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### Active and Adjusted: Investigating the Contribution of Leisure, Health and Psychosocial Factors to Retirement Adjustment

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# Active and Adjusted: Investigating the Contribution of Leisure, Health and Psychosocial Factors to Retirement Adjustment

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*Engagement in leisure activities during retirement and its relationship to retirement adjustment were investigated. Psychosocial mediators included mastery, self-efficacy for retirement (SE-R) and activities (SE-A), positive (PA) and negative affect (NA). Resources investigated included physical health and finances. Leisure activities examined were social, home entertainment, chores, light exercise, vigorous exercise, and education. Data were gathered from a sample consisting of 243 retirees. Direct predictors of retirement adjustment included finances, health, mastery, SE-R and SE-A. Social activities were the best predictor of a wide range of positive outcomes, including PA, mastery, SE-R and SE-A. Educational activities improved SE-R. Being involved in a broader range of activities was associated with PA, mastery and SE-A. Familiarity and enjoyment of activities were implicated in the maintenance and continuation of activities at post-retirement. Research findings have implications for aged-care and other retirement service providers, as well as for individuals.*

**Keywords** leisure activities, mastery, retirement adjustment, self-efficacy

## Active and Adjusted

Multiple changes associated with retirement, such as physical, lifestyle, and psychosocial changes, contribute to poorer adjustment for some retirees (Arent, Landers, & Etnier, 2000; Bosse, Aldwin, Levenson, & Workman-Daniels, 1991; Price & Balaswamy, 2009). While

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some factors may be within the individual's control, others such as chronic illness, the loss of a partner, or changed economic circumstances are not. Those unable to cope with such changes experience a decline in wellbeing, elevation in stress, and mood disturbances (Arent et al., 2000). These results are concerning, especially, given government promotion of retirement self-sufficiency and self-management which can blame the individual for their situation, rather than structural, social or economic circumstances (Organisation for Economic Co-Operation and Development [OECD], 2011; Topa, Moriano, Depolo, Alcover, & Morales, 2009). The present study investigated the relationship between retirement adjustment and leisure activities mediated by psychosocial variables. Our findings provide insight into the role of leisure in retirement and suggest practical ways to improve retirement adjustment.

### Defining Retirement Adjustment

The term "retirement adjustment" has been used interchangeably with life satisfaction, and, most frequently, retirement satisfaction (van Solinge & Henkens, 2005). However, the terms are different evidenced by the fact that retirement satisfaction and adjustment share some, but not all, of the same predictors (Leung & Earl, 2012; van Solinge & Henkens, 2008). The focus of this study was retirement adjustment defined in terms of how well an individual rates their own adjustment or adaptation to retirement transition and associated changes (Wells, deVaus, Kendig, Quine, & Petralia, 2006). While many people enjoy the freedom that retirement offers, approximately 25% experience a decrease in adjustment (Wang, 2007) resulting in adverse psychosocial outcomes.

Resources are a significant predictor of retirement adjustment, particularly health and finances (Leung & Earl, 2012), possibly due to both improved access to desirable activities, such as travel and leisure, and services, such as health care (Han & Hong, 2011; van dem Knesebeck et al., 2007). This study investigates the role of resources in predicting leisure activities. Are some activities less accessible on lower incomes? Are some activities unattainable when health is poor? Do both health and finances limit the range of different leisure activities one engages in?

### The Importance of Activity Engagement for Retirement Adjustment

The myriad factors contributing to retirement adjustment makes it difficult to encapsulate all into a single model. Resources, activity, mastery, positive affect (PA), negative affect (NA), and self-efficacy are some of the contributors (Price & Balaswamy, 2009; van Solinge & Henkens, 2005). Before exploring the contribution of different theoretical models it is essential to differentiate between two important constructs, mastery and self-efficacy, often used interchangeably (Skinner, Wellborn, & Connell, 1990; van Solinge & Henkens, 2005), although they measure different things. Evidence suggests that individuals who believe they have low locus of control tend to suffer low mood, depression, apathy, and anxiety (Bosse, Sheets, Lett, & Blumenthal, 2002; Creed & Bartrum, 2008; Lachman & Burack, 1993). Furthermore, people who are self-efficacious are less likely to suffer mood disturbances and tend to participate in more leisure activities (Bosse et al., 2002; Mata et al., 2011; Price & Balaswamy, 2009). The present study investigated whether wellbeing, mastery and self-efficacy can additionally explain the leisure activities and retirement adjustment relationship. Mastery, or the perception of control, is defined as the *global* belief regarding one's ability to influence positive outcomes and life events (Bosse et al., 2002; Creed & Bartrum, 2008; Lachman & Burack, 1993; Price & Balaswamy, 2009) while self-efficacy refers to the confidence to successfully perform a *specific* task (Bosse et al., 2002; Price &

Balaszamy, 2009; van Solinge & Henkens, 2005). An individual, therefore, may believe that he or she is a very good driver (evidence of self-efficacy) because he/she learns any new skill easily (mastery). Of note, these constructs might overlap and have a modest reciprocal relationship (Arent et al., 2000; Lachman & Burack, 1993). In the present study self-efficacy in being active (*self-efficacy: activities, SE-A*) and self-efficacy in coping with retirement (*self-efficacy: retirement, SE-R*) were included, defined further in the methods section.

Theoretical models examining the relationship between leisure and retirement adjustment include notions relating to substituting work for other activities (continuity theory), adding new activities to promote reinventions (innovation theory), focusing purposeful goal directed behavior (selective optimization with compensation), and using leisure to generate feelings of wellbeing directly and indirectly through the development of mastery (coping and making of meaning theory).

### Models of Activity Engagement and Retirement Adjustment

According to continuity theory, individuals have consistent preferences in the way they construct and interact with the world. How well they can maintain these preferences determine whether retirement transition is experienced positively (Atchley, 1989, 1999; Wang, 2007). Leisure can contribute to creating continuity in three possible ways. First, leisure may create continuity in activity and participation levels by replacing work. Second, it may be that leisure is the common continuous, meaningful thread throughout life. Third, leisure may also contribute to continuity by sustaining and nurturing valued aspects of identity and sense of self. While it is possible that when ceasing employment, individuals may lose structure and meaningful activities associated with work (Creed & Bartrum, 2008; Iso-Ahola, Jackson, & Dunn, 1994), leisure may serve as a substitute providing continuity so that preretirement and postretirement engagement levels are similar (Janke, Davey, & Kleiber, 2006; Rosenkoetter, Garris, & Engdahl, 2001), but engagement levels in some activities may decrease with declining health (Janke et al., 2006). Evidence highlights improvements in participation of sporting activities across time (Cozijnsen, Stevens, & van Tilburg, 2013), so it is possible that this trend will continue. Our study explores pre- and postretirement levels of engagement within the same sample to determine declines and increases across a range of different activities. Evidence supporting continuity theory will exist if there is consistent or increased meaningful engagement across time, with the only decline anticipated in vigorous activity.

A complement to continuity theory is presented in the innovation theory of successful ageing (Nimrod & Rotem, 2012). While continuity theory emphasizes the maintenance of activities, innovation theory promotes innovation as a means of preserving identity and adaptation, evidenced when people add new leisure activities later in life (self-invention innovation) or continue with earlier interests (self-preservation innovation) (Nimrod, 2007a, 2007b; Nimrod & Kleiber, 2007). The latter most closely overlaps with continuity theory (Atchley, 1999). Studies (e.g., Nimrod & Hutchinson, 2010; Nimrod, 2008; Nimrod & Rotem, 2012) have empirically tested the theory and reported psychological benefits of innovation. Where innovation presents opportunities for reinvention of self, the likely result is a positive impact on wellbeing. While many studies report pre- and postretirement activity levels, fewer investigate whether people adopt new leisure activities during retirement. In addition to reporting on continuity of activity, our study reports the number of participants adopting new activities during retirement (self-invention innovation), identify the types of activities most likely to be added, and differences in wellbeing between innovators and non-innovators.

Underlying the model of selective optimization with compensation (SOC; Baltes & Baltes, 1990; Baltes, 1993; Freund & Baltes, 1998, 2002) is an appraisal of the effects of ageing and anticipated changes in resourcing levels. These changes may take place in relation to changes in health (restricted mobility) or access to other resources (wealth and travel options). The model promotes reflection on goals and a realignment of resources to maintain the equilibrium when faced with greater constraints and an adjustment to changes across the life-span. The model describes adjustment as a three-part process: selecting (S) goals to dedicate resources to; optimizing (O) skills to achieve these; and compensating (C) for losses in function by developing new strategies. Finally, SOC suggests that beyond building resources, individuals can recover from resource loss by reappraising and adjusting behavior by realigning their goals or setting new goals (Bobek & Robbins, 2004; Hobfoll, 2002). Evidence of this process could be found when people substitute preretirement vigorous activity for postretirement light activity. What is not clear is whether distinct psychological benefits are associated with these changes. Is it a question of optimization or compromise? Our study examines the leisure activity and retirement adjustment relationship mediated by PA and NA. We examine a small subsample participating in vigorous physical activity preretirement that change to light physical activity postretirement and the impact this change has on PA and NA.

Iwasaki (2006) differentiates between leisure coping beliefs (values associated with the therapeutic value of leisure) and leisure coping strategies (which leisure activities help cope with stress). Zuzanek, Robinson, and Iwasaki (1998) highlighted the stress buffering effects of leisure but concluded that higher perceived levels of physical activity resulted in lower levels of stress only for retirees aged 65 and older. We expect to find a positive relationship between physical activity and retirement adjustment. Extending the notion of leisure as a coping mechanism is the notion that leisure can be used to extract meaning from life. In a review, Porter, Iwasaki, and Shank (2010) recognized five meanings obtained from leisure: mastery, autonomy, power, identity, and connection. This conception of leisure extends the coping literature and avoids the negative connotations that “coping” provokes. Resembling instead theories of positive psychology, leisure is conceptualized as potentially all-consuming and reflected in the “flow” moments described by Seligman (2011) and Csikszentmihalyi (1990).

The relationship between mastery and leisure may be symbiotic. When mastery is experienced through leisure via skill development and applying expertise, the inference is that leisure promotes mastery but mastery may also underlie leisure participation and the propensity to expand leisure activities (Newman, Tay, & Diener, 2014). Leisure provides autonomy by providing an escape and the freedom to do what is liked rather than required (Newman et al.). In the same way that continuity theory explains the role of leisure as an extension of work roles, leisure is promoted as a means of self-expression and plays an important role in identity maintenance (Kleiber, 1999). Our study specifically explores the relationship between mastery and leisure. Consistent with Betts Adams, Leibbrandt, and Moon (2011), we expect positive outcomes will be most associated with participation in social, educational and physical leisure activities.

### **Evidence That Activity Engagement Promotes Retirement Adjustment**

Expectations and evidence of the relationship between participation in activities and retirement adjustment is, at best, inconclusive. van Solinge and Henkens (2005) failed to find a significant relationship between leisure activities and retirement adjustment. While research recognizes the value of participating in meaningful and rewarding activities (Martell,

Addis, & Jacobson, 2001), an alternate and less examined perspective is that different types of activities may affect retirement adjustment differently. The current study addressed some of these limitations by including a range of leisure activities namely social, educational, chores, and home entertainment, differentiating between light and vigorous exercise and the frequency of activities.

### ***The Relationship Between Activity Engagement and Retirement Adjustment: Psychosocial and Wellbeing Factors***

It is also possible that the relationship between leisure activities and retirement adjustment can be explained by additional mediating variables, such as psychosocial (mastery and self-efficacy) and psychological wellbeing (PA and NA).

### ***The Relationship Between Activity Engagement and Psychosocial Factors***

Evidence suggests that participation in activities that promote new skills and involve challenging but proximal goals can strengthen the perception of control and self-efficacy (Arent et al., 2000; Bandura & Schunk, 1981; Bosse et al., 2002; Price & Balaswamy, 2009; Tanner & Ball, 2000) among older people. Price and Balaswamy (2009) proposed that having an active retirement lifestyle is an important precursor of better self-esteem and mastery in the retired population. Individuals who possess these “psychosocial” resources (mastery and self-efficacy) adjust better to retirement (Leung & Earl, 2012) measured in terms of feeling respected, being busy and enjoying life. Well-adjusted people report that retirement meets their expectations or is better than expected (Wells et al., 2006).

### ***The Relationship Between Psychosocial Factors and Retirement Adjustment***

Support for the relationship among self-efficacy, mastery, and retirement outcomes is strong. Price and Balaswamy (2009) found that both self-esteem and mastery are significant predictors of retirement satisfaction, when demographic and health variables are controlled. Donaldson, Earl, and Muratore (2010) and van Solinge and Henkens (2005) concurred with findings identifying mastery and self-efficacy as significant predictors of retirement adjustment.

### ***The Contribution of Positive and Negative Affect***

In the present study, psychological wellbeing was divided into positive affect (PA) and negative affect (NA). Many clinical trials and studies typically use NA as a measure of outcome, focusing on depressive mood or affect (e.g., Salsman, Butt, & Pilkonis, 2013). PA and NA are identified as somewhat negatively correlated and are relatively orthogonal dimensions (Crawford & Henry, 2004). PA represents the degree to which an individual experiences pleasurable engagement, characterized by enthusiasm, alertness, and motivation. High PA has been associated with physical and psychological benefits, including improved health, satisfaction, productivity, and immune functions (Mata et al., 2011). Low PA has been associated with anhedonia, lethargy, and sadness. High NA produces apprehension, distress and unpleasurable engagement while low NA indicates the absence of these feelings (White, Kendrick, & Yardley, 2009).

### ***The Relationship Between Activity Engagement, Physical Health and Psychological Wellbeing***

Research and clinical studies support the relationship between activity engagement and physical and psychological wellbeing (Arent et al., 2000; Bosse et al., 2002; Creed & Batrum, 2008; Iso-Ahola et al., 1994; Mata et al., 2011). Engaging in activities can improve physical fitness and health, the retrieval of positive thoughts, social contact and alleviate depressive mood, while potentially providing distractions from negative rumination. A meta-analytic study found that making retirement decisions had a negligible relationship with mental and physical illness (Topa et al., 2009), suggesting that more actionable initiatives (engaging in activities) are needed if one is to make changes to mental and physical wellbeing. Others have showed that older adults engaged in daily physical activities and exercise experience a significant increase (decrease) in PA (NA) relative to the inactive counterparts (Arent et al., 2000).

Mannell (2007) identified five main purposes of leisure in promoting wellbeing: keeping busy, pleasure and fun, personal growth, identity formation, and affirmation and coping with stress. They noted that not all leisure activities were equal or automatically good for health and wellbeing. Hutchison and Kleiber (2005) provided a distinction between serious and casual leisure with serious leisure defined as purposeful, productive activities while casual may be enjoyable activities that are less directed and without structure. While more attention has been devoted to evaluating serious leisure, Hutchison and Kleiber (2005) advocated the benefits of casual leisure in promoting wellbeing to include self-protection, self-restoration, and as a vehicle for growth-oriented change. This brings a different light to more sedentary activities, including home entertainment. Benefits of such activities may be partially determined by how success is defined, or in the research context, what dependent variables are used.

### ***The Relationship Between Wellbeing and Retirement Adjustment***

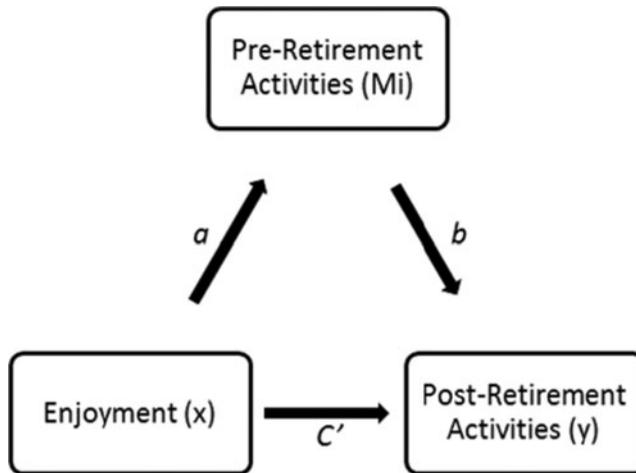
Physical and psychological wellbeing are both strong correlates of retirement adjustment (Donaldson et al., 2010; Price & Balaswamy, 2009). Leisure activities explored included social (Price & Balaswamy) and physical exercises (Rosenberg et al., 2009). A large-scale review indicated that activities incorporating elements of providing meaning by “being connected,” “being physically active,” “mindfulness,” “learning,” and “giving” were more likely to produce positive outcomes (Aked, Marks, Cordon, & Thompson, 2008).

### **Factors Influencing the Level of Engagement in Post-Retirement Activities**

Consistent with continuity theory, older adults have a tendency to maintain engagement in leisure activities they have previously been exposed to or are familiar with (van Solinge & Henkens, 2005). Individuals who enjoyed frequent leisure activities before retirement are more likely to be active during-retirement (de Vaus & Wells, 2004). If participation in leisure predicts retirement adjustment, this raises an interesting question with regard to retirement preparation. Our study explores the propensity to adopt new activities post-retirement and investigates whether people innovate or maintain continuity with pre-retirement activities.

### **The Present Study**

The study explores the following hypotheses:



**FIGURE 1** Testing Hypothesis 1 Using Model 1.

Hypothesis 1 (see Model 1, Figure 1): According to continuity and SOC theory, more frequent engagement in postretirement activities is associated with a higher level of engagement in preretirement activities. Evidence of greater meaning is demonstrated by greater levels of enjoyment with these activities. Evidence of Innovation theory is provided if people initiate new leisure activities during retirement.

Hypothesis 2 (see Model 2a and 2b, Figure 2): As per retirement resource theory, finances (H 2a) and physical health (H 2b) will predict retirement adjustment and participation in postretirement activities. As per resource theory, engaging in more activities and a wider range of activities will result in better adjustment.

Hypothesis 3 (see Model 3, Figure 3): Greater engagement in leisure activities will be related to better psychological wellbeing evidenced by (a) higher PA and (b) lower NA, controlling for demographic status.

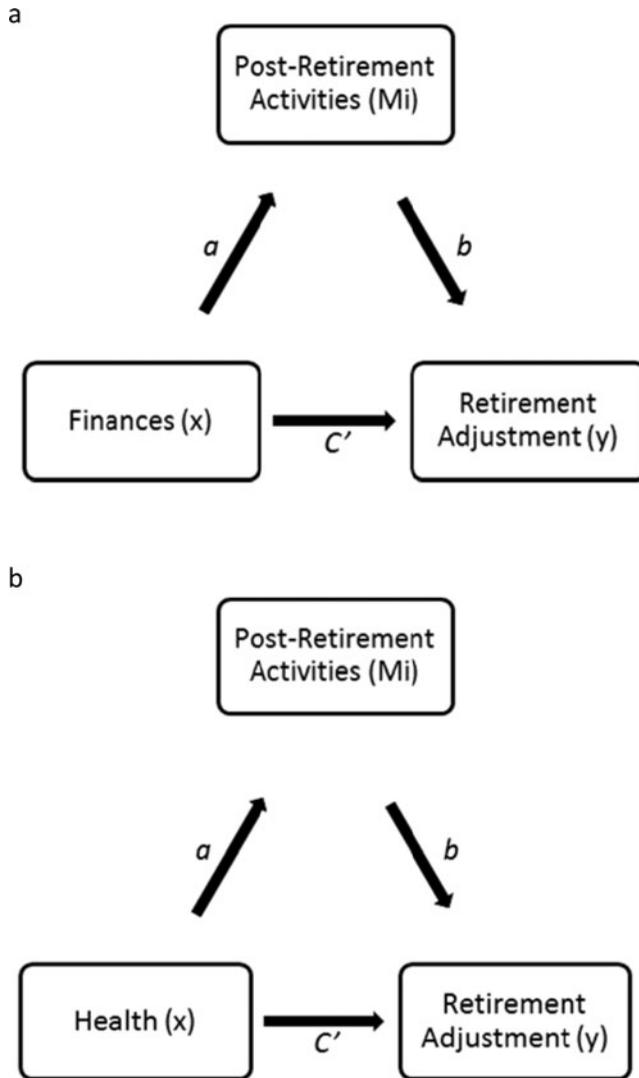
Hypothesis 4 (see Model 3, Figure 3): Evidence of meaning from leisure will be provided through a positive relationship between greater engagement in leisure activities post-retirement and (a) mastery, (b) activities self-efficacy, (c) retirement self-efficacy.

Hypothesis 5 (see Model 3, Figure 3): Mastery, self-efficacy (activities and retirement) and psychological wellbeing, PA and NA will mediate the relationship between time spent on post-retirement activities and retirement adjustment.

## Method

### *Participants and Procedure*

Ethics approval for the study was provided by the University Human Research Ethics Advisory Panel (Psychology) at The University of New South Wales. Participants were recruited through PureProfile, which specializes in online survey panels. Those screened as retired from the full-time workforce were asked to complete a survey (approximately 10–20 minutes), distributed online using Key Survey. Before commencing, participants were presented with a study overview, confidentiality and consent indicated by continuing to and finishing the survey. At the completion of the survey, participants were presented with debriefing information and remunerated with a small cash incentive (approximately \$5). To maintain quality, screening questions such as “were you born on 30th February?”



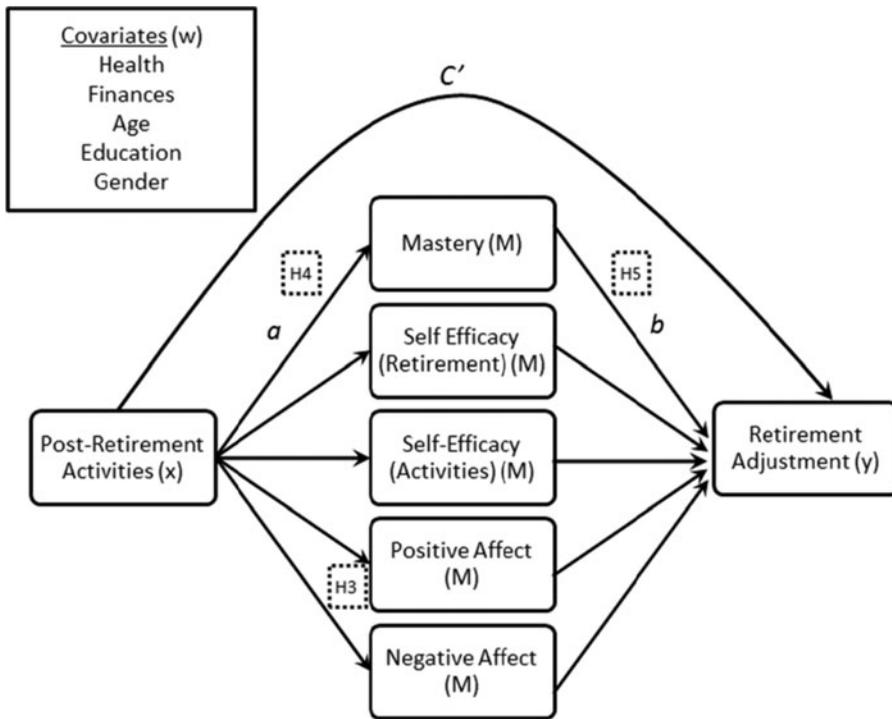
**FIGURE 2** (a) Testing Hypothesis 2a Using Model 2a. (b) Testing Hypothesis 2b Using Model 2b.

were included to ensure participants were not responding randomly. This resulted in 60 respondents being excluded.

The final panel consisted of 127 females, with an average age of 66.32 years (range 39 to 90 years; SD = 8.05 years) and 116 males, with an average age of 63.46 years (range 39 to 85 years; SD = 7.85 years).

### **Materials**

Roth et al. (2012) observed that retirees are a heterogeneous group, varying in mental and physical capabilities. The questionnaire was designed to be convenient for all types of retirees, including the very elderly with declining cognitive and physical capabilities.



**FIGURE 3** Testing Hypotheses 3 to 5 Using Model 3.

Therefore, measures were chosen based on brevity and ease of response and consisted of the following measures.

*Demographic information.* Participants recorded: gender (male = 1, female = 0); age (years and months); marital status (single or dating = 1, married = 2, couple, not married = 3, separated, but not divorced = 4, divorced = 5, widowed = 6); level of education (1 = secondary or lower, 2 = trade/diploma/certificate, 3 = tertiary, 4 = postgraduate); and time retired (years and months).

*Resources.* Finances was measured using perceived money situation (1 = I do not have enough money, 2 = I have just enough money, 3 = I am comfortably well off). Perceived current physical health was assessed by the following question: “How would you rate your current physical health?” (van Solinge & Henkens, 2008) on a 5-point scale, varying from (1) poor to (5) excellent.

*Leisure activities.* An extensive review of the literature failed to identify a well-validated specific measure of engagement in leisure activities. Enkvist, Ekstrom, and Elmstahl (2012) classified participants as “active” in an activity if they had participated at least once in the past year. For this study, an alternative measure was created. A copy of all measures is available from the author. The selection of activities used in the present study were inspired by various sources, including Enkvist et al., Iso-Ahola et al. (1994), and Tanner and Ball (2000). Activities included social (e.g., visiting friends) and educational (e.g., reading books, attending seminars); light (e.g., yoga, brisk walking) and vigorous exercises (e.g., jogging, playing sports); chores (e.g., cleaning the house); and home entertainment (e.g., watching television, listening to music).

Activities were rated pre- and postretirement on time spent (hours per week) participating in activities. Enjoyment derived from the activities was rated on a 3-point scale (I do not enjoy them = 1, indifferent = 2, and I enjoy them very much = 3). Although self-report measures have been criticized for being prone to impression management and memory inaccuracy, studies have demonstrated that a single question assessing the frequency of an activity can yield a comparable answer to a more sophisticated diary survey (Frey, Benesch, & Stutzer, 2007; Robinson & Godbey, 1999).

*Mastery.* Mastery was measured using Pearlin and Schooler's (1978) 7-item Mastery Scale. Participants reported their perceived degree of control over life and capacity to deal with life's challenges on a 4-point scale (1 = strongly disagree to 4 = strongly agree). The mastery score was the sum across the seven items with a higher total score indicating greater mastery. In the present study, this measure has a Cronbach's  $\alpha$  of .88, equivalent to that reported by Donaldson et al. (2010).

*Self-efficacy.* Self-efficacy was operationalized with the retirement self-efficacy scale (RSE; Neuhs, 1991), which consists of items assessing one's confidence in performing various tasks related to retirement. The measure has five subscales but only two were administered, namely activities (e.g., "Remaining physically independent") and retirement itself (e.g., "Coping with changes in retirement"), as these were most relevant to the hypotheses. Each subscale has four items rated using a 5-point scale (1 = very little confidence to 5 = quite a lot of confidence). The sum produced a score out of 20 for each subscale. The activities and retirement subscales have internal consistencies of Cronbach's  $\alpha = .89$  and  $.86$ , respectively.

*Psychological wellbeing.* The present study employed the PANAS (Positive and Negative Affect Schedule) short form (Thompson, 2007) to measure positive and negative affective states. The PA component consists of five items: alert, inspired, determined, attentive, and active. The NA component also consists of five items: upset, hostile, ashamed, nervous, and afraid. Participants rated on a 5-point scale (1 = very slightly or not at all to 5 = extremely) the extent they had felt these emotions over the past week. The PA and NA subscales were summed separately, and higher total scores on both subscales indicated higher PA and NA, respectively. The PA subscale has a Cronbach's  $\alpha$  of  $.84$  and the NA subscale has a Cronbach's  $\alpha$   $.81$ .

*Retirement adjustment.* Retirement adjustment was assessed with the 13-item retirement adjustment measure used in the Healthy Retirement Project (Wells et al., 2006). Participants were asked to indicate their level of agreement with the 13 different statements on a 5-point scale (1 = strongly disagree to 5 = strongly agree) negatively and positively worded. Typical items include "I enjoy being retired" and "I miss the stimulation that work gave me." The 13th optional item was eventually dropped from the analysis because many participants failed to answer this question. The sum of the ratings provides the retirement adjustment score and this measure had a Cronbach's  $\alpha = .88$ , equivalent to that reported by Donaldson et al. (2010).

## Data Analysis

We conducted three simple mediation models (Models 1-2b) and another more complex model including covariates (Figure 3) using Hayes' (2013) SPSS PROCESS dialog. Pathways  $a$ ,  $b$ ,  $c'$  can be seen in Figures 1-3. To assess the indirect effect ( $ab$  pathway), we used a bootstrap procedure ( $n = 1000$ ) and statistical significance was assessed using a 95%

confidence interval. Model 1 explored the relationship between enjoyment (x) and activity engagement (y) mediated by previous engagement (Mi). In cases where investigated independent variables are correlated, Hayes (2013, pp. 193–194) recommended that models for each independent variable are run separately and therefore a model was estimated for each type of leisure. Model 2 was used to test hypotheses 2a and 2b and estimate the role of finances (x) and health (x) in predicting retirement adjustment (y) mediated by post-retirement activities (Mi). Model 3 was used to test hypothesis 3–4. In model 3, finances, health, age, education, and gender are included as covariates (w) and again models were prepared for each type of postretirement leisure activity (x) along with total number of hours engaged in activities (x) as well as the range of activities (x: 1–6 activities) predicting retirement adjustment (y) mediated (Mi) by mastery, self-efficacy (retirement), self-efficacy (activities), positive affect, and negative affect. As a final estimation, in order to determine the contribution of each collection of variables to retirement adjustment, a hierarchical multiple regression analysis was estimated with gender, age, education, finances and health in step 1, leisure activities in step 2 and mastery, self-efficacy (activities and retirement) and psychological wellbeing (PA and NA) in step 3. Hierarchical linear regression was necessary because when multiple predictors (x) are included in the mediational model the relationships between mediators (M) and outcomes (y) will potentially be different for every x entered.

## Results

### *Demographic Characteristics of the Sample*

The length of retirement period among participants ranged from recent to 52 years ( $M = 119.75$  months,  $SD = 95.23$  months). The largest group of participants had secondary education or lower as their highest education level (42.0%), 33.7% reported that they completed a diploma or equivalent, and 24.3% completed higher education (i.e., tertiary and postgraduate). Married individuals comprised 58.8% of the sample.

The majority of participants indicated that they are content with their financial situation (59.2%), with 15.8% responding that they were comfortably well off, while remaining participants admitted that they were dissatisfied financially (25%).

### *Initial Analyses: Descriptive Statistics and Bivariate Results*

On average, home entertainment was the leisure activity that participants dedicated most time to (27.47 hours per week), while exercising vigorously was engaged in rarely (1.84 hours per week)

The correlation between PA and NA ( $r = -.293$ ,  $p < 0.001$ ) was comparable to the correlations reported previously ( $r = -.29$ ,  $p < .01$ ; Crawford & Henry, 2004; Thompson, 2007). Lastly, the data set was free of multicollinearity with all tolerance values greater than .10 and VIF values less than 10).

Hypothesis 1 (see Model 1) proposed, from continuity and innovation (self-preservation) theories, that more frequent engagement in postretirement activities is associated with a higher level of engagement in preretirement activities. Evidence of greater meaning is also demonstrated by greater levels of enjoyment with these activities.

A simple mediation analysis was conducted consisting of enjoyment in activity (x) predicting engagement in activity postretirement (y) mediated by preretirement activity (M). Table 1 confirms that enjoyment of the activities and engagement in preretirement activities were both positively related to postretirement activities. The only exception was

preretirement vigorous exercise activity. Indirect effects (*ab* pathway) were examined and all relationships were statistically different from zero at 95% using bootstrapped confidence intervals except vigorous activities  $[-.09, 1.25]$  and social activities  $[-.03, 1.17]$ .

A posthoc frequency analysis provided evidence supporting Innovation theory in that 23% of participants reported starting new activities postretirement. Although familiarity is a strong driving force behind engagement in post-retirement activities, a proportion of retirees are willing to venture outside their comfort zone. Of those prepared to innovate 63% added one new activity, and 34% added two. Light exercise was the activity added most ( $N = 28$ ), followed equally by chores and vigorous exercise ( $N = 13$ ). Contrary to hypothesis 1, those trying new activities did not report significantly higher levels of adjustment, PA, mastery or self-efficacy.

Hypothesis 2 (see Figures and models 2a and b) predicted that finances (*x*) and physical health (*x*) would be associated with retirement adjustment (*y*) via participation in postretirement activities (*Mi*). Results indicate that finances did not predict participation in any activities (*pathway a*), but did directly predict retirement adjustment (*pathway c*:  $\beta = 6.03$ ,  $SE = .72$ ,  $p < .001$ ). As expected there were no significant indirect relationships. Finances were associated with the number of activities engaged in (*pathway a*:  $\beta = .38$   $SE = .12$ ,  $p < .01$ ), which in turn related to retirement adjustment (*pathway b*:  $\beta = 1.14$ ,  $SE = .41$ ,  $p < .01$ ). Therefore, both direct as well as indirect effects (*pathway ab*) were significant ( $p < 0.05$ , *pathway ab*:  $\beta = .43$ ,  $SE = .23$ ,  $CI [.11, 1.05]$ ). Finances did not predict the total number of hours engaged across all activities.

Physical health related to retirement adjustment directly (*pathway c*:  $\beta = 3.20$ ,  $SE = .45$ ,  $p < .001$ ), though no postretirement activities (*pathway b*) related to retirement adjustment. Physical health did not predict the total number of hours engaged in activities and nor did the total number of hours engaged across all activities predict retirement adjustment indirectly (*pathway ab*).

Hypothesis 3 (see Model 3) predicted that greater engagement in leisure activities was related to better psychological wellbeing evidenced by (i) higher PA and (ii) lower NA, controlling for demographic status. This was supported for some of the activities but not all. Only social activities were associated with higher positive affect (*pathway a*:  $\beta = .16$ ,  $SE = .03$ ,  $p < .01$ ) while surprisingly light exercise was related to higher negative affect (*pathway a*:  $\beta = 0.05$ ,  $SE = .03$ ,  $p < .05$ ). Further investigation identified that the light exercise group could be split by enjoyment. A group of participants who participated in light exercise ( $N = 75$ ) reported lower enjoyment. This suggests that in addition to a group who have a preference for light exercise, there may be a group encouraged to do light exercise perhaps for health benefits, or were constrained into doing light exercise, again for health (rather than self-satisfaction) reasons. Further investigation of this result is warranted in future studies as it would help to answer the question of whether changes are viewed as compensation or compromise. Whilst spending more hours in leisure activities was no guarantee of improving PA and NA those people engaging in a wider range of activities reported significantly higher PA (*pathway a*:  $\beta = .69$ ,  $SE = .24$ ,  $p < .01$ ) and lower NA (*pathway a*:  $\beta = -.48$ ,  $SE = .20$ ,  $p < 0.05$ ).

Hypothesis 4 (see Model 3) proposed that greater engagement in leisure activities postretirement would correspond to higher (a) mastery, (b) activities self-efficacy, and (c) retirement self-efficacy. Only social and educational leisure made a significant contribution. Being more involved in social activities was positively related to higher levels of mastery (*pathway a*:  $\beta = 0.10$ ,  $SE = .04$ ,  $p < .05$ ), self-efficacy for activities (*pathway a*:  $\beta = 0.07$ ,  $SE = .03$ ,  $p < .001$ ) and self-efficacy for retirement (*pathway a*:  $\beta = 0.16$ ,  $SE = .04$ ,  $p < .001$ ). Educational activities contributed to self-efficacy for retirement (*pathway a*:  $\beta = 0.04$ ,  $SE = .01$ ,  $p < .01$ ). Engaging in a broader range of activities, rather than simply more

hours, resulted in higher mastery (*pathway a*:  $\beta = .4$ ,  $SE = .21$ ,  $p < .001$ ), and self-efficacy for activities (*pathway a*:  $\beta = .56$ ,  $SE = .17$ ,  $p < .05$ ).

Hypothesis 5 (see Model 3) proposed that the relationship between the time spent on postretirement activities and retirement adjustment can be explained by mastery, self-efficacy (activities and retirement), and psychological wellbeing, (PA and NA). No direct effect of leisure on retirement adjustment was estimated when analyzed separately (*pathway c*). As anticipated, mastery (*pathway b*:  $\beta = -.15$ ,  $p = .05$ ), self-efficacy for activities (*pathway b*:  $\beta = -.16$ ,  $p = .05$ ), and self-efficacy for retirement (*pathway b*:  $\beta = .48$ ,  $p = .001$ ) all related to retirement adjustment. Indirect pathways (*pathway ab*) through mastery (*pathway ab*:  $\beta = .03$ ,  $SE = .02$ , [.00, .08] and self-efficacy for retirement (*pathway ab*:  $\beta = .09$ ,  $SE = .03$ , [.04, .17] for social activities; and through and self-efficacy (retirement)[*pathway ab*:  $\beta = 0.04$ ,  $SE = .027$ , [.01, .08] for educational activities were also significant. For the total number of activities undertaken only the indirect pathway through mastery to retirement adjustment was significant (*pathway ab*:  $\beta = .11$ ,  $SE = .09$ , [.00, .36] with none of the other mediators (e.g., self-efficacy activities and retirement; positive and negative affect) significant.

## Discussion

This study explored the relationship among leisure, psychosocial factors, and retirement adjustment. Social activities and educational activities contributed to the development of important psychosocial variables including mastery and self-efficacy, though no direct relationships were reported between leisure activities and retirement adjustment. Evidence also suggests that while total hours spent in leisure was not necessarily beneficial, a broader range of leisure activities made a difference to positive affect, mastery and self-efficacy. This may be the result of exposure to a wider range of people and developing social networks along with exposure to new ideas and opportunities to learn new skills. Familiarity and enjoyment of activities were implicated in the maintenance and continuation of activities at postretirement.

Evidence of theories of coping (Iwasaki, 2003, 2006; Iwasaki & Schneider, 2003; Schneider & Iwasaki, 2003) through leisure and meaning making were found in the form of a relationship between leisure activities, mastery and self-efficacy (retirement and activity). Stephens, Noone, and Alpass (2014) pointed to the increasing importance of social engagement and networks in retirement. While engaging in social based leisure activities has been previously lauded as a means of accessing social networks and support, it clearly has benefits in promoting wellbeing across a broader range of areas. This study supports earlier studies (e.g., Donaldson et al., 2010) that recognized the benefits of mastery as an important prerequisite for retirement adjustment. Participation in leisure activities that promote mastery are likely to have benefits more broadly to the individual relative to other activities such as setting goals, trying new activities and dealing with unfamiliar situations.

Continuity theory was supported given the high proportion of people (77%) continuing preretirement leisure activities postretirement. Level of enjoyment and preretirement engagement (i.e., familiarity) in a particular activity were strong predictors of the level of postretirement engagement in that activity. While work activities and emphasis might change, leisure activities provide an important constant during the transition process. Conversely, limited evidence was found for innovation theory, with only 23% of people trying new activities. This may have been the result of applying broad categories of different leisure activities rather than a single category (e.g., travel: Nimrod & Rotem, 2012) with multiple inter-related activities. This pattern was observed for all types of activities except vigorous activities. Although we recognize that a small number of retirees are willing

to start new activities postretirement, the majority continue with activities that they are familiar with (van Solinge & Henkens, 2005).

Similarly, SOC theory emphasizes adaptation by having selective goals, optimizing what is possible, and compensating to accommodate new changes. Although only 23% of people adopted new activities postretirement, there were no differences in retirement adjustment levels for those people trying new activities and those who maintained previously established interests. That is, innovators were not better adjusted than noninnovators. However, these changes may be less a function of the transition and more to do with access to new and different activities. Future studies could investigate the role of access, along with peer mentoring promoting participation in new activities.

Resources, particularly physical health, are critical for participation in a range of activities including social, education, light and vigorous activities. This may also account for a lack of observed innovation or a limited range of new activities being considered in the context of SOC theory. Finances were not estimated to be as great an impediment as expected, since levels of perceived financial adequacy did not predict participation rates. Noone, O'Loughlin, and Kendig (2013) emphasize the maintenance of preretirement living standards as a more important determinant of life satisfaction than actual household income. It may be that people adjust expectations and participation prior to retirement so maintaining living standards creates a necessary type of continuity where leisure also plays an important part. The leisure activities contributing most to the development of mastery and self-efficacy were social activities and education.

*Social activities.* Controlling for demographic characteristics, engaging in more social activities (e.g., visiting friends) were especially beneficial, as these related to higher PA, self-efficacy and mastery which ultimately was associated with retirement adjustment. Social activities, however, did not predict NA. The current findings add to the growing literature that supports the value of social interactions in retirement (Stephens et al., 2014). Barlow and Durand (2005) suggested that greater frequency in social interactions improves longevity and wellbeing once retired. Furthermore, adequate social resources determine one's retirement adjustment (Szinovacs & Washo, 1992). Possessing a supportive network, or perception of being supported by others, can act as a safeguard to stressors associated with retirement transition (Krause, 1990; Price & Balaswamy, 2009) and predict life satisfaction (Sarason, Sarason, & Pierce, 1994). Lastly, people have been shown to derive more pleasure from group-based activities, whether it is exercising, resting or working (Kahneman, Krueger, Schkade, Schwarz & Stone, 2004).

*Educational activities.* The results suggest that retirees who have higher level of education and engage in more educational activities (e.g., attending seminars) have better retirement self-efficacy. Educational activities promoting cognitive functioning may be especially beneficial as these enable retirees to plan and carry out other daily activities. Keeping cognitively active may be an important prerequisite for participating in other activities not measured in our studies (e.g., book clubs, travel, bridge).

### ***Limitations and Future Research Directions***

In this study, not all leisure activities correlated with better wellbeing though this is not to discount the value of some leisure activities over others. In this study, chores were considered less likely to be meaningful, challenging, or reinforcing (Martell et al., 2001; Price & Balaswamy, 2009). Contrary to research advocating physical activity, our study failed to demonstrate the importance of this in promoting retirement adjustment or to

support other research suggesting that physical activities improve PA (Mata et al., 2011), mastery, and self-efficacy (Arent et al., 2000).

There are several possible contributors to these discrepancies. First, the present study was reliant on retrospective self-report. Affect is known to be a transient psychological state (Barlow & Durand, 2005), thus “in the moment” measures (e.g., experience sampling method used by Mata et al., 2011) and retrospective measures (e.g., survey) could yield different results. Second, in previous studies older people overestimated their level and frequency of exercise (Owen, Healy, Matthews, & Dunstan, 2010), possibly due to social desirability. Iwasaki (2006) points to important differences between subjective and objective measures of leisure participation and this could be the case in our study. Lastly, social and learning components of exercise might be the source of psychological benefits found by past studies (Arent et al., 2000; Mata et al., 2011), but these components were controlled in the present study.

Home entertainment had neither a positive nor negative effect on retirement adjustment. However, home entertainment is relatively easy to access with minimal effort and provides immediate pleasure (Frey et al., 2007), which can be appealing for retirees with lower mobility. Absent other activities, home entertainment may play an important role in promoting adjustment. For example, people may not be able to physically enjoy gardening but may substitute watching it on television.

The present study has several limitations. The days (per week) and hours (per day) spent on activities were self-reported, measured using ranges to reduce cognitive load. Memory deterioration and social desirability may affect accuracy, notwithstanding the measures acceptable internal consistencies.

The results suggest that participants report better health as they age which needs to be interpreted with caution because, first, health represented perceived health and, second, older adults may report more positive information (Almeida & Horn, 2004; Carstensen & Mikels, 2005). Medical screening tools can be used to indicate physical health more objectively and provide participants with valuable feedback.

Lastly, while advancing the literature in range, the study limited itself to six types of activities to reduce survey load. However, we encourage future studies to explore other activity types, including as nurturing, mindfulness, volunteering and creative activities. It would also be worthwhile investigating combinations of activities. Variety correlated with mastery levels but it might be that leisure is optimized when (like a good diet) it includes a little bit of everything but a lot of some things. Combinations of activities might work better than others.

### ***Practical Implications***

Results highlight the importance of preretirement leisure activities in adjusting to retirement given that only a quarter in our study adopted new activities postretirement. Some interesting research questions remain. For example, what prompts people to try new activities? Do they simply substitute old activities for new ones to maintain continuity or do they adopt new activities as a form of compensation? For example, “I can no longer garden but I can watch it on television.” Is this a form of continuity? Is enjoyment the same or does the compensation strategy translate as a compromise? What is the role of resource constraints in limiting previously enjoyed activities in postretirement, and how can the transition to new activities best be managed?

The possible recursive nature of self-efficacy, its relationship to leisure activities and retirement warrants further investigation. There are opportunities to design leisure based

self-efficacy programs that can generalize beyond the activities themselves. This may provide a part solution to encourage the adoption of new activities postretirement so that continuity and compensation strategies can be employed ahead of time. For example, mobility issues may restrict travel to a university campus but could not access other communities via MOOCS. Interventions aimed at improving self-efficacy might focus on transferring skills learned from one activity to another. While the focus might be on learning of skills and knowledge, indirect benefits might also be derived. For example, improved self-efficacy resulting from attending classes might increase willingness to try other activities, or new friends made while attending a course, or learning new skills from new contacts. In the clinical field, incorporating “activity scheduling” into psychological therapy is a common practice known to be efficacious for treating depression (Bosse et al., 2002; Jacobson et al., 1996). The present study helps to better understand whether these benefits are applicable beyond the counselling context, especially for the retired community. Results suggest that retirees are selective when choosing leisure activities. Embracing a leisure lifestyle, expanding the repertoire of new activities by building on old ones, and actively participating is encouraged, as our study showed mastery and self-efficacy benefits that follow.

Our evidence suggests that participating in a wide range of activities was beneficial in promoting positive affect. Being physically well also increases the likelihood of participation in some activities (e.g., social, education, light, and vigorous exercise), and because physical health also determines retirement adjustment then the usual health precautions (i.e., diet and keeping active) are relevant if people want to continue to access a full range of activities. However, engagement is most likely where preretirement activities are made available along with those that are most enjoyed. In aged care, for example, there is evidence that greater benefit might be derived from putting residents in charge of the leisure agenda in order to exercise mastery and exercise self-efficacy. Similarly, in choosing a new community, access to preferred and familiar leisure activities, established social or educational groups might be a consideration in the decision-making process.

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