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Buffering Effects of Leisure Self-Determination on the Mental Health of Older Adults

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**Abstract.** Leisure self-determination was tested for its capacity to buffer the effects of life stress on the level of depression of older adults. A direct association between leisure-self-determination and level depression was also tested. A sample of 152 individuals aged 49 years and over completed a questionnaire which included measures of stress, leisure self-determination, and depression. Hierarchical multiple regression analysis incorporating an interaction component to represent the buffering effect was used to analyze the data. Higher levels of leisure self-determination were significantly associated with lower levels of depression regardless of life stress. Leisure self-determination also acted as a buffer of the association between life stress and depression. The study has significant theoretical and practical implications. Theoretically, it supports the stress buffering hypothesis of Coleman and Iso-Ahola (1993) when applied to a sample of older adults. The practical implications of the empirical evidence focus on the importance of fostering leisure self-determination dispositions through leisure practices, policies, and leadership styles that facilitate and support older adult autonomy in leisure experiences.

**Keywords.** leisure self-determination, depression, older adults, buffering effects, stress

**L’autodétermination en loisir y a été testée quant à sa capacité de tamponner les effets du stress sur le niveau de dépression chez les adultes âgés. Le lien direct entre l’autodétermination en loisir et le niveau de dépression y a aussi été testé. Un échantillon de 152 individus âgés de 49 ans ou plus a été utilisé. Ceux-ci ont rempli un questionnaire dans lequel le niveau de stress et/ou de dépression ainsi que l’autodéter-
Evidence suggests that leisure is related to physical and mental health as well as life satisfaction and quality of life (e.g., Caldwell, Smith, & Weissinger, 1992; Haworth, Jarman, & Lee, 1997). This relationship has been particularly strong for older adults (e.g., Dupuis & Smale, 1995; Ragheb & Griffith, 1982; Riddick & Daniel, 1984; Silverstein & Parker, 2002; Sneegas, 1986). A number of ways through which leisure might influence health have been proposed, one way is that leisure might help people cope with stress and thus reduce the negative effect of stress on health. This is a growing area of leisure research and a number of theories have been proposed to explain this relationship (e.g., Coleman & Iso-Ahola, 1993; Iwasaki & Mannell, 2000a; Kleiber, Hutchinson, & Williams, 2002). In 2003, a special issue of Leisure Sciences was devoted to research on leisure, stress, and coping (Iwasaki & Schneider, 2003), while in 2005 the British Journal of Guidance and Counselling featured a symposium on the role of leisure in work-life balance in which the contribution of leisure to coping with stress as a therapeutic technique was a key component (e.g., Caldwell, 2005; Iwasaki, Mactavish, & MacKay, 2005). The ways that leisure helps people cope with stress is of particular interest because stress seems to be prevalent in today's society (Rice, 1998; Sheridan & Radmacher, 1992) and the negative influence of stress on physical and mental health is well established (e.g., Lazarus & Folkman, 1984; Lin & Ensel, 1989; Shephard, 1997).

The question of whether certain leisure factors have a buffering influence on mental health is important. In particular, there is a need to determine if constructs that are central to leisure, such as leisure self-determination, can buffer the influence of stress on mental health. Discovering the leisure factors that influence the mental health of older
adults through both buffering and direct paths has important theoretical and practical implications for leisure research and practice. Theoretical implications include empirical evidence to evaluate theoretical propositions such as the buffering hypothesis proposed by Coleman and Iso-Ahola (1993) for a specific population group (e.g., older adults) and furthering our understanding of the process through which leisure might influence mental health. Practical implications include the ability to design and deliver leisure services with the necessary qualities to enhance mental health and therefore contribute to the well-being of older adults.

The present study sought to determine whether a factor that is central to leisure, leisure self-determination, buffered the association between stress and mental health of older adults and whether leisure self-determination also had a direct association with their mental health regardless of the individual's level of stress.

**Literature Review**

**Leisure and Mental Health**

An increasing amount of research, including a number of publications, have been wholly dedicated to the analysis of leisure benefits (e.g., Canada Parks/Recreation Association, 1997; Driver, Brown, & Peterson, 1991; Long, 1990/91). Such research and publications have sought to demonstrate the positive outcomes of leisure. An important focus of this research has been that leisure participation has positive mental health outcomes. However, there continues to be uncertainty as to how and why these benefits occur (e.g., Caldwell et al., 1992; Pearson, 1998; Ragheb, 1993; Ragheb & Griffith, 1982; Riddick & Daniel, 1984) because the processes in which leisure produces benefits are likely to be complex and research into these processes is difficult to conduct.

There are a number of ways that leisure may influence mental health. Leisure can have a direct influence through increasing psychological well-being and reducing depression (Brown, Frankel, & Fennell, 1991; Caldwell et al., 1992; Caltabiano, 1995; Dupuis & Smale, 1995; Haworth et al., 1997). A dominant theme when studying leisure and older adults has been the examination of the direct influence of leisure on the broader concept of life satisfaction (e.g., Menec & Chipperfield, 1997; Russell, 1987; Sneegas, 1986). Research also supports a direct link between leisure and the general well-being (Kelly, 1997) and psychological well-being (Dupuis & Smale, 1995; Kelly, Steinkamp, & Kelly, 1987) of older adults. Fewer studies have addressed the direct link between leisure and more specific concepts such as mental health or depression.
Leisure might also influence mental health by enhancing people’s capacity to cope with stress. Theoretical developments and empirical evidence support the proposition that leisure can reduce the detrimental impacts of stress on mental health (e.g., Caltabiano, 1994, 1995; Coleman & Iso-Ahola, 1993; Dupuis & Pedlar, 1995; Iwasaki & Mannell, 2000a; Iwasaki, Mannell, Smale, & Butcher, 2002; Iwasaki & Smale, 1998; Wheeler & Frank, 1988).

Leisure may have both a direct and stress buffering influence on mental health. It is possible that some factors may be important primarily due to their direct effects on mental health, whereas others are important mainly in times of crises or stress (and therefore buffer negative effects or help people to cope with stress) (George, 1989). For example, leisure self-determination dispositions might be more important to the maintenance of mental health in times of stress (buffering effect) or it might be important in maintaining mental health regardless of life stress (direct association).

To gain a clearer understanding of the ways that leisure factors may influence mental health it is important to examine the processes through which this influence might occur. Coleman (1997) has argued that leisure may make its most significant contribution to mental health by reducing stress or buffering people’s health against the damaging impacts of stress. Hence, it is important to give attention to the role of stress for a better understanding of leisure’s contribution to mental health.

**The Prevalence of Stress and Its Impact on the Mental Health of Older Adults**

Life stress refers, in part, to the level of seriousness and trauma people perceive of various events in their life (Mannell & Kleiber, 1997). These events include significant life events and day-to-day hassles. People’s life stress in developed countries has been shown to be excessive and growing (Robinson & Godbey, 1997; Shephard, 1997) and most people perceive their lives as “stressful” or “very stressful” (Robinson & Godbey, 1997; Zuzanek & Smale, 1997). Given this level of stress, it is important to understand the influence of stress on physical and mental health and identify coping strategies and dispositions that enable people to more effectively deal with stress.

The negative outcomes of stress can be observed in many spheres of life including mental conflict, mental illnesses, disrupted family dynamics, disturbed social relationships, as well as reduced job satisfaction and economic loss (Rice, 1998; Sheridan & Radmacher, 1992). Research
supports the argument that stress has an adverse affect on mental health (e.g., Chou & Chi, 2000; Creed, 1985; Iso-Ahola & Park, 1996; Lin & Ensel, 1989; Wheaton, 1994). Furthermore, older adults appear to show even greater immunological impairments associated with stress or depression than younger adults (Kiecolt-Glaser & Galser, 2001).

It is important to examine the effects of stress that arise from both significant life events and day-to-day hassles. A negative relationship has been demonstrated between the adjustment required from significant life events and physical and mental health (e.g., Creed, 1985; Lin & Ensel, 1989) and also between the prevalence of continuing day-to-day hassles and poor health (e.g., Ivancevich, 1986; Lazarus & Folkman, 1984). Studies of older adults have found a positive relationship between stressful life events and depression (e.g., Chou & Chi, 2000; Ormel, Oldenhinkel, & Brilman, 2001). A study of healthy community-residing elderly adults showed that hassles were the greatest predictor of depression, followed by negative life events (Lamborn, 1997).

Dupuis and Smale (1995) referred to several researchers who suggested that the many stressors and losses associated with ageing may have a damaging effect on an older person’s self-identify and thus contribute to depressive states. One of the most robust findings in the literature is the relation between physical declines due to ageing and depressive symptomology (Lenze, Rogers, Martire, Mulsant, Rollman, Dew et al., 2001). Common health problems among older adults often lead to depressive symptomology, and, in turn, depressive symptoms compromise older adult’s health. The relation between poor physical health and depression in older adults might be partly explained by the everyday stressors associated with declining physical health and reduced mobility (Wrosch, Schulz, & Heckhausen, 2004). Older adults have been identified as a population group that have a high risk of depression (Commonwealth Department of Health and Aged Care, 2000) and of all of the mental disorders, depression and related disorders are the most prevalent and costly (Commonwealth Department of Health and Aged Care and Australian Institute of Health and Welfare, 1999). However, it has been noted that there is little empirical research on the prevention of depression in older adults (Blazer, 2002)

The significance of stress in the lives of older adults coupled with the strong relationship between stress and depression and the lack of empirical research on the prevention of depression for older adults, reinforces the importance of discovering how leisure dispositions might buffer these negative effects on people’s lives.
**The Buffering Effect of Leisure on the Stress-Mental Health Relationship**

Leisure may be an effective resource for resistance of stress, and the ways that people use their leisure time may be a critical determinant of their capacity to cope with stressful situations or events. It has been widely demonstrated that psychosocial factors and lifestyle play a significant role in influencing response to stress and resulting illness, longevity, and health (Friedman et al., 1995). Thus, it is not just stress per se but how individuals cope with stress that influences physical and psychological health (Gottlieb, 1997; Iso-Ahola, 1997). In the absence of personal and/or social coping resources, mental health problems are likely to result from life stress (Lin & Ensel, 1989). Evaluated from this perspective, leisure has the potential to reduce the negative effects of life stress on mental health. In other words, leisure may be an effective coping resource.

According to the stress buffer hypothesis, leisure, or certain components of leisure, is seen as a buffer of the impact of stress on various aspects of health (Coleman, 1993; Coleman & Iso-Ahola, 1993). A stress buffer is a factor that reduces the impact of stress on well-being primarily for persons under stress and not when people are not stressed (Cohen & Wills, 1985). Thus, when the level of stress of an individual is low the differential impact of the buffer will be negligible. However, when the level of stress is high a successful buffer will generate the greatest impact. Statistically, the detection of stress buffering factors require an interaction (moderating effect) between level of stress and the coping factor on the outcome, whereby the greatest difference between the outcome associated with the buffer factor, compared with the outcome associated with lack of the buffer, is evident for individuals who are stressed and not for less stressed individuals (Wheeler & Frank, 1988). Because stress buffering factors require the detection of an appropriate interaction between factors such as depression and stress, they are difficult to detect (Cohen & Wills, 1985). Studies have reported mixed evidence for the buffer hypothesis (Coleman, 1993; Iso-Ahola & Park, 1996; Iwasaki & Mannell, 2000b; Strauss-Blasche, Ekmekcioglu, & Marktl, 2002; Wheeler & Frank, 1988).

Research has also examined how aspects of leisure are perceived or used to reduce stress. For example, Patterson and Coleman (1996) identified several groups of people (e.g., serious activities, restful support seekers) based on differences in the likelihood to engage in certain types of leisure (e.g., physical activity) for coping with stress. Caltabiano
(1994) looked at the common characteristics of leisure activities based on their perceived stress-reduction benefit. Three identifiable clusters of activity: outdoor-active sport, social, and cultural-hobbies were found to assist in reducing stress.

Iwasaki and Mannell (2000a) conceptualized the idea of hierarchical dimensions of leisure stress coping, where various dimensions and subdimensions of leisure stress coping were identified. Leisure stress coping beliefs were distinguished from leisure coping strategies. Leisure coping beliefs are dispositional coping styles generated from engagement in leisure. On the other hand, leisure coping strategies are situation-specific coping behaviours and cognitions available through leisure. Dispositional coping styles and situation specific coping strategies are assumed to represent two major types of coping (Lazarus, 1993) and imply that although individuals tend to have his or her own typical way of coping with stress (i.e., dispositional coping styles), the same person is likely to react to specific stressors differently and uses different ways of coping due in part to the different unique characteristics and requirements of the stressors. Research supports the importance of leisure for stress-coping, and leisure-specific coping resources and strategies have been found to help with stress-coping above and beyond the effects of general coping (Iwasaki, 2001; Iwasaki et al, 2002; Iwasaki, Mannell, Smale, & Butcher, 2005).

Kleiber et al. (2002) examined the relation between leisure, stress and health by proposing four major functions of leisure in rehabilitating from negative life events. Leisure might help individuals cope with negative life events by being distracting, by generating optimism about the future, by aiding in the reconstruction of a life story that is continuous with the past, and by acting as vehicles for personal transformation. Kleiber et al. (2002) proposed that leisure might be a way of long-term adjustment to major negative life events rather than just as ways of coping with immediate or day-to-day stressors.

The approaches of Iwasaki and colleagues and Kleiber et al. (2002) examine the role of leisure in post stress event coping. On the other hand, the stress buffering hypothesis tends to be more macro in nature and examines the influence of leisure dispositions (e.g., leisure self-determination, perceived freedom of choice, intrinsic motivation) and leisure tendencies for their preventative role in coping with life stress. The stress buffering hypothesis also tends to conceptualize life stress as a more general and inclusive construct (e.g., it considers stress from both day-to-day hassles and significant life events). It is therefore important to examine
whether the dispositions inherent in leisure activities act as buffers of the stress-mental health relationship.

There have been two major criticisms against the stress-buffer perspective. First, dichotomizing events as either stressful or non-stressful is insufficient to explain the effects of unique demands brought by different types of life events and second, health should be conceptualized as more than simply absence of illness (Cutrona & Russell, 1990; Hobfoll & Vaux, 1993). Iwasaki and Smale (1998) addressed these criticisms in a study that integrated research into stress coping and research into psychological well-being. The findings suggested that the impact of leisure factors might depend on gender, what is being measured as the outcome variable (positive or negative psychological well-being), and the type of life event.

**Leisure Dispositions as Buffers of the Stress-Mental Health Relationship**

Certain qualities such as perceived freedom, perceived control, and intrinsic leisure motivation are seen as essential to the experience of leisure and are factors which are commonly used as measures of quality of life (Mannell & Kleiber, 1997). As well, the central characteristics of leisure, perceived freedom and control, are likely to facilitate the development and maintenance of stable self-determination dispositions. Variations in these characteristics from person to person may be associated with differing levels of mental health maintenance.

A sense of self-determination is experienced by individuals when leisure choice and initiation are perceived as internal and autonomous and not external to the person (Coleman, 1999). Self-determination can be defined as the belief that one's deeds come from oneself and are one's own (Deci & Ryan, 1987). Autonomy conveys an inner endorsement of one's actions; the sense that they are one's own. When autonomous, people "experience themselves as initiators of their own behaviour; they select desired outcomes and choose how to achieve them" (Deci & Ryan, 1987, p. 1025).

Situations and events in the individual's life can influence self-determination. Autonomy-supportive events and contexts such as leisure provide opportunities for self-determined or autonomous activity (Deci & Ryan, 1987; Ryan & Deci, 2000a, 2000b), and the self-determination disposition is both a cause and effect of leisure as leisure requires and results in self-determination (Coleman & Iso-Ahola, 1993; Mannell & Kleiber, 1997; Shaw, 1985). It therefore seems reasonable to propose that leisure experiences generate self-determination dispositions. Self-deter-
mination dispositions that have been developed and maintained through leisure participation might contribute to improved mental health. This could be through reducing depression directly or by buffering the effects of life stress on depression.

Coleman and Iso-Ahola (1993) proposed that the characteristics of leisure self-determination imply that it may be an effective stress buffer. Iwasaki and Mannell (2000a) also identified leisure-generated self-determination disposition as a leisure belief sub-dimension in their hierarchical dimensions of leisure coping theory. The importance of leisure self-determination is based on theories and supportive evidence in the field of general psychology (e.g., Kobasa, 1979; Ormel & Sanderman, 1989; Thoits, 1995). Many psychologists agree that the individuals' desires to have control over their environment are a primary human motive (Ormel & Sanderman, 1989) and self-determination is identified as being fundamental to the health and well-being of individuals (Deci & Ryan, 1987; Kobasa, 1979; Rodin & Langer, 1977; Ryan & Deci, 2000a, 2000b) and is especially important to the health and well-being of older adults (Beckingham & Watt, 1995). Evidence suggests that various self-control dispositions moderate the impact of stress on health for both the general population (e.g., Kobasa, 1979; Thoits, 1995) and older adults (Langer & Rodin, 1976).

Another line of research has sought evidence that sense of control mediates, rather than moderates, the influence on stress on mental health for older adults (e.g., Chou & Chi, 2001). A buffering effect is a moderating effect, however a mediating effect suggests that stress negatively influences mental health through its negative association with sense of control.

Some empirical research has been completed to formally test the buffering effects of factors related to leisure self-determination. Coleman (1993) found that perceptions of freedom during leisure buffered the effects of stress on the seriousness of illness, including mental illness. Coleman (1999) also found that leisure self-determination buffered the effects of recent life events on depressive mood. However, other studies have failed to show a buffering effect of leisure self-determination (e.g., Coleman, 1999; Iso-Ahola & Park, 1996).

Research by Coleman (1993) and Iso-Ahola and Park (1996) measured self-determination through scales developed to assess intrinsic leisure motivation and perceived freedom during leisure. Consequently, the results of this research may be considered a reflection of intrinsic leisure motivation and perceived freedom, rather than leisure self-deter-
mination. Although the results of previous studies provided some support for the buffering effects of leisure self-determination dispositions, this construct is not identical to either intrinsic leisure motivation or perceived freedom in leisure. To confidently assess the buffering effect of leisure self-determination, research is required that incorporates a direct measure of the construct. Coleman (1999) has recently developed such an instrument, the Leisure Self-Determination Scale.

Although some previous research has supported the ability of leisure to buffer the effects of life stress, research has not been consistent in identifying the leisure factors and/or dispositions that explain this association. Although self-determination and related factors have been theorized to contribute to the health and well-being of older adults, there is little empirical evidence of the impact of self-determination on depression in later life. Leisure self-determination has been highlighted as a potential buffer of stress. The assessment of the buffering effects of leisure self-determination using a measure of this disposition, such as Coleman’s (1999) scale was therefore expected to contribute to our understanding of leisure as a stress buffer.

The examination of the buffering effects of leisure dispositions on mental health is particularly important for older adults due to the prevalence of stress and depression for older adults. Although self-determination and related concepts such as perceived control and self-efficacy have been identified as being important to the health and well-being of older adults, there is minimal empirical research on the influence of these factors in reducing depression in older adults. Theories and models for preventing depression are found frequently in gerontological journals and these theories often advocate the importance of self-efficacy and perceived self control (e.g., Gatz, 1999; Schulz & Hekhausen, 1996; Vaillant, 2002). However, there are few empirical studies to support these proposed models (Blazer, 2002) and there has been little research on the direct or buffering influence of leisure self-determination for older adults living independently. Furthermore, it has been suggested that there is greater variability in people’s preferred level of control as they age and sometimes greater control over activities or circumstances has negative consequences including stress, worry, and self-blame (Rodin, 1986).

More research is needed on leisure and mental health among older adults because the proportion of older adults is increasing, as is life expectancy. In Australia, the median age in June 2002 was 35.9 years and will increase to between 40.4 years and 42.3 years in 2021 and between
46.0 and 49.9 years in 2051. The proportion of the population aged 65 years and over will increase from 13% in June 2002 to between 27% and 30% in 2051 (Australian Bureau of Statistics, 2003).

This study sought to assess the direct and buffering effects of leisure self-determination on the mental health of older adults. Based on previous theorizing and empirical evidence, leisure self-determination was hypothesized to have a positive influence on the mental health of older adults by being associated with lower levels of depression and also as a buffer of the negative influence of stress on depression.

**Methods**

**Research Procedure**

The sample was selected from individuals aged 49 years and over living in an Australian city. Although the term “older adult” is often used for people aged 65 years and over, some research has used the term older adult to describe sample groups aged 50–65 years (King, Taylor, & Haskell, 1993) and 55 years and over (Brilman & Ormel, 2001; Mills, 2001). Therefore, in the present study the sample is referred to as “older adults.”

Convenience sampling techniques were used to recruit older adults through diverse organizations, including a doctor’s surgery, a gymnasium, an entertainment club frequented by older people, and a senior citizen’s centre. Respondents also included members of the general public who responded to a notice in a community newspaper. Initially, the researcher contacted representatives from each of the organizations to introduce the study. A copy of the questionnaire was provided to ensure that each representative was aware of the expectations of respondents prior to responding to the request.

An agreed number of questionnaires were delivered to those organizations that were willing to participate. Both the researcher and staff members of the organizations approached individual patrons in person and asked them to complete questionnaires. Potential respondents were informed of the voluntary and confidential nature of participation. The completed questionnaires were collected approximately one month after the initial distribution of questionnaires. A similar procedure was adopted for the individuals who replied to the newspaper request.

**Measurement Instruments**

Ratings of life stress took into account two recognized sources of stress, dramatic life events and day-to-day hassles (Rice, 1998). Including items on both sources of life stress enabled an assessment of the individual’s
overall life stress. Respondents' stress levels were measured using two items. The first item asked respondents to rate their level of stress from significant life events (e.g., someone close died, marital problem, financial problem, changed life situation) over the last year on a seven-point scale ranging from "None" to "Extremely High." The second question asked respondents to rate their level of stress from regular day-to-day hassles over the last year, using the same seven-point scale. To obtain a final index of stress, the two ratings were combined. Due to the length of the main study on which this paper is based, this simple measure of stress was deemed suitable to ensure that the questionnaire was an appropriate length for a sample of older adults.

The Leisure Self-Determination Scale developed by Coleman (1999) was included in the questionnaire. Coleman conceptualized leisure self-determination as the extent to which people believed their leisure choices were truly autonomous and the items that form the basis of the Scale described people's preferences, tendencies and expected outcomes associated with choice and continuance of their leisure. The 24-item Leisure Self-Determination Scale has been shown to include five subscales, including autonomous tendencies (self), fulfillment of personal values (personal values), perceived expectations of others (internalized others), deferment to others ideas and requests (valued others), and observations of environmental dominance (external control). Examples of items include, "I usually do the things that I like doing" (self), "I do things that bring important personal and spiritual benefits to me" (personal values), "I tend to do things that I think will keep my friends or family happy" (internalized others), "I like to go along with what other people are doing" (valued others), and "I feel that I make few choices about what I do" (external control). Respondents were asked to respond to items on a 5-point Likert type scale ranging from "Strongly Agree" to "Strongly Disagree."

An analysis of the relationships between leisure self-determination and other indices of the construct and other scales that were believed to be related to leisure self-determination, including the subscales of the Intrinsic Leisure Motivation Scale (Weissinger, 1985; Weissinger & Bandalos, 1995) and the Perceived Leisure Control subscale of the Leisure Diagnostic Battery (Ellis & Witt, 1986), revealed adequate convergent validity (Coleman, 1999). The Leisure Self-Determination Scale was demonstrated to have an overall reliability (Cronbach alpha) of .84 (Coleman, 1999). In the present study, the estimated reliability (Cronbach alpha) of the scale was .82 (n = 141).
The Centre for Epidemiological Studies Depression Scale (CES-D), a self-report, 20-item Likert-type scale that assesses depressive symptomatology, was used to measure depression in the present study. The CES-D scale was designed to measure the individual's current level of depressive symptomatology, concentrating on the affective component, depressed mood. Respondents were asked how many times they had experienced a series of symptoms “during the past week” (Radloff, 1977). Radloff (1977) scored responses to the CES-D from 0 to 3, giving the scale a possible range of scores from 0 to 60. Identical wording was used on the response set in the present study. However, responses were assigned scores ranging from one (which indicated that the symptom was present on less than one day in the past week, rarely, or none of the time) to four (indicating the symptom was felt on five to seven days of the past week, most or all of the time). This resulted in a possible range of scores from 20 to 80.

Radloff (1977) reported a Cronbach alpha reliability for the CES-D scale of .94 for the general population. Analysis of the scale by Radloff also showed acceptable test-retest stability, and high concurrent validity. This was based on comparisons of the scale scores with ratings of depression by clinical assessments, including the Hamilton Rating Scale for Depression (1960) and the Raskin Depression Rating scale (Raskin, Schulerbrandt, Reatig, & McKeon, 1969) as well as other self-reported criteria, including the Lubin Depression Adjective Checklist (Lubin, 1967) and Bradburn Affect Balance Scale (Bradburn, 1969). As well, Radloff has presented evidence of sound construct validity by comparing CES-D scores with recent life events and scores before and after treatment for depression. These qualities have been consistent across the general population subgroups tested.

Leisure researchers have also provided support for the validity and reliability of the CES-D scale. Iso-Ahola and Park (1996) found the internal consistency reliability was .87 ($N = 252$) for a group of 18–65 year olds. In addition, when Dupuis and Smale (1995) applied the CES-D scale to a sample of adults over the age of 55, it was reported that the correlation between this scale and a scale measuring psychological well-being was significantly negative ($r = - .509$, $N = 638$). This supported the validity of the CES-D scale when applied to an older population group. The CES-D scale proved reliable when applied to the current sample group of adults aged 49 years and over, with an estimated internal consistency of .90 ($n = 120$) which is consistent with previously reported reliability coefficients.
Socio-demographic data was collected from respondents. Socio-demographic details collected referred to the respondents’ age, gender, employment status, and annual household income.

Data Analysis
Initially, each questionnaire was screened to detect incomplete or invalid item responses. The data from sufficiently completed questionnaires were coded, recorded electronically and analyzed using Statistical Package for the Social Sciences (SPSS).

Analyses were based on averages of each set of scale item scores for each respondent. Scale scores were not included in the analysis for those cases where less than 80% of scale items were answered. Because only a few cases had missing data and they appeared to be a random subsample of the whole sample, deletion was deemed to be a valid method for treating the missing data (Tabachnick & Fidell, 2001).

To reduce problems of multicollinearity in the multiple regression analyses, scores of the independent variables were centred to create the interaction term from which to test the interaction effect of leisure self-determination and stress on depression. To centre scores they are converted to deviation scores so that each score had a mean of zero (Aitkin & West, 1991). The interaction term used in the analysis was the cross product of individual’s level of stress and their level of leisure self-determination.

Two data screening procedures were undertaken prior to the regression analyses. First, care was taken to ensure that the data in regression analyses were normally distributed through inspection of the normal probability plots against standardized residuals prior to all analyses. Residuals were normally distributed, heightening confidence in subsequent multiple regression analyses. Second, cases with outlying or extreme scores were identified and not included in subsequent regression analyses. Cases where regression residuals were more than three standard deviations above or below the mean (p < .001) were considered outliers (Tabachnick & Fidell, 2001). This procedure was followed to ensure solutions were not biased by extreme values in the predictor or criterion variables.

Relationships between socio-demographic variables (age, gender, annual household income, and occupational status) and depression were assessed prior to the testing of the main regression models. These tests were to determine if there were any socio-demographic variables worthy of inclusion in the final model. As well, Pearson’s correlation coefficient was used to determine the association between stress and depres-
sion to ensure there was a minimally adequate measurement and range of scores for these factors within the sample (Cohen & Wills, 1985).

The moderating (as well as main) effects on depression of leisure self-determination were tested using a series of incremental regression analyses with stress and leisure self-determination as the predictor variables and depression as the criterion variable. In the regression analysis, variances accounted for by the interaction effects were determined after testing and controlling for the main effect (Iso-Ahola & Park, 1996). The significance of the moderating effect of leisure self-determination was determined by the significance of the additional variance explained by entry of the interaction term (Aitkin & West, 1991).

Results

Sample Characteristics

Of the total of 262 questionnaires that were distributed, 152 completed questionnaires were received, giving a response rate of 58.0%.

There were slightly more females (57.1%) than males (42.9%) in the sample. Respondents were aged from 49 to 92 years, with most respondents aged 51–60 years (36.0%) or 61–70 years (36.0%). A number of respondents were in the 71–80 years age category (22.8%). The average age of respondents was 65 years.

The majority of respondents (55.9%) reported an annual household income of $25,000 or less. Only 12.5% had an annual household income over $55,000. The income of the group reflected a significant number of retirees (74.5%) and people who worked on a part-time basis (9.4%). Only 8.7% of respondents reported that they were in full-time work.

The Main and Buffering Effects of Leisure-Self-Determination

Mean scores for the main study variables revealed that respondents had high levels of leisure self-determination and low levels of stress and depression (see Table 1). In addition, the low standard deviations of

<table>
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<th>Scale</th>
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<th>Scale Std. deviation</th>
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</tbody>
</table>

Note. High scores indicate high levels of the variable. LSD Scale = Leisure Self-Determination Scale (Coleman, 1999); CES-D = Centre for Epidemiological Studies Depression Scale (Radloff, 1977). n = 137–148 (sample variation due to removal of scale scores if fewer than 80% of items were answered).
each scale indicated that most respondents reported relatively similar levels of life stress, leisure self-determination and depression.

The intercorrelations of study variables can be seen in Table 2. There were no significant relationships between socio-demographic factors and the outcome variable (depression), therefore socio-demographic variables were not included in the regression analysis.

### Table 2

<table>
<thead>
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<th>Intercorrelations of Study Variables</th>
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<tbody>
<tr>
<td>1. Age</td>
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<tr>
<td>2. Gender +</td>
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<tr>
<td>3. Household income</td>
</tr>
<tr>
<td>4. Employment status ++</td>
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<tr>
<td>5. Life stress</td>
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<td>6. LSD Scale</td>
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<td>7. CES-D Scale</td>
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</tbody>
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<td>-.235**</td>
<td>.000</td>
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<td>.050</td>
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<td></td>
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<td>.191*</td>
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</tbody>
</table>

Note. LSD Scale = Leisure Self-Determination Scale (Coleman, 1999); CES-D = Centre for Epidemiological Studies Depression Scale (Radloff, 1977).

+1 = Female; 2 = Male
++1 = Retired; 2 = Employed part-time; 3 = Employed full-time

*p < .05; **p < .01; ***p = .000

The combined score for the stress items (daily hassles and life events) was significantly related to depression ($r = .535, df = 132, p = .000$). The nature of this association indicated that, as levels of stress increased, so did depression.

The regression analysis (see Table 3) showed that the full prediction model explained a significant 27.3% of the depression variance ($R = .522, R^2 = .273, F = 15.625, df = 3, 125, p = .000$). When entered in the first step, life stress explained a significant 19.4% of depression variance ($R^2 = .194, F = 30.519, df = 1, 127, p = .000$). The nature of this relationship confirmed that as stress levels increased so did levels of depression ($\beta = .329$).

The main effect of leisure self-determination was tested prior to testing of the interaction effect. After controlling for the effects of life stress, entry of leisure self-determination (Step 2) explained a significant additional increment of 2.7% of depression variance ($R^2$ change = .027, $F$ change = 4.403, $df = 1, 126, p$ change = .038). The nature of this relationship ($\beta = -.121$) suggested a negative association between how self-
determined people felt during their leisure, and their level of depression. The main effect of leisure self-determination on depression meant that, regardless of an individual’s level of life stress, on average, higher levels of leisure self-determination were associated with lower levels of individual’s depressive symptoms.

The cross product of leisure self-determination and stress, entered in Step 3, explained a significant additional 5.2% of depression variance ($R^2$ change = .052, $F$ change = 8.895, $df = 1$, 125, $p$ change = .003). The nature of the interactive effect of stress and leisure self-determination on depression was such that higher leisure self-determination scores were associated with reduced depressive symptoms when life stress was high ($\beta = -178$). Leisure self-determination therefore had a significant moderating effect on the stress/depression relationship for this group of older adults (see Figure 1). Estimation of means of depression at high (one standard deviation above the mean) and low (one standard deviation below the mean) levels of stress and leisure self-determination shows that although for people with higher levels of leisure self-determination the levels of depression increased slightly as stress increased, for people with lower levels of leisure self-determination, depression increased more strongly in association with increased stress.

In summary, these findings demonstrated that, on average, leisure self-determination was associated with below average levels of depression regardless of levels of stress, and had an even greater association with reduced depression when stress was high.
Depression (decentred) at various levels of stress and leisure self-determination for older adults evaluated at one standard deviation above (high) and below (low) means for life stress and leisure self-determination.

Note: LSD = Leisure Self-Determination

Discussion and Conclusions

The negative relationship between life stress and levels of depression in the present study supports previous research conducted on both general population groups (Creed, 1985; Iso-Ahola & Park, 1996; Ivancevich, 1986; Lin & Ensel, 1989) and older adults (Chou & Chi, 2000; Lamborn, 1997; Ormel et al., 2001). This highlights the continuing need for research into the factors that might reduce the negative impact of stress on depression.

The study showed that for older adults, higher levels of leisure self-determination buffer the influence of life stress on depression. As well, the study showed that people with higher levels of leisure self-determination tend to be less depressed irrespective of their level of stress. Thus, the study provides support for the direct and stress buffering effects of leisure self-determination on depression for older adults. That is, leisure self-determination is associated with lower levels of depression regardless of life stress and interacts with life stress as a buffer against the adverse effects of high life stress on depression. The presence of a main and a buffering effect suggests that, on average, the level of depression for individuals with high levels of leisure self-determination differs significantly from the level of depression for those with low levels of...
leisure self-determination regardless of life stress, and these differences are greatest under conditions of high stress. The main and buffering effects of leisure self-determination are important in light of the limited research conducted on factors that might reduce depression for older adults (Blazer, 2002) and the prevalence of depression for older adults (Commonwealth Department of Health and Aged Care, 2000).

The findings in the present research were consistent with theories and some evidence from general psychology which suggest that general self-control dispositions are important for the health and well-being of older adults (Beckingham & Watt, 1995; Chou & Chi, 2001) and can moderate the impact of stress on health (e.g., Langer & Rodin, 1976). The findings also provide empirical support for theories of successful ageing (e.g., Gatz, 1999; Schulz & Hekhausen, 1996; Vaillant, 2002), which have identified sense of control and self-efficacy as being important to the health and well-being of older adults.

The present study has provided additional evidence of buffering effects of leisure self-determination (Coleman, 1993; Coleman & Iso-Ahola, 1993; Coleman, 1999). The findings are consistent with Coleman and Iso-Ahola’s (1993) proposition that leisure participation facilitates coping with life stress through leisure-generated self-determination. The present study adds considerably to Coleman’s (1993) finding that undertaking leisure characterized by perceived freedom (which reflects self-determination) was related to mental health in a manner consistent with it being effective in reducing the impact of life stress. The present study used Coleman’s (1999) Leisure Self-Determination Scale as a direct measure of the construct, whereas Coleman (1993) used measures of perceived freedom in leisure. Findings of the present study are also consistent with evidence in a study by Coleman (1999), who found that leisure self-determination (measured by the Leisure-Self-Determination Scale) buffered the impact of daily life hassles on depression for a sample of teachers.

The findings of the present study are contrary to other empirical evidence that has not supported the buffering effects of leisure self-determination including that provided by Iso-Ahola & Park (1996), who used perceived leisure freedom to reflect self-determination. Comparisons between the present study and the studies conducted by Coleman (1993) and Iso-Ahola and Park (1996) are complicated by the use of alternative measurements of leisure self-determination and the age structure of respondent groups.

The present study is the first to examine the stress buffering influence of leisure-self-determination for a sample of older adults. The age group
sampled in here, compared to other studies of leisure self-determination, may limit comparisons with the findings of previous research. Respondents in the present study were aged 49 years and over, conversely Iso-Ahola and Park (1996) sampled 18-65 year olds, and in Coleman's (1993) study respondents ranged from 20 to 81 years. It is possible that the buffering effects of leisure dispositions may be dependent on age.

The negative association between leisure self-determination and depression supports earlier theorizing (Iso-Ahola, 1980, 1994) and empirical evidence (Caltabiano, 1988; Coleman, 1993; Iso-Ahola & Park, 1996). For example, Iso-Ahola and Park found that lower levels of intrinsic motivation and perceived freedom were associated with higher levels of depression.

There is some debate as to whether a coping factor has a main effect or a stress-buffering effect. With regards to leisure self-determination, the present study supports the views of George (1989), who theorized that a coping characteristic could have both a main and a buffering effect. Leisure self-determination was found to reduce levels of depression regardless of the level of life stress the individual had experienced in the past year. This highlights the importance of leisure self-determination as a disposition that is conducive to the mental health for people who are not experiencing high levels of stress as well as for those who are. Thus, possession of a predisposition towards leisure self-determination might help older adults prevent the onset or increase of depression. More importantly, leisure self-determination was found to have a stronger impact on depression when stressors were high. Thus, the possession of this leisure predisposition appears to help people cope with life stress.

The present research also has policy and practice implications. Due to its association with reduced depression for older adults regardless of life stress and as a buffer when life stress is high, developing leisure-self-determination might be an important mechanism for maintaining mental health. Thus, the fostering feelings of leisure self-determination should be a high priority for leisure practitioners who wish to contribute to the well-being of older adults. This priority is particularly important for those working with older adults in residential care, as older adults in these living arrangements experience about twice the level of depressive symptoms as those in the community and have a 20 times greater risk for depressive disorders (Commonwealth Department of Health and Aged Care & Australian Institute of Health & Welfare, 1999).

Leisure practitioners can establish environments conducive to the maintenance of self-determination dispositions. In other words, leisure
practitioners can foster an autonomy supportive environment (Deci & Ryan, 1987). Autonomy supportive situations require opportunities for older adults to direct their leisure experiences and make their own leisure participation choices. Rewards should be used with care to avoid perceptions of control or bribery. Leisure practitioners could involve older adults in the decision-making process about the type, frequency, and programming of their leisure; take their perspective and show care for the individual (not just their behaviour); and encourage the internalization and integration of extrinsic regulation when it is part of the leisure setting (Mannell & Kleiber, 1997). Building leisure self-determination dispositions requires more than allowing participants the choice of a number of structured activities. Instead, participants must be provided with the opportunity to design their own leisure experiences and take control of the organization and administration of their leisure. Tasks for organizing leisure activities could be distributed among participants, with each responsible for a certain aspect of its delivery (Rodin & Langer, 1977).

This approach to leisure delivery for older adults requires the practitioner to act as a facilitator, rather than a autocratic leader who prescribes the type of leisure that they believe will be “good” for the individual. An authoritarian-style of leadership serves only to create dependency and feelings of lack of control, which is likely to reduce self-determination. Although the level of control appropriate for individuals might vary considerably (Rodin, 1986), it should be maximized to maintain a sense of leisure self-determination.

When interpreting the results of the present study, its limitations must be considered. The use of a cross-sectional design that incorporates multiple regression has inherent limitations, particularly not being able to demonstrate causal relationships (Tabachnick & Fidell, 2001). Therefore, it is possible that level of depression itself influences whether or not a person perceives their leisure to be self-determined. People who are depressed might also experience learned helplessness, where they feel as though events in their life are beyond their control. Another limitation of the study was the convenience sampling method used to select respondents. As well, low standard deviations in measurement scales suggested that this sample was fairly homogeneous. Thus, findings might not be generalizable to the general older adult population.

There are a number of important areas for future research on the role of leisure in stress coping and stress buffering. First, retesting of the moderating effect of leisure self-determination on depression and associated
components of mental health is warranted because of the limitations of the present study. Future studies may provide evidence to support the findings of the significant role of leisure self-determination in reducing the negative effects of life stress on older adults' mental health. Second, future studies might examine the buffering effects of leisure-self-determination for other groups (e.g., young people, various occupational groups) to examine whether there are differences in the stress buffering effects for different population groups. For example, the buffering impact of leisure self-determination of middle-aged and older adults, whose leisure sometimes is restricted by family and personal circumstances, might be stronger than for young people who could be seen as having greater opportunities for self-determination. Third, research might examine whether the buffering effects of leisure self-determination differ depending on the type of life stress (e.g., day-to-day hassles and major life events). Finally, future studies might examine the buffering effects of leisure self-determination on positive psychological well-being, as suggested by Iwasaki and Smale (1988).

The present study provides a basis for directing leisure services and provisions that will contribute to the leisure experiences, satisfaction and mental health of older adults. In particular, it has demonstrated the importance of leisure self-determination and the need for older adults to be given opportunities for greater freedom and control over their leisure experiences. The study, in particular, has shown how this disposition provides a valuable coping resource for those who find themselves under stress. The continued search for such knowledge is necessary to ensure that our ageing population leads a life not only free of illness, but also a quality lifestyle characterized by autonomy, happiness and satisfaction.

Author Note
This study was a part of an Honours Thesis completed by Craike (1999) on the leisure factors that influence the leisure satisfaction and mental health of older adults.

References


