence the development of a more positive attitude about oneself (Bezner, 2015). Specifically, Edwards et al. (2005) compared psychological well-being and physical self-perception of individuals who regularly (at least 30 minutes a day, three times a week) engaged in various forms of physical activity ($n = 169$), with a control group of non-exercising university students ($n = 108$). The mean age of the participants was 25.2 years of age. Comparisons between the groups of participants revealed that physical activity was associated with higher scores on the psychological well-being and physical self-perception scales than the control group. Specifically, individuals who engaged in regular physical activity perceived themselves as having more autonomy, personal growth, environmental mastery, purpose in life, positive relations with others, self-acceptance, sport competence and conditioning compared to non-exercisers. These findings support and highlight the important role regular physical activity plays in improving and maintaining psychological well-being and self-acceptance (Edwards et al., 2005).

1.4 Functional Independence

Many older adults experience changes within their daily living skills, which significantly affect their ability to live independently. Functional independence is the ability and level of assistance required to perform basic ADLs and instrumental activities of daily living (IADLs) (Pendleton & Schultz-Krohn, 2013). ADLs require basic skills and are the most necessary

activities for daily life. These types of activities include self-care tasks such as bathing/showering, dressing, eating and drinking, functional mobility, bed/chair mobility, and continence. IADLs require more complex skills such as decision-making skills, social skills, and complex environmental interactions. These types of activities include using the telephone, shopping, community mobility (e.g., driving, use of public transportation), financial management (e.g., use of cash and check writing), and home establishment (e.g., housecleaning, meal preparation) (Pendleton & Schultz-Krohn, 2013).

Difficulties in completing these activities may arise for many reasons and can be linked to chronic disabilities and health related problems that accompany old age. The ability to perform ADLs and IADLs is fundamental in maintaining independence and quality of life in older adults. With the expected rise in the proportion of older adults in Canada, it can be expected that the population of those living with disabilities and decreased functional independence will increase tremendously (Chappell & Cooke, 2010). Thus, research has emphasized the importance of physical activity in maintaining functional independence in older adults (Mathieson, Kronenfeld, & Keith, 2002; Zimmer & Chapell, 1994). Specifically, Wolinsky et al. (2011) studied the long-term functional decline in ADLs, IADLs, and mobility among older adults. The analytic sample included 5,871 respondents who completed baseline and follow-up survey data assessing ADLs, IADLs, and mobility limitation. Overall, 36.6% of participants developed at least two new ADL limitations, 32.3% developed at least two new IADL limitations, and 30.7% developed at least two new mobility limitations. Additionally, results indicated that engaging in vigorous physical activity consistently and substantially protected against functional decline. Thus, the researchers concluded that physical activity participation may reduce the risk of functional decline in ADLs, IADLs, and mobility in older

adults (Wolinsky et al., 2011). Therefore, the current study is interested in assessing perceived functional independence in order to determine if a relationship exists between community centre programs and perceived functional independence in older adults.

1.5 Objective of Current Study

Although, it has been well established that community centres provide the opportunity and environment to promote health behaviour changes among older adults (Jones et al., 2013; Stewart, 1997; Wallace et al., 1998), there have not been any studies to date that have differentiated between physically active and non-active based community centre programming. Additionally, there is a dearth of research investigating how community centre program involvement (active or non-active) has influenced important indicators of psychological well-being in older adults such as perceptions of body satisfaction, self-esteem, self-acceptance, and functional independence. However, previous research regarding physical activity and older adults has also demonstrated the potential that physical activity has on influencing overall perceptions of older adult's well-being. Therefore, the first objective of the study was to evaluate whether participation in community centre programming influenced four key measures of perceived psychological well-being. The secondary objective of the present study was to evaluate whether the perceived well-being of community centre program participants was differentially influenced by their participation in physically active based programs or non-active based programs.

It is well known that community centre programming participants are predominantly female. In fact, almost three quarters of community centre participants in Ontario are female, a statistic that has remained fairly consistent for a number of years (Older Adult Centres Association of Ontario, 2010). Thus, although not one of the primary objectives of the study,

gender differences within the community centres were evaluated in order to gain a better understanding of community centre participants.

1.6 Hypotheses

Programs at community centres are generally offered seasonally with defined beginning and end program dates. As such, programs are generally offered four times per year, which include the winter, spring, summer, and fall sessions. Therefore, individuals participating in community centre programming may be initiating the behaviour for the first time or may have participated previously and regularly in programming offered at the centre. Similarly, there is a wide array of programs that are offered at community centres. Some programs are activity based (e.g., zumba) while other programs are sedentary (e.g., wood working). Both of these factors (experience at the centre and program type) offered a unique opportunity to evaluate the effect of a fall programming session at a community centre geared toward older adults on perceptions of psychological well-being. A demographic questionnaire determined previous experience at the community centre, and perceived psychological well-being were evaluated at the beginning and the end of the fall programming session. This allowed two hypotheses to be generated based on participant experience at the centre and their preferred mode of programming.

1.6.1 Hypothesis #1. It was hypothesized that minimal changes in perceptions of psychological well-being would be seen over the four months (pre – post program comparison) in participants who previously attended the programs at the community centre prior to the study.

1.6.2 Hypothesis #2. It was hypothesized that participants enrolled in active-based programs would have higher levels of perceived psychological well-being (i.e., higher body satisfaction, higher self-esteem, higher self-acceptance, higher functional independence),

compared to participants enrolled in non-active based programs measured at the end of the fall programming session.

If the changes found in the current study followed trends reported in previous literature, active based programming should have induced more changes in perceived psychological well-being for those enrolled in this type of programming than for participants engaged in non-active based community centre programming. However, if both groups were found to be equally psychologically well, then it may be concluded that participation at a community centre for older adults evoked perceptions of well-being, independent from active and non-active programming.

Chapter 2: Method

2.1 Participants

A total of 45 participants, 31 females and 14 males, between the ages of 65 and 90, completed the study ($M=75.67$, $SD=7.67$). The participants were recruited from three City of Waterloo Community Centres. Twenty-four participants were enrolled in active based programming and 21 participants were enrolled in non-active based programming at the community centres. Active based programs included ballroom and social dance, modern line dance, Fit Pac (i.e., fitness class to improve cardio, health, muscle strength, flexibility and balance), and Qi Gong (i.e., flowing movements to improve balance, endurance and boost vitality). All active based programs were moderate-to-vigorous in terms of the physical activity intensity of the classes. Non-active based programs included quilting circle, knitting circle, absolutely art (i.e., participants brought their own art supplies and worked on them in the company of others), woodcarving, Thursday social (i.e., social group for older adults), and cards (e.g., bridge). In order to be eligible to participate in the study, participants must have only registered in either an active based program or a non-active based program, not both.

2.2 Ethics

Ethics approval was granted from the Wilfrid Laurier University Research Ethics Board (REB# 5020) before any data was collected. Before participating in this study, all participants read and signed an informed consent statement. The informed consent statement is presented in Appendix B.

2.3 Measures

2.3.1 Demographic Questionnaire. Consenting participants completed a demographic questionnaire. The purpose of this questionnaire was to capture demographic background data

about the participants in the study and to gain an understanding of their physical activity outside of the community centre. The demographic questionnaire assessed information on the participants' sex, date of birth, education, place of residence, living status, working status, how long the participant had been attending the community centre, how often the participant participated in programs at the community centre, what program(s) the participant attended at the community centre, type of transportation taken to get to the community centre, frequency and type of physical activity outside of community centre, if the participant was suffering from any chronic conditions, physical limitations, or taking any medications. Additional questions inquired about the physical activity habits of the participants outside of the community centre. The demographic questionnaire is presented in Appendix D.

2.3.2 Perceived Psychological Well-being Measures.

2.3.2.1 Perceived Body Satisfaction. Body satisfaction was evaluated with the modified version of the Body Satisfaction Scale by Barreto et al. (2011) originating from the preliminary work by Ray et al. (1996). The 8-item Body Satisfaction Scale measures body appearance (3-items) and body functioning (5-items) on a 5-point Likert scale, ranging from 1 (*very dissatisfied*) to 5 (*very satisfied*). The Body Satisfaction Scale has been demonstrated to be a reliable method of measuring body satisfaction in older adults (60 years of age and older) with excellent internal consistency ranging from .89-.90 and test-retest reliability one week apart ranging from .59-.71 (Barreto et al., 2011).

Participants in the current study answered questions such as “In the past 4 weeks, how satisfied have you been with your weight?” and “In the past 4 weeks, how satisfied have you been with your overall level of physical fitness?”. Scores for this scale can vary from 8 to 40, with higher scores indicating higher levels of perceived body satisfaction.

A mean body satisfaction score was calculated for each participant by adding the raw scores from the Body Satisfaction Scale and then dividing the total by the number of items in the scale. If there was a missing value in the raw scores, the mean value was computed by hand to confirm SPSS computed the mean accurately. Reliability analyses was run on the raw data of the Body Satisfaction Scale. Results of the Body Satisfaction Scale indicated high reliability at time point 1 and 2 ($\alpha = .90$ and $.92$, respectively) (see Table 1). The Body Satisfaction Scale is presented in Appendix E.

2.3.2.2 Perceived Self-Esteem. The Rosenberg Self-Esteem Scale (RSE) by Rosenberg (1965) was utilized to measure global self-worth in each participant. The 10-item scale evaluated both positive and negative feelings in respect to their general feelings toward themselves, using a 4-point Likert scale, ranging from 1 (*strongly disagree*) to 4 (*strongly agree*). The RSE scale has been widely used in several domains of self-esteem research, including physical activity (Fox, 1997). The scale has been found to be a reliable method of measuring global self-esteem within a number of different populations, including older adults (65 years of age and older) (Sargent-Cox et al., 2012), with a Cronbach's alpha range of 0.77-0.88, test-retest reliability range of 0.82-0.88, and criterion validity of 0.55 (Blascovich & Tomaka, 1991).

Participants in the current study answered questions such as "I am able to do things as well as most other people" and "I wish I could have more respect for myself". Scores for this scale can vary from 10-40, with higher scores indicating higher levels of perceived self-esteem.

A mean self-esteem score was calculated for each participant by adding the raw scores from the RSE scale and then dividing the total by the number of items in the scale. If there was a missing value in the raw scores, the mean value was computed by hand to confirm SPSS computed the mean accurately. Reliability analyses were run on the raw data of the RSE scale.

Results of the RSE scale indicated good reliability at time point 1 and 2 ($\alpha = .74$ and $.77$, respectively) (see Table 1). The RSE scale is presented in Appendix F.

2.3.2.3 Perceived Self-Acceptance. Self-acceptance was measured by using the Self-Acceptance Scale by Ryff (1989). The 14-item scale measured both positive and negative satisfaction in respect to their general satisfaction and happiness with themselves, using a 6-point Likert scale, ranging from 1 (*strongly disagree*) to 6 (*strongly agree*). This established scale has been found to be a reliable and valid method of measuring self-acceptance within older adults (65 years of age and older) (Ryff & Keyes, 1995) with a Cronbach's alpha of 0.91 and test-retest reliability of 0.85 (Seifert, 2005). The Self-Acceptance Scale is a copyrighted questionnaire and approval to use it was obtained from the owners.

Participants in the current study answered questions such as "In general, I feel confident and positive about myself" and "In many ways, I feel disappointed about my achievements in life". Scores for this scale can vary from 14-84, with higher scores indicating higher levels of perceived self-acceptance.

A mean self-acceptance score was calculated for each participant by adding the raw scores from the Self-Acceptance Scale and then dividing the total by the number of items in the scale. If there was a missing value in the raw scores, the mean value was computed by hand to confirm SPSS computed the mean accurately. Reliability analyses was run on the raw data of the Self-Acceptance Scale. Results of the scale indicated high reliability at time point 1 and 2 ($\alpha = .82$ and $.89$, respectively) (see Table 1). The Self-Acceptance Scale is presented in Appendix G.

2.3.2.4 Perceived Functional Independence. The Groningen Activity Restriction Scale (GARS) by Kempen and Suurmeijer (1990) was used to evaluate both ADLs and IADLs. The 18-item scale measured the level of assistance required for an individual to perform certain

activities. 11 items assessed ADLs and 7 items assessed IADLs. Each item was scored using a 5-point Likert scale, ranging from 1 (*No, I cannot do it at all. I need complete help*) to 5 (*Yes, I can do it fully independently without any difficulty*) based on their level of independence. The established scale has been found to be a reliable and valid instrument within older adult (65 years of age and older) (Kempen, Miedema, Ormel, & Molenaar, 1996) with a Cronbach's alpha of 0.88 (Gobbens & Assen, 2014).

Participants in the current study evaluated their need for assistance when completing a number of daily activities such as getting on and off the toilet and preparing breakfast and lunch. If participants were not currently completing the stated activities on the scale, due to their living dynamics (e.g., living in a retirement home that performs the activities for them), they stated their perceived level of assistance needed if they were to have to perform those certain activities. Scores for this scale can vary from 18-90, with higher scores indicating higher levels of perceived functional independence.

A mean functional independence score was computed for each participant by adding the raw scores from the GARS and then dividing the total by the number of items in the scale. If there was a missing value in the raw scores, the mean value was computed by hand to confirm SPSS computed the mean accurately. Reliability analyses was run on the raw data of the GARS. Results of the scale indicated high reliability at time point 1 and 2 ($\alpha = .82$ and $.87$, respectively) (see Table 1). The Groningen Activity Restriction Scale is presented in Appendix H.

2.4 Procedure

Study participants were recruited from three City of Waterloo Community Centres. The primary researcher made announcements in various active based and non-active based programs within the first two weeks of fall programming at the three community centres. Individuals who

were interested in participating in the study approached the primary researcher after the announcements were made. The primary researcher provided a brief, general description of the study to those individuals, specifically stating that only those that are 65 years of age and older may participate in the study. During this time, individuals who agreed to participate in the study, received the study information letter and informed consent was secured. The participants completed the demographic questionnaire as well as the perceived psychological well-being scales (body satisfaction, self-esteem, self-acceptance and functional independence).

The programs ran for four months, beginning in September 2016 through to December 2016. The program instructor tracked attendance throughout the fall programs in order to monitor the participation rate of each participant in the study. Participants were provided with a second questionnaire during the last two weeks of the fall programming to reassess their perceived body satisfaction, self-esteem, self-acceptance, and functional independence. Only participants with attendance rates of 80% or greater were included in the analyses. All active and non-active based community centre programs were offered 1-2 times per week. Programs that were offered twice a week gave the participants the option of enrolling in one or two classes per week. Thus, if participants attended their program twice a week, the 80% attendance rate was applied based on their attendance in both classes.

2.5 Data Analysis

All data was inputted into SPSS, which was used to conduct the data analysis. When data was being inputted, any questions that the participant failed to complete were listed as '99' to indicate a missing value. Data checks against hard copy questionnaires were run to ensure the reliability of the data entry. Any negatively-keyed items within the scales were reverse-scored and recoded into new variables before computing individuals' scores and before conducting any

analysis. All analysis was completed with only those participants who completed the questionnaires at both time points. Therefore, participants who completed the baseline questionnaires (time 1) but did not complete the follow up questionnaires (time 2), were removed from the data. Exploratory analysis of the data was then completed to determine if there were any outliers and to check if assumptions were met. Due to several extreme outliers (values exceeding ± 3.29 SDs from the mean), transformations were applied to the data in order to correct for problems with normality. However, this process was not beneficial and did not help to deal with the outliers in the data. Therefore, winsorization was used to replace values exceeding ± 3.29 SDs from the mean by the most extreme value remaining in each tail (Howell, 2010). A total of 38 data points out of 4,500 data points were imputed this way. This method has been shown as a valid way to treat outliers (Howell, 2010; Field, 2009).

Reliability analyses were run on the raw data of the perceived body satisfaction, self-esteem, self-acceptance, and functional independence questionnaires to check the reliability of the scales. After reliability scores were obtained, scale values (i.e., mean) were computed by SPSS by adding the raw scores from each scale and then dividing the total by the number of items in each scale. If there was a missing value in the raw scores, the scale value was computed by hand to confirm SPSS computed the mean accurately. Once all participant scale values were computed, descriptive statistics were generated for the demographic results of all participants. Correlations were also assessed between dependent variables at each time point.

To evaluate hypothesis #1, paired-samples *t*-tests were conducted on perceived body satisfaction, self-esteem, self-acceptance, and functional independence to determine if there were any significant differences between the four variables of interest from time 1 to time 2. To evaluate hypothesis #2, independent *t*-tests were conducted to determine if there were any

significant differences between active based programming participants and non-active based programming participants in terms of perceived body satisfaction, self-esteem, self-acceptance, and functional independence at the end of the fall programming session. Further explanation regarding the selection of *t*-tests analyses is provided in the results section.

Chapter 3: Results

3.1 Participant Classification

Criteria for inclusion in the study was established based on completion of 2 data sets, attendance within the community centre, and previous involvement with community centre programs. Time 2 questionnaires were completed by 49 of the 54 individuals who completed time 1 questionnaires, yielding a 91% completion rate. Of those 49 participants, 3 participants (2 active programming participants, 1 non-active programming participant) did not meet the behavioural measure criteria set for the study of attendance rates of 80% or greater. Further, only 1 participant was new to the community centre at the start of the study (active based programming participant). This result forced a decision to be made regarding this participation. The participant was deemed an outlier, as their community centre history was not representative of the group. Therefore, the participant was not included in further analysis. Thus, final analysis was completed on the 45 participants that completed both baseline and follow up questionnaires, who attended programming more than 80% of the time, and who indicated that they had previously participated in community centre programming. Figure 1 provides a decision tree regarding participant classification.

The 45 participants included in the final analysis included 24 (53.3%) participants who were enrolled in active based programming and 21 (46.7%) participants who were enrolled in non-active based programming. In order to be classified as an active programming participant, the participant must have been enrolled in any active based programming at the community centres (e.g., ballroom and social dance, modern line dance, Fit Pac, and Qi Gong). In order to be classified as a non-active programming participant, the participant must have been enrolled in any non-active based programming at the community centre (e.g., quilting circle, knitting circle,

absolute art, woodcarving, Thursday social, and cards). As mentioned previously, in order to be eligible to participate in the study, the participant must have only been registered in either an active based program or a non-active based program, not both.

It was evident through the analysis of the participant demographics that there was variability in the activity level of the participants outside of the community centre. Specifically, of the 24 participants enrolled in active-based programming, 10 individuals (41.7%) were physically active both at the community centre (i.e., enrolled in active-based programming) and outside of the community centre (e.g., involved in structured or unstructured physical activity at another organization/community centre or during daily living), while, the other 14 individuals (58.3%) were only physically active at the community centre and were not physically active outside of the community centre within their daily living. Additionally, of the 21 participants enrolled in non-active based programming, 15 individuals (71.4%) were inactive at the community centre (i.e., enrolled in non-active based programming) and inactive outside of the community centre (i.e., not involved in any structured or unstructured physical activity at another organization/community centre or during daily living), while, the other 6 participants (40%) were inactive at the community centre but were physically active outside of the community centre (e.g., involved in structured or unstructured physical activity at another organization/community centre or during daily living) (See Figure 1). In order to be classified as being physically active outside of the community centre, participants must have stated on their demographic questionnaire that they participated in active based programming at another community centre or organization at least once a week and that they participated regularly (2-3 times per week) in activities of daily living (e.g., gardening or walking) or leisure physical activity at a moderate-to-vigorous intensity. These classifications were made based on the Canadian Physical Activity

Guidelines of 150 minutes of moderate-to-vigorous physical activity a week for older adults (Statistics Canada, 2015). Thus, out of the 45 participants in the study, 30 participants were meeting the Canadian Physical Activity Guidelines (the 10 individuals who were physically active both at the community centre and outside of the community centre + the 14 individuals who were only physically active at the community centre and were not physically active outside of the community centre + the 6 participants who were not physically active at the community centre but were physically active outside of the community centre), and 15 participants were not meeting the Canadian Physical Activity Guidelines (the 15 individuals who were inactive at the community centre and inactive outside of the community centre).

3.2 Descriptive Statistics of Participants

Demographic information is presented in Table 2. The 45 participants included 31 females and 14 males, ranging in age from 65 to 90 years at the time of the study, with a mean age of 75.67 years ($SD = 7.67$). During the time of the study the majority of the participants resided in a house ($n = 22, 48.9\%$), with others residing in an apartment ($n = 11, 24.4\%$), condominium ($n = 10, 22.2\%$), and retirement home ($n = 2, 4.4\%$). Twenty-four participants (53.3%) lived with other(s) during the time of the study, and 21 participants (46.7%) lived alone. Three participants (6.7%) had completed elementary school to 8th grade, 9 participants (20.0%) had completed some high school with no diploma, and 32 participants (71.1%) are high school graduates or have completed higher education. The majority of the participants were retired ($n = 42, 93.3\%$) with only 2 participants (4.4%) working part-time and 1 participant (2.2%) working full-time.

Participants participated in programs at the community centres ranging from 3 times a month to 16 times a month, with a mean participation rate of 6.69 times per month ($SD = 3.23$).

The longevity of attendance for older adults within the community centre ranged from 6 months to 264 months (22 years), with a mean length of 121.61 months (10.13 years, SD = 78.96). The majority of participants drove themselves to the community centre ($n = 34$, 75.6%), with other participants walking ($n = 5$, 11.1%), taking public transportation ($n = 3$, 6.7%), carpooling ($n = 1$, 2.2%), cabbing ($n = 1$, 2.2%), or taking the City of Waterloo van ($n = 1$, 2.2%).

Fifteen participants (33.3%) stated they were suffering from a chronic health condition and 30 participants (66.7%) stated they were not suffering from any chronic health condition. Of those suffering from a chronic health condition, 8 (53.3%) were enrolled in active based programming and 7 (46.7%) participants were enrolled in non-active based programming at the community centre. Of the 15 participants suffering from a chronic health condition, 11 were female (73.33%) and 4 were male (26.67%).

Thirty-six participants (80%) stated they were currently taking medication and 9 participants (20%) stated they were not. Of the thirty-six participants taking medication, 16 (44.4%) were enrolled in active based programming and 20 (55.5%) were enrolled in non-active based programming at the community centre. Further, of the 36 participants currently taking medication, 25 were female (69.44%) and 11 were male (30.55%).

Nineteen participants (42.4%) stated they were experiencing a physical limitation that may prevent them from participating in physical activity, and 25 participants (55.6%) stated they were not experiencing a physical limitation. Of the 21 non-active programming participants, 15 participants (71.4%) stated they were experiencing a physical limitation that may prevent them from participating in physical activity. Interestingly, 4 of the physically active programming participants (16.67%) indicated that they were experiencing a physical limitation that may prevent them from participating in physical activity, yet they still selected active-based

programming within the community centre. Of the 19 participants experiencing a physical limitation, 13 were female (68.42%) and 6 were male (31.58%).

Further, looking at participant's physical limitations, an independent *t*-test was conducted to determine if there were any significant differences between participants who stated they were experiencing a physical limitation ($n = 19$) and participants who stated they were not experiencing a physical limitation that may prevent them from participating in physical activity ($n = 25$) on their perceived functional independence at time point 1 and 2, at the .0125 significance level (See Table 3). No significant differences were found between participants experiencing a physical limitation and participants not experiencing a physical limitation on perceptions of their functional independence.

Table 2
Participant Demographics

Demographic Variable	Frequency
Gender	31 female, 14 male
Age (years)	$M = 75.667$ $(SD) = 7.675$
Programming Participants (<i>n</i>)	Enrolled in active based programming (24) Enrolled in non-active based programming (21)
Working Status (<i>n</i>)	Full-time (1) Part-time (2) Retired (42)
Living Status (<i>n</i>)	Living with other (24) Living alone (21)
Place of Residence (<i>n</i>)	House (22) Apartment (11) Condominium (10) Retirement home (2)
Education (<i>n</i>)	Elementary school to 8 th grade (3) Some high school, no diploma (9) High school graduate or higher education (32)
Number of months (years) participants have attended the Community Centres	$M = 121.61$ months (10.13 years) $(SD) = 78.96$
Times per month participants attended programs at the Community Centres	$M = 6.689$ months $(SD) = 3.232$
Transportation used to get to the Community Centre (<i>n</i>)	Drive yourself (34) Walk (5) Carpool (1) Cab (1) City of Waterloo van (1) Public Transportation (3)
Suffering from any chronic health condition (<i>n</i>)	Yes (15) No (30)
Taking any medication (<i>n</i>)	Yes (36) No (9)
Experiencing any physical limitation (<i>n</i>)	Yes (19) No (25)

Table 3

Independent T-Tests Comparing Physical Limitations on Perceived Functional Independence

Variable	df	t	Sig.	Physical Limitation (n)	Mean
Functional Independence (Time 1)	42	1.56	.126	Yes (19)	4.79
				No (25)	4.91
Functional Independence (Time 2)	42	1.84	.072	Yes (19)	4.85
				No (25)	4.93

3.3 Gender Analysis

Within the current study, 68.9% of participants were female (31 females, 14 males), supporting previous literature that has presented similar gender distributions within community centre participants (Older Adult Centres Association of Ontario, 2010). If the current study followed trends found in previous literature where three quarters of participants (75%) were female and 25% of participants were male, expected numbers in the current study would be 18 females and 7 males within the active based community centre programming group and 16 females and 5 males within the non-active based community centre programming group. The observed count in the study was 15 females and 9 males in the active based community centre programming group and 16 females and 5 males in the non-active based community centre programming group, which represented similar proportions to what one would expect to find based on previous community centre literature (See Table 4).

In order to examine whether the proportion of females to the proportion of males within the two types of community centre programming (active based vs. non-active based) were significantly different, a chi-square analysis was run. The results indicated that there was no significant difference in the proportion of females to the proportion of males in the active-based

community centre programming compared to the non-active based community centre programming, $\chi^2 (df = 3) = .98, p > .05$. Therefore, gender did not statistically influence whether the participants self-selected active based versus non-active based community centre programming.

Table 4

Gender Distribution Between Type of Community Centre Programming.

Program	Female	Male
Active based programming	15	9
Non-active based programming	16	5

Independent *t*-tests were conducted on the time 2 data to determine if there were any significant differences between female and male participant's perceived body satisfaction, self-esteem, self-acceptance and functional independence at the .0125 significance level (See Table 5). No significant differences were found between gender on measures of perceived body satisfaction, self-esteem, self-acceptance, or functional independence.

Table 5

Independent T-Tests Comparing Gender on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Gender (n)	Mean
Body Satisfaction	43	1.44	.157	Female (31)	3.47
				Male (14)	3.87
Self-Esteem	43	0.96	.344	Female (31)	3.30
				Male (14)	3.44
Self-Acceptance	43	1.21	.231	Female (31)	4.77
				Male (14)	5.11
Functional Independence	43	-0.54	.589	Female (31)	4.87
				Male (14)	4.83

Further, an independent *t*-test was conducted to determine if there were any significant differences between female and males based on their physical activity frequency (i.e., how many times per week they are physically active) outside of the community centre at the .0125 significance level (See Table 6). Thus, the analysis was conducted on participants that stated they were physically active outside of the community centre (N=16). No significant differences were found between gender on physical activity frequency outside of the community centre.

Table 6
Independent T-Tests Comparing Gender on Physical Activity Frequency Outside of the Community Centre

Variable	df	t	Sig.	Gender (n)	Mean
Frequency	12	2.16	.052	Female (9)	2.60
				Male (5)	1.67

3.4 Relationship Among Variables

Correlation analysis among each of the variables at time 1 and time 2 are presented in Table 7 and 8. Results revealed an acceptable level of shared variance among each variable at both time points with the exception of perceived self-esteem and self-acceptance at both time points ($r = .806$ $p < .001$) at time 1 and ($r = .794$, $p < .001$) at time 2. These two variables have been found to be highly correlated in previous research as well (Macinnes, 2006).

Table 7
Correlations Time 1

	Body Satisfaction	Self-Esteem	Self-Acceptance	Functional Independence
Body Satisfaction	-	.440**	.313*	.477**
Self-Esteem	-	-	.806**	.326*
Self-Acceptance	-	-	-	.184
Functional Independence	-	-	-	-

** Correlations significant at the 0.01 level

*Correlations significant at the 0.05 level

Table 8
Correlations Time 2

	Body Satisfaction	Self-Esteem	Self-Acceptance	Functional Independence
Body Satisfaction	-	.520**	.529**	.582**
Self-Esteem	-	-	.794**	.429**
Self-Acceptance	-	-	-	.290
Functional Independence	-	-	-	-

** Correlations significant at the 0.01 level

*Correlations significant at the 0.05 level

3.5 Normality Check

In order to check for normality within the data, normality tests were run to compare the score values in the sample to a normally distributed set of score values with the same mean and standard deviation (Field, 2009). For perceived body satisfaction, self-esteem and self-acceptance at time point 1, as well as, perceived self-esteem and self-acceptance at time point 2, the Kolmogorov–Smirnov test was not significant, indicating that those variables are not significantly different from a normal distribution. However, for perceived functional independence at time points 1 and 2, as well as, perceived body satisfaction at time point 2, the Kolmogorov–Smirnov test was significant, indicating that those variable distributions are not

normal. Additionally, perceived functional independence at time points 1 and 2 appeared to be very negatively skewed (-1.16 and -1.96, respectively). This suggests that the participants' perceived functional independence scores were clustered around the high end of the scale. Recall that the higher end of the functional independence scale indicated higher levels of perceived functional independence. Further, perceived body satisfaction at time point 2 appeared to be slightly negatively skewed (-0.82). This suggests that the participants perceived body satisfaction scores were clustered around the high end of the scale. Recall that the higher end of the body satisfaction scale indicated higher levels of perceived body satisfaction. These deviations from normal are not surprising, as our data has revealed that the participants in the present study were healthy and psychologically well older adults. However, caution should be taken when interpreting the data (Field, 2009). In order to account for the normality deviation, a more conservative p value was used in the analysis.

3.6 Hypothesis Testing

3.6.1 Hypothesis #1. It was hypothesized that minimal changes in perceptions of psychological well-being would be seen over the four months (pre – post program comparison) in participants who previously attended the programs at the community centre prior to the study.

Due to the concern with multi-collinearity amongst the dependent variables, a decision was made to evaluate each variable independently by utilizing adjusted t-tests rather than in a group format such as a multivariate analysis of variance (MANOVA). MANOVA's can exacerbate collinearity, and if two variables are highly correlated, confound the results, as essentially the same variable is entered into the model twice under different names. Therefore, it was determined that variables should be considered separately, rather than evaluating their combined variance in a multi-factor model.

Similarly, due to the normality violation and the multi-collinearity issues within the variables, a single type 1 error within the test could be problematic. Thus, instead of setting the critical p level of significance to 0.05, a lower critical value was used. This process is called the Bonferroni correction, which involves dividing the critical value (0.05) by the number of dependent variables you're testing. Therefore, for our analysis we tested 4 dependent variables, resulting in 0.0125 ($0.05/4=0.0125$) as the critical value for each individual test.

Participant demographics clearly demonstrated that participants were experienced community centre participants having attended the centre for an average of 10.13 years. Therefore, one could expect that a fall session would not change perceptions of well-being as these individuals were already stable in their assessment of their well-being. In order to test this assumption, paired-samples t -tests were conducted to determine if participant's psychological well-being changed from time 1 to time 2 at the .0125 significance level (see Table 9). In support of hypothesis #1, results indicated that there was no significant difference in perceived body satisfaction ($t(44) = -.498, p = .621$), self-esteem ($t(44) = -1.182, p = .244$), or self-acceptance ($t(44) = -1.245, p = .220$). However, there was a significant difference in functional independence from time 1 to time 2, $t(44) = 2.850, p < .0125$, with perceived functional independence significantly decreasing over the fall program.

Although, the functional independence scores were significantly different statistically, when reverting the values back to the original scale, the values were not meaningfully different (4.897 at time 1 and 4.860 at time 2). There were also no statistically significant differences in perceptions of body satisfaction, self-esteem, or self-acceptance from time 1 to time 2. Therefore, in order to evaluate differences between individuals who selected active based community centre programming versus those who selected non-active based community centre

programming, time 2 data was selected as the comparison point for the evaluation of hypothesis #2.

Table 9

Paired-Samples T-Tests Comparing Dependent Variables from Time 1 To Time 2.

Dependent Variable	N	Time 1 mean (SD)	Time 2 mean (SD)	Mean Difference	Sig.
Body Satisfaction	45	3.554 (.823)	3.597 (.881)	-.043	$t(44) = -.498, p = .621$
Self-Esteem	45	3.287 (.471)	3.342 (.474)	-.055	$t(44) = -1.182, p = .244$
Self-Acceptance	45	4.795 (.805)	4.874 (.889)	-.079	$t(44) = -1.245, p = .220$
Functional Independence	45	4.897 (.167)	4.860 (.219)	.037	$t(44) = 2.850, p = .007$

3.6.2 Hypothesis #2. It was hypothesized that participants enrolled in active-based programs would have higher levels of perceived psychological well-being (i.e., higher body satisfaction, higher self-esteem, higher self-acceptance, higher functional independence), compared to participants enrolled in non-active based programs measured at the end of the fall programming session.

Independent *t*-tests were conducted on the time 2 data to determine if there were any significant differences between active based and non-active based programming participant's perceived body satisfaction, self-esteem, self-acceptance and functional independence at the .0125 significance level (see Table 10). The independent *t*-tests revealed that the type of programming (i.e., active vs. non-active) participants participated in had a significant effect on their perceived functional independence ($t(28.25) = -3.175, p < .0125$). Specifically, participants

enrolled in active based programming had higher levels of perceived functional independence ($M = 4.95$) compared to participants enrolled in non-active based programming ($M = 4.75$). No differences were found between groups on measures of perceived body satisfaction, perceived self-esteem, or perceived self-acceptance.

Table 10

Independent T-Tests Comparing Type of Community Centre Programming on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Programming Type (n)	Mean
Body Satisfaction	43	-2.58	.013	Active (24)	3.89
				Non-Active (21)	3.26
Self-Esteem	43	-2.09	.043	Active (24)	3.47
				Non-Active (21)	3.19
Self-Acceptance	43	-1.94	.059	Active (24)	5.11
				Non-Active (21)	4.61
Functional Independence	28.25	-3.17	.004	Active (24)	4.95
				Non-Active (21)	4.75

3.7 Further Analysis of Participant Physical Activity Patterns

Although, not one of the original hypotheses within the study, it was evident through the analysis of the participant demographics that there was variability in the activity level of the participants outside of the community centre. Specifically, of the 24 participants enrolled in active-based programming, 10 individuals were physically active both at the community centre (i.e., enrolled in active-based programming) and outside of the community centre (e.g., involved in structured or unstructured physical activity at another organization/community centre or during daily living), while, the other 14 individuals were only physically active at the community centre and were not physically active outside of the community centre within their daily living.

The researchers were particularly interested in determining if there were any significant differences between participants who were physically active both at the community centre and outside of the community centre compared to participants who were only physically active at the community centre and were not physically active outside of the community centre in terms of their perceived body satisfaction, self-esteem, self-acceptance and functional independence at the end of the fall programming session. Thus, an independent *t*-test was run in order to compare these two groups of participants at the .0125 significance level.

The independent *t*-test revealed that the physical activity patterns outside of the community centre had a significant effect on their perceived self-esteem ($t(19.97) = 4.62$, $p < .0125$) and perceived self-acceptance ($t(22) = 2.79$, $p < .0125$). Specifically, participants who were physically active both at the community centre and outside of the community centre, had higher levels of perceived self-esteem ($M = 3.86$) and perceived self-acceptance ($M = 5.53$) compared to participants who were physically active at the community centre but were not physically active outside of the community centre (self-esteem: $M = 3.20$, self-acceptance:

M=4.80). No differences were found between groups on measures of perceived body satisfaction and perceived functional independence (see Table 11).

Table 11
Independent T-Test Comparing Physical Activity Patterns of Active-Based Programming Participants on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Physical Activity Frequency (n)	Mean
Body Satisfaction	22	2.59	.017	Physically Active at Center & Outside of Centre (10)	4.275
				Physically Active at Centre Only (14)	3.625
Self-Esteem	19.97	4.62	.000	Physically Active at Center & Outside of Centre (10)	3.860
				Physically Active at Centre Only (14)	3.200
Self-Acceptance	22	2.79	.011	Physically Active at Center & Outside of Centre (10)	5.536
				Physically Active at Centre Only (14)	4.801
Functional Independence	22	1.24	.226	Physically Active at Center & Outside of Centre (10)	4.990
				Physically Active at Centre Only (14)	4.925

Chapter 4: Discussion

The purpose of the current study was to evaluate whether participating in community centre programming influenced four key measures of perceived psychological well-being, as well as, to evaluate whether the perceived well-being of community centre program participants was differentially influenced by their participation in physically active based programs or non-active based programs. Results of the current study indicated some evidence that older adult's perceived functional independence was influenced by their participation in physically active based programs versus non-active based programs. Results also indicated that individuals who engage in community centre programming perceive themselves to be psychologically well.

4.1 Interpretation of Findings

Correlation analysis provided support of previous research that had stated that different aspects of psychological well-being are highly correlated (Ryff, 1989). The current study offered support for the correlation found among various perceptions of well-being. However, while this finding was supportive of previous conceptual definitions of measure of psychological well-being, it was a challenge from a statistical perspective. As such, all measures of psychological well-being were analyzed separately for differences, with adjusted significance levels.

The first hypothesis evaluated the stability of perceived psychological well-being. Specifically, it was hypothesized that minimal changes in perceptions of psychological well-being would be seen over the four months in participants who previously attended the program(s) at the community centre prior to the study. The demographic questionnaire clearly demonstrated that participants were experienced community centre participants having attended the centre for an average of 10.13 years. Results provided support for this hypothesis, as there was no

significant difference in the participant's perceived body satisfaction, self-esteem, or self-acceptance, from the beginning of the fall to the end of the fall programming schedule.

However, interestingly, participant's functional independence statistically decreased over the fall program. Two explanations may follow from this. First, while statistically meaningful, it may not be a realistically meaningful change, based on perusal of the values on the functional independence scale (from 4.897 to 4.860). However, secondly, this may have been a true change as a result of age related decrease in physical functioning. Although, the study only investigated the participants over a four-month span, due to their age, this short time period may have been enough time to see some deterioration in their physical functioning. During the follow-up time, it was winter season, which may have also been associated with a decrease in perceived functional independence. The winter season comes along with many barriers (e.g., ice, snow, cold temperature) that impede older adult's ability to get around the community, making it difficult for older adults to participant in ADLs and IADLs (Garvin, Nykiforuk, & Johnson, 2012). Although, the participants in the study still attended 80% of their classes, their confidence and perceptions of their ability to perform certain ADLs and IADLs on the functional independence scale may have been strongly, negatively influenced. However, it should be noted that although a statistically significant change was found across the four months in perceived functional independence, when reverted back to the original scale, this difference was minimal, with both mean scores representing the high end of the scale (i.e., representing high perceived functional independence).

The second purpose of the study was to determine if perceived psychological well-being was differentially influenced by participation in active based or non-active based community centre programs. Specifically, it was hypothesized that participants enrolled in active-based

programs would have higher levels of perceived psychological well-being (i.e., higher body satisfaction, higher self-esteem, higher self-acceptance, higher functional independence), compared to participants enrolled in non-active based programs measured at the end of the fall programming session. Results provided only partial support for this hypothesis. Individuals enrolled in physically active based community centre programming were found to have higher functional independence than community centre participants enrolled in non-active based programming. However, the type of programming did not appear to influence perceptions of body satisfaction, self-esteem, or self-acceptance.

Community centre participants who were physically active (i.e., enrolled in active based programs) had higher levels of perceived functional independence compared to non-active individuals (i.e., enrolled in non-active programs). This finding is in support of previous research that has indicated that physical activity participation may reduce the risk of functional decline in ADLs, IADLs, and mobility in older adults (Wolinsky et al., 2011).

The relationship between physical activity and perceived functional independence has been explained by recognizing the strong link that physical activity has on individual's muscle strength and aerobic fitness (Taylor, 2014). Specifically, in older adults, improvements in muscle strength and aerobic fitness are linked to improved functional independence (Taylor, 2014). A systematic review conducted by Paterson and Warburton (2010) indicated that when older adults participate in physical activity, the risk of functional limitation and disability was reduced by 30-50%. Thus, it is not surprising that physically active older adult (i.e., enrolled in active based programming) had higher levels of perceived functional independence compared to non-active older adults (i.e., enrolled in non-active programming).

It was also predicted in the current study that participants who selected active based programming would experience greater perceptions of body satisfaction, self-esteem and self-acceptance. This prediction was based on a review of previous literature that suggested that physical activity plays an important role in increasing and maintaining high body satisfaction, self-esteem and self-acceptance within the older adult population (Elavsky, 2010; Opdenacker et al., 2009; Umstatt et al., 2011). While this may be the case in other physical activity settings, it appears that active based community centre programming does not significantly influence greater appraisals of self, compared to non-active based community centre programming. Instead it appears that involvement in a community centre, regardless of the programming type, is enough to evoke positive perceptions of body satisfaction, self-esteem and self-acceptance.

Maslow's Hierarchy of Needs may provide a possible explanation for why body satisfaction, self-esteem and self-acceptance are positive in both active and non-active community centre participants. According to Maslow (1943), people are motivated to achieve certain needs, and that some needs take precedence over others. The hierarchy is often depicted as a pyramid consisting of five levels with the lowest level associated with physiological needs (e.g., breathing, food, water, sex, sleep, homeostasis, excretion) and the uppermost level associated with self-actualization needs (e.g., morality, creativity, spontaneity, problem solving) (See Figure 2). Specifically, Maslow states that individuals have a human need to feel a sense of belonging and acceptance among their social groups (Maslow, 1943). In fact, Older Adult Centres Association of Ontario (2010) conducted a study looking at the motivational factors related to participation in an older adult community centre. The results were fairly high for all five need areas in Maslow's hierarchy, however, there was greater support for both love/belonging type motivations and self-esteem type motivations. Specifically, socialization and

making friendships were found to be two of the highest motivations for older adults when joining community centres. The social aspect, sense of belonging and acceptance among their social group, gained from the community centre may play a greater role in older adults perceived body satisfaction, self-esteem and self-acceptance than that evoked due to the specific type of programming they attend (i.e., active vs. non-active).

While many health and community based services geared toward older adults within a community provide critical care, assistance with daily living, support services, and therapeutic interventions, few services provide the opportunity for social interaction and self-esteem development that are found in older adult community centres (Older Adult Centres Association of Ontario, 2010). Given that 46.7% percent of the participants in the study live alone, the importance of social interaction should not be under estimated.

A number of interesting differences in the measures of perceived psychological well-being were found among the active-based programming participants based on their activity levels outside of the community centre. Recall that of the 24 participants enrolled in active based programming, 10 individuals (41.7%) were physically active both at the community centre and outside of the community centre within their daily schedule, while, the other 14 individuals (58.3%) were only physically active at the community centre and were not physically active outside of the community centre within their daily living (see Figure 1). Interestingly, when comparing these two groups, there were some significant differences in regards to their perceived psychological well-being. Specifically, participants who were physically active both at the community centre and outside of the community centre had higher levels of perceived self-esteem and self-acceptance, compared to participants who were only physically active at the community centre and were not physically active outside of the community centre.

These findings may be attributed to the frequency of physical activity that these older adults are participating in, as evidence has shown that increased frequency of physical activity may be related to increased psychological well-being in older adults (Netz et al., 2005). The average participation rate of the participants at the community centre was 6.69 times per month. Although, this frequency of physical activity was enough to see some differences in the perceived functional independence of older adults in active based community centre programs versus non-active community centre programs, it may not have been enough physical activity to see differences in the other measures of older adult's psychological well-being (i.e., perceived body satisfaction, self-esteem and self-acceptance). However, participants that were physically active outside of the community centre (e.g., involved in structured or unstructured physical activity at another organization/community centre or during daily living) may have been impacted by their additional physical activity participation and thus had higher levels of perceived self-esteem and self-acceptance.

No difference was seen in participants who were physically active both at the community centre and outside of the community centre, compared to participants who were only physically active at the community centre and were not physically active outside of the community centre, in terms of their perceived body satisfaction and functional independence.

Although, it was clear that the participants in the study had high perceptions of psychological well-being, causality and direction of relationships between variables could not be inferred. It is unclear if there was a causal relationship between perceived psychological well-being and participating in community centre programs. Thus, we cannot distinguish if participating in community centre programs leads to higher levels of perceived psychological well-being, or if having higher levels of perceived psychological well-being leads to

participating in community centre programs. Further research is needed to investigate this relationship in order to understand the participants attending community centres and the true benefits of community centre involvement.

4.2 Limitations and Future Directions

There were a number of potential limitations to this study. Firstly, it was evident, through the analysis of participant demographics that the community centre programs attracted psychologically well older adults who participate regularly in the programs. In fact, the average longevity of participation at the community centre was 10.13 years. Therefore, the study did not reach a targeted group of older adults who did not have previous participation with the community centre. One may argue that this sample did not represent a general profile of older adults. Community centre participants do not represent the general population of community older adults. Individuals who attend community centre programming appear to be older adults with productive perceptions of psychological well-being.

Secondly, the study design did not investigate a comparison group (e.g., older adults who do not attend the community centres), which would have offered a clearer basis for determining the influence that community centres have on older adult's psychological well-being. Further research is needed to investigate non-community centre users to truly capture the advantages and disadvantages of community centre program participation.

Thirdly, self-report measures were used in the current study. Although, self-report measures were the most appropriate way to access the participant's perceptions of their psychological well-being, individuals may not have followed directions in responding to the items or they may have not reported accurate information. As well, in the demographic questionnaire, the participants were asked to report their physical activity patterns through a 3-

day recall. Again, due to this being a self-reported measure, social desirability bias may have resulted in the participants inaccurately reporting their true physical activity patterns.

Lastly, the study only captured changes after one program session (i.e., fall session) was complete and thus was unable to investigate longer term psychological well-being changes. A longer period of data collection may have been beneficial to understand the effects of ongoing and sporadic community centre program participation.

Despite these limitations, the findings contribute to our understanding of the influence that community centre programs may have on older adult's psychological well-being. Further research is needed to investigate the benefits and drawbacks of community centre programs for older adults who are new to the community centre to fully understand the advantages and disadvantages of participating in community centre programs, both active and non-active based programs.

Although, community centre programs do promote healthy aging and health outcomes, they do not attempt to deal with older adults who have additional health needs. It is estimated that approximately 150,000 older adults participate in community centre programs in Ontario, which represents 9.1% of the Ontario population over the age of 65 (Older Adult Centres Association of Ontario, 2010). Although, these are very impressive numbers, future research needs to investigate the other 90% of older adults in Ontario in order to offer a clearer basis for determining the advantages and disadvantages of community centre program participation. An important question is "why" the majority of older adults do not choose to engage in community centre programming.

4.3 Practical Implications

The results of the current study provide insight into the importance of community centre programs. Community centre participants tended to be very active in terms of their longevity of attendance at the centre, spending a great portion of their leisure time at the centre, ranging from 3-16 times a month, with an average frequency of 6.69 times per month. The majority of the participants have also enjoyed many years of participation at the centre, spending an average of 10.13 years attending the centre. These findings demonstrate the great value that community centres play in the lives of older adults. However, as previously stated, only 9.1% of older adults participate in community centre programs in Ontario (Older Adult Centres Association of Ontario, 2010). Although, evidence has highlighted the benefits of community centre programs on the well-being of older adults, the centres still remain underutilized and underfunded.

Community centre programs are not recognized for the health promotion benefits and outcomes that they add to the healthcare system (Jones et al., 2013). Healthcare providers need to start viewing community centre programs as a supplement or alternate to mainstream healthcare services (Jones et al., 2013). The limited capacity and ability of the current healthcare system to address health demands necessitates that older adult healthcare needs to occur outside of the healthcare section and towards community programs and services (Health and Health Care for an Aging Population, 2013).

Primary healthcare providers are one of the most utilized healthcare resources by older adults (Older Adult Centres Association of Ontario, 2010). With concern that the healthcare system may not have the capacity to provide quality services in the future due to the expected rise in health demands, primary healthcare providers will have a major influence on the promotion of community centre programs in order to promote healthy aging. This highlights an

opportunity to market community centres programs to the 90% of Ontario older adults who do not utilize community centres, which may help reduce the strain on the healthcare system. With the participants spending on average 10.13 years attending the community centres, there is no doubt that the centres are doing a great job with retention of their participants. However, in order to market to the 90% of older adults who do not utilize community centres, new marketing strategies need to be put into place in order to promote and educate those 90% of older adults in Ontario on community centre programs.

Canadians over 65 years of age currently consume approximately 44% of the provincial and territorial healthcare budget (Health and Health Care for an Aging Population, 2013). The Canadian Medical Association believes that in order to provide optimal care and support for older adults, while simultaneously minimizing pressure on the healthcare system, governments at all levels should invest in programs that promote healthy aging (Health and Health Care for an Aging Population, 2013). Initiatives such as community centre programs that promote healthy aging, will help lower healthcare costs, by reducing the overall burden of disability and chronic disease, and provide the opportunity to promote physical, social, and mental health (Health and Health Care for an Aging Population, 2013).

4.4 Conclusion

The purpose of the current study was to evaluate whether participation in community centre programming influenced four key measures of perceived psychological well-being, as well as, to evaluate whether the perceived well-being of community centre program participants was differentially influenced by their participation in physically active based programs or non-active based programs. Results of the current study indicated that although participants at community centres are already stable in their assessment of their well-being, due to their

experience and longevity of attending the community centres, older adults who participate in physically active community centre programs have significantly higher levels of perceived functional independence compared to older adults who participate in non-active community centre programs.

The current study was able to extend the research by providing evidence on the positive benefits of active based community centre programs on older adult's functional independence. Results also suggested that participating at a community centre for older adults evoked perceptions of body satisfaction, self-esteem and self-acceptance, independent from active and non-active programming.

Findings from the present study not only demonstrate the positive influence active based community centre programs have on older adults, but the findings also reinforce the important role of social interactions within the community centres. As reported in previous literature, socialization and making friendships are two of the highest motivations for older adults to join community centres (Older Adult Centres Association of Ontario, 2010). Thus, the social aspect, sense of belonging and acceptance among their social group, gained from the community centres, may play a bigger role in some aspects of older adults perceived psychological well-being compared to the type of programming they attend (i.e., active vs. non-active). This social interaction should not be under estimated as it extends beyond community centre programs and should be considered in future research in regards to its positive influence in all aspects of older adult healthcare services and promotions.

Community centres play an important role both on an individual level for many older adults but on a global level as well, for our healthcare system (Older Adult Centres Association of Ontario, 2010). Community centres are a great resource for older adults, but are underutilized

and under recognized for the health promotion benefits that they add to the healthcare system. It is essential to continue to investigate the important role community centre programs (both active and non-active) have on older adults sense of well-being.

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Table 1
Reliability Coefficients

Scale	Cronbach's Alpha Value	
	Time 1	Time 2
Body Satisfaction Scale	.90	.92
Self-Esteem Scale	.74	.77
Self-Acceptance Scale	.82	.89
Functional Independence Scale	.82	.87

Table 2
Participant Demographics

Demographic Variable	Frequency
Gender	31 female, 14 male
Age (years)	$M = 75.667$ $(SD) = 7.675$
Programming Participants (<i>n</i>)	Enrolled in active based programming (24) Enrolled in non-active based programming (21)
Working Status (<i>n</i>)	Full time (1) Part time (2) Retired (42)
Living Status (<i>n</i>)	Living with other (24) Living alone (21)
Place of Residence (<i>n</i>)	House (22) Apartment (11) Condominium (10) Retirement home (2)
Education (<i>n</i>)	Elementary school to 8 th grade (3) Some high school, no diploma (9) High school graduate or higher education (32)
Number of months (years) participants have attended the Community Centres	$M = 121.61$ months (10.13 years) $(SD) = 78.96$
Times per month participants attended programs at the Community Centres	$M = 6.689$ months $(SD) = 3.232$
Transportation used to get to the Community Centre (<i>n</i>)	Drive yourself (34) Walk (5) Carpool (1) Cab (1) City of Waterloo van (1) Public Transportation (3)
Suffering from any chronic health condition (<i>n</i>)	Yes (15) No (30)
Taking any medication (<i>n</i>)	Yes (36) No (9)
Experiencing any physical limitation (<i>n</i>)	Yes (19) No (25)

Table 3

Independent T-Tests Comparing Physical Limitations on Perceived Functional Independence

Variable	df	t	Sig.	Physical Limitation (n)	Mean
Functional Independence (Time 1)	42	1.56	.126	Yes (19)	4.79
				No (25)	4.91
Functional Independence (Time 2)	42	1.84	.072	Yes (19)	4.85
				No (25)	4.93

Table 4

Gender Distribution Between Type of Community Centre Programming.

Participant	Female	Male
Active based programming	15	9
Non-active based programming	16	5

Table 5

Independent T-Tests Comparing Gender on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Gender (n)	Mean
Body Satisfaction	43	1.44	.157	Female (31)	3.47
				Male (14)	3.87
Self-Esteem	43	0.96	.344	Female (31)	3.30
				Male (14)	3.44
Self-Acceptance	43	1.21	.231	Female (31)	4.77
				Male (14)	5.11
Functional Independence	43	-0.54	.589	Female (31)	4.87
				Male (14)	4.83

Table 6

Independent T-Tests Comparing Gender on Physical Activity Frequency Outside of the Community Centre

Variable	df	t	Sig.	Gender (n)	Mean
Frequency	12	2.16	.052	Female (9)	2.60
				Male (5)	1.67

Table 7

Correlations Time 1

	Body Satisfaction	Self-Esteem	Self-Acceptance	Functional Independence
Body Satisfaction	-	.440**	.313*	.477**
Self-Esteem	-	-	.806**	.326*
Self-Acceptance	-	-	-	.184
Functional Independence	-	-	-	-

** Correlations significant at the 0.01 level

*Correlations significant at the 0.05 level

Table 8

Correlations Time 2

	Body Satisfaction	Self-Esteem	Self-Acceptance	Functional Independence
Body Satisfaction	-	.520**	.529**	.582**
Self-Esteem	-	-	.794**	.429**
Self-Acceptance	-	-	-	.290
Functional Independence	-	-	-	-

** Correlations significant at the 0.01 level

*Correlations significant at the 0.05 level

Table 9

Paired-Samples T-Tests Comparing Dependent Variables from Time 1 To Time 2.

Dependent Variable	N	Time 1 mean (SD)	Time 2 mean (SD)	Mean Difference	Sig.
Body Satisfaction	45	3.554 (.823)	3.597 (.881)	-.043	$t(44) = -.498, p = .621$
Self-Esteem	45	3.287 (.471)	3.342 (.474)	-.055	$t(44) = -1.182, p = .244$
Self-Acceptance	45	4.795 (.805)	4.874 (.889)	-.079	$t(44) = -1.245, p = .220$
Functional Independence	45	4.897 (.167)	4.860 (.219)	.037	$t(44) = 2.850, p = .007$

Table 10

Independent T-Tests Comparing Type of Community Centre Programming on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Programming Type (n)	Mean
Body Satisfaction	43	-2.58	.013	Active (24)	3.89
				Non-Active (21)	3.26
Self-Esteem	43	-2.09	.043	Active (24)	3.47
				Non-Active (21)	3.19
Self-Acceptance	43	-1.94	.059	Active (24)	5.11
				Non-Active (21)	4.61
Functional Independence	28.25	-3.17	.004	Active (24)	4.95
				Non-Active (21)	4.75

Table 11
Independent T-Test Comparing Physical Activity Patterns of Active-Based Programming Participants on Dependent Variables.

Dependent Variable (Time 2)	df	t	Sig.	Physical Activity Frequency (n)	Mean
Body Satisfaction	22	2.59	.017	Physically Active at Center & Outside of Centre (10)	4.275
				Physically Active at Centre Only (14)	3.625
Self-Esteem	19.97	4.62	.000	Physically Active at Center & Outside of Centre (10)	3.860
				Physically Active at Centre Only (14)	3.200
Self-Acceptance	22	2.79	.011	Physically Active at Center & Outside of Centre (10)	5.536
				Physically Active at Centre Only (14)	4.801
Functional Independence	22	1.24	.226	Physically Active at Center & Outside of Centre (10)	4.990
				Physically Active at Centre Only (14)	4.925

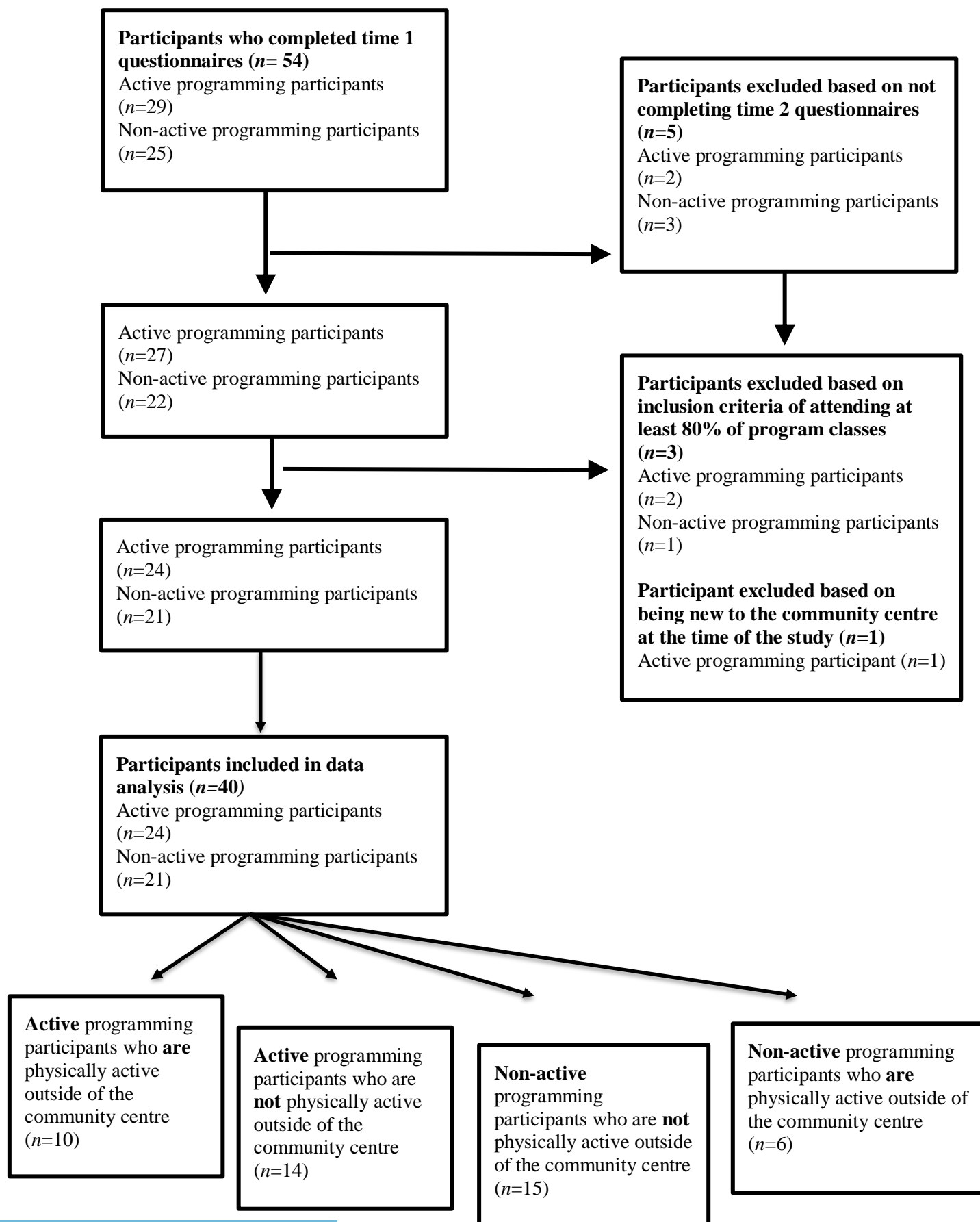


Figure 1: Flow Diagram of Participant Classification

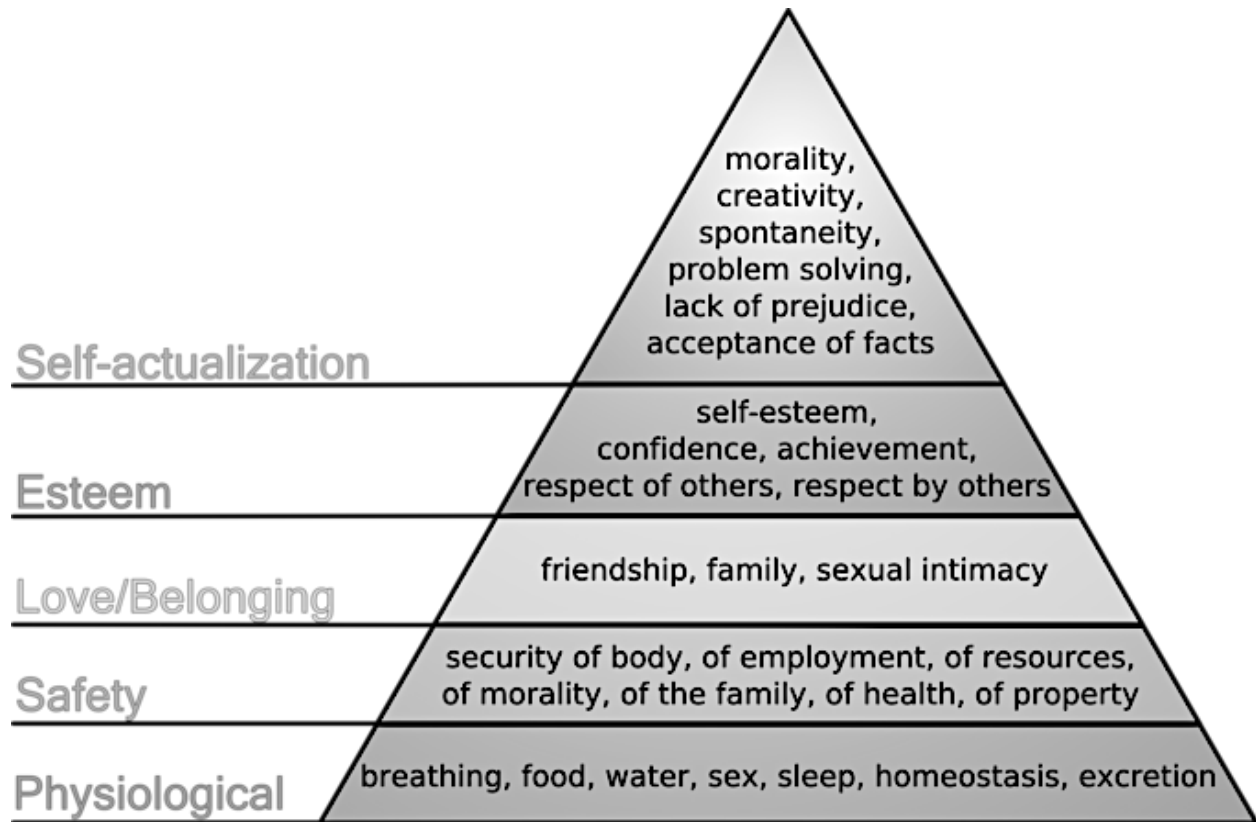


Figure 2: Maslow's Hierarchy of Needs

Appendix A: REB Approval

August 25, 2016

Dear Kayla Rellinger

REB # 5020

Project, "An evaluation of the effects of community centre physical activity programs designed for seniors on perceptions of psychological well-being"

REB Clearance Issued: August 24, 2016

REB Expiry / End Date: December 11, 2016

The Research Ethics Board of Wilfrid Laurier University has reviewed the above proposal and determined that the proposal is ethically sound. If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please submit a "Request for Ethics Clearance of a Revision or Modification" form for approval before the changes are put into place. This form can also be used to extend protocols past their expiry date, except in cases where the project is more than two years old. Those projects require a new REB application.

Please note that you are responsible for obtaining any further approvals that might be required to complete your project.

Laurier REB approval will automatically expire when one's employment ends at Laurier.

If any participants in your research project have a negative experience (either physical, psychological or emotional) you are required to submit an "Adverse Events Form" within 24 hours of the event.

You must complete the online "Annual/Final Progress Report on Human Research Projects" form annually and upon completion of the project. ROMEO will automatically keep track of these annual reports for you. When you have a report due within 30 days (and/or an overdue report) it will be listed under the 'My Reminders' quick link on your ROMEO home screen; the number in brackets next to 'My Reminders' will tell you how many reports need to be submitted. Protocols with overdue annual reports will be marked as expired. Further the REB has been requested to notify Research Finance when an REB protocol, tied to a funding account has been marked as expired. In such cases Research Finance will immediately freeze the release of your funding.

All the best for the successful completion of your project.

(Useful links: [ROMEO Login Screen](#) ; [ROMEO Quick Reference Guide](#) ; [REB webpage](#))

Yours sincerely,



Robert Basso, PhD
Chair, University Research Ethics Board
Wilfrid Laurier University November 29, 2016

REB Approval for Extension of Study End Date

Dear Kayla,

REB # 5020

Project, "An evaluation of the effects of community centre physical activity programs designed for seniors on perceptions of psychological well-being"

REB Clearance Issued: August 24, 2016

Expiry / End Date: May 31, 2017

I have reviewed the changes (Extension of end date until May 31, 2017) to the above proposal and determined that they are ethically sound.

If the research plan and methods should change in a way that may bring into question the project's adherence to acceptable ethical norms, please contact me as soon as possible and before the changes are put in place.

(This letter has been issued on behalf of Dr. R. Basso, by Courtney Lunt, Research Compliance Officer.)

(Useful links: [ROMEO Login Screen](#) ; [ROMEO Quick Reference Guide](#) ; [REB webpage](#))

Yours sincerely,



Robert Basso, PhD
Chair, University Research Ethics Board
Wilfrid Laurier University

Appendix B: Informed Consent Statement

WILFRID LAURIER UNIVERSITY INFORMED CONSENT STATEMENT

An Evaluation of Older Adults' Perceptions of Psychological Well-Being When Participating in Community Centre Programs

Principal Researcher: Kayla Rellinger

Supervisor: Dr. Kim Dawson

You are invited to participate in a research study about the effects of community centre programs designed for older adults on perceptions of psychological well-being as measured by four variables; perceptions of body satisfaction, self-esteem, self-acceptance, and functional independence. A more complete description of the study's purpose will be provided at the conclusion of data collection.

The principal researcher, Kayla Rellinger, is a Master's of Kinesiology student at Wilfrid Laurier University and is conducting this research project for her thesis. The principal researcher's supervisor, Dr. Kim Dawson, is a Professor in the Department of Kinesiology and Physical Education at Wilfrid Laurier University.

INFORMATION

You are being asked to complete a 15-20 minute questionnaire, containing background information, at the end of class today or to take home with you and return at your next class. If you have met the criteria set for the study you will be asked to complete a 10-15 minute questionnaire evaluating your overall psychological well-being. Attendance will be tracked throughout the fall programs in order to monitor your participation rate. During the last two weeks of the fall program, you will be asked again to complete a 10-15 minute questionnaire evaluating the same perceptions of psychological well-being. We will also be accessing your registration records to see what programs you have previously attended at the centre and what programs you are currently registered for.

RISKS

Risks include boredom during the completion of the questionnaire and concern about performance on the questionnaire.

BENEFITS

This research will explore and provide insight on the effects of community centre programming on older adults psychological well-being. The participants will benefit by gaining a better understanding of community centre programs designed for older adults and by knowing that they are contributing to exercise psychology research.

CONFIDENTIALITY

An identifying number will be used to match registration information, attendance data, and questionnaires. No names will be attached to the data rather an identifying number will be assigned to each participant. Completed questionnaires will only be accessible to the researcher and the researcher's advisors. All raw data will be locked in a filing cabinet in the Kinesiology and Physical Education Department at Wilfrid Laurier University. Documents and records from this study will be kept with the researchers until the study is completed and raw data will be stored securely and kept for 5 years after which time it will be shredded.

COMPENSATION

There is no compensation for participating in this study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, Kayla Rellinger, at Rell0520@mylaurier.ca. This project has been reviewed and approved by the Wilfrid Laurier University Research Ethics Board. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 4994 or rbasso@wlu.ca.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty and without loss of benefits to which you are otherwise entitled. If you withdraw from the study, every attempt will be made to remove your data from the study, and have it destroyed. You have the right to omit any question(s)/procedure(s) you choose.

FEEDBACK AND PUBLICATION

The results from this research will be presented at a conference and a thesis defense presentation. The researcher will also submit the results to a journal for publication. Participants will have the opportunity to receive a summary of the research from the principal researcher when the final results are available in the summer of 2017.

CONSENT

I have read and understand the above information. I have received a copy of this form. I agree to participate in this study.

Participant's signature _____ Date _____
Investigator's signature _____ Date _____

I would like a copy of the study results sent to me via email.

Email address: _____

Appendix C: Debriefing Statement**WILFRID LAURIER UNIVERSITY
DEBRIEFING STATEMENT****An Evaluation of Older Adults' Perceptions of Psychological Well-Being When
Participating in Community Centre Programs**

Principal Researcher: Kayla Rellinger

Supervisor: Dr. Kim Dawson

Thank you for your participation in this research study. In this study, you were asked to complete two sets of questionnaires in order to assess if your psychological well-being was influenced by involvement in community centre programming. Although, that was an objective of the study, the primary objective was to compare the well-being of individuals enrolled in active based programs with individuals enrolled in non-active based programs. In order to diminish response bias, the researchers did not inform the participants that the study would be comparing active versus non-active based programming. Deception was used in hopes that the participants answered the questionnaires truthfully, without feeling pressure to give certain answers.

Your participation is not only greatly appreciated by the researchers, but the data collected may explore and provide insight on the effects of community centre active based programming and non-active based programming on older adults psychological well-being.

If you have any questions about this study, please contact the researcher, Kayla Rellinger, at Rell0520@mylaurier.ca. This project has been reviewed and approved by the University Research Ethics Board. If you feel you have not been treated according to the descriptions in the informed consent, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Robert Basso, Chair, University Research Ethics Board, Wilfrid Laurier University, (519) 884-0710, extension 4994 or rbasso@wlu.ca.

Thank you!

Appendix D: Demographic Questionnaire

Identification Number: _____

1. Sex: _____ M _____ F

2. Date of Birth: _____ (month) / _____ (year)

Instruction: Please answer each question with an (X) beside the response that applies to you.

3. Education: What is the highest degree or level of school you have completed? *If currently enrolled, highest degree received.*

- Some elementary school completed: _____
- Elementary school to 8th grade: _____
- Some high school, no diploma: _____
- High school graduate: _____

4. Place of Residence:

- House: _____
- Apartment: _____
- Condominium: _____
- Retirement home: _____
- Other (please specify): _____

5. Living Status:

- Living with other: _____
- Living alone: _____

6. Working Status:

- Working full time: _____
- Working part time: _____
- Retired: _____

7. How long have you attended City of Waterloo/Kitchener Community Centre's?

- Years: _____ or
- Months: _____

8. How often do you participate in programs at the Community Centre?

- Times per week: _____ or
- Times per month: _____

9. What program(s) have you previously attended at the Community Centre?

	Fall September – December 2015	Winter January – March 2016	Spring April – June 2016	Summer July - August 2016
Ballroom & Social Dance				
Modern Line Dance				
Fitness & Wellness Classes				
- Tai Chi				
- Yoga				
- Zumba				
- Fit Pac				
- Adults & Weights				
- 20-20-20 Fitness				
- Pickleball				
Adults Arts & Culture				
- Absolute Art				
- Craft Corner				
- Woodcarving				
- Quilting				
Cards & Games				
- Euchre				
- Bridge				
- Friday Flicks				
- Snooker				
- Crokinole				
Other				

If other, please specify name of program: _____

10. What program(s) are you currently enrolled for in the Fall 2016 programming at the Community Centre?

	Fall September – December 2016
Ballroom & Social Dance	
Modern Line Dance	
Fitness & Wellness Classes	
- Tai Chi	
- Yoga	
- Zumba	
- Fit Pac	
- Adults & Weights	
- 20-20-20 Fitness	
- Pickleball	
Adults Arts & Culture	
- Absolute Art	
- Craft Corner	
- Woodcarving	
- Quilting	
Cards & Games	
- Euchre	
- Bridge	
- Friday Flicks	
- Snooker	
- Crokinole	
Other	

If other, please specify name of program: _____

11. What type of transportation do you typically use to get to the Community Centre?

- Drive yourself: _____
- Carpool: _____
- Cab: _____
- City of Waterloo Van: _____
- Public Transportation: _____
- Walk: _____
- Bike: _____
- Other (please specify): _____

12. Do you participate in structured physical activity at another Community Centre or Organization (e.g., YMCA that is different from this one)?

- Yes: _____ Location: _____ or
- No: _____

Instructions: If you answered YES to question 12, please complete questions 13 to tell us about your physical activity at other organizations.

If you answered NO to question 12, please complete the questionnaire at question 14.

13. What types of physical activity do you do outside of the Community Centre (e.g., physical activity classes, yoga, dance classes)?

- Types of physical activity: _____

- How often: _____

14. You can also stay active by moving in activities of daily life (e.g., cleaning your house, gardening, walking). Do you engage in any activities such as these?

- Yes: _____
- No: _____

15. What types of activities do you do regularly? Check all that apply to you:

- Gardening: _____
- Vacuuming: _____
- Walking: _____
- Shopping: _____
- Cleaning: _____
- Laundry: _____
- Walk the dog: _____
- Other: _____

16. In the past 3 days, please indicate if you participated in any physical activity at another facility, on your own or by moving in activities of daily living. Please first indicate the type of physical activity you participated in, the amount of time (hours : minutes) you spent participating in activity, and the intensity using light, moderate, or vigorous as described below.

- **Light activities:** You begin to notice your breathing, but talking is fairly easy
- **Moderate activities:** You can hear yourself breathe, but can still talk
- **Vigorous activities:** You are breathing heavily. It is difficult to talk

Day	Type of Physical Activity	Amount of Time (hours : minutes) and Perceived Exertion		
		Light	Moderate	Vigorous
<i>Example</i>	<ul style="list-style-type: none"> • Gardening • Walking 	<i>1 hour</i>		<i>30 minutes</i>
1				
2				
3				

17. Is the amount and type of physical activity identified in the table above an accurate reflection of your day-to-day physical activity? Why or why not?

18. Are you currently suffering from any chronic health conditions (e.g., diabetes, heart disease, arthritis, cancer)?

- No: _____
 - Yes: _____
 - If yes, which condition? _____
-
-

19. Are you currently experiencing any physical limitations that may prevent you from participating in physical activity?

- No: _____
 - Yes: _____
 - If yes, please indicate limitation: _____
-
-

20. Are you currently taking any medications?

- No: _____
 - Yes: _____
 - If yes, please list the medication(s) you're taking: _____
-
-
- Please indicate if you feel the medications that you're currently taking limit your ability to be active and why? _____
-
-
-

Appendix E: Body Satisfaction Scale

Instructions: Below is a list of statements dealing with your satisfaction with your body appearance and functioning. Please indicate by circling the number that signifies how strongly you agree or disagree with each statement, where 1 = Very Dissatisfied, 2 = Dissatisfied, 3 = Neither, 4 = Satisfied, 5 = Very Satisfied.

Body Appearance Scale:

	Very Dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
1. In the past 4 weeks, how satisfied have you been with your weight?	1	2	3	4	5
2. In the past 4 weeks, how satisfied have you been with your body shape?	1	2	3	4	5
3. In the past 4 weeks, how satisfied have you been with your overall physical appearance?	1	2	3	4	5

Body Functioning Scale

	Very Dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
1. In the past 4 weeks, how satisfied have you been with your overall level of physical fitness?	1	2	3	4	5
2. In the past 4 weeks, how satisfied have you been with your physical endurance to fatigue?	1	2	3	4	5

	Very Dissatisfied	Dissatisfied	Neither	Satisfied	Very Satisfied
3. In the past 4 weeks, how satisfied have you been with your overall muscle strength?	1	2	3	4	5
4. In the past 4 weeks, how satisfied have you been with your overall suppleness?	1	2	3	4	5
5. In the past 4 weeks, how satisfied have you been with your physical ability to do what you want or need to do?	1	2	3	4	5

Appendix F: Self-Esteem Scale

Instructions: Below is a list of statements dealing with your general feelings about yourself. Please indicate by circling the number that signifies how strongly you agree or disagree with each statement, where 1 = Strongly Disagree, 2 = Disagree, 3 = Agree, 4 = Strongly Agree.

	Strongly Disagree	Disagree	Agree	Strongly Agree
1. On the whole, I am satisfied with myself.	1	2	3	4
2. At times I think I am no good at all.	1	2	3	4
3. I feel that I have a number of good qualities.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I certainly feel useless at times.	1	2	3	4
7. I feel that I'm a person of worth, at least on an equal plane with others.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. All in all, I am inclined to feel that I am a failure.	1	2	3	4

	Strongly Disagree	Disagree	Agree	Strongly Agree
10. I take a positive attitude toward myself.	1	2	3	4

Appendix G: Self-Acceptance Scale

Instructions: Below is a list of statements dealing with your self-acceptance. Please indicate by circling the number that signifies how strongly you agree or disagree with each statement, where 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Slightly Disagree, 4 = Slightly Agree, 5 = Moderately Agree, 6 = Strongly Agree.

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
1. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
2. In general, I feel confident and positive about myself.	1	2	3	4	5	6
3. I feel like many of the people I know have gotten more out of life than I have.	1	2	3	4	5	6
4. Given the opportunity, there are many things about myself that I would change.	1	2	3	4	5	6
5. I like most aspects of my personality	1	2	3	4	5	6
6. I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	1	2	3	4	5	6
7. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

	Strongly Disagree	Moderately Disagree	Slightly Disagree	Slightly Agree	Moderately Agree	Strongly Agree
8. For the most part, I am proud of who I am and the life I lead.	1	2	3	4	5	6
9. I envy many people for the lives they lead.	1	2	3	4	5	6
10. My attitude about myself is probably not as positive as most people feel about themselves.	1	2	3	4	5	6
11. Many days I wake up feeling discouraged about how I have lived my life.	1	2	3	4	5	6
12. The past had its ups and downs, but in general, I wouldn't want to change it.	1	2	3	4	5	6
13. When I compare myself to friends and acquaintances, it makes me feel good about who I am.	1	2	3	4	5	6
14. Everyone has their weaknesses, but I seem to have more than my share.	1	2	3	4	5	6

Appendix H: Functional Independence Scale

Instructions: Below is a list of statements dealing with your functional independence. Please indicate by circling the number that signifies how strongly you agree or disagree with each statement, where 1 = Yes, I can do it fully independently without any difficulty, 2 = Yes, I can do it fully independently but with some difficulty, 3 = Yes, I can do it fully independently but with great difficulty, 4 = No, I cannot do it fully independently. I can only do it with someone's help, 5 = Moderately Agree, 6 = No, I cannot do it at all. I need complete help.

	Yes, I can do it fully independently without any difficulty	Yes, I can do it fully independently but with some difficulty	Yes, I can do it fully independently but with great difficulty	No, I cannot do it fully independently. I can only do it with someone's help	No, I cannot do it at all. I need complete help
1. Dress yourself	1	2	3	4	5
2. Get in and out of bed	1	2	3	4	5
3. Stand up from sitting in a chair	1	2	3	4	5
4. Wash your face and hands	1	2	3	4	5
5. Wash and dry your whole body	1	2	3	4	5
6. Get on and off the toilet	1	2	3	4	5
7. Feed yourself	1	2	3	4	5
8. Get around in the house (if necessary with a cane)	1	2	3	4	5
9. Go up and down	1	2	3	4	5

the stairs					
	Yes, I can do it fully independently without any difficulty	Yes, I can do it fully independently but with some difficulty	Yes, I can do it fully independently but with great difficulty	No, I cannot do it fully independently. I can only do it with someone's help	No, I cannot do it at all. I need complete help
10. Walk outdoors (if necessary with a cane)	1	2	3	4	5
11. Take care of your feet and toenails	1	2	3	4	5
12. Prepare breakfast and lunch	1	2	3	4	5
13. Prepare dinner	1	2	3	4	5
14. Do "light" household activities (e.g., dusting and tidying up)	1	2	3	4	5
15. Do "heavy" household activities (e.g., mopping, cleaning the windows, and vacuuming)	1	2	3	4	5
16. Wash and iron your clothes	1	2	3	4	5
17. Make the beds	1	2	3	4	5
18. Do the shopping	1	2	3	4	5