

*Abstract*

The high rates of depression and suicide among older adults have given rise to research which aims to identify factors that protect older people from mental illness. Recently, Bailey and McLaren (2005) developed and tested a model which investigated the relationships between engagement in various leisure activities performed alone or with others, sense of belonging, depression, and suicidal ideation. The present study examined an extended version of the mental health model, incorporating the additional variables of perceived freedom in leisure and physical health status. A sample of Australian males and females ( $N = 379$ ) aged 65 years and over ( $M$  age = 77.23,  $SD = 7.48$ ) completed the Perceived Freedom in Leisure Questionnaire, the Yale Physical Activity Survey, the Duke Health Profile, the Sense of Belonging Instrument, the Centre for Epidemiological Studies-Depressive Scale, and the Suicide Subscale of the General Health Questionnaire. Results indicated that the model was invariant for gender, and accounted for 56% of the variance in suicidal ideation. The model indicated that physical health had direct relationships with each variable in the model. Perceived freedom in leisure predicted engagement in physical activity, sense of belonging-antecedent, and depression, whereas sense of belonging-psychological state predicted depression and suicidal ideation. Results suggest that interventions aimed at improving older adults' perceptions of freedom and personal choice with regard to their leisure experiences, maintaining optimal health, and increasing opportunities to foster feelings of belonging and relatedness with others, should protect against the development of mental ill health.

*Chapter 1: Introduction*

It has been widely accepted that older adults are those aged 65 years and above (Blazer, 1990; D'Mello, 2003; Grundy & Bowling, 1991; Teaff, 1985). Over the past three or four decades, the lives of older adults have undergone dramatic change. It is evident that older adults are now living longer (Gatz & Fiske, 2003; Williamson, Shaffer, & Parmelee, 2000). Consequently, the Australian population is aging, with the mean age at death increasing by five years for females and six years for males between 1981 and 2000 (Australian Bureau of Statistics, 2002; Gray et al., 2002). In particular, the proportion of individuals 65 years or older has increased from 12.1% in 1996 to 12.6% in 2001 (Australian Bureau of Statistics, 2002). As the aging population is increasing, there is a heightened need to monitor and maintain adequate physical and mental health among older adults (Henry et al., 2001).

The pattern of retirement has also changed (Choi & Wodarski, 1996; O'Brien Cousins, 1998). People are reaching retirement earlier due to the change in work habits (Kraus, 1998). This suggests that older adults are more active and are in more favorable financial positions, which allow them a more secure, and successful retirement than ever before. Despite these positive changes which have occurred over the years, mental illness is becoming increasingly common among older populations. Older adults are suffering clinical depression (Yang et al., 2001), loneliness (Moore, 1997), and social isolation (Kennedy et al. 1996). Further, this age group has the highest suicide rate when compared to other populations (Mireault & de Man, 1996; Szanto, 2003). In Australia, it has been reported that individuals aged 65 years and over have a 50% higher chance of suiciding when compared to the Australian nation as a whole (Australian Bureau of Statistics,

2000). It is therefore imperative to examine factors which may be responsible for creating loneliness, depression and suicidal ideation, in an effort to minimise these occurrences and enable older age to be a positive and enriching experience (Mireault & de Man, 1996).

### *1.1 Suicide and Suicidal Ideation among Older Adults*

Suicide has been defined when death has occurred from a direct consequence of a self inflicted, intentional action or behaviour (Silverman & Maris, 1995). Suicidal behaviours are actions which place individuals at high risk for engaging in self harm (Silverman & Maris, 1995). Evidence suggests that a continuum of severity for suicidal behaviours exists, with less serious and more prevalent behaviours at one end, through to increasingly more severe and less prevalent behaviours at the other (Mościcki, 1995). The behaviours often result from the combination of multiple etiologies, including psychological, biological, sociological, or economic risks. These factors together contribute to the increased risk of fatal suicide and lead to a wide range of nonfatal suicidal behaviours, ranging from gestures to actual attempts (Silverman & Maris, 1995).

Data from the Registries of Birth, Deaths and Marriages indicate that between the years 1979 and 1998, over 41,000 Australians died from suicide, and currently more than 2,500 individuals continue to die every year (Victorian Task Force Report, 1997). In particular, the rate of suicide for older adults aged 65 years and above is at least double that of younger age groups (Australian Bureau of Statistics, 2000). This highlights that older adults are committing suicide more frequently than any other age group within Australia.

It is likely that the reported rates of fatal suicide among older adults are an underestimate of the actual rates of suicide (Hepple & Quinton, 1997; Leenaars, 1991; Mireault & de Man, 1996; Snowdon & Baume, 2002). Rudmin et al. (2003) reported that fatal suicide is associated with many negative connotations among different countries and cultures. Fatal suicide can illicit negative emotions, contradict religious beliefs and practises, and may have financial and legal implications for the victim's family and friends. Snowdon and Baume (2002) reported that when reviewing coroners' files, it is possible that the deaths of a high number of older adults who suffer from a terminal illness, and who have taken their own lives, may not necessarily be recorded as suicide. Professionals may label fatal suicide occurrences in a more dignified way for the family, stating that death was the result of physical illness, for example (Baldwin, 1991; Moore, 1997; Rudmin, Ferrada-Noli, & Skolbekken, 2003; Scocco & DeLeo, 2002; Steenkamp & Harrison, 2000). As such, aggregated statistics with respect to suicide, and the extent of suicide deaths reported by coroners, should be presumed to be under-representative of the true occurrences among all age groups (Steenkamp & Harrison, 2000). It is likely that older adult fatal suicides may be more prevalent than actually documented.

It is generally accepted that fatal suicide is often preceded by suicidal ideation, which can be either hidden or known to others (Mireault & de Man, 1996; Scocco & DeLeo, 2002). Rather than overt actions, suicidal ideation refers to cognitions that vary from infrequent thoughts around the notion that life is not worth living, to very concrete, well thought-out plans for taking one's life (Diekstra & Garnefske, 1995). A definition provided by Holkup (2003) stated that suicidal ideation is the act of perceiving or talking about the possibility of suicide, which is viewed as an alternative option to a perceived

intolerable situation or circumstance. It is imperative to acknowledge that, from a developmental perspective, although older adults may think more about death when compared to other younger age groups, suicidal ideation is not a normal, developmental occurrence (Gallo & Rabins, 1999).

Fatal suicide occurrences are often premeditated among older adults (Holkup, 2003; Kennedy, Metz, & Lowinger, 1996; Szanto et al., 2002). If older adults are contemplating suicide, they are less likely to actually discuss their intent to die with others, such as family members, and if they do, families often dismiss their intentions (Baldwin, 1991; Kennedy et al., 1996; Scocco & DeLeo, 2002; Skoog et al., 1996; Smyer & Qualls, 1999; Szanto et al., 2002; Yip et al., 2003). The actual assessment and treatment of suicidality among aged populations poses a difficult task for both mental and health care professionals (Szanto, 2003; Waern, Rubenowitz, & Wilhelmson, 2003).

In summary, the rate of fatal suicide has been found to increase with age (Cattell & Jolley, 1995; McIntosh, 1995; Pearson et al., 1997; Szanto, 2003; Szanto et al., 2001; Szanto et al., 2002; Turvey et al., 2002; Waern, Rubenowitz, & Wilhelmson, 2003), and is often preceded by the experience of suicidal ideation (Holkup, 2003; Scocco & DeLeo, 2002). A paucity of research exists regarding all aspects of suicidality, including suicidal ideation among older adult populations (Cattell & Jolley, 1995; Cutcliff, 2003; Skoog et al., 1996). An understanding of the risk and protective factors of suicidal ideation among Australian older adults is clearly warranted (Scocco & DeLeo, 2000).

### *1.2 Common Risk Factors for Suicide among Older Adults*

Due to the high rate of fatal suicide occurrences within older populations, establishing which factors place individuals at risk of suicide remains a priority. This is

important, particularly as the risk of suicidal behaviour intensifies when the number of risk factors increases (McIntosh, 1995; Mościcki, 1995). Known risk factors for fatal suicide among older adults include residing in assisted living facilities (Gatz & Fiske, 2003), experiencing loneliness and isolation (Hepple & Quinton, 1997), not living in a marital type relationship (Frierson, 1990; Yip et al., 2003), having a past history of suicide attempts (Szanto, 2003), experiencing suicidal ideation (Scocco & DeLeo, 2002), and experiencing physical pain and illness (Catell & Jolley, 1995). Other factors include being of male gender (Ashok, 2004), the relative lethality of attempts (Baldwin, 1991), and experiencing depressive symptomatology (Ashok, 2004).

A well accepted risk factor associated with suicides among older adults is the type of residential accommodation they inhabit (Mireault & de Man, 1996; Werth, 2004). It has been documented that residents of assisted living facilities and nursing homes tend to experience higher levels of suicidal ideation and attempt suicide at a greater rate, than other older adults (Gatz & Fiske, 2003; Gottfries, 2001; Smyer & Qualls, 1999; Szanto et al., 2002). Due to the nature of the environment, residents tend to engage in indirect, self-destructive behaviours, such as starvation or refusal of fluids, as more direct means to commit suicide are unavailable (Szanto et al., 2002).

Individuals who live alone and feel lonely have also been found to be at a greater risk of suicide compared with people who reside with others and have adequate social networks (Frierson, 1990; Hepple & Quinton, 1997; Kennedy et al., 1996; McIntosh, 1995), and this is particularly true for males (Canetto, 1992; Yang et al., 2001). It is more common for older females to care for their impaired husbands, whereas only 18% of physically impaired wives are cared for by their spouses (Canetto, 1992). In addition,

older males often rely on their wives for assistance with daily living and emotional needs (Canetto, 1992). After becoming widowed, or no longer living in a marriage-like relationship, males may not have the adequate skills to maintain the level of care previously provided to them by their wives, or to remain socially connected with others. This loss of support can subsequently increase the risk of suicide for older males (Canetto, 1992).

Research has also identified marital status to be a protective factor against fatal suicide (Cattell & Jolley, 1995; Frierson, 1990; Hepple & Quinton, 1997). The marital relationship is a unique bond that is a typically long lasting, important interpersonal relationship (Antonucci, 2001). Individuals share experiences with their spouse, and also turn to them for comfort, and support during times of stress (Van Der Horst & McLaren, 2005). For older adults, these relationships are particularly important. With advancing age, individuals can experience a reduction in social ties among the community (Antonucci, 2001; Gottfries, 2001). Support for the powerful protective function marriage or a marriage-like relationship has against older adult fatal suicides was found by Hepple and Quinton (1997). It was reported that two thirds of the sample who engaged in nonfatal suicidal behaviour were not involved in a close relationship, such as being married. Similarly, Snowdon and Baume (2002) reported that 63% of the elderly sample who had committed suicide were, in fact, widowed, divorced, separated or single at the time of death, compared to 37% of persons who were married or living in a marriage-like relationship. These results offer support for the powerful influence interpersonal relationships exerts on older individuals, and the vital role it can have in protecting them from attempting and committing suicide (Hawton & Fagg, 1990).

Another common, robust predictive factor for completed suicide among older adults is having a previous history of suicide attempts (Coleman et al., 2004; DeLeo et al., 2002; Frierson, 1999; Harwood et al., 2000; Hepple & Quinton, 1997; Szanto, 2003; Yang et al., 2001). Supporting this finding, Snowden and Baume (2002) concluded that 30% of coroners' files reviewed for older individuals aged 65 years and over who died by suicide, had a previous suicide attempt. Similarly, Hepple and Quinton (1997) reported that there was a repetition rate of 5.42% per year for individuals re-attempting suicide, and of the non-fatal repeat attempters, all were female. This indicates that suicide attempts are a strong predictor of further attempts.

The lethality of suicide attempts is another obvious risk factor for late life suicide (Baldwin, 1991; Smyer & Qualls, 1999). Some methods of suicide are simply more likely to be successful than others. Common methods of suicide among older adult populations include firearms, hanging, suffocation, knifing, poisoning with non-prescription medications, jumping from heights, and carbon monoxide poisoning (Cattell & Jolley, 1995; Hawton & Fagg, 1990; Kennedy et al., 1996; Mościcki, 1995; Pearson et al., 1997). It was reported that in Australia during 1998, hanging was the most common suicide act utilised by both males (47.1%) and females (32.3%). In addition, it is widely accepted that males tend to adopt more lethal methods of suicide when compared to females (Ashok, 2004; Szanto et al., 2002; Szanto, 2003; Victorian Task Force Report, 1997), and consequently tend to have higher rates of suicide.

Support for this finding was evident in Harwood et al's. (2000) study that examined variables such as the nature of the suicide act in the United Kingdom. It was found that older males aged 60 years and over used more lethal methods of suicide, such

as hanging or shooting, whereas older women frequently used the method of drug overdose as their preferred means of suicide. It is challenging to identify suicide risk among older males as they are less likely to have prior attempts, due to the more lethal methods used. They have a higher suicide success rate, which places them in a vulnerable position in relation to attempted suicide (Szanto, 2003).

Although suicide is not always the result of an individual experiencing suicidal ideation (Mościcki, 1995), ideation is one of the strongest predictors of successful suicide among all age groups (Cattell & Jolley, 1995). Scocco and DeLeo (2002) investigated the relationship between suicidal ideation and behaviour, and the intensity of psychological distress among 611 elderly citizens, aged 65 years and above from a northern Italian city. It was reported that completed suicides among older adults often followed suicide ideation, with 58% of the sample having experienced at least one of the questions pertaining to death, including suicidal ideation and intent, within the previous year.

Similarly, a study conducted by Yang et al. (2001) examined various risk factors for late life suicide with a sample of Asian suicide attempters. The results found that all 55 older individuals who attempted suicide over a six year period, and were subsequently admitted into a gero-psychiatric unit, experienced suicidal ideation. Specifically, on admission, 100% of participants reported experiencing suicidal ideation, and 96.4% continued to report suicidal ideation within the first week of hospitalisation. It was also noted that six of the suicidal participants made a further suicide attempt. Finally, after an average of 30.6 days of hospitalisation, a high proportion (94.5%) of those who attempted suicide reported experiencing no suicidal ideation. Limitations of this study included that the older participants were obtained from a Veteran's hospital, and the sample was

predominantly male. In fact, 78.2% of the suicide attempters were male. Therefore, the sample may not represent the existence of suicidal ideation and subsequent suicide attempts in the wider older community (Yang et al., 2001).

### *1.2.1 Gender as a Risk Factor for Suicide among Older Adults*

One of the most significant socio-demographic variables found to be associated with late life suicide is gender (Ashok, 2004; Canetto, 1992; Cattell & Jolley, 1995; Gatz & Fiske, 2003; Lovestone & Howard, 1996; McIntosh, 1995; Rudmin et al., 2003; Snowdon, 1997; Snowdon & Baume, 2002; Smyer & Qualls, 1999; Szanto et al., 2002; Turvey et al., 2002; Yang, et al., 2001). It was reported that in 1998, 80.1% of the 2,683 registered suicides in Victoria were male (Victorian Task Force Report, 1997), and during the period of 1986 to 1995, males aged 85 years and older had much higher suicide rates than all other age groups (Steenkamp & Harrison, 2000; Victoria Task Force Report, 1997). Further support for the view that males complete suicides more frequently was found by Rudmin et al. (2003), who reviewed various predictors of suicides for older males and females of six age groups, across 33 nations. Results indicated that within every age group, in every one of the sample years examined (1965, 1970, 1975, and 1980), male suicide rates exceeded that of females. For each of the 33 countries examined, male suicide rates continued to exceed that of females by over 200%.

Similarly, a study conducted by Harwood et al. (2000) examined various demographic variables, the nature of the suicide act, and whether older participants contacted medical professionals prior to death in the United Kingdom. Data were obtained by reviewing information from coroners' records, general practitioner records, psychiatric case-notes, and where possible, interviewing a close relative or friend of the

individual. The study incorporated 195 individuals aged 60 years and above at the time of the suicide, with the deaths occurring between January 1995 and May 1998. Results indicated that older male suicide rates exceeded that of females by two to one.

In regard to gender differences and experiences of suicidal ideation, a study conducted by Skoog et al. (1996) found that older women aged 85 years and over experienced a higher frequency of suicidal ideation when compared to men. Explanations for the gender differences in suicides rates include that older females tend to be more knowledgeable about physical and mental health issues, and may feel more at ease at reporting this information (McCrae et al., 2005). As such, older females may have lower rates of suicide due to their more effective coping strategies, such as their tendency to seek professional assistance for psychological issues (Canetto, 1992). In contrast, it is possible that older males experience more difficulty in revealing such thoughts, and are less comfortable in confiding in professionals about their psychological difficulties or suicidal ideation (McCrae et al., 2005). Instead, males may portray their distress in terms of physical symptoms. Due to this physical presentation, treating professionals may be unaware of underlying suicidal ideation, and inadvertently increase older males' risk of suicide, due to the failure to treat the existing ideation (Canetto, 1992). As a result, the true incidence of suicidal ideation among older adult males may be under-reported (Skoog et al., 1996).

### *1.2.2 Physical Illness as a Risk Factor for Suicide among Older Adults*

The role of physical illness has also been identified as a significant predictor of suicide among older adults (Cattell, 1998; Conwell et al., 2000; Quan et al., 1999; Quan et al., 2002; Waern et al., 2002; Waern, Rubenowitz, & Wilhelmson, 2003; Yip et al.,

2001). Supporting this finding, Snowdon and Baume (2002) investigated different triggering factors of suicide among older adults by reviewing coroners' files. The authors concluded that 83% of the sample experienced at least one physical impairment or issue, and that for 34% of the sample, the presence of a physical illness or disability was the major factor preceding the suicide. In addition, physical illness was responsible for suicidal ideation in another 24% of the sample. The strengths of this study included the amount of information regarding the deaths, including the physical and mental condition of the deceased, and possible factors that contributed to their suicidal ideation. This information was also recorded from different sources, such as from spouses, general practitioners, and psychiatrists. In addition, the inter-rater reliability between the researchers was excellent. Nevertheless, information obtained from coroners' files needs to be viewed with caution, as the ability to determine the data's validity regarding the stressors prior to suicide is limited (Quan, et al., 1999; Rudmin, Ferrada-Noli, & Skolbekken, 2003).

Catell and Jolley (1995) reported that physical illness and pain are widely accepted risk factors for suicide among older adults. Older individuals who have attempted suicide often report that a significant antecedent to the attempt was the presence of a physical illness or chronic pain (Hepple & Quinton, 1997). Furthermore, Frierson (1990) reported that 48% of the elderly sample who attempted suicide experienced chronic medical illnesses, and others suffered from various transient ailments. The two most frequent conditions were congestive heart failure and obstructive pulmonary disease. The results suggest that physical illnesses were a significant risk factor for suicide attempts within this older sample. These results also supported past

research conducted by Mireault and de Man (1996), who found that the perception of ill-health was related to suicidal ideation among older adults.

Explanations for the relationship between physical health and suicide among older adults include the experience of pain associated with particular illnesses (Snowdon & Baume, 2002), increasing fears of incapacitation as the illness progresses (Conwell et al., 2000; Yip et al., 2001), and the fear of becoming a burden and dependent on loved ones (Snowdon & Baume, 2002; Quan et al., 2002; Szanto et al., 2002). Supporting this, Yip Chi, and Yu (1998) reported that suicides of physically ill, older adults may be viewed as acts of release from the enduring pain of the illness, which may have not received adequate medical attention.

Despite substantial research findings that have indicated that older adults who have poor health are at a greater risk for suicide, other research has found that physical illness alone is not responsible for suicide rates within older populations (Canetto, 1992). A study conducted by Szanto et al. (2002) investigated that it was the severity of the depression that older participants were experiencing, rather the presence of physical illness, or level of overall functioning, that differentiated older adults who completed suicide from those whose attempts were unsuccessful. This is consistent with another study conducted by Skoog et al. (1996), who reported that physical disorders were not related to suicidal ideation as strongly as mental illnesses such as depression, however participants suffering from three or more physical illnesses experienced a greater frequency of suicidal feelings.

Although the precise relationship between physical health and suicide may not be straight forward, it is likely that experiencing poor health may result in significant

lifestyle changes and, consequently, increase older adults' vulnerability for developing depression and subsequent suicidal thoughts. Supporting this, researchers have found that depressive symptoms may precede the physical presentation, or can be the result of poor health (Gatz & Fiske, 2003; Maynard, 2003; Takkinen et al., 2004), and that physical illness can often be comorbid with depression (Draper, 1994; Quan et al., 1999).

Therefore, it seems highly likely that depression increases the risk of suicide among older adults (Conwell et al., 2000).

### *1.2.3 Depression as a Risk Factor for Suicide among Older Adults*

Depression has the potential to cause morbidity and influence mortality (Hepple & Quinton, 1997; Holkup, 2003; Lovestone & Howard, 1996; Quan et al., 2002; Werth, 2004). An immense amount of research has consistently shown that clinical risk factors for late life suicide include the diagnosis of depression and associated symptomatology (Ashok, 2004; Canetto & Lester, 1995; Coleman et al., 2004; Conwell et al., 2000; Gottfries, 2001; Mireault & de Man, 1996; Salib, Cawley & Healy, 2000; Skoog et al., 1996; Snowdon & Baume, 2002; Szanto et al., 2001; Szanto et al., 2002; Turvey et al., 2002; Werth, 2004; Yang et al., 2001). Further support for this finding was provided by Szanto et al. (2001), who found that, after comparing suicidal and non-suicidal participants with recurrent major depression, those participants who expressed suicidal ideation were significantly more likely than those who did not to report higher levels of depression, anxiety, and hopelessness, and have more suicide attempts.

In an effort to explore how a small sample of older depressed adults who were experiencing suicidal ideation perceived meaning in their lives, Moore (1997) conducted a phenomenological study with 11 participants aged 65 years and over who were

admitted into various psychiatric units due to a diagnosis of depression and reported suicidal ideation. After finishing in-depth interviews, participants completed the Beck Depression Inventory in order to provide baseline data of depressive symptoms. Results showed that four of the participants' depression scores reflected moderate to severe depression, while five participants were experiencing severe depression. Only one participant scored in the normal range, while the final participant believed they were too unwell to complete the questionnaire. The results revealed a strong theme which reflected the psychological pain and suffering of participants. For example, one participant stated "I don't seem to care anymore. Nothing seems to have any meaning." The study enabled greater understanding of what participants felt about being older, suicidal, and feeling as though life had no meaning. Their desire was not that of suicide, but rather a means to escape the psychological pain they felt powerless to change (Moore, 1997). These results were supported by Waern, Rubenowitz, and Wilhelmson (2003), who found that, among other risk factors, individuals aged 75 years and above, who suffered from minor and major depression, had higher rates of suicide. Interestingly, however, the researchers concluded that these individuals were less likely to have been treated for their depression when compared to younger age groups.

An Australian study was conducted by Snowden and Baume (2002) to investigate the relationship of the antecedent stressors of depression, such as physical illness and disability, and late life suicide. The researchers reviewed the files of 210 individuals aged 65 years and above (mean age = 74.5 years), who resided in Sydney, and who had clearly purposively taken their own life between the years 1994 and 1998. This figure equated to approximately 20 per 1,000,000 per year within this age group, which is comparable to

the overall suicide rates of Australia (Victorian Task Force Report, 1997). No rural areas were included in the study. The researchers noted whether the deceased older adults were suffering from depression or another mental illness at the time of death. Other information that was recorded included whether previous suicide attempts had been made, the presence of recent or past physical illness, and the history of psychiatric involvement. The results showed that 76% of the sample had a definite diagnosis of depression at the time of the suicide, and another 12% were most likely depressed, however, there was insufficient detail in the files to confirm the diagnoses. Finally, 12% of the sample was found not to be depressed at the time of their death.

Similarly, Cattell and Jolley (1995) found that, after reviewing 100 coroners' files of people aged 65 years and older who had died by suicide, 60% were clinically depressed, and 25% of those clinically depressed were receiving prescribed antidepressants. Furthermore, 43% of these individuals had been in contact with their general practitioner in the month prior to death, but only 14% had links with psychiatric services. These results highlight the high proportion of older depressed adults who experience not only suicidal thoughts, but subsequent suicidal behaviour, and how only a minority of participants were actually being treated for the disorder.

To provide a comparison with Western findings, a study conducted by Yang et al. (2001) aimed to examine characteristics of elderly Chinese persons who had recently attempted suicide in Taiwan. The researchers screened elderly persons aged 65 years and above who were admitted into the gero-psychiatric unit due to a recent suicide attempt, during a six year period from 1991 to 1996. After comparing participants who attempted suicide and those who did not, it was clear that suicide attempters experienced

significantly higher rates of depressive and adjustment disorders, and lower rates of organic mental illnesses. This study demonstrated that the relationship between depression and the risk of suicide also occurs among Chinese older adults. This cross-cultural finding highlights the immense need for professionals to understand the relationship between depression and suicide among older adults (Yang et al., 2001).

While it is clear that depression is often an antecedent factor for suicidal ideation and subsequent behaviour (Szanto, 2003), it is acknowledged that not all older adults suffering depression will commit suicide. In order to view depression from the individual's perspective, Ugarriza (2002) conducted a study of the underlining themes of distress and feelings of emptiness that older women may experience during depression. The convenience sample included 30 women with a mean age of 85 years, who were currently inpatients in a private hospital in the United States receiving treatment for depression. Results highlighted many common themes among the women. Some of the women reported that they believed the feelings of loneliness which developed after the death of their beloved spouse triggered their depression, while others reported that missing friends and family after relocating from their previous residence was responsible. Another important theme that arose from the study reflected a fear of not being able to recover the ability to be independent. These fears reflected thoughts of being useless and inadequate, and the perception that they would remain incapacitated for ever. Despite these overwhelming feelings of despair, suicidal ideation was infrequently mentioned. Although participants wished their situation was more positive, only 5% of the sample reported suicidal ideation (Ugarriza, 2002). This study provides a valuable insight into the beliefs that individuals experiencing depression have regarding its etiology.

Importantly, results demonstrate that not all individuals with a diagnosis of depression will turn to suicide as a way to end their suffering.

In summary, it appears older adults commit suicide more than other age groups (McIntosh, 1995; Pearson et al., 1997; Rudmin et al., 2003; Turvey et al., 2002). Various risk factors for suicide have been identified (Harwood et al., 2000; Rudmin et al., 2003; Szanto et al., 2002; Yang et al., 2001), and include being male, having poor health, experiencing suicidal ideation, and having a diagnosis of depression. By increasing the awareness of the impact that depression has on mental health, it should be possible to reduce the suicide rates of older adults (Ahmed & Takeshita, 1997; Cattell & Jolley, 1995; Szanto et al., 2002; Van Der Horst & McLaren, 2005).

### *1.3 Depression among Older Adults*

Depression is characterised by a state where an individual experiences depressed mood that occurs for most of the time throughout the day, diminished interest or pleasure in activities, changes in appetite with associated weight changes, and sleep disturbances. Other symptoms include feelings of guilt, worthlessness, and helplessness, recurrent thoughts about death, psychomotor agitation or retardation, and concentration difficulties (American Psychological Association, 2002; Moore et al., 1999). These symptoms must be at a level where they impair daily functioning, and not be attributed to another mental disorder, before a diagnosis can be confirmed (American Psychological Association, 2002).

For older adults, the final decades of life can be marked by a shrinkage of social networks, deteriorating physical health, and reduced cognitive ability. This can result in feelings of emptiness, boredom, and loneliness (Ashok, 2004; Davis, 1996; Gottfries,

2001; Kennedy, 1996). It is these feelings which can contribute to the high rates of depression among older adults. When compared to other age groups, it has been consistently documented that depressive symptomatology and a diagnosis of depression, are more prevalent among older adult populations (Ashok, 2004; Blazer, 1990; Davis, 1996; Jacoby & Oppenheimer, 1991; Lasser et al., 1998; Smyer & Qualls, 1999).

It has been reported, however, that estimates of late life depression vary greatly depending on the population reviewed, location, sample size, what constitutes depression, and the method employed to arrive at a diagnosis (Maynard, 2003; Wells & Stacey, 1998). Gottfries (2001) reviewed recent prevalence data of depression in late life, and reported that approximately 15% of those aged 65 years were experiencing a depressive disorder, however, the prevalence of a major depressive disorder was relatively low in this population. This low rate was attributed to possible premature deaths due to physical illness or suicide, and due to the possibility that a different depressive presentation among older adults exists. It is possible that other older adults were experiencing a depressive disorder, however, the presentation of the disorder may not have satisfied the typical diagnostic criteria used to make such a diagnosis.

Support for this proposition was provided by Serby and Yu (2003) who reported the prevalence of major depression among the older adult population in the United States was 1.4% for women and 0.4% for males, and that, regardless of ethnicity, depression was present in approximately 1% of the population. Moreover, 2% of older adults suffered from a dysthymic disorder, and 4% suffered from an adjustment disorder with depressed mood. Alarmingly, 15% of older adults experienced significant depressive symptoms that did not meet the criteria for a specific depressive disorder. These statistics

highlight that compared to younger age populations, older adults may experience a different depressive presentation (Finkel, 2003).

Gottfries (2001) reported that relying on standard accepted criteria when making a diagnosis of depression among older adults, such as the international classification system, can be difficult. Making an accurate diagnosis of depression is complex due to physical issues that may be present. Mental health and medical professionals must be mindful of the complex depressive presentation that older adults can exhibit, and that depression among this age group can frequently be associated with an increase in somatisation, physical illnesses, apathy, and cognitive impairment (Ahmed & Takeshita, 1997; Lasser et al., 1998; Reynolds et al., 2001). Further support for the presence of increased somatic complaints among older adults was offered by Gallo and Rabins (1999). It was noted that older adults experiencing depression often have somatic complaints that are not explained after completed medical tests, and they also can experience overwhelming feelings of hopelessness. An explanation for this was provided by Davis (1996) and Szanto et al. (2002), who suggested that older adults will frequently suppress their true psychological and emotional distress and instead, accentuate their physical symptoms due to their perception that this may be more acceptable, due to the natural tendency for others to assume old age is associated with poor physical health. As a result, depression can be under-diagnosed and therefore under-treated in this age group (Davis, 1996; Draper, 2000; Gatz & Fiske, 2003; Gottfries, 2001; Kennedy, 1996; Lovestone & Howard, 1996; Snowden, 2001; Smyer & Qualls, 1999).

The need for special considerations and possibly the inclusion of additional criteria when making a diagnosis of depression among older people has been highlighted.

Behaviour such as exhibiting poor self-care, treatment non-adherence, expressing persistent complaints of physical issues, such as fatigue or pain, frequently utilising medical facilities when there is no physical justification to do so, or verbally expressing pessimism regarding discharge from hospital (Ahmed & Takeshita, 1997; Serby & Yu, 2003), should also be considered when assessing for depression among older populations. Despite this complexity, the presence of depressive symptomatology should not be viewed as a normal part of aging (Ahmed & Takeshita, 1997; Maynard, 2003). Mental illness is not a consequence of aging, and becoming older is not a depressive disorder (Gatz & Fiske, 2003; Maynard, 2003; McCrae et al., 2005; Smyer & Qualls, 1999).

Depression is a psychiatric disorder which can be successfully treated (Werth, 2004). When depression is undetected and untreated, it can lead to serious functional impairment, additional psychiatric and medical morbidity, and, ultimately, increase the risk of premature death by suicide (Ahmed & Takeshita, 1997). The recognition of older adults' unique depressive presentation should lead to increased rates of diagnoses and treatment. This is important as studies have found that effective treatment is linked to improvement in 80 to 90% of those individuals suffering depression (Gottfries, 2001; Reynolds et al., 2001).

In summary, depressive symptoms are prevalent among older adults (McCrae et al., 2005), and the experience of depression may be expressed differently within this population (Davis, 1996). This may inadvertently lead to lower diagnoses of depression (Draper, 2000; Gottfries, 2001). As a result, substantial research efforts have been instigated to determine various risk factors for developing depression in later life, in order to accurately assess and diagnose the disorder (Reynolds et al., 2001).

#### *1.4 Risk Factors for Developing Depression in Older Adult Populations*

Identifying significant risk factors for developing depression promotes an increase in awareness and ultimately assists in the diagnosis and treatment of depression in older age (Lovestone & Howard, 1996; Werth, 2004). There are many different risk factors for developing depression, including increasing age (Wallace & O'Hara, 1992), being single or widowed (Hough, Brumitt, & Templin, 1999), residing in assisted living facilities (D'Mello, 2003), feeling isolated (McCrae et al., 2005; Wenger, 1997), being female (Smyer & Qualls, 1999), and having poor physical health (Cuijpers & Lammeren, 1999; McCrae et al., 2005; Yip et al., 2003).

Age is an especially important risk factor for developing depression (Osborn et al., 2003; Takkinen et al., 2004; Wallace & O'Hara, 1992). After reviewing several studies of the data for the prevalence of depression in late life, Snowdon (2001) reported that, although there are mixed findings about the exact prevalence of depression, it is widely accepted that depression is very common in old age. Specifically, it appears that there are two waves in the prevalence of depression, with the first wave occurring around middle older age or earlier, and the second peak occurring in late older age (Snowdon, 2001).

A study in Iowa, conducted by Wallace and O'Hara (1992), examined changes in the experience of depressive symptoms with increasing age among an older adult sample aged 65 years and above, who resided in the community. Participants completed various measures, including the Centre for Epidemiological Studies-Depression Scale (CES-D), initially. They then attended interviews scheduled at three and six years after completing baseline measures, and they were contacted by telephone in other years: one, two, four

and five, to discuss any changes in their living arrangements. It was concluded that at each time period, the CES-D scores increased with each age category. Specifically, each age category demonstrated substantial increases in scores at the three, and six year follow up assessments. This suggests that as this older population aged, they experienced a greater number of depressive symptoms compared to younger participants, and this was particularly so for those aged 85 years and above. However, as the study utilised a rural sample, the results may be limited to this population and not to wider metropolitan older adult populations (Wallace & O'Hara, 1992).

Another important factor that protects against developing depression is being married (Choenarom, Williams, & Hagerty, 2005; Hough, Brumitt, and Templin, 1999; Rohrer, Borders, & Blanton, 2005; Van Der Horst & McLaren, 2005). It has been reported that the marital relationship may be more important for older males, with widowed or divorced males possessing higher rates of depression than males still married, or living in a marriage-type relationship (Lovestone & Howard, 1996).

Another protective factor is the type of accommodation in which older people live. Elderly residents of nursing homes and other residential hostels have been found to have higher rates of depression when compared to residents dwelling in the community (D'Mello, 2003; Lovestone & Howard, 1996; Smyer & Qualls, 1999). Although it is not entirely clear why this occurs, it has been suggested that community dwelling residents who are able to continue to reside in their family homes, they perceive as safe, reassuring and protective environments, and they can remain independent. When older adults can no longer cope with residing in the community due to increased disability or illness, and are required to relocate into supported residential environments, they perceive the relocation

as a loss of independence and privacy. This transition may trigger the development of depression among vulnerable older adults (Lovestone & Howard, 1996; Smyer & Qualls, 1999).

Older adults who are engaged in social networks tend to have lower rates of depression than those who feel isolated and lonely (Russell & Cutrona, 1991; Wallace & O'Hara, 1992; Wenger, 1997). Due to the vital role social networks play in protecting individuals from depression, a study by Tremethick (2001) was aimed at exploring the differences in social networks of residents of assisted living facilities and elderly residents in the community who received assistance from various home-health services. One hundred and sixty participants, aged 65 year and above, residing in rural areas in the United States were recruited for the study. Results showed that participants residing in assisted living facilities experienced significantly lower levels of social networks, and had mean social network scores that were associated with a high risk of feeling isolated.

Although feelings of emptiness, loneliness and social withdrawal are associated with being depressed (Wenger, 1997), feelings of aloneness may be a positive experience for some individuals. Due to a lack of research dedicated to examining these various facets of aloneness, Pierce, Wilkinson, and Anderson (2003) conducted a study which investigated the concept of aloneness among eight older women who were being treated for depression. It was found that when depressed, the women perceived aloneness as a fearful vulnerability. They believed they were helpless and experienced a reduced sense of control. However, when their depressive symptoms abated, previous experiences of aloneness had been transformed into a likeness of a 'blank canvas'. The women viewed aloneness as an opportunity to express their thoughts, needs and experiences. This

regained sense of control enabled the women to be less indecisive, regain a sense of hope, enjoy the newly recovered freedom of choice, and explore their sense of self. This renewed, therapeutic sense of aloneness resulted in a positive, powerful experience that enabled the women to once again become connected to those around them (Pierce et al., 2003).

#### *1.4.1 Gender as a Risk Factor for Developing Depression*

It has been found that women frequently report more depressive symptoms across the life span than men (Gatz & Fiske, 2003; Mościcki, 1995; Smyer & Qualls, 1999; Takkinen et al., 2004; Wallace & O'Hara, 1992). A Denmark study conducted by Barefoot et al. (2001) examined the influence of gender on depression in older adults over a thirty year period. Seven hundred and thirty nine community dwelling residents completed a depression inventory at ages 50, 60 and 80 years, and a cross-sectional and longitudinal analysis was performed. Results indicated that older females experienced higher levels of depression at ages 50 and 60 years when compared to males. However, older males demonstrated a strong increase in depressive symptoms between ages 60 and 80 years, to the point where depression levels were similar to older females (Barefoot et al., 2001). This result suggests that although females' experience of depression remains relatively stable in late life, older males experience greater depressive symptoms as they age.

Similarly, Wallace and O'Hara (1992) found that whereas females had higher scores of depression as measured on the CES-D compared to males, gender differences decreased as older males reported higher levels of depression in later life. A possible explanation for the steep rise in depression among males may be attributed to older

women seeking psychological help more often than older males (Gatz & Fiske, 2003; Takkenen et al., 2004), or that older males may experience poorer health in late life when compared to females (Wallace & O'Hara, 1993). Another explanation for this finding was offered by Barefoot et al. (2001) who suggested that the rise in males' depressive symptoms, particularly after the age of 60 years, may be due to the changes they experience in their social roles after retirement, and having reduced contact with previous work colleagues (Barefoot et al., 2001). A limitation of this study was the high attrition rate among the participants with higher levels of depression, therefore, the generalisability of the findings to the wider older adult population might be limited. Nevertheless, as the participants were all born in the same year, cohort effects were minimised (Barefoot et al., 2001).

Similarly, Takkinen et al. (2004) investigated gender differences in reported depressive symptoms, subsequent diagnoses of depression, and the use of antidepressant medications among older unlike-sex twin pairs (i.e., brother and sister pairs). This design was used in an effort to control for the effects of age, and to a certain extent, the influence of genetics and environmental factors in the development of depression. The final sample included 249 unlike-sex twin pairs ranging in age from 70 and 80 years. Participants completed baseline measures including the CES-D, a demographic survey, and whether they were taking antidepressant medication. Information from medical records was also obtained with participants' permission. This information was used to determine whether participants had confirmed diagnoses of depression, and allowed the examination of the psychiatric history surrounding the diagnosis. One hundred and forty five pairs completed the follow-up survey four years after the initial survey. Results of the study indicated that

at baseline, women had consistently higher levels of depression than their brothers, and also had higher rates of diagnoses of minor and major depression. In addition, both males and females' depressive symptoms gradually increased between baseline and follow-up assessments. Brothers were more likely to receive a diagnosis of depression after the age of 60. Due to this increase, no gender differences were found in the number of reported depression symptoms at the follow-up assessment. In regard to antidepressant medication use, results indicated a similar number of women and men were taking medication.

Explanations of the apparent gender differences, and the increase in depressive symptoms over time also reflected various demographic factors including being married, the level of physical functioning, and financial resources (Takkinen et al., 2004). The strengths of the study included the use of self-reported symptoms of depression as well as medical information to substantiate diagnoses. This enabled a comprehensive picture of the prevalence of depression among older adult populations to be obtained. A further strength of the study included using matched pairs, although this type of sample presents methodological difficulties, such as needing both individuals of the twins to be alive, and both agreeing to participate (Takkinen et al., 2004). Nevertheless, the results offer support for the finding that females often report higher levels of depression, but with advancing age, gender differences tend to decrease with the rise in symptoms in older males, often because of demographic factors such as employment status.

Similarly, a study conducted by Wells and Stacey (1998) investigated the prevalence of depressive symptoms among 1000 older adults aged 65 years and over, who resided independently in Melbourne. Although results indicated that older females reported more depressive symptoms, and were more likely to be diagnosed as depressed

when compared to males, the difference between the genders was negligible. In addition, results indicated that, overall, females within the sample tended to be older, widowed, reported poorer health, and required more assistance to complete daily activities such as housework. To determine whether these factors may explain gender differences in the level of depression, logistic regression analyses were performed. Results suggested that, for older females, being unable to complete activities of daily living and being widowed and feeling alone significantly increased their risk of developing depression. These findings indicate that, although factors which increase the likelihood of older females being classified as depressed exist, perhaps among community samples, the prevalence of depression among older males and females is comparable (Wells & Stacey, 1998).

#### *1.4.2 Physical Health as a Risk Factor for Developing Depression*

It is widely accepted that poor physical health is another significant risk factor for developing depression (Blair et al., 2005; Cuijpers & Lammeren, 1999; Gatz & Fiske, 2003; Katz, 1998; Lammers, 2002; McCrae et al., 2005; Osborn et al., 2003; Reynolds et al., 2001; Serby & Yu, 2003; Takkinen et al., 2004; Williamson & Schulz, 1992; Yip et al., 2003). Keller-Olaman et al. (2004) investigated various factors of self-rated health by exploring mechanisms through which prior psycho-social variables shaped individuals' current health status. The survey data included 739 New Zealand women who participated in a health and development survey in 1994. Participants completed various mental health measures including the CES-D, as well as other lifestyle questionnaires. Women who rated their health status as 'good', and particularly those who rated their health as 'moderate to poor', reported a higher number of depressive symptoms than those who rated their health as 'very good'. In addition, a significant linear relationship

was found between reported poor health and the number of chronic illnesses, acute symptoms, and reported lifestyle limitations as a direct result of illness. Participants who had reported 'moderate to poor' health reported greater lifestyle limitations as a result of anxiety than those with 'adequate' health. These results highlight how inadequate health is associated with individuals' mental health and functional ability, a finding which is supported by other research (Cuijpers & Lammeren, 1999). In addition, the researchers indicated that further study was required to examine the relationships between poor health and various role limitations, such as exploring how poor health influences engagement in recreation activities when compared to engagement in social activities (Keller-Olaman et al., 2004).

A study conducted by Hough, Brumitt, and Templin (1999) investigated the association between chronic illness and depression among a female urban United States sample with ages ranging between 19 and 87 years. The relationships between the number of reported chronic illnesses and the subsequent demands placed on the individual's life as a result of the illness, the perceived level of social support, and levels of depression were examined. It was found that 24% of the women who reported experiencing chronic illness, had scores that suggested they were clinically depressed. Interestingly, there was no significant direct relationship between the number of chronic illnesses and depression, rather, the relationship between multiple chronic illnesses and depression was only significant through the influence illness had on the demands of the physical illness. This influence directly and indirectly increased depressive symptoms through decreasing social support. These findings suggest that for urban women who suffer multiple chronic physical illnesses, poor health directly affects the demands placed

on their lives, which in turn reduces their social support, and subsequently increases their experience of depressive symptoms (Hough, Brumitt, & Templin, 1999).

These studies indicate that poor health, as well as the consequences that poor health has on individuals' lifestyles, can influence reported levels of depression (Ugarriza, 2002). In addition, other research has found that individuals' perceptions of their health, rather than their actual health status, can also determine the level of reported depressive symptoms (Williamson & Schulz, 1992). Alpass and Neville (2003) investigated the relationship between loneliness, physical health, and depression among a sample of older 217 men, with ages ranging between 65 and 89 years. Results showed that male participants who rated their physical health as 'poor' had higher scores of depression, particularly among those who also had an accompanying diagnosis of physical illness or disability. Interestingly, participants with a diagnosis of a long-term illness or disability had lower levels of depression. These results indicate that a positive perception is influential in safeguarding against mental ill health (Alpass & Neville, 2003). Although physical illness may be apparent, if the individual does not perceive it to be a barrier, the probability of developing depression is lower.

The results of these studies highlight different ways various health factors can influence depression among older populations. For instance, the presence of illness, possible functional impairments, and pain may act as specific stressors for the development of depression. In addition, it has been reported that particular illnesses, such as strokes, may have direct physiological effects which result in depressive symptoms, and that depression may also result from side effects of some medications (Gatz & Fiske,

2003). Gatz and Fiske also reported that the effect of physical health on depression between males and females requires further investigation.

Collectively then, physical health has been found to directly and indirectly impact on mental health. It is likely that greater functional impairments and lifestyle changes associated with increasingly poorer health are responsible for increasing older adults' vulnerability to depression. The role of gender in this complex relationship has also been seen as under researched (Cuijpers & Lammeren, 1999; Gatz & Fiske, 2003), as has the extent to which poor health influences social and recreational involvement of older adults (Keller-Olaman et al., 2004).

In summary, identifying and understanding the risk factors for depression is crucial for effective treatment to be initiated. Significant risk factors for developing depression among older adults included increasing age (Wallace & O'Hara, 1992), being female (Satariano, Haight, & Tager, 2002; Smyer & Qualls, 1999; Wallace & O'Hara, 1992), and poor physical health (Gatz & Fiske, 2003; Yip et al., 2003). In addition, experiencing social isolation and not feeling connected with others was found to effect mental health. Thus, the importance of relating to the surrounding environment and with others cannot be overstated (Hagerty et al., 1993; Thompson & Heller, 1990).

### *1.5 Theory of Human Relatedness and the Importance of Relating to Others*

The theory of human relatedness states that humans strive to establish and maintain relatedness to other individuals, objects, environments, and society (Hagerty et al., 1993). This enables them to survive and develop as a person (Hagerty et al., 1993). Although relatedness encompasses many associated concepts, including loneliness and attachment, Hagerty et al. (1993) stated that an organised framework to study relatedness

is scant. Consequently, they developed a theory of relatedness which could be utilised to assess clients' levels of relatedness, and subsequently intervene if required (Hagerty et al., 1993). Although various concepts of the theory included attachment, alienation, loneliness, and social support, the core construct of the theory was relatedness (Hagerty et al., 1993). Relatedness was defined as the type of experience and involvement individuals have when in any sort of relationship, with the focus being on the perception of the quality of the interchange between the individual and the external referent in that relationship (Hagerty et al., 1993). Referents can include other individuals, objects, groups, or environments, and the quality of this relationship can be perceived as comfortable, which has the capacity to counteract anxiety, or uncomfortable which leads to feelings of anxiety (Hagerty et al., 1993).

It is believed that individuals continually move through various states of relatedness over time, and do so when engaged with different referents. It is the frequency of shifts and the intensity and duration of the involvement with referents which appear to be important determinants of overall well-being (Hagerty et al., 1993). It has been suggested that continual movement throughout states of relatedness may reflect a greater sign of health, rather than stagnation within one state alone (Hagerty et al., 1993).

Hagerty et al. (1993) identified four dominant processes, referred to as social competencies, which are implicated in establishing and promoting the relatedness states: reciprocity, mutuality, synchrony, and sense of belonging. Reciprocity, mutuality, and synchrony reflect the quality and intensity of exchanges occurring within involvement with a referent, individuals experiencing common goals or opinions with others, and experiencing a sense of congruence between subjective rhythms and external

involvement with referents, respectively. Sense of belonging is achieved when an individual is involved in a system or environment and they perceive that their involvement is a fundamental element within that relationship (Hagerty et al., 1992). Unfortunately, much of the work conducted in assessing this concept is anecdotal or narrative, rather than empirical (Hagerty et al., 1993).

It is suggested that the extent to which these four competencies occur in various relationships with external referents will ultimately influence and subsequently determine the individual's overall state of relatedness (Hagerty et al., 1993). Thus, if an individual experienced heightened levels of sense of belonging, reciprocity, mutuality and synchrony, they, in turn, will experience feelings of connectedness from the involvement with referents. Likewise, lower levels of these four competencies will influence the individual, leading them to experience disconnectedness with respect to their relationship with any given referent at that time (Hagerty et al., 1993).

Any disruptions that may occur in an individual's competencies or movement throughout the various states of relatedness can influence and contribute to biological, psychological, or social disturbances within an individual (Hagerty et al., 1993). These disturbances can then influence the states and competencies of relatedness, which can subsequently impact on an individual's mental health and overall well-being (Hagerty et al., 1993).

In summary, it is evident that individuals strive to develop and maintain personal relatedness to others. When this is achieved, individuals feel connected and secure in their relationships (Hagerty et al., 1993). Future research is clearly required to examine what impact sense of belonging has on individuals' mental health (Hagerty et al., 1993).

This will enable professionals to detect possible deficits in experiences of relatedness, and ultimately help individuals to enhance experiences of belonging to others around them.

### *1.6 Defining Sense of Belonging*

There has been a growing interest over the years concerning individual's fundamental motivation to maintain stable relationships, where a feeling of connectedness and belonging to others is achieved (Baumeister & Leary, 1995). This interest has recently been extended to investigate the role that sense of belonging has within individuals' lives. Sense of belonging is an interpersonal phenomenon that has been defined as the experience of personal involvement in either a system or an environment, in such a way that the individual feels they are an important part within the relationship (Anant, 1967; Hagerty, et al., 1992). Belonging can be considered from different perspectives including the psychological, sociological, physical, and spiritual. Therefore, belonging can be achieved with other people, groups, or objects, or within organisations, from spiritual dimensions, and from both physical and social environments. From a psychological perspective, belonging reflects an internal affective evaluation of fitting in, hence, it is the person's perception of being valued and important in relation to the referent (Hagerty et al., 1992). The sociological perspective of belonging can include behavioural referents such as involvement with social groups or organisations, whereas the physical perspective of belonging refers to the actual possession of objects or places. From the spiritual perspective, sense of belonging consists of a metaphysical relationship with either a being or place which exists at a universal level (Hagerty et al., 1992).

Hagerty et al. (1992) stated that despite an individual being in close proximity to others while engaged in activities, it does not automatically imply that a sense of belonging has been psychologically achieved, though it might imply a sociological belonging exists. Therefore, individuals can move through the objective stages of sense of belonging, yet subjectively report low levels of valued fit within the system or environment. Thus, there is more to experiencing a sense of belonging than just proximity (Hagerty et al., 1992).

#### *1.6.1 Sense of Belonging-Antecedents and Psychological State*

In order for sense of belonging to occur, various antecedents must be achieved. These antecedents include that individuals have the energy for involvement with others, and believe they have potential, and the need for meaningful involvement. In addition, the willingness to experience shared or complementary characteristics within a relationship must exist (Hagerty et al., 1992; Hagerty & Williams, 1999). Once the antecedent component is present, an individual has the potential to experience the psychological state of belonging. These are the two defining characteristics of achieving sense of belonging. First, belonging relates to the experience of being valued and involved with others or groups. This is achieved when an individual feels needed, accepted, and perceives that others value what they contribute to the relationship (Hagerty et al., 1996; Hagerty & Williams, 1999). Second, when an individual believes their characteristics articulate with or complement the system or environment in which they are engaged, then the dimension of 'fit' has been achieved. Hence, the individual believes they fit into, or are congruent with others around them through the perception of shared characteristics (Hagerty et al., 1992; Hagerty et al., 1996). Sense of belonging is a

complex interpersonal concept which needs to be facilitated, rather than simply resulting from interactions with others (Bailey & McLaren, 2005).

Research has begun to emerge which supports the conceptual development of sense of belonging. Hagerty and Williams (1999) found that sense of belonging-antecedents had a direct relationship with sense of belonging-psychological state within their sample of college students ranging in age between 18 to 75 years. Similarly, in their recent study, Bailey and McLaren (2005) also found that the antecedents subscale directly predicted sense of belonging-psychological state. These findings offer support for the notion that possessing energy and motivation for involvement with others, along with possessing the skills to belong, are essential requirements, before the psychological component of sense of belonging can be obtained (Bailey & McLaren, 2005; Hagerty & Williams, 1999).

#### *1.6.2 The Relationship between Physical Health and Sense of Belonging*

In order for individuals to fit in and be accepted by others they are required to have high levels of energy and desire to be with others that allow them to actively pursue social interactions and interpersonal relationships (Hagerty et al., 1992). However, older age is typically associated with deteriorating health and reduced levels of previous functioning, therefore, it is likely that older adults' will have lower levels of motivation, energy and desire to seek out relationships with others. In addition, the ability to acknowledge the psychological component of sense of belonging is likely to be impaired when unwell. This suggests that a positive relationship may exist between health status and both elements of sense of belonging. Research has yet to investigate the impact that

older adults' physical health status has on the development and maintenance of sense of belonging.

### *1.6.3 The Relationship between Sense of Belonging and Mental Health*

The consequences of low levels of sense of belonging can be widespread, particularly in regard to the psychological functioning of individuals (Hagerty & Williams, 1999; Tikkaninen & Heikkinen, 2005). When individuals have little involvement with others and experience reduced levels of belonging, they can experience a sense of unimportance, and the belief that they do not 'fit in' anywhere. This can result in feelings of loneliness, alienation, hopelessness, and depression (Bailey & McLaren, 2005; Hagerty et al., 1992; Moore, 1997). Supporting this, Baumeister and Leary (1995) theorised that individuals seek out relationships with others to obtain feelings of relatedness and connectedness, and when relationships become threatened, broken, or neglected, individuals can experience negative affect. In some instances, the experienced reaction to the loss of belonging can be so negative it can result in psychological pathology.

Anant (1967) conducted a study to examine whether a positive relationship existed between an individual's feelings of sense of belonging and mental health. The sample comprised 47 nursing students (33 females and 14 males) with ages ranging between 18 and 24 years (mean age of 18.9 years). It was found that when participants believed they were an integral part of a greater system, such as a group, they were more at ease and less likely to experience anxiety, owing to the support of those around them.

This pioneering work into the effects of sense of belonging established a clear and positive link to individuals' mental health. Despite this promising finding, the study

possessed various methodological flaws and limitations which compromised the reliability of the conclusions. The measures utilised lacked adequate psychometric properties, and the sample was small (Hagerty et al., 1996). Hagerty reported that, until recently, investigations had not been grounded in sound theoretical or empirical foundations, rather, descriptions of the concept have reflected personal or narrative accounts of the importance of belonging.

Due to the lack of empirical literature regarding the extent to which the role that sense of belonging has in providing protection against mental ill health, Hagerty and Williams (1999) examined the relationships between sense of belonging, social support, conflict, loneliness and depression. Their second aim was to investigate whether sense of belonging adequately predicted depression in the context of other relatedness concepts, with a sample consisting of both clinical and community participants. The clinical sample comprised 31 participants with a mean age of 38.8 years, who had a diagnosis of major depression and were currently receiving treatment in various psychiatric units. The community sample was 379 college students who ranged in age between 18 to 72 years. All participants completed the questionnaire package, which contained the Sense of Belonging Instrument and the Beck Depression Inventory.

Results of the partially ordered path model revealed that the variables in the proposed model explained 64% of the variance of depression (Hagerty & Williams, 1999). The type of participant, college student or clinical participants, had the greatest direct effect on depression, then sense of belonging-psychological state, followed by loneliness. Sense of belonging-antecedents unexpectedly had a significant negative relationship with depression; however, this influence was most influential via indirect

effects (Hagerty & Williams, 1999). Social support failed to display a significant direct path to depression, suggesting that its influence may be stronger indirectly. This indicates that sense of belonging was a superior predictor of depression when compared with perceived social support (Choenarom, Williams, & Hagerty, 2005), hence, an individual's level of sense of belonging may be more relevant, and more important to the experience of depression, than friends and colleagues (Hagerty & Williams, 1999). Hagerty and Williams (1999) highlighted that further research was required to explore all components of sense of belonging, the characteristics and predictors of belonging, and the protective mechanism it appears to offer in regard to mental health (Hagerty et al., 1993).

The important influence sense of belonging has on mental health was also supported by Hagerty et al. (1996). Results showed that, for both males and females, lower levels of sense of belonging-psychological were related to experiencing loneliness, depression, current or past suicidal ideation, subsequent suicide attempts, and having past psychiatric treatment. These relationships were stronger for females. These findings are consistent with other research which has shown relationships between lower scores on the sense of belonging-psychological state, and feelings of loneliness, anxiety, depression and suicidal ideation (Bailey and McLaren, 2005; Choenarom, Williams, & Hagerty, 2005; McLaren et al., 2000). Together, these findings indicate that sense of belonging-psychological state is clearly related to mental health (Hagerty et al., 1996).

Similarly, the significant impact that sense of belonging has on the experience of suicidal ideation was demonstrated by Moore (1997). Moore (1997) conducted in-depth interviews with 11 older adults ranging in age from 64 to 92 years from various

psychiatric inpatient units who were experiencing suicidal ideation. When asked how they experienced meaning in their lives, many participants felt that no one appeared to care about them, and that they felt powerless in their hopeless situation. Another common theme which emerged was the notion of the participants having a lack of connectedness and feelings of alienation with others around them, including family members, nurses and medical staff. All participants reported a strong need to feel connected to those around them and with society in general. They believed their quest for meaningfulness was associated with their desire to feel connected and useful, needed and cared for (Moore, 1997). Results of this study highlighted the detrimental effects feeling disconnected from others, and feeling powerless to change the seemingly hopeless situation had on the mental health of older adults.

From this research, it is clear that sense of belonging can protect against mental ill-health among younger, community and clinical samples, but that the mere presence of others does not necessarily ensure sense of belonging (Hagerty & Williams, 1999; Hagerty et al., 1996). As only a few studies have investigated sense of belonging among older populations (Bailey & McLaren, 2005; Van Der Horst & McLaren, 2005), it is important to investigate whether the relationship between sense of belonging and mental health is consistent in older adult community samples. This is essential as older adults frequently experience changes in their surrounding environment, such as change in residence and changes in personal, meaningful relationships, with the deaths of close friends and loved ones. Older people also experience decreased participation in activities due to reduced physical ability or mobility (Alexandris et al., 2003; Tikkaninen & Heikkinen, 2005). These issues alone represent risk factors for depression. Experiencing

reduced involvement with others may also reduce older adults' experiences of belonging, and consequently increase their vulnerability to depression and suicidal ideation (Hagerty & Williams, 1999).

In summary, research has highlighted the crucial link between sense of belonging and mental health (Bailey & McLaren, 2005; Hagerty, et al., 1996). It is apparent that sense of belonging-psychological state significantly influences mental health, and in particular, levels of depression and suicidal ideation. Due to the gender difference identified within this relationship, further research efforts are clearly required to examine the influence that sense of belonging has among the mental health of older males and females within a community sample, particularly when this population has been neglected within the research (Hagerty et al., 1992; Tikkinen & Heikkinen, 2005).

#### *1.6.4 Gender Differences and Sense of Belonging*

Little research has investigated gender differences in the experience of sense of belonging among adult populations (McLaren et al., 2001). The research which has taken place has concluded that males and females use different methods to achieve belonging. It has been reported that feeling connected and achieving relatedness with others is an equal concern for males and females (Antonucci, 2001; Baumeister & Leary, 1995), however, men and women have different orientations towards achieving belongingness (Baumeister & Sommer, 1997). For instance, women prefer to develop a number of intimate relationships with others, while males favour separateness and independence, which is achieved by developing a larger sphere of less involving interpersonal relationships with many different people (Baumeister & Sommer, 1997). Despite the different criteria and methods employed to achieve belonging by males and females,

being socially connected and feeling valued and important is important for all (Baumeister & Leary, 1995).

Hagerty et al. (1996) investigated the role that sense of belonging had on the social functioning and mental health of males and females. Their aim was to explore similarities and differences in males' and females' experiences of sense of belonging and whether personal characteristics influence this experience. The sample comprised 379 college students ranging in age of 18 to 72 years, with 59% of the sample being female. Various measures, including the Sense of Belonging-Instrument, were used to gather not only participants' demographic information but also to assess various psychological variables (for example, participants' level of belonging, perceived social support, conflict or discord in relationships, involvement in community activities, psychiatric history, such as feelings of loneliness, depression, previous psychiatric treatment, suicidality, and anxiety). Results indicated that, as a whole, participants' age, gender, and marital status had no significant relationship with the scores on either the sense of belonging-antecedent or psychological state subscales. However, when the male and females' scores of sense of belonging were examined separately in relation to demographic variables, significant gender differences were found. Females who were involved in community activities and attended church services reported higher levels of sense of belonging-psychological state, whereas no similar effects of these differences were found for males. In addition, the relationship between sense of belonging and mental health was stronger for females than for males. This suggests that social interactions that take place when involved in various activities and community groups may be more important in enhancing females' mental health, than males. An explanation for this finding was that feeling valued and connected

with others was a critical element that women use to define themselves (Van Dor Horst & McLaren, 2005). As such, they engaged in many social networks which validated their feelings of self and of being valued. Failing to achieve a sense of belonging can increase their vulnerability to mental ill health (Hagerty et al., 1996).

Other results revealed that reduced social support and conflict were negatively associated with sense of belonging, particularly for females, and positive interactions with friendship groups were found to be strongly related to the sense of belonging-psychological state for both genders. This was attributed to the sample including college students and the strong friendship ties that develop within this environment (Hagerty et al., 1996). Furthermore, females who experienced negative interactions with their husbands were more likely to have lower levels of sense of belonging, whereas for males, lower levels of sense of belonging were associated with experiencing negative interactions with friends. This suggests that the negative interactions females have with their spouses may be more detrimental to their psychological well-being, whereas males' mental health may be compromised after experiencing a negative encounter with friends (Antonucci, 2001; Baumeister & Sommer, 1997). This finding suggests that, with regard to sense of belonging, a marriage-like relationship functions more as a protective barrier for females than males (Hagerty et al., 1996). The overall findings indicated that the relationship between sense of belonging and social and psychological functioning for both males and females was significant, however the relationship might be slightly more important for females (Anant, 1969).

One limitation of the research was that the sample consisted of college students, therefore, the applicability of the results to the general population or, in particular, to the

aging population is unknown. The role that sense of belonging has in relation to mental health among older adults is yet to be fully understood. As overall gender differences were not found, it was recommended that further research be conducted to explore how the non-significant variable of gender may perform as an intervening variable in the relationships between sense of belonging and other variables, such as involvement in physical and social activities (Hagerty et al., 1996).

In summary, it is likely that gender influences the experience of sense of belonging. It appears that although sense of belonging is an important concept for both males and females, sense of belonging appears more important for females. In addition, a relationship between sense of belonging and engaging in community and various activities was identified. As retirement often signals a time of increased freedom and opportunities to engage in leisure activities, it would be beneficial to examine the relationships between sense of belonging and leisure activities among older males and females.

### *1.7 Defining the Concept of Leisure*

Leisure activities are viewed as an integral component to the social, cultural, and economic forces, which have the potential to influence individuals' happiness, well-being and overall life satisfaction (Edginton et al., 1998). It has been accepted that no universal definition captures what leisure is across all societies and individual situations (Bammel & Bammel, 1992). In today's society, leisure is referred to as more than simply free time activities. Leisure can be seen as time at one's own disposal, where engagement in an activity is performed to derive pleasure and satisfaction, and express, and consolidate individual talents, capabilities and potential (Bammel & Bammel, 1992; McGuire, 1982;

Neulinger, 1978; Stokowski, 1994). Moreover, it has been suggested that a creative and receptive attitude is required before an individual can experience leisure (Bammel & Bammel, 1992). Edginton et al. (1998) defined leisure as a multidimensional construct which enables individuals to feel relatively free from constraints, experience positive affect, and be motivated by internal individual forces. The unique concept of individual freedom is suggested to be a determining condition of leisure, rather than actual participation in an activity (McGuire, 1982; Stokowski, 1994; Teaff, 1985). Thus, when freedom is curtailed, so too is leisure (Russell, 1996; Stokowski, 1994).

### *1.7.1 Perceived Freedom in Leisure*

The primary dimension of leisure, therefore, encompasses the concept of perceived freedom (Edginton et al., 1996). Perceived freedom in leisure occurs when individuals perceive themselves as having the capabilities to participate, and is able to control both the beginning and end of their participation. Individuals feel that they are engaging in leisure because they truly want to engage in chosen leisure activities (Neulinger, 1978; Witt & Ellis, 1989). Perceived freedom in leisure is a crucial determinant of leisure engagement. A higher level of perceived freedom in leisure increases the likelihood of involvement in leisure and recreational activities. Furthermore, in a circular fashion, when individuals experience barriers which limit their participation in leisure activities, their perceived freedom is reduced. Barriers can include inadequate transportation, participation costs, and lack of available time to participate (Edginton et al., 1996; Witt & Ellis, 1989). However, when individuals experience no apparent barriers to participation, it is expected that they will typically experience higher degrees of perceived freedom in leisure, which consequently enables them to derive ultimate

benefits from leisure activities (Witt & Ellis, 1989). Therefore, when greater levels of perceived freedom in leisure are experienced, and an activity is freely participated in, an individual will have achieved an autonomous leisure lifestyle (Witt & Ellis, 1989).

Perceived freedom is not an all or nothing concept, rather it can be thought of as occurring on a continuum. At one end of the continuum, leisure reflects an ideal state, and at the opposing end, individuals who perceive very little freedom in leisure experience less favourable leisure (Neulinger, 1978). Two prominent factors which can influence the strength of individuals' perceived freedom are intrinsic and extrinsic motivation to engage in the leisure activity (Neulinger, 1978). Intrinsic motivation refers to when individuals engage in activities for their own sake. This can assist in enhancing individuals' level of perceived freedom in leisure (Russell, 1996). Conversely, when engagement in an activity is extrinsically motivated, the engagement is typically thought to stem from some other driving force, such as peer pressure. Extrinsic behaviour may dilute the quality of an individual's level of perceived freedom in leisure (Neulinger, 1978).

### *1.7.2 The Relationship between Perceived Freedom in Leisure and Depression*

It is suggested that the consequences of having low levels of perceived freedom in leisure can lead to mental ill health through the development of leisure helplessness, or the feeling that leisure involvement is restricted in some way (Witt & Ellis, 1989). This association is thought to occur when individuals develop feelings of hopelessness as a direct result of repeated feelings of failure and negative outcomes in regard to leisure experiences. As a result, individuals may experience a sense of leisure helplessness (Witt & Ellis, 1989). This poses a great concern, as these negative feelings can increase

individuals' vulnerability to depressive symptoms and, over time, increase the likelihood of social withdrawal (Pierce, Wilkinson, & Anderson, 2003). Although a relationship between leisure freedom and depression has been implied, research is yet to examine direct relationships between freedom in leisure and mental health, particularly among older adults.

This research would be beneficial as older adults are often faced with life circumstances which reduce feelings of independence and competence, such as having to move into supported accommodation facilities, or being less mobile due to poor health (Dacey & Newcomer, 2005; Searle et al., 1998). Owing to these changes, older adults may think they can no longer exercise control over their lives and remain independent, and, as a result, feelings of hopelessness and helplessness may increase (Dacey & Newcomer, 2005; Searle et al., 1993). If older adults are able to continue to experience a sense of freedom in leisure, where they maintain control and feel competent and independent in one aspect of their lifestyle, protection against the development of mental ill health may occur (Dacey & Newcomer, 2005).

In summary, when individuals experience high levels of perceived freedom in their leisure pursuits, they are intrinsically motivated to engage in an activity. Perceived freedom is a significant criterion which must be present in order for individuals to continue to engage in leisure activities throughout their lifetime, and also determines the duration of each leisure engagement (Iso-Ahola, 1980; Witt & Ellis, 1989). Research is required to examine the influence freedom in leisure has on mental health among older adults, particularly when feelings of competency, independence, and control can become increasingly eroded in later life (Searle et al., 1993).

### *1.7.3 The Relationship between Physical Health and Perceived Freedom in Leisure*

Achieving freedom in leisure requires individuals to perceive themselves as competent to perform activities, to feel in control of their involvement, and to express a degree of playfulness and a desire for novelty in their daily lifestyles (Coleman, 1993; Coleman & Iso-Ahola, 1993; Walker, Deng, & Dieser, 2005; Witt & Ellis, 1989). Health problems, functional impairment, and physical limitations related to increasing age (Atchley, 1998; Johnson & Wolinsky, 1993), may inhibit perceptions of freedom and consequently decrease activity levels (Coleman & Iso-Ahola, 1993; Searle et al., 1995). As this relationship has not been previously researched, the influence poor health has on perceptions of freedom remains unknown.

A primary criterion of perceiving freedom in leisure is for individuals to feel they are not restricted in some way to engage in leisure activities (Witt & Ellis, 1989). Substantial research efforts have focused on identifying the barriers to engage in these activities for older adults in attempts to increase activity involvement (Alexandris et al., 2003). From these studies, it is apparent that many older adults report that health related barriers limit their activity involvement (Cohen-Mansfield, Marx, & Guralnik, 2003; Lang & Baltes, 1997). A qualitative study conducted by Lees et al. (2005) explored barriers to engagement among older exercisers and non-exercisers. Results indicated that participants reported physical issues such as poor health, chronic illness, and injuries, as well as lacking confidence in their ability to exercise, as significant barriers to exercise engagement. In addition, having a fear of sustaining an injury or falling, experiencing negative affect and low motivation, and feeling tired were other barriers which reduced

participants' involvement in activities (Schroeder et al., 1998). These results support Cohen-Mansfield, Marx, and Guralnik (2003) who found that 53% of participants reported that pain and health problems prevented them from engaging in leisure activities.

Collectively, participants who reported substandard health as a barrier to exercise demonstrated reduced levels of activity engagement, which subsequently increased the likelihood of developing additional functional disabilities (Friis et al., 2003; Lees et al., 2005; Schroeder et al., 1998). It is likely that due to the experience of health related barriers, older adults may experience lower levels of self-efficacy (Lees et al., 2005; Orsega-Smith, Payne, & Godbey, 2003), intrinsic motivation, and lower feelings of competence (Schroeder et al., 1999). In addition, older adults may also perceive reduced independence (Lang & Baltes, 1997), and believe they no longer possess the skills or ability to safely engage in activities. As a result, reduced levels of perceived freedom in leisure may occur (Daley & Spinks, 2000).

Further support for the view that poor health may reduce perceived freedom in leisure relates to the requirement that individuals must perceive that they have the competence and the ability to engage in leisure activities, and hold the belief that they can continue to control the commencement and outcome of the leisure involvement (Neulinger, 1978; Witt & Ellis, 1989). Poor health and associated factors may reduce, or actually eliminate, older adults' ability to maintain an active leisure lifestyle (Schroeder et al., 1998; Searle et al., 1995). In addition, the choice to remain active may no longer be available and individuals may be forced to end their involvement. Support for this idea was offered by Atchley (1998), who found that when participants were forced to

disengage from activities as a result of functional limitations, the change had a negative impact on participants' well-being. This was the result of participants experiencing a decreased sense of personal agency, or the feeling that they could no longer exert personal control over their lives (Atchley, 1998). This is consistent with other research which has found that participants who report minimal or no control over their health had reduced levels of activity, when compared to participants who felt in control over their health (Daley & Spinks, 2000; Friis et al., 2003).

In summary, the relationship between older adults' physical health status and perceived freedom in leisure is unknown. Although no research exists, it is feasible to suggest that poor health may limit older adults' ability to exercise control and maintain an independent leisure lifestyle. In addition, feelings of competence and self-efficacy, along with the ability to be spontaneous and playful, are also likely to be negatively affected by poor health and functional impairments among older adults.

#### *1.7.4 The Relationship between Perceived Freedom in Leisure and Sense of Belonging*

Although the relationship between perceived freedom in leisure and sense of belonging has not been previously researched, an important relationship may exist. A positive relationship may link perceived leisure freedom and sense of belonging-antecedents, not only because the requirements to achieve perceived freedom and sense of belonging-antecedents are similar, but also because the social characteristics of leisure would seem to require a sense of belonging (Baldwin & Norris, 1999). Freedom in leisure is associated with perceptions of personal control and competence, and requires skills to participate. Leisure also requires the ability to exercise personal choice or intrinsic

motivation (Coleman & Iso-Ahola, 1993; Witt & Ellis, 1989). Similarly, before actively pursuing social interactions in an effort to foster potential relationships, individuals are also required to exhibit sufficient motivation and energy to seek valued involvement and the desire to be with others. They must believe they have the potential for meaningful involvement and perceive they will experience shared characteristics with others during activities (Baumeister & Leary, 1995; Hagerty et al., 1992; Hagerty & Williams, 1999; Moore, 1997). Thus, individuals with higher levels of perceived freedom may also have enhanced desire and motivation to seek out relationships with others.

In addition, due to the social nature of leisure, interacting with others during engagement may assist in facilitating the feelings of being valued and important, and highlight significant contributions the individual has made to the experience (Hagerty et al., 1992). Therefore, being a part of social interactions during shared leisure experiences may reinforce individuals' desire and energy to belong, and, subsequently, increase their confidence in seeking out potential relationships. However, research is required to investigate this proposition.

### *1.8 Leisure Involvement among Older Adults*

Older age signals retirement from full time employment. This enables older generations to begin seeking out leisure pursuits that may have been previously denied due to work commitments (Russell, 1996). Without the daily structure of employment, and the increased likelihood of losing friends and spouses through death, it is important for older individuals to develop new interests, and renew social avenues to enable them to continue to feel connected to society (Edginton et al., 1996; Kraus, 1998).

Leisure activities can range from high intensity activities, including aerobic exercise and various sports, to low intensity activities such as fishing and cards (Edginton et al., 1996). Further, leisure activities can be spontaneous or scheduled within daily routines; they can be solitary in nature or engaged in with others (Kraus, 1998). Certain leisure activities can also require discipline, or simply be relaxing, taking place at home or outside among various environments. The type of leisure activity and what actually constitutes a leisure activity is perceived somewhat differently by every individual (McGuire, 1982).

Although older adults often report engaging in leisure activities in an attempt to increase social contact, it is important to acknowledge that time spent in solitary leisure activities can be equally rewarding and reinforcing. Being alone can promote positive mental health and foster renewal (Russell, 1996). This suggests that time spent alone in free time activity is a natural activity and an integral part of living. Engaging in leisure activities such as reading or gardening can promote enjoyment and fulfilment by enabling the participant to forget daily routines for a moment or escape stressful concerns (Russell, 1996). Nevertheless, experiences of solitude or aloneness depend on individual perceptions. It is this perception that is the crucial determinant of whether solitude is a positive experience or could have a detrimental impact on mental health (Russell, 1996).

In regard to older adults, a common element among more popular activities is that the activities are low in cost, simple, flexible in nature, and convenient for engagement, such as being close to home (Dergance et al., 2003; MacNeil & Teague, 1987; Stephens & Craig, 1990; Teaff, 1985). Popular home-based activities include watching television, reading, talking on the telephone, and gardening (Russell, 1996). Gardening activities

represent a simple form of leisure accessible to many older adults (Krucoff, 2000; Teaff, 1985). Furthermore, gardening activities such as hydroponics, cultivation and caring for plants can occur indoors. This flexibility enables older adults to continue their involvement all year round, despite unpleasant changes in weather that might prevent outdoor activities.

Other popular activities among older adults include hobbies such as craft work, sewing, crocheting, and quilting (Russell, 1996; Teaff, 1985). Wood carving, ceramics or weaving are other popular activities (Kraus, 1998). Older adults often enjoy engaging in low impact physical exercises such as walking, and socialising with friends or family (Benjamin, Edwards, & Bharti, 2005; Teaff, 1985). In contrast, the participation of older adults in activities that require high energy expenditure and overcoming physical demands tend to decline (Benjamin, Edwards, & Bharti, 2005). Energetic and more vigorous activities such as sports, outdoor recreation, and fitness classes are still enjoyed, but are preferred by older adults who are fitter, and experience fewer physical constraints (Kraus, 1998).

### *1.8.1 The Relationship between Physical Health and Engagement in Leisure Activities*

A plethora of research has indicated that regular physical activity maintained throughout the life span ensures optimal health and functioning (Benjamin, Edwards, & Bharti, 2005; Blair et al., 2005; Brach et al., 2004; Daley & Spinks, 2000). Regular physical activity is associated with positive health benefits including weight loss, prevention of Type II diabetes, improved memory (Friis et al., 2003; Schomer & Drake, 2001), increased independence (Benjamin, Edwards, & Bharti, 2005), lower cholesterol

and blood pressure levels, and improved cardio-respiratory fitness (Clark, Long, & Schiffman, 1999; Daley & Spinks, 2000; Goggin & Morrow, 2001; Schomer & Drake, 2001; Wallace & Lahti, 2005). Even a modest amount of regular physical activity has been found to foster social support and networks, improve sleep, and reduce stress and loneliness (Blair et al., 2005). Therefore, the benefits of engaging in physical activity cannot be overestimated. Unfortunately, leisure participation tends to decline with increasing age (Cohen-Mansfield, Marx & Guralnik, 2003; Friis et al., 2003; Goggin & Morrow, 2001; MacNeil & Teague, 1987; Steinkamp & Kelly, 1987), and, as a result, significant health risks among this population can escalate (Dergance et al., 2003; Lachman & Jette, 1997; Teaff, 1985). Understanding what influences older individuals to engage in activities remains a priority (Alexandris et al., 2003; Benjamin, Edwards, & Bharti, 2005; Goggin & Morrow, 2001; Lees et al., 2005; Wallace & Lahti, 2005).

With advancing age, individuals experience reduced flexibility, endurance, and stamina (Russell, 1996). Other physical impairments can also develop as a result of aging (Dacey & Newcomer, 2005; MacNeil & Teague, 1987), therefore, it is not surprising that individuals with poor physical health may not be able to regularly engage in activities and, instead, lead sedentary lifestyles.

A study conducted by Friis et al. (2003) examined various demographic and health predictors of 7,527 older adults, aged 70 years or older, who walked at least one mile per week. The results of the study found that, although the frequency of walking within the sample was low, 41% participants who reported they were in 'excellent' or 'very good' health walked one mile one or more times a week. In contrast, only 6.9% of participants who rated their health as 'poor' reported walking this distance. Other

important findings indicated that participants who regularly walked were more likely to report fewer limitations on activity, and perceived higher levels of control over their health status. These results indicate that participants who were, and perceived themselves to be, in better health, engaged in higher levels of activity (Friis et al., 2003). One limitation of the cross-sectional design of the research was that it cannot be determined whether positive health was a precursor or a consequence of walking. The researchers recommended structural models be employed to examine the relationships in more depth (Friis et al., 2003).

Further support for the positive relationship between health and leisure engagement was offered by Loland (2004). Loland investigated the number of older Norwegian adults who were active, and explored the demographic correlates of exercise activity. Results highlighted that participants suffering poor health were much less likely to engage in regular physical activity, when compared to participants with reported improved physical health. In addition, sedentary participants reported less satisfaction with their health status than active participants. These results support an abundance of research which indicates that older adults with good physical health engage in higher levels of activity (Cassidy, 1996; Cohen-Mansfield, Marx, & Guralnik, 2003; Hyland, Sodergren, & Singh, 1999; Zuzanek, Robinson, & Iwasaki, 1998).

In summary, older adults tend to engage in activities that are home-based, solitary, and less physically demanding (Dergance et al., 2003). It is evident that, with advancing age, changes in lifestyle and environmental circumstances that once permitted unconditional engagement in leisure can create a negative shift in leisure involvement. Older adults with deteriorating health often discontinue and withdraw from leisure

experiences, inadvertently disadvantaging their physical and psychological well-being (Edginton et al., 1996).

### *1.8.2 The Relationship between Leisure and Physical Activities and Mental Health among Older Adults*

The positive influence which engagement in exercise based activities exerts has been widely researched and promoted by many health professionals (Daley & Spinks, 2000; Morey et al., 2003; Teaff, 1985). Participation in activities enables individuals to derive social, physical, and psychological benefits (Bammel & Bammel, 1992; Ponde & Santana, 2000). In regard to psychological functioning, participation in activities has the capacity to enhance feelings of well-being, accomplishment, pride, and relaxation (Teaff, 1985), along with improving life satisfaction and general mental health (Ponde & Santana, 2000). Despite these findings, not all researchers agree on the actual extent to which exercise influences mental health (Stathi, Fox, & McKenna, 2002).

Li et al. (2001) incorporated a randomised controlled trial to investigate whether a tai chi exercise program would enhance older adults' psychological well-being. The study utilised 98 (23 male and 75 females) participants who were aged 65 years or older. Participants were randomly assigned to the experimental condition, which involved a 60 minute tai chi practise session, twice a week for 24 consecutive weeks or the control condition, in which participants were requested to continue their normal routines. All participants completed measures assessing depression, positive and negative affect, well-being and psychological distress, life satisfaction, and perceptions of health at the beginning of the study, and again at the three and six month follow-ups. Results indicated that tai chi was effective in enhancing psychological well-being in older adults. More

specifically, participants who received tai chi programs for 24 weeks reported a decrease in depression, negative affect, and psychological distress, and an increase in perceptions of life satisfaction, positive affect, and overall health, compared with those in the control group. A limitation of the study included the small sample size, which limited the use of more sophisticated statistical analyses and prevented the generalisation of the results to the wider population (Li et al., 2001). In addition, the relationship between exercise and psychological health might be attributed to improvements in physical function as a result of engagement in such activities, therefore further research appeared necessary (Li et al., 2001).

Supporting the finding that involvement in exercise activities promotes psychological health, Stathi et al. (2002) conducted a qualitative study to assess how physical activity might benefit 28 community-dwelling, retired older adults aged between 62 and 81 years. Results indicated that physical activity contributed to the mental well-being of older adults by enabling participants to maintain alertness, positive affect, avoid stress, and to experience an overall positive attitude (Stathi et al., 2002).

Similarly, Warr, Butcher, and Robertson (2004) investigated the relationship between psychological well-being and life satisfaction and different types of activity, including 'family and social' activities, 'church and charity', 'home and garden', and 'sports' activities. The sample included 1,167 British individuals aged between 50 and 74 years living in the community. The results indicated that positive relationships existed between psychological well-being, life satisfaction, and overall activity. In particular, 'family and social', 'home and garden', and 'sports' activities were found to be significantly correlated with psychological well-being and life satisfaction. After two-step

hierarchical regression analyses were performed to examine the strength of the relationships after controlling for other variables, it was evident that ‘family and social’ activities were related to both measures of well-being, and ‘church and charity’ activities were found to be more important for older adults’ life satisfaction. Finally, ‘home and garden’ activities were found to be important for psychological well-being. These results indicate that different activities influence different domains of well-being, namely psychological and satisfaction with life. The study’s strengths included the control of possible confounding variables, such as demographic information, and the large sample size. The results are consistent with other research that has shown that various leisure and recreational activities are related to positive mental health and well-being in older adults (Cassidy, 1996; Lawton, 1994; McAuley & Rudolph, 1995; Ponde & Santana, 2000).

Due to the consistent finding that participation in physical activity can alleviate depressive symptoms and improve psychological functioning among non-clinical samples, Moore et al. (1999) investigated the relationship between self-reported engagement in physical activity and depressive symptoms among 146 participants aged 50 years and above who were diagnosed with a major depressive disorder. Results identified a negative relationship between physical activity and depressive symptomatology. Participants who were involved in low levels of physical activity reported a higher prevalence of depressive symptoms, when compared to participants who were engaged in higher levels of activity. Although the research was correlational in nature, the implication is that if older men and women with a diagnosis of major depressive disorder are encouraged to participate in higher levels of physical activity, it may enhance subjective well-being by minimising the presence of depressive symptoms

(Moore et al., 1999). The importance of activity engagement among clinical samples was also supported by Lloyd et al. (2001) and Mather et al. (2002).

In summary, participation in leisure activities such as garden and home activities, family and social occasions, and engagement in sports, can improve older adults' psychological functioning and well-being (Li et al., 2001; Moore et al., 1999; Orsega-Smith, Payne & Godbey, 2003). Another widely accepted benefit of engaging in leisure is that activities can cultivate social networks and reconnect individuals with their community, which subsequently enhances mental health. This is particularly important for older populations (Kraus, 1998).

### *1.8.3 Leisure Activities Performed with Others and Social Connections*

Leisure activities can provide individuals with a means of social integration and renewed sources of personal meaning (Kraus, 1998; Teaff, 1985). Participation enables the development of social connectedness, as individuals become a part of social groups and develop friendships that foster companionship, support and intimacy, and which prevent loneliness (Iso-Ahola & Park, 1996; Orsega-Smith, Payne, & Godbey, 2003). This is important, as engagement permits individuals to access essential social support (Coleman & Iso-Ahola, 1993; Orsega-Smith, Payne, & Godbey, 2003), and subsequently gain additional capacity to cope with life stress (Coleman, 1993; Iso-Ahola & Park, 1996), receive the acknowledgement required for emotional well-being (Burnett-Wolle & Godbey, 2005), and enhance both life and retirement satisfaction (Dorfman et al., 1988; Lang & Baltes, 1997).

A study conducted by Steinkamp and Kelly (1987) examined the impact leisure activities have on adult life satisfaction. During a telephone survey, 400 participants aged

40 years and over were asked to answer questions regarding life satisfaction and their level of social involvement. The results indicated that leisure activity influenced life satisfaction in those aged 65 years and over, with social integration mediating the relationship. If older adult participants were engaged with others and experienced a sense of belonging with friends and family, leisure activities improved their quality of life.

In addition, individuals have reported that they are motivated to engage in various leisure and physical activities to initiate and maintain social contacts (Kyle & Chick, 2002; Litwin, 2003; Shephard, 1997). Litwin (2003) explored the relationship between participants' type of social network, and the level of physical activity among Israeli adults aged 60 years and above. After controlling for various socio-demographic factors information and health characteristics, Litwin concluded that more than half the sample who were embedded in a diverse social network (such as being married, having children, being involved in a social club, and visiting friends and neighbours), participated in frequent physical activity, in contrast to only one fifth of those involved in 'family', and 'restricted' social networks. Moreover, respondents from the 'friends' network engaged in more physical activity when compared to the respondents from the 'neighbours' network. The results of this study indicate that individuals who have greater social networks are more likely to be engaged in physical based activities (Kyle & Chick, 2002). In addition, Stathi et al. (2002) concluded that older adult participants enjoyed engaging in physical activities as it enabled them to avoid social isolation and provided them with an opportunity to expand their current social relationships.

Due to the social nature of leisure, it is likely that participants can develop feelings of belonging (Baldwin & Norris, 1999). Individuals are required to acknowledge

feelings of being valued, and connected with others, and feel they complement and fit well within interpersonal interactions before the psychological component of belonging is achieved (Hagerty et al., 1996; Hagerty & Williams, 1999). Therefore, if a common reason among older adults for engaging in activities is to avoid social isolation by feeling connected with others, it is reasonable to assume that the psychological component of belonging has been acknowledged. Similarly, if older adults engage in leisure activities to feel connected with others and develop friendships, it is also likely that they have adequate levels of energy for meaningful involvement, and feel they have the need and motivation to seek out relationships with others. Thus, older adults may be motivated to establish relationships with others to avoid feeling isolated or disconnected with others (Hagerty et al., 1992; Hagerty & Williams, 1999). Therefore, they engage in leisure activities with others to initiate and develop interpersonal relationships.

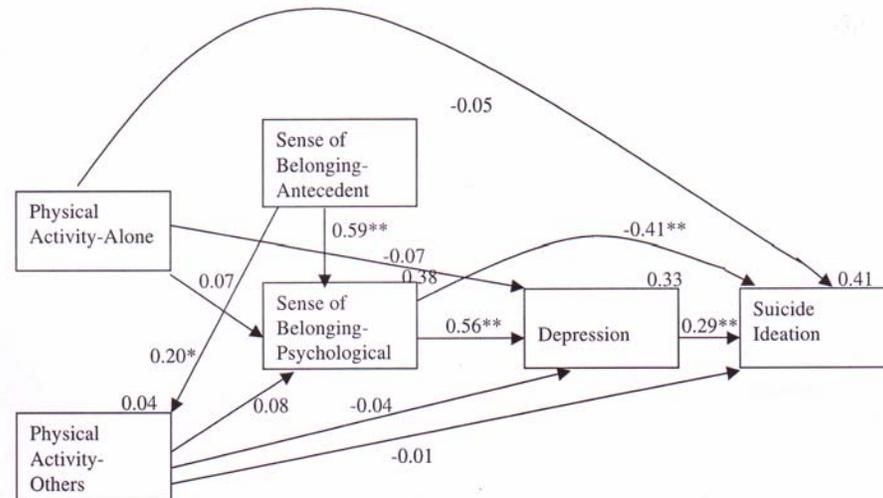
Although these relationships have not received substantial research attention, Bailey and McLaren (2005) investigated a model of mental health among a sample of 194 older Australians. Results demonstrated that a direct relationship between sense of belonging-antecedents and activities performed with others exists, although engaging in activities with others did not predict sense of belonging-psychological state. Further research is required to explore these relationships before we can fully understand how sense of belonging influences leisure engagement and whether leisure activities can assist in facilitating the psychological acknowledgement of belonging.

In summary, leisure activities provide the opportunity for individuals to develop social networks that increase the likelihood of continued engagement. As such, it is likely that sense of belonging-antecedents would predict involvement in leisure activities with

others, and engaging in activities with others would positively influence the psychological element of sense of belonging. Additional research is required to confirm these hypotheses.

### *1.9 Rationale for the Present Study*

The present study was intended to replicate and extend the findings of Bailey and McLaren (2005). Owing to a lack of research investigating the relationships between physical activity, sense of belonging, and mental health, Bailey and McLaren (2005) developed and tested a model that examined the relationships between various physical and leisure activities, performed alone or with at least one other person, sense of belonging, depression, and suicidal ideation among older adults. The model they developed is displayed in Figure 1. The sample comprised 194 retired adults, 87 males (mean age of 69.59 years) and 107 females (mean age of 68.21 years), from a large regional city within Victoria. Participants completed a questionnaire package that included the Yale Physical Activity Survey (Dipietro, Caspersen, Ostfeld, & Nadel, 1993), the Sense of Belonging Instrument (SOBI) (Hagerty & Patusky, 1995), the Suicide Subscale of the General Health Questionnaire (Goldberg & Hiller, 1979), and the Zung Depression Inventory (Zung, 1965).



*Figure 1.* Bailey and McLaren's (2005) path model incorporating physical activity, sense of belonging, and mental health variables.

The results of the research did not fully support the model and indicated that physical and leisure activities performed with others or alone did not directly predict sense of belonging-psychological state, depression or suicidal ideation. Furthermore, sense of belonging-antecedents directly predicted sense of belonging-psychological state, which in turn directly predicted depression and suicidal ideation. In addition, depression directly predicted suicidal ideation. Finally, it was found that sense of belonging-antecedents had a direct relationship with engaging in activities with others. Overall, 59% of the variance in suicidal ideation remained unexplained. This suggests that other variables not accounted for in this model also contributed to older adults' mental health (Bailey & McLaren, 2005). Their results suggested that further research was required to understand the relationships between leisure activities, sense of belonging and mental health (Bailey & McLaren, 2005). The present study developed and tested a more comprehensive mental health model and had two distinct aims: the first aim was to

include additional, relevant variables of mental health into the model developed by Bailey and McLaren (2005). Secondly, the study aimed to determine whether the model would be non-invariant for gender.

*1.9.1 Aim 1: To Develop and Test a Mental Health Model*

In an attempt to explain additional variance in suicidal ideation among older adults, the first variable incorporated into Bailey and McLaren' (2005) model included perceived freedom in leisure. As it has been determined that perceived freedom in leisure is a crucial determinant of actual leisure activity involvement (Witt & Ellis, 1989), and low levels of perceived freedom are associated with feelings of hopelessness (Witt & Ellis, 1989), it is reasonable to believe that this concept may provide vital, additional protection against depression among older adults. Perceived leisure freedom may, in part, contribute to the development of depression. In addition, due to the limited research that exists regarding freedom in leisure, particularly within older samples, the current study investigated possible relationships which may exist between freedom and sense of belonging-antecedents and engagement in activities alone or with others.

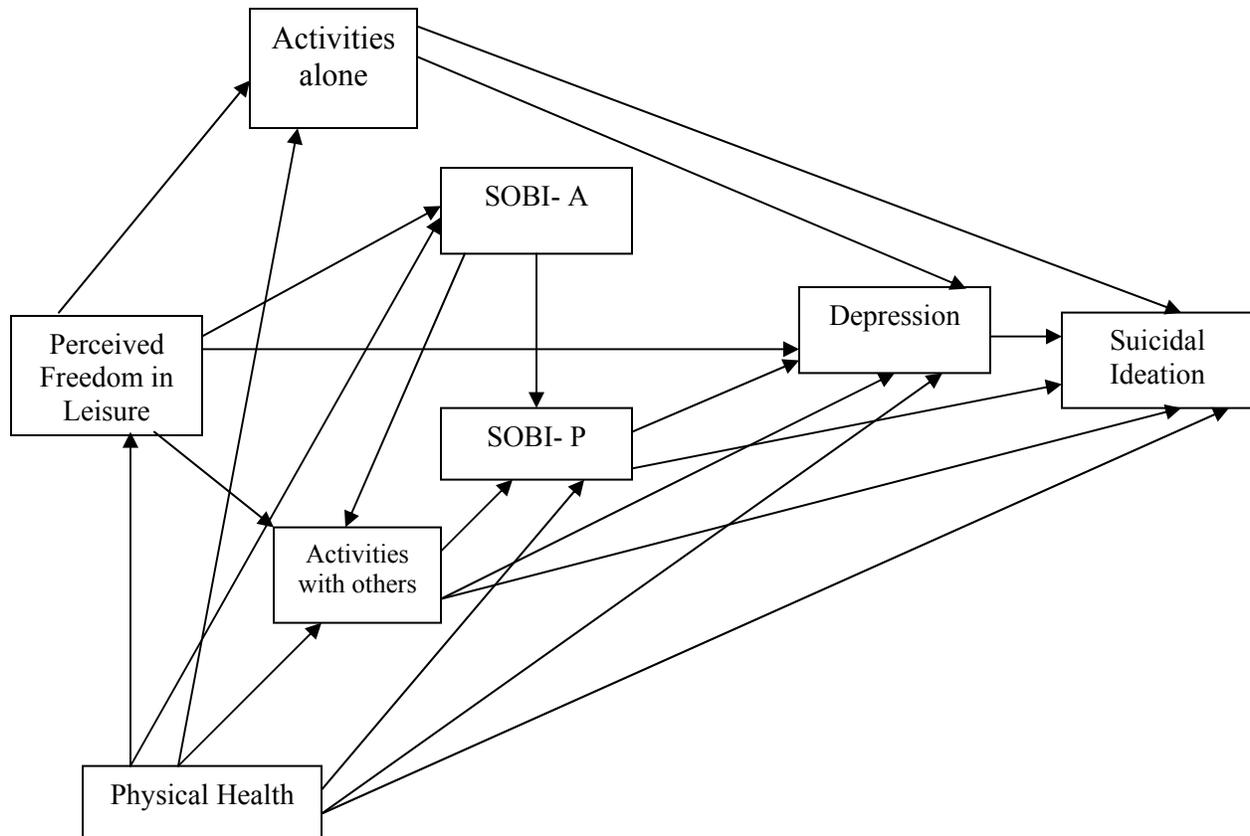
The second variable to be included in the model was physical health status. Based upon the literature review, it is clear that older adults' physical health status can influence almost every facet of their lives. In particular, physical health was found to be a significant risk factor for suicidal ideation and subsequent suicide (Waern, Rubenowitz, & Wilhelmson, 2003), depression (Blair et al., 2005), and engagement in leisure and physical activities (Friis et al, 2003). In addition, although no current research exists, it is plausible that physical health status can also influence older adults' feelings of leisure freedom and their ability to experience a sense of belonging. It is likely that physical

health will significantly contribute to the model and explain additional variance in mental health.

The proposed model can be seen in Figure 2. Within the model, the relationships between perceived freedom in leisure, engagement in activities alone and with others, physical health, sense of belonging-antecedents and psychological state, depression, and suicidal ideation among Australian older adults was investigated.

#### *1.9.1.1 Hypothesis One*

It was hypothesised that a good model fit would be achieved for the proposed mental health model displayed in Figure 2.



*Figure 2.* Path model incorporating perceived freedom, engagement in activities, physical health, sense of belonging, and mental health.

### *1.9.2 Aim 2: To Test for Group Invariance within the Model*

Possible differences in the way males and females experience activities conducted alone and with others, sense of belonging, and mental health are yet to be examined (Bailey & McLaren, 2005). Identifying whether the relationships between the variables are consistent for older males and females is important, particularly when many of the individual variables have been found to differ for males and females. Based upon the literature review, well accepted gender differences among older adults appear to exist in

relation to suicidal ideation (Skoog et al., 1996) completed suicide (Ashok, 2004), and depression (Takkinen et al., 2004). In addition, it has been suggested that gender differences are likely to occur in the experience of sense of belonging, with sense of belonging being more important for females (Baumeister & Sommer, 1997; Hagerty et al., 1996; McLaren et al., 2001). Therefore, the second aim of the study was to determine whether the model was non-invariant for older males and females.

#### *1.9.2.1 Hypothesis Two*

It was predicted that the model would be non-invariant for gender.

## *Chapter 2: Method*

### *2.1 Participants*

A total of 390 Australian older adults participated in the study. Eleven participants were excluded from the study due to incomplete demographic and psychometric information. The final sample consisted of 379 male and female participants from metropolitan, regional and rural areas within the state of Victoria. The mean age of the participants was 77.72 years ( $SD = 7.47$ ), with ages ranging between 65 and 98 years. Males represented 47% of the sample ( $n = 178$ ) and females 53% ( $n = 201$ ). The majority of the sample preferred socialising with others ( $n = 353$ , 93%), while only 7% of the sample preferred their own company ( $n = 26$ ).

#### *Relationship and Educational Status*

Fifty-six percent of the sample were married ( $n = 212$ ), 33% were widowed ( $n = 126$ ), 7% were divorced ( $n = 24$ ), and 4% were single ( $n = 16$ ). After reviewing education levels, it was evident that 17% of the sample had completed primary school ( $n = 63$ ), with 52% having completed secondary school ( $n = 198$ ), while 18% had completed a trade or TAFE certificate ( $n = 68$ ), and 13% had completed tertiary education ( $n = 50$ ) (e.g., undergraduate or postgraduate study).

#### *Accommodation Status*

In regard to accommodation status, 11% of the sample lived in a retirement village ( $n = 43$ ), 20% resided in a nursing home ( $n = 79$ ), and 68% continued to reside in their own home ( $n = 257$ ). In addition, 48% of the sample resided with their wives, husbands or partners ( $n = 182$ ), 20% shared a house with another person ( $n = 77$ ), 5% lived with other family members ( $n = 18$ ), and 27% resided by themselves ( $n = 102$ ).

### *Employment Status*

The majority of participants were retired, with 91% reporting that they no longer engaged in employment ( $n = 346$ ), with 9% reporting that they were not yet retired ( $n = 33$ ). Of those still working, 24% engaged in part-time work ( $n = 91$ ), while only 2% continued full time employment ( $n = 8$ ). In addition, 16% were engaged in voluntary work ( $n = 59$ ), while 11% were engaging in paid employment ( $n = 40$ ).

### *Physical Health*

Results revealed that 40% of the sample visited their general health practitioners on a monthly basis ( $n = 153$ ). Other common patterns included visiting the general practitioner fortnightly (14%,  $n = 53$ ), or only when feeling unwell (12%,  $n = 47$ ). Less common visiting schedules included seeing the practitioner on a three monthly basis (10%,  $n = 37$ ), one to two times a week (2%,  $n = 8$ ), or visiting the general practitioner three or more times a week (1%,  $n = 4$ ). In addition, 15% of the sample were taking antidepressants at the time of the research ( $n = 55$ ).

Table 1 displays the prominent demographic details for older males and females separately. It is evident that there were more married and single males compared to females, and the number of female widows was much higher than males. In addition, the majority of the male sample resided in accommodation services, whereas the majority of the female sample continued to reside in their own residences. Table 1 also indicates that there were a similar number of male and female participants taking prescribed antidepressants.

Table 1.

*Demographic and Psychosocial Characteristics of Male and Female Participants*

| Demographic                        | Males |      | Females |      |
|------------------------------------|-------|------|---------|------|
|                                    | N     | %    | N       | %    |
| <i>Marital Status</i>              |       |      |         |      |
| Married                            | 113   | 63.5 | 99      | 49.3 |
| Single                             | 9     | 5.1  | 7       | 3.5  |
| Divorced                           | 10    | 5.6  | 14      | 7.0  |
| Widowed                            | 46    | 25.8 | 80      | 39.8 |
| Defacto                            |       |      | 1       | 0.5  |
| <i>Retirement Status</i>           |       |      |         |      |
| Retired                            | 161   | 90.4 | 185     | 92.0 |
| Not Retired                        | 17    | 9.6  | 16      | 8.0  |
| <i>Accommodation</i>               |       |      |         |      |
| Retirement village                 | 21    | 11.8 | 22      | 10.9 |
| Nursing home                       | 41    | 23.0 | 38      | 18.9 |
| Own home                           | 116   | 65.2 | 141     | 70.1 |
| <i>Antidepressant Prescription</i> |       |      |         |      |
| Prescription                       | 27    | 15.2 | 28      | 13.9 |
| No prescription                    | 151   | 84.8 | 173     | 86.1 |

## 2.2 Materials

The questionnaire package utilised in the current research consisted of a plain language statement and a “reply paid” envelope, a demographic information survey to gather general information about each participant, and six psychometric scales. The scales that were included in the research were the Perceived Freedom in Leisure Short Form-Version B (Witt & Ellis, 1989), the Yale Physical Activity Survey (Dipietro, Caspersen, Ostfeld, & Nadl, 1993), the Duke Health Profile (Duke University Medical Center, 2002) the Sense of Belonging Instrument (SOBI) (Hagerty & Patusky, 1995), the Centre for Epidemiologic Studies-Depressive Scale (CES-D) (Radloff, 1977), and the Suicide Subscale of the General Health Questionnaire (Goldberg & Hiller, 1979) (Appendix A). The order of the scales within each questionnaire pack was counterbalanced to minimise the effect of presentation order on participants’ responses.

*2.2.1 Plain Language Statement.* Each participant received the Plain Language Statement which was the cover sheet to each questionnaire pack. The Plain Language Statement described the nature of the research and invited participation. The Statement also noted various personnel contacts whom participants could contact in the event their experiencing distress from completing the questionnaire package or after their involvement. These resource personnel included the researchers’ contact numbers and Lifeline, as well as a prompt for participants to contact their general practitioner if they preferred.

*2.2.2 Perceived Freedom in Leisure Short Form-Version B* (Witt & Ellis, 1989). The Perceived Freedom in Leisure Short Form-Version B (PFL) is part of the Leisure Diagnostic Battery, which was designed to assess the leisure functioning of adolescents

and adults (Witt & Ellis, 1989). The PFL scale consists of 25-items extracted from the five subscales of the long form which, together, measure a participant's level of perceived freedom in leisure. The subscales include Perceived Leisure Competence, Perceived Leisure Control, Leisure Needs, Depth of Involvement in Leisure, and Playfulness Scales (Witt & Ellis, 1989). Item examples include: "My recreation activities help me to feel important", "During my recreation activities, there are often moments when I feel really involved in what I am doing" and "I usually have a good time when I do recreational activities". Participants use a 5-point response format, from A (*Strongly Agree*) to E (*Strongly Disagree*). High scores on the scale are indicative of elevated levels of perceived freedom in leisure.

The PFL has acceptable psychometric properties with internal consistency coefficients ranging between  $\alpha = .88$  and  $\alpha = .94$  for non-clinical samples (Witt & Ellis, 1989). The acceptable internal reliability for this measure was also supported in the current research, with the alpha coefficient equaling  $\alpha = .94$ .

*2.2.3 Yale Physical Activity Survey* (Dipietro, Caspersen, Ostfeld, & Nadl, 1993). The Yale Physical Activity Survey comprises 31-items and five subscales including Physical Work, Yard Work, Care Taking, Exercise and Recreational-Leisure Activities (Dipietro et al., 1993). Using the modified version developed by Bailey and McLaren (2005), participants were requested to record the amount of time in hours they participated in each activity alone, and with at least one other person, in a typical week within the previous month. The amount of time spent performing the activities on the five subscales with at least one other person or alone was then summed to obtain two

independent index scores: total hours spent in activities performed alone, and total hours spent in activities performed with at least one other person.

*2.2.4 The Duke Health Profile (DHP)* (The Duke Medical Center, 2002). The DHP is a 17-item generic questionnaire which assesses an individual's health status over a one-week period. The scale primarily comprises eleven scales: six scales that measure health function (i.e., physical and mental health, social and general health, perceived health, and self-esteem), and five scales that measure an individual's health dysfunction (i.e., anxiety, depression, anxiety-depression, pain, and disability). Individual scale items can also be used separately, or combined, in a variety of scales to measure health status. For the purpose of the current research, seven individual items from the DHP were combined to measure the physical health status of participants. Item examples included "Today, would you have any physical trouble or difficulty walking up a flight of stairs?" or "During the past week, how much trouble have you had with sleeping?". Participants were required to rate each item using a 3-point Likert scale, from 2 (*None*) to 0 (*A Lot*). Lower scores on the DHP indicated reduced physical health status.

Cronbach's reliability estimates for the multi-item scales of the DHP have ranged between  $\alpha = .60$  and  $\alpha = .70$  (Parkerson, 2002). The alpha coefficient for the developed subscale from the DHP for the current research equalled  $\alpha = .84$ , reflecting acceptable internal consistency.

*2.2.5 The Sense of Belonging Instrument (SOBI)* (Hagerty & Patusky, 1995). This scale includes 33-items which assess the concept of sense of belonging through two separate scales: antecedents (SOBI-A) and psychological state (SOBI-P) (Hagerty & Patusky, 1995). The SOBI-A is a 15-item subscale which measures precursors of sense of

belonging, including an individual's energy and motivation to become actively involved in social activities (e.g., "I don't have the energy to work on being a part of things"). The SOBI-P contains 18-items which measure if an individual feels valued and accepted (e.g., "If I died tomorrow, very few people would come to my funeral"), and whether the person "fits" into his or her surrounding environment (e.g., "I feel like a square peg trying to fit into a round hole"). Participants rate each item on a 4-point Likert scale from 1 (*Strongly Disagree*) to 4 (*Strongly Agree*). High scores reflect higher levels of sense of belonging.

A SOBI-A Cronbach alpha coefficient for a previous older sample equalled .78 (Bailey & McLaren, 2005), and a test-retest reliability  $r = .66$  has been obtained (Hagerty & Patusky, 1995). A reliability Cronbach alpha coefficient for the SOBI-P in previous research was  $\alpha = .92$  (Bailey & McLaren, 2005), and stability, assessed through test-retest reliability with an interval set at an eight-week period was also noted,  $r = .84$  (Hagerty et al., 1996). The SOBI-A and SOBI-P inter-scale correlation equaled  $r = .45$  (Hagerty et al., 1996). With regard to the present research, the Cronbach alpha coefficients were analysed for both subscales, SOBI-A and SOBI-P, and equalled  $\alpha = .78$  and  $\alpha = .91$  respectively. This indicates that the sense of belonging instrument appears to have good internal reliability.

*2.2.6 The Centre for Epidemiologic Studies-Depressive Scale (CES-D) (Radloff, 1977).* This is a 20-item self-report instrument designed to assess the presence of depressive symptoms in the general population and has been extensively used in gerontology research (Radloff, 1977). The CES-D has been shown to predict concurrent and future diagnoses of clinical depression. The scale consists of items selected from

previously validated scales including the Beck Depression Inventory, Zung's Self Rating Scale, and the MMPI Depression Scale (Williamson & Schultz, 1992). The CES-D items require participants to respond to questions, in relation to how often they have felt a particular way during the past week. Item examples include "I felt lonely", "I felt that I could not shake off the blues, even with help from my family and friends" and "I felt depressed". Items are scored on a 4-point Likert scale, from 0 (*Rarely or none of the time - Less than 1 day*), to 3 (*Most or all of the time 5-7 days*). The CES-D generates a total score ranging from 0 to 60, with high scores indicating individuals at risk of developing clinical depression.

The CES-D has found to have high internal consistency ( $\alpha = .85$  for the general population) and Williamson and Schultz (1992) reported internal reliability to equal .89. The test-retest reliability, with an interval set for three to twelve months, was adequate,  $r = .54$  (Radloff, 1977). In the present research, adequate internal reliability was found  $\alpha = .90$ .

*2.2.7 The Suicide Subscale of the General Health Questionnaire* (Goldberg & Hiller, 1979). This seven-item subscale assesses the level of suicidal ideation and behaviour among individuals over the past seven day period (Goldberg & Hiller, 1979). Examples of items from the subscale include asking respondents how often over the past week had they "Felt that life is entirely hopeless", or "Found yourself wishing you were dead and away from it all?" Respondents rate each item on a 4-point Likert scale from 1 (*Not at all*) to 4 (*Most of the time*). Higher scores reflect the increased presence of suicidal thoughts or behaviours.

Goldberg and Hiller (1979) state the correlation between GHQ subscale scores for suicidal ideation and from other independent measures of suicidality indicate the scale has acceptable criterion validity,  $r = .73$ . Bailey and McLaren (2005) reported satisfactory internal consistency with a Cronbach alpha coefficient of .85 for an older adult sample. In regard to the present research, the Cronbach alpha coefficient for this measure equaled .88. Overall, the suicide subscale appeared to have acceptable internal reliability.

*2.2.8 Demographic Survey.* The demographic survey asked participants to document their gender, age, marital status, place of residence via post codes, highest education level achieved, and current employment status. Information on their occupation prior to retirement, how many children and grandchildren they had, how often they visited their doctors, and whether they were taking antidepressant medication was also requested. In addition, participants were asked to note whether they preferred socialising with others or spending time alone. Participants completed the demographic survey at the conclusion of their involvement in the research. This method was used in an attempt to alleviate any residual anxiety or concern participants may have been experiencing during their participation by getting participants to complete the task by providing neutral, personal demographic information.

### *2.3 Procedure*

Over a seven month period, various methods of recruitment were utilised to obtain participants from various locations among the community including bowling, dancing, and card clubs, and different accommodation services, including retirement and nursing homes. Another method of recruitment was to attend various local city council

activities targeted at those aged over 65 years. These activities included elderly citizen groups, day centres, craft days, community house activities, along with movie nights, card days, old time dancing organisations, and senior walking meets.

After obtaining written permission from organisers and managers to attend the venues and group activities, potential participants were informed of the nature of the research, that their involvement was voluntary, and that they were free to withdraw from the research at any stage without repercussion. Participants who were interested in being involved were then directed to read the informed consent 'Plain Language Statement' before they were provided with a questionnaire package to complete at their convenience. A 'reply paid' envelop was supplied, enabling participants to mail the completed questionnaire back to the researchers. Participants were also informed that returning a completed questionnaire would indicate their consent to participate.

Group data collection stations were also used when participants preferred to complete the questionnaire packages at the venue. Group data collection methods were employed at different day centres, accommodation venues and elderly citizens groups. In these instances, after participants were informed of the research, interested participants were provided with the questionnaire package, and completed the questionnaires independently. On completion, participants were requested to seal the completed questionnaires in the envelopes to maintain confidentiality.

Another method of recruitment consisted of attending various local council services for those aged over 65 years. Council services included meals on wheels along with other home assistance services, such as cleaning and home care duties. This method of distribution was used to contact isolated older adults. Many of the council service

recipients were frail older adults who required home assistance to help them remain in their private residence for a long duration. This method of distribution was deemed as important, as it provided an opportunity to invite participation from a greater number of elderly residents who might have been unable to attend council or community activities, due to poor health or limited social contacts.

When working with council home assistance services, meetings were scheduled with managers and staff to inform them of the research and to determine whether they would be interested in involving their clients. In these situations, the most appropriate method of distribution was for managers and associated staff to distribute the questionnaire packages and 'reply paid' envelopes when they visited the clients. Clients were asked to read the 'Plain Language Statement' before deciding whether they would be interested in participating in the research. Clients were also encouraged to contact the researchers or the other resource contacts detailed on the 'Plain Language Statement', including a 24-hour telephone counseling number, if they experienced any distress or discomfort during their involvement, or after completing the questionnaire. Completed questionnaires were then posted back to the researchers in the 'reply paid' envelope.

In an attempt to involve more physically unwell, or socially isolated older adults, the South West Victorian region's District Nursing Service was approached. Distribution methods were the same as those used with the council home assistance services to protect the privacy of the District Nursing Service recipients. Nursing staff invited older adults to be involved in the research, and those who were interested, were encouraged to read the 'Plain Language Statement' before completing the questionnaire package and posting it back to the researchers.

### *Chapter 3: Results*

Approximately 1000 questionnaire packs were printed for distribution for the current research and 379 completed packs were returned to the researchers, indicating a return rate of 37%. Information regarding the percent of returned questionnaire packs that were mailed, distributed through group recruitment sites or individually is unavailable, as all questionnaire packs contained a 'reply paid' envelope to enable participants to return questionnaires to the researchers in a confidential manner. Therefore, the effectiveness of the various recruitment methods and sites cannot be evaluated. Data obtained from returned questionnaires were entered into and analysed using the Statistical Package for the Social Sciences (SPSS) for Windows Version 12.0 (SPSS, Inc, 2001). Amos Graphics Version 5.0 (AMOS, 2003) was used to analyse the path models. An alpha level of .05 was used to determine statistical significance.

#### *3.1 Initial Analysis*

##### *3.1.1 Demographic Data*

The main demographic variables were age, gender, marital status, highest level of education achieved, place of residence, number and type of people residing with participants, number of children and grandchildren, retirement status, and length of time retired. Other relevant personal data were frequency of visits to general practitioners, prescribed anti-depressant medication use, and whether participants preferred socialising with others or being alone.

The males ranged in age between 65 and 94 years ( $M = 77.78$ ,  $SD = 7.21$ ), while female ages ranged between 65 years and 98 years ( $M = 77.68$ ,  $SD = 7.72$ ). An independent samples *t*-test was conducted to assess age differences between males and

females. Results indicated no significant difference between the ages of the two groups,  $t(377) = 0.14, p > .05$ .

Chi-square tests were used to test for differences between older males and females on the categorical demographic variables. The results for marital status, highest achieved level of education, retirement status, accommodation type, and type of person participants reside with are displayed in Table 2, as is statistics on whether participants preferred socialising alone or with others. As can be seen from Table 2, older males were significantly more likely to be living in a marriage-type relationship. No significant differences were identified in education level, retirement status, and place of residence between older males and females. Older females were significantly more likely than males to reside by themselves rather than with a partner, family member, or someone else, and were more likely to report a preference for socialising with others, rather than being in their own company.

Further analysis indicated that males had between zero and 14 children ( $M = 3.15, SD = 2.07$ ), and between zero and 24 grandchildren ( $M = 6.11, SD = 5.37$ ), while females had between zero and eight children ( $M = 3.07, SD = 1.68$ ), and between zero and 21 grandchildren ( $M = 6.00, SD = 4.53$ ). To determine whether significant differences were evident in the number of children and grandchildren between male and females, further independent  $t$ -tests were conducted. No significant differences were found in the number of children,  $t(377) = 0.39, p > .05$ , or grandchildren,  $t(377) = 0.22, p > .05$ , older males and females had.

The length of time males had been retired ranged between 0 and 26 years ( $M = 11.67, SD = 7.32$ ), while the length of time for females ranged between 0 and 26 years ( $M$

= 14.59,  $SD = 10.22$ ). Results of a  $t$ -test indicated a significant difference between the length of retirement for males and females,  $t(366) = -3.13, p < .05$ , indicating that females had been retired for a significantly greater amount of time than males.

Table 2.

*Demographic Statistics and Chi-Square Values for Categorical Variables (N = 379)*

| Demographics                          | Male |    | Female |    | $\chi^2$ | df |
|---------------------------------------|------|----|--------|----|----------|----|
|                                       | N    | %  | N      | %  |          |    |
| <i>Relationship Status</i>            |      |    |        |    |          |    |
| Married                               | 113  | 64 | 100    | 50 | 9.52 *   | 3  |
| Single                                | 9    | 5  | 7      | 4  |          |    |
| Divorced                              | 10   | 6  | 14     | 7  |          |    |
| Widowed                               | 46   | 25 | 80     | 39 |          |    |
| <i>Education Level</i>                |      |    |        |    |          |    |
| Primary                               | 37   | 21 | 26     | 13 | 4.47     | 2  |
| Secondary                             | 117  | 66 | 149    | 74 |          |    |
| TAFE/Tertiary                         | 24   | 14 | 26     | 13 |          |    |
| <i>Retirement Status</i>              |      |    |        |    |          |    |
| Yes                                   | 161  | 90 | 185    | 92 | 0.30     | 1  |
| No                                    | 17   | 10 | 16     | 8  |          |    |
| <i>Residential Location</i>           |      |    |        |    |          |    |
| Retirement village                    | 21   | 12 | 22     | 11 | 1.18     | 2  |
| Nursing home                          | 41   | 23 | 38     | 19 |          |    |
| Personal residence                    | 116  | 65 | 141    | 70 |          |    |
| <i>Residential Arrangement</i>        |      |    |        |    |          |    |
| Self                                  | 31   | 17 | 71     | 35 | 15.77**  | 2  |
| With partner                          | 99   | 56 | 83     | 41 |          |    |
| With another                          | 48   | 27 | 47     | 24 |          |    |
| <i>Prefer Socialising with Others</i> |      |    |        |    |          |    |
| Yes                                   | 159  | 89 | 194    | 97 | 7.64**   | 1  |
| No                                    | 19   | 11 | 7      | 3  |          |    |

\* $p < .05$ . \*\* $p < .001$ .

Table 3 displays the results for the frequency of visits to a general practitioner, and whether participants were taking antidepressants. As indicated, no significant differences between older males and females were identified in the frequency of contact with general practitioners, nor in the use of antidepressant prescriptions.

Table 3.

*Demographic Statistics and Chi-Square Values for General Practitioner Contact and Antidepressant Prescriptions (N = 379)*

| Demographics                       | Male |    | Female |    | $\chi^2$ | df |
|------------------------------------|------|----|--------|----|----------|----|
|                                    | N    | %  | N      | %  |          |    |
| <i>GP Attendance</i>               |      |    |        |    |          |    |
| 1-3 times a week                   | 36   | 20 | 48     | 24 | 3.30     | 5  |
| Fortnightly                        | 73   | 41 | 80     | 40 |          |    |
| Monthly                            | 26   | 15 | 27     | 13 |          |    |
| 3 monthly                          | 2    | 1  | 2      | 1  |          |    |
| When required                      | 6    | 3  | 2      | 1  |          |    |
| Other                              | 35   | 20 | 42     | 21 |          |    |
| <i>Antidepressant Prescription</i> |      |    |        |    |          |    |
| Yes                                | 27   | 15 | 28     | 14 | 0.11     | 1  |
| No                                 | 151  | 85 | 173    | 86 |          |    |

\* $p < .05$ . \*\* $p < .001$ .

### 3.2 Data Screening and Assumption Testing

During initial data screening, missing data were scattered throughout some of the psychological measures. Due to the low frequency of occurrence, missing data were

replaced using the mean substitution method (Tabachnick & Fidell, 2001). This method involves calculating mean scores by summing together the remaining responses, and dividing by the number of remaining responses on the measure. This value is then substituted for the missing value on the corresponding psychometric measure (Brace, Kemp, & Snelgar, 2003; Tabachnick & Fidell, 2001).

Data screening was also used to test assumptions of normality, skewness and kurtosis, as suggested by Coakes and Steed (1999), Brace et al. (2003), and Tabachnick and Fidell (2001). Examination of the Duke Health Profile ( $M = 7.94$ ,  $SD = 3.60$ ), Perceived Freedom in Leisure Scale ( $M = 68.46$ ,  $SD = 15.29$ ), and the Sense of Belonging Instrument-Antecedent subscale ( $M = 45.03$ ,  $SD = 5.58$ ), reflected normal distributions. Responses on the CES-D Scale, and the two individual measures for engagement in activities derived from the Yale Physical Activity Scale, were positively skewed. Consequently, reciprocal transformations were performed on these measures to achieve univariate normality (Francis, 1999; Tabachnick & Fidell, 2001). In addition, a square root transformation was utilised on the Sense of Belonging Instrument-Psychological subscale, to reduce the negative skew of the data.

The Suicidal Ideation Scale was also found to be skewed. The nature of the Suicidal Ideation Scale tends to produce positively skewed distributions, as it is uncommon for many participants to report moderate to high levels of suicidal thoughts (Ferguson, 1981). However, due to the extreme positive skew evident on this measure, a reciprocal transformation was also performed.

While the mental health variables of depression, suicidal ideation, and the two subscales of the Sense of Belonging Instrument, along with the two physical activity

variables were transformed, for reader ease, the variables will continue to be addressed in subsequent analyses as ‘depression’, rather than ‘reciprocal transformation of depression’, for example.

### *3.3 Counterbalancing*

The presentation order for the six questionnaires was counterbalanced to avoid an influence upon participant responses. A MANOVA was conducted to test for significant order effects on the 12 different orders on the dependent measures. Results of the MANOVA indicated no significant differences in the mental health variables for the different orders, *Wilks'  $\Lambda = .78$ ,  $F(8, 96) = 0.92$ ,  $p > .05$ ,  $\eta^2 = .03$ .*

### *3.4 Descriptive Statistics and Gender Differences for the Mental Health and Physical Activity Variables*

Descriptive statistics for the key variables are displayed in Table 4. It is evident that the sample spent slightly more time engaged in activities with others than in activities alone, and reported fairly high levels of perceived freedom in leisure. With regard to the mental health variables, the sample reported relatively high levels of sense of belonging, and relatively low levels of suicidal ideation and depression. In addition, the sample reported reasonable, overall physical health.

Table 4.

*Descriptive Statistics for Amount of Time Spent Engaging in Physical Activity, Perceived Freedom, Sense of Belonging, Depression, Suicidal Ideation, and Physical Health (N=379)*

| Variable                         | Min   | Max    | <i>M</i> | <i>SD</i> |
|----------------------------------|-------|--------|----------|-----------|
| Physical activity-alone          | 0.00  | 102.00 | 11.15    | 10.76     |
| Physical activity-others         | 0.00  | 49.00  | 12.80    | 9.40      |
| Perceived freedom in leisure     | 0.00  | 100.00 | 68.47    | 15.29     |
| Sense of belonging-psychological | 26.00 | 72.00  | 57.60    | 8.85      |
| Sense of belonging-antecedent    | 26.00 | 64.00  | 45.04    | 5.59      |
| Depression                       | 20.00 | 77.00  | 30.34    | 9.58      |
| Suicidal ideation                | 7.00  | 23.00  | 8.90     | 3.26      |
| Physical Health                  | 0.00  | 14.00  | 7.94     | 3.60      |

A multivariate analyses of variance (MANOVA) was conducted to assess gender differences in the eight mental and physical health, and activity variables. The results of the MANOVA revealed no significant gender differences on the variables perceived freedom in leisure, total hours engaged in leisure activities with others and alone, physical health, the two subscales of the sense of belonging instrument, depression, and suicidal ideation variable  $Wilks' \Lambda = .96, F(8, 370) = 1.63, p > .05, \eta^2 = .03$ .

### *3.5 Analytic Procedure: Multi-Group Path Analysis*

The statistical program Analysis of Moment Structures (AMOS) (Arbuckle & Wothke, 2003) was used to perform path analyses in the current research. Path analysis is a statistical procedure that is used to test theoretical relationships within a model, by

studying the direct and indirect effects of the variables (McDonald & Ringo Ho, 2002; Schumacker & Lomax, 1996). As a precautionary method in dealing with missing data within the models, the estimation of parameters in the analyses was based on the maximum likelihood estimation procedure (Schumacker & Lomax, 1996).

In order to determine whether the structural model of a theoretical construct derived from multiple questionnaires is equivalent or invariant across groups, multi-group invariant analyses are conducted (Byrne, 2001; Cole et al., 1998). The various sets of parameters of interest when examining group invariance include the factor loading paths, factor variances, and the regression paths (Byrne, 2001). Before multi-group analyses can be initiated, it is recommended that single-group baseline models are individually estimated for each group of interest (Byrne, 2001). It is intended that these models denote the best fit of the data (Byrne, 2001).

After developing baseline models, it is customary to review the chi-square goodness-of-fit statistic ( $\chi^2$ ) and the associated fit indices to interpret the fit of the models. The fit determines whether the data corresponds to the theoretical model (Bentler, 1990; Hu & Bentler, 1998; MacCallum et al., 1996; Schumacker & Lomax, 1996). The model comparison indices utilised in the current analysis were the  $\chi^2$ , Root Mean Square of Approximation (RMSEA), the Normed fit Index (NFI), and the Comparative Fit Index (CFI) (Byrne, 2001).

The role of the  $\chi^2$  test is to examine how well the hypothesised model holds in the population (MacCallum et al., 1996). In order to evaluate the adequacy of the models using the  $\chi^2$  goodness-of-fit statistic, the  $\chi^2$  value is required to be low, as a large  $\chi^2$  value indicates that the model does not adequately fit the data (Hu & Bentler, 1998). Thus, a

non-significant  $\chi^2$  indicates that the model provides a good fit to the data (Cole et al., 1998). The RMSEA has been considered to be one of the most informative criteria in structural modeling, and is well suited for models with numerous parameters (Arbuckle & Wothke, 1999; Byrne, 2001; Hu & Bentler, 1998). The index considers the error of approximation within the population covariance matrix. Values less than .08 represent good fit (Cole et al., 1998; Hu & Bentler, 1998), whereas value ranging from .08 to .10 symbolise only adequate fit (Byrne, 2001; MacCallum et al., 1996; McDonald & Ringo Ho, 2002). Values beyond .10 indicate that the fit is inadequate and model revisions may be required.

The NFI and CFI are calculated by comparing the hypothesised model with the independence model, where the variables are independent of each other, and the correlations among the variables are zero (Byrne, 2001). These indices range from zero to 1.00, and values close to .90 or above represent a good model fit (Arbuckle & Wothke, 1999; Byrne, 2001; Schumacker & Lomax, 1996).

If the fit indices suggest a poor or a substandard fitting model, it is possible to re-evaluate, and subsequently modify existing paths in the model in small ways, in an effort to improve the overall fit of the model (Schumacker & Lomax, 1996). In addition to altering the paths based on theoretical grounds, another method of reviewing a poor fitting model includes examining the modification indexes (MI) (Arbuckle & Wothke, 1999). Each potential path within the model has an associated MI value. The MI value indicates that if the parameter were to become freed in a subsequent analysis, there would be an associated drop in the  $\chi^2$  value to at least the value of the MI. For example, if a non-freed parameter with a MI of 50 was freed in a subsequent analysis, the  $\chi^2$  value would be

expected to drop by at least 50 (Schumacker & Lomax, 1996). It is therefore preferable to initially free parameters with high MIs to succeed in obtaining better-fitting models (Schumacker & Lomax, 1996). Each time a parameter has been modified or freed, it is essential that the analysis be repeated to review the model fit indices to determine whether the model represents a good fit to the data, and subsequent modifications are no longer required (Schumacker & Lomax, 1996). However, an important consideration when freeing parameters, is that such freed paths need to be theoretically justified.

After establishing well-fitting baseline models, testing for invariance across groups is initiated. The first step of the process is to test the applicability of the overall model across the groups simultaneously (Model 1). This is done by conducting a multi-group path analysis (involving the two groups), when no constraints are placed on any of the parameters across the groups.

Unlike the establishment of baseline models, the multi-group analysis produces one set of fit statistics including the  $\chi^2$  and *df*, and provides the baselines values to compare with the additional models developed when testing for invariance (Byrnes, 2001). After obtaining the fit statistics, it is customary to again review the model fit indices, namely, the RMSEA, NFI and CFI, to determine whether the hypothesised multi-group model (Model 1) is well fitting across groups (Byrne, 2001). If the indices suggest a well-fitting multi-group model, the next stage of analyses is testing for possible invariance across the groups (Byrne, 2001).

Initial testing for invariance across the specified groups is achieved by constraining all the parameters for one group (i.e., the reference group) to be equal to the other group (i.e., the focal group), for establishing Model 2 (Cole et al., 1998). In this

study, females were the reference group, and males were the focal group. Unlike the unconstrained model, the constraints are required for all paths in the model, in order for the parameters to be specified as being invariant or equivalent across groups (Byrne, 2001). Once all the paths within the multi-group model have been constrained, statistical testing of the invariance of the groups is initiated (Arbuckle & Wothke, 1999).

After the analysis has been completed, the goodness-of-fit statistics are reviewed. In order to test for invariance of the fully constrained model, the obtained  $\chi^2$  and  $df$  of the fully constrained model (Model 2) is compared to the initial, unconstrained, multi-group model (Model 1) (Cole et al., 1998). After subtracting the  $\chi^2$  and  $df$  of the models, statistical significance can be determined. If the comparison produces a statistically significant result, it suggests that particular equality constraints are not equivalent across the groups (Byrne, 2001). With this information, it is then necessary to investigate the location of the non-invariance with subsequent analyses. Conversely, if the comparison between the  $\chi^2$  and  $df$  of Model 1 and constrained model (Model 2), yields a non-significant result, it suggests that the model structure is equivalent or group invariant (Byrne, 2001).

### *3.6 Testing the Applicability of the Theoretical Model: Single Group Analyses*

#### *3.6.1 Descriptive Statistics for Older Males*

Descriptive statistics, including the minimum and maximum scores, mean and standard deviations, for all variables for males are displayed in Table 5. It is evident that the older males engaged in a greater number of hours performing leisure activities with others rather than alone, and reported relatively high levels of perceived freedom in leisure. Regarding the mental health variables, low levels of suicidal ideation and

depression, and fairly high levels of sense of belonging were reported. In addition, the males reported adequate physical health.

Table 5.

*Descriptive Statistics for Older Males (N = 178)*

|                    | Min.  | Max.   | <i>M</i> | <i>SD</i> |
|--------------------|-------|--------|----------|-----------|
| Activity-alone     | 0.00  | 10.20  | 9.85     | 11.75     |
| Activity-others    | 0.00  | 49.00  | 11.72    | 9.12      |
| Perceived freedom  | 0.00  | 100.00 | 66.74    | 16.03     |
| Physical health    | 0.00  | 14.00  | 7.75     | 4.00      |
| Depression         | 20.00 | 63.00  | 30.90    | 10.36     |
| Suicidal ideation  | 7.00  | 21.00  | 9.05     | 3.34      |
| SOBI-antecedents   | 26.00 | 59.00  | 44.28    | 5.68      |
| SOBI-psychological | 28.00 | 72.00  | 56.64    | 9.18      |

### 3.6.2 Male Single Group Analysis

Before testing for group invariance, it is customary to establish baseline models for the groups separately. Table 6 displays the correlation matrix for the observed measures for males, and the covariance matrix is displayed in Appendix B. As shown in Table 6, the majority of the correlations for males were significant. Positive correlations occurred between performing activities alone, and with others, perceived freedom in leisure, and physical health. This suggests that greater hours engaged in performing leisure activities are associated with higher levels of perceived freedom in leisure, and fewer physical health complaints. In addition, significant negative correlations were

evident between the mental health variables, depression, suicidal ideation, and sense of belonging. This suggests that higher levels of sense of belonging-antecedents and psychological state were related to lower levels of depression and suicidal ideation for older males.

Table 6.

*Correlation Matrix for Physical Activity, Mental and Physical Health Variables for Older Males (N = 178)*

|                       | 1      | 2      | 3      | 4      | 5      | 6      | 7     | 8    |
|-----------------------|--------|--------|--------|--------|--------|--------|-------|------|
| 1. Activity-alone     | 1.00   |        |        |        |        |        |       |      |
| 2. Activity-others    | .31**  | 1.00   |        |        |        |        |       |      |
| 3. Perceived Freedom  | .23**  | .33**  | 1.00   |        |        |        |       |      |
| 4. Physical health    | .22**  | .30**  | .59**  | 1.00   |        |        |       |      |
| 5. Depression         | -.18 * | -.25** | -.65** | -.68** | 1.00   |        |       |      |
| 6. Suicidal ideation  | -.22** | -.35** | -.57** | -.60** | .75**  | 1.00   |       |      |
| 7. SOBI-antecedents   | .18 *  | .35**  | .72**  | .54**  | -.61** | -.58** | 1.00  |      |
| 8. SOBI-psychological | .15 *  | .31**  | .57**  | .44**  | -.58** | -.60** | .77** | 1.00 |

\*  $p < .05$ . \*\*  $p < .01$ .

After developing the male baseline model (Model Ma), the theorised model depicted in Figure 2, a single group analysis was conducted. The associated fit indices indicated an inadequate fitting model,  $\chi^2 (df = 7) = 29.20$ , RMSEA = 0.13, NFI = 0.96, and CFI = 0.97. The MIs for the baseline model were then examined in an effort to improve the overall fit of the model. For males, the highest MI occurred between error terms for engagement in activities alone and with others. The MI value was 10.93, and

the expected change value in  $\chi^2$  (if these variables were allowed to correlate) was .013. These findings imply that for males, some of the residual in engagement in leisure activities alone, or with others, may not have been random. Therefore, freeing the path between the error residuals was meaningful from both a statistical and practical viewpoint.

After the revision the analysis was repeated (Model Mb). Examination of the fit indices for Model Mb indicated that the fit of the model improved with,  $\chi^2$  ( $df = 6$ ) = 18.01, and RMSEA = 0.10 (90% CI for RMSEA = 0.05 - 0.16) reflecting adequate fit, and the NFI = 0.98 and CFI = 0.98 indicating good fit. Model Mb showed a statistically significant improvement in fit compared to Model Ma ( $\Delta\chi^2 = 11.19$ ,  $df = 1$ ,  $p < .001$ ). Due to the satisfactory fit indices, Model Mb was utilised in the multi-group testing for invariance.

Figure 3 displays Model Mb model for older males including the standardised regression coefficients, representing the strength of the relationship between variables, and the squared multiple correlation values which report the proportion of variance that is accounted for by the variables predictors (Byrne, 2001).

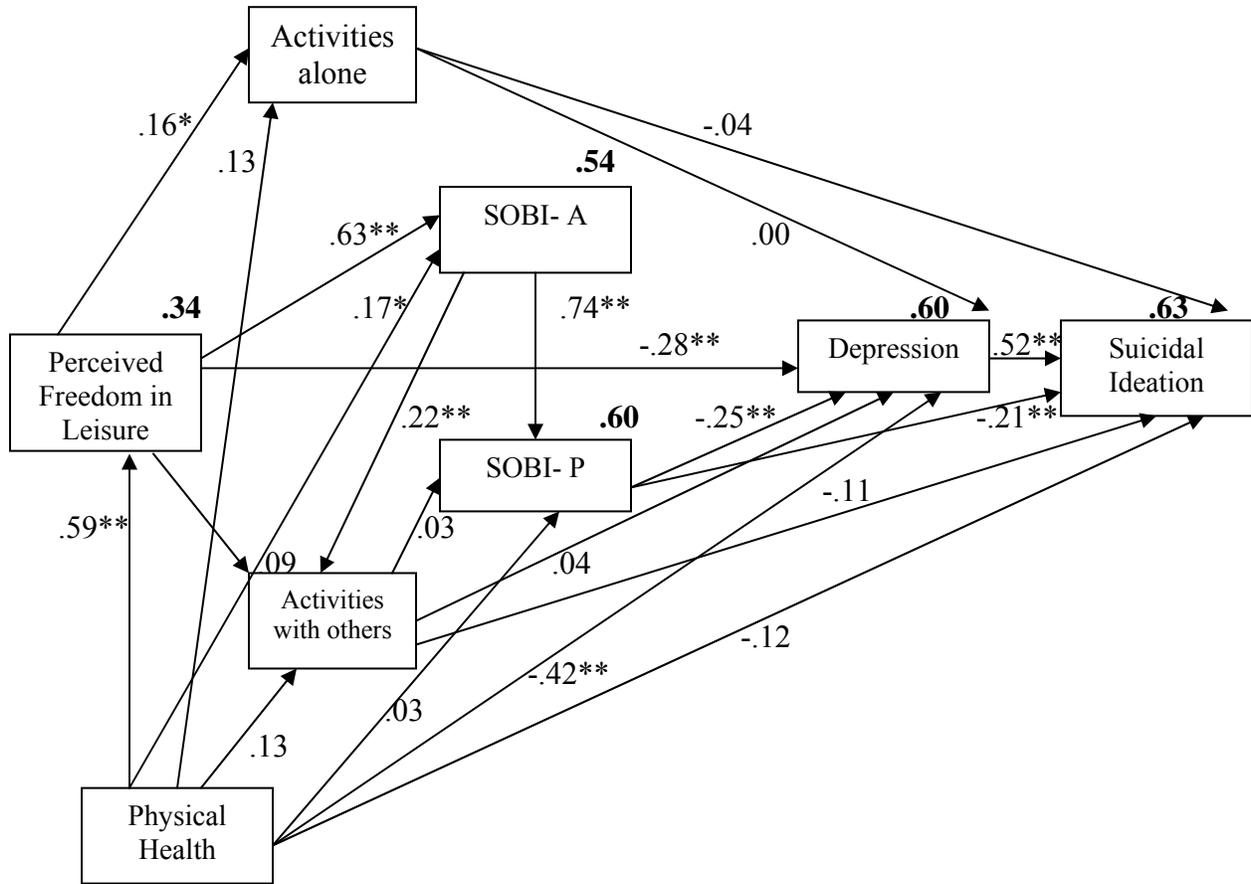


Figure 3. Revised male baseline model (Model Mb).

### 3.6.3 Descriptive Statistics for Older Females

Table 7 presents the descriptive statistics on all key variables for older females. As displayed, older females also reported engaging in slightly more hours in leisure activities with others rather than alone, and relatively high levels of perceived freedom in leisure. In addition, females reported relatively low levels of depression, suicidal ideation, and physical health complaints. Females also reported slightly higher levels of sense of belonging-antecedents and psychological state than males.

Table 7.

*Descriptive Statistics for Older Females (N = 201)*

|                    | Min.  | Max.   | <i>M</i> | <i>SD</i> |
|--------------------|-------|--------|----------|-----------|
| Activity-alone     | 0.00  | 41.00  | 12.30    | 9.69      |
| Activity-others    | 0.00  | 46.00  | 13.75    | 9.56      |
| Perceived freedom  | 26.00 | 100.00 | 69.99    | 14.47     |
| Physical health    | 0.00  | 14.00  | 8.11     | 3.21      |
| Depression         | 20.00 | 77.00  | 29.83    | 8.82      |
| Suicidal ideation  | 7.00  | 23.00  | 8.76     | 3.18      |
| SOBI-antecedents   | 29.00 | 64.00  | 45.70    | 5.43      |
| SOBI-psychological | 26.00 | 72.00  | 58.46    | 8.47      |

#### 3.6.4 Female Single Group Analysis

The male baseline model was also utilised for the establishment of the baseline model for the older female participants (Model Fa). Table 8 displays the correlation matrix for the observed measures for females, and the covariance matrix is displayed in Appendix C. As displayed in Table 8, positive relationships existed between engaging in activities alone, and perceived freedom in leisure, and this relationship was particularly strong when engaging in activities with others. Similar to older males, there were also significant negative correlations between both sense of belonging scales-antecedents and psychological state and depression and suicidal ideation, suggesting that higher levels of sense of belonging were related to lower reported levels of depression and suicidal ideation for females. In addition, a significant positive relationship existed between

depression and suicidal ideation, suggesting that a greater number of depressive symptoms were related to higher reported levels of suicidal ideation.

Table 8.

*Correlation Matrix for Physical Activity, Mental and Physical Health Variables for Older Females (N = 201)*

|                       | 1      | 2      | 3      | 4      | 5      | 6      | 7     | 8    |
|-----------------------|--------|--------|--------|--------|--------|--------|-------|------|
| 1. Activity-alone     | 1.00   |        |        |        |        |        |       |      |
| 2. Activity-others    | .20**  | 1.00   |        |        |        |        |       |      |
| 3. Perceived Freedom  | .14 *  | .19**  | 1.00   |        |        |        |       |      |
| 4. Physical health    | .22**  | .11    | .40**  | 1.00   |        |        |       |      |
| 5. Depression         | -.22** | -.18 * | -.50** | -.65** | 1.00   |        |       |      |
| 6. Suicidal ideation  | -.28** | -.14 * | -.40** | -.59** | .65**  | 1.00   |       |      |
| 7. SOBI-antecedents   | .11    | .04    | .60**  | .35**  | -.49** | -.45** | 1.00  |      |
| 8. SOBI-psychological | .11    | .04    | .47**  | .41**  | -.57** | -.57** | .72** | 1.00 |

\* $p < .05$ . \*\* $p < .01$ .

On completion of the analysis, the model fit indices for Model Fa were  $\chi^2 (df = 7) = 20.05$ , RMSEA = 0.09, NFI = 0.97, and CFI = 0.98, indicating an adequate model fit.

The MIs were examined to investigate the potential to improve the overall fit of the model and further reduce the RMSEA value. Similar to the males, the highest MI for the females occurred between the error terms for engagement in leisure activities alone and with others. Ideally, when establishing baseline models, it is preferable to free parallel paths to achieve identical baseline models across groups, thus, the path between the error terms for females was also freed to improve the overall fit of the model.

After the re-analysis, the fit indices were again examined for Model Fb. The fit indices for Model Fb reflected a good fit,  $\chi^2 (df = 6) = 14.07$ , RMSEA = .08 (90% CI for RMSEA = 0.02 - 0.13), NFI = .98, and CFI = .99, respectively. The difference between Model Fa and the revised Model Fb baseline model was statistically significant ( $\Delta\chi^2 = 5.98$ ,  $df = 1$ ,  $p = <.001$ ), indicating a significant improvement in fit in Model Fb was achieved. Consequently, Model Fb was used in the multi-group analysis when testing for invariance and is displayed in Figure 4.

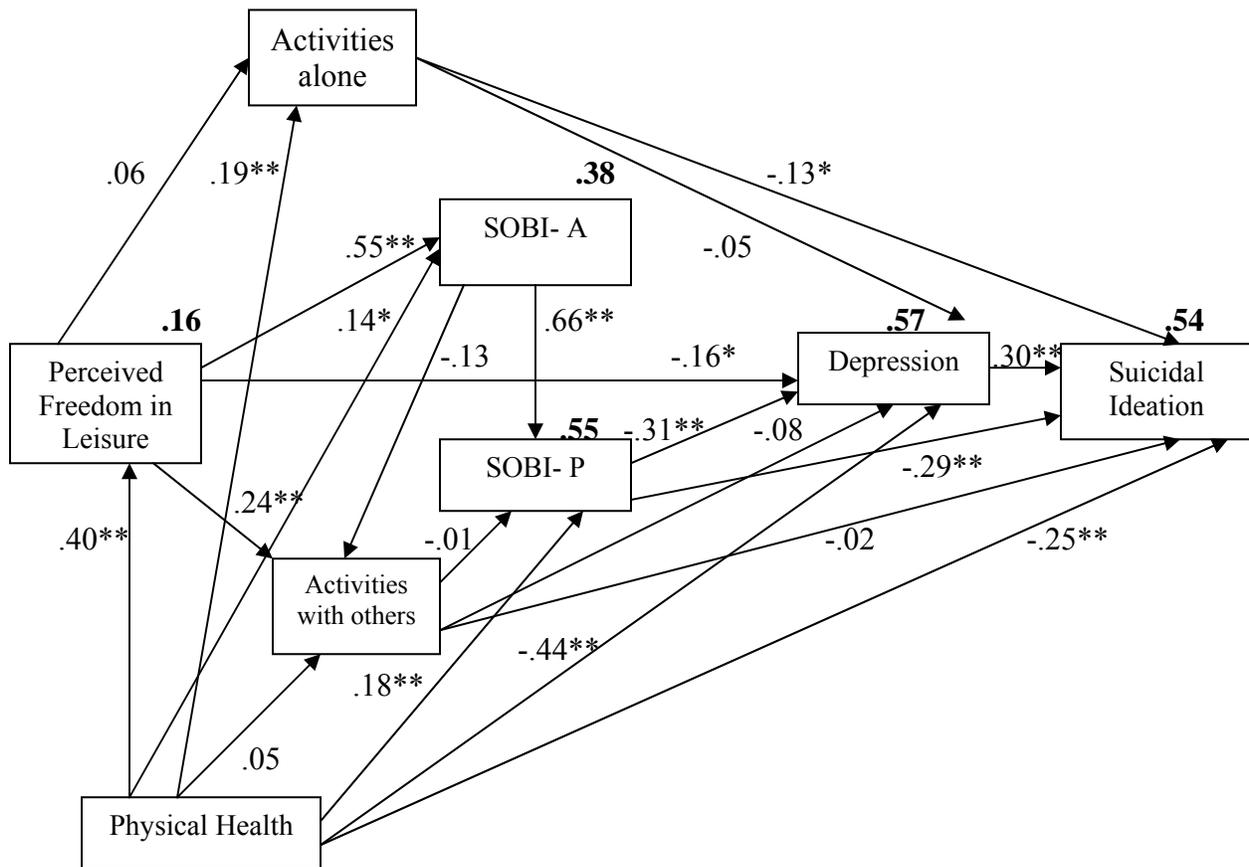


Figure 4. Revised female baseline model (Model Fb).

### 3.7 Testing for Invariance across Gender

After achieving acceptable baseline models for males and females, and because these models were identical, they were subsequently used for the multi-group invariance testing across gender. After performing the multi-group analysis for the unconstrained model (Model 1), the overall fit indices were as follows:  $\chi^2 (df = 12) = 32.09$ , RMSEA = 0.06 (90% CI for RMSEA = 0.03 - 0.09), NFI = 0.98 and CFI = 0.98. As the obtained fit indices suggest very good fit, the reliability of the model was enhanced.

In order to complete the invariance testing across males and females, constraints were placed on the parameters within the established multi-group model before the analysis was repeated. After the analysis, the fit indices were again reviewed. The fit indices for the fully constrained model (Model 2) were as follows:  $\chi^2 (df = 34) = 61.97$ , RMSEA = 0.04 (90% CI for RMSEA = 0.02-0.06), NFI = 0.96, and CFI = 0.98, representing very good fit to the data. To test for invariance, the  $\chi^2$  and  $df$  of the unconstrained model (Model 1) was subtracted from the fully constrained model (Model 2), to determine whether the model was equivalent across older males and females. The obtained difference between the models was not significant,  $\Delta\chi^2 (df = 22) = 29.88$ ,  $p > .05$ . Additional support for the finding of invariance can be obtained by comparing the NFI and CFI values of the unconstrained model (Model 1), with the constrained model (Model 2) values. After the subtraction, the NFI value is required to be equal to or less than .05 (Little, 1997), and for the CFI value to equal or fall below .01 (Cheung & Rensvold, 2002), before support can be obtained. After subtracting the NFI and CFI values for the current models, the NFI value equalled 0.02, and the CFI value equalled 0.00. As both values fell below the criterion, the results indicate that the proposed

theoretical model was invariant across older males and females. Thus, no significant gender differences were evident.

### *3.8 Testing the Applicability of the Theoretical Model with the Combined Sample*

After determining that no gender differences existed within the model, combining the data from both the male and female data sets was justified (Byrne, 1998; Dearing et al., 2005). As such, the analysis was repeated using the overall, combined male and female sample. The fit indices suggested a good fit with the data:  $\chi^2 (df = 6) = 23.82$ , RMSEA = 0.08 (90% CI for RMSEA = 0.05 - 0.12), NFI = 0.98, and CFI = 0.99. After examining the correlations between the variables from the predicted model, it was evident that a number of the relationships were non-significant; sense of belonging-antecedents and engagement in activities with others; engagement in activities with others and sense of belonging-psychological state; engagement in activities alone and with others, and depression and suicidal ideation. The non-significant paths (represented by dotted lines) are depicted in Figure 5. As a result, the non-significant paths were removed from the model, and the analysis was repeated.

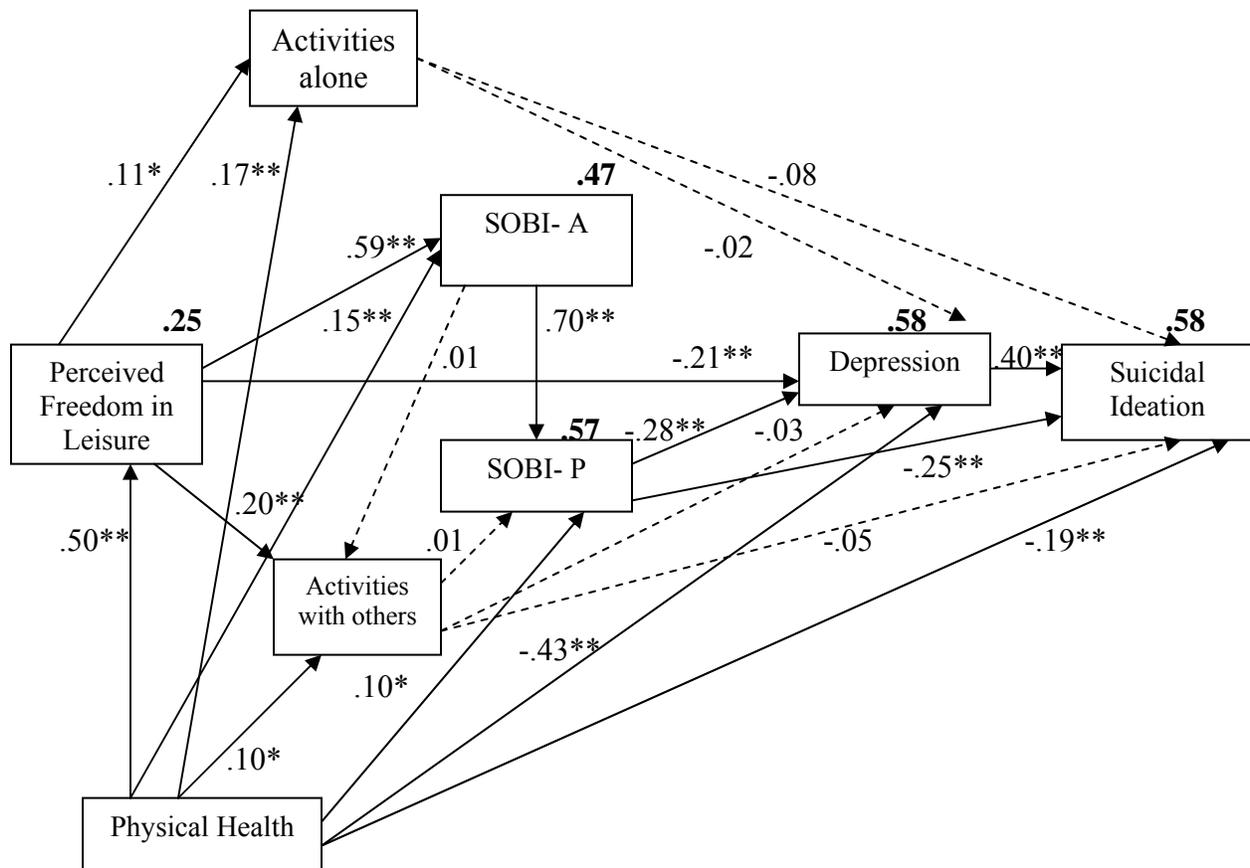


Figure 5. Path model for the combined sample highlighting the non-significant paths.

### 3.8.1 Revised Path Model with the Combined Sample

Table 9 displays the correlation matrix for all variables for the combined sample. There were significant negative correlations between physical health status, depression and suicidal ideation, indicating that improved physical health was associated with fewer symptoms of depression and suicidal ideation among the older adults. Significant positive correlations existed between physical health status, both aspects of sense of belonging, engagement in activities alone, or with others, and perceived freedom in leisure. Results further indicated that a significant negative correlation existed between both aspects of sense of belonging and mental health, indicating that higher levels of sense of belonging

were associated with lower levels of depression and suicidal ideation. In addition, significant positive relationships were also evident between sense of belonging-antecedents and psychological state and engagement in activities alone or with others, and perceived freedom in leisure.

In regard to depression, there were significant negative correlations between depression, perceived freedom in leisure, and engaging in activities alone and with others, indicating that more hours engaged in activities, and higher levels of perceived freedom, were associated with reduced reported depressive symptomatology. Finally, it was evident that higher levels of perceived freedom in leisure were related to greater involvement in activities engaged in alone, or with at least one other person.

Table 9.

*Correlation Matrix for Physical Activity, Mental and Physical Health Variables for the Combined Sample (N = 379)*

|                       | 1      | 2      | 3      | 4      | 5      | 6      | 7     | 8    |
|-----------------------|--------|--------|--------|--------|--------|--------|-------|------|
| 1. Activity-alone     | 1.00   |        |        |        |        |        |       |      |
| 2. Activity-others    | .24**  | 1.00   |        |        |        |        |       |      |
| 3. Perceived Freedom  | .20**  | .26**  | 1.00   |        |        |        |       |      |
| 4. Physical health    | .22**  | .20**  | .50**  | 1.00   |        |        |       |      |
| 5. Depression         | -.18** | -.19** | -.58** | -.66** | 1.00   |        |       |      |
| 6. Suicidal ideation  | -.15** | -.16** | -.48** | -.59** | .70**  | 1.00   |       |      |
| 7. SOBI-antecedents   | .15**  | .18**  | .67**  | .45**  | -.55** | -.51** | 1.00  |      |
| 8. SOBI-psychological | .13**  | .15**  | .52**  | .42**  | -.58** | -.58** | .75** | 1.00 |

\* $p < .05$ . \*\* $p < .01$ .

The results of the revised combined model indicated acceptable fit indices:  $\chi^2 (df = 12) = 33.89$ , RMSEA = 0.06 (90% CI for RMSEA = 0.04 - 0.09), NFI = 0.98, and CFI = 0.98, suggesting that the model fitted well with the data. After subtracting the  $\chi^2$  and  $df$  of the combined sample model from those of the revised model, following the removal of the non-significant paths, the results reflected non-significance,  $\chi^2 (6) = 10.07$ ,  $p > .05$ . This indicated that the non-significant paths were not contributing substantially to the final model. The final revised model representing the older adult sample is depicted in Figure 6.

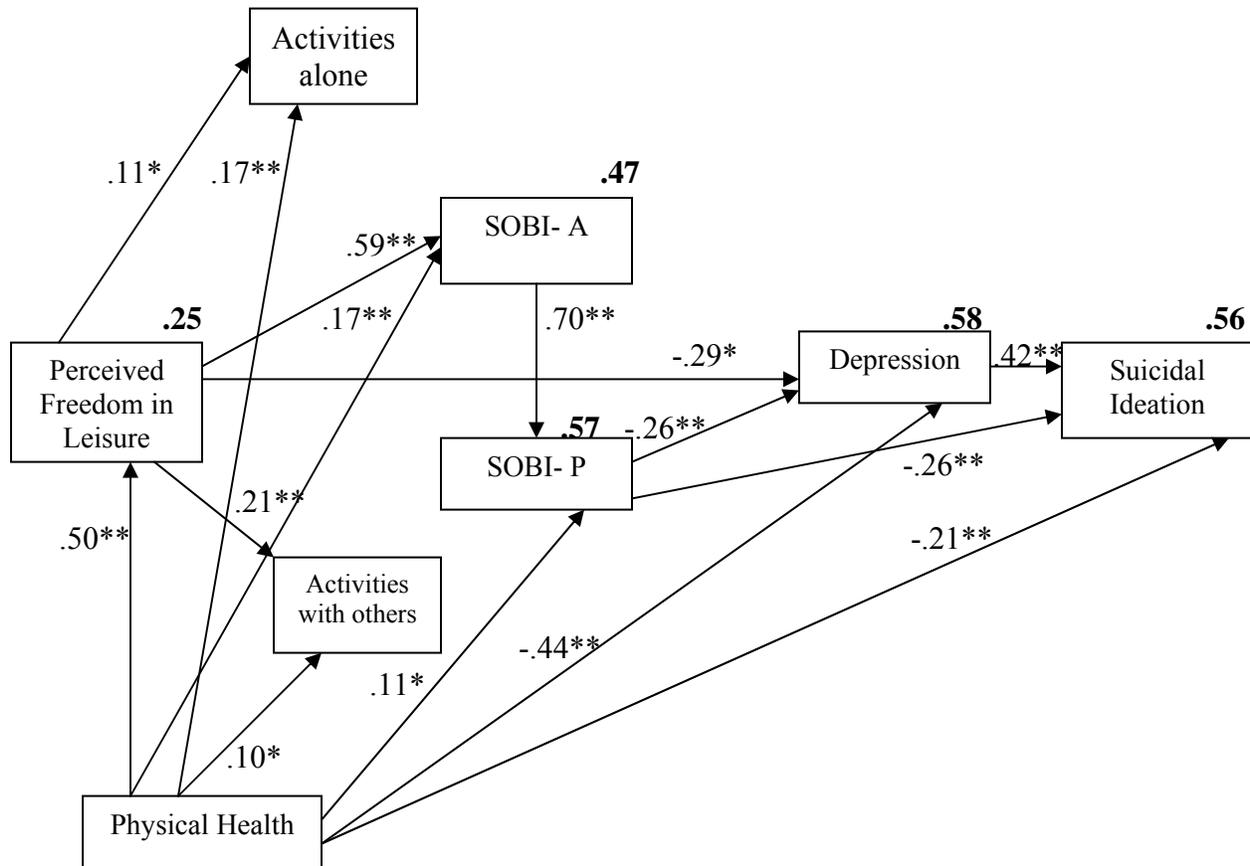


Figure 6. Final revised model for the combined sample.

### 3.8.2 Squared Multiple Correlations

The squared multiple correlations reported in Figure 6 represent the proportion of variance that is explained by the predictors of all the endogenous variables (Byrne, 2001). As shown in Figure 6, 25% of the variance associated with perceived freedom in leisure was accounted for by physical health status. Physical health and perceived freedom in leisure accounted for 47% of the variance in sense of belonging-antecedents, while physical health and sense of belonging-antecedents accounted for 57% of the variance in sense of belonging-psychological state. Further, 58% of the variance associated with depression, was accounted for by its three predictors, perceived freedom in leisure, sense

of belonging-psychological state, and physical health status. Finally, it was evident that the overall model accounted for 56% of the variance in suicidal ideation within an older adult population.

### *3.8.3 Standardised Regression Coefficients and Direct and Indirect Effects*

Path analyses permits examination of both direct and indirect effects within the theoretical model. Figure 6 displays the standardised regression coefficients. The standardised regression coefficients represent effects among variables within the model, via one or more multiple regression analyses (Schumacker & Lomax, 1996). Direct effects are depicted within path models by single straight arrows from one variable to another, and are measured by the path coefficient (Schumacker & Lomax, 1996). The model exhibits a number of significant direct effects. As depicted in Figure 6, sense of belonging-antecedent predicted sense of belonging-psychological state, and sense of belonging-psychological state predicted depression and suicidal ideation. Perceived freedom in leisure predicted depression, and depression predicted suicidal ideation. In addition, perceived freedom in leisure predicted sense of belonging-antecedent, engagement in activities alone and with others. Finally, physical health status had significant direct effects on all variables within the model.

Indirect effects are also demonstrated in Figure 6. Mediation is determined by examining whether a relationship between the mediator (i.e., sense of belonging-psychological state), and the dependent variable (i.e., depression) exists, and whether it is stronger than the relationship between the independent (i.e., sense of belonging-antecedents) and dependent variable (Haine et al., 2003). When a significant reduction in the relationship between the independent and dependent variables occurs, after the

mediator is included in the model, it is likely that the mediator explains the relationship between the independent and dependent variables (Baron & Kenny, 1986).

The results indicate that sense of belonging-psychological state was a significant mediator between sense of belonging-antecedents and depression and suicidal ideation. Specifically, there was a significant indirect effect of sense of belonging-antecedent on depression via sense of belonging-psychological state. To determine the nature of the indirect effect, a comparison of the correlation with the standardised regression coefficient between the variables was undertaken (Schumacker & Lomax, 1996). As displayed in Table 9, there was a significant correlation between sense of belonging-antecedent and depression,  $r = -.55, p < .01$ . Although it is not evident within Figure 6, the direct relation between sense of belonging-antecedent and depression within the model was not significant ( $\beta = 0.00, p > .05$ ). This finding suggests that the relation between sense of belonging-antecedent and depression is fully mediated by sense of belonging-psychological state (Schumacker & Lomax, 1996). Another indirect effect within the model existed between sense of belonging-antecedent and suicidal ideation via sense of belonging-psychological state. A significant correlation existed between sense of belonging-antecedent and suicide,  $r = -.51, p < .01$ , but for the path model, the direct relation between the variables was not significant ( $\beta = 0.00, p > .05$ ), while it was for sense of belonging-psychological state. Again, this implies that the relationship between sense of belonging-antecedent and suicidal ideation, is fully mediated by sense of belonging-psychological state.

A mediator variable can also partially explain the effect of an independent variable on a given dependent variable (Baron & Kenny, 1986). Partial mediation occurs

when the effects of the independent variable on the dependent variable are reduced but not eliminated by the intervening variable. Therefore, the independent variable will continue to have a relationship with the dependent variable, even after controlling for the mediator (Baron & Kenny, 1986). An indirect effect of sense of belonging-psychological state on suicide via depression was found. After reviewing the implied correlation coefficient,  $r = -.58, p < .01$ , and the direct effect within the model ( $\beta = -.26, p < .05$ ), it is evident that although the direct effect is lower than the correlation coefficient, it remained significant. This indicates that depression partially mediates the relationship between sense of belonging-psychological state and suicidal ideation. After examining the indirect effect of physical health on depression via sense of belonging-psychological state, it was evident that, as the direct effect ( $\beta = -.44, p < .05$ ), was lower than the correlation between the two variables,  $r = -.66, p < .01$ , but remained significant, sense of belonging-psychological state partially mediated the relationship between physical health and depression. Similarly, it was observed that sense of belonging-psychological state partially mediated the relationship between physical health status and suicidal ideation,  $r = -.59, p < .01, \beta = -.21, p < .05$ .

## *Chapter 4: Discussion*

### *4.1 Aims and Hypotheses*

The current study investigated a model of mental health among a sample of older Australians. The study had two aims. First, the study examined the relationship between perceived freedom in leisure, involvement in leisure activities performed alone or with at least one other person, sense of belonging, physical health, depression and suicidal ideation. Second, the study investigated whether the theorised model would be similar for males and females. The hypothesis that a good fit would be achieved for the proposed path model for older adults was supported. The second hypothesis, that the model would be non-invariant for gender, was not supported. The model was consistent for older males and females, indicating that the relationships between the paths were similar, regardless of gender. As a result, the mental health model can be interpreted for older adults as a whole, rather than for men and women separately.

The finding of gender invariance was surprising, considering the abundance of past research which has identified significant gender differences in the level of sense of belonging (Hagerty et al., 1996), depressive symptomatology (Kivela & Pakkala, 2001; Rohrer, Borders, & Blanton, 2005; Takkinen et al., 2004), suicidal ideation and behaviour (Yip, Chi, & Yu, 1998), the presence of physical illnesses (Waern et al., 2002), and involvement in physical and leisure activities (Benjamin, Edwards, & Bharti, 2005; Friis et al., 2003; Goggin & Morrow, 2001). In contrast to these findings, the current study supported other research which has failed to find significant gender differences in the level of reported depressive symptoms (Osborn et al., 2003; Russell & Cutrona, 1991), physical health status (Friis et al., 2003; Loland, 2004; Rohrer, Pierce, & Denison, 2004;

Satariano, Haight, & Tager, 2002), and activity engagement (Litwin, 2003; Warr, Butcher, & Robertson, 2004). In addition to demonstrating similar levels of activity involvement, perceived freedom in leisure, physical health, sense of belonging, depression, and suicidal ideation, this study also indicated that the relationships between the variables of interest were similar for older males and females. It is possible that characteristics of the sample under investigation played a role in determining whether gender differences were found. For example, factors such as type of accommodation (Gatz & Fiske, 2003; Mireault & de Man, 1996), retirement status (Drentea, 2002), financial situation (Quan et al., 1999), educational level (Rohrer, Borders, & Blanton, 2005; Takkinen et al., 2004), and even the availability of family contact (Alpass & Neville, 2003; Hough, Brumitt, & Templin, 1999), have been linked to the variables under investigation. Given that these variables were similar among the current sample of older males and females, gender differences were not demonstrated.

The discussion will focus on the significant direct paths and indirect relationships of the model, along with the non-significant relationships, before consideration of the limitations, implications of the findings, and recommendations for future research.

## *4.2 Physical Health*

### *4.2.1 Physical Health Status as a Direct Predictor of Depression and Suicidal*

#### *Ideation*

Physical health changes are associated with increasing age, and have been shown to impact on the mental health of older adults. The current research indicated that participants who reported poor physical health were more likely to report higher levels of

depression and suicidal ideation. This finding is consistent with an abundance of gerontological research (Alpass & Neville, 2003; Badger, 2001; Benjamin, Edwards, & Bharti, 2005; Cuipers & Lammeren, 1999; Cummings, 2002; Dunn, 2005; Gatz & Fiske, 2003; Keller-Olaman et al., 2004; Orsega-Smith, 2004; Quan & Arboleda-Florez, 1999; Quan et al., 2002; Reynolds, Alexopoulos, & Katz, 2002; Zuzanek, Robinson, & Iwasaki, 1998).

Various explanations for the relationship between physical and mental ill health have been explored (Kleespies, Hughes, & Gallacher, 2000; Preville et al., 2005). It has been postulated that it is the presence of physical illness, coupled with other psychosocial stressors such as bereavement or social isolation, which can lead to the development of depression and subsequent suicidal feelings among older adults (Coleman et al., 2004; Draper, 1994). In addition, Quan and Arboleda-Florez (1999) suggest that when physical illness impinges on the independence and physical prowess of older males, their egos may become threatened. The thought of becoming dependent on others, such as spouses and family members, may be too much to endure, and can lead to psychological distress (Draper, 1994; Quan et al., 2002; Waern et al., 2002; Yang et al., 2001; Yip, Chi, & Yu, 1998). As a result, physical illness becomes a stressor and leads to feelings of depression and suicidal ideation (Kleespies, Hughes, & Gallacher, 2000).

Additional factors associated with the burden of physical illnesses have also been implicated in explaining the development of depression and suicidal ideation among older adults. Factors include the impact illnesses have on individuals' lifestyles, such as becoming increasingly restricted in movement, the inability to maintain previous levels of activity, and debilitating pain experienced with particular illnesses (Hough, Brumitt, &

Templin, 1999; Yang et al., 2001). Other health factors associated with mental ill health among older adults include the distress of being unwell, the discomfort associated with treatment, and experiencing a loss of hope of recovery (Yang et al., 2001). In addition, if the physical condition necessitates removal from the family home into supported residential accommodation or a nursing home, elders may fear becoming dependent on others, losing their freedom, and abandoning the comfort of familiar home surroundings (Glass & Reed, 2001). It is likely that older adults may feel overwhelmed and distressed when unwell, and if they believe recovery is unlikely, they can develop depression and the belief that life is no longer worth living.

In summary, when individuals experience failing health or illness, they can develop negative beliefs, or experience perceptions of incapacitation, and fears of becoming a burden on loved ones. As a result, older adults can develop feelings of depression and thoughts of ending their lives as a possible escape from a perceived intolerable situation. As the population is aging, and greater numbers of older adults are living longer, investigations of the complex relationship between physical and mental health will remain a priority (Benjamin, Edwards, & Bharti, 2005).

#### *4.2.2 Physical Health as a Direct Predictor of Sense of Belonging-Antecedents and Psychological State*

The importance of fitting in and being accepted by others has long been recognised as a vital component in achieving satisfaction and well-being in life (Baumeister & Leary, 1995; McCrae et al., 2005; Moore, 1997; Tiikkainen & Heikkinen, 2005). The current study found a direct relationship between participants' physical health status and both elements of sense of belonging-antecedents and psychological state. This

indicates that the experience of poor health or illness is associated with a decrease in the desire for contact with others, and a reduction in the motivation and energy to seek out relationships with others. In addition, ill health is negatively associated with individuals' ability to experience the psychological consequences of sense of belonging, such as feeling they belong or complement their friendships, social groups, environments, or other referents. The lack of congruence with others and feeling they no longer fit within social networks can subsequently lead to social isolation and loneliness (Tiikkainen & Heikkinen, 2005). This withdrawal can be detrimental, as having close supportive contacts and networks in place has been found to assist older adults when unwell, enabling them to regain their previous level of functioning (Anstey, Luszcz, & Andrews, 2002). This important discovery suggests that physical illness among older adults can not only suppress the desire and motivation to seek out social contact, but it may also limit access to the psychological benefits sense of belonging normally brings.

Although, this was the first study to investigate the relationship between physical health and sense of belonging, previous research has shown a link between improved physical health and being with others (England, 1996; Thompson & Krause, 1998; Young, Russell, & Powers, 2004). Orsega-Smith et al. (2004) found that among older adults who experienced high stress levels, those who visited local parks with at least one companion were more likely to be leaner and healthier than those visiting the parks alone. It is possible that leading a healthy lifestyle with others can enable exposure to the unique social experiences which offer individuals support, nurturance, and feelings of connectedness (Tiikkaninen & Heikkinen, 2005).

In addition, others have indicated that various disabilities associated with physical illnesses have the capacity to prevent older adults from regularly participating in both daily activities and but most importantly, social networks (Turvey et al., 2002). Health-related incapacities may also necessitate relocation into supported accommodation services, or require prolonged stays in hospitals for treatment or recovery. These relocations may inadvertently remove individuals from their primary social networks and supports (Alpass & Neville, 2003). This may become problematic, as withdrawal from social participation has been linked to poor physical health and inferior functioning (Anstey, Luszcz, & Andrews, 2002).

In summary, sense of belonging has the power to connect individuals with their surrounding environment, and cultivate feelings of security, connectedness, and belonging (Bailey & McLaren, 2005; Choenaron, Williams, & Hagerty, 2005; Hagerty & Williams, 1999; Van Der Horst & McLaren, 2005). Seniority is often a time of failing health, and, in some cases, the occurrence of deterioration of vital faculties, such as eye sight. As poor health is related to a diminished desire for belonging, and actual levels of belonging, it becomes vital to examine this relationship with the aim of developing interventions to enable older adults to continue to experience high levels of sense of belonging in the face of physical adversity.

#### *4.2.3 Physical Health as a Direct Predictor of Activity Engagement Alone and With Others*

Consistent with an abundance of literature (Alexandris et al., 2003; Cassidy, 1996; Friis et al., 2003; Goggin & Morrow 2001; Hyland, Sodergren, & Singh, 1999; Loland, 2004; Orsega-Smith, Payne, & Godbey, 2003; Zuzanek, Robinson, & Iwasaki,

1998), the current study demonstrated that participants who reported better physical health were more likely to engage in a greater number of hours in activities alone and with others. Various explanations have been offered for this relationship. When unwell, individuals tend to report greater functional impairments in daily living, poor lifestyle behaviours, and a lower frequency of engagement in physical activities (Keller-Olaman et al., 2004). Supporting this, Friss et al. (2003) reported that approximately one third of older adults who suffer from persisting physical conditions have restricted activity abilities, and up to one fifth are so affected that they are unable to complete significant activities such as laundry.

Other factors associated with poor health have also been found to adversely affect individuals' ability to engage in activities (Atchley, 1998; Friis et al., 2003; Hyland, Sodergren, & Singh, 1999; Lang & Baltes, 1997; Lees et al., 2005). These factors include pain associated with the physical ailment (Benjamin, Edwards, & Bharti, 2005), feeling distress, discomfort, or fatigue, having low motivation, using medication, and not receiving encouragement from general practitioners to remain active (Loland, 2004). In addition, feeling hopeless or unable to change the situation (Dunn, 2005), being hospitalised or relocated to supportive accommodation (Johannesen, Peterson, & Avlune, 2004), time constraints attributed to attending medical appointments, and experiencing a decline in confidence after abstaining from activities due to poor health, have all been associated with decreased engagement in activity (Atchely, 1998; Lees et al., 2005).

In summary, a relationship exists between physical health status and engagement in leisure activities (Goggin & Morrow, 2001; Keller-Olaman et al., 2004; Schomer &

Drake, 2001; Wallace & Lahti, 2005). It is evident that adequate physical health is vital for the opportunity to continue engaging in activities. Being unrestricted and free from functional disability associated with ill health increases the possibility of older adults continuing their regular involvement in leisure rich lifestyles.

#### *4.2.4 Physical Health as a Direct Predictor of Perceived Freedom in Leisure*

Within the model, the research found that participants who reported ill health were more likely to report lower levels of perceived freedom in leisure. This indicates that these individuals may not perceive themselves as competent to perform activities. They might also feel unable to control the commencement, duration, and outcome of their involvement, and feel less intrinsically motivated to perform their chosen leisure activities. Therefore, they did not express a degree of playfulness or a desire for novelty within their daily lifestyles (Witt & Ellis, 1989). To date, this relationship has not been investigated among older adults. Although poor physical health has been consistently associated with decreased engagement in leisure activities (Cassidy, 1996), it is apparent that substandard health can also influence one of the primary factors which increases activity involvement, namely, perceived freedom in leisure. As poor health is negatively associated with one's intention and desire for engagement, interventions should focus on this phase that precedes engagement, by improving older adults' feelings of independence, control, and competence, rather than focusing solely on promoting actual involvement in activity (Drentea, 2002; Searle, Mahon, & Iso-Ahola, 1995).

Possessing high levels of perceived freedom is related to accompanying feelings of competence, feeling in control of the involvement, a degree of playfulness and spontaneity, as well as being intrinsically motivated to engage in leisure (Dacey &

Newcomer, 2005; Searle, Mahon, & Iso-Ahola, 1995). It is therefore not surprising that ill health can hinder the experience of leisure freedom. When unwell, older adults' desire to be spontaneous and playful will more than likely be reduced, and they may also require the assistance of family or home care organisations, or even hospitalisation, during their recovery. These experiences may reduce not only their perception and ability to be independent and remain in control of their daily routine (Benjamin, Edwards, & Bharti, 2005; Friis et al., 2003; Searle, Mahon, & Isa-Ahola, 1995), but also their ability to freely engage in desired leisure activities (Drentea, 2002; Siegenthaler & Vaughan, 1998).

Another possible explanation for the relationship between health status and leisure freedom may be the result of perceived barriers to engagement in leisure activities. Physical conditions such as injuries and general poor health, along with associated factors such as reduced strength and motivation, having a reduced desire for engagement, feeling incompetent (Alexandris et al., 2003; Herzog et al., 1998; Lees et al., 2005), and lacking self-efficacy (Orsega-Smtih, Payne, & Godbey, 2003), have been viewed as barriers which can limit older adults participation in activities (Dacey & Newcomer, 2005). Such factors are likely to be perceived as barriers by older adults, and are subsequently linked to a reduction in perceived leisure freedom.

In summary, it is likely that ill health may negatively influence older adults' perceptions of being competent and reduce their level of personal control, and their ability to be spontaneous and playful. In addition, poor health may also present different barriers which reduce not only participation in leisure activities, but also the level of perceived leisure freedom which older adults possess.

### *4.3 Perceived Freedom in Leisure*

#### *4.3.1 Perceived Freedom in Leisure as a Direct Predictor of Depression*

As older age can signal various psychological, social and physical changes, it is likely that individuals' levels of control and independence can become eroded (Dacey & Newcomer, 2005; Johannesen, Petersen, & Avlund, 2004; Orsega-Smith et al., 2004; Sneed & Krauss Whitbourne, 2005). Despite the acknowledgement of the importance of maintaining a sense of control in later years, research into the beneficial effects of perceived freedom in leisure and mental health among older adults has rarely been investigated. Possessing a sense of personal control, independence and beliefs of competency are significant elements of perceived freedom in leisure. It is likely that enhancing these components among older adults will be related to the development and improvement of perceived leisure freedom. Ultimately, enhancing levels of freedom increases the continuation of an independent leisure lifestyle, a powerful association which can protect against the development of depression among older adults (Russell, 1996; Witt & Ellis, 1989).

Consistent with past research (Searle et al., 1995), results demonstrated that perceived freedom in leisure had a direct relationship with depression. This finding indicates that when individuals experience less favorable leisure experiences as a result of extrinsic motivation, such as peer pressure to engage, they can experience feelings of hopelessness. This can also occur when they perceive lack of control over their experience because of beliefs they do not have the required skills for engagement (Witt & Ellis, 1989). Through repeated exposure to negative leisure experiences, negative beliefs,

such as feeling incompetent during activities, or attitudes about personal failure, can become slowly reinforced.

Although it is possible that a reciprocal relationship exists between mental health and attitudes towards leisure and subsequent engagement in activities, there is support for the proposal that perceived freedom is related to depression (Cassidy, 1996). Cassidy found that individuals who experience negative moods and attitudes towards leisure throughout their leisure involvement, not only engage in fewer activities, but also can experience higher levels of mental distress. Conversely, individuals who experience positive affect throughout their leisure engagement tend to report feeling healthier, happier, and less distressed. In addition, possessing positive leisure affect has been associated with the pursuit of excellence, competitiveness, and feelings of mastery (Cassidy, 1996). It appears that there is an association between positive leisure attitudes and psychological health (Lawton, 1994). Thus, when a negative association with leisure is made, it is likely that levels of perceived freedom will be reduced, and the individual can subsequently become vulnerable to developing depression and social withdrawal (Pierce, Wilkinson, & Anderson, 2003).

It appears that it may be beneficial to increase older adults' perceptions of competency, independence, and feelings of control, to help protect against the development of mental ill-health. Research has demonstrated that by increasing levels of these perceptions, along with improving friendships that are based in acceptance, respect and reciprocity, and by reducing leisure boredom, older adults are able to increase their levels of life satisfaction and improve psychological well-being (Searle et al., 1995; Searle et al., 1998). This finding suggests that it may be possible to indirectly increase

levels of perceived freedom in leisure by improving perceived levels of control, competency, and self-efficacy among older adults. Another vital ingredient to improving these key elements of freedom includes fostering interdependence and building leisure related friendships based on respect and acceptance (Searle et al., 1995). Thus, it is possible that perceived freedom in leisure is linked to relationships with others.

#### *4.3.2 Perceived Freedom in Leisure as a Direct Predictor of Sense of Belonging-Antecedent Subscale*

According to the model, perceived freedom in leisure was a direct predictor of the antecedent subscale of sense of belonging. This finding suggests that when participants believe they have the skills required to participate, and feel they are in control of their leisure participation, they are more likely to report increased desire and motivation to belong. Although this significant relationship has not been previously investigated, a related concept has received an abundance of research interest. The desire to establish friendships and socially interact with others is a frequently reported reason to engage in leisure activities. For example, Auld and Case (1997) found that 77% of participants reported engaging in leisure activities with between one and five other people, with 90% of the contact occurring with friends. The objective of interacting with others during leisure activities was motivated by the desire for information and knowledge, and to increase self-esteem, emotional support, help, and social approval (Auld & Case, 1997).

Although the relationship between perceived freedom and sense of belonging has not been previously investigated, a link between feelings of control and perceptions of competence associated with engagement, and the desire to be with others has been established. Orsega-Smith, Payne, and Godbey (2003) found that older adults who

engaged in activities, even infrequently, reported higher self-efficacy scores, suggesting that they had strong beliefs in their ability to complete the activities and control their involvement. The results were explained by positing that older adults had received high levels of encouragement from their social networks and fellow participants, prompting them to continue engaging in the activities. Thus, individuals may have had adequate levels of perceived freedom associated with their leisure engagement. Further, the positive social influence may have enhanced individuals' energy for ongoing involvement with others. This may have enabled them to feel needed and accepted, and that their contribution throughout the leisure activities was being valued by the other participants (Hagerty et al., 1992). Therefore, perceiving high levels of freedom within leisure activities may provide participants with greater confidence and aspirations to belong, subsequently increasing their desire to pursue social contacts.

As the importance of social relationships with others intensifies throughout the advancing years (Carstensen et al., 1999), it is likely that older adults actively seek out interactions with others. They may exert control and assume responsibility to achieve their social network goals. Although the relationship between perceived freedom in leisure and the desire to belong with others has escaped research attention, it appears that when individuals feel in control of their leisure pursuits, believe they are competent and possess the required skills to execute their engagement, and perceive few barriers to engagement in their activities, their motivation and energy for valued involvement with others may be enhanced.

### *4.3.3 Perceived Freedom in Leisure as a Direct Predictor of Engagement in Activities Alone and With Others*

According to the model, participants who had higher levels of perceived freedom in leisure were more likely to participate in activities alone and with others. This suggests that as participants develop feelings of increased control over their leisure adventures, which subsequently increase feelings of confidence, competence, and a sense of achievement, the likelihood of activity engagement may also increase. As activity involvement in later years is declining (Alexandris et al., 2003; Dacey & Newcomer, 2005; Wallace & Lahti, 2005), and the health promoting benefits of engagement are well established (Keller-Olaman et al., 2004; Orsega-Smith, Payne, & Godbey, 2003), it appears that perceiving adequate levels of freedom within activities can influence activity involvement among older adults. The relationship between perceived freedom in leisure and activity engagement among older adults is another area which has been neglected by research. However, the links between the related concepts of control, independence, and perceived barriers with activity engagement have been investigated.

A major criterion of perceived freedom in leisure is identifying few barriers to engagement, or removing constraints to enable engagement (Edginton et al., 1996). When potential barriers are resolved, the potency of perceived freedom within leisure is intensified (Witt & Ellis, 1989). A substantial amount of research has investigated barriers to activity involvement among older adults (Schomer & Drake, 2001). Identified barriers include feeling too tired to participate, having low confidence, fearing physical injury such as falling (Lees et al., 2005; Satariano, Haight, & Tager, 2002; Wallace & Lahti, 2005), and not being fit enough to participate. Having a lack of transportation,

feeling unable to meet the associated financial costs of participation, experiencing negative affect, reporting poor health, and having excessive time demands have also been identified as barriers to activity engagement (Lees et al., 2005; Wallace & Lahti, 2005).

Participants who infrequently engage in leisure activities often report a greater number of perceived and actual barriers than frequent engagers, and the presence of barriers can negatively influence individuals' intentions to participate (Alexandris et al., 2003; Lees et al., 2005). In addition, barriers to activity engagement have been related to reduced levels of intrinsic motivation, a vital ingredient to ensure high levels of activity participation, and to intensify one's level of perceived freedom in leisure (Alexandris et al., 2002). This suggests that infrequent participators have a restricted sense of leisure freedom, as the activities are not intrinsically motivating because the constraints impede feelings of control and accessibility.

Similarly, another explanation of the positive relationship between perceived freedom in leisure and activity engagement is provided by applying the self-determination theory to leisure engagement (Deci & Ryan, 2000). The self-determination theory proposes that by becoming integrated within various social systems and networks, individuals are able to become autonomous, competent, and experience feelings of relatedness with others. It is suggested that as individuals approach situations and activities that gratify these needs, they become intrinsically motivated in their behaviour (Dacey & Newcomer, 2005). As a result, they exercise self-control and enjoy a sense of personal choice and connection when seeking activity involvement, which subsequently increases feelings of confidence and energy. As a result, the likelihood of continued engagement in activities and social interactions increases, and the individual experiences

rewarding activities and improved well-being (Dacey & Newcomer, 2005; Schomer & Drake, 2001). The importance of self-determination and desire for independence and control among older adults has been supported in the literature (Johannesen, Petersen, & Avlund, 2004). It is likely, therefore, that if individuals possess higher levels of confidence perceived control, and experience intrinsic motivation to engage in activities, they may have higher levels of perceived leisure freedom.

In summary, assisting older adults to overcome or negotiate their barriers to physical activity is critical. By working through potential barriers to engagement, individuals are likely to control the commencement and outcome of their own leisure experiences, which subsequently enhances levels of perceived freedom, and permits leisure engagement (Alexandris, Tsorbatzoudis, & Grouios, 2002; Neulinger, 1978; Schomer & Drake, 2001). Enabling access to activities appears to not only promote positive physical and mental health, but it also enables continuing contact with others.

#### *4.4 Sense of Belonging*

##### *4.4.1 Sense of Belonging–Antecedents as a Direct Predictor of Sense of Belonging–Psychological State Subscale*

It was found that the antecedent subscale of Sense of Belonging Instrument predicted the psychological state subscale, which supports past research (Bailey & McLaren, 2005; Hagerty & Williams, 1999). This finding may be explained by the theoretical development of the sense of belonging instrument. The antecedent component of sense of belonging posits that certain conditions must be achieved before the development of the concept can emerge. For instance, the antecedent conditions of sense of belonging include the individual's energy and motivation for valued involvement, to

experience feelings of being needed, respected, and accepted, having the desire to develop meaningful involvement with others, activities or environments, along with the belief that they would be able to successfully contribute to, and complement the involvement (Hagerty et al., 1992; Hagerty et al., 1996). It is only once these conditions have been met that individuals can access the psychological experience of sense of belonging. When this has been achieved, the person perceives that they fit well within the group, activity, or environment. Thus, it is only when individuals feel that they can successfully share characteristics that complement their involvement that they experience the beneficial consequences that involvement ensures, such as feeling congruent with their environment (Hagerty et al., 1996).

#### *4.4.2 Sense of Belonging-Psychological State as a Direct Predictor of Depression and Suicidal Ideation*

The results indicate that sense of belonging-psychological state predicted depression and suicidal ideation. These significant relationships have been supported in previous research (Bailey & McLaren, 2005; Hagerty & Patusky, 1995; Hagerty & Williams, 1999; Hagerty et al., 1992; Hagerty et al., 1996). The results suggest that when individuals experience the psychological consequences of belonging, they begin to feel acknowledged and congruent with others, feel like they fit in, and that they contribute to the relationship in a meaningful way (Baumeister & Leary, 1995). This involvement enables them to feel accepted, included, or connected with companions, and experience positive emotions such as happiness, elation, contentment, and satisfaction (Baumeister & Leary, 1995). When individuals perceive the quality of the interactions with others is sufficient, the consequences of belonging can be accessed. Therefore, it is not mere

proximity or involvement which cultivates feelings of belonging, but rather the individual's perception of the quality of the engagement (Hagerty et al., 1992; Hagerty et al., 1993).

As the desire for connectedness with others has been regarded as imperative for human functioning, the consequences of being disconnected or experiencing reduced levels of belonging with others can be devastating (Baumeister & Leary, 1995). Feeling rejected, unwelcome, and disconnected from others can lead to negative emotional states, such as depression, anxiety, loneliness, and frustration (Bailey & McLaren, 2005; Baumeister & Leary, 1995; Hagerty et al., 1993; Van Der Horst & McLaren, 2005). Further, reduced levels of belonging can result in social isolation (Baumeister & Leary, 1995; Bay et al., 2002; Dasberg, 1975; England, 1996).

Moore (1997) found that suicidal older adults reported feeling that nobody cared about them. They felt that their families were too busy to care about them, and this feeling of being no longer needed or loved led to a sense that their lives no longer possessed meaning. They yearned to feel connected with others, useful, needed and cared for, but felt powerless to change their seemingly useless situation. In contrast, feeling connected to the community, outside immediate family and friend networks, and maintaining the ability to continue to develop relationships, has been found to protect against suicide among older adults (Turvey et al., 2002).

In summary, the desire for social intimacy and feelings of connectedness with others among older adults cannot be overvalued. When one feels an essential part of one's surroundings or social groups, the older person experiences a sense of belonging.

This powerful experience can then offer substantial protection against the development of depression and suicidal ideation (Hagerty & Williams, 1999).

#### *4.5 Depression*

##### *4.5.1 Depression as a Direct Predictor of Suicidal Ideation*

Examination of the model indicated that depression was related to higher levels of suicidal ideation among the sample. This finding is consistent with an abundance of literature that has found depression significantly predicts suicidal ideation and completed suicides within the older adult population (Bailey & McLaren, 2005; Brown et al., 2001; Cattell & Jolley, 1995; Fortin et al., 2001; Harwood et al., 2000; Holkup, 2003; Raj, 2004; Reynolds, Alexopoulos, & Katz, 2002; Scocco & DeLeo, 2002; Snowdon & Baume, 2002; Szanto, 2003; Szanto et al., 2002; Turvey et al., 2002; Waern, Rubenowitz, & Wilhelmson, 2003; Yang et al., 2001).

Various explanations of this relationship exist. One notion is that increasing age is associated with significant changes to routine, lifestyle, personal circumstances, and social networks (Waern, Rubenowitz, & Wilhelmson, 2003). These changes stem from grief and bereavement responses to the loss of close friends (Holkup, 2003), loss of independence and changes in residential accommodation, poor health and functional impairment (Szanto et al., 2002), memory and cognitive deficits (Turvey et al., 2002), changes related to retirement (Kraus, 1998), and associated social networks (Waern, Rubenowitz, & Wilhelmson, 2003). Older adults may be at a greater risk of developing depression in later life, but advancing age is not an automatic precursor to develop depression, and thankfully, not all depressed older adults commit suicide (Waern, Rubenowitz, & Wilhelmson, 2003).

Another possible explanation for the relationship between depression and suicide can be within the diagnostic criteria for depression. The very nature of depression represents a clinical profile comprising sadness, diminished pleasure or interest in daily activities, loneliness, hopelessness, helplessness, low motivation and energy, and indecisiveness (American Psychiatric Association, 2000). When individuals perceive their situation as hopeless and the future as bleak, their desire or zest for living is diminished (Tanaka & Sakamoto, 1998). When a situation is perceived to be intolerable and futile, some individuals can begin to believe the only way to ameliorate their psychological pain is to end their lives (Snowdon & Baume, 2002). By contemplating suicide, their beliefs become stronger and they may convince themselves that a promising solution for terminating their current suffering and discomfort, is taking their own lives (Turvey et al., 2002).

The relationship between depression and suicidal ideation among older adults cannot be overstated (Cattell & Jolley, 1995). As older adults are not inclined to communicate their intent to die or seek intervention, identifying individuals at risk is difficult, but vital (Szanto et al., 2002). A window of opportunity does exist for intervention, as research has demonstrated that older adults contemplating suicide usually visit or contact their general practitioner or clinical services within weeks before taking their life (Cutcliffe, 2003; Harwood et al., 2000; Hepple & Quinton, 1997). Therefore the importance of conducting accurate assessments and diagnosing depression among older adults is imperative in order to commence effective treatment (Finkel, 2003; Skoog et al., 1996; Snowdon & Baume, 2002; Szanto et al., 2002). By successfully treating underlying psychological pathology, older adults may begin to see their future as hopeful, and the

desire to end their life may not remain a foremost priority (Brown et al., 2001; Cattell & Jolley, 1995; Snowdon, 1997; Skoog et al., 1996; Turvey et al., 2002; Waern, Rubenowitz, & Wilhelmson, 2003; Yang et al., 2001).

#### *4.6 Indirect Effects Within the Model*

The model revealed a number of full and partial mediation effects. The results indicated that sense of belonging-psychological state significantly mediated the relationship between sense of belonging-antecedents and depression. In addition, sense of belonging-psychological state acted as a mediator between sense of belonging-antecedents and suicidal ideation. These results suggest that sense of belonging-antecedents influences sense of belonging-psychological state, which in turn impacts on mental health. Thus, sense of belonging-psychological state is a plausible mechanism through which sense of belonging-antecedents effects mental health.

Having motivation and energy for meaningful involvement with others is considered to be the most influential determinant of actual involvement with others and experiencing a sense of fit within that involvement (Hagerty et al., 1992; Hagerty et al., 1996). It is not surprising, therefore, that lacking motivation to establish relationships with others might be negatively related to the psychological component of sense of belonging. The psychological state of sense of belonging in turn, influences mental health. Experiencing low levels of psychological belonging may increase levels of depression and suicidal ideation.

This finding is important as it suggests that efforts to protect against the development of psychological ill health need to focus on avenues for individuals to increase their motivation and desire to connect with others in a meaningful way. Only

after the antecedents to belonging are achieved can the psychological consequences of belonging be realised, and, therefore, protection against the development of depression and suicidal ideation be gained.

Results also demonstrated that depression partially mediated the relationship between sense of belonging-psychological state and suicidal ideation. This indicates that the effects of the psychological aspect of sense of belonging on suicidal ideation work, at least in part, through depression. This finding offers support for the conclusion that sense of belonging is a key concept among older adults. Sense of belonging represents a connection individuals have to their surrounding environment, cultivates feelings of security, and protects against mental ill health (Bailey & McLaren, 2005; Choenarom, Williams, & Hagerty, 2005; Hagerty & Williams, 1999; Van Der Horst & McLaren, 2005).

Other findings indicated that sense of belonging-psychological state partially mediated the association between physical health and both depression and suicidal ideation. This suggests that while physical health continues to have a direct relationship with mental ill health, individuals with improved physical health have decreased depression and suicidal ideation, in part, because they have increased levels of sense of belonging-psychological state. This valuable finding offers additional support for research which has suggested that poor physical health can impact on the ability to remain socially active (Young, Russell, & Powers, 2004) and feel connected with others (Tikkaninen & Heikkinen, 2005).

The current research findings highlight that individuals' health status can influence their perceptions of fitting in with others around them, and this psychological

acknowledgement of belonging can influence their mental health. Older age is a time associated with increased physical health issues. As poor physical health has the capacity to prevent older adults from experiencing belonging, further research which explores this finding is required.

#### *4.7 Discussion of the Non-Significant Hypothesised Paths within the Model*

##### *4.7.1 The Relationships between Activity Engagement Alone and With Others and Sense of Belonging, Depression, and Suicidal Ideation*

Unexpectedly, engaging in leisure activities alone or with others was unrelated to mental health. Participation in activities did not protect against depression, suicidal ideation, or enhance participants' feelings of sense of belonging. Although this finding was inconsistent with a substantial body of research which has reported a significant relationship between engagement in activities and mental health (Cassidy, 1996; Lawton, 1994; Orsega-Smith et al., 2004; Schomer & Drake, 2001), a large proportion of research within this area include samples who generally have high scores of mental ill-health or depression or meet enough criteria for a diagnosis of depression to be made (Lloyd et al., 2001; Mather et al., 2002; Moore et al., 1999). The current research's sample included older participants who had adequate mental health, visited their general practitioners on a regular basis, and were generally engaged in regular leisure activities.

In addition, the finding that engagement in activities was unrelated to mental health was consistent with research by Bailey and McLaren (2005), Orsega-Smith et al. (2004), Warr, Butcher, and Robertson (2004), and Cooper-Patrick et al. (1997). Cooper-Patrick et al. concluded that the risk of developing depression was similar for participants who were engaged in physical activities and those who were not, and no relationship was

found between engaging in activities and psychological distress. It was suggested that the benefit of regular physical activity may predominantly influence an individual's physical health status, rather than directly influencing mental health (Cooper-Patrick et al., 1997).

It is likely that a reciprocal relationship exists between physical health and engagement in leisure activities (Cassidy, 1996; Coleman & Iso-Ahola, 1993; Friis et al., 2003; Keller-Olaman et al., 2004). Engagement in activities may improve an individual's physical health status, and improved physical health enables individuals to regularly engage in leisure activities (Orsega-Smith et al., 2004). It is possible that due to this relationship, activity engagement may fail to directly influence mental health, rather, when individuals are physically healthy and regularly engage in leisure activities, they may then have improved mental health (Alexandris et al., 2003; Benjamin, Edwards, & Bharti, 2005). Further research is required to investigate this possibility that a reciprocal relationship exists between engagement in activities and psychological functioning, particularly among vulnerable populations such as older adults (Cooper-Patrick et al., 1997; Warr, Butcher, & Robertson, 2004).

In addition, the non-significant relationships between leisure activities engaged in alone and with others and depression and suicidal ideation may also be explained by the nature of the statistical analysis employed. For example, the independence of predictor variables in non-experimental research is often rare, and a small relationship between the variables in any sample often arises. As a result, overlap (or shared variance) in the relationship of each predictor variable to a dependent variable will occur (Tabachnick & Fidell, 2001). Due to the number of predictors of depression and suicidal ideation included in the path model, and that participation in leisure activities with others and

alone was significantly correlated with each predictor, engagement in leisure activities failed to predict additional variance. Thus, the relationship between engagement in leisure activities and mental health may be accounted for by the relationships between the other predictors, specifically physical health, perceived freedom in leisure, and sense of belonging, and the mental health variables.

In summary, the current research did not find a significant relationship between activity engagement and mental health. Activity engagement may primarily influence individuals' physical health, rather than their psychological functioning, or due to the nature of the statistical procedure employed, engagement in leisure activities may have failed to contribute additional variance of mental health and consequently became non-significant in the final path model. Further research is warranted to explore this relationship and to determine the role leisure activities have in protecting against mental ill health among populations at risk.

#### *4.7.2 Sense of Belonging-Antecedents and Activity Engagement with Others*

It has been often acknowledged that leisure is perceived as a social activity (Coleman, 1993; Herzog et al., 1998; Orsega-Smith, Payne, & Godbey, 2003; Satariano, Haight, & Tager, 2002). People are motivated to engage in leisure and physical activities to have social companions and to be connected with others (Coleman & Iso-Ahola, 1993; Lang & Baltes, 1997; Satariano, Haight, & Tager, 2002; Siegenthaler & Vaughan, 1998). Based on the social nature of leisure adventures, the current finding that the antecedent component of sense of belonging was not related to engaging in activities with others is surprising. This suggests that when individuals feel motivated to seek meaningful relationships with others, and have the energy to improve their feelings of belonging,

they are not necessarily any more likely to engage in leisure activities with others. This finding is inconsistent with previous research conducted by Bailey and McLaren (2005), who found that motivation and desire to be with others was related to increased engagement in activities with others. It is possible that the addition of physical health status and perceived freedom in leisure as direct predictors of activity engagement with others within the current model resulted in sense of belonging-antecedents no longer significantly contributing to the variance within activity engagement with others. Hence, the contribution of sense of belonging-antecedents to activity engagement with others may be explained through the shared variance of perceived freedom in leisure and physical health status.

In summary, sense of belonging-antecedents was found to be related to activity involvement with others, however developing a sense a belonging within the older adult population is not straight-forward. Simply wanting to be with others does not necessarily ensure subsequent engagement in activities with others. As research concerning the concept of sense of belonging among older adults is in its infancy, greater research attention is clearly required to continue to explore how feelings of belonging can affect the actual level of social engagement of older people.

#### *4.8 Summary of Results*

Collectively, the results indicate that there are many issues inherent in increasing age which can potentially lead to mental ill health. The model demonstrated the powerful influence physical health has on the mental health and social engagement of older adults. Physical health was found to be related to participants' level of perceived freedom in leisure, engagement in leisure activities alone and with others, and levels of sense of

belonging, depression, and suicidal ideation. These findings suggest that when participants report poor physical health, it is likely that levels of perceived freedom will be reduced, engagement in activities may be curtailed, feelings of belonging may diminish, and the chances of developing mental-ill health may increase.

Perceived freedom in leisure also plays an important role in maintaining individuals' involvement in leisure activities. This freedom increases the desire to be with others, as well as having the capacity to protect directly against the development of depression. Unfortunately, perceived freedom in leisure has received little research attention among this population. As research has determined that maintaining and encouraging independence, feelings of control of one's life, and competence (Coleman & Iso-Ahola, 1993; Drentea, 2002) are crucial for preserving a positive and active lifestyle among older adults, it highlights the importance of research efforts to investigate how perceived freedom in leisure influences the physical, psychological and social aspects of older adults' lives.

The importance of maintaining social relationships and achieving belonging cannot be overstated, particularly among older adults (Hagerty et al., 1993; Moore, 1997). The current research has supported a relatively new area of investigation that has determined that feeling connected and a sense of belonging with others is important throughout senior years. Having the motivation and desire to seek out relationships with others is a prerequisite for the experience of belonging (Bailey & McLaren, 2005; Hagerty & Williams, 1999). Only when individuals experience the feelings of becoming an essential part of within a relationship, can the consequences of belonging be realised. Possessing high levels of sense of belonging can offer individuals protection against the

development of depression and suicidal ideation (Bailey & McLaren, 2005; Hagerty & Patusky, 1995; Hagerty & Williams, 1999; Hagerty et al., 1992; Hagerty et al., 1996).

The current research also supported the common finding that increased feelings of depression are related to an increase in suicidal ideation (Bailey & McLaren, 2005; Brown et al., 2001; Fortin et al., 2001; Harwood et al., 2000; Holkup, 2003; Raj, 2004; Reynolds, Alexopoulos, & Katz, 2002; Scocco & DeLeo, 2002; Snowdon & Baume, 2002; Szanto, 2003; Szanto et al., 2002; Turvey et al., 2002; Waern, Rubenowitz, & Wilhelmson, 2003; Yang et al., 2001). The perceived hopelessness of a situation and having a bleak outlook for the future can lead to thoughts that suicide may be a suitable means to end a seeming unendurable condition (Snowdon & Baume, 2002).

Finally, the model also indicated that the psychological component of sense of belonging mediated the relationship between sense of belonging-antecedents and depression and suicidal ideation; depression partially mediated the relationship between sense of belonging-psychological state and suicidal ideation; finally, the effects of physical health on psychological health work, at least in part, through the psychological state of sense of belonging. In these ways the model highlights the complex interrelationships between these critical physical-psychological states.

#### *4.9 Limitations*

Several limitations of the study need to be considered. Although multi-group path analysis is a comprehensive method employed to explore theoretical relationships within a model, conclusions about causality cannot be drawn. Therefore, interpretation rests on the soundness of the theory and the strengths of the relationships between variables. Further research is required to investigate cause and effect relationships.

Another limitation of the research involves the use of self-report measures. Although self-report measures are a convenient way of gathering information (Bowen, Martin, & Hunt, 2002; Ferrando, 2000; Meadows, 2003), they can be subject to measurement and response errors. Respondents must complete a series of cognitive tasks to derive an answer. They are required to understand the literal meaning of the items. As such, they need to identify each word of the sentence, have the ability to recall relevant information from semantic memory, and then construct a meaning of the sentence in order to provide an answer (Martinez, 1999). If respondents have even mild cognitive impairment, or they are unable to successfully comprehend the questions asked of them, it is likely that response errors will result. This occurrence could subsequently interfere with the validity and reliability of the obtained information. As participants' cognitive ability in the current research was unknown, it would be beneficial for future research to consider such a measure, to ensure participants are able to accurately complete the questionnaires.

Another limitation involved the geographical location of the participants. The research incorporated a broad sample of participants spanning different rural and metropolitan areas within Victoria. As such, future research is needed to examine the leisure experiences and mental health of older adults residing across the nation. This is required as it is possible that the different States have different opportunities and facilities available to older adults to engage in active leisure lifestyles, and also access to medical and psychiatric facilities. For instance, districts within the Northern Territory and surrounding country are renowned for their isolation, where minimal structured opportunities may be available for older adults to engage regularly in leisure groups, or

attend frequent medical check-ups. It would be beneficial to examine the mental health, social and leisure characteristics of these residents to enable effective, tailored interventions to be developed to address these important issues.

In addition, rural participants of the current research typically resided in larger, established country towns. Older adults situated in small, isolated country towns of Victoria were underrepresented in this sample. Generalisation of these results across all 'rural' areas within Victoria should be conducted with care. Due to the specific and widely acknowledged issues related to residing in isolated areas, away from established medical and community infrastructure (Rohrer, Borders, & Blanton, 2005), future research should include older residents of more isolated, rural sites across Australia.

Finally, a further limitation of the present research concerns the representativeness of the sample, with respect to their level of social engagement. Attempts were made by the researcher to increase the opportunities for older adults to participate in the research by attending various day-care facilities, elderly citizen groups, leisure events, community groups, various kinds of residential accommodation, and having district nurses distribute questionnaires to their physically unwell patients. However, the final sample was over represented by older married adults who fell within the "young-old" category, who were actively engaged within the community and enjoyed socialising with others. The majority of the sample who volunteered to participate continued to reside in private residences, participated in higher levels of leisure activities, regularly visited their general practitioners, and were not taking antidepressant medication at the time of the research. In addition, the mean scores on the depression, suicidal ideation, and sense of belonging instruments indicated that the sample was

relatively healthy psychologically. This suggests that the current sample was not in the high risk category for mental ill health, and therefore did not adequately represent the general older population.

A return rate of 37% suggests that perhaps participants at risk or who felt depressed or psychologically unwell refrained from participating in the research, or did not have the motivation or desire to complete the questionnaire. Further efforts are required to increase the opportunities for older adults at risk of mental ill health to participate in research. One way to achieve this would be to conduct qualitative research where participants are not required to complete lengthy, and possibly confusing, questionnaires. Qualitative research would capture the in-depth, descriptive, and personal accounts of experiencing depression and suicidal ideation, and what strategies individuals feel would assist in the prevention and recovery from mental ill-health.

In addition, demographic information pertaining to participants ethnicity including cultural backgrounds or preferred language for example were not obtained. It is therefore possible participants from different cultures did not partake in the research due to language barriers or cultural beliefs, or that the unexamined demographic information influenced variables such as leisure engagement or perceptions of depressive symptoms for example. Therefore, it would be beneficial to include such demographic variables for evaluation in the future due to Australia's ever going growing multicultural society.

#### *4.10 Implications of Current Research*

Results from the present study indicate that older adults' physical health status has the capacity to influence their leisure freedom and activity involvement, connectedness with others, and mental health. If older adults' poor health goes undetected, it is likely

that they will report lower levels of perceived freedom in leisure, engage in fewer hours of activities alone and with others, experience a decrease in motivation and energy to seek out relationships with others, and may feel they do not belong within their friendship or social groups. Further, older adults with poor health are more likely to report higher levels of depression and suicidal ideation. Due to the physical changes associated with advancing age, this finding is a major concern. Suicide prevention efforts must address the physical health issues of Australian older adults.

As many older adults visit their general practitioners on a regular basis, the latter can provide a means to implement initial interventions (Bristow & Patten, 2002; Harmon et al., 2003). Research has determined that general practitioners who attend educational campaigns targeted at increasing awareness of older adult patients' health issues, and promoting healthy behaviours among this population can greatly improve the health behaviours of older adults (Kerse et al., 1999). By educating general practitioners about the unique relationships that exist between physical health and the psycho-social characteristics of older adults, our capacity to assess, monitor, and promptly treat physical health issues among this population would be enhanced. As older adults tend to adhere to general practitioners' recommendations (Kerse et al., 1999), this advice regarding ways to maintain optimal health could be particularly beneficial. It would increase awareness of the positive influence that social contact and engagement in leisure and physical activity has, and enable older adults to continue to live an active and satisfying life.

Staff of various accommodation facilities, particularly nursing homes where residents require a higher level of care, need to be aware that residents with failing health

or related health issues, such as pain functional limitations, and reduced motivation, can experience lower levels of belonging. They can also perceive lower freedom in leisure, withdraw from activity programs, and become vulnerable to mental ill health.

Educational intervention programs should specifically target these issues, and strategies could be developed to assist early detection of physical health concerns. Staff should be encouraged to openly discuss health issues with residents, and enable them to be an active member of the management plan. This is important because when individuals feel more in control of their health behaviours, perceive that they have the skills and competence in controlling their behaviour, and engage in health promoting activities, they are likely to experience reduced feelings of hopelessness and despair, and consequently, experience improved mental health (Wu, Tang, & Kwok, 2004). By intervening at these early stages, it may be possible to prevent the escalation of impairment and enable residents to continue an active lifestyle.

Community activity programs are popular among older adults. However, being physically incapacitated as a result of poor health diminishes older adults' feelings of independence, and this perceived lack of control has been found to negatively impact on mental health (Lang & Baltes, 1997). Maintaining feelings of independence and control in enabling seniors to attend such programs is important (Orsega-Smith, Payne, & Godbey, 2003). The high attendance at community programs may be another way to increase older adults' awareness of the important role health has among this population. Holding information sessions with members and displaying posters reminding members and their families about the importance of having regular health check-ups are two possible techniques. Reminders can also be placed in newsletters, along with saying why

it is important to be pro-active in engaging in individual health behaviours and obtaining prompt medical attention.

With regard to perceived leisure freedom, it is important for individuals to perceive few barriers which may limit their participation. If individuals feel they are not restricted from engaging in activities, it is likely that they will perceive greater freedom in their leisure pursuits. Therefore, community activity groups and residential facilities, in particular, should run intervention programs aimed at exploring what barriers to involvement exist for members and residents, and increasing their awareness of the role barriers have in preventing activity involvement (Lees et al., 2005).

In addition, leisure education programs have been found to be an effective way of increasing participants' sense of control, independence, feelings of competence, and life satisfaction (Searle et al., 1995; Searle et al., 1998). Community groups and accommodation facilities could provide education by discussing the benefits of leisure activity on mental and physical well-being. Attempts to identify members' personal interests and motivation to engage in activities and support networks that will encourage an active leisure lifestyle should be made to increase awareness of available community resources, and how accessing these facilities will encourage participation (Searle et al., 1995). Enhancing older adults' perception of independence and control over their lives will not only assist in maintaining positive mental and physical health, but will also provide greater life satisfaction (Johannesen, Petersen, & Avlund, 2004; Searle et al., 1995; Russell, 1996).

The theory of human relatedness acknowledges that establishing and maintaining regular contact with others and the surrounding environment is a fundamental and

pervasive human concern (Baumeister & Leary, 1995; Hagerty et al., 1993; Moore, 1997). Consistent with this theory, the current research found that if one feels one does not possess the social skills or feel motivated to belong, it is likely that lower levels of sense of belonging-psychological state will be reported and, in turn, higher levels of depression and suicidal ideation will be experienced.

This finding has important implications for people who live and work with older adults, particularly, medical and allied health staff, family members, friends, and those who lead community programs. Being aware of how important it is for older adults to be involved with others may help increase the opportunities for older adults to become involved. Finding ways to enhance older adults' sense of belonging through programs or activities is vital. Sense of belonging-psychological state was found to partially mediate the relationship between physical and mental health. This indicates that improving the opportunities for older adults to become involved with others and developing feelings of belonging are crucial in protecting against the development of depression and suicidal ideation, particularly for older adults with poor physical health.

A final implication of the present research relates to the finding that depression was related to higher levels of suicidal ideation. When developing intervention programs aimed at reducing suicidal ideation among older adults, it is imperative to acknowledge the strong influence depressive symptomatology has within this population. Increasing the health professionals' awareness of this association will be a positive step in increasing the diagnoses and treatment of depression. Providing specific education to general practitioners and medical staff about the diagnostic criteria of depression, including the additional criteria specific to older adults and the impact these symptoms have on

individuals' lifestyles, may enable effective treatment to commence earlier. This will enable older adults to re-gain feelings of hope and that life is worth living.

#### *4.11 Directions for Future Research*

The current research provides a strong foundation for future research to build upon. One important area for continued investigation relates to sense of belonging. The current research demonstrated that although physical health status and perceived freedom in leisure accounted for 47% of the variance in sense of belonging-antecedents, and physical health and sense of belonging-antecedents accounted for 57% of the variance in sense of belonging-psychological state, other influential variables remain unstudied. Due to the positive relationship that sense of belonging has with mental health, further research within this area is clearly required. Further research could also examine ways of increasing individuals' feelings of belonging, particularly when mere proximity with others does not ensure the psychological experience of belonging will occur (Hagerty et al., 1992; Hagerty et al., 1993). In addition, the present study did not identify participants who were in same sex relationships or evaluate the proportion of the sample who were sexual minorities. Future research should aim to include sexual orientation when obtaining demographic information, particularly when sexual orientation has been found to influence the experience of particular variables such as sense of belonging (McLaren, in press; McLaren, Jude, & McLachlan., in press).

Another neglected area of research is the relationship between levels of perceived freedom and the psychosocial characteristics of older adults. The present study found that perceived freedom in leisure influenced older adults' motivation to seek out relationships with others, their continued engagement in activities, and their mental health. In the

current study, 25% of the variance associated with perceived freedom in leisure was accounted for by the physical health status of participants. Additional research efforts could focus on other predictor variables not included in the current model. Useful research could investigate whether particular types of illnesses reduce older adults' levels of freedom more than others, and how feelings of control, perceptions of self-efficacy, health locus of control (Wu, Tang, & Kwok, 2004), and varying levels of independence, relate to leisure freedom. Further research in this area is important, as involvement in activities declines among older adults (Friis et al., 2003; Goffin & Morrow, 2001; Orsega-Smith, Payne, & Godbey, 2003), and high levels of freedom in leisure increases the likelihood of ongoing engagement in activities (Witt & Ellis, 1989). Increasing the understanding of leisure freedom will assist in determining how interventions can increase feelings of freedom among older adults.

The present research did not examine specific leisure activities and their relationships to mental and physical health, rather, the cumulative total of hours engaged in physical and leisure activities and home duties was investigated. It would be interesting to explore how involvement in specific leisure activities among older adults relates to the social, physical and mental characteristics of this population (Warr, Butcher, & Robertson, 2004). For instance, further research could investigate whether gardening activities offer more protection against mental ill health than leisurely walking, or whether senior citizens activities help foster greater feelings of belonging than regular swimming. This would be helpful when designing activity groups for older adults. Programs could be developed and tailored to individual interests, while maximising the positive consequences of engagement.

In addition, subjective health ratings have been associated with activity engagement and improved fitness levels, despite the presence of life threatening diagnoses (Gana, Alaphilippe, & Bailly, 2004; Loland, 2004). Future research could investigate why personal perception of health is a more crucial determinant of activity engagement, then the actual presence of physical illness (Hyland, Sodergren, & Singh, 1999; Rohrer, Pierce, & Denison, 2004).

As the final model accounted for 56% of the variance in suicidal ideation within the elderly sample, future research could investigate other important risk factors for suicidal ideation and suicidal behaviours. These may include alcoholism (Turvey et al., 2002), financial status (Quan et al., 1999), satisfaction with social support networks (Hepple & Quinton, 1997), the presence of functional impairment (Anstey, Luszuz, & Andrews, 2002; Yang et al., 2001), cognitive functioning (Draper, 1994), and reasons for living (Kissane & McLaren, in press, Miller, Segal, & Coolidge, 2001).

#### *4.12 Conclusion*

In conclusion, this study has explored a model of mental health among older adults. Results demonstrated that older adults' physical health status influenced all aspects of their life, including activity engagement, feelings of belonging, depression, and suicidal ideation. Further, it appeared that perceived freedom in leisure had positive relationships with engagement in activities, sense of belonging, and mental health. In addition, possessing adequate levels of sense of belonging was found to be beneficial for mental health, and, consistent with an abundance of research that shows that experiencing higher levels of depression is related to higher reports of suicidal ideation. Although the study examined a comprehensive, theoretical model among older adults, other factors

were recognised to contribute to the variance of suicidal ideation among this population. Furthermore, the influence specific leisure activities have on mental health among older adults remains unknown. The rapidly aging population is a significant reason for researchers to continue to work to understand mental health among this population, and every effort needs to be made to ensure older adults enjoy the highest possible quality of life.

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*Appendix A*

*Cover Letter and Questionnaire Package*

**Invitation to Participate In Research:**

**“Leisure Activities and Social Relationships as Predictors of Mental Health among Older Australians”**

Dear Potential Participant,

This research is being conducted by Ms. Jayne Turner, a Doctor of Psychology student, under the supervision of Dr. Suzanne McLaren at the University of Ballarat. Depression and suicide amongst older adults is an issue of serious concern. We are interested in the possible benefits to the mental health of older adults of being involved in leisure activities and social relationships. This research will assist us in identifying ways to prevent depression and suicidal behaviour in older adults.

If you volunteer to participate in this research you will be asked to complete a questionnaire package. This may take approximately 30 minutes to complete. The questionnaire covers possible reasons for why you might participate in leisure activities (e.g., my recreation activities help me to feel important), the types of activities which you participate in (e.g., gardening, walking or needlework), your sense of belonging (e.g., I generally feel that people accept me), and your mental health (e.g., I felt depressed, I feel that life is hopeless). You will also be asked some basic information about yourself, including your marital status, age and living arrangements. It is important that each question is answered as honestly as possible, so the research is of significant value.

The researchers understand that the nature of some questions may be sensitive and therefore, your participation is fully voluntary. Participation in this research is also anonymous and therefore we ask that you **do not** write your name on the questionnaire. If you do decide to participate, your nameless questionnaire will form part of a larger database, from which only group data will be reported. All information you share with the researchers will remain strictly confidential.

You may withdraw from participation at any time without explanation whilst completing the questionnaire (particularly if you are experiencing distress). Please understand that once you have returned the completed questionnaire, we will be unable to identify your anonymous questionnaire amongst the larger pool, hence withdrawal at this stage will not be possible.

Completing and submitting the questionnaire indicates to us that you understand the nature of the research and consent to participate in this research. If you would like to participate in this study, please complete the questionnaire and return it to the researchers within two weeks using the reply paid envelope.

If you feel uncomfortable or concerned about any information that you have shared or have any further questions, you can contact the principal researcher, Dr Suzanne McLaren, at the School of Behavioural and Social Sciences and Humanities, University of Ballarat on 5327 9628. Alternatively you may contact your doctor, Lifeline on 13 11 14, or Lifeline's Victorian Suicide Helpline on 1300 651 251.

A summary of results will be available late 2005. Participants interested in receiving this information are asked to contact Suzanne and a summary will be posted out.

Thank you for considering participating in this research.

Dr Suzanne McLaren  
Principal Researcher  
Phone 5327 9628

Jayne Turner  
Student Researcher

Should you (i.e. the participant) have any concerns about the conduct of this research project, please contact the Executive Officer, Human Research Ethics Committee, Research and Graduate Studies Office, University of Ballarat, PO Box 663, Mt Helen VIC 3353. Telephone: (03)5327 9765.

**Here are some questions about your health and feelings. Please read each question carefully and tick your best answer. You should answer the questions in your own way. There is no right or wrong answers.**

**TODAY would you have any physical trouble or difficulty when:**

- |   | None                     | Some                     | Alot                     |
|---|--------------------------|--------------------------|--------------------------|
| 1. Walking up a flight of stairs .....          | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2. Running the length of a football field ..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**During the PAST WEEK: How much trouble have you had with:**

- |  | None                     | Some                     | Alot                     |
|--|--------------------------|--------------------------|--------------------------|
| 3. Sleeping.....                                   | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4. Hurting or aching in any part or your body..... | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5. Getting tired easily.....                       | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- |   | Yes, describes me exactly | Somewhat describes me    | No, doesn't describe me at all |
|---|---------------------------|--------------------------|--------------------------------|
| 6. I am basically a healthy person..... | <input type="checkbox"/>  | <input type="checkbox"/> | <input type="checkbox"/>       |

**During the PAST WEEK: How often did you:**

- |   | None                     | 1-4 Days                 | 5-7 Days                 |
|---|--------------------------|--------------------------|--------------------------|
| 7. Stay in your home, a nursing home, or hospital.....<br>because of sickness, injury, or other health problems | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

**Here is a list of common types of physical activities. Please tell me which of them you do during a typical week. Our interest is learning about the types of physical activities that are apart of your regular work and leisure routines.**

**For each activity you do, please tell us how much time (in hours) you spend in a typical week doing this activity alone. Then tell us how much time (in hours) you spend doing this activity in a typical week with at least one other person.**

| <b>WORK ACTIVITIES</b>  | <b>ALONE</b>   | <b>1 or MORE PERSONS</b> |
|---|----------------|--------------------------|
|   | (Hrs per week) | (Hrs per week)           |
| Shopping (eg. grocery, clothes)   | _____          | _____                    |
| Stair climbing while carrying a load  | _____          | _____                    |
| Laundry (time loading, unloading, hanging, folding only)  | _____          | _____                    |
| Light house work (tidying, dusting, sweeping, collecting trash in the home, polishing, indoor gardening, ironing) | _____          | _____                    |
| Heavy housework (vacuuming, mopping, scrubbing floors & walls, moving furniture, boxes or garbage bins)           | _____          | _____                    |
| Food preparation (10+ mins in duration) chopping, stirring, moving about to get food items, pans etc.             | _____          | _____                    |
| Food service (10+ min duration) setting table, carrying food, serving food  | _____          | _____                    |
| Dish washing (10+ mins in duration) washing/drying dishes, putting dishes away                                    | _____          | _____                    |
| Light home repair (small appliance repair, light household maintenance & repair)                                  | _____          | _____                    |
| Heavy home repair (painting, carpentry, washing/polishing the car)  | _____          | _____                    |
| Other (please state)_____   | _____          | _____                    |

| <b>YARDWORK</b>  | <b>ALONE</b>   | <b>1 or MORE PERSONS</b> |
|--|----------------|--------------------------|
|  | (Hrs per week) | (Hrs per week)           |
| Gardening (planting, weeding, digging)                 | _____          | _____                    |
| Lawn mowing (walking only)                             | _____          | _____                    |
| Clearing walks/driveway (sweeping, shoveling, raking)  | _____          | _____                    |
| Other (please state) _____                             | _____          | _____                    |
| <b>CARETAKING</b>                                      |                |                          |
| Older or disabled person (lifting, pushing wheelchair) | _____          | _____                    |
| Childcare (lifting, carrying, pushing stroller)        | _____          | _____                    |
| <b>EXERCISE</b>  |                |                          |
| Brisk walking (10+ min in duration)                    | _____          | _____                    |
| Pool exercise, stretching, yoga                        | _____          | _____                    |
| Vigorous calisthenics, aerobics                        | _____          | _____                    |
| Cycling  | _____          | _____                    |
| Swimming (laps only)                                   | _____          | _____                    |
| Other (please state) _____                             | _____          | _____                    |
| <b>RECREATIONAL ACTIVITIES</b>                         |                |                          |
| Leisurely walking (10+ mins in duration)               | _____          | _____                    |
| Needlework (knitting, sewing, needlepoint, etc)        | _____          | _____                    |
| Dancing mod/fast (line, ballroom, tap, square, etc)    | _____          | _____                    |

| <b>RECREATIONAL ACTIVITIES</b>           | <b>ALONE</b>   | <b>1 or MORE<br/>PERSONS</b> |
|--|----------------|------------------------------|
|  | (Hrs per week) | (Hrs per week)               |
| Bowling, bocci, etc                      | _____          | _____                        |
| Golf (walking to each hold only)         | _____          | _____                        |
| Racquet sports (tennis, racketball, etc) | _____          | _____                        |
| Billiards                                | _____          | _____                        |
| Other (please state) _____               | _____          | _____                        |

**This questionnaire consists of 33 items. Please read each item carefully, then circle ONE answer for each item which you think most applies to you, using the following scale:**

|  | 1                            | 2               | 3            | 4                         |
|--|------------------------------|-----------------|--------------|---------------------------|
|  | <b>Strongly<br/>Disagree</b> | <b>Disagree</b> | <b>Agree</b> | <b>Strongly<br/>Agree</b> |
| 1. I wonder if there is any place in which I really fit in?  | 1                            | 2               | 3            | 4                         |
| 2. I am just not sure if I fit in with my friends  | 1                            | 2               | 3            | 4                         |
| 3. I would describe myself as a misfit in most social situations   | 1                            | 2               | 3            | 4                         |
| 4. I generally feel that people accept me  | 1                            | 2               | 3            | 4                         |
| 5. I feel like a piece of a jigsaw puzzle that doesn't fit into the puzzle   | 1                            | 2               | 3            | 4                         |
| 6. I would like to make a difference to people, or things around me but I don't feel that what I have to offer is valued | 1                            | 2               | 3            | 4                         |
| 7. I feel like an outsider in most situations  | 1                            | 2               | 3            | 4                         |
| 8. I am troubled by feelings like I have no place in this world  | 1                            | 2               | 3            | 4                         |
| 9. I could disappear for days and it wouldn't matter to my family  | 1                            | 2               | 3            | 4                         |
| 10. In general, I don't feel a part of mainstream society  | 1                            | 2               | 3            | 4                         |
| 11. I feel like I observe life rather than participate in it   | 1                            | 2               | 3            | 4                         |
| 12. If I die tomorrow, very few people would come to my funeral  | 1                            | 2               | 3            | 4                         |
| 13. I feel like a square peg trying to fit into a round hole   | 1                            | 2               | 3            | 4                         |
| 14. I don't feel that there is any place where I really fit in this world  | 1                            | 2               | 3            | 4                         |
| 15. I am uncomfortable knowing that my background and experiences are so different from those who are usually around me  | 1                            | 2               | 3            | 4                         |
| 16. If I could not see or call my friends for days it wouldn't matter to them  | 1                            | 2               | 3            | 4                         |
| 17. I feel left out of things  | 1                            | 2               | 3            | 4                         |

|  | <b>1</b>                     | <b>2</b>        | <b>3</b>     | <b>4</b>                  |
|--|------------------------------|-----------------|--------------|---------------------------|
|  | <b>Strongly<br/>Disagree</b> | <b>Disagree</b> | <b>Agree</b> | <b>Strongly<br/>Agree</b> |
| 18. I am not valued by or important to my friends                      | 1                            | 2               | 3            | 4                         |
| 19. It is important to me that I am valued or accepted by others       | 1                            | 2               | 3            | 4                         |
| 20. In the past, I have felt valued and important to others            | 1                            | 2               | 3            | 4                         |
| 21. It is important to me that I fit in somewhere in this world        | 1                            | 2               | 3            | 4                         |
| 22. I have qualities that can be important to others                   | 1                            | 2               | 3            | 4                         |
| 23. I am working on fitting in better with those around me             | 1                            | 2               | 3            | 4                         |
| 24. I want to be part of things going on around me                     | 1                            | 2               | 3            | 4                         |
| 25. It is important to me that my thoughts and opinions are valued     | 1                            | 2               | 3            | 4                         |
| 26. Generally, other people recognise my strengths and good points     | 1                            | 2               | 3            | 4                         |
| 27. I can make myself fit in anywhere                                  | 1                            | 2               | 3            | 4                         |
| 28. All my life I have wanted to feel like I really belonged somewhere | 1                            | 2               | 3            | 4                         |
| 29. I don't have the energy to work on being part of things            | 1                            | 2               | 3            | 4                         |
| 30. Fitting in with people around me matters a great deal              | 1                            | 2               | 3            | 4                         |
| 31. I feel badly if others do not value or accept me                   | 1                            | 2               | 3            | 4                         |
| 32. Relationships take too much energy for me                          | 1                            | 2               | 3            | 4                         |
| 33. I just don't feel like getting involved with people                | 1                            | 2               | 3            | 4                         |

**This questionnaire consists of seven items. Please read each item carefully, then circle the ONE answer for each question which you think most applies to you, over the past few weeks using the following scale:**

|                   |                               |                                     |                                 |
|-------------------|-------------------------------|-------------------------------------|---------------------------------|
| <b>1</b>          | <b>2</b>                      | <b>3</b>                            | <b>4</b>                        |
|                   |                               |                                     |                                 |
| -----             |                               |                                     |                                 |
| <b>Not at all</b> | <b>No more<br/>than usual</b> | <b>Somewhat<br/>more than usual</b> | <b>Much more<br/>than usual</b> |

**Over the past few weeks, have you:**

- |   |   |   |   |   |
|---|---|---|---|---|
| 1. Been thinking of yourself as a worthless person?                                 | 1 | 2 | 3 | 4 |
| 2. Felt that life is entirely hopeless?   | 1 | 2 | 3 | 4 |
| 3. Felt that life isn't worth living?   | 1 | 2 | 3 | 4 |
| 4. Thought of the possibility that you might make away with yourself?               | 1 | 2 | 3 | 4 |
| 5. Thought that at times you couldn't do anything because your nerves were too bad? | 1 | 2 | 3 | 4 |
| 6. Found yourself wishing you were dead and away from it all?                       | 1 | 2 | 3 | 4 |
| 7. Found that the idea of taking your own life kept coming into your mind?          | 1 | 2 | 3 | 4 |

**NOTE: We would like to take this opportunity to remind you of the support options available to you. Should you be experiencing any concerns (any time now or after completing the questionnaire), you are encouraged to contact the resources listed in the covering invitation letter. If you wish to preserve your anonymity, we would encourage you to contact Lifeline on 13 1114 or 1300 652 251**

**This survey deals with how you feel about your leisure experiences. These include participation in activities such as reading, hobbies and crafts, social activities, music, sports, etc. Please read each of the following statements and circle the response that best reflects your feelings about each question.**

|   | <b>Strongly Agree</b> | <b>Agree</b> | <b>Neither</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|
| 1. My recreation activities help me feel important  | SA                    | A            | N              | D               | SD                       |
| 2. I know many recreation activities that are fun to do   | SA                    | A            | N              | D               | SD                       |
| 3. I can do things to improve the skills of the people I do recreation activities with  | SA                    | A            | N              | D               | SD                       |
| 4. I have the skills to do the recreational activities in which I want to participate   | SA                    | A            | N              | D               | SD                       |
| 5. Sometimes during a recreation activity there are short periods when the activity is going so well that I feel I can do almost anything | SA                    | A            | N              | D               | SD                       |
| 6. It is easy for me to choose a recreation activity in which to participate  | SA                    | A            | N              | D               | SD                       |
| 7. I can do things during recreation activities that make other people like me more   | SA                    | A            | N              | D               | SD                       |
| 8. My recreation activities enable me to get to know other people   | SA                    | A            | N              | D               | SD                       |
| 9. I can make a recreation activity as enjoyable as I want it to be   | SA                    | A            | N              | D               | SD                       |

|   | <b>Strongly Agree</b> | <b>Agree</b> | <b>Neither</b> | <b>Disagree</b> | <b>Strongly Disagree</b> |
|---|-----------------------|--------------|----------------|-----------------|--------------------------|
| 10. I can do things during a recreation activity that will enable everyone to have more fun                 | SA                    | A            | N              | D               | SD                       |
| 11. I usually decide with whom I do recreation activities with  | SA                    | A            | N              | D               | SD                       |
| 12. I am good at the recreation activities I do with other people   | SA                    | A            | N              | D               | SD                       |
| 13. I am able to be creative during my recreation activities  | SA                    | A            | N              | D               | SD                       |
| 14. I am good at almost all the activities I do   | SA                    | A            | N              | D               | SD                       |
| 15. I can enable other people to have fun during recreation activities                                      | SA                    | A            | N              | D               | SD                       |
| 16. During my recreation activities, there are often moments when I feel really involved in what I am doing | SA                    | A            | N              | D               | SD                       |
| 17. I can usually persuade people to do recreational activities with me, even if they don't want to         | SA                    | A            | N              | D               | SD                       |
| 18. I can make almost any activity fun for me to do   | SA                    | A            | N              | D               | SD                       |

|   | <b>Strongly<br/>Agree</b> | <b>Agree</b> | <b>Neither</b> | <b>Disagree</b> | <b>Strongly<br/>Disagree</b> |
|---|---------------------------|--------------|----------------|-----------------|------------------------------|
| 19. I participate in recreation activities which help me make new friends   | SA                        | A            | N              | D               | SD                           |
| 20. I can make good things happen when I do recreation activities   | SA                        | A            | N              | D               | SD                           |
| 21. When participating in recreation activities, there are times when I really feel in control of what I am doing | SA                        | A            | N              | D               | SD                           |
| 22. I can do things to make other people enjoy doing activities with me   | SA                        | A            | N              | D               | SD                           |
| 23. When I feel restless, doing recreation activities will help me calm down                                      | SA                        | A            | N              | D               | SD                           |
| 24. Sometimes when I do recreation activities, I get excited about what I am doing                                | SA                        | A            | N              | D               | SD                           |
| 25. I usually have a good time when I do recreational activities  | SA                        | A            | N              | D               | SD                           |

**This scale consists of 20 items. Please read each item carefully, then circle the ONE answer for each item which most applies to you over the past week, using the following scale:**



**During the Past WEEK:**

- 1. I was bothered by things that don't usually bother me.....1 2 3 4
- 2. I did not feel like eating; my appetite was poor.....1 2 3 4
- 3. I felt that I could not shake off the blues even with help from my family.1 2 3 4
- 4. I felt that I was just as good as other people.....1 2 3 4
- 5. I had trouble keeping my mind on what I was doing.....1 2 3 4
- 6. I felt depressed.....1 2 3 4
- 7. I felt that everything I did was an effort.....1 2 3 4
- 8. I felt hopeful about the future.....1 2 3 4
- 9. I thought my life had been a failure.....1 2 3 4
- 10. I felt fearful..... 1 2 3 4
- 11. My sleep was restless.....1 2 3 4
- 12. I was happy.....1 2 3 4
- 13. I talked less than usual.....1 2 3 4
- 14. I felt lonely.....1 2 3 4
- 15. People were unfriendly.....1 2 3 4
- 16. I enjoyed life.....1 2 3 4
- 17. I had crying spells .....1 2 3 4
- 18. I felt sad.....1 2 3 4
- 19. I felt that people disliked me.....1 2 3 4
- 20. I could not "get going".....1 2 3 4

**Please complete the following questions about you. Please do not include your name or other personal information that may identify you, thank-you.**

1. What is your gender?  Male  Female
2. What is your birth date? \_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_
3. What is the postcode at your usual residence? \_\_\_\_\_
4. What is your current marital status?  Married  Single  
 Divorced  Widowed  
 DeFacto  Same-sex relationship
5. Highest educational level achieved?  Primary  
 Secondary School  
 TAFE / Trade Certificate  
 University – Undergraduate  
 University – Postgraduate  
 Other (please state)\_\_\_\_\_
6. Where do you permanently reside?  Retirement Village  
 Nursing Home  
 In your own home
7. Do you reside  By yourself?  
 With your wife / husband / partner?  
 Family member (s)?  
 With another person  
 Other (please state) \_\_\_\_\_
8. How many children do you have? \_\_\_\_\_
9. Are you retired?  Yes  No
10. Number of years retired? \_\_\_\_\_
11. Your occupation prior to retirement? \_\_\_\_\_

12. If retired, are you still engaging in any work? Yes  No

If yes, what occupation? \_\_\_\_\_

13. What is the nature of this work?  Voluntary  Paid  
14. Is this work  Part Time  Full Time  
Other (please state) \_\_\_\_\_

15. How often do you see your G.P?  
 1-2 times a week  
 3 + times week  
 Fortnightly  
 Monthly  
 3 monthly  
 When required  
Other (please state) \_\_\_\_\_

16. Are you currently taking anti-depressants?  Yes  No  
17. Do you enjoy socialising with others?  Yes  No

**If you have any concerns now, or in the following weeks after completing the questionnaire package, please contact the listed numbers on the cover sheet**

**Thank-you for taking the time to complete this survey**

*Appendix B*

*Covariance Matrix for Physical Activity, Mental and Physical Health Variables for Older*

*Males*

---

|                       | 1      | 2      | 3        | 4       | 5    | 6    | 7       | 8      |
|-----------------------|--------|--------|----------|---------|------|------|---------|--------|
| 1. Activity-alone     | .08    |        |          |         |      |      |         |        |
| 2. Activity-others    | .01    | .04    |          |         |      |      |         |        |
| 3. Perceived Freedom  | 1.12** | 1.05** | 255.53** |         |      |      |         |        |
| 4. Physical health    | .26**  | .24**  | 37.31**  | 15.91** |      |      |         |        |
| 5. Depression         | -.00   | .00    | -.10     | -.03    | .00  |      |         |        |
| 6. Suicide            | -.00   | -.00   | -.32**   | -.07    | .00  | .00  |         |        |
| 7. SOBI-antecedents   | .15 *  | .38**  | 65.66**  | 12.11** | -.04 | -.11 | 32.12** |        |
| 8. SOBI-psychological | .05    | .07    | 11.59**  | 2.01**  | -.00 | -.02 | 5.05**  | 1.34** |

---

\* $p < .05$ . \*\* $p < .01$ .

*Appendix C*

*Covariance Matrix for Physical Activity, Mental and Physical Health Variables for Older Females*

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|                       | 1     | 2     | 3        | 4       | 5    | 6    | 7       | 8      |
|-----------------------|-------|-------|----------|---------|------|------|---------|--------|
| 1. Activity-alone     | .08   |       |          |         |      |      |         |        |
| 2. Activity-others    | .01   | .05   |          |         |      |      |         |        |
| 3. Perceived Freedom  | .55** | .59** | 208.45** |         |      |      |         |        |
| 4. Physical health    | .19** | .07 * | 18.28**  | 10.28** |      |      |         |        |
| 5. Depression         | -.00  | .00   | -.07     | -.02    | .00  |      |         |        |
| 6. Suicide            | -.00  | -.00  | -.20**   | -.05    | .00  | .00  |         |        |
| 7. SOBI-antecedents   | .19** | .05   | 42.21**  | 6.14**  | -.03 | -.08 | 29.35** |        |
| 8. SOBI-psychological | .03   | .09   | 9.12**   | 1.49**  | -.00 | -.02 | 4.46**  | 1.30** |

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\* $p < .05$ . \*\* $p < .01$ .