

From the work-place to the golf-course?  
The adaptive value of life regret on activity and emotional well-being  
in recent retirees

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## ABSTRACT

From the work-place to the golf-course?  
The adaptive value of life regret on activity and emotional well-being in recent retirees

Jamie C. Farquhar

This study was designed to investigate the impact of life regret on activity engagement and emotional well-being in the early stages of retirement. We asked a total of 463 recent retirees to report their most severe life regret and their perception of opportunity and motivation to undo the negative consequences of the regret. We also asked the participants to report their current level of activity engagement and emotional well-being at both post-retirement (Mean years since retirement = 1.39, *SD* = .86) and one-year follow-up. In addition, the participants also retrospectively reported their pre-retirement level of activity engagement. We expected that regret may play an adaptive role in the activities and emotional well-being of recent retirees. In particular, we reasoned that regret could be adaptive if the individual is motivated to undo the regret and opportunities are favorable. We found that engagement in optional activities (e.g., volunteering, socializing, traveling) was higher at post-retirement and follow-up than at pre-retirement, whereas there were no differences found when examining engagement in obligatory maintenance activities (e.g., household chores, finances). In support of our hypothesis, we found that regret was predictive of both high levels of optional activities and high levels of positive affect post-retirement when retirees are engaged to undo the negative consequences of the regret and opportunities are favorable. Furthermore, the study's results suggest that engagement in optional activities partially mediated the relationship between regret and positive affect. These findings imply that regret can play an adaptive role in later life such as influencing engagement in activities of personal

interest and investment. The implications for pathways to active and happier lives in old age are discussed.

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## Table of Contents

List of Figures.....	viii
List of Tables.....	ix
Introduction.....	1
Retirement: Adjustment & Activity Engagement.....	1
Life Regrets.....	4
The Present Study.....	8
Method.....	9
Participants and Procedure.....	9
Materials.....	10
Results.....	15
Life Regrets in the Early Phases of Retirement.....	15
Trajectories of Activity and Emotional Well-being.....	17
Life Regrets, Activities, and Emotional Well-being.....	20
Analysis of Mediation.....	29
Discussion.....	32
Limitations and Future Directions.....	38
References.....	42
Appendix A: Participant recruitment letter #1.....	46
Appendix B: Participant recruitment letter #2.....	47
Appendix C: Recruitment advertisements .....	48
Appendix D: Consent Form.....	49
Appendix E: Socio-demographic Questionnaire.....	50

Appendix F: Everyday Activities Questionnaire: Pre-retirement Instructions.....	52
Appendix G: Regret Questionnaire.....	53

## List of Figures

Figure 1.	
Mean frequency of activity (maintenance and optional) across time.....	19
Figure 2.	
Moderation between motivation and opportunity to undo the regret in predicting retirees' mean frequency of optional activities at post-retirement (results were controlled for socio-demographic variables and pre-retirement levels of optional activities).....	23
Figure 3.	
Moderation between motivation and opportunity to undo the regret in predicting retirees' mean level of positive affect at post-retirement (results were controlled for socio-demographic variables).....	28
Figure 4.	
Summary of mediation analyses examining whether levels of optional activities at post-retirement would explain the moderation effect (between motivation and opportunity to undo regret) on positive affect at post- retirement (results were controlled for socio-demographic variables and pre-retirement levels of optional activities).....	31



## List of Tables

Table 1.	Means and Standard Deviations of Socio-demographic and Main Study Variables.....	11
Table 2.	Zero-Order Correlations Between Motivation and Opportunity to Undo the Regret, Activity, and Emotional Well-being.....	12
Table 3.	Descriptives of Regret Domains.....	16
Table 4.	Summary of Hierarchical Regression Analyses Predicting Activity (Separately for Maintenance and Optional Activities) by Motivation and Opportunity to Undo the Regret and the Interaction between Motivation and Opportunity at both Post-retirement and Follow-up.....	22
Table 5.	Summary of Hierarchical Regression Analyses Predicting Emotional Well-being (Separately for Positive and Negative Affect) by Motivation and Opportunity to Undo the Regret and the Interaction between Motivation and Opportunity at both Post-retirement and Follow-up.....	27

## Introduction

“Retire from work, but not from life” – M. K. Soni

Many dream about retirement, but what happens to one’s life when that dream becomes a reality? Ideally, people should take their newfound opportunity of time and invest it in life’s pleasurable activities. While research reveals that this may lead to the biggest payoffs in older adulthood (Schindler & Staudinger, 2008), retirement has also been described as a critical life transition and people show substantial variability in how they adapt psychologically to this challenge (Wang, 2007; Pinguart & Schindler, 2007).

This study draws on individual differences in retirement outcomes and attempts to determine the role played by psychological factors. Specifically, we examined whether the experience of life regrets can motivate engagement in activities and emotional well-being among recent retirees. While research has shown that the experience of regret can be associated with a variety of psychological and physical complications in old age (e.g., depression or physical health problems, see Wrosch, Bauer, Miller, & Lupien, 2007; Wrosch, Bauer, & Scheier, 2005), we reasoned that regrets may also, at times, provide the basis for new goals and thus may predict adaptive outcomes (Epstude & Roese, 2008). Such an association should occur in particular when retirees are capable and motivated to actively address their life regrets.

### *Retirement: Adjustment & Activity Engagement*

Retirement represents a developmental stage in later life during which an individual withdraws from the workforce. Early research conceptualized retirement as a ‘crisis’ event (e.g., Barron, Strein, & Suchman, 1952); however, psychological theories to date acknowledge the heterogeneity of the transition out of the workplace (Soligne &

Henkens, 2008; Wang 2007). Indeed, retirement may be a transition marked by distress or a time of continued or improved well-being (Kim & Moen, 2001; Midanik, Soghikian, Ransom, & Tekawa, 1995).

Previous research has established that there are various predictors of retirement adjustment (Wang, 2007; Pinguart & Schlindler, 2007). Indeed, research supports that the process of and adjustment to retirement is a product of biological (e.g., health), societal (e.g., economic conditions), interpersonal (e.g., spouse), and psychological factors (e.g., anxiety; Kim & Moen, 2001). For example, anxiety about retirement expectations, loss of social contacts, and loss of self-esteem and status were related to poor adjustment. Moreover, Wang (2007) reported that psychological well-being following retirement can be predicted by individual and contextual variables (e.g., family context, job characteristics, physical health). For example, retirees who demonstrated a 'recovery pattern' (i.e., improved psychological well-being following retirement) tended to retire from jobs they perceived as stressful.

When examining factors associated with establishing a post-retirement lifestyle, Soligne and Henkins (2008) found that adjustment to retirement was easier for those who were engaged in pre-retirement volunteer work and maintained part-time jobs. Thus, an important aspect of retirement adjustment relates to activity engagement because retirement has a large impact on the structure of a person's remaining life time. As a result of one's loss of community upon leaving the workforce, participation in various clubs and organizations are especially important to a retiree's quality of life because social integration can elicit feelings of personal meaning and worth (Moen, 1996). At the same time, it is important to remember that retirees do not simply transition into old age;

rather, they continue previous roles (e.g., mother, spouse) as well as acquire new roles (volunteer, friend; Kim & Moen, 2001). Indeed, participation in activity can provide time structure and continuity in one's life, thus contributing to retirement adjustment and satisfaction (Butrica & Schaner, 2005). For example, active engagement in leisure activities, volunteer work, and important aspects of one's life has been found to increase retirement satisfaction (Butrica & Schaner, 2005; Morrow-Howel, Hinterlone, Rozario, & Tang, 2003).

When examining activity engagement, it is important to distinguish between the different domains where motivational energy can be invested (Schindler, Staudinger, & Nesselroade, 2006; Schindler & Staudinger, 2008; Rousseau, Pushkar, & Reis, 2005). A one-dimensional examination of activity investment provides, at best, an incomplete picture (Rousseau et al., 2005). For example, Schindler and Staudinger (2008) distinguished between obligatory and optional personal life investments when examining motivational energy. They found that optional life investments (e.g., investments in leisure, sexuality, and occupational domains) were related to higher satisfaction with aging among well-functioning older adults, whereas obligatory life investments (e.g., investments in domains of health, cognitive fitness, independence domains) had no relationship to satisfaction. Therefore, when examining activity engagement at a particular stage in life, including retirement, it is important to examine investments in both optional and obligatory domains.

As stated earlier, the process of and adjustment to retirement is a product of biological, societal, interpersonal, and psychological factors (Kim & Moen, 2001). However, to date, there have been a limited number of research studies that have

examined the role of psychological factors on retirement and the life course in general (Soligne & Henkens, 2008). However, psychological factors may play an important role in influencing changes across the lifespan. According to life course approaches, individuals play an active role in the design and redesign of their lives within the context of available options and constraints (Heckhausen & Schulz, 1995; Kim & Moen, 2001). In addition, psychological factors in extant research tend to be related to present states (e.g., anxiety; Soligne & Henkens, 2008), but not to an evaluation of one's past. Therefore, more research is needed to examine the impact of psychological factors on retirement outcomes in longitudinal studies.

### *Life Regrets*

We think that the experience of regret may have an impact on retirees' activities and subjective well-being. While extant research suggests that the impact of regret on older adults' quality of life is broadly negative (e.g., eliciting depression and physical health problems; Wrosch et al., 2005; Wrosch et al., 2007), regret may also play an adaptive role such as providing new goals. The adaptive value of regret can be particularly salient during periods of increased opportunity (Epstude & Roese, 2008), such as the potential opportunities (e.g., time) provided in the life stage of retirement. To date, no research studies have examined the impact of regret on the quality of life of retirees, nor has research captured the adaptive role of life regrets in a sample of older adults.

Regret is a prevalent human phenomenon (Landman, 1987), and over 90% of individuals typically experience severe life regrets (Wrosch et al., 2005). Life regrets are related to upward counterfactual thinking and involve reflecting on past behaviours and

decisions and considering alternative behaviours and decisions that might have resulted in a better outcome (“What would have happened if...”; Epstude & Roese, 2008). The experience of such regrets relies heavily on the opportunity principle (Roese & Summerville, 2005). According to this principle, the experience and intensity of regret may reflect the level of perceived opportunity prior to the outcome of a freely chosen, but unsuccessful, goal-directed behaviour. Accordingly, the most universally experienced regrets reflect major developmental tasks where there were high opportunities to an alternative course of action in the past (e.g., educational pursuits; see Roese & Summerville, 2005).

It also appears that a person’s prospective opportunities for addressing a regret may determine the impact of regret on behaviour and subjective well-being. Specifically, when opportunity to undo the regret is available, behaviour regulation becomes the dominant response; however, when opportunity is not available, affect regulation is dominant (Epstude & Roese, 2008). Therefore, regrets that focus on actions that are no longer conducive to modification may exacerbate negative affect, ultimately demonstrating the dysfunctional nature of counterfactuals. Unfortunately, research has documented that opportunities for overcoming regrets typically decline with advancing age (Wrosch et al., 2005). As a consequence, regret may be more troublesome for older, as compared to younger, adults’ quality of life.

Support for this argument can be found in research demonstrating that intense regret can be associated with a number of psychological and physical complications in old age. For example, regret-specific intrusive thoughts and negative affect have been shown to exert a stronger association with indicators of psychological distress (e.g.,

depressive symptoms or low life satisfaction), when examining older adults, as compared to younger adults (Wrosch et al., 2005). In addition, research suggests that older adults who experienced intense regret exhibit a dysregulated pattern of diurnal cortisol secretion (e.g., larger volume, steeper early morning increase), and higher levels of acute physical symptoms (e.g., chest, back and joint pain, headaches, shortness of breath) as compared to their counterparts who experience less intense regret (Wrosch et al., 2007). However, we note that some older adults can avoid these negative outcomes and maintain their quality of life if they use adaptive self-regulation processes (Wrosch et al., 2005; Wrosch & Heckhausen, 2002). By these accounts, it appears that experiencing regret is detrimental to the well-being and health of older adults, in particular if they are unable to cope with the regret.

While the previously discussed age effects of life regrets on indicators of quality of life reflect a description of averaged age differences, we also think that they may provide an incomplete picture of the functions of regret in older adulthood. In this regard, we note that there are substantial individual differences in people's perceptions of opportunities for undoing their regrets, even in old age (Bauer & Wrosch, 2008). This implies that some older adults perceive more favourable opportunities to undo their regrets than others (e.g., regretting not having your own children versus not spending enough time with your children). In addition, we would expect that more favourable opportunities for addressing regrets can be found among older adults who retire, given that retirees are provided with increased time for freely chosen activities in the absence of previous work-place commitments.

Newfound opportunity in retirement is important because, as stated earlier, regret may play a role in the management and coordination of new goals when the opportunity to undo the regret is favourable (Epstude & Roese, 2008; Zeelenberg, 1999). From this perspective, the adaptive experience of regret begins with the recognition of an unfavourable outcome (e.g., I never took the time to engage in activities I enjoy). Recognition of the problem activates the counterfactual which in turn leads to corresponding behaviour intentions (e.g., maybe I should start a hobby; maybe I should join a club). These behaviour intentions may result in appropriate behaviours in future situations (Epstude & Roese, 2008).

There are two pathways from regret to action: content-specific and content-neutral (Epstude & Roese, 2008). The content-specific pathway describes a process, in which the particular information associated with the regret is directly linked to behaviour intentions and subsequent behaviour. For example, a life regret of not taking time to travel may result in intentions to travel and future travel behaviour. Related to the content-specific pathway, the more detailed the intentions produced by the regret, the more likely the effect of the corresponding behaviour (e.g., Nasco & Marsh, 1999).

In contrast to content-specific, the content-neutral pathway may activate attentional, cognitive or motivational processes more generally and thereby play a role in future behaviour (Epstude & Roese, 2008). For example, that same life regret of not taking time to travel may also change a person's approach to other recreational and leisure activities. The content-neutral pathway may: elicit motivation to change; influence one's tendency to consider a variety of options prior to decision making (i.e., the



counterfactual mind set); or produce greater inferences of subjective control over a larger variety of situations (Epstude & Roese, 2008).

While the discussed pathways provide a theoretical rationale by linking regrets and active behaviours, there is also evidence that opportunity alone may not necessarily result in adaptive action. For example, Wrosch and Heckhausen (2002) demonstrated that among younger adults, who experienced favourable opportunities to address their regrets (but not among older adults), high levels of internal control were related to reduced levels of regret, a finding that may be explained by the motivating function of internal control beliefs for active behaviours (Wrosch & Heckhausen, 2002). This may imply that there are additional motivational factors that determine whether regrets can result in adaptive behaviours and subjective well-being. From our perspective, such motivational factors are related to the extent a person is committed and invests efforts towards undoing a regret. Thus, regrets may facilitate engagement in various activities and increase subjective well-being particularly among retirees who have favourable opportunities and are highly motivated to address their regret.

### The Present Study

This study was designed to investigate the effects of life regrets on activity engagement and emotional well-being in the early stages of retirement. We examined whether retirees who are motivated to address regretted behaviors that have the potential to be undone have higher levels of everyday activities and emotional well-being, as compared to retirees who are either not motivated to address their regretted behaviors or have only few opportunities to undo their life regrets. This study attempts to accomplish three aims. First, the nature of life regrets (e.g., life domain, motivation and opportunity

to undoing regrets) in the early stages of retirement is examined. Second, we test the hypothesis that participants perceive higher levels of activity following retirement (as compared to perceptions of pre-retirement) of personal interest and investment (i.e., optional activities such as volunteering, socializing, helping, hobbies). In comparison, perceptions of maintenance activities (e.g., finances, cleaning) are expected to remain fairly stable across time. Third, we investigate whether life regrets play an adaptive role in the levels of optional activities after retirement, in particular if retirees are highly motivated to undo their regrets and the consequences of the regretted behaviors can be undone. In this regard, we further expect that the hypothesized beneficial effects of life regrets on levels of optional activities could partly mediate high levels of emotional well-being.

## Method

### *Participants and Procedure*

This study included a large and heterogeneous sample of participants from the metropolitan region of Montreal who recently retired from the work force. We recruited participants through letters sent to members of local retirement associations (see Appendix A), and advertisements placed in local newspapers (see Appendix B). The initial sample included 463 retirees. We removed pilot participants ( $n = 17$ ) and participants who had difficulty understanding instructions ( $n = 13$ ) from the study. Approximately one year later ( $M = 1.07$ ;  $SD = .16$ ), we contacted participants again to complete a second wave of assessment (see Appendix C). Of the total sample, 393 retirees participated at follow-up (retention rate = 91%). We were interested in examining recent retirees; therefore, we excluded participants who retired beyond two standard

deviations of mean ( $> 5.37$  years since retirement;  $n = 29$ ). In addition, we excluded 23 participants who did not report a life regret (6.31%) and 2 participants who did not complete all of the regret items. After excluding these participants, the final sample used in the analyses included 339 participants [Mean age = 59.07 ( $SD = 5.09$ ); Mean years retired = 1.39 ( $SD = .86$ ); Mean years of education = 14.99 ( $SD = 2.44$ ); Female participants = 54.00%]. For their participation (see Appendix D for informed consent), retirees received \$50 for each session.

### *Materials*

The main study variables included different aspects of participants' life regrets, activity levels, and emotional well-being. Table 1 presents the mean and Table 2 presents zero-order correlations between the main study variables. In addition, we assessed socio-demographic variables (see Appendix E).

*Regret.* At post-retirement, we asked participants to reflect on their lives and to record their most severe life regret (see Appendix F; for assessment of life regrets, see Wrosch et al., 2002, 2005, 2007). We also asked participants to report if this was a regret of omission or commission, and when the regretted event occurred. The majority of participants ( $n = 252$ , 74.34%) reported that their regret was one of omission (i.e., regret related to a behaviour that they had *not* done). Additionally, the participants reported that the regretted event occurred on average 23.86 years ago ( $SD = 13.18$ ). To describe the content of regrets, we coded regrets as pertaining to one of ten life domains (e.g., career, health, romance; adapted from Roese and Summerville, 2005). Inter-rater agreement, based on two independent raters, was adequate ( $K = .82$ ).

Table 1

*Means and Standard Deviations of Socio-demographic and Main Study Variables*

Variables	<i>M</i>	<i>SD</i>
Age	59.07	5.09
Education	14.99	2.44
Years since retirement	1.39	.86
Motivation to undo regret	2.83	1.44
Opportunity to undo regret	2.56	1.49
Maintenance Activities (pre-retirement)	3.53	.42
Maintenance Activities (post-retirement)	3.54	.36
Maintenance Activities (follow-up)	3.53	.40
Optional Activities (pre-retirement)	3.02	.43
Optional Activities (post-retirement)	3.19	.39
Optional Activities (follow-up)	3.19	.40
Positive Affect (post-retirement)	3.75	.68
Positive Affect (follow-up)	3.75	.64
Negative Affect (post-retirement)	1.53	.57
Negative Affect (follow-up)	1.59	.57

Table 2

*Zero-Order Correlations Between Motivation and Opportunity to Undo the Regret, Activity, and Emotional Well-being*

	1	2	3	4	5	6	7	8	9	10	11
1. Motivation to undo the regret	-										
2. Opportunity to undo the regret	.30**	-									
3. Maintenance activities (pre-retirement)	-.01	-.03	-								
4. Maintenance activities (post-retirement)	.01	-.09	.38**	-							
5. Maintenance activities (follow-up)	.06	-.07	.37**	.52**	-						
6. Optional activities (pre-retirement)	.02	-.02	.18**	.12*	.10	-					
7. Optional activities (post-retirement)	.10	.02	.16**	.24**	.23**	.55**	-				
8. Optional activities (follow-up)	.10	.02	.09	.13*	.24*	.46**	.64**	-			
9. Positive affect (post-retirement)	.05	.06	.08	.04	.02	.13*	.25**	.19**	-		
10. Positive affect (follow-up)	.09	.11	.08	.01	-.01	.21**	.28**	.27**	.70**	-	
11. Negative affect (post-retirement)	.09	-.09	.03	.01	.06	.04	-.04	-.03	-.20**	-.20**	-
12. Negative affect (follow-up)	.06	-.10	.06	-.03	-.03	-.04	-.05	-.09	-.11*	-.22**	.44**

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

We also assessed participants' motivation to undo their regret by asking them to rate their effort and commitment with two-items (i.e., How much effort do you invest in undoing the negative consequences of the event?; How strongly are you committed to undoing the negative consequences of the event?). Participants completed the ratings using 5-point Likert-type scales (endpoints: 1 = no effort at all, 5 = a lot of effort). The two items were significantly correlated,  $r(339) = .79, p < .01$  and we computed a mean score of the two items ( $M = 2.83; SD = 1.44; \alpha = .90$ ).

Finally, we assessed perceptions of opportunity to undo the regret by asking participants to rate their opportunity for undoing the negative consequences of their regretted events with two-items (e.g., How likely is it that the negative consequences of the event *can* in fact be undone?; How likely is it that the negative consequences of the event *will* in fact be undone?). Again, participants completed the ratings using 5-point Likert-type scales (endpoints: 1 = very unlikely, 5 = very likely). The two items were significantly correlated,  $r(339) = .82, p < .01$  and we computed a mean score of the two items ( $M = 2.56; SD = 1.49; \alpha = .88$ ).

*Activity.* The Everyday Activities Questionnaire (EAQ; Pushkar, Arbuckle, Conway, Chaikelson, & Maag, 1997) is a 23-item questionnaire that we used to measure retirees' participation in a broad range of activities. These activities can be divided into two categories: maintenance activities and optional activities. Maintenance activities ( $n = 5$ ) are obligatory activities involved in the maintenance of self and property (i.e., home activities, personal finances, driving, public transit use, and medical care), whereas optional activities ( $n = 17$ ) are activities of personal interest and investment (e.g., volunteering, entertaining, communicating, reading, traveling, physical activity,

helping)<sup>1</sup>. For the purposes of the current investigation, we examined the frequency of retirees' activities. We asked the participants to report how often they engaged in each activity using 5-point Likert-type scales (endpoints: 1 = not at all, 5 = three times or more per week). We computed a mean score for both maintenance and optional activities.

We asked participants to complete the EAQ three times. At their first point of participation, retirees completed the questionnaire by reporting their level of activity at 10 years prior to retirement (i.e., *pre-retirement*; maintenance:  $M = 3.53$ ,  $SD = .42$ ; optional:  $M = 3.02$ ,  $SD = .43$ ) and their current level of activity (i.e., *post-retirement*; maintenance:  $M = 3.54$ ,  $SD = .36$ ; optional:  $M = 3.19$ ,  $SD = .39$ ). To facilitate the recollection of pre-retirement activity, retirees were asked to reflect on their pre-retirement lifestyle (see Appendix F for instructions). At follow-up, participants again completed the questionnaire based on their current level of activity (i.e., *follow-up*; maintenance:  $M = 3.53$ ,  $SD = .40$ ; optional:  $M = 3.19$ ,  $SD = .40$ ).

*Emotional well-being.* We asked participants to complete the 20-item Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) to assess their levels of emotional well-being at post-retirement and follow-up. Ten of the items examined positive affect (e.g., interested, active, excited) and ten items examined negative affect (e.g., upset, irritable, distressed). Using 5-point Likert-type scales (endpoints: 1 = very slightly or not at all, 5 = extremely), the participants rated the extent to which they felt each item during the past few weeks. This questionnaire was completed both at post-retirement and follow-up, and we computed a mean score for both positive (post-retirement:  $M = 3.75$ ,  $SD = .68$ ,  $\alpha = .89$ ; follow-up:  $M = 3.75$ ,  $SD = .64$ ,  $\alpha = .89$ )

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<sup>1</sup> We excluded one item from the EAQ that examined how regularly the retirees received help from the analyses as it did not adequately represent either a maintenance or optional activity

and negative affect (post-retirement:  $M = 1.53$ ,  $SD = .57$ ,  $\alpha = .87$ ; follow-up:  $M = 1.59$ ,  $SD = .57$ ,  $\alpha = .87$ ).

## Results

### *Life Regrets in the Early Phases of Retirement*

To examine the nature of life regrets after the transition to retirement, we calculated the percentage and frequency of each regret domain, as well as the mean motivation and opportunity to undo the regret of each regret domain (see Table 3). The results suggest that regret is commonly experienced in professional domains (35.8%; i.e., education and career), as well as relationship-based domains (41.5%; i.e., romance, family, parenting). Less common regret domains include: leisure, finance, self and health (ranging between 2.4% and 5.6%).

In addition, we examined whether opportunities and motivation for undoing regrets would vary as a function of regret domain. To this end, we conducted two separate one-way ANOVAs, controlling for the socio-demographic variables as covariates. The results of the analyses showed that there was a significant difference between regret domains for motivation,  $F(9, 325) = 3.29$ ,  $p < .01$ ,  $\eta_p^2 = .08$ , but not opportunity,  $F(9, 325) = 1.33$ ,  $p = .22$ ,  $\eta_p^2 = .04$ . Results of post-hoc t-tests, examining mean differences in motivation are presented in superscript in Table 3. Retirees were more motivated to undo regrets of the self (e.g., “not having lived life more courageously”) when compared to the other regret domains; whereas retirees were less motivated to undo education and career regrets when compared to the other regret domains.



Table 3

*Descriptives of Regret Domains*

Domain	% (n)	Example	Motivation to undo regret M (SD)	Opportunity to undo regret M (SD)
Education	19.5 (66)	"Not having finished university"	2.49 (1.30) <sup>b</sup>	2.78 (1.56)
Career	16.2 (55)	"Taking an early retirement"	2.18 (1.22) <sup>b</sup>	2.33 (1.58)
Romance	15.3 (52)	"Getting married to the wrong person"	3.16 (1.50)	2.41 (1.52)
Family	14.7 (50)	"Putting my parents in a nursing home"	2.98 (1.55)	2.19 (1.34)
Parenting	11.5 (39)	"Not having given my son more attention"	3.04 (1.42)	2.42 (1.27)
Leisure	5.6 (19)	"Not taking the time to travel"	2.82 (1.45)	3.21 (1.31)
Finance	4.7 (16)	"Not saving more when I was younger"	3.31 (1.35)	3.28 (1.47)
Self	4.7 (16)	"Not having lived life more courageously"	3.69 (1.60) <sup>a</sup>	3.00 (1.67)
Health	2.4 (10)	"Not managing my weight"	3.55 (1.14)	2.55 (.98)
Other	4.7 (16)	"Not helping my neighbour in a time of need"	2.59 (1.40)	2.50 (1.60)

Note. <sup>a</sup>domain mean is *higher* than mean of all other domains,  $p < .05$ ; <sup>b</sup>domain mean is *lower* than mean of all other domains,  $p < .05$ .

In addition, we note that some of the covariates were significantly associated with participants' motivation and opportunity to undo their regrets. The results of the analyses showed a significant age effect for motivation,  $F(1, 325) = 5.37, p = .02, \eta_p^2 = .02$ , and opportunity,  $F(1, 325) = 14.91, p < .01, \eta_p^2 = .04$ . The older the participant, the lower the motivation ( $r = -.16, p < .01$ ) and opportunity to undo their regrets ( $r = -.22, p < .01$ ).

Additionally, we found a significant difference in opportunity for sex,  $F(1, 325) = 8.80, p < .01, \eta_p^2 = .03$ . Women perceived lower opportunities to undo their regrets than men ( $r = -.16, p < .01$ ). However, we obtained no sex difference in motivation, nor differences in motivation and opportunity when examining levels of education or years since retirement, all  $F$ s  $< 2.14$ , all  $p$ s  $> .05$ .

#### *Trajectories of Activity and Emotional Well-being*

We next examined the hypothesis that mean levels of optional activities (but not maintenance activities) would be higher in the early phases of retirement, as compared to pre-retirement. To test this hypothesis, we conducted a 3 (Time) X 2 (Activity Type) repeated measures analysis of variance (ANOVA), incorporating levels of optional and maintenance activity for pre-retirement, post-retirement, and follow-up as dependent variables. We also included age, sex, years of education, and years since retirement as covariates. The results of the analysis showed a significant main effect for both Time,  $F(2, 668) = 17.25, p < .01, \eta_p^2 = .05$ , and Activity Type,  $F(1, 334) = 344.96, p < .01, \eta_p^2 = .51$ . In addition, we found a significant interaction between Time and Activity Type,  $F(2, 668) = 24.02, p < .01, \eta_p^2 = .07$ .

Figure 1 illustrates the interaction effect by displaying the mean frequency of maintenance and optional activities across time. To further examine the nature of this

significant interaction, we conducted separate ANOVAs, examining the effect of Time for both maintenance and optional activities independently. In support of our hypotheses, these analyses demonstrated a significant effect of Time for optional activities,  $F(2, 668) = 45.34, p < .01, \eta_p^2 = .12$ , but not for maintenance activities,  $F(2, 668) = .03, p = .98, \eta_p^2 = .00$ . Post hoc analyses of optional activities showed that participants reported higher levels of optional activities at post-retirement ( $M = 3.19, SE = .02$ ), and follow-up ( $M = 3.19, SE = .02$ ), as compared to pre-retirement ( $M = 3.02, SE = 3.12$ ),  $t(338) > 7.25, ps < .01$ . However, there was no significant mean level difference between optional activities from post-retirement to follow-up,  $t(338) = .05, p = .95$ .

In addition, we note that some of the covariates were significantly associated with participants' levels of activity. Specifically, our analyses revealed that age and education were associated with participants' activity levels,  $F_s > 4.30, ps < .05, \eta_p^2_s = .01$ . The older the participant, the higher the level of maintenance activities ( $r = .13, p < .05$ ). In addition, the more educated the participant, the higher the levels of maintenance ( $r = .12, p < .05$ ) and optional activities ( $r = .11, p < .05$ ).

We next examined mean level differences in positive and negative affect across two measurement points (i.e., post-retirement and follow-up). To this end, we conducted a 2 (Time) X 2 (Affect Type) repeated measures ANOVA, incorporating levels of positive and negative affect at post-retirement and follow-up as dependent variables. We also included age, sex, years of education, and years since retirement as covariates. We found a significant main effect for Affect Type,  $F(1, 334) = 2215.90, p < .01, \eta_p^2 = .87$ . Levels of positive affect ( $M = 3.75, SE = .03$ ) were higher than levels of negative affect

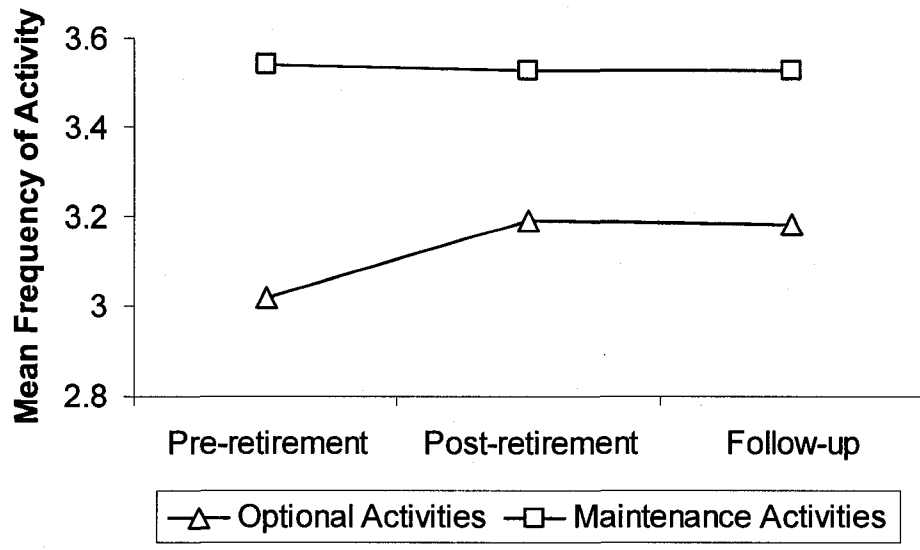


Figure 1. Mean frequency of activity (maintenance and optional) across time.

( $M = 1.56, SE = .03$ ). However, there was no effect for Time, nor was there an interaction between Time and Affect Type,  $F_s(1, 338) < 2.18, p > .05$ .

When examining the effects of the covariates, we found that sex was the only significant predictor and that sex was related to both positive and negative affect,  $F_s(1, 334) > 9.52, p_s < .01, \eta_p^2 s = .03$ . Women experienced higher levels of both positive affect ( $r = .16, p < .01$ ) and negative affect ( $r = .18, p < .01$ ) than men.

### *Life Regrets, Activities, and Emotional Well-Being*

To test the hypotheses that motivation and opportunity to undo regret can predict levels of optional (but not maintenance) activities at post-retirement and follow-up, we conducted separate hierarchical regression analyses for each type of activity at each measurement point. In separate analyses, we predicted the levels of optional activities and maintenance activities at post-retirement and follow-up as the outcome variables. In the first step of the analyses, we entered perceptions of previous activity level (i.e., we entered pre-retirement levels when examining post-retirement, and we entered post-retirement levels when examining follow-up). We controlled our analyses for previous levels of activities because results from these analyses represent the most conservative approach and the results are conceptually consistent with examining differences found in perceived activity levels between pre-retirement, post-retirement, and follow-up. We note that we additionally conducted parallel analyses that did not control for previous levels of activity, which are also reported below (see Footnotes 2 and 3).

In the second step, we tested the main effects of motivation and opportunity to undo the regret. In the final step, we entered the interaction terms between motivation and opportunity to undo the regret into the regression equations. We standardized all

predictor variables (except for the interaction term) prior to conducting the analyses, and we controlled all steps of the analyses for sex, age, education and years since retirement. The results of the regression analyses are presented in Table 4. The analyses showed that previous activity level was a significant predictor of both optional and maintenance activities at both post-retirement and follow-up,  $F_s(1, 337) > 57.60$ ,  $ps < .01$ ,  $R^2s > .14$ . High levels of earlier activities (e.g., pre-retirement) were associated with high levels of later activities (e.g., post-retirement).

The second step of the analyses showed that the main effects of motivation and opportunity to undo the regret did not predict levels of optional activities or maintenance activities at either post-retirement or follow-up,  $F_s(2, 331) < 1.99$ ,  $ps > .05$ ,  $R^2s < .01$ . However, in support of our hypotheses, we found a significant interaction between motivation and opportunity to undo the regret on levels of optional activity levels at post-retirement,  $F(1, 330) = 10.54$ ,  $p < .01$ ,  $R^2 = .02$ , but not on levels of maintenance activities at post-retirement,  $F(1, 330) = .52$ ,  $p = .47$ ,  $R^2 = .00$ . With respect to predicting follow-up levels of activities, the interaction between motivation and opportunity to undo regret predicted neither optional nor maintenance activities,  $F_s < .12$ ,  $ps > .73$ ,  $R^2s = .00^2$ .

To illustrate the significant interaction effect on post-retirement levels of optional activities, we plotted in Figure 2 the association between motivation to undo the regret and levels of optional activities at post-retirement, separately for participants who perceived high versus low opportunities for addressing their regrets (one standard deviation above and below the mean of the predictors, Aiken & West, 1991). The pattern

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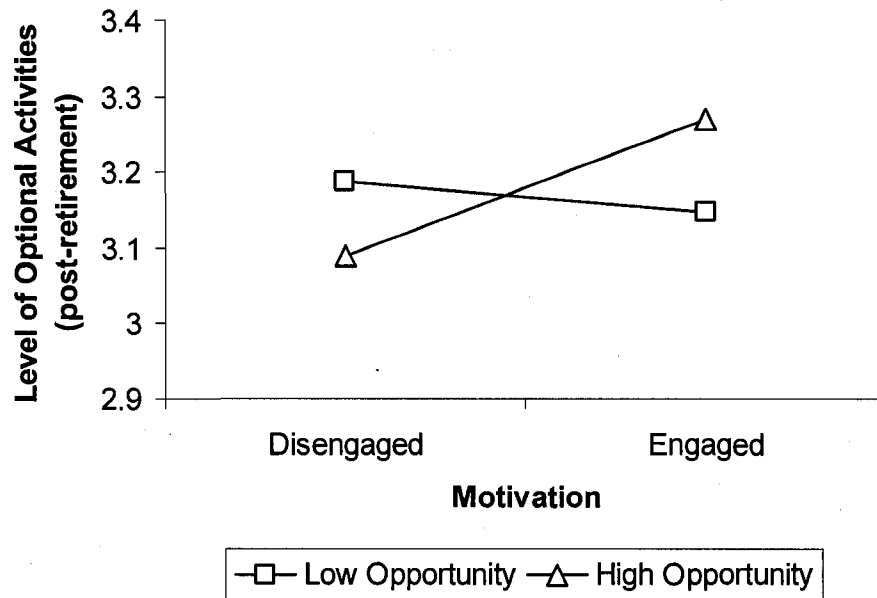
<sup>2</sup> We also examined the data without controlling for previous levels of activity. To this end, we obtained an interaction effect between opportunity and motivation to undo regret, that was identical to the previously reported analyses when examining optional activity levels at post-retirement and follow-up,  $F_s > .3.25$ ,  $ps < .07$ ,  $R^2s > .01$ . And, similar to previous analyses, life regrets were not associated with levels of maintenance activities at either post-retirement or follow-up,  $F_s < 2.92$ ,  $ps > .05$ ,  $R^2s < .01$ .

Table 4

*Summary of Hierarchical Regression Analyses Predicting Activity (Separately for Maintenance and Optional Activities) by Motivation and Opportunity to Undo the Regret and the Interaction between Motivation and Opportunity at both Post-retirement and Follow-up*

Predictors	<i>Post-retirement</i>				<i>Follow-up</i>			
	Maintenance activities		Optional activities		Maintenance activities		Optional activities	
	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta
Previous activity level	.14	.38**	.30	.55**	.27	.52**	.41	.64**
<i>Main effects</i>								
Motivation	.00	.07	.01	.09	.01	.07	.00	.03
Opportunity	.01	-.09	.00	.01	.00	-.03	.00	.02
<i>Interaction</i>								
Motivation X Opportunity	.00	.04	.02	.14**	.00	.00	.00	.02

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



*Figure 2.* Moderation between motivation and opportunity to undo the regret in predicting retirees' mean frequency of optional activities at post-retirement (results were controlled for socio-demographic variables and pre-retirement levels of optional activities).



of results indicates that high levels of post-retirement optional activities were found particularly among participants who were engaged in undoing their regrets and experienced favorable opportunities for undoing their regrets. A calculation of simple slopes supports this interpretation of the data by showing that being engaged in undoing regrets predicted high activity levels for retirees with favourable opportunities to undo their regret,  $\beta = .23$ ,  $p < .01$ , but not for retirees who reported unfavourable opportunities,  $\beta = -.05$ ,  $p = .42$ . Conversely, good opportunities predicted high activity levels among retirees who were engaged in undoing their regrets,  $\beta = .16$ ,  $p = .02$ , and low levels of activities among retirees who were disengaged from undoing their regrets,  $\beta = -.13$ ,  $p = .04$ .

Although the reported effects were independent of the incorporated covariates, we note that three of the socio-demographic control variables significantly predicted levels of optional activities at post-retirement,  $F_s(1, 334) > .3.94$ ,  $p_s < .05$ ,  $R^2_s > .01$ . The findings indicate that the more educated ( $\beta = .14$ ), and the longer the participants had been in retirement ( $\beta = .11$ ), the higher the levels of optional activities at post-retirement. In addition, women reported higher levels of post-retirement activities than men ( $\beta = .13$ ). Age was not related to levels of optional activities at post-retirement,  $F(1, 334) = .00$ ,  $p = .91$ ,  $R^2 = .00$ . Sex was the only socio-demographic variable that significantly predicted levels of optional activities at follow-up,  $F(1, 334) = 1.20$ ,  $p = .01$ ,  $R^2 = .02$ . With respect to predicting levels of maintenance activities at post-retirement, only age and education were significant predictor variables,  $F_s(1, 333) > 4.25$ ,  $p < .05$ ,  $R^2 > .01$ . Older retirees ( $\beta = .11$ ) and retirees with higher levels of education ( $\beta = .16$ ) reported higher levels of maintenance activities at post-retirement. Socio-demographic variables were not

significantly associated with maintenance activities at follow-up,  $F(4, 333) = 2.01, p = .09, R^2 = .02$ .

We next conducted a set of hierarchical regression analyses to examine if regret management also predicted levels of emotional well-being at post-retirement and follow-up. We conducted separate analyses for both positive and negative affect. When examining post-retirement levels, we conducted the regression in two steps. In the first step of the analyses, we tested the main effects of motivation and opportunity to undo the regret for significance. In the second step, we entered the interaction terms between motivation and opportunity into the regression equations. When examining follow-up levels, prior to the two steps mentioned above, we entered post-retirement levels of affect as an additional predictor variable. The analyses were additionally controlled for sex, age, education, and years since retirement.

The results of the regression analyses are presented in Table 5. The analyses showed that high levels of post-retirement levels predicted high levels of follow-up levels of both positive and negative affect,  $F_s(1, 333) > 75.17, p_s < .01, R^2_s > .18$ . The next step of the analyses showed that the main effects of motivation and opportunity to undo the regret did not significantly predict post-retirement or follow-up levels of positive or negative affect,  $F_s(1, 333) < 3.27, p_s > .05, R^2_s < .01$ . In the final step of the analyses, we found that the interaction between motivation and opportunity to undo the regret significantly predicted positive affect at post-retirement,  $F(1, 331) = 5.76, p = .02, R^2 = .02$ . However, the interaction between motivation and opportunity did not predict

negative affect at post-retirement,  $F(1, 331) = 1.42, p = .23, R^2 = .00$ , nor positive or negative affect at follow-up,  $F_s(1, 330) < .35, p_s > .05, R^2_s = .00^3$ .

To illustrate the interaction effect observed for predicting post-retirement levels of positive affect, we plotted in Figure 3 the association between motivation to undo the regret and positive affect at post-retirement, separately for participants who scored one standard deviation above and below the mean of perceived opportunities for undoing regrets. Similar to the above-reported findings for optional activities, the pattern of results suggests that high levels of positive affect were found particularly among participants who were engaged in undoing their regrets and reported favorable opportunities. A calculation of the simple slopes showed that motivation predicted high levels of positive affect for retirees with favourable opportunities to undo their regret,  $\beta = .15, p = .05$ , but not for retirees who experienced unfavourable opportunities,  $\beta = -.11, p = .17$ . Conversely, opportunity predicted high levels of positive affect for retirees who were engaged in undoing their regrets,  $\beta = .20, p = .01$ , but not for retirees who were disengaged from undoing their regrets,  $\beta = -.05, p = .48$ .

Although the reported effects were independent of the incorporated covariates, we note that sex was the only socio-demographic variable that significantly predicting affect levels at post-retirement and follow-up,  $F_s(1, 334) > 1.45, p_s < .01, R^2_s > .01$ . Women had higher positive affect ( $\beta_{\text{post-retirement}} = .17; \beta_{\text{follow-up}} = .14$ ) and negative affect ( $\beta_{\text{post-retirement}} = .18; \beta_{\text{follow-up}} = .12$ ) than men. Age, education, and years since retirement were not significantly associated with levels of emotional well-being.

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<sup>3</sup> We also examined the data without controlling for previous levels affect levels. To this end, we obtained the identical interaction effect as presented in the previous analyses when examining positive affect levels at follow-up,  $F(1, 331) = 3.60, p < .06, R^2 = .01$ . In addition, similar to previous analyses, aspects of life regrets were not associated with levels of negative affect at follow-up,  $F_s < 2.08, p > .05, R^2 < .01$ .

Table 5

*Summary of Hierarchical Regression Analyses Predicting Emotional Well-being (Separately for Positive and Negative Affect) by Motivation and Opportunity to Undo the Regret and the Interaction between Motivation and Opportunity at both Post-retirement and Follow-up*

Predictors	<i>Post-retirement</i>				<i>Follow-up</i>			
	Positive affect		Negative affect		Positive affect		Negative affect	
	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta	R <sup>2</sup>	Beta
Previous affect level	-	-	-	-	.48	.70**	.20	.44**
<i>Main effects</i>								
Motivation	.00	.02	.01	.10	.00	.05	.00	.04
Opportunity	.00	.07	.01	-.10	.01	.08	.00	-.06
<i>Interaction</i>								
Motivation X Opportunity	.02	.13*	.00	-.06	.00	.01	.00	-.03

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

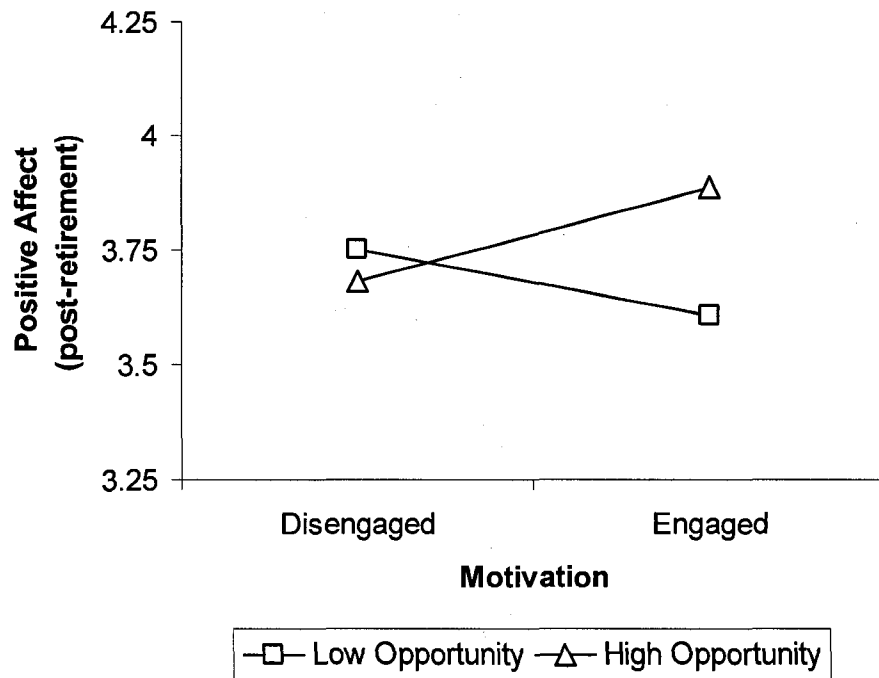


Figure 3. Moderation between motivation and opportunity to undo the regret in predicting retirees' mean level of positive affect at post-retirement (results were controlled for socio-demographic variables).

### *Analysis of Mediation*

The reported analyses have shown that high post-retirement levels of both optional activities and positive affect were found among participants who were motivated to undo the negative consequences of their regret when the opportunities are favourable. Because we had hypothesized that activity level may facilitate emotional well-being, we conducted a final set of analyses to examine whether the levels of optional activities at post-retirement can statistically mediate the interaction effect between motivation and opportunity to undo the regret on post-retirement levels of positive affect.

According to Baron and Kenny (1986), data are consistent with mediation if the predictor is significantly associated with both the mediator and the outcome, the mediator significantly predicts the outcome, and the effect of the predictor of the outcome is reduced or non-significant when the variance associated with the mediator is taken into account. Our previous analyses already documented support for some of these conditions by demonstrating that the interaction between opportunity and motivation to undo regret predicted both postretirement levels of activity level and positive affect. The standardized regression coefficients of these effects are illustrated in Figure 4. In addition, we note that the previously reported zero-order correlations documented that levels of optional activities at post-retirement were significantly associated with post-retirement levels of positive affect ( $r = .25, p < .05$ ; see Table 2).

To examine the final condition for testing mediation, we repeated the previously reported regression analyses for predicting postretirement levels of positive affect, and

statistically controlled the analysis for postretirement levels of optional activities.<sup>4</sup> As illustrated in parentheses in Figure 4, the results of this analysis showed that the relationship between the interaction effect and positive affect was rendered non-significant when controlling for levels of optional activities,  $F(1, 329) = 2.98, p = .09, R^2 < .01$ . By contrast, the effect of activity level on positive affect remained significant in this analysis (see effect of activity level on positive affect in Figure 4). In addition, we conducted a Sobel test, confirming that level of optional activities exerted a significant indirect effect on the association between the interaction effect of motivation and opportunity to undo the regret on post-retirement levels of positive affect,  $Z = 2.28, p = .02$ .

Finally, we reversed the mediation analyses to rule out the alternative explanation that positive affect at post-retirement could statistically explain the association between the interaction effect (of motivation and opportunity to undo the regret) and levels of optional activities at post-retirement. Different from the previously reported mediation analyses, the relation between the interaction effect and changes in optional activities remained significant after controlling positive affect,  $F(1, 330) = 10.54, p < .01, R^2 = .02$ . Together, these findings support our hypotheses by indicating that changes in optional activities can mediate the effect of regret on positive affect, and not vice versa.

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<sup>4</sup> Similar to the earlier analyses examining positive affect and pos-retirement activity, the mediation analysis controlled for socio-demographic variables, as well as previous activity level (i.e., pre-retirement optional activities).

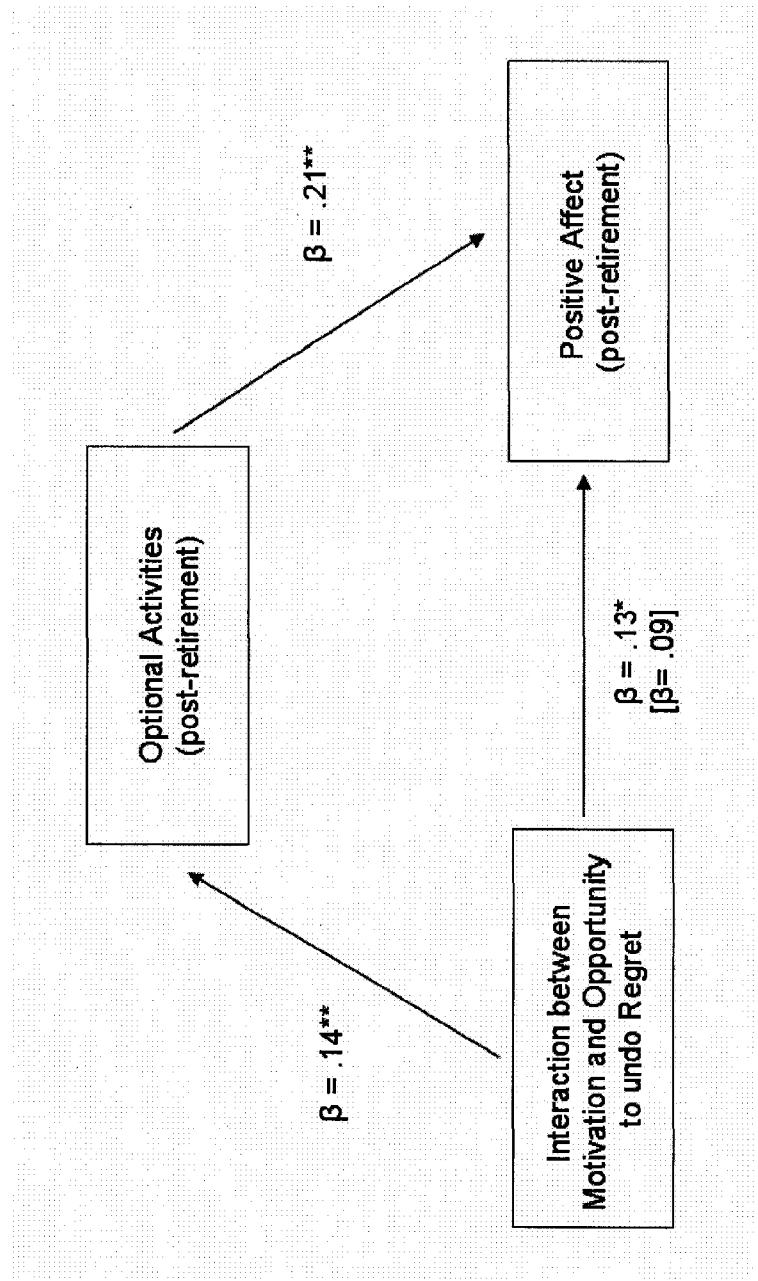


Figure 4. Summary of mediation analyses examining whether levels of optional activities at post-retirement would explain the moderation effect (between motivation and opportunity to undo regret) on positive affect at post-retirement (results were controlled for socio-demographic variables and pre-retirement levels of optional activities).



## Discussion

The current study investigated the effects of life regrets on activity engagement and emotional well-being among recent retirees. We were interested in exploring the domain and features of regret in the early stages of retirement. We were also interested in determining the pattern of engagement in maintenance (e.g., finances, cleaning) and optional (e.g., volunteering, socializing, helping, hobbies) activities from pre-retirement to post-retirement. We hypothesized that higher levels of optional activities would be found at post-retirement as compared to pre-retirement, whereas maintenance activities were expected to remain fairly stable. Finally, the main goal of our research was to examine if life regrets play an adaptive role in the levels of engagement in optional activities and emotional well-being following retirement. We hypothesized that this function of regret may be present particularly for those retirees who are both motivated to undo the consequences of their regret, and possess the opportunity to the undo the consequences. In addition, we hypothesized that the effects of life regrets on optional activity engagement may partially mediate levels of emotional well-being.

The first goal of the study was to explore the nature of life regrets reported by recent retirees. This exploration is important as there have been no previous studies examining the regrets experienced in this specific stage of life. The reported regrets reflect the types of regrets that have been found to be experienced by other age groups (see Roese & Summerville, 2005). The most commonly experienced regrets were those that are closely related to major developmental tasks in which people had great opportunity at some point in their lives (Summerville & Roese, 2005). Accordingly, professional domains (i.e., education and career) were reported the most frequently by the

retirees. However, the domain of ‘family’ (i.e., pertaining to one’s parents and/or siblings) was reported more frequently than predicted by previous research (e.g., Summerville & Roese, 2005). One reason for the prevalence of family-based regrets among this sample may be because retirees did not previously have the time (e.g., due to work-related constraints) to take care of their family members in times of need (e.g., illness, death).

When exploring the levels of motivation and opportunity to undo the negative consequences of the regret, we found that regrets are considerably heterogeneous. There was no difference between domains in terms of opportunities, which indicates that within different domains of life, regrets are heterogeneous with some having the opportunity to be undone, and other not. There were, however, differences between the domains for motivation. Retirees who possessed career and educational regrets reported lower motivation to undo their regret than other retirees. This may be because pursuits of education and career are not a normative task in old age and older individuals may consider less investing in this domain of life. In contrast, those who possessed regrets of the self (i.e., “I regret not living life more courageously”) reported a higher level of motivation. Regrets of the self may be particularly motivating because development of personality and self may be a normative task even in old age.

The second goal of this study was to examine participants’ levels of activity engagement in the transition to retirement. Similar to previous studies of activity engagement (e.g., Schindler et al., 2006; Schindler & Staudinger, 2008; Rousseau et al., 2005), we distinguished between optional (i.e., activities of personal interest and investment; e.g., reading, volunteering, traveling) and obligatory maintenance activities

(e.g., home activities, personal finances). We found that levels of optional activity levels were lower at pre-retirement, as compared with post-retirement and follow-up levels of optional activities, and there was no difference between post-retirement and follow-up levels of optional activities. In contrast, there was no difference in engagement in obligatory maintenance activities across all three time points. These results support our hypotheses by suggesting that, after leaving the workforce, retirees engaged in more activities of personal interest and investment, but did not engage in more obligatory activities. This is most likely the result of the newfound time and opportunity presented to individuals who are no longer constrained by a work schedule. Furthermore, our results suggest that engagement in optional activities may stabilize shortly after retirement as there was no continued increase in activities found in the later assessment.

Beyond activity engagement, we also examined the trajectory of emotional well-being. Specifically, we examined levels of both positive and negative affect. We found that levels of both positive and negative affect did not differ between the one-year span of post-retirement to follow-up. The stability of the trajectories of emotional well-being matched the stability of activities found after retirement and provide further support for the possibility that lifestyles and well-being become stable relatively shortly after the transition from work to retirement.

The third and major goal of the current study was to determine if life regrets play an adaptive role in the levels of optional activities after retirement. The results showed that while our regret measures were unrelated to post-retirement levels of engagement in obligatory maintenance activities, significant effects of regret on levels of optional activities were found. More specifically, after controlling for the level of engagement in

optional activities at pre-retirement, our analyses demonstrated that there was a significant interaction effect between opportunity and motivation to undo the regret. In support of the hypotheses, the obtained patterns suggested that retirees' experienced high levels of optional activities following retirement if they were motivated to undo the regret and they also perceived the opportunity to undo the regret as favourable.

Following our examination of post-retirement levels, we examined the influence of regret on follow-up levels of activity. After controlling for post-retirement levels of optional activities, we found that our regret measures were unrelated to changes in optional activity and maintenance activities from post-retirement to follow-up. However, when we did not control for the previous time period the analyses demonstrated that the interaction between opportunity and motivation to undo the regret was predictive of optional, but not maintenance, activities at follow-up. Moreover, the pattern of this interaction was identical to the findings of post-retirement optional activity levels. Specifically, retirees experienced high levels of optional activities if they were motivated to undo their regrets and they also perceived the opportunity to undo the regret as favourable. Together, these findings suggest that participants who were motivated and had the opportunity to undo their regrets reported higher levels of optional activity engagement at post-retirement and at follow-up. However, regret did not predict further changes in activity engagement following retirement. Specifically, regret did not predict the unique changes in activity at follow-up after controlling for post-retirement activity levels.

We were also interested in determining if regret would influence levels of emotional well-being. We found that regret was predictive of levels of positive affect at

post-retirement. Similar to the findings concerning optional activity engagement, the results suggest that the interaction between motivation and opportunity to undo the regret was predictive of high levels of positive affect. Retirees who were motivated to undo the negative consequences of the regret and who perceive there to be favourable opportunity had high levels of positive affect at post-retirement. In comparison, our regret measures were unrelated to negative affect at post-retirement.

When examining follow-up levels of emotional well-being and controlling for post-retirement levels, we found that our regret measures were unrelated to both changes in positive and changes in negative affect. However, when we did not control for the previous time period, we again found the similar interaction effect (between motivation and opportunity to undo regret) on follow-up positive affect levels as was observed when examining post-retirement positive affect levels. Again, high levels of positive affect were experienced if the retirees were motivated to undo the regret and the opportunities were perceived as favorable.

Beyond their relationship with regret, we also observed a relationship between activity levels and emotional well-being. Specifically, engagement in optional activity (at all three time points) was positively related to positive affect (at both post-retirement and follow-up). Therefore, the higher the level of optional activity, the higher the level of positive affect. In comparison, activity engagement (both maintenance and optional) was unrelated to levels of negative affect. Support for these findings can be found in previous research exploring the correlates of positive and negative affect. For example, Watson (1988) found that negative affect was related to somatic complaints and self-reported stress, whereas positive affect was found to be related to social engagement (e.g., amount

of time spent socializing with friends). Indeed, our findings support that engagement in activities of personal interest and investment (i.e., optional activities) is related to levels as positive affect.

Considering the similar interaction effect between motivation and opportunity to undo the regret on both optional activity engagement and positive affect, and the previously documented effects of active behaviours on positive affect (Watson, 1988), we had hypothesized that engagement in optional activities may mediate the relationship between regret and positive affect. This hypothesis was supported. After controlling for level of optional activities at post-retirement, we found that regret was not directly linked to positive affect at post-retirement. Instead, the level of optional activities partially mediates the relationship between regret and positive affect at post-retirement. This conclusion was further supported by a significant indirect effect, indicating that regret can facilitate high levels of engagement in optional activities and thereby promote high levels of subjective well-being.

The finding that regret can influence the level of engagement in optional activities among recent retirees is important because it advances our understanding of the differential roles played by regret for successful development in old age. In this regard, previous research has reported on the dysfunctional nature of regret and the psychological and physical complications experienced among adults who hold regret in old age (e.g., Wrosch et al., 2005). The dysfunctional role of regret in old age has been primarily linked to the decreased opportunity to undo the regret. However, not only is retirement a stage in life where opportunity and time is made available, but there is also substantial individual differences in people's perception for undoing their regrets, regardless of age (Bauer &

Wrosch, 2008). Therefore, our finding that retirees can benefit from pursuing their regret (when opportunities are available) is novel and illuminates pathways to developing an active lifestyle in old age. In addition, it is consistent with the literature on the adaptive value of regret on new goals and behaviour among younger adults (Epstude & Roese, 2008).

A second reason why the finding that regret is related to optional activity engagement is important is because of the implications activity engagement has on quality of life. Participation in activities provides structure and continuity to one's life, which is especially important considering the loss of community that may be experienced when individuals leave the work-force. Indeed, engagement in activities of personal interest has been found to increase adjustment to retirement, and retirement satisfaction (Butrica & Schaner, 2005; Morrow-Howel et al., 2003). Additionally, engagement in a larger variety of activities may be protective against adverse physical and health consequences during times of stress (Linville, 1987) such as retirement. In this regard, our findings suggest that the experience of regret can influence engagement in optional activities, which in turn influences positive affect. Therefore, our research highlights a pathway to successful aging as observed specifically in the stage of retirement. However, it is likely that this beneficial pathway may be present throughout the lifespan.

#### *Limitations and Future Directions*

While this study demonstrated the adaptive role of regret among a sample of recent retirees, this research is not without its limitations. First, we note that although the study took advantage of a longitudinal approach, the retirees were only followed for one year. Subsequently, our finding that activity engagement and emotional well-being were

stable between post-retirement and follow-up needs to be interpreted with caution. To substantiate this conclusion, future research should examine the trajectories of activity and emotional well-being across a longer time period.

Second, we note that pre-retirement levels of activity engagement were collected retrospectively. Thus, there may be problems with the validity of the pre-retirement activity level data due to potential memory biases. However, if a memory bias was present (e.g., a bias to diminish the level of activity engagement at pre-retirement), we would expect to observe this bias in both the reported level of maintenance and optional activities. Given that we found that optional activity at post-retirement was higher than pre-retirement levels, but that maintenance activity did not differ between pre- and post-retirement, we feel it is rather unlikely that there was a memory bias when reporting pre-retirement activity levels. In addition, we made efforts to improve the validity of the pre-retirement data by asking participants to engage in reflection prior to completing the pre-retirement reports. Moreover, we note that a limitation of many studies on retirement is the reliance on cross-sectional data that does not allow for the consideration of pre-retirement states (Kim & Moen, 2001). In this regard, the retrospective pre-retirement data allowed us, at least, to control for previous levels of activity engagement when examining post-retirement levels. We controlled our analyses for previous activity levels so to take a conservative approach to examining current activity levels, although we note that the pre-retirement data was retrospective. In a similar vein, we note that our study did not include pre-retirement levels of positive and negative affect. Therefore, our examinations of current levels of emotional well-being could not be controlled for pre-retirement levels. Although we feel confident in the validity of our measures, future



research should replicate the obtained findings by assessing current activity levels and emotional well-being prior to the date of retirement and replicate the obtained pattern of findings.

Third, we note that participants had to report their activity engagement by responding to a list of predetermined activities. Therefore, this list may have excluded certain activities experienced by the retirees. However, the participants had the opportunity to report an additional activity that was not currently on the list. Additionally, the list of selected activities was derived from previous examinations of common activities among older adults (see Pushkar et al., 1997; Arbuckle, Pushkar, Chaikelson, & Lapidus, 1994). Moreover, we were consistent with our examination of activity engagement by using the same list of activities for all three time periods. However, future research should replicate the obtained findings by taking alternative approaches to activity measurement. For example, a larger list of activities could be assessed, or participants could complete daily activity diaries.

Finally, while our theoretical orientation assumed that the effects of regret on activity and well-being would occur through the formation of goals, the current study did not assess goal formation. Considering that we found that some retirees benefit from regret by demonstrating high levels of optional activity engagement when they are motivated to undo the regret and opportunities are favourable, we would also expect those same retirees to demonstrate new goal formation. Future research should explicitly examine the formation of new goals, and determine if the findings reported here can be explained by the formation of new goals. Research along these lines could identify the

psychological factors that contribute to the formation of new meaningful goals among retirees and illuminate pathways to a more active and happier life in old age.

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## APPENDIX A

### Recruitment Letter #1

#### **RECRÉER SA VIE PENDANT LA RETRAITE**

*Une étude réalisée par l'Université Concordia  
avec la Coopération d'Hydro-Québec*

Aux membres de la communauté des retraités d'Hydro-Québec,

Comment vivez-vous votre retraite? Comment les retraités peuvent-ils demeurer en santé et maintenir un style de vie indépendant et satisfaisant? Une équipe de chercheurs du Centre de recherche en développement humain de l'Université Concordia sollicite la coopération des retraités d'Hydro-Québec pour une nouvelle étude sur la façon dont les gens reconstruisent leur vie après la prise de la retraite. Cette recherche se propose d'examiner l'influence des antécédents personnels, des caractéristiques psychologiques et économiques, du fonctionnement cognitif, de la santé, et de la disponibilité de soutien sur le style de vie des personnes retraitées.

Si vous avez pris votre retraite en 2003, 2004 ou 2005 et que vous avez travaillé pendant au moins 20 ans, nous vous invitons à participer à notre recherche. Vous recevrez une compensation monétaire de 50\$ pour une entrevue qui durera environ trois heures pendant laquelle vous remplirez divers questionnaires et aurez l'opportunité de discuter avec d'autres personnes retraitées. Les entrevues auront lieu au campus Loyola, dans le quartier Notre-Dame-de-Grâce, et se dérouleront en français ou en anglais, selon votre préférence. Puisque nous prévoyons effectuer un suivi, nous vous inviterons également, si vous le désirez, à prendre part à une entrevue annuelle en 2006, 2007 et 2008.

Toute l'information recueillie demeurera strictement confidentielle. Un rapport global basé sur l'ensemble des informations recueillies auprès de tous les participants sera rédigé à votre intention. Dans ce rapport nous fournirons un profil du fonctionnement des retraités d'Hydro-Québec dans leur ensemble, y compris de leur santé, de leurs activités, de leur contexte de vie et de leur satisfaction.

Si vous voulez participer, ou si vous désirez avoir plus d'information, veuillez communiquer avec Sarah Etezadi ou Erik Chevrier par téléphone: **(514) 848-2424, poste 2258** ou par courrier électronique: **retraite@alcor.concordia.ca** .

En espérant vous rencontrer bientôt.

Dolores Pushkar, Ph.D.

Professeure et Directrice de Recherche

Laboratoire de recherche sur le vieillissement  
Centre de recherche en développement humain  
Université Concordia (PY-05)

## APPENDIX B

### Recruitment Letter #2

## RECRÉER SA VIE PENDANT LA RETRAITE

*Une étude réalisée par l'Université Concordia  
et les Instituts de Recherche en Santé du Canada.*

Comment vivez-vous votre retraite? Une équipe du Centre de Recherche en Développement Humain de l'Université Concordia sollicite présentement la coopération des retraités d'Hydro-Québec pour une étude sur la façon dont les gens réorganisent leur vie après la prise de la retraite.

- ✦ Vous recevrez une compensation monétaire de 50\$ pour une entrevue qui durera environ trois heures pendant laquelle vous remplirez divers questionnaires.
- ✦ Les entrevues auront lieu au campus Loyola, dans le quartier Notre-Dame-de-Grâce à Montréal, au moment qui vous conviendra le mieux.
- ✦ Vous aurez la possibilité, si vous le désirez, de participer jusqu'à quatre entrevues (une par année).
- ✦ Toute l'information recueillie demeurera strictement confidentielle.
- ✦ Un rapport global basé sur l'ensemble des informations recueillies auprès de tous les participants sera rédigé à votre intention.
- ✦ Les résultats de cette recherche seront présentés à la communauté scientifique internationale afin de contribuer à l'amélioration de l'expérience de la retraite pour les prochaines générations.

*Vous voulez participer? Vous voulez plus d'information?*

**Contactez Sarah Etezadi ou Erik Chevrier :**  
**514-848-2424, poste 2258**  
**[retraite@alcor.concordia.ca](mailto:retraite@alcor.concordia.ca)**

Laboratoire de recherche sur le vieillissement  
Centre de Recherche en Développement Humain  
7141 rue Sherbrooke Ouest (PY-05), Montréal, QC H4B-1R6



APPENDIX C

Recruitment Advertisements



## Are you recently retired?

Concordia's Centre for Research in Human Development is presently seeking individuals who have retired within the last two years to participate in a study on the retirement experience. Participants will receive \$50.00.

For further information,  
contact Sarah or Erik:  
848-2424 ext.2258  
retraite@alcor.concordia.ca



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## Avez-vous récemment pris votre retraite ?

L'Université Concordia recherche des personnes qui ont pris leur retraite au cours des deux dernières années pour participer à une étude sur l'expérience de la retraite. Les participant(e)s recevront 50 \$.

Pour davantage d'information,  
veuillez contacter Sarah ou  
Erik :848-2424 ext.2258  
retraite@alcor.concordia.ca



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## APPENDIX D

### Consent Form

This is to state that I agree to continue my participation in the retirement study being conducted by Drs Pushkar, Conway, Li and Wrosch from the Centre for Research in Human Development and the Department of Psychology at Concordia University.

I have been informed that:

1. My participation in this study entails my completing a battery of questionnaires, including questionnaires about the activities I do, my physical health, as well as about various life domains including my well-being, memory, cognition and my attitudes.
2. All information about me or any other person will remain completely confidential. Results from this study will be accessible only to the researchers involved in this study. They will be able to use the information for scientific purposes, such as for publications in scientific journals or presentations at scientific conferences, as long as I cannot be identified as a participant in this study.
3. I am free to withdraw my consent and discontinue my participation at any time without negative consequences.
4. This interview should last approximately four hours. I will receive a monetary compensation of \$50 for the four hours.
5. Because this is a longitudinal study, I may be contacted again for an annual interview in 2006. Each annual interview will last approximately four hours. I will receive \$50 for each annual interview in which I will take part.
6. I understand the purpose of this study; I know that there is no deception involved.
7. The person in charge of this study is Dr. Dolores Pushkar. She can be reached at (514) 848.2424, extension 7540, e-mail: [retraite@alcor.concordia.ca](mailto:retraite@alcor.concordia.ca).

I HAVE CAREFULLY STUDIED THE ABOVE AND UNDERSTAND THIS AGREEMENT. I FREELY CONSENT AND VOLUNTARILY AGREE TO PARTICIPATE IN THIS STUDY.

Name (please print) \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

Witness \_\_\_\_\_

*If at any time you have questions about your rights as a research participant, please contact Adela Reid, Research Ethics and Compliance Officer, Concordia University, at (514) 848-2424, extension 7481 or by email at [areid@alcor.concordia.ca](mailto:areid@alcor.concordia.ca).*

APPENDIX E

**Socio-demographic Questionnaire**

ID# \_\_\_\_\_

Date \_\_\_\_\_

1. What is your sex? Male \_\_\_\_\_ Female \_\_\_\_\_
2. What is your date of birth? Year \_\_\_\_\_ Month \_\_\_\_\_ Date \_\_\_\_\_
3. What is your age? \_\_\_\_\_
4. What is the highest level of education you have completed? (please circle that which corresponds best)

Primary School :	1	2	3	4	5	6
Secondary School :	7	8	9	10	11	12
CEGEP/College :	Diploma					
University :	Bachelor's	Master's	Doctorate			
Other (please indicate what, how many years)	_____					

5. What was your occupation?  
\_\_\_\_\_
6. When did you retire? Year \_\_\_\_\_ Month \_\_\_\_\_  
Date \_\_\_\_\_
7. How many years were you employed?  
\_\_\_\_\_
8. Do you receive a pension from your employer? Yes \_\_\_\_\_ No \_\_\_\_\_

9. At the time of your retirement, what was your annual salary?

\_\_\_\_\_

10. What is your present annual income (include all sources, e.g. RRSP's, etc.)?

\_\_\_\_\_

11. What is your total family income from all sources?

\_\_\_\_\_

12. Compared to other people of your age that you know, how would you rate your financial situation? (please circle the corresponding number)

- a. A lot worse than most
- b. Worse than most
- c. A little worse than most
- d. About the same as most
- e. A little better than most
- f. Better than most
- g. A lot better than most

## APPENDIX F

### **Everyday Activities Questionnaire: Pre-retirement Instructions**

We'd like you to think back to the period before you retired. How old were you 10 years before your retirement? Take some time to remember your life at that age. What year was it? Think about the place where you lived. Was it the same place as today? With whom did you live? Your spouse? Possibly your children? Somebody else? What did you do at your job ten years before you retired? What did you do when you were not working? We'd like you to take a few more seconds to think about your daily life back then. Think about the activities that were essential or important to you at that time, the activities in which you took pleasure or which you were good at.

We'd like to know more about how you spent your time at that age. Naturally, there were certain activities that everyone did, for example, eating and so on, but we'd like to know more about the other things you did in your daily life.

## APPENDIX G

### Life Regret Questionnaire

People make a lot of important decisions during their lives and they sometimes think that they should have done something differently than they did. For example, a person may believe that she/he would be better off today if she/he had behaved in a different way in the past. In such situations, people might regret their behaviours. In addition, they often want the negative consequences of their behaviours to be undone.

Life regrets might result from things that people have done (e.g., having pursued a fruitless goal) and from things that people have not done (e.g., not having pursued a certain goal) across a number of different life domains (e.g., work, family, spouse, health). Regrets are related to decisions in people's daily lives (e.g., not having visited a friend) and to people's long-term development (e.g., having pursued inappropriate career goals).

Please think for a moment about your life. Is there anything in your life that you regret having done or not having done? **Please think about your regrets and write down your most severe life regret.**

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**1. We would like to ask you some specific questions concerning the regret that you have noted.**

1. Does the regret that you have noted relate to a behaviour:

- that you have done  
 that you have *not* done

2. When did the behaviour occur that has lead to the regret?

(please try to indicate the exact number of months and years ago that the event occurred)

\_\_\_\_\_ months ago

\_\_\_\_\_ years ago

3. How likely is it that the negative consequences of the event can in fact be undone?

**Very Unlikely**

**Very Likely**

1

2

3

4

5

4. How likely is it that the negative consequences of the event will in fact be undone?

**Very Unlikely**

**Very Likely**

1

2

3

4

5

5. How much effort do you invest in undoing the negative consequences of the event?

**No effort at all**

**A lot of effort**

1

2

3

4

5

6. How strongly are you committed to undoing the negative consequences of the event?

**No effort at all**

**A lot of effort**

1

2

3

4

5