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Older Adults' Perspective on Engaging in Physical Activity After the Age of 65: An Exploratory Study

Amanda Kathleen England

A report submitted in Partial Fulfilment of the Requirements for the Award of

Bachelor of Arts (Psychology) Honours,

Faculty of Computing, Health and Science,

Edith Cowan University

October, 2006

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August, 2006

Abstract

The increasing number of older Australians who are living sedentary lifestyles is of great concern due to the significant implications of increasing health risks for these people and the increasing pressure on the nation's welfare services as well as its health care systems. To alleviate the pressure, factors that motivate or inhibit older adults' engagement in physical activity should be identified. The purpose of the current review is to examine the literature that is relevant to the engagement in physical activity past the age of 65. Issues of prevalence, benefits, risks, deterrents and attractions of physical activity in older adulthood are reviewed. It is shown that whilst the benefits and minimal risks related to physical activity in older adulthood are well documented, much of the research regarding older adults' engagement in exercise is flawed. Methodological limitations include low response rates, a lack of rich data, and studies not being specific to the Australian population. It was established that, in order to reduce the increasing burden placed on the health care system, future research should address the methodological limitations and that explorations of the perspective of the aged themselves on physical activity could make significant contributions to the body of knowledge, enhance practice and lead to informed policies.

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Submitted: August, 2006

Physical Activity in Older Adulthood

Australia is experiencing a significant demographic change, particularly in the population over the age of 65 years, as the baby boom generation, those born between the mid 1940's to early 1960's reach this age bracket (Australian Bureau of Statistics (ABS), 2001). Currently, 12.5% of the Australian population is over the age of 65, and this is predicted to increase to about 27% by 2051 (ABS, 2000; 2002). The increasing proportion of the population being over the age of 65 has significant implications for the nation's welfare services and health care systems (Logie, Hogan, & Peut, 2004).

It is well accepted that due to changes in lifestyle, working conditions, and developments in health care, individuals are living longer (National Ageing Research Institute (NARI), 2006). Life expectancy at 65 years has dramatically increased over the last century, by seven years for women (to 82.6 years) and five years for men (to 77.5 years). Life expectancy without disabilities however, has not increased proportionately, with disability levels in older adults remaining stable (51%) (Logie et al., 2004). This suggests that as the proportion of older adults continues to grow, more are developing chronic diseases and disabilities, thus requiring treatment which will significantly tax the health care system.

Preventative practices to ensure better health among older adults, not only prolong life expectancy but can also improve health status. Given the greater absolute risk of ill health in older adults, intervening with this population is vital (NARI, 2006). Most health experts agree that participating in regular physical activity can prevent or reverse almost half of the physical declines associated with the ageing process (Scanlon-Mogel & Roberto, 2004). Thus, it is appropriate to integrate the growing research and clinical evidence on positive ageing strategies, such as physical activity and health prospects, in an effort to improve older adults' health and wellbeing. Doing so could lead to improvements in older adults' health that will reduce the

pressure placed on the nation's health care system and welfare services that could otherwise be overwhelmed considering the inevitable ageing of our population.

The purpose of this paper is to review the literature that is relevant to older adults' engagement in physical activity past the age of 65. Issues that influence the attraction of physical activity will be discussed to identify factors that motivate or inhibit older adults' engagement in sufficient physical activity. Whilst it is beyond the scope of this paper to discuss all concepts related to physical activity, the issues of prevalence, benefits, risks, deterrents and attractions to physical activity for older adults will be reviewed. It will be shown that whilst the benefits and risks related to physical activity in older adulthood are well recorded, much of the research regarding older adults' engagement in exercising is flawed and little is known about the perspectives of the aged themselves on these matters.

Defining Physical Activity and Exercise

Physical activity is defined as "any body movement provided by skeletal muscles that results in a substantial increase over the resting energy expenditure" (Bouchard & Shephard, 1994, p. 77). Physical leisure activities, exercise, sport, occupational work and chores, together with other factors which modify daily energy expenditure are included within this definition (Bouchard & Shephard, 1994; NARI, 2006). As far as health outcomes are concerned, physical activity is only beneficial when energy expenditure is well above resting levels, which is characterised by a significant increase in respiratory efforts (Active Australia, 1998; Buckworth & Dishman, 2002).

Given the advances in technology, including the decline in the amount of physical activity required to perform work duties and the availability of motorised transport, a large proportion of the physical activity that is required to achieve health benefits must be deliberately chosen during leisure time or be consciously integrated into daily routines (Biddle & Mutrie, 2001). Such

activity is defined and recognised as exercise, a sub component of physical activity (Buckworth & Dishman, 2002).

Exercise involves planned, structured and repetitious bodily movements with the intention of increasing some parameters of physical fitness, and can be moderate or vigorous (Biddle & Mutrie, 2001; Plonczvnski, 2003). Moderate exercise refers to a level of physical activity that results in an increase in heart and respiration rates, whilst still being able to talk comfortably. Vigorous exercise is a level of physical activity that results in a significant increase in heart and respiration rates making it difficult to talk (NARI, 2006). Gaining reliable long term benefits from physical activity requires regularly engaging in at least moderate levels of exercise.

The current physical activity national guidelines for Australia define sufficient physical activity as the accumulation of at least 150 minutes of physical activity in at least five sessions per week (Commonwealth Department of Health and Aged Care, 1999). Health benefits, however, have been identified in older adults who exercise even less (Struck & Ross, 2006).

Clear definitions of what is meant by 'insufficient physical activity' and 'sedentary' are frequently absent in the literature. For the purpose of this review, insufficient physical activity is defined as engaging in between 90 to 150 minutes of physical activity over three to four sessions per week. Sedentary individuals are defined as those who engage in less than 90 minutes of physical activity over less than three sessions per week.

Older adults participate in a diverse range of physical activities including: Club team or group activities (e.g., dancing, golf, bowls), activities which require infrastructure support (e.g., swimming, weights, gym), individual activities (e.g., walking, cycling), work around the home and garden, community activities, and leisure activities such as playing with grandchildren (NARI, 2003). In order to have an informed indication of the actual level of physical activity that older people engage in, it is important to take into account all these different types.

Prevalence of Physical Activity Among Older Adults

In 2001 the Australian population was 18.97 million, of whom, 2.39 million (12.6%) were aged 65 years and over (ABS, 2003). This proportion of older adults is progressively increasing and is projected to reach between 24% and 27% of the total population by the year 2051 (ABS, 1997). The rates of sedentary behaviour increase with age, with less than half of the Australians aged 65 years and over engaging in sufficient physical activity (NARI, 2006). Approximately one third of Australians over the age of 65 who are classified as insufficiently active are completely sedentary (Bauman, 2004). Given the health benefits associated with physical activity in older adults, which will be discussed in the following section, there is much to gain at both individual and community levels from older adults being physically active (NARI, 2006).

National physical activity levels indicate a 6% decline in rates of sufficiently active adults between 1997 (63%) and 1999 (57%) (Bauman et al., 2003). These may reflect a decrease in available leisure time in response to Australians working more and for longer hours (Bauman et al., 2003; NARI, 2006). Whilst the decline was not observed amongst adults aged 65 years and over interpretation of the studies results is limited due to the sample's cut off age being 75 years (Bauman et al., 2003).

The most recent data from the 2004-2005 National Health Survey indicated that walking was the most common form of physical activity in adults aged 55-74 years (54%) (ABS, 2006). Compared to the 2001 trends, the proportion of adults aged 65 years and over who are sedentary has significantly increased (NARI, 2006). In 2001, 37.45% of males and 47.35% of females aged 65 years and over were classified as sedentary, compared with 41.5% and 49.3% in 2005 respectively (ABS, 2006).

The ageing population is a global phenomenon (Remenyi, 1994). Other developed countries, such as Canada and the United States of America (USA), show similar magnitudes of

the predicted growth in the proportion of older adults to Australia (Clare & Tulpule, 1994). Studies conducted in the United Kingdom (UK) indicated that, consistent with findings from Australia, participants over the age of 65 reported walking as the most popular form of physical activity (UK Department of Health, 2001). The proportion of older adults in the UK being classified as sedentary is greater than that in Australia (54.5% for males, and 61.3% for females) (ABS, 2006; UK Department of Health, 2001). The USA and Canada, however, have reported lower prevalence rates compared to Australia, with rates of sedentary behaviour in the USA being approximately 30.5% for males, and 41.3% for females (ABS, 2006; US Department of Health and Human Services, 2002). Prevalence rates of sedentary behaviour in Canada were the lowest, with approximately 19.5% of males, and 39.3% of females over the age of 65 engaging in insufficient physical activity (ABS, 2006; National Advisory Council on Ageing, 2003).

The proportion of Australians aged 65 years and older who are classified as being sufficiently active remains low. Although it is difficult to draw conclusions between international studies due to different definitions, and methodologies, there is an indication that the proportion of older Australians classified as physically inactive is slightly lower than the UK but higher than that in both the USA and Canada, indicating that sedentary levels of the older Australian population is of concern (ABS, 2006; National Advisory Council on Ageing, 2003; UK Department of Health, 2001; US Department of Health and Human Services, 2002).

Physical Benefits of Engaging in Sufficient Physical Activity

Insufficient physical activity is an important contributor to the increasing prevalence of obesity, and is associated with Type II diabetes, cardiovascular disease (CVD), coronary heart disease (CHD), falls and socioeconomic status. Further research indicates that reduced levels of physical activity can be related to hypertension, osteoarthritis and rheumatoid arthritis, cancer and muscular-skeletal health. To gain further insight into these relationships reviews are provided

by Bauman (2004), Farrell, Gerontol, Gibson, and Helme (1993), NARI (2006), and Spruit, Troosters, Trappenburg, Decramer, and Grosselink (2004).

Diabetes

Physical activity has been recommended in the treatment of Type II diabetes (Biddle & Mutrie, 2001). Type II diabetes typically develops after the age of 40 and does not require insulin injections as it can be managed by special diets and medication (Caltabiano, Byrne, Martin, & Sarafino, 2002). Insufficient physical activity has been associated with the onset of Type II diabetes. Physical activity enhances overall metabolic control, independent of weight and/or weight loss, and improved metabolic control can lead to fewer diabetic complications (Struck & Ross, 2006). The mechanisms responsible for physical activity improving metabolic control are complex. In principle, increased muscle activity enhances blood flow, leading to an increased glucose and insulin delivery. As the muscles contract, membrane permeability to glucose is enhanced, thus increasing the insulin sensitivity of the muscles (Clark, 1997).

Eriksson and Lindgarde's (1991) intervention study consisted of 41 Swedish men who, at baseline testing, had been diagnosed with mild Type II diabetes. Participants took part in a six month long supervised diet and physical activity program, which led to significant improvements in glucose tolerance. At a five year follow-up test, glucose levels of 44% of the participants were below the threshold for Type II diabetes (Eriksson & Lindgarde, 1991). These results provide further support for the identified efficacy of physical activity for the prevention and management of glucose concentration among Type II diabetics.

Longitudinal observational studies have supported the association between physical activity and diabetes prevention. Studies have shown that the incidence of Type II diabetes is one to two thirds lower among participants who reported engaging in sufficient physical activity, highlighting the pattern of decreased incidence of Type II diabetes with greater involvement in

physical activity (Helmrich, Ragland, Leung, & Paffenbarger, 1991; Lipton, Liao, Cao, Cooper, & McGee, 1993; Lynch et al., 1996).

Cardiovascular Disease and Coronary Heart Disease

Physical activity plays a primary role in the prevention of CVD and CHD. Physically active individuals are less likely to develop CVD and/or CHD, with the onset likely to be delayed for those who do develop either disease (Plonczynski, 2003). The Heritage Family Study found that high body fat and low cardiovascular fitness levels are significant predictors of CVD risk (Katzmaryk et al., 2001). Individuals not engaging in sufficient physical activity are likely to have a greater amount of body fat, thus are at an increased risk of CVD (Plonczynski, 2003).

Studies by Houde and Melillo (2002), Kannell and Wilson (1995), and Kushi, Fee, Folsom, Mink and Anderson (1997) indicated that the risk of developing CHD is highest among the older population, in particular older women. The prevalence of older women engaging in sufficient physical activity is significantly lower than males, thus higher rates of CHD are reported in women. A significant limitation to these studies is that non leisure time engagements, in which women may be physically active, such as cleaning the house, were not accounted for. This may have confounded the results of these studies leading the authors to erroneously believe that women were at higher risk due to overall lower levels of physical activity.

Fall Prevention

Low levels of physical activity have been identified as an independent risk factor for falls among older adults (NARI, 2006). Of special interest is evidence that muscle-strengthening exercises can reduce the risk of falling, thus improving the ability to live independently (Centres of Disease Control and Prevention, 1996).

Melkzer, Banjuya and Kaplanski (2003) conducted an observational study on older adults (65 years and over) to explore whether walking on a regular basis is beneficial for maintaining

good balance. Twenty two healthy older participants walking on a regular basis, and 121 healthy older adults who did not walk regularly participated in the study. Participants were tested on postural stability, muscle strength and flexibility. The results of the study indicated that walking regularly has the potential to increase stability, muscle strength and flexibility, thus reducing the risk of falling. Furthermore, no participants in the walking condition reported a fall in the previous six months, compared to 16% of non walkers reporting at least one fall (Melkzer et al., 2003). The large number differences (5.5:1) between the two groups, however, indicate that the results of the study should be interpreted with caution.

Obesity

Physical activity helps to prevent obesity in some individuals, whilst inactivity contributes to the development of obesity in others (Biddle & Mutrie, 2001). Physical activity is a good predictor of successful long term weight reduction, thus promoting physical activity is important for reducing obesity risks in older adults (NARI, 2006). For severely obese individuals, however, it is difficult to engage in sufficient physical activity to gain health benefits, as the cardiovascular system can not deal with the strain of physical activity, as well as the stress placed on the body's joints. Whilst physical activity is more effective as a preventative measure rather than an intervention, obese individuals could reap its rewards providing that their engagement with it is gradual and under the supervision of a health care professional (Biddle & Mutrie, 2001).

Socioeconomic Status

Engaging in physical activity can indirectly influence socioeconomic status (Ellingson & Conn, 2000). It is apparent throughout the literature reviewed that physical activity can prevent the onset of several conditions, such as Type II diabetes, CHD, CVD and obesity, enabling older adults to remain healthier (NARI, 2006). Older adults who are healthier have less health care expenditures and as a result they are provided with a more disposable income (Ellingson & Conn,

2000). Thus, promoting physical activity among older adults is likely to improve their finances as well as alleviate the burden on our health care system.

The Psychological Benefits of Physical Activity

A strong relationship exists between engaging in sufficient physical activity and positive psychological outcomes, such as an increase in self esteem, cognitive function, and a decrease in depression, anxiety and stress. Studies identified a positive relationship between physical activity and healthy sleep patterns, successful negotiation of menopause, and overall enhancement in quality of life. Reviews on the relationship between the benefits of sufficient physical activity and positive psychological outcomes are found in Buckworth and Dishman (2002), Crammer, Nieman, and Lee (1991), Driver and Taylor (2000), Ellingson and Conn (2000), and Hunter and Whitehand (1986).

Self Esteem

Exercise can have an effect on mental health through multiple social and psychological mechanisms, however, regardless of how these changes come about, the outcome is partly due to the attitudes about one's self (Buckworth & Dishman, 2002). An individual's self esteem can benefit from physical activity (Folkins & Sime, 1984 cited in Misra, Alexy, & Panigrahi, 1996). Self esteem is "the evaluation of the self concept and feelings associated with that evaluation" (Buckworth & Dishman, 2002, p. 295). Self esteem is important when studying mental wellbeing as it is closely associated with emotional stability and adjustment, with low self esteem being a feature in numerous forms of mental illness and poor health behaviours (Fox, 1999).

Intervention studies evaluating the effects exercise has on self esteem, indicate that when older adults (65 years and older) engage in physical activity for a period of six months or longer there is an overall significant increase in self esteem. It is suggested that exercising leads to an increased sense of personal health. Older adults who felt healthier saw themselves as younger

than their chronological age and had higher self esteem levels (Dungan, Brown & Ramsey, 1996; Misra et al., 1996). Significant limitations of these studies were that there was no control group or pre testing conducted. Employing a control group would have minimised the effects of external variables, such as different levels of social engagement and time factors. Pre testing would have taken into account participants' exercise patterns prior to the interventions, thus removing the possibility of potentially high self esteem levels regardless of the intervention (Dungan et al., 1996; Misra et al., 1996).

McAuley et al.'s (2005) study established a strong positive correlation between self esteem and exercise frequency. The follow up study demonstrated that six months after the completion of the exercise program self esteem levels declined, indicating that in order to maintain high levels of self esteem individuals must continue to exercise. The type of physical activity implemented was not a significant factor in self esteem levels, suggesting that a variety of exercise programs can have a positive effect (McAuley et al., 2005).

Cognitive Functioning

The relationship between the physical and psychological dimensions of physical activity is evident throughout the literature (Bosscher, Van Der, Van Dasler, Deeg, & Smit, 1995; Mathieu, 1999; Scalon-Mogel & Roberto, 2004; Shephard, 1997). Results from qualitative studies conducted by Bosscher et al. (1995), Mathieu (1999), and Scalon-Mogel and Roberto (2004) suggested that the most frequent rationale for why older adults engage in some degree of regular physical activity is to 'feel good' physically and to 'feel better about themselves'. Exercise improved their physical capacity, which had a positive impact on other aspects of their lives (Bosscher et al., 1995). Physically active participants reported being focused and mentally alert, having little difficulty doing their daily chores, enjoying recreational and social activities,

and believing that exercise got their minds working and helped stimulating their thought processes (Bosscher et al., 1995; Mathieu, 1999; Scalon-Mogel & Roberto, 2004).

Depression

The prevalence of depression among older people living in Australia varies from 10% to 35% (NARI, 2006). Depression is often accompanied by slowing of thought processes, moderate to extreme sadness, and can involve restlessness and irritation. Depression may also be associated with a loss of appetite, confused mental and physical functions, memory loss, and suicidal ideations (Osness & Mulligan, 1998).

The relationship between physical activity and depression is bidirectional. Studies conducted by Brosse, Sheets, Lett and Blumenthal (2002), and Osness and Mulligan (1998) have demonstrated that people who exercise regularly are less likely to be or become depressed, demonstrating that greater amount of physical activity was related to a lower risk of depression. Data from the Australian Longitudinal Study on Women's Health found that depression scores decreased and mental health scores increased with increasing levels of physical activity. Thus, women who are active are less likely to have poor mental health and suffer depression compared to those who are less active (Brown, Ford, Burton, Marshall, & Dobson, 2005).

Physical activity can be used to treat depressive disorders and their symptoms. Intervention studies by Craft and Landers (1998), Lowler and Hopker (2001), and North, McCullagh and Tran (1990) utilised clinically depressed participants to assess whether physical activity is effective in treating the symptoms of depression. Results of these studies concluded that participants who were assigned to physical activity conditions displayed a decrease in depressive symptoms and scored significantly lower on depression measures compared to the control groups, supporting the notion that physical activity reduces the risk of depression.

Anxiety

The 1996 U.S. Surgeon General's report on physical activity and health concluded that regular physical activity reduced feelings of anxiety (United States Department of Health and Human Services, 1996). Anxiety is "an emotional response to perceived threat. Consists of feelings of tension, and nervousness; unpleasant thoughts or worries; and psychological changes" (Buckworth & Dishman, 2002, p. 286).

Unlike the status of research on physical activity in relation to self-esteem and depression, there is a limited number of studies on the association between physical activity and anxiety, in either patient populations or people without clinical disorders (Buckworth & Dishman, 2002). An exception is Canada's Fitness Survey (1988), in which 22, 000 Canadians over the age of 10 years answered questions regarding anxiety and exercise. The results of the survey indicated that there were more symptoms of anxiety in those reporting little to no physical activity compared with those reporting moderate to active lifestyles.

Stress

Research into whether physical activity affects perceived stress have confirmed that people generally report fewer symptoms of stress when they have been physically active (Buckworth & Dishman, 2002). Taylor's (2000) study indicated that aerobic exercises, which lasted up to thirty minutes, were generally associated with large reductions in perceived stress, and such programs lasting a few months were also associated with reports of reduced chronic stress. Although physical activity does not eliminate the source of stress, it can help temporally reduce stress by providing a distraction from the problem (Buckworth & Dishman, 2002). Physical activity has the ability to enhance feelings of control and/or commitment, which can buffer the impact of stressful events.

Studies have indicated that people who engage in sufficient physical activity have lower heart rates (HR) and blood pressure (BP) during stressful periods in comparison to their sedentary counterparts (Jackson & Dishman, 2002; Spalding, Jeffers, Porges, & Hatfield, 2000). This is not due to a smaller reaction to the stressors, rather physically active individuals have lower levels of HR and BP to begin with, thus being able to cope significantly better with the sympathetic nervous systems fight or flight response. For more details on the interaction between fitness and the stress response see Jackson and Dishman (2002), and Spalding et al. (2000).

It is evident throughout the literature that there are numerous physical and psychological benefits for older adults who engage in physical activity. Despite these findings, the prevalence of inactivity continues to increase with age (NARI, 2006). To develop an understanding into why older adults are not engaging in sufficient physical activity, despite the known benefits and its importance to the health care system, the risks and barriers associated with physical activity must be addressed.

Risks Associated With Engaging in Physical Activity

Although evidence supports the beneficial physical and psychological health outcomes associated with physical activity there are certain situations in which physical activity may elicit particular health risks (Biddle & Mutrie, 2001; NARI, 2006). Whilst individuals with specific health issues should consult a health care professional before commencing physical activity, the most commonly cited risk for older adults engaging in such activity in general is sudden cardiac death (Biddle & Mutrie, 2001).

Despite the fact that the risk of sudden cardiac death is elevated with physical activity, the balance between the benefits to the heart and the risks associated with physical activity is in favour of the former (Biddle & Mutrie, 2001). Siscovick, Weiss, Fletcher and Lasky's (1984) observational study reported that men who engaged in at least 20 minutes of physical activity on

a weekly basis had an overall lower risk of cardiac arrest compared to their sedentary counterparts, being 40% less likely to go into cardiac arrest. Thus, the long term health benefits that physical activity has on the heart, outweighs the temporary rise in cardiac risk (Siscovick et al., 1984).

The most prominent psychological risk is the risk of embarrassment or ridicule, especially for older adults who wish to start engaging in physical activity after leading a sedentary lifestyle, or having had an extended break from such activities (Muse, 2005). They may not be capable of engaging in physical activity at a level they may have done in the past, or to the same degree as some of their friends do, and thus not being able to keep up may lead to the feelings of embarrassment (Muse, 2005).

Having to admit to declines in physical abilities is another psychological risk (Muse, 2005). For older adults who were previously active, for example athletes, this can be especially difficult. Not being physically capable to engage in forms of physical activity which were viewed as easy in the past has the potential to decrease self esteem and motivation. Thus, regular participation in exercise may be jeopardised by the reminder of what they are presently capable of versus their previous capabilities (Muse, 2005).

The above psychological risks involved with older adults engaging in physical activity are outweighed by the benefits, such as an increase in cognitive functioning, self esteem and a decrease in depression and anxiety (Muse, 2005). If older adults remain physically active the psychological risks associated with physical capabilities are also reduced. Firstly, there would be a more gradual decline in their performance and thus the comparison between present and previous capabilities would not be as prominent. Secondly, physically active older adults would be capable of higher levels of physical activity for longer periods of time (Muse, 2005).

Deterrents to Engaging in Physical Activity After the Age of 65

Despite the significant benefits and relatively few risks associated with older adults engaging in physical activity, the prevalence of the older Australian's living sedentary lifestyles is continuing to increase (NARI, 2006). Accordingly, the deterrents to physical activity need to be examined. These deterrents can be classified into three broad categories: personal, environmental, and home or program based factors.

Personal Factors

Important factors that influence decisions and actions originate within the individual. Personal deterrents of physical activity for older adults include demographic and psychological variables (Buckworth & Dishman, 2002). Age, socio economic status, educational attainment and weight are the major demographic variables discussed throughout the literature. Additional variables include smoking status, gender, and ethnicity, to gain further insight into these variables please refer to Buckworth and Dishman (2002), and King (1991).

Physical activity rates are found to decrease with age (King, 2001; Wilcox & Storandt, 1996). Wolinsky, Stump and Clark (1995) observational study established that viewing regular physical activity as both enjoyable and beneficial decreased with advancing age. Accordingly, older adults who judge physical activity as useless and unpleasant are unlikely to participate in it. A significant limitation to the study was that physical activity was measured utilising exercise markers, thus it is possible that other forms of physical activity, such as housework, may not have been measured (Wolinsky et al., 1995).

Socioeconomic status can influence older adults' participation in physical activity, with factors such as income, social class, neighbourhood and wealth affecting behavioural outcomes (NARI, 2003). Boyette et al. (2002) and Grzywacz and Marks (2001) observational studies reported that older women of lower socio economic status spent significantly less time engaging

in physical activity compared to those of higher socioeconomic status. Possible influences favouring the relationship between higher socioeconomic status and physical activity include greater education, thus having greater knowledge of the associated benefits, stronger social norms of active lifestyles, and easier access to transportation and an exercise environment, such as fitness centres and/or gyms (Boyette et al., 2002; Dishman, 1994; Grzywacz & Marks, 2001; NARI, 2003). A significant limitation to these studies was that no research investigated the relationship between physical activity and socioeconomic status within the male population. Furthermore, there is limited evidence addressing the relationship between the retirement phase, where older adults may not be as financially stable as they previously were, and physical activity status (Boyette et al., 2002; Dishman, 1994; Grzywacz & Marks, 2001; NARI, 2003).

Lower levels of education can be associated with lower levels of physical activity. Clark's (1995) observational study examined educational differences in physical activity levels among adults aged over 70 years, whilst controlling age, sex, race and income. The results demonstrated that participants who possessed less than eight years of formal education participated in physical activity significantly less than participants with nine or more years. The association between education and physical activity most likely reflects the amount of knowledge about the benefits associated with physical activity as well as greater expectations and critical appraisal of goal attainment (Plonczynski, 2003; King, 2001). The literature does not control for individuals' knowledge when analysing the relationship between education and physical activity. It is thus difficult to determine whether this association is in response to education levels or knowledge related to the benefits of physical activity (Boyette et al., 2002; Clark, 1995; King, 2001; Plonczynski, 2003). A potential weakness of this study is that vocation was not addressed. This may be important because adults with up to eight years of formal education may be more likely to be in labourers job positions, without acknowledging it as a form of physical activity.

Older adults often have a perceived lack of ability and misconceptions about physical activity, as many hold the belief that in order for physical activity to be beneficial it must be strenuous and/or uncomfortable (Dunlap, Henry & Barry, 1999; Wolinsky et al., 1995). Dunlap et al.'s (1999) review established that older adults often found that jogging was the only beneficial form of physical activity, or that physical activity is repetitive and boring. Adults who have these misconceptions are less likely to engage in physical activity as they believe they are physically incapable and/or can not complete the amount of physical activity necessary to benefit their health (Dunlap et al., 1999; Wilcox & Storandt, 1996; Wolinsky et al., 1995).

Attitudes towards physical activity and perceived level of control over exercise-related outcomes have been associated with physical activity behaviours (Jette et al, 1998). Wilcock and Storandt's (1996) observational study on the relationship between women's attitude towards physical activity and their physical activity status, demonstrated that women who are physically active are much more likely to possess a positive attitude towards exercise than their sedentary counterparts. A significant limitation to their study, however, was a low response rate, thus the results obtained had a potential to be biased, with the probability of women with positive attitudes being more likely to participate in the study (self selection bias).

Older adults who perceive themselves to be in poor health are less likely to engage in physical activity compared to those who view themselves to be in good health (Struck & Ross, 2006). Jette et al. (1998) conducted an experimental study in which 102 adults over the age of 60 years participated in a 35 minute exercise routine in their own time, three times per week over a 26 week period. Participants were measured on their adherence to the exercise program and were assessed on psychological and physical factors. The results of the study indicated that positive attitudes towards and a sense of control over physical activity were strongly associated with adherence to the program. Participants who viewed exercise as desirable and beneficial and felt

they possessed control over their exercise behaviour were more likely to obtain their exercise goals (Jette et al., 1998). Adapting a critical approach, may be of benefit for future research to investigate high ratings of self health as predictors of low levels of physical activity because people may think that they do not need to engage in physical activity because they are already healthy.

Previous health conditions can pose a barrier to physical activity amongst older adults (NARI, 2003). The state of health for older adults has an impact on how likely they are to initiate and adhere to exercise (Boyette et al., 2002). In a sample of over 6000 older adults aged over 70 years, Wolinsky et al. (1995) established that individuals with poor physical functioning were less likely to engage in physical activity and that physically active older adults were less likely to develop lower body limitations. This is important because the greater the number of lower body limitations, the lesser the likelihood of engaging in physical activity as most forms of physical activity require lower body functioning (Wolinsky et al., 1995).

The results of Jette et al.'s (1998) experimental study provided support to Wolinsky et al.'s (1995) findings and further established that, with the exception of lower body limitations, the number of pre-existing medical conditions was not related to participation in physical activity. This is an important finding as it indicates that medical conditions such as CVD, CHD and diabetes should not be a barrier for older people engaging in physical activity. To provide support to Jette et al.'s (1998) findings, future research is required to investigate the relationship between different types of medical conditions and participation rates in physical activity.

Weight can be a potential barrier to physical activity among older adults, with overweight individuals finding it unpleasant to engage in physical activity due to their excess weight and poor physical condition (Dishman, 1994). Psychosocial barriers associated with physical activity that overweight individuals may experience include embarrassment and having a negative body

image (Biddle & Mutrie, 2001). Wolinsky et al. (1995) study added support by suggesting that overweight individuals were less likely to engage in physical activity due to being embarrassed by the way they look and thus have a lack of motivation. A significant limitation to Wolinsky et al. (1995) study was a low response rate from overweight older adults, thus potential biases may occur as healthier older adults were more inclined to participate in the study. The government of Western Australia's summary on physical activity levels (2002), however, supported Biddle and Mutrie (2001); Dishman (1994); and Wolinsky et al.'s (1995) findings by establishing that inactive adults were more likely to be obese (23%) compared to sufficiently active adults (10%), suggesting that overweight adults are less likely to exercise whilst physically active adults are less likely to be obese.

Environmental and Social Factors

Social and physical environmental factors have been associated with physical activity participation in a number of observational studies. In the studies targeting the older population factors including social support from family and friends, advice from physicians, and physical environment were prominent (Buckworth & Dishman, 2002; Lee, 1993; Plonczynski, 2003). Environmental factors are among the most common explanations for sedentary behaviour, because individuals' reason that they can not control the environment and so rationalise their sedentary behaviour (Dunlap et al., 1999).

Relationships have a strong impact on behaviour, with social support being one of the key elements of the social environment influencing older adult's participation in physical activity (Stahl et al., 2000). A cross sectional study comprising of 3342 adults from six European countries found that the social environment was the strongest predictor of being physically active. Those who perceived a high level of social support from their personal environment (family and

friends) were twice as likely to be physically active compared to those reporting low levels of support (Stahl et al., 2000).

The results of Lee's (1993) observational study were consistent with Stahl et al.'s (2000) findings which established that when the perceptions of family support were negative (participants believed their families would not support them) the prevalence of physical activity was significantly lower than among participants who reported having positive family support. A significant limitation to Lee (1993) and Stahl et al.'s (2000) studies, was that although older adults were included in the studies the findings were not specific to this age group. Thus, future research is required to establish whether older adults relied on social support to the same degree as younger people.

In addition to findings on family support Lee's (1993) study on exercise patterns in Australian women demonstrated that within the older population there is a reluctance to engage in physical activity alone and to use public changing facilities. Over half of the sample reported that gyms and fitness centres were designed for younger people and thus indicated that they would not use these facilities. Plonczynski (2003) demonstrated that older adults did not like to exercise alone because of a fear of crime and neighborhood safety.

Advice on physical activity from older adults' physicians is a potentially important source of support and motivation (King, 1991). An observational study by Grossman and Stewart (2003) on physical activity perceptions, motivations, and barriers in adults aged 75 years and older indicated that patients look to their physicians as their primary source of information. Thus, when appropriate, it is important for physicians to encourage their patients to engage in physical activities.

Observational studies by Dunlap et al. (1999) and King (1991) suggested that many physicians do not discuss exercise practices with their patients for a number of reasons including

a lack confidence in their ability to counsel patients effectively, busy practices not allowing sufficient time to discuss physical activity and the lack of follow up to monitor progress and attainment of goals. Physicians not providing advice on physical activity can act as deterrents by passively reinforcing the notion that physical activity is unimportant (Dunlap et al., 1999; King, 1991).

Other environmental factors that have received support are the ease of access to appropriate exercise facilities, and the use of environmental cues, prompts and incentives encouraging physical activity, although little study has been done on these factors with adults over 60 years. Environmental factors are unstudied relative to the physical deterrents, yet they have a substantial effect on efforts to successfully adopt and maintain regular physical activity (King, 1991).

Program or Home Based Factors

Program related factors associated with older adults' willingness to engage in sufficient physical activity include structure, format, complexity, intensity, convenience and associated financial costs (Jette et al., 1998; King, 2001; Ritcher, Marcera, & Williams, 1993; Scalon-Mogel & Roberto, 2004). Limited literature is available with current information on older adults and program related factors. However, the available literature suggests that programs that appeal to older adults are generally moderate in intensity, simple and convenient to engage in, contain social components, are relatively inexpensive and are not competitive (Jette et al., 1998; King, 2001; Ritcher et al., 1993; Scalon-Mogel & Roberto, 2004). Ritcher et al. (1993) observational study demonstrated that older adults were less likely to partake in programmed physical activity if the location was inconvenient as they found it difficult to gain access due to a lack of available transport. A limitation of the study was that its main focus was on currently active participants.

Future research could address program-based preferences for a more representative population (Jette et al., 1998; King, 2001; Ritcher et al., 1993; Scalon-Mogel & Roberto, 2004).

Although attending program based training is still the predominant form of exercise, many older adults have reported that they would prefer to exercise on their own outside a formal setting (Jette et al., 1998; King, 2001; Scalon-Mogel & Roberto, 2004). Home exercise programs enable older adults to engage in physical activity privately, at their own convenience, in the comfort of familiar surroundings and without having to travel, thus reducing some of the associated barriers to physical activity. A study that employed over 2900 women aged 40 years and over in the United States found a preference for exercising alone with some instruction rather than in a group with an exercise leader, regardless of participants' ethnicity and current physical activity level (Brownson et al., 1999). Although adults over the age of 65 were included in the study, there is little research that addresses this specific population exclusively. Thus, little is known about older adults in relation to adherence to home-based physical activities and related factors (Brownson et al., 1999).

Attractions to Physical Activity After the Age of 65

Although less than half of Australians aged 65 years and over are engaging in sufficient physical activity, something must be attracting this proportion of older adults to remain active (NARI, 2006). There is limited literature specifically addressing the attractions of physical activity for older adults, however, what can be extracted from the literature is that having a sense of doing something, helping their partners, social networking, and maintaining a feeling of happiness are all among the reasons for engaging in physical activity (Blair, 2005; Scalon-Mongel & Roberto, 2004; NARI, 2003).

Scalon-Mongel and Roberto's (2004) observational study indicated that a large proportion of their physically active older adults sample participated in physical activity for two reasons, the

first to maintain a sense of doing something, and the second to help out their partners. Participants reported that now that they were retired they needed to do something during the day and so engaged in physical activities, such as doing the gardening. This enabled them to feel like they were still doing something constructive. In addition, the study found that men were becoming more engaged in physical activity around the home, for example doing the laundry because their partner was no longer capable. A limitation of the study was that it focused on physical activity in the form of household duties, thus the relationship between exercise as providing a sense of doing something was not discussed. This made it difficult to determine whether these attractions were only relevant to particular types of physical activity.

Social networking attracts older adults to engage in physical activity as it encourages them to meet new people, maintain friendships and to get out and about. NARI (2003) indicated that opportunities to socialise in an attempt to combat social isolation and mental stagnation were considered extremely important for the older population, particularly those who were living alone (NARI, 2003). Limited research has been conducted on the relationship between social networking and physical activity in the older population. Thus, to develop a comprehensive understanding on this relationship, further research is required.

There is a chemical link between physical activity and good moods. Endorphins, hormones that the body releases during physical activity, have opiate like properties, which produce euphoric sensations (Blair, 2005; Greenhalgh, 1996). This feel good effect experienced by some people after engaging in physical activity has the ability to make people dependent of physical activity. When they do not engage in physical activity for a period of time they go through a 'withdrawal stage' where they feel miserable and even slightly depressed. Due to increased tolerance an individual who regularly engages in vigorous exercise would require larger amounts of endorphins in order to obtain the same euphoric effect that an older adult who

engages in moderate physical activity would experience (Van Ree, 1987). Limited research, however, has been conducted on the types of physical activity required to obtain the euphoric sensation and whether it applies to all age groups. Despite the limited research, the chemical link between physical activity and good moods has the potential to explain why older adults often report engaging in physical activity to feel happy and healthier (Scalon-Mongel & Roberto, 2004).

Conclusion

From the literature reviewed thus far it is evident that there are physical and psychological benefits, coupled with some risks, associated with engaging in physical activity for older adults. Despite these benefits, the prevalence of Australians over the age of 65 years being inactive is relatively high and is continuing to increase. As the older adult population continues to grow, and to exhibit sedentary behaviours there are significant implications for the nation's welfare system and health care services. Thus, exploring the attractions and deterrents of physical activity for adults aged 65 years and over is paramount.

The available literature examining the deterrents of physical activity for the older population displayed numerous methodological flaws, which had the potential to impede on the results they obtained. Consistent throughout the studies was a low response rate, which limits generalisability (Boyette et al., 2002; Dishman, 1994; Dunlap et al.; 1999; Grzywacz & Marks, 2001; Wilcox & Storandt, 1996; Wolinsky et al., 1995). Future research needs to address both males and females, and physically active and inactive adults over the age of 65 years.

Observational studies concentrating on the deterrents and attractions to physical activity for the older population typically relied on self reports (Boyette et al., 2002; Dishman, 1994; Stahl et al., 2000; Grzywacz & Marks, 2001; Plonczynski 2003; Wolinsky et al., 1995). Self reports, in particular in the form of questionnaires, have the potential to neglect important issues

and underlying meanings. Future research employing qualitative methods, such as in depth interviews, could collect rich data, which would shed more light on the barriers and attractions of older adults' in regard to all forms of physical activity.

There is limited research conducted on physical activity among older adults in Australia, with even fewer specific to Western Australia. Research for the Australian population has been extracted from the available literature specific to other countries. This has potential implications as findings from such studies may not be relevant to Australia and strategies aiming to increase older Australians' participation in physical activity may not be effective if the information they are based on is not specifically relevant to the local culture. Future research needs to be conducted to further investigate the deterrents and attractions for older Australians' participation in physical activity, with additional studies addressing these issues for individual states.

The available research concerning the attraction to engage in physical activity typically is not specific to the older population, with findings being extracted from studies which have included older adults amongst other participants. Thus, future research needs to be conducted exclusively to older adults to identify the relevant variables specific to this age group.

In order to relieve the pressures placed on the nation's welfare system and health care services future research needs to address the methodological flaws identified in the literature. In doing so, strategies can be implemented to try and reduce the prevalence of sedentary behaviour among adults over the age of 65 years. Physically active older adults reduce the risk and delay the onset of physical and psychological ailments. Thus, the greater the proportion of physically active older adults, the less strain placed on the nation's welfare system and health care services, and the better the physical and psychological health of older adults.

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Running Head: OLDER ADULTS AND PHYSICAL ACTIVITY

Older Adults' Perspectives on Engaging in Physical Activity After the Age of 65: An Exploratory Study

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Abstract

The growing number of older Australians who are living sedentary lifestyles is of concern due to the significant implications of increasing health risks for these people. Coupled with the predicted increase in the proportion of older adults in the population (from 12.5% in 2004 to 27% by 2051; Australian Bureau of Statistics, ABS, 2000) these health risks threaten the nation's welfare services and health care systems. The current study utilised in-depth interviews and a qualitative approach to explore older adults' perspectives on engaging in physical activity past the age of 65. Three main themes emerged from the data: secondary reinforcement, which related to attractions to physical activity; health factors that related to biopsychosocial factors; and lifestyle choice, which concerned personal choices and habits. It was found that factors that could potentially improve the quality of life in older adulthood, such as enhanced health and secondary reinforces were key attractions to physical activity. The perceived physical and psychological declines associated with the ageing process were identified as significant barriers to engaging in physical activity in older adulthood. The findings of the current study make a unique contribution to the body of knowledge, and provide a case for further studies in order to inform practice and policy formulation.

Key words: Older Adulthood; Physical Activity; Quality of Life; Australia; Qualitative Research

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Older Adults' Perspectives on Engaging in Physical Activity After the Age of 65: An Exploratory Study

Australia is experiencing a significant demographic change in the population over the age of 65 years, as the baby boom generation, those born between the mid 1940's to early 1960's reach this age bracket (Australian Bureau of Statistics (ABS), 2001). Currently, 12.5% of the Australian population is over the age of 65, and this is predicted to increase to approximately 27% by the year 2051 (ABS, 2000; 2002).

Life expectancy measured at 65 years has dramatically increased over the last century, with longevity increasing by seven years for women (to 82.6 years) and five years for men (to 77.5 years). As disability levels in older adulthood remain stable (51%) (Logie, Hogan, & Peut, 2004; National Ageing Research Institute (NARI), 2006), the increasing proportion of the older population has significant implications for the nation's welfare services and health care systems (Logie et al., 2004). Implementing policies and interventions to improve older adults' health status and quality of life will enable older adults to remain independent within their community. This has the potential to lessen the financial burden and pressures placed on the nation's welfare services and health care systems (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; Logie et al., 2004; NARI, 2006).

Preventative practices prolong life expectancy and, moreover, improve health status. Given the greater absolute risk of ill health in older adults, intervening within this population is vital (Bouchard & Shephard, 1994; NARI, 2006; Scanlon-Mongel & Roberto, 2004). Most health experts agree that participating in regular physical activity can prevent or reverse approximately half of the physical declines associated with the ageing process (Logie et al., 2004; NARI, 2003; 2006; Scanlon-Mongel & Roberto, 2004).

Physical activity is defined as "any body movement provided by skeletal muscles that results in a substantial increase over the resting energy expenditure" (Bouchard & Shephard, 1994, p. 77). Physical leisure activities, exercise, sport, occupational work and household chores, together with other factors which modify daily energy expenditure are included within this definition (Bouchard & Shephard, 1994; Buckworth & Dishman, 2002; NARI, 2003; 2006; Struck & Ross, 2006). With reference to health outcomes, physical activity is only beneficial when energy expenditure is well above resting levels, which is characterised by a significant increase in respiratory efforts (Active Australia, 1998; Bouchard & Shephard, 1994; Buckworth & Dishman, 2002; NARI, 2006).

The current national guidelines for Australia define the accumulation of at least 150 minutes of physical activity in at least five sessions per week as sufficient (Commonwealth Department of Health and Aged Care, 1999). Health benefits, however, have been identified in older adults who are less active (Active Australia, 1998; Buckworth & Dishman, 2002; Struck & Ross, 2006).

A clear definition of what being sedentary means, in terms of physical activity is frequently absent in the literature. For the purpose of the current study, insufficient physical activity is defined as engaging in between 90 to 150 minutes of physical activity over three to four sessions per week. Sedentary individuals are defined as those who engage in fewer than 90 minutes of physical activity over fewer than three sessions per week.

With the proportion of older adults within Australia progressively increasing so are the rates of sedentary behaviour, with less than half of the Australians aged 65 years and over engaging in sufficient physical activity (ABS, 2002; Active Australia, 1998; Bauman, 2004; NARI, 2006). Approximately one third of Australians over the age of 65 who are classified as insufficiently active are completely sedentary (ABS, 2002; Bauman, 2004; NARI 2003; 2006).

Given the health benefits associated with physical activity in older adults, there is much to gain at both individual and community levels from older adults being physically active (Bauman, 2004; Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; NARI, 2006).

Insufficient physical activity is an important contributor to the increasing prevalence of obesity, and has been associated with Type II diabetes, cardiovascular disease (CVD), coronary heart disease (CHD), falls and socioeconomic status (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; Caltabiano, Byrne, Martin, & Sarafino, 2002; Centres of Disease Control and Prevention, 1996; Plonczynski, 2003). Further evidence indicates that reduced levels of physical activity can be related to hypertension, osteoarthritis and rheumatoid arthritis, cancer and muscular-skeletal health (Bauman, 2004; Farrell, Gerontol, Gibson, & Helme, 1993; NARI, 2006; Spruit, Troosters, Trappenburg, Decramer, & Grosselink, 2004).

A positive relationship additionally exists between engaging in sufficient physical activity and positive psychological outcomes, such as an increase in self esteem, cognitive functioning, and a decrease in depression, anxiety and stress (Bosscher, Van Der, Van Dasler, Deeg, & Smit, 1995; Buckworth & Dishman, 2002; NARI, 2006; United States Department of Health and Human Services, 1996). Moreover, studies have identified a positive relationship between physical activity and healthy sleep patterns, successful negotiation of menopause, and overall enhancement in quality of life (Buckworth & Dishman, 2002; Crammer, Nieman, & Lee, 1991; Driver & Taylor, 2000; Ellingson & Conn, 2000).

Although evidence supports the beneficial physical and psychological health outcomes associated with physical activity, there are certain situations in which physical activity may elicit particular health risks (Biddle & Mutrie, 2001; Ellingson & Conn, 2000; NARI, 2003; 2006). Individuals with specific health concerns are encouraged to consult a health care professional prior to commencing physical activity, as the most frequently cited risk for older adults engaging

in such activity is sudden cardiac death (Biddle & Mutrie, 2001; Ellingson & Conn, 2000). The prominent psychological risk is the possibility of embarrassment or ridicule, especially for older adults who wish to engage in physical activity after leading a sedentary lifestyle, or those who have had an extended break from such activities (Biddle & Mutrie, 2001; Ellingson & Conn, 2000; Muse, 2005).

Regardless of the significant benefits and relatively few risks associated with older adults engaging in physical activity, the prevalence of the older Australians living a sedentary lifestyle is continuing to increase (ABS, 2002; Active Australia, 1998; Logie et al., 2004; NARI, 2006). Accordingly, the deterrents to physical activity need to be understood. Based on previous research these deterrents can be classified into three broad categories: personal, environmental, and home or program based factors (Biddle & Mutire, 2001; Buckworth & Dishman, 2002; King, 1991).

Important factors that influence decisions and actions stem from within the individual. Personal deterrents of physical activity for older adults include demographic and psychological variables (Biddle & Mutire, 2001; Buckworth & Dishman, 2002; King, 1991). Age, socio economic status, educational attainment and weight are the key demographic variables discussed throughout the literature (Biddle & Mutire, 2001; Buckworth & Dishman, 2002; Ellingson & Conn, 2000; King, 1991).

Social and environmental factors have been associated with physical activity participation in a number of observational studies. In the studies targeting the older population, factors including social support from family and friends, advice from physicians, and the physical environment were prominent (Buckworth & Dishman, 2002; Crammer et al., 1991; Driver & Taylor, 2000; Lee, 1993; Plonczynski, 2003). Examples of the physical environmental factors evident throughout studies included: older adults living in high crime neighbourhoods may not

feel comfortable going for a walk in the local area; and older adults residing in areas where the climate is cold may feel it is to cold to go outside and engage in physical activity. Environmental factors were among the most common explanations for sedentary behaviour, because individuals reason that they can not control the environment. Hence, they rationalise their sedentary behaviour accordingly (Buckworth & Dishman, 2002; Dunlap, Henry, & Barry, 1999; Lee, 1993; Plonczynski, 2003).

Program related factors associated with older adults' willingness to engage in sufficient physical activity include structure, format, complexity, intensity, convenience and associated financial costs (Jette et al., 1998; King, 1991; Ritcher, Marcera, & Williams, 1993; Scanlon-Mongel & Roberto, 2004). Limited literature is available with current information on older adults and program related factors. However, the available literature suggests that programs that appeal to older adults are generally moderate in intensity, simple and convenient to engage in, contain social components, are relatively inexpensive and are not competitive (Jette et al., 1998; King, 1991; Ritcher et al., 1993; Scanlon-Mongel & Roberto, 2004). Ritcher et al.'s (2004) observational study demonstrated that older adults were less likely to partake in programmed physical activity if the location was inconvenient as they found it difficult to gain access. A limitation of the study, however, was that its main focus was on currently active participants.

Although less than half of Australians aged 65 years and over are engaging in sufficient physical activity, something must be attracting this proportion of older adults to remain physically active (Blair, 2005; NARI, 2003; 2006). There is limited literature available specifically addressing the attractions of physical activity for older adults. However, what can be extracted from the literature is that having a sense of doing something, helping their partners, social networking, and maintaining a feeling of happiness are common reasons for engaging in physical activity (Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI, 2003; 2006).

From the literature reviewed, it is evident that there are physical and psychological benefits associated with engaging in physical activity for older adults. Despite these benefits, the prevalence of Australians over the age of 65 years being inactive is relatively high and is continuing to increase (ABS 2000; 2002; Active Australia, 1998; NARI, 2006). As the older adult population continues to increase, and to exhibit sedentary behaviours there are significant implications for the nations' welfare system and health care services (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; Logie et al. 2004; NARI, 2006). As sedentary behaviours are associated with health implications, the possibility of sedentary older adults requiring medical assistance is increased (Logie et al., 2004; NARI, 2006; Scanlon-Mongel & Roberto, 2004). Moreover, the pressures placed on the nations' welfare services and health care systems are increased, thus resulting in further financial burden for the Australian population. Indeed, exploring the attractions and deterrents of physical activity for adults aged 65 years and over is paramount.

The available literature examining the deterrents and attractions for older adults' participation in physical activity displayed numerous methodological flaws, which had the potential to impede on their results. Methodological flaws across the studies included: low response rates, thus limiting generalisability; over reliance on self reports; limited research being conducted on physical activity amongst older adults within Australia; and typically studies were not specific to the older population (Boyette et al., 2002; Dishman, 1994; Dunlap et al.; 1999; Grzywacz & Marks, 2001; Plonczynski 2003; Stahl et al., 2000; Wilcox & Storandt, 1996; Wolinsky et al., 1995).

Furthermore, understanding older adults' perspectives on physical activity is typically absent in the literature. As a result, the aim of the current study was to explore older adults' perspectives on engaging in physical activity past the age of 65 years. In doing so, the study explored the

issues that influenced the attraction of physical activity and identified factors that motivate or inhibit older adults' engagement in sufficient physical activity. It was envisaged that the findings from the study may be important for developing interventions and policies to increase older adults' participation in physical activity, thus reducing the burden placed on the nations' health care systems and welfare services. Accordingly, the study attempted to answer the following research questions:

1. What are older adults' perspectives on engaging in sufficient physical activity after the age of 65?
2. What issues do older adults identify that influence their attraction to sufficient physical activity?
3. What issues do older adults identify that inhibit their participation in sufficient physical activity?

Method

Research Design

A qualitative design, integrating the principles of grounded theory, in which "theories are grounded in the empirical data and built up inductively through a process of careful analysis and comparisons" (Creswell, 1994, p. 12.) was applied. This approach was employed to identify emerging themes through constant comparisons, and to gain a richer, deeper understanding of the issues related to older adults' perspectives on engaging in physical activity (Creswell; Miles & Huberman, 1994). A qualitative method of analysis was considered to be the most appropriate approach given the exploratory nature of the research and the lack of literature addressing older adults' perspectives on physical activity.

Sample

A purposive sampling approach was applied to engage ten older adults aged between 68 and 79 years of age. As the participants' physical activity status and gender was considered important to their current perspective towards physical activity, a purposive sample was used to ensure that the sample included both male and female, and active and inactive older adults (Maxwell, 1996).There were six older males and four older females aged between 68 and 79 years. Half of the sample comprised individuals who were sufficiently active, and half was insufficiently active. There were three males and two females in each of the two categories.

Participants were recruited through the City of Perth Surf Lifesaving Club, the Freidman Retirement Village, and a snowball sampling technique. Advertisements containing information about the study and contact details were distributed through the City of Perth Surf Lifesaving Club and the Freidman Retirement Village newsletters, with interested parties contacting the researcher to participate in the study. Participants who took part in the study recommended the study to other potential participants, and those who expressed interest were then contacted by the researcher and asked for their assistance.

Instrument

A semi-structured interview schedule (Appendix A) consisting of open-ended questions such as "Could you please describe your thoughts about engaging in physical activity?" and "Could you please tell me what would make physical activity more attractive to people over 65?" was employed to elicit participants' responses. The open-ended questions ensured that participants had an opportunity to introduce their own views without being restricted by the researcher's questions. The interview schedule evolved through a theoretical sampling approach (Strauss & Corbin, 1998) in which data collection and analysis were intertwined, so that the

emerging themes guided subsequent questions and data collection to comprehensively explore the emerging issues.

Procedure

After receiving approval from the Faculty of Computing, Health and Science Research Ethics Committee, all participants were contacted via telephone to arrange an appropriate time to conduct an interview and to resolve any questions regarding the nature of the research. Interviews were conducted in the participants' homes. Participants were provided with an information letter (Appendix A) which outlined the purpose and procedure of the study. Participants were then asked to sign a consent form (Appendix B) and to give their verbal consent to the use of an audio recorder prior to the commencement of the interviews. Participants were informed prior to the interview that their participation was voluntary and that they could refuse to answer any questions, or to withdraw from the study at any time without consequence.

Data was collected in face-to-face, in-depth, semi-structured interviews (Miles & Huberman, 1994; Smith, 1995) which enabled the researcher to gain an intimate insight into the relevant issues by establishing rapport and clarifying information during the course of the interview. The semi-structured questions ensured that the main areas of interest were addressed, whilst also enabling the participants to discuss additional relevant issues, which were further explored by the use of unscheduled follow-up probes. In doing so, the researcher was able to gain a richer, deeper understanding of the issues from the perspective of older adults. The interviews lasted between 20-60 minutes, with most taking approximately 45 minutes. After each interview, participants were debriefed and given additional information on the potential importance of physical activity and who to contact if they required assistance or guidance. The interviews were transcribed verbatim and thematic content analysis (Berg, 2001) was employed to reduce and interpret the data.

Ethical Considerations

The nature of discussing physical activity with older adults could potentially cause concerns regarding low self esteem and poor body image to arise. Whilst the interview did not directly discuss issues of self-esteem and body image, the relationship between physical activity, weight and self esteem levels (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002) made the researcher sensitive to the potential side effects. The researcher acknowledged this as a risk, and attempted to minimise the potential outcome by displaying no opinion towards physical activity, hence, ensuring the participant did not feel judged.

Data Analysis

After the interviews were transcribed, an inductive approach was used to recognise emerging themes and patterns that were present within the data (Miles & Huberman, 1994; Thomas, 2003). Significant words and phrases were highlighted and coded (Berg, 2001; Miles & Huberman, 1994). As patterns emerged, a constant comparative method was utilised, where each code was compared with other codes through a process of review and analysis to identify similarities, differences, and higher order themes (Glaser & Strauss, 1967). A data display matrix was additionally employed to identify and track emerging themes, so that common themes could be grouped together to identify relationships between higher order themes (Miles & Huberman, 1994).

Triangulation was employed to address any threats to the credibility of the data that may have resulted from researcher biases, thus promoting trustworthiness of the findings (Breakwell, 1995). Inter-subjective consensus was achieved by a peer review process, whereby an independent researcher identified themes and relevant concepts, thus confirming the researcher's findings (Miles & Huberman, 1994). Subsequently, a practice of member checking was applied,

with several of the participants being contacted to verify significant concepts and themes and to confirm that the findings reflected their perspectives (Breakwell, 1995).

Findings and Interpretations

Regardless of the participants' physical activity status, perspectives on engaging in physical activity after the age of 65 were generally positive. Whilst interviewees highlighted the attractions and benefits of physical activity, barriers for their engagement in physical exercise were also identified. Quality of life was a central concept underlying participants' responses and three themes emerged from the data. These themes, along with the sub-themes that generated them, are presented in Table 1

Secondary reinforcements

The theme secondary reinforcements was selected because it represented the key attractions to physical activity. This was heightened by the fact that engaging in physical activity in itself was not viewed as enjoyable; rather it was the surrounding factors that motivated older adults to engage in physical activity. For example, one participant described:

> *Well I don't particularly like doing exercise, but it's the surrounding aspects like having a friend to talk to, feeling good after you exercise, and staying healthy and independent which makes engaging in physical activity most enjoyable. The physical activity is just what joins it all together.*

Social interactions. A secondary reinforcement identified in the data was the concept of social interactions. It was common for participants in the current study to discuss the importance of the social aspects as part of their overall physical activity experiences. Typically, for older adults socialising was the primary attraction to physical activity, as illustrated by the following participants' quotes: "*physical activity is one of many ways to form social relationships, and that is probably more important than the physical benefits, you need to have likeminded friends to*

keep life interesting"; *"it is really socialising, I have a terrific group of friends I exercise with, and that's my main attraction, doing it with a group of friends"*; and *"I think exercising with a group of people and having a coffee afterwards would make it more attractive, you need some sort of social aspect because otherwise it is just so boring"*.

Sense of belonging. In addition to social interactions, a secondary reinforcement recognised throughout the data was the importance of having a sense of belonging. This was found to be particularly important for participants whose partners had passed away and/or they were currently living alone. For example, one participant explained:

> *I love being part of a group, where we look out for each other and make sure we are all okay, not just from an exercise point of view but in all aspects of our lives. We really help each other out particularly if we know someone is living alone, it's important to make sure they are alright.*

These findings were consistent with the available literature, which indicated that older adults prefer physical activities that contain a social component (Buckworth & Dishman, 2002; Jette et al., 1998; King, 1991; Ritcher et al., 1993; Scanlon-Mongel & Roberto, 2004), and that social support is one of the key elements influencing older adults participation in physical activity (Buckworth & Dishman, 2002; Lee, 1993; Plonczynski, 2003; Stahl et al., 2000). The results from the current study emphasised the importance of social interactions and having a sense of belonging as motivating factors for older adults' participation in physical activity. Specifically, if the act of physical activity in itself was not viewed as enjoyable, the role of social interactions are crucial

Endorphins. The endorphins that the body releases during physical activity create a feel good effect within the individual (Blair, 2005; Greenhalgh, 1996; Van Ree, 1987). Interviewees explained that older adults are attracted to this sensation as it makes them feel healthier and

happier. Thus, the release of endorphins was identified as a secondary reinforcement attracting older adults to engage in physical activity. For example, several participants explained: *"I'm attracted to the feelings you get after you have exercised, there is nothing better than feeling good and healthy"*; and *"well I guess you feel pretty good after you have exercised, it makes you feel pretty good about yourself"*.

The literature regarding the chemical link between physical activity and good moods typically did not include older adults (Blair, 2005; Greenhalgh, 1996; Van Ree, 1987). Nevertheless, the findings from the current study indicate that the release of endorphins during physical activity, to create a feel good effect, continues to occur throughout older adulthood.

Prevention. The sub-theme prevention refers to the use of physical activity as a preventative measure against health complications. It was illustrated within the available literature that physical activity helps prevent the risk of falling among older adults, by increasing their muscle strength, and as a result improves their balance (Centres of Disease Control and Prevention, 1996; Melkzer, Banjuya, & Kaplanski, 2003; NARI, 2006). The importance of physical activity as a preventative measure was evident in the current study. This was illustrated by the following participants: *"I have become highly aware of how important physical activity is for fall prevention, it helps me keep my balance and I find that if I'm stable on my feet I'm less likely to fall"*; and *"it is really important for older adults' to keep active so they can keep their balance, because having good balance decreases the chances of short footing and falling"*

Furthermore, physical activity was identified as a preventative measure for additional health complications, particularly for when older adults required surgery. It was explained by the interviewees that being physically fit as a result of physical activity assisted in the recovery process, as it created a stronger baseline. By reducing the recovery time, the possibility of additional health complications are minimised. For example, one participant explained:

I guess in the last few years I have done physical activity so I can be fit enough to go to hospital. If I need surgery I intend to be fit enough to cope with that, and be able to quickly recover. I think if I wasn't fit it would be very hard to recover quickly and if you don't have a good base line to begin with it would be very hard to get back to being active

Fall prevention being an incentive to engage in physical activity was supported within the available literature (Centres of Disease Control and Prevention, 1996; Melkzer et al., 2003; NARI, 2006). Results from Melkzer et al.'s (2003) observational study indicated that walking regularly has the potential to increase stability, muscle strength and flexibility, thus reducing the risk of falling. Engaging in physical activity to prevent additional health complications by assisting in the recovery process was also supported in the available literature (King, 2001; Young, German, Brant, Kenzora, & Magaziner, 1996). These studies indicated that older adults who are physically active have extensively better recovery rates after surgery than their sedentary counterparts (King, 2001; Melkzer et al., 2003; Young et al., 1996).

Sense of achievement. The final sub-theme identified as a secondary reinforcement represented a sense of achievement. A number of inactive participants voiced that they would be more attracted to physical activity if there was a purpose. For example, one participant explained: *"physical activity needs a purpose, there is nothing more boring than going for a walk around the block, even some of the people you see and say hello to, they are just so miserable".*

This was an important finding as it represents the way in which physical activity is viewed. Participants who viewed physical activity as solely exercise (e.g., walking and swimming) were more likely to report that engaging in physical activity was boring and/or lacked direction. Participants however, who maintained a broader view of physical activity and included activities such as household chores and gardening within their definition reported that one of the attractions towards physical activity was having a sense of achievement. For example, a few

participants illustrated: "*engaging in physical activity for a purpose, like seeing something take shape is important, because otherwise it is so boring and there is no motivation to continue it*"; and

> *I feel it's the same as someone sitting on the verandah and watching the lawn mower man come along it just doesn't make sense, you might as well get out there and do it yourself, at least then it gives you a sense of doing something.*

Sense of achievement as an attraction to physical activity for the older population was consistent to the findings within the literature (Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI 2006). Scanlon-Mongel and Roberto's (2004) observational study indicated that a large proportion of physically active older adults participated in physical activity to maintain a sense of accomplishment. Specifically, retired older adults needed to do something during the day and so engaged in physical activities, such as gardening (Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI, 2003; 2006). Scanlon-Mongel and Roberto's (2004) study maintained a broader definition of physical activity, whilst studies which focused solely on exercise typically did not yield the same results (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI, 2003; 2006).

Health Factors

Health factors were identified as both an attraction and barrier for older adults' participation in physical activity. It was illustrated within the available literature, that participating in regular physical activity prevented and/or reversed approximately half of the physical declines associated with the ageing process (Blair, 2005; Logie et al., 2004; NARI, 2006; Scanlon-Mongel & Roberto, 2004). Indeed, older adults reported that preventing the associated health declines was one of the central reasons they engaged in physical activity. For example, one participant explained:

> *I think it is the single act at my age that ought to be done, without it you are really not giving yourself much of a chance. You see as you age the body starts to break down and the risk of developing physical and psychological ailments increases, so if you don't exercise and try prevent these difficulties you are not really giving yourself much of a chance at all.*

Physical factors. Physical factors was the fundamental sub-theme identified under health factors. Generally, the first response given by participants when asked about their perspectives on physical activity was its importance as a preventative measure against physical declines and diseases. For example, several participants stated "*well it helps your heart, your arthritis, it pretty well keeps you active*"; and "*I think physical activity is important because it helps keep your heart healthy, your blood pressure down, and helps prevent diseases such as diabetes"*

Whilst the majority of the participants reported that the physical factors associated with engaging in physical activity were a motivating aspect, it was also identified as a potential barrier. Physical limitations or difficulties were frequently reported as the primary reason for participants to cease their participation in physical activity. For example, one participant described:

> *Some people would like to do more physical activity, but bad knees and bad backs restrict what they can do, so they have to live within their personal parameters and that may mean they can no longer participate in any physical activity.*

The following quotes also highlight the effect physical limitations have on older adults engagement in physical activity: *"I can't seem to do much exercise anymore, it is all too difficult having arthritis and all"*; and *"my body just will not allow me to do certain physical activities like tennis, which I use to love, but that's just part of getting old"*; another participant stated *"my*

arthritis is so bad now that I cant go out walking without a frame, and I don't like doing that, so it really limits what I can do".

The finding that physical limitations potentially inhibit older adults engagement in physical activity was consistent with the literature reviewed (Biddle & Mutrie, 2001; Boyette et al., 2002; Caltabiano et al., 2002; Jette et al., 1998; Wolinsky et al., 1995). These studies indicated that the majority of physical activities require lower body functioning, thus, when this becomes increasingly difficult due to physical limitations, such as a degeneration of the bone structure, older adults are less likely to participate (Biddle & Mutrie, 2001; Boyette et al., 2002; Caltabiano et al., 2002; Jette et al., 1998; Wolinsky et al., 1995).

Psychological Factors. Psychological factors were identified as an important component of an individual's health, and accordingly was the next sub-theme identified under health factors. Maintaining mental alertness and mental relaxation were the prominent psychological benefits identified by the interviewees which would attract older adults to participate in physical activity. For example, several participants illustrated: *"I believe physical activity helps my mind, it keeps my mind active and allows me to think and that's what keeps you alive, because if you keep moving your brain will work";* and *"I exercise to remain mentally alert, I think of it as keeping my brain active, I use the time to think and like the time to be by myself";* another participant explained:

> *I think physical activity is important as it helps you stay alert, you see its easy to fix the physical side but once the mind goes its hard to fix, so I think you need to try and stay mentally alert for as long as possible, and physical activity helps you do that.*

Whilst the psychological factors associated with physical activity were a motivating aspect, it also posed as a potential barrier. Participants frequently suggested that psychological illnesses could potentially impact their participation in physical activity. For example, one

participant explained: "*the only factor that would stop me engaging in physical activity would be if my brain no longer functioned, it would be very difficult to engage in physical activity if you had a mental illness*".

Although it has been clearly documented that there are numerous psychological benefits associated with participation in physical activity, such as an increase in self-esteem, cognitive functioning and a decrease in stress, depression and anxiety (Biddle & Mutrie, 2001; Caltabiano et al., 2002; Centres of Disease Control and Prevention, 1996; Plonczynski, 2003; NARI, 2006), psychological barriers for older adults engagement in physical activity were typically absent in the literature. Thus, the current study's findings were particularly important as they indicated that whilst physical activity may be an effective preventative measure for psychological ailments, the use of physical activity as an intervention for older adults who have psychological difficulties may not be as effective.

Use it or Loose it. The following sub-theme identified as a health factor represented an 'in vivo' code (Glaser & Strauss, 1967) of *'use it or loose it'*. An in vivo code is a code or theme encapsulated by the participants' exact words, words that were continually repeated. A number of participants expressed how they considered physical activity to be imperative for maintaining sufficient mobility through the continual use of particular muscles. For example: *"physical activity is good for general mobility, you either use it or loose it, you see if you don't exercise and use your muscles you stiffen up, there is no two ways about it";* and *"exercise is the most important thing to do and in particular for older adults where the body starts to break down, you see you either use it or loose it";* another participant stated: "*moderate exercising is so important because it just keeps the whole body in tune, it's the use it or loose it principle, if you don't use the muscles through moving them they wont work and you will suffer*".

The 'use it or loose it' principle suggests that when muscles are not utilised through physical activity they may degenerate and thus lead to physical limitations. Identifying physical limitations as a barrier to physical activity was consistent with the relevant literature (Biddle & Mutrie, 2001; Boyette et al., 2002; Caltabiano et al., 2002; Jette et al., 1998; Wolinsky et al., 1995).

Longevity. The final sub-theme identified as a health factor was longevity, a product of the above three sub-themes. Longevity refers to prolonging life expectancy by maintaining physical and psychological health. For example, participants explained: *"physical activity helps make life longer and that's what we are now experiencing";* and *"I exercise to increase my chances of a long and healthy life, after all isn't that what everyone is trying to achieve"*; another participant stated *"what is motivating about physical activity is that you will live longer and have a better quality of life, because you are healthy"*

The findings in the current study regarding the relationship between increasing life expectancy and participation in physical activity were consistent with the available literature (Blair & Haskell, 2006; Drewnowksi & Evans, 2001; Logie et al., 2004; NARI, 2006). It was indicated throughout the literature that sedentary older adults are at an increased risk of numerous chronic diseases and conditions, and as a result there was a reduction in their longevity. Thus, older adults engaged in physical activity to increase their longevity by reducing the risk of developing health implications (Blair & Haskell, 2006; Drewnowksi & Evans, 2001; Logie et al., 2004; NARI, 2006).

Lifestyle Choices

The belief that engaging in physical activity is a lifestyle choice was not clearly established within the literature. Nevertheless, numerous participants, both active and inactive, perceived physical activity as a personal choice. For example, a few participants stated: "*I have*

nothing against exercise, I mean it's pretty good for people who want to be active"; and "*if you don't really enjoy exercise there is no point doing it, I mean it should be encouraged but not enforced, at my age I think it really is a matter of doing things that you find enjoyable*"; another participant explained *"I never exercised because I had to, I did it because I wanted to and there is a lot of difference"*.

Routine. A sub-theme identified under physical activity being a lifestyle choice was routine. Active participants reported that physical activity assisted in structuring their lives. It was often reported by the active participants in the current study, that since their retirement physical activity has given them a purpose to get out and moving, and has assisted them to structure other aspects of their lives. For example: *"exercise helps structure other parts of your life, I mean you get up and know you have to exercise and that's a great start to the day";* and "*as you get older its good to have a purpose that you get up out of bed, get dressed, organise yourself and get going*".

Routine was associated with the sub-theme sense of achievement, which was identified as a secondary reinforcement for older adults' engagement in physical activity. The literature regarding sense of achievement identified that older adults engaged in physical activity because since retirement they have needed something to do with their lives (Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI, 2006; Plonczynski, 2003). Routine provided structure to their life, thus whilst they engaged in physical activity because it gave them a sense of achievement, it additionally gave them a purpose to get out and remain active within their community (Buckworth & Dishman, 2002; Blair, 2005; Scanlon-Mongel & Roberto, 2004; NARI, 2006; Plonczynski, 2003).

Intensity. Intensity refers to the level in which physical activity is performed. It was identified as a sub-theme under lifestyle choices because the intensity in which physical activity

is performed was viewed as a personal choice. Participants emphasised that moderate exercise was more appealing, with anything more intense being viewed as potentially dangerous. For example, several participants illustrated: *"Exercise is important but it is more important to work within your limits, you must listen to your body and not push yourself, because by doing that you will not achieve anything";* and

> *As you get older and tired you have to scale down what you use to do and work within your own limits, and if that means you cant go out jogging anymore then you don't do it, you only do what you believe you can do.*

Included within the sub-theme intensity was how regularly older adults engaged in physical activity. Inactive participants often believed that because physical activity was a lifestyle choice there was no reason to engage in it, unless they really desired to do so. For example, one participant explained: "*at my age I think I'm happy doing no formal physical activity, if I feel like going for a walk I will, but I don't think I would enjoy physical activity every day".*

These findings are consistent with the available literature, which indicated that programs that appeal to the older population are generally moderate in intensity, and simple and convenient to engage in (Biddle & Mutrie, 2001; Buckworth & Dishman, 2002; King, 1991; Ritcher et al., 1993; Scanlon-Mongel & Roberto, 2004). Thus, when promoting physical activity in older adulthood, it is essential to encourage older adults to engage in physical activities which they can personally control and are moderate in intensity.

Embedded characteristic. The sub-theme, embedded characteristic refers to the notion that physical activity is something that is ingrained within the individual. Thus, despite the numerous attractions for older adults to engage in physical activity, if it is not an embedded characteristic, the likelihood that they will be inactive is increased. For example, several participants illustrated: *"some people no matter what happens, you will never get them to do*

physical activity, you know I really can not see a way around it"; and *"there is nothing you can do, I think it is just ingrained in the person, some people exercise and others don't and there is nothing wrong with that".*

Personal history. Related to the sub-theme embedded characteristic, is the final sub-theme for lifestyle choices, personal history. Personal history refers to how childhood experiences may shape an individual's physical activity status in older adulthood. It was suggested by the participants that if an individual led an inactive childhood, the likelihood of being inactive in older adulthood was drastically increased. Likewise for an individual who was active during childhood, the probability of them being active in older adulthood was increased. For example, one participant illustrated:

> *I think it is one of those things, if you lead an active life as a younger person, the chance of living an active life as an older person is very good. I don't think you could be inactive all your life and then at 65 start engaging in physical activity.*

The identified sub-themes embedded characteristic and personal history are an important finding, which is typically absent in the literature. It represented the universal debate between nature and nurture. Nature refers to an individual's innate qualities (Biddle & Mutrie, 2001; Emery, 2002; Ryckman, 2004), which would suggest that engaging in physical activity is an embedded characteristic, whilst nurture refers to an individual's personal experiences (Biddle & Mutrie, 2001; Emery, 2002; Ryckman, 2004), which would suggest that physical activity patterns are a product of an individual's personal history. Whilst it was beyond the scope of the current study to examine the relationship between physical activity and the nature nurture debate, recognising the association highlights the need for future research.

Discussion

The findings from the current study indicated that regardless of an older adult's physical activity status, engaging in physical activity was perceived as a positive behaviour, which should be encouraged, but not enforced. Whilst physical activity in itself was viewed as not enjoyable, the associated factors including health benefits, and secondary reinforcements were perceived as fundamentally important for improving the quality of life in older adulthood. Irrespective of an older adult's physical activity status, physical activity was perceived as an important preventative measure to buffer the physical declines associated with the ageing process, thus increasing the prospect of older adults continuing to be independent within their community. Accordingly, the findings from the current study indicated that older adults perceived physical activity as a preventative measure which could potentially improve their quality of life, and therefore participation in physical activity should be encouraged.

Given that older adults perceived physical activity in itself as unpleasant, understanding the attractions towards physical activity is imperative when developing strategies to encourage older adults' participation. The current study established that the key attractions to physical activity in older adulthood were the secondary reinforcements. Older adults indicated that the secondary reinforcements including social interactions, having a sense of belonging, and the feel good effect attracted them to participate in physical activity. The secondary reinforcements were typically features of the physical activity experience in which older adults found most enjoyable.

Whilst some older adults reported that the secondary reinforcements were the main attraction towards physical activity, others placed greater emphasis on the associated health factors. Health factors included the physical and psychological benefits, maintaining mobility and increasing longevity. Older adults indicated that whilst the associated health benefits did not make physical activity more enjoyable, buffering some of the declines associated with the ageing

process could potentially improve their quality of life and motivate them to engage in physical activity.

Physical and psychological factors also posed as barriers towards physical activity in older adulthood. The physical and psychological declines associated with the ageing process were identified in the current study as important barriers towards participating in physical activity. Older adults identified that physical or psychological limitations would and/or did inhibit their participation in physical activity.

The findings of the current study presented very few barriers and ample attractions for older adults' engagement in physical activity, however, contrary to this, half of the interviewees were classified as insufficiently active. This was best understood by examining the way in which older adults perceived physical activity. Older adults in the current study perceived physical activity as a lifestyle choice, akin to many other activities, and if it did not appeal to them the chances of participation were low. Personal history and embedded characteristics were two factors identified as influencing an older adult's decision to engage in physical activity. This was demonstrated by a proportion of the participants in the current study, who indicated that participation was related to their childhood history, whilst others suggested that is was ingrained within the individual. Whilst these perceptions make it difficult to develop strategies to increase current older adults' participation in physical activity, they highlight the importance of encouraging physical activity in younger years. In doing so, older adults in the future may be more inclined to engage in physical activity.

Strengths and Limitations

An important strength of the current study was the use of a broader definition of physical activity. For the purpose of the current study, physical activity included behaviours such as the household chores and gardening. Whilst these activities have essentially been recognised as

forms of physical activity, previous studies regarding the relationship between physical activity and older adulthood have typically focused solely on exercise. By broadening the definition of physical activity, additional attractions for older adults were identified, for example, engaging in physical activity as a sense of achievement. Hence, the broader definition of physical activity can potentially facilitate strategies to attract older adults' participation, particularly for those who are not motivated to engage in exercise.

Furthermore, the current study was specific to older adults, those aged between 65-80 years, who were living within Western Australia. This strengthened the study, as it enabled the researcher to gain rich data from a specific population, so that effective preventative practices and interventions can be specifically developed for older adults residing within Western Australia. The importance of the current study being age and culture specific was illustrated by the discrepancies in the available literature and the results obtained in the current study. Whilst the literature established that environmental factors, including the available facilities, transport, cost, and accessibility, made it increasingly difficult for older adults to participate in physical activity (Buckworth & Dishman, 2002; Lee, 1993; Plonczynski, 2003) the results of the current study indicated that participants did not place emphasis on any environmental barriers. As a result, if policies and interventions were developed solely based on the findings in the available literature and implemented within Western Australia's older adult population, it is possible that the strategies would be ineffective.

A limitation of the current study was that there was difficulty in recruiting inactive participants. Consequently, although the inactive participants who took part in the study were classified as insufficiently active, they were not considered sedentary. Furthermore, due to the voluntary nature of the study, the inactive participants typically maintained a positive outlook towards physical activity. Accordingly, the results of the study may be potentially biased towards

people with a positive outlook. Future research could address this limitation by including sedentary participants.

More males than females participated in the current study. This may have potentially influenced the results, with specific difficulties for older females engaging in physical activity being overlooked. Future research could address the barriers to physical activity for the older female population, and assess gender differences in physical activity in older adulthood.

Conclusion

The growing number of older Australians who are living sedentary lifestyles is of great concern. This is because of the various health risks that are associated with such lifestyles and the potential related pressures on the nations' welfare services and healthcare systems. Thus, it was the aim of the current study to develop an understanding on how older adults perceived physical activity, and to identify factors that motivated and inhibited their participation. In doing so, the study provided essential information on factors that should be considered when developing relevant policies and interventions.

Results of the current study indicated that interventions that could potentially increase older adults' participation in physical activity need to be administered at a variety of ages. The general perception that interviewees had regarding physical activity was that it is a lifestyle choice, which is often influenced by personal history and embedded characteristics. Indeed, promoting physical activity in younger ages may be imperative in increasing older adults' participation in future generations.

In an attempt to increase participation in the current older adult population, promotions and interventions should typically focus on the secondary reinforcements and health benefits. Promoting physical activity as a social and purposive behaviour could potentially influence and motivate participation in older adults. Increasing participation in the current older adult

population could alleviate some of the existing pressures placed on the nations' welfare services and healthcare systems.

Future research could expand upon the current study by incorporating sedentary older adults, older adults from an array of socio economic backgrounds, and different residing areas throughout Western Australia. In doing so, attractions and motivations specific to older adults' demographic regions and personal qualities may be identified. Thus, making it possible for different policies and interventions to be implemented according to an older adult's demographic location and their personal qualities.

The results from the current make a unique contribution to the body of knowledge, by exploring older adults' perspectives on engaging in physical activity. It was evident in the current study that enabling older adults' views on physical activity to be expressed is paramount to identifying the factors that motivated and/or inhibited their participation. This makes a case for further studies, quantitative and qualitative, specific to older adults in the area of physical activity. Gaining qualified knowledge in this area will inform practice and policy formation to encourage physical activity among older adults.

Table 1. *Themes and Sub-themes Related to Physical Activity in Older Adulthood*

Major themes	Sub-themes
Secondary reinforcements	Social interactions
	Sense of belonging
	Endorphins
	Prevention
	Sense of achievement
Health factors	Physical factors
	Psychological factors
	Use it or loose it
	Longevity
Lifestyle choice	Personal history
	Routine
	Intensity
	Embedded Characteristic

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Appendix A

Interview Schedule

CODE:
PRELIMINARY QUESTIONS:
AGE:
GENDER:

Could you please tell me about your physical activity status?
Probes:

- How often do you engage in physical activity?
- What types of physical activity do you engage in?
- Do you do it by yourself or with a group?
- What intensity do you like to exercise at"
- Ok what about physical activity outside of exercise such as housework, walking to the shops, gardening etc

Q1. Could you please describe me your thoughts about physical activity?
Probes:

- What things come to mind?
- How do you feel about physical activity and why?
- Has this changed over time? How? Why?

Q2. Could you please tell me about your experiences in engaging in physical activity?
Probes:

- What are some of the things you enjoy(ed) about engaging in physical activity?
- What, for you, are the best aspects of physical activity?
- Have you experienced any difficulties? Could you please describe these
- What other issues can you think of?

Q3. Could you please describe your ideal form of physical activity
Probes:

- What would you be doing?
- How often would you be doing it?
- Who would you be doing it with?
- Could you please describe why this is your ideal form of physical activity.

Q4. What things do/did you consider when deciding to exercise (stop exercising)?
Probes:

- Could you please discuss those things that you thought about in making your decision?
- What were the most important issues? Why?

Q5. What are your thoughts on engaging in physical activity past the age of 65?
Probes:

- In your experience, did your thoughts about physical activity change over time? How?

- What, in your opinion are some of the issues that older people face in relation to physical activity?
- Are there any other issues you can think of?

Q6. Could you please tell me what would make exercising more attractive to people over 65?

Q7. Could you please tell me what would make physical activity more attractive to people over 65?

Q8. What would motivate older adults to remain (return to) physically active?

Q9. In your opinion, how can exercise programs successfully accommodate the needs and requirements of older adults?
Probe:

- What are some of the issues they should consider?

Q8. What are your expectations when engaging in physical activity? Do you see yourself exercising in five years time?
Probes:

- What issues might influence this? How?
- What other issues do you think might come up?
- How do you feel about that?

Is there anything else that you would like to share?

What is you employment history?
What educational qualifications do you have?

Appendix B

Information Letter

Dear Participant,

Thankyou for your interest in my research project regarding older adults perspectives on physical activity. This study will form part of my course requirements as a psychology honours student and aims to improve our understanding of older adults' perspectives on employment. This is an important and topical issue for older adults, and policy makers and your participation in this research is appreciated. This study has gained ethics approval from the Ethical Committee of Community Services Education and Social Sciences (CSESS) faculty at Edith Cowan University.

This paper is designed to give you some information about my research and on how I intend to gather the data. I am interested in talking with you about your thoughts, feelings, and experiences regarding engaging in physical activity.

I will be asking you to share your thoughts and feelings and should you not wish to answer a particular question, or if you wish to withdraw your participation, you may do so at anytime without penalty. You are welcome to contact the Honours co-ordinator (details below) to discuss any difficulties or questions you may have regarding the process.

The interview is expected to take approximately 60-90 minutes and will be audiotaped and then transcribed verbatim. No identifying information will be included in the transcript and identifying words will be replaced with character replacement or simply blanked out e.g. XXXXX.

If you require further information about this project please contact me on –
Amanda England ph. 0402 859 721
Or my Supervisor, Dr. Eyal Gringart on ph. 6304 5631
If you have any concerns about the project or would like to talk to an independent person, you may contact the Honours Co-ordinator, Edith Cowan University –
Ms Julie Ann Pooley (6304 5591)

Appendix C

Consent Form

An Exploration of the Factors that Influence the Attraction of Engaging in Physical Activity for Older Adults

I _____ (the participant) have read the information sheet provided with this consent form and any questions I have asked have been answered to my satisfaction.

I understand that I will be interviewed and that the interview will be audio recorded.

I agree that the research data gathered for this study can be used to complete a publishable research report provided that I am not identifiable.

I agree to participate in this study, realising that my participation is voluntary and that I may withdraw at any time without penalty.

Participant's signature _____ Date _____

Interviewer's signature _____ Date _____

Appendix D

Data Matrix

CONCEPTS	ACTIVE PARTICIPANTS	INACTIVE PARTICIPANTS
TYPES OF PHYSICAL ACTIVITY	Aerobics and exercise classes (females) Walking Gym, including weights (males) Swimming Gardening Housework	Nothing Housework Potter in the garden Occasional walk
IDEAL FORMS OF PHYSICAL ACTIVITY	Complexity: "I would love to do a little bit of everything, that way you don't get bored, and it keeps your mind working because its always different you can't get into a routine"	No change: "I am really just happy with what I'm doing now, I'm older now, I don't need to do things that are not enjoyable"
	Structured classes: "I think it would be fun to do some structured aerobic classes, because they keep you moving and the weight down, and it just sounds like fun"	Independent activities: "I would like to do things on my own, go for a walk and take in the community, and spend time clearing my mind"
	Intensity: "Generally speaking I would say moderate exercise, there is no need to go harder at my age"	Nothing: "At my age I think I'm happy with doing no formal physical activity, if I feel like going for a walk I will, but I don't think I would enjoy physical activity every day"
	Nothing: "Ideally I wouldn't be doing anything, exercise is not fun it's the benefits involved that motivate me"	
PERSPECTIVES (thoughts regarding own physical activity)	Physiological health: "Well it helps your heart, your arthritis, pretty well keeps you active"	Physiological health: "That's the biggest blow for me having bowl cancer, I physically can't exercise anymore, but I think if I could still exercise I wouldn't have such bad arthritis"
	Mental health: "I believe physical activity helps my mind, it keeps my mind active and allows me to think and I think that's what keeps you alive, because if you keep moving your brain will work"	Mental health: "I don't think it is important physically but it certainly is psychologically"
	Social networks: "I like the interaction with other people, its really great for your social life"	Longevity: "Physical activity helps make life longer and that's what we are now experiencing"
	Mobility: "Physical activity is good for generally mobility, you either use it or loose it, you see if you don't exercise and use your muscles you stiffen up, there is no two ways about it"	Lifestyle choice: I have nothing against exercise, I mean its pretty good for people who want to be active"
IMPORTANCE OF ENGAGING IN PHYSICAL ACTIVITY	Maintenance and Wellbeing: "It is the most important thing to do and in particular for older people where the body does start to break down, exercise almost keeps it maintained"	Working within the limits: "Exercise is important but it is more important to work within your limits, you must listen to your body and not push yourself, because by doing that you

		will not achieve anything"
	Prevention: "I have become highly aware of how important physical activity is for fall prevention, it helps me keep my balance and I find that if I'm stable on my feet I'm less likely to fall"	Supervision: "It is really important for physical activity to medically supervised, because otherwise the risks involved are too great"
	Prevention: "I guess in the last few years I have done physical activity so I can be fit enough to go to hospital. If I need surgery I intend to be fit enough to cope with that, and be able to quickly recover. I think if I wasn't fit it would be very hard to recover quickly and if you don't have a good base line to begin with it would be very hard to get back to being active"	Intervention: "I think exercise is important if you have a specific problem and exercises can help fix them, for example if you do your shoulder or back in or break an ankle you need to do exercises specifically for that"
	General functioning: "Moderate exercising is so important because it just keeps your whole body in tune, it's the use it or loose it principle, if you don't use the muscles through moving them they wont work and you will suffer"	Health Benefits: "I think physical activity is important because it helps keep your heart healthy, your blood pressure down, and helps prevent diseases such as diabetes"
SHIFTS IN ATTITUDE	Increase in importance: "I feel that exercise is more important to me now and I certainly place more emphasis on it"	Decrease: "I don't place as much emphasis on it anymore, and don't do nearly as much activity as I use to"
	Constant lifestyle factor: "I have always been active and seen it as important"	Lifestyle factor: "I have never thought about it, I was active when I was younger because I was in the army, but I never thought anything of it and still don't"
PERSPECTIVES (thoughts on the general population engaging in physical activity)	Necessity: "I think it is the single act at my age that ought to be done, without it your really not giving your self much of a chance. You see as you age the body starts to break down and the risk of developing physical and psychological ailments increases, so if you don't exercise and try prevent these difficulties your not really giving yourself much of a chance at all"	General wellbeing: "It keeps you fit, its good for your health and everything, you see if your physical health deteriorates its hard to keep your mental health going, they work together and feed off each other"
	General Functioning: "I think everyone should endeavor to do as much as they can, because if you don't do it you stiffen up, and that effects every part of your life"	Lifestyle choice: "Good on them, I think if they are happy doing a little bit of exercise good on them, its their choice"
	Quality of life: "I think the bottom line is some people are sitters and some people are movers and I think the sitters have the lesser life"	Working within limits: "As you get older and tired you have to scale down what you use to do and work within your own limits, and if that means you cant go out jogging anymore then you don't do it, you only do what you believe you can do"
	Fall prevention: "It is really important	Choice: "If you don't really enjoy

	for older adults to keep active so they can keep their balance, because having good balance decreases the chances of short footing and falling"	exercise there is no point in doing it, I mean it should be encouraged but not enforced, at my age I think it really is a matter of doing things that you find enjoyable"
	Structure: "Exercise helps structure other parts of your life, I mean you get up and know you have to exercise and that's a great start to the day"	
	Social relationships: "It is an avenue to meet new people and they look out for you, and if you don't show up you get phone calls asking where you are, and that's important having someone looking out for you"	Social relationships: "Physical activity is one of many ways to form social relationships, and that is probably more important than the physical benefits, you need to have likeminded friends to keep life interesting"
	Mental stimulation: "I think the main thing is to have an interest in life, I mean once your retired you need a plan and exercise keeps you out there and engaging with the rest of the world"	Mental Stimulation: "I don't know how important physical activity is but having an outside interest is very important, I think as long as you are doing something and keeping your mind active you are doing ok"
	Physical limitations can be an excuse: "A lot of older adults have arthritis and hip or knee injuries and they don't exercise because it may be difficult, but the less they do the harder it is to move, so they should be exercising"	Physical limitations: "Some people would like to do more physical activity but bad knees and bad backs restrict what they can do, so they have live within their personal parameters and that may mean they can no longer participate in any physical activity"
ENJOYABLE EXPERIENCES WITH ENGAGING IN PHYSICAL ACTIVITY	Endorphins: "I'm attracted to the feelings you get after you have exercised, there is nothing better than feeling good and healthy"	Endorphins: "Well I guess you feel pretty good after you have exercised, it makes you feel pretty good about yourself"
	Companionship: "I really enjoy the companionship and developing friendships with people as I exercise"	Social Aspect: "Id say the social aspect, meeting new people and exchanging stories about your life and laughing which is something of late I have not done much of"
	Sense of belonging: "I love being part of a group, where we look out for each other and make sure we are all okay, not just from an exercise point of view but in all aspects of our lives. We really help each other out particularly if we know someone is living alone, its important to make sure they are alright.	Community Aspect: " Things change in this world so fast so unless you keep up with what is going on and not just stay in your house your not really enjoying all there is to offer"
	Lifestyle choice: "I never did it because I had to, I did it because I wanted to and there is a lot of difference"	Lifestyle choice: "Being physically fit doesn't mean its enjoyable, it just means you can do it"
	Feeling fit: "Being able to do it is fantastic, I do aerobics really well and can keep up with the teacher, and I am not lagging or have to stop because I am puffed, and that makes you feel good about yourself, because I can still do it"	Purpose: "Physical activity needs a purpose, there is nothing more boring than going for a walk around the block, even some of the people you see and you say hello to, they are just so miserable"

	Structure: "As you get older its good to have a purpose that you got to get up out of bed, get dressed, organise yourself and get going"	Physical benefits: "I guess it helps to keep you healthy, gets your heart pumping, but you can keep healthy without exercise"
	Surrounding factors: "Well I don't particularly like doing exercise, but it's the surrounding aspects like having a friend to talk to, feeling good after you exercise, and staying healthy and independent which makes engaging in physical activity most enjoyable. The physical activity is just what joins it all together"	Use it or loose it: "Exercise is the most important thing to do and in particular for older adults where the body starts to break down, you see you either use it or loose it"
	Mental relaxation: "I put the most emphasis on walking, I can control my thinking once I get into a straight line, I can either just take in the world as I walk or I can clear my mind of the things worrying me"	
NEGATIVE EXPERIENCES/DIFFICULTIES WITH ENGAGING IN PHYSICAL ACTIVITY	Physical limitations: "My body just wont allow me to do certain physical activities, like tennis, which I use to love, but that's part of getting old"	Physical limitations: "I can't seem to do much exercise anymore, it is all to difficult having arthritis and all"
	Degeneration of bone structure: "Arthritis in the joints especially my hips and my knees slows me down, but it certainly doesn't stop me from exercising"	Degeneration of bone structure: "My arthritis is so bad now that I cant go out walking without a frame, and I don't like doing that, so really it limits what I can do"
	No difficulties: "I never have had any difficulties because I have always worked within my limits and not been stupid"	No difficulties: "I have never experienced any difficulties with engaging in physical activity I just find it boring and have no motivation to go out and exercise"
ATTRACTIONS TO PHYSICAL ACTIVITY	Social Interaction: "It is really socialising, I have a terrific group of friends I exercise with, and that's my main attraction, doing it with a group of friends"	Social interaction: "I think exercising with a group of people and having a coffee afterwards would make it more attractive, you need some sort of social aspect because otherwise it is just so boring"
	Facilities: "I think if there were more facilities available in every suburb active people would probably go more often, I don't think it would make inactive people exercise"	Motivation: "Engaging in physical activity for a purpose, like seeing something take shape is important, because otherwise it is so boring and there is no motivation to continue it"
	Sense of doing something: "I feel it's the same as someone sitting on the verandah and watching the lawn mower man come along, it just doesn't make sense you might as well get out there and do it yourself, at least it gives you a sense of doing something"	Effort: "I think some people exercise and others just don't, I don't think you could make it more attractive because it requires a lot of effort and normally you cant even see the benefits"
	Motivating teacher: "The teacher, a good teacher will always make classes varied and encourage people to work within their own capacity, and not make it competitive"	Supervision: "Having to report back to someone and tell them what I have done, that way you have to do it"

	Personality trait: "Some people no matter what happens, you will never get them to do physical activity, you know I really can not see a way around it"	Personality trait: "There is nothing you can do, I think it is just ingrained in the person, some people exercise and others don't and there is nothing wrong with that"
	Nothing: "I don't think there is anything you can do, I think it is one of those things some people will do it, whilst others no matter what just wont"	Nothing: "I don't really know, I don't think you could make it more attractive"
	Habit: "Well I am attracted to the feeling, and that I am getting some benefit out of it, and its just become a habit more than a pleasure, as I said I feel really guilty if I don't do it"	Childhood background: "I think it is one of those things, if you lead an active life as a younger person, the chance of living an active life as an older person is very good. I don't think you could be inactive all your life and then at 65 start engaging in physical activity"
MOTIVATION	History of implications: "I think if the family had a history of heart problems and died early as a consequence that would motivate me to go out and exercise, because you don't want to end up like them"	Observing a negative consequence: "Watching your partner drop dead, you may think gee I better do something because I might be next"
	Promotion: "I think more advertising for different age groups, perhaps showing older adults going for a walk together and then having a coffee afterwards, it may encourage others to join in"	Easy access: "If they were easy to get to, you know things like people who can no longer drive have a bus pick them up or something like that, which would pick them up and take them to the facilities"
	Longevity: "What is motivating about physical activity is that you will live longer and have a better quality of life, because you are healthy"	Supervision: " I guess if someone was waiting for you and if you didn't front you would be wasting their time, that may make it more likely for older adults becoming active because someone else is relying on you, and you don't want to disappoint them"
	Nothing: " I don't think anything but themselves can motivate participation in physical activity, some people are sitters and others are movers and that's just the way it is"	Nothing: "Nothing, it's the individuals choice, and if they don't want to exercise then so be it, there is nothing wrong with that, as long as they don't spend the day staring at a brick wall"
ACCOMODATING THE NEEDS OF OLDER ADULTS	More than adequate: "The facilities available are fantastic, you could not fault them, there are discounted rates for seniors, bus transport to and fro and walking and swimming is free, and yet still people do not exercise	No opinion: "I don't know I have never looked into it, it is not something I care about or want to do, but I guess if you wanted to do exercise you just would"
	Nothing: "I don't think there is anything you can do, as I said before some people are sitters and others are movers, I think if you made community exercise programs free it would make no difference"	Have no idea: "I don't know much about it, but the few people I know who do structured exercise, in the form of classes and use the gym don't seem to have any trouble finding adequate facilities"
EXPECTATIONS	Longevity: "I exercise to increase my chances of a long and healthy life, after all isn't that what everyone is	Make something: "Engaging in physical activity for a purpose, like seeing something take shape is

	trying to achieve"	important, because otherwise it is so boring and there is no motivation to continue"
	Quality of life: "Hopefully it gives you a better quality of life, you can be independent for longer and active within the community for longer"	Social interactions: "To spend time with friends, and have companionship, particularly if your partner has died, you see if you still have friends you don't really need to exercise you can do other things with them"
	Enjoyment: "I just really enjoy it, I love the feeling after, I love the social interactions and I just love being physically fit"	Mental alertness: "I think physical activity is important as it helps you stay alert, you see its easy to fix the physical side but once the mind goes its hard to fix, so I think you need to try and stay mentally alert for as long as possible, and physical activity helps you do that"
	Physical benefits: "Basically health bonuses, I think the weights are especially good for you, especially as your bones start to get brittle"	Nothing: "I don't think they try get anything out of it, I mean its just something they do because they can, I don't think they would have ever thought about it"
	Psychological benefits: "I exercise to remain mentally alert, I think of it as keeping my brain active. I use the time to think and like the time be by myself"	No opinion: "I have never thought about it"
FACTORS AFFECTING PARTICIPATION	Physical illness: "If I had a serious physical illness that would be all, where I could no longer walk and was confined to a wheelchair, that would be the only thing that would stop me"	Illness: "Well I have a serious illness and it is not safe for me to go out and exercise, but when I recover I will definitely be out there, at the moment its just not an option"
	Mental illness: "The only factor that would stop me engaging in physical activity would be if my brain no longer functioned, it would be very difficult to engage in physical activity if you had a mental illness"	Pain: "Well it is the pain, that's why I gave up. The arthritis got to bad and it hurts to much to exercise now"
	Environment: "If I lived in an area where I didn't feel safe going out walking etc, that would certainly affect my motivation to engage in physical activity"	Anatomical changes: "I think when you can no longer move certain parts of the anatomy like my legs it certainly would make it very difficult to exercise and so you loose motivation as it is no longer enjoyable"
	Cost: "Cost is not a big thing, we get pension rates and on a retired income it is easy to afford to go to the gym"	Lack of amenities: "I don't like to walk where there are no readily available amenities, I mean if I was near a shop it would be okay because if I got into trouble help is near by, but I don't have that, so I don't feel safe"

Appendix D

Instructions for Contributors – Ageing and Society

Ageing & Society

All contributions and correspondence should be sent electronically to: Miles Lambert, Editorial Assistant, Ageing & Society at ageingandsociety@yahoo.co.uk.

All books for review should be sent to: Stella Allinson, Review Editor's Assistant, Ageing & Society, School of Health and Social Welfare, The Open University, Walton Hall, Milton KeynesMK7 6AA, UK.

General approach and preparation of manuscripts

Authors are asked to bear in mind the multi-disciplinary and international nature of the readership when writing their contribution. In particular, care should be taken to draw out the implications of the analysis for readers in other fields, other countries, and other disciplines. The stereotypical presentation of individuals or social groupings, including the use of ageist language, should be avoided.

Articles should generally contain between 3,000 and 10,000 words. All contributions (articles, reviews and all kinds of review articles) should be typed double-spaced with at least one-inch or two-centimetre margins throughout (including noted and the list of references). Most papers have the following sections in sequence: Title page, Abstract (of around 200 words), Keywords (three to eight), Main text, Acknowledgements, Notes, References, Correspondence address. The tables and figures should be presented one to a page in sequence at the end of the paper.

Authors are asked to follow the current style conventions as closely as possible. Please consult a very recent issue of the journal. In particular, please note the following:

- Use the British variants of English-language spelling, so 'ageing', not 'aging'.
- **First level headers are in bold, sentence case and left justified**
- *Second level headers are in italic (not bold), sentence case and left justified*
- Do not number paragraphs or sections. Avoid very short (particularly one sentence) paragraphs. Do not use **bold text** in the text at all. For emphasis, use italic.
- In the main text, the numbers one to ten should be written as words, but for higher numbers the numerals (*e.g.* 11, 23, 364) should be used.
- All acronyms must be expanded on first use, even EU, USA, UK or UN, for those which are commonplace in one country are not in others.
- Do not use footnotes. Endnotes are permitted for technical and information details (including arrays of test statistics) that distract form the main argument. Endnote superscripts should be placed outside, not inside a punctuation mark (so.[3] not[4].).
- Write per cent (not %) except in illustrative brackets.

The publisher reserves the right to typeset material by conventional means if an author's disk proves unsatisfactory.

Citation of references

Contributors may follow either the standard conventions: (a) in-text citation of sources (author/date system); (b) citation in notes.

(a) *In-text citation.* Give author's surname, date of publication and page references (if any) in parentheses in the body of the text, e.g. '(Cole 1992: 251)'. For references with one to three authors, all authors should be named (Black, Green and Brown 2003). For references with four or more authors, the following form is required: (Brown *et al.* 2003). Note that all authors must be named in the list of references, and *et al.* is not permitted in the list. A complete list of references cited, arranged alphabetically by authors' surname, should be typed double-spaced at the end of the article in the form:

Cole, T. 1992. *The Journey of Life: A Cultural History of Aging in America.* Cambridge University Press, Cambridge.

Elder, G.H. and Clipp, E.C. 1988. Wartime losses and social bonding: influences across 40 years in men's lives. *Psychiatry,* **51**, 177-198.

Ruth, J.-E. and Oberg, P. 1996. Ways of Life: old age in life history perspective. In Birren, J.E., Kenyon, G., Ruth, J.-E., Schroots, J.F.F. and Svensson, T.(eds), *Aging and Biography: Explorations in Adult Development.* Springer, New York, 167-186.

(*b*) *Citation in notes.* References should be given in notes, numbered consecutively through the typescript with raised numbers, and typed double-spaced at the end of the article. Full publication details (in the same format as (*a*)) should be given in the notes when a work is first cited; for second and subsequent citations a short form may be used.

For both styles of reference lists, please particularly note the following:

Authors are requested to minimise the citation of unpublished working and conference papers (because they are difficult for readers to acquire). Where they are cited, complete details of the title of the conference, the convening organisation, the location and the date of the presentation must be given.

Titles of Books and Journals are in Title Case and Italic.

Titles of Papers, articles and book chapters are in sentence case and not italicised.

Page ranges for book chapters should always be given. Page ranges should be condensed, so 335-64 not 335-364, and S221-9 not S221-229.

Use (eds) and (ed.) where required (no capitals, full stop after truncated ed. but not compressed eds).

Citation of Internet pages or publications that are available online

Give authors, date, title, publisher (or name of host website) as for a printed publication. Then follow with ... Available online at ... full Internet address [Accessed date].

Tables

Tables should be clearly laid out on separate pages, numbered consecutively, and designed to fit a printed page of 228 x 152 mm (actual text area 184 x114 mm). Titles should be typed above the body of the table, with an initial capital for the first word and proper names only and italicised or underlined (for italics). Vertical lines should not be used and horizontal lines should be used only at the top and bottom of the table and below column headings. Authors are asked to give particular attention to the title and column and row labels (they are often poorly selected, incomprehensible or inadequate). All multiple word labels should be in sentence case. Short titles that concentrate on the subject of the table are recommended. Technical or methodological details (such as sample size or type of statistic) should be described in the labels or in a table note. Spurious accuracy should be avoided: most statistics justify or require only one decimal place

Figures

Figures should also be provided on separate pages and numbered consecutively. Captions should be provided on a separate sheet. Indicate in the margin of the typescript approximately where in the text tables and figures should fall.

Submission

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Articles for submission should be prepared for A4 size paper in Microsoft Word and sent to Miles Lambert at ageingandsociety@yahoo.co.uk.

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