

Worry in Late Adulthood: Developmental Perspectives on
Content, Frequency, and Worry Proneness

Paul Basevitz

A Thesis

in

The Department

of Psychology

Presented in Partial Fulfilment of the Requirements
for the Degree of Doctor of Philosophy at
Concordia University
Montreal, Quebec, Canada

June 2003

© Paul Basevitz, 2003



National Library
of Canada

Acquisitions and
Bibliographic Services

395 Wellington Street
Ottawa ON K1A 0N4
Canada

Bibliothèque nationale
du Canada

Acquisitions et
services bibliographiques

395, rue Wellington
Ottawa ON K1A 0N4
Canada

Your file Votre référence

Our file Notre référence

The author has granted a non-exclusive licence allowing the National Library of Canada to reproduce, loan, distribute or sell copies of this thesis in microform, paper or electronic formats.

The author retains ownership of the copyright in this thesis. Neither the thesis nor substantial extracts from it may be printed or otherwise reproduced without the author's permission.

L'auteur a accordé une licence non exclusive permettant à la Bibliothèque nationale du Canada de reproduire, prêter, distribuer ou vendre des copies de cette thèse sous la forme de microfiche/film, de reproduction sur papier ou sur format électronique.

L'auteur conserve la propriété du droit d'auteur qui protège cette thèse. Ni la thèse ni des extraits substantiels de celle-ci ne doivent être imprimés ou autrement reproduits sans son autorisation.

0-612-85258-X

Canada

Abstract

Worry in Late Adulthood: Developmental Perspectives on Content, Frequency, and Worry Proneness

Paul Basevitz, Ph.D.

Concordia University, 2003

The goals of this research were to generate a better understanding of worry themes that may be common in late adulthood, to determine the extent to which older adults experience worry and related processes, and to better understand factors associated with worry proneness among seniors. In Study 1, a sample of community dwelling older adults were asked to monitor and to record their worry themes in a seven-day worry diary. Study 2 investigated the hypothesis that older adults would show age-related reductions in worry via both retrospective reports of changes in worrying during adulthood and through cross-sectional age comparisons with a sample of younger adults. This study also sought to determine whether age differences would be evident in processes related to worry including: intolerance of uncertainty, erroneous beliefs in the functional value of worry, a tendency to monitor threat and to interpret ambiguous situations as threatening, and to engage in over-elaborated worry thought sequences. Study 3 investigated the extent to which older adults showing high levels of worry have difficulty adapting their coping efforts when faced with life stressors that are perceived as relatively uncontrollable. The findings showed that health-related worries were the most commonly reported worry themes in late adulthood as evidenced by responses on the worry diary and on a standardized worry checklist. Nonetheless, the worry diary also showed that other commonly reported worries among these older adults were not

specifically related to the challenges associated with aging and included concerns about social relationships and everyday activities. Worries about death and loneliness were uncommon. Support was found for the hypothesized age-related reduction in worry frequency in both retrospective reports of the older sample and via cross-sectional age comparisons. Age differences were also observed in worry-related processes including intolerance of uncertainty, erroneous beliefs in the functional value of worrying, and in the tendency to engage in worry thought sequences, each showing reduced frequency among older adults compared with younger adults. Finally, evidence was found that high levels of worry among older adults were associated with difficulty disengaging from problem solving efforts when faced with relatively uncontrollable life stressors. The findings indicate that the developmental course of worry is characterized by both continuities and discontinuities from earlier stages of adult development and suggest a need for more refined research on changes and stability in worry-related processes throughout adulthood.

Acknowledgements

Graduate studies in psychology has provided me with the privileged opportunity of gaining insight into human experience, which has not only opened the door to an exciting career, but has also fostered profound personal growth. This would not have been possible without the support, commitment and encouragement of my research supervisor and mentor, Dr. Dolores Pushkar, who believed in me from the beginning. Dr. Pushkar's expertise, guidance, and respect for my ideas, has helped to foster my development as an autonomous researcher. Additionally, I gratefully acknowledge Dr. Michael Conway and Dr. Michel Dugas, whose comments and ideas have had a substantial impact on the direction of this project. I would also like to thank Connie Dalton, who collaborated with me in collecting the data, as well as the many undergraduate students and research assistants who contributed to this and other research projects throughout my graduate studies. I would particularly like to acknowledge Iwona Czechowska, Cindy Newton, and Lindsay Uman, who each contributed to the data coding process. Thanks as well to Claude Senneville, for his skilled management of the data set. Finally, I thank our research participants who graciously volunteered for these studies and without whom this project would not have come to fruition.

I gratefully acknowledge the Conseil Québécois de la Recherche Sociale whose scholarship funds helped to support my graduate studies. This research was funded by a team grant from the Fonds pour la formation de Chercheurs et L'Aide à la Recherche (FCAR).

On a personal level, I would like to thank my parents, Ellis and Debbie, and my sister, Andrea, whose love, support, and encouragement helped me to fulfill my ambition

of becoming a psychologist. The friendships that I have formed throughout graduate school have helped to make this process stimulating, fun, and rewarding. Among these people, I found my closest friend, respected colleague, and life partner, Jennifer Karp. Thank-you Jen, for your unconditional love, support, and encouragement, and for your unfailing ability to put a smile on my face. The completion of this work and the start of our careers represent the beginning of a new phase in our life's journey. I dedicate this work to our future together.

Table of Contents

	Page
List of Figures	xii
List of Tables	xiii
Introduction	
Overview	1
The Construct of Worry	3
Worry in Late Adulthood	5
Correlates of Worry in Older Adults	5
Worry Themes in Late Adulthood	7
Age-Related Decreases in Worrying	13
Emotion and Aging	18
Emotional Regulation and Worry in Late Adulthood	22
Possible Changes in Worry-Related Features: Links with	
Emotional Regulation and Aging	23
Intolerance of Uncertainty	23
Beliefs about the Functional Value of Worrying	26
Information Processing Biases and Worry	27
Worry Proneness in Late Adulthood	33
Adaptation to Less Controllable Life Events in Late Adulthood	36
Coping	39
Goodness of Fit Models of Coping	40
The Present Research	44
Objective 1 (Study 1)	45
Objective 2 (Study 2)	45
Objective 3 (Study 3)	45
Participants	46
Older Sample #1	46
Older Expanded Sample #2	47
Younger Comparison Sample	49
Study 1: Multi-Modal Assessment of Worry Themes in Late Adulthood	53
Hypothesis 1	55
Hypothesis 2	55
Hypothesis 3	55
Hypothesis 4	56
Hypothesis 5	56
Method	57
Participants	57
Measures	57
Demographic Variables	57

	Trait Worry	58
	Content-Based Measure of Worry	59
	Worry Diary	60
Procedure		62
Results		63
Worry Themes in Late Adulthood: A Descriptive Analysis		64
Assessment of WD Content		64
Assessment of WS-R Content		67
Summary of Worry Content Assessment		70
Non-Classifiable WD Content		70
Did the WD Measure Worry?		71
Disturbance Associated with WD Worries		71
Correlational Analyses		73
Discussion		78
Did the WD Adequately Measure Naturally Occurring Worries?		78
Multi-Method Assessment of Worry Content		82
Implications for Researchers and Clinicians		84
Limitations and Direction for Future Research		85
Study 2: Age-Related Changes in Worry		87
Hypothesis 1		89
Hypothesis 2		89
Hypothesis 3		89
Method for Section 1: Age-differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying		90
Participants		90
Measures		91
Demographic Variables		91
Changes in Worrying Interview		91
Trait Worry		93
Intolerance of Uncertainty		94
Beliefs about Worry		94
Method for Section 2: Age Differences in Attention to Threat, Interpretation of Ambiguity, and the Tendency to Engage in Worry		
Thought Sequences		95
Participants		95
Measures		96
Demographic Variables		96
Information-Seeking Style		96
Perception of Ambiguous Situations		96
Worry Thought Sequences		100
Worry Interview Procedure		101
Topic Generation Phase		101
Practice Phase		101
Topic Selection and Interview Phase		102
Interview Scoring Procedures		103

General Procedure	104
Results for Section 1: Age-Differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying	106
Data Screening	106
Retrospective Reports of Changes in Worrying	106
Age Differences in Worry, Intolerance of Uncertainty, and Beliefs about Worry	111
Results for Section 2: Age Differences in Attention to Threat, Interpretation of Ambiguity, and the Tendency to Engage in Worry Thought Sequences	116
Replication of Age Difference In Trait Worry and Demographic Variables	116
Age Differences in Attention to Threat and Interpretation of Ambiguity	117
Age Differences in the Tendency to Engage in Worry Thought Sequences	123
Age Differences in the Tendency to Engage in Worry Thought Sequences in a Sub-Sample of Participants Matched by Worry Topic	129
Discussion	136
Evidence for an Age-Related Decrease in Worrying	136
Reasons for Perceived Changes in Worry	137
Age Difference in Features Associated with Worry	139
Summary and Conclusion	146
Limitation and Direction for Future Research	146
Clinical Implications	148
Study 3: Worry Proneness in Late Adulthood and Adaptation to Stress	149
Hypothesis 1	153
Hypothesis 2	154
Method	154
Participants	154
Measures	155
Demographic Variables	155
Trait Worry	155
Content-Based Measure of Worry	155
Situational Coping	156
Situational Appraisal	157
Procedure	158
Results	159
Data Screening	158
Data Reduction	160
The COPE	160
Worry Scales	165
Correlation Between Worry and Coping	165

Test of the Goodness of Fit Hypothesis Using Absolute Coping Indices	167
Inter-Correlation among the Variables	167
Multiple Regression Analyses	168
Test of the Goodness of Fit Hypothesis Using Relative Coping Indices	179
Inter-Correlation among the Variables	179
Multiple Regression Analyses	183
Correlations Between Coping, Appraisal, and Demographic Variables	192
Discussion	193
Worry and Coping Behaviour	194
The Goodness of Fit Hypothesis	194
Clinical Implications	198
Limitations and Direction for Future Research	199
Summary and Conclusion	201
General Discussion and Conclusion	203
References	206
Appendix A: Consent Form for Older Sample #1	220
Appendix B: Consent Form for Older Expanded Sample #2	222
Appendix C: Consent Form for Younger Sample	224
Appendix D: Demographic Rating Scales	226
Appendix E: Penn State Worry Questionnaire	228
Appendix F: Worry Scale – Revised	230
Appendix G: Worry Diary Instructions and Sample Day	238
Appendix H: Worry Diary Coding System	243
Appendix I: Data Screening for Study 1	249
Appendix J: Intolerance of Uncertainty Scale	253
Appendix K: Why Worry Scale	256
Appendix L: Miller Behavioural Style Scale	259
Appendix M: Ambiguous-Unambiguous Situations Diary	264

Appendix N: “Catastrophizing” Interview Forms	271
Appendix O: Data Screening for Study 2	276
Appendix P: The COPE	281
Appendix Q: Situational Appraisal Measure	289
Appendix R: Data Screening for Study 3	293
Appendix S: Hierarchical Multiple Regressions Predicting Absolute and Relative Problem-Focused Coping, after Co-varying Gender, Financial and Health Status	296

List of Figures

	Page
Figure 1 Percentage perceiving increased, decreased, and stability in worry frequency ($n = 110$).	108

List of Tables

	Page	
Table 1	Demographic Profile of Older Sample #1 ($N = 111$)	48
Table 2	Demographic Profile of Expanded Older Sample #2 ($N = 149$)	50
Table 3	Demographic Profile of the Younger Sample ($N = 106$)	51
Table 4	Frequency of Specific Worry Themes Indicated on the Seven-Day Worry Diary ($N = 95$)	65
Table 5	Frequency of Broad Worry Themes on the Seven-Day Worry Diary ($N=95$)	68
Table 6	Mean Item Scores on the WS-R and Percentage of Participants Reporting Scale Items Once or More Per Week ($N = 111$)	69
Table 7	Disturbance Associated Most Disturbing Worries of the Day on the Worry Diary ($N = 83$)	72
Table 8	Correlations Between Worry Diary Frequencies and Worry Questionnaires, Life Situational Factors, and Worry Diary Disturbance ($n = 95$)	76
Table 9	Correlations Between Worry Indices and Demographic Variables	79
Table 10	Reasons for Perceived Changes in Worrying	110
Table 11	Correlations Among PSWQ, IUS, WWS, and Demographic Variables	112
Table 12	Means Scores on PSWQ, IUS, and WWS in Younger and Older Samples	115
Table 13	Correlations Among Information Processing Questionnaires, PSWQ, and Demographic Variables in Younger Sample	119
Table 14	Correlations Among Information Processing Questionnaires, PSWQ, and Demographic Variables in Older Sample	120
Table 15	Means Scores on Information Processing Style Questionnaires in Older and Younger Samples	122

Table 16	Frequency of Target Worry Themes for Catastrophizing Interview in Older and Younger Samples	124
Table 17	Correlations Among Catastrophizing Interview Variables, PSWQ, and Demographic Variables in Younger Sample ($N = 99$)	127
Table 18	Correlations Among Catastrophizing Interview Variables, PSWQ, and Demographic Variables in Older Sample ($N = 133$)	128
Table 19	Means for Catastrophizing Interview Variables	130
Table 20	Frequency of Target Worry Themes for Catastrophizing Interview in Matched Sub-Samples	132
Table 21	Correlation Among Catastrophizing Interview Variables and PSWQ in Older and Younger Matched Sub-Samples ($n = 57$)	134
Table 22	Means for Catastrophizing Interview Variables in Matched Sub-Samples	135
Table 23	Means and Internal Consistency Coefficients for COPE and SAM Scales	161
Table 24	Structure Coefficients, and Eigenvalues for Principle Components Analysis of COPE Scales	163
Table 25	Correlations Between Worry Factor Scores and Absolute Coping Indices Before and After Controlling for Perceived Stressfulness	166
Table 26	Correlations Among Worry, Absolute Coping Indices, and Appraisal Scales ($N = 147$)	169
Table 27	Summary of Hierarchical Multiple Regression Predicting Absolute Problem-Focused Coping ($N = 145$)	171
Table 28	Summary of Hierarchical Multiple Regression Predicting Absolute Emotion-Focused Coping ($N = 145$)	172
Table 29	Summary of Hierarchical Multiple Regression Predicting Absolute Meaning-Focused Coping ($N = 145$)	173
Table 30	Summary of Hierarchical Multiple Regression Predicting Absolute Acceptance-Based Coping ($N = 145$)	174
Table 31	Summary of Hierarchical Multiple Regression Predicting Absolute Behavioural Disengagement Coping ($N = 145$)	175

Table 32	Partial Correlations Between Problem-Focused Coping and Appraisal of Uncontrollability for Low, Medium, and High Worriers (Controlling for Appraisal of Stressfulness)	177
Table 33	Correlations Among Worry, Relative Coping Indices, and Appraisal Scales ($N = 147$)	180
Table 34	Partial Correlations Between Worry Factor Scores and Relative Coping Indices Controlling for Perceived Stressfulness ($N = 145$)	182
Table 35	Summary of Hierarchical Multiple Regression Predicting Relative Problem-Focused Coping ($N = 145$)	184
Table 36	Summary of Hierarchical Multiple Regression Predicting Relative Emotion-Focused Coping ($N = 145$)	185
Table 37	Summary of Hierarchical Multiple Regression Predicting Relative Meaning-Focused Coping ($N = 145$)	186
Table 38	Summary of Hierarchical Multiple Regression Predicting Relative Acceptance-Based Coping ($N = 145$)	187
Table 39	Summary of Hierarchical Multiple Regression Predicting Relative Behavioural Disengagement Coping ($N = 145$)	188
Table 40	Partial Correlations Between Relative Problem-Focused Coping and Appraisal of Uncontrollability for Low, Medium, and High Worriers (Controlling for Appraisal of Stressfulness)	190

WORRY IN LATE ADULTHOOD: DEVELOPMENTAL PERSPECTIVES ON CONTENT, FREQUENCY, AND WORRY PRONENESS

Overview

Over the last two decades, researchers have become increasingly interested in the underlying functions and processes of worry, leading to a substantial accumulation of knowledge in this area (e.g., Borkovec, 1994; Borkovec & Newman, 1999; Brown, O'Leary, & Barlow, 2001; Dugas, Gagnon, Ladouceur, & Freeston, 1998; Wells, 1999). Although worry in the general adult population has been studied extensively, relatively little is known about worry among older adults. The existing research on worry in late adulthood has begun to explore worry themes that may be common in this population, along with the relative frequency and some psychosocial correlates of worry among older adults (Wisocki, 1994). However, the knowledge-base on worry in this population lags behind the state of the research on worry in the general adult population with regard to specific underlying features.

Interestingly several studies have suggested that worry is a relatively infrequent phenomenon among older adults (Skarborn & Nicki, 1996; Watari & Brodbeck, 2000; Wisocki, 1988; Wisocki, Handen, & Morse, 1986) and some evidence has accumulated indicating that the frequency of worrying decreases in later adulthood (Babcock, Laguna, Laguna, & Urusky, 2000; Doucet, Ladouceur, Freeston, & Dugas, 1998; Powers, Wisocki, & Whitbourne, 1992; Skarborn & Nicki, 2000). This may be seen as paradoxical given that certain environmental conditions in late adulthood would likely elicit feelings of worry (Borkovec, 1988). Specifically, many older adults experience less controllable negative life events such as declining health in self and others, and fixed

financial resources. Additionally, given that many older adults spend a considerable amount of their time alone and at home (Baltes, Wahl, & Schmid-Furstoss, 1990) and that worry increases in conditions of low environmental demand such as when people are alone in the evening (Tallis, Davey, & Capuzzo, 1994), the finding that worry is a relatively infrequent phenomenon may be viewed as surprising.

Given the paucity of research on worry in older adults, several broad objectives guided the present investigation in an effort to better define the parameters of worry among community-dwelling and relatively healthy older adults. More specifically, Study 1 sought to extend previous research on the content of worries in later life. Study 2 further investigated the hypothesized age-related reduction in the experience of worry and began to explore possible explanations for this finding. Finally, given that a minority of older adults report that they worry excessively and that for many of these people worry seems to have intensified in late adulthood (Wisocki, 1994), Study 3 begins the process of examining factors associated with worry proneness in seniors.

As a general introduction to these three studies, the construct of worry is first conceptualized. This is followed by a review of the scientific literature on worry among older individuals. A theoretical framework, based on the emotion and aging research literature is then be proposed as a conceptualization for the hypothesized age-related reductions in worrying. Stemming from this theoretical perspective, selected features believed to underlie worry will be reviewed as possible factors that in addition to worry per se, may also change with age and could help to explain this proposed age-related shift. Finally, given that a small number of older adults report that their worries have intensified in later life (Wisocki, 1994), factors distinguishing high from low worriers in

late adulthood will be explored. More specifically, a rationale will be presented which highlights the possibility that older individuals who worry excessively may have difficulty adapting their coping resources to deal with less controllable life stressors.

The Construct of Worry

Conceptualizations of worry have focused on three defining features; it is 1) a thought, 2) about the possibility of one or more potentially negative but as of yet uncertain future events, and 3) it is associated with feelings of anxiety (MacLeod, Williams, & Bekerian, 1991). Earlier definitions had also described worry as an attempt to engage in mental problem-solving (Borkovec, Robinson, Pruzinsky, & Depree, 1983). However, if this is true, worry seems to be an inefficient route to problem-solving. Although some research suggests that non-chronic worry may have some adaptive value in leading to goal-directed activity and problem solving (e.g., Davey, Hampton, Farrell, & Davidson, 1992), chronic worrying seems to be associated with thwarted attempts to problem solve and in fact, leads to further exacerbation of anxiety (Davey, 1994a, 1994b) and difficulty focusing attention (Borkovec et al., 1983). More specifically, worrying is associated with heightened attention to threat, an information seeking style, a heightened state of anxiety, and difficulty reaching decisions, which seem to hinder effective problem-solving (Davey, 1994a, 1994b; Davey et al., 1992). In fact, although content analyses of naturally occurring worries have shown that the majority do have a problem-solving element, higher levels of worry have been associated with fewer instances of solution generation (Szabó & Lovibond, 2002). Trait or pathological worry has also been associated with a variety of negative features including a heightened state of anxiety,

depression, interference with task-based performance, negative affect, and low self-esteem (e.g., Meyer, Miller, Metzger, & Borkovec, 1990).

Worrying is however, a normal psychological phenomenon; most individuals worry to some degree (Dupuy, Beaudoin, Rhéaume, Ladouceur, & Dugas, 2001; Tallis et al., 1994). Several features distinguish high and low worriers. For example high worriers report greater worry frequency, difficulty controlling their worries, greater mood disturbance, worry-related impairment in daily functioning, and the experience of indecision and doubt while worrying (Tallis et al., 1994). In extreme form, worry is a distinguishing diagnostic feature of Generalized Anxiety Disorder (GAD) which is characterized by excessive and uncontrollable worry about a variety of events or activities, and is associated with three or more of the following somatic features of anxiety: feeling keyed-up or restless, being easily fatigued, having difficulty concentrating, irritability, muscle tension, and sleep disturbance (American Psychiatric Association, 1994, Diagnostic and Statistical Manual of Mental Disorders, fourth edition).

Conceptual distinctions between worry and anxiety have traditionally defined anxiety as a broader construct, which includes somatic features (muscle tension, palpitations), a cognitive component (e.g., fear or apprehension), and a behavioural aspect (e.g., escape or avoidant response) (Zebb & Beck, 1998). In contrast, worry has traditionally been conceptualized more narrowly as cognitive activity directed at a feared and uncertain future outcome. Although conceptually distinct, these constructs share substantial overlapping variance, with correlation coefficients between these two constructs often reported to be in the .60s or .70s (Zebb & Beck, 1998), a finding that

may reflect the limitations of currently available measures of anxiety. Nonetheless, some research has suggested that somatic symptoms may be a distinguishing feature of anxiety (Zebb & Beck) and that worry is uniquely associated with cognitive activity such as self-doubt and concerns about making mistakes (Stöber & Joormann, 2001). Furthermore, at least one study employing path analytical models has suggested that worry may serve as precursor to anxiety, but not vice versa (Gana, Martin, & Canouet, 2001), providing some support for the distinction between these constructs.

Worry is also conceptually distinct from rumination on sadness, which has been defined as intrusive and repetitive negative thought about present feelings of distress and circumstances surrounding sadness (Conway, Csank, Holm, & Blake, 2000). More specifically, the content of such ruminative thoughts tend to focus on the nature and antecedents of one's negative affect. In other words, this type of rumination involves reflection on present and past sadness whereas worry involves questioning about an uncertain future. Although worry and rumination are correlated, factor analytic research has shown that these constructs load onto separate factors (Freso, Frankel, Mennin, Turk, & Heimberg, 2002), thus supporting their conceptual distinctiveness.

Worry in Late Adulthood

Correlates of Worry in Older Adults

Several studies have assessed the association between worry and mental health indicators among older adults. This research has shown that worry was associated with heightened levels of anxiety (Beck, Stanley, & Zebb, 1995; Wisocki, 1988; Wisocki et al., 1986), indicating that these continue to be closely related concepts in later adulthood. Worry has also been associated with lower levels of life satisfaction and with higher

levels of depression (Beck et al., 1995; Skarborn & Nicki, 1996, 2000; Tobey, 1996), obsessive-compulsive symptoms (Beck et al., 1995; Skarborn & Nicki, 1996, 2000), and heightened levels of interpersonal sensitivity and hostility (Wisocki, 1988). The tendency to worry in late adulthood has also been associated with an external locus of control (defined as a person's perceived control over environmental contingencies), and a negative outlook on the future (Powers et al., 1992). Although older adults seem to be temporally oriented toward the past and present (Powers et al.), worry in late adulthood continues to be a future-directed construct since it is associated with more negative attitudes toward the future rather than a tendency to dwell on the past (Powers et al.; Tobey, 1996). Finally, worry in late adulthood has been associated with perceived difficulty in sleeping and with distress associated with insomnia (Fichten et al., 2001).

Worry among older adults also seems to vary as a function of situational factors. For example, the tendency to worry about financial matters has been associated with a poorer perceived financial situation (Watari & Brodbeck, 2000; Wisocki et al., 1986), and worry about health has been associated with poorer perceived health status (Watari & Brodbeck; Wisocki, 1988; Wisocki et al.). Additionally, among homebound older adults, worries about social conditions were associated with poorer health status, whereas these patterns were less marked among community-dwelling seniors (Wisocki et al.). Since worries about social conditions on this measure included fears of being a burden, worries about personal vulnerability, and potential loss of instrumental support, this association could reflect the idea that many homebound elderly individuals who are in poor health, in fact are in a vulnerable position.

In terms of demographic variables, within a general sample of older adults worry has not been found to vary with age (Wisocki, 1988). Findings regarding gender differences in worrying have varied. Some researchers have observed no gender differences in the experience of worry in both non-selected samples of older adults (Stanley, Beck, & Zebb, 1996; Wisocki, 1988; Wisocki et al. 1986) and in samples of older adults with GAD (Stanley, Novy, Bourland, Beck, & Averill, 2001), but this finding must be qualified by the fact that the majority of the participants in these studies were female. One study, which included a more balanced gender distribution found that older women worried more than older men (Skarborn & Nicki, 2000). Marital status does not generally differentiate high from low worriers in late adulthood (Wisocki, 1988; Wisocki et al. 1986). However, in a sub-sample of homebound seniors, married individuals reported more worries about health and social concerns relative to non-married individuals (Wisocki et al., 1986), possibly reflecting fears of being a burden to or of not being able to care for a spouse. Babcock et al. (2000) also showed that worry in late adulthood was associated with poorer satisfaction with social support, but not with the amount of support that was received.

Worry Themes in Late Adulthood

Several studies have assessed worry themes that are common among older adults. This is important since generating an understanding of worry themes that commonly occur in late adulthood could provide a normative context from which to assess worry-related disturbance and to disseminate information to seniors who are concerned about their worrying.

Much of the early research on this topic was based on the Worry Scale (WS; Wisocki, Handen, & Morse, 1986), which is a 35-item checklist, which asks respondents to report the extent to which they worry about selected topics in the domains of finances, health, and social conditions. When assessed as a proportion of total worry scores, these studies have uniformly showed that health-related concerns were the most salient of the three worry themes (Neikrug, 1998; Powers et al., 1992; Skarborn & Nicki, 1996; Wisocki, 1988). Analyses of the individual items on this scale indicated that the most common worries involved themes of loss such as declines in physical and sensory capacities (e.g., eyesight, hearing, memory), loss of independence, being a burden to a caregiver, personal health and safety, the possibility of a close other dying, and finally, the health and safety of a close family member (Skarborn & Nicki, 1996; Wisocki, 1988). To summarize, this research has indicated that the most common worries among these seniors seem to be relatively realistic concerns about potential declines in the physical capacities of self and others.

A more recent version of the WS, the Worry Scale-Revised (WS-R; Wisocki, 1993), has also been developed. In this revised scale, the number of items was expanded to 88 with the addition of three new worry themes that emerged during focus group meetings with older adults who described themselves as chronic worriers (Wisocki, 1994). The new themes were worries about the state of the world, worry about family members, and worries about personal safety and well-being. Interestingly, using the WS-R, Skarborn and Nicki (2000) found that worries about socio-political issues and worries about the deteriorating state of the environment were the most frequently endorsed items by a sample of community-dwelling retired individuals. The significance of this worry

theme for older adults was also shown by Watari and Brodbeck (2000) whose results indicated that both worries about the state of the world and health-related worries were the most commonly endorsed themes on the WS-R. In interpreting this data, the ecological validity of the WS-R is paramount. Accordingly, Skarborn and Nicki (2000) have shown that the worries endorsed on the WS-R measured at a single point in time were in fact reported during a 3-day self-monitoring period and there were theme-specific correspondence in the correlations between the self-monitoring data and the WS-R. Although this scale provided useful initial information about the worry themes that are common among older adults, it is limited by the scope of the worry themes listed on the checklist. Consequently, conclusions about worry content or the frequency of worry in late adulthood based solely on this questionnaire may be dubious. In fact, researchers who have used an open-ended methodology to study worry content in general adult samples have elucidated worry themes that were not present on pre-existing questionnaires (Dugas, Freeston, Doucet, Lachance, & Ladouceur, 1995), suggesting that questionnaire formats may sometimes lack the sensitivity of open-ended self-report measures.

Given a need for open-ended measurement of worry themes in late adulthood, Doucet et al. (1998) asked a sample of individuals aged between 55 and 91 to list up to six commonly occurring worries. Their results showed that the majority (64%) of respondents reported worries about their health. The next most common worries however, were concerns about interpersonal relationships with family, friends, and general relationships with others, and worries about financial issues, which were each reported by between 26 and 29% of respondents. Worries about death and other

existential themes, others' health, socio-political issues, work-related concerns, and worries about the future were relatively infrequent and were reported by 15% or less of these seniors. It is striking that worry about socio-political issues occurred relatively infrequently, as this contrasts with the results from studies using the WS-R where worries about the state of the world were commonly indicated.

Diefenbach, Stanley, and Beck (2001) also used an open-ended methodology to study worry themes reported by a clinical sample of older adults with GAD and a non-anxious comparison sample of older adults. However, these researchers used a worry classification system that was initially developed for a general adult population and was limited to the following broad themes: family / interpersonal, financial, work / school, health / injury, and miscellaneous worries. In this study, both groups reported worrying most frequently about family / interpersonal and miscellaneous issues, and worried least about work or school. Although the high frequency of miscellaneous worries could reflect idiosyncratic worries about a range of relatively minor topics, this finding could also suggest that patterns of worry themes were overlooked in this pre-existing categorization format.

Finally, de Róiste (1996) conducted a survey of individuals living in Ireland who ranged in age from adolescence to late adulthood. The respondents were asked to indicate their three most salient worries. The study showed both consistency and variability in the themes that emerged across the lifespan. Worries about personal health, friends and family members, and financial worries were reported relatively frequently across the adult lifespan, although their relative position differed by age groups. For example, although health-related worries were commonly reported by all age groups, this theme

was particularly apparent among individuals aged 65 and over, where 64% of older respondents reported this concern. Similarly, financial worries were commonly reported across age groups but were most salient in earlier adulthood, when presumably respondents were trying to establish and secure a career. Worries about family members and friends, and age-related worries (e.g., concerns about functional capacities, loss of independence, and death), were both reported by 37% of the older adults and were each the second most commonly reported worry themes among older adults. Finally, worry about loneliness was relatively common among these seniors, reported by 23% of these older respondents. These latter two worries (age-related factors and loneliness), were not common in any other age group suggesting that these are worry themes that emerge with greater frequency in later life.

In summary, the results of both the questionnaire and open-ended measurement studies indicated that health-related worries are particularly common in later life. However, the extent of worry in other areas warrants clarification. Specifically, when prompted by the WS-R, which included worries about political and environmental concerns, such world issues emerged as salient worry themes. However, this finding did not emerge when open-ended measures of worry themes were used, suggesting that these may not be naturally occurring worries, but rather, concerns that emerge only when prompted. Additionally, the extent to which older individuals worry about age-related factors such as death, loneliness, and loss of functional capacities, requires further clarification in light of inconsistent evidence presented by Diefenbach et al., (2001), Doucet et al. (1998), and de Róiste (1996), who focused differential attention on these issues in their worry classification schemes. de Róiste's finding that such worries were

commonly reported by older individuals suggests that this issue warrants further research. Furthermore, Diefenbach et al.'s research, which employed a broad-based worry categorization system, showed that worries about social relationships with friends and family were relatively common in late adulthood. This finding is consistent with research in the general adult population which has shown that people typically worry about everyday issues such as school, finances, work, love relationships, friends, and family members (Dugas et al., 1995; Laberge, Fournier, Freeston, Ladouceur, & Provencher, 2000). It is possible that similar concerns remain salient among older adults, a possibility that may be particularly relevant in light of evidence indicating that many community-dwelling and relatively healthy older adults continue to remain actively engaged in everyday activities (Arbuckle, Pushkar-Gold, Chaikelson, & Lapidus, 1994; Baltes et al., 1990; Pushkar, Arbuckle, Conway, Chaikelson, & Maag, 1997; Rowe & Kahn, 1997). It is possible that worries about such everyday events are in fact common among older adults, but these did not emerge with great frequency on open-ended inquiries since participants may have responded in accordance with popularly held expectations that health-related worries would resound. Such worries would also not have emerged with great frequency on the WS-R since the items on this checklist are generally skewed toward themes of loss as opposed to the worries reflecting continued life engagement (which characterize the worries typically reported by younger individuals). Consequently, the extent to which older individuals continue to worry about everyday issues warrants further clarification.

Both questionnaire and the open-ended measures of worry themes have advantages and shortcomings. Questionnaires may be easily and reliably scored.

However, by priming the participants with a set of particular worries, the endorsed items could reflect less commonly experienced worries and overlook many worry themes that occur naturally (Laberge et al., 2000). Similarly, although open-ended reports of worry themes may be less suggestible and may help to elucidate more idiosyncratic worries, the method may be limited due to difficulty accessing significant worries at the time of testing (Laberge et al., 2000). A third format that has been used by some investigators is an open-ended diary method where worries are recorded at the time of occurrence (e.g., Szabó & Lovibond, 2002). This latter format has the advantage of not being limited to pre-existing worry themes and this format may reduce memory biases or difficulty accessing worry themes retrospectively. There are clear disadvantages to this measurement method as well; it is time consuming and the researcher is less able to clarify the nature of the worries that appear on returned self-monitoring forms. However, the use of different measurement methods can offer complementary findings and when assessed across studies, could provide a more comprehensive understanding of worry themes that commonly occur. The present research program attempted to build on and further clarify these issues by asking a sample of older adults to monitor and record their worries over a seven-day period. The worry themes emerging from this worry diary method were compared to those reported on the WS-R.

Age-Related Decreases in Worrying

When Wisocki and her colleagues began to investigate worry in older adult samples using the WS one striking observation was that worry tended to occur relatively infrequently (Wisocki et al, 1986; Wisocki, 1988). In a synthesis of this research, Wisocki (1994) noted that the average worry frequency score on the WS for community-

dwelling seniors in the United-States was only 21 out of a maximum possible score of 140. The comparable figure for Canadian samples was 10. Although this offered some interesting data suggesting that worry occurs relatively infrequently among older adults in both the United States and in Canada, conclusions based solely on these data are limited by the scope of the worries assessed by the checklist, and by the fact that comparisons were not made between younger and older individuals.

Concerning the latter limitation, Powers et al. (1992) made comparisons between undergraduate students and older adults on WS scores. Interestingly, their findings showed that the younger adults worried more than the older adults on total WS scores and on the financial and social-conditions sub-scales. Most striking however, was the finding that the younger and older adults were equally worried about health-related concerns. These findings were particularly noteworthy since the WS was developed to measure worries believed to be common in late adulthood and included several items that are particularly relevant for seniors (e.g., loss of independence, loss of functional capacities and sensory abilities, difficulty supporting oneself and one's children due to limited financial resources, and being a burden to a caregiver).

More recently, the development of the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990), a standardized measure of trait or pathological worry has allowed for a comparison between younger and older individuals in the general tendency to worry, regardless of worry content. Studies that have used this measure in samples of community-dwelling older adults have yielded scores in the range of 34 to 43, with standard deviations in the range of 12 to 13 (Babcock et al., 2000; Tobey, 1996; Watari & Brodbeck, 2000). These scores are low compared with the normative data where mean

scale scores on the PSWQ are approximately 48, $SD=13$ (Molina & Borkovec, 1994).

These data provided further evidence that as a group, older individuals seem to worry at lower frequencies relative to younger individuals and that this may reflect a developmental change.

At least three studies have employed the PSWQ to assess changes in worrying across the adult lifespan (Babcock et al., 2000; Doucet et al., 1998; Skarborn & Nicki, 2000). Babcock et al. for example, showed that older individuals had lower scores on the PSWQ relative to a sample of undergraduate students. Age differences on this measure have also been evident in a Canadian study comparing middle-aged adults to a group of retired older individuals (Skarborn & Nicki). In that study, Skarborn and Nicki compared a group of adults over the age of fifty who had not yet retired (mean age = 55, range = 50 to 64) to a sample of individuals who had already retired (mean age = 68, range = 55 to 78), on both the PSWQ and WS-R. Their findings showed that the retired group worried less than the non-retired group on the PSWQ. Similar findings emerged using the WS-R, with the retired group showing less worry in the domains of finance, personal safety and well-being, family matters, and world issues. Finally, in another Canadian study, Doucet et al. found evidence for reductions in worrying in later adulthood on both the PSWQ and on the number of worries reported in an open-ended report of worry themes. However, this reduction was only observed among adults aged 75 and over, compared with those between the ages of 55 to 74. In contrast to Skarborn and Nicki's work, Doucet et al. did not find a difference in the general tendency to worry that coincided with the typical age of retirement in Canada (ie., between those aged 65-74 and those aged 55-64).

Although no longitudinal data on this topic have been published, when taken together, these data provide consistent and convincing evidence that worry is experienced with diminished frequency in older cohorts. Such findings may appear to be counterintuitive given popular stereotypes that older adults are more susceptible to worry due to potentially disturbing challenges such as health declines, increased dependency on others, the possibility of a friend or family member dying, and fixed financial resources, and raise intriguing questions about why worry might decline with age. It is recognized that the observed differences in reported worry could reflect a cohort effect. However, since neither longitudinal nor sequential data are available to assess for such cohort effects, this will not be a focus of discussion.

Since the initial findings of relatively low levels of worry in older adults, theorists have speculated about possible underlying reasons for this. In a commentary on Wisocki's (1988) data, Borkovec (1988) suggested that decreased worry in late adulthood could reflect a long-term habituation and dampened emotional reactions to life stressors, given an increased range of life experiences and presumably greater exposure to stress. Relatedly, Borkovec also suggested that older adults may have learned through their life experiences what research data have shown: that the vast majority of issues that people worry about do not actually occur (Borkovec & Newman, 1999). Consequently, perhaps they have developed more realistic appraisals of stressful situations. A similar explanation was provided by Wisocki, who suggested that older adults may more realistically appraise their loss of control over many stressors and adjust their coping efforts accordingly.

A second explanation offered by Borkovec (1988) focused on the idea that the life circumstances of many older adults are less likely to foster worry. Specifically, worry is a future-oriented construct and largely reflects concern about meeting one's goals and desires. In late adulthood, the future is more time-limited and many life accomplishments have already occurred. The older adult may aspire less toward change and consequently, worry less about such issues. Similarly, in the post-retirement years, work and familial responsibilities may be less salient, leading to reduced responsibility in these areas. Worries may occur only when faced with immediate threat.

In short, the potential explanations for the observed age-related differences in worrying may be divided into two categories: 1) those focussed on changes that occur through intra-psychic factors such as a more realistic perspective and better emotional regulation skills, and 2) those focussed on the stage of life and the reduced responsibility that is often evident in late adulthood (situational factors). These however, are not mutually exclusive explanations. Indeed, situational and intra-psychic factors affect each other in inextricable ways. To date however, the bulk of the evidence has examined life situational factors as potential explanations. For example, Skarborn and Nicki's (2000) data showing age-related differences in worrying after retirement may be interpreted as suggesting that reduced responsibility that coincides with retirement may partially explain the observed age differences in worrying. Similarly, Doucet et al.'s (1998) finding that worries about one's future, work roles, and financial matters were less frequently mentioned by those over the age 65 relative to those aged 55 and 64, and that worries about family and friends were less frequently mentioned after the age of 75, are also consistent with this idea. These findings suggest that a reduced tendency to worry

among older adults could relate to a more stable life situation in the retirement years, where future possibilities and finances are more fixed and freedom from work-related and familial responsibilities occur.

It is unlikely however, that the age-related changes in worry are solely explained by situational factors, given that there continue to exist legitimate causes for concern among older adults. Consequently, it seems possible that other, intra-psychic processes may also occur that could help to explain this age-related change. A review of the research literature on age-related changes in emotional experience and regulation will be presented below, which will provide an additional explanatory framework to interpret the observed age differences in worrying.

Emotion and Aging

The age-related changes in worrying that have been observed are consistent with theoretical views and empirical evidence that has emerged in the field of gerontology over the last two decades, which have shown that despite losses and challenges, older individuals are capable of continued psychological development (e.g., Rowe & Kahn, 1997; Staudinger, Marsiske, & Baltes, 1995). Paradoxically, despite the losses that typically occur in late adulthood, older adults appear to maintain stable levels of psychological well being, and some empirical evidence has accumulated suggesting that negative affect even decreases with age (Carstensen, Pasupathi, Mayr, & Nesselrode, 2000; Gross Carstensen, Tsai, Skorpen, & Hsu, 1997; Mroczek & Kolartz, 1998; Turk-Charles, Reynolds, & Gatz, 2001).

For example, Carstensen et al. (2000) measured naturally occurring emotions over the course of one week in a large sample of adults ranging in age from 18 to 94. The

participants were asked to monitor their emotional experiences in response to pager calls that occurred intermittently for one week. Their findings showed that the frequency of negative emotional experiences decreased with age, although this effect levelled-off after age 60. Such findings may not be accounted for by cohort effects, since 23-year longitudinal data have also found age-related declines in negative affect across the adult lifespan (Turk-Charles et al., 2001). In contrast to the data of Carstensen et al., the latter study showed a continued decline in negative affect during late adulthood (ie., after age 60). Such age-related changes do not seem to reflect a general blunting of emotional experiences since the intensity of emotional experiences did not differ between older and younger adults (Carstensen et al., 2000), and since no age differences have been found in the self-reported intensity of emotions during emotional induction tasks (Levenson, Carstensen, Friesen, & Ekman, 1991; Tsai, Levenson, & Carstensen, 2000). Furthermore, older adults are just as capable as younger adults to experience and to express a range of different emotions (Gross et al., 1997; Levenson et al., 1991).

Related to these findings, an emerging field of research has shown that improvements in emotional regulation occur through the adult years, a process that seems to continue into late adulthood. For example, in a series of cross-sectional studies, Gross et al., (1997) showed that older adults reported better emotional control relative to younger cohorts, particularly over the inner experience of negative emotions such as anger, sadness, and fear. These researchers also found that increases in perceived control over such negative emotions were associated with lessened experiences of those negative emotions and that increased self-reported control over happiness was associated with a heightened experience of that positive emotion. Consequently, the facet of emotional

control that was tapped by this research seems to reflect an adaptive process.

Furthermore, in their emotional experience sampling study, Carstensen et al. (2000) recorded the patterns of change in the emotions that were experienced over the course of one week. Their findings showed that when negative affective states occurred among older adults, these tended to be shorter-lived relative to those reported by younger individuals, and that with increasing age, movement toward positive mood states over the course of the week were evident. Furthermore, these researchers found that older age was associated with greater stability of positive affect and with the maintenance of low levels of negative affect, once this occurred. These findings are similar to those reported by Gross et al. and suggest increased ability to regulate emotional experiences and to minimize the experience of negative affect.

Such findings have led researchers to investigate how older adults are able to maintain relatively high levels of well-being, despite the losses that typically occur in late adulthood. It does not seem that decreased negative emotions among older adults reflect more complex ways of reasoning emotionally, including the ability to better differentiating emotion and to integrate emotion with cognition. Such emotional changes do occur during adult development (particularly during late adolescence and earlier adulthood) but they seem to peak in middle adulthood (between the ages of 40-55), after which they decrease slightly (Labouvie-Vief, 1997; Labouvie-Vief, DeVoe, & Bulka, 1998). Rather, Labouvie-Vief (1997) noted that the emotional changes in late adulthood are characterized by a greater focus on emotion that is more global and undifferentiated.

An alternative explanation is that changes in the experience and regulation of emotion reflect shifting goals that occur in later adulthood. Socio-emotional Selectivity

theory (SST; Carstensen, 1993, 1995; Carstensen, Isaacowitz, & Charles, 1999; Carstensen, Hanson, & Freund, 1995; Fredrickson & Carstensen, 1998), an influential theory of emotion and aging, offers a compelling explanation that is consistent with the changes in emotional experiences described above. According to SST, future time perspective is viewed as a particularly salient dimension in explaining age-related changes in emotional regulation processes. Specifically, for older adults the future is more time-limited and the aging individual is faced with decreasing energy reserves. Consequently, experiences are savoured and emotional goals become more salient. For example, given limited time, it is believed that interactions with close others invoke more poignant emotional reactions than for younger individuals, and older adults seek out richer and more satisfying emotional experiences (Carstensen et al., 2000). In contrast, for younger individuals the future is more expansive and goals may focus on seeking out knowledge and future contacts in the hope of securing one's place in society, exploring a wider range of social possibilities, and establishing a career. Consequently, younger people may be more willing to experience temporary negative emotional experiences in the quest for such goals.

Over the last decade a body of evidence has accumulated in support of this theory. At a fundamental level, age has been found to correlate very strongly with future time perspective, such that older adults tend to perceive their future as more time limited (Lang & Carstensen, 2002; Powers et al., 1992). Older individuals also tend to mentally represent their social interactions as a function of anticipated affect in their social roles, reflecting changing goals away from future possibilities and information seeking roles of social interaction and toward the maintenance of affect (Carstensen & Fredrickson,

1998). Furthermore, with increasing age, individuals tend to reduce their peripheral social networks and to selectively maintain preferred and more close-knit social partners, presumably in an effort to minimize negative social experiences and to more efficiently adapt to limited energy reserves (Carstensen, 1992; Fung, Carstensen, & Lang, 2001; Lang & Carstensen, 1994). In fact, although having a proportionally low peripheral social network and conversely, a greater proportion of very close social partners was related to unhappiness among younger individuals, this was not the case for older adults (Fung et al., 2001). The most convincing evidence to date in direct support of SST has been presented by Lang and Carstensen (2002). In that study, Lang and Carstensen showed that when the future was perceived as more time-limited, as was the case with older adults, emotional regulation goals were prioritised whereas alternative social goals such as social acceptance and autonomy were less salient. The opposite was true when the future was perceived as more open-ended.

Emotional Regulation and Worry in Late Adulthood

The literature on emotion and aging suggests that reduced worry in late adulthood could reflect an enhanced ability to regulate emotion and that this process reflects changes in goal-directed behaviour, given the increased importance of minimizing negative affect. Such a process would necessitate an increasing need to notice the negative effects of worrying, and to take active measures to reduce this experience. Consistent with this framework there are several features associated with worry that may also change in late adulthood; namely, intolerance of uncertainty, beliefs about the functional value of worrying, heightened attention to threat, and the tendency to engage in “catastrophic” or “what if...” type thinking regarding the possibility of a negative

future event. Each of these constructs will be explored below, followed by a discussion of why changes in these processes might help to account for the age-related changes in worrying.

Possible Changes in Worry-Related Features:

Links with Emotional Regulation and Aging

Intolerance of Uncertainty

Intolerance of uncertainty is described as a cognitive bias affecting how people attend and respond to their environment (Dugas, Hedayati, Karavidas, Burh, Francis, & Phillips, in press). Specifically, “intolerance of uncertainty manifests itself by an excessive tendency to find uncertain situations stressful and upsetting, to believe that unexpected events are negative and should be avoided, and to think that being uncertain about the future is unfair” (Dugas et al., in press). Individuals who are intolerant of uncertainty focus on and have excessive concern with the idea that a negative event might occur, even when this possibility is minute. However, it is impossible to avoid uncertainty or ambiguity in life, which means that individuals who are severely intolerant of uncertainty would be constantly faced with situations that they experience as anxiety provoking. Intolerance of uncertainty has been viewed as a central process variable in conceptualizations of GAD that either exacerbates “what if...” type questions regarding the occurrence of a feared event or elicits such questions in the absence of an evoking stimulus (Dugas et al., 1998). Intolerance of uncertainty is also an important target for clinical intervention in the treatment of GAD (Dugas & Ladouceur, 2000; Ladouceur, Dugas, Freeston, Léger, Gagnon, & Thibodeau, 2000).

Research in this area has progressed using the Intolerance of Uncertainty Scale (IUS; Buhr & Dugas, 2002; Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994). Findings from these studies have supported the notion that this construct is strongly and specifically related to worry. Evidence for the specificity of this relationship has been shown in several studies. For example, intolerance of uncertainty predicted worry scores even after accounting for variance associated with anxiety and depressive symptoms (Buhr & Dugas; Freeston et al.). Higher intolerance of uncertainty scores also distinguished between individuals who showed both the worry and somatic symptoms of GAD relative to those who showed only the somatic symptoms component (Buhr & Dugas). Additionally, intolerance of uncertainty has been shown to be more strongly associated with worry than with symptoms of other anxiety disorders (Dugas, Gosselin, & Ladouceur, 2001; Ladouceur et al., 1999).

Given the strong relationship between intolerance of uncertainty and worry, it is important to distinguish these two constructs. Intolerance of uncertainty is conceptualized as a general process or filter through which one's environment is viewed, where uncertainty is judged to be unacceptable (Buhr & Dugas, 2002). Worry is a mental act, focused on the possibility of a negative future outcome. Difficulty tolerating uncertainty is believed to activate a number of behavioural, emotional, and cognitive responses when faced with an uncertain situation, which includes but is not limited to worry. For example, someone who is intolerant of uncertainty might exhibit avoidance behaviour, experience somatic symptoms of anxiety, and worry about possible outcomes, when faced with an uncertain situation.

Research evidence has accumulated supporting the idea that intolerance of uncertainty and worry are distinct but related constructs. Specifically, Ladouceur, Talbot, and Dugas (1997) found that while intolerance of uncertainty correlated with a higher evidence requirement during a behavioural task, trait worry did not. Additionally, Robichaud, Dugas, and Conway (in press) found no gender differences on the IUS, which contrasted with the finding that females scored higher on worry than males did. Research has also supported the idea that changes in levels of intolerance of uncertainty precede changes in worrying. Specifically, in time series analyses applied to four case studies where intolerance of uncertainty was a major target of intervention, reductions in intolerance of uncertainty preceded reductions in time spent worrying for 3 out of 4 individuals (Dugas & Ladouceur, 2000). Additionally, Ladouceur, Gosselin, and Dugas (2000) manipulated intolerance of uncertainty during an experimental procedure and found that levels of worrying were higher when the experimental manipulation heightened the experienced intolerance of uncertainty, compared to when the manipulation reduced levels of intolerance of uncertainty.

Link with age-related change in worrying. At initial glance, it may seem that Carstensen's SST suggests that older individuals might experience greater intolerance of uncertainty, given their need for an environment that would minimize negative affect. However, the literature on SST suggests that a focus on preferred activities in accordance with time perspective, does not stress the aging adult but rather, enhances the emotional experiences of older adults.

There are, however, several reasons to suspect that intolerance for uncertainty decreases with age. First, if as SST suggests, older individuals do select environments

that minimize negative emotional experiences, then surely such environments would have a greater element of stability and certainty, potentially making intolerance of uncertainty a less salient dimension in the daily lives of older adults. Second, if as some data suggest (Carstensen et al., 2000; Gross et al., 1997), adults do develop better emotional regulation skills as they age, this process could involve an increased tolerance for uncertainty when faced with potential threat. Finally, the life stage of older adults may simply make intolerance of uncertainty less relevant. Namely, the future is more bounded, many previously uncertain life situations such as career development and familial responsibilities have often past, or have otherwise have become less salient. Determining whether intolerance of uncertainty also changes with age would provide evidence suggesting that intra-psychic factors do in fact change in late adulthood and could contribute to an explanatory framework for age-related reductions in worry.

Beliefs about the Functional Value of Worrying

Research and theoretical models of worry also suggest that chronic worriers and anxious individuals tend to harbour erroneous beliefs about the functional value of worrying (Davey, Tallis, & Capuzzo, 1996; Dugas et al., 1998; Wells, 1999; Wells & Carter, 1999). A compilation of such beliefs has been derived through clinicians' experiences in working with individuals with GAD and via theoretical formulations of worrying (Freeston et al., 1994). Examples of these beliefs include: beliefs that worrying will lead to effective problem solving or increased control, and superstitious beliefs that the individual would be more vulnerable if they do not worry (Freeston et al., 1994). Such beliefs have been shown to be stronger among individuals with symptoms of GAD compared to those without GAD (Freeston et al., 1994; Ladouceur, Blais, Freeston, &

Dugas, 1998), and were found to correlate with worry even after controlling for general negative affect (Freeston et al., 1994).

Link with age-related changes in worrying. There are several reasons to suspect that older individuals may have learned to harbour fewer erroneous beliefs about the functional value of worrying. Most obviously, an accumulation of life experience may have taught these individuals that most worrisome fears are not realized (Borkovec & Newman, 1999). Second, their experiences may have also taught them that worry does not lead to the generation of effective solutions to life difficulties (Szabó & Lovibond, 2002). Finally, as was described above, life circumstances in later adulthood are often associated with fewer work-related and familial responsibilities, a more established life position, and a more bounded future. In addition to facilitating reductions in worry, such an environment may also be accompanied by a downward shift in beliefs about the functional value of worry due to great emotional distance from worry-related affect thus allowing erroneous beliefs to fade. For example, it is possible that such beliefs had been maintained by illusory reinforcement, a process that would be less influential when worry is reduced.

Information Processing Biases and Worry

The notion that experiences of anxiety are associated with specific cognitive biases has long been established (Ingram & Kendall, 1987). In the following sections three areas of this research will be reviewed. Specifically, evidence suggesting that high worriers show: heightened attention to threat, biased interpretations of life events which favour threat appraisals, and exhibit an over-elaborated questioning style in their threat-

related interpretation, will be reviewed below. This is followed by a rationale for why these processes might change in late adulthood and affect worry proneness.

Attention to threat. There is now a substantial accumulation of research showing that highly anxious individuals show biases in directing attention toward threatening information, along with interpretive biases whereby threatening interpretations are favoured (see Mathews, 1993; Mathews & MacLeod, 2002; Mathews & Mackintosh, 1998, for reviews). Evidence for this phenomenon is based on research showing that anxious individuals and individuals with GAD in particular, show heightened attention to threatening words during vigilance tasks (e.g., Mathews & MacLeod, 1985; Mathews, Mogg, Kentish, & Eysenck, 1995; Mathews & Klug, 1993; Mathews, May, Mogg & Eysenck, 1990; Mogg, Mathews, & Weinman, 1989). These researchers argued that such findings reflect a tendency among anxious individuals to allocate cognitive resources to selectively attend to threatening stimuli.

Two constructs related to these attentional processes are Miller's (1987) descriptions of *monitoring* and *blunting* information-processing styles, which are described as stable ways in which individuals approach threat-relevant information. A monitoring style refers to the tendency to maintain a vigilant stance and to seek out further information when faced with threat, even when the stressful situation is beyond one's control. In contrast, blunting refers to a tendency to avoid or otherwise distract oneself from threat-relevant information.

There is now a voluminous research literature (primarily in the domain of behavioural medicine) attesting to the validity and potential utility of these constructs (see Miller, 1995, 1996, for reviews). Briefly, compared with blunters, monitors have

been found to scan their environments and to seek out threat-relevant information (e.g., about their medical conditions) and attend to and amplify bodily sensations. As a consequence, they seem to experience more aversive internal states, experience slower and less complete recoveries from medical conditions, and respond less well to interventions focused on learning relaxation skills, compared with blunters. Additionally, in preparing for medical procedures, monitors tend to experience more intrusive ideation relative to blunters, yet they are also more likely to avoid or suppress such thoughts by trying to push them out of their minds, an approach-avoidant process that is also found among chronic worriers (Borkovec, 1994).

Although distinct from the vigilance paradigms that have been used to assess for attentional biases among anxious individuals, these measures are conceptually related since they both measure a tendency to focus attention toward threat. This association has some empirical support since individuals who focus an inordinate amount of attention toward self-relevant threat-relevant words during a vigilance task also report greater use of monitoring coping styles (Constans, Mathews, Brantley, & James, 1999).

A few studies have begun to examine the link between a monitoring information-processing style and worrying (Davey, 1993; Davey et al., 1992; Russell & Davey, 1993). Specifically, monitoring but not blunting has been shown to positively correlate with worrying, meaning that high worriers tend to focus on and seek out threat-relevant information. Interestingly, in two of these studies (Davey et al., 1992; Russell & Davey, 1993), monitoring was specifically associated with worry and not with trait anxiety, indicating that a monitoring information-processing style may relate specifically to the cognitive aspect of worrying.

Biased interpretation of threat-relevant information. In addition to the finding that generally anxious and worried individuals show attentional bias toward threat, research has also shown that anxious individuals tend to attribute threatening meaning when faced with ambiguity. For example, Mathews, Richards, and Eysenck (1989) asked individuals with GAD, recovered GAD patients, and non-anxious controls to attend to a series of words that were presented orally and to write the words on a piece of paper. The words were homophones, with either threatening and benign meanings (e.g., “die”, “dye”). In that study, those with ongoing GAD endorsed the threatening spelling significantly more often than both the non-anxious controls and the recovered GAD patients. In a second study, individuals with GAD, recovered GAD patients, and non-anxious control participants listened to a set of tape-recorded ambiguous statements that could be interpreted in either a threatening or a neutral fashion (Eysenck, Mogg, May, Richards, & Mathews, 1991). In a subsequent recall task, the participants were asked to rate as quickly as possible, the extent to which the unambiguous threatening or unambiguous innocuous interpretations were similar or dissimilar to the previously presented ambiguous statement. The findings showed that individuals with a current diagnosis of GAD were more likely than non-anxious controls and recovered GAD patients to endorse the threatening interpretations.

A few studies have also assessed this phenomenon using more direct questions about peoples’ perceptions and responses to ambiguous events. Specifically, Davey et al. (1992) developed the Ambiguous / Unambiguous Situations Diary (AUSD). In that task, respondents were asked to imagine themselves in various situations described in vignettes and to indicate whether they would be concerned (i.e., worried) or unconcerned in each

situation. Half of the entries contained ambiguous situations that could either be interpreted in a benign or in a threatening manner. The other entries were either unambiguously positive or threatening (negative). Research using this measure has shown that worry was associated with a tendency to define ambiguous and unambiguously negative situations as threatening (Davey et al., 1992; Russell & Davey, 1993). Additionally, Dugas et al. (in press) showed that concern about ambiguous situations on the AUSD was associated with trait worry, even after controlling for levels of depression and anxiety. Interestingly, this study also showed that concern about ambiguous situations was more strongly related to intolerance of uncertainty than it was to trait worrying, anxiety, or depression. This is noteworthy since difficulty tolerating uncertainty is believed to be a vulnerability factor for chronic worry (Dugas et al., 1998). The finding suggests that information processing biases may play an important role in the association between worry and intolerance of uncertainty and confirms the importance of this variable as a factor that may also underlie worry.

Catastrophizing. Ingram and Kendall (1987) suggested that anxiety is associated with a tendency to engage an automatic questioning style of “what if?” type thinking, along with perceived inadequacies to cope with these perceived “catastrophies”. This process was believed to be associated with a heightened state of anxiety due to a tendency to explore improbable occurrences that over-inflate perceptions of threat. To test this idea, Vasey and Borkovec (1992) developed the “catastrophizing” interview to assess the extent to which worriers and non-worriers exhibit a network of “what if...” thought associations underlying their worries. A sample of high and low worriers were asked to select a current worry theme and to respond to a series of iterative questions

about what they would worry about or fear if their worry actually occurred. This questioning was repeated with each successive worry step until the participant either did not wish to continue, could not generate another response, or repeated the same content. Vasey and Borkovec found that high worriers produced a greater number of worry thought sequences relative to non-worriers, which provided evidence that the high worriers may have greater access to well-elaborated underlying fear structures. Furthermore, this study showed that when these thoughts were accessed, high worriers experienced significant increases in their subjective feelings of psychological discomfort whereas low worriers did not. Again, this could attest to the greater significance attached to underlying fears along with a perceived inability to cope effectively with these, leading to greater discomfort when such underlying worries are activated. Consistent with these ideas, researchers have found that catastrophic thought sequences were perceived by high worriers as more likely to occur relative to low worriers (Provencher, Freeston, Dugas, & Ladouceur, 2000; Vasey and Borkovec, 1992) and the content of the worry thought sequence of high worriers were independently judged to be more “catastrophic” (Provencher et al.).

Links with age-related changes in worrying. The aforementioned findings suggest that high worriers orient toward threat, make threatening interpretations of ambiguous situations, and mentally elaborate on worrisome concerns leading to perceptions of potentially catastrophic outcomes. Such processes certainly lead to heightened negative emotional states and likely tax emotional resources. In accordance with a more bounded future and as proposed by SST, it may become increasingly important for older adults to spend less time and energy engaged in such processes, which serve only to increase

subjective levels of discomfort and are associated with downward spirals of worry. In particular, it is possible that older individuals are less inclined to engage in over-elaborate worrisome thought sequences and may show a lessened interpretive biases toward threat. Similarly, with increasing age, older individuals may be faced with an increasing number of uncontrollable life events, which may be less amenable to change. Given an increasing need to minimize negative affective experiences and the increasing frequency of potentially uncontrollable threats, older individuals may learn the value of not attending excessively to threat cues. If age differences emerge in this area, this could provide further evidence for intra-psychic changes that are associated with reductions in worrying.

Worry Proneness in Late Adulthood

Despite the optimistic view of aging and mental health presented above, wellness in late adulthood is best characterized as variable. Although group data suggest that worry frequency may reduce in the later years, a relatively small number of older adults experience relatively high levels of worry. Furthermore, worried older adults tend to experience relatively high levels of anxiety, are in poorer physical health, and show relatively low levels of vigour (Wisocki, 1988).

The idea that a minority of older adults report high levels of worry is consistent with epidemiological data, which suggests that anxiety disorders continue to be prevalent in late adulthood. For example, one-month prevalence of anxiety disorders in the United States has been shown to be 5.5% among adults aged 65 and over (Regier et al., 1988). More recent epidemiological data from the Netherlands has indicated that six-month prevalence rates for anxiety disorders were 13.9% for those aged 65 to 74 and 10.4% for

those aged 75 to 85 (Beekman et al., 1998). Furthermore, Regier et al. (1988) showed that anxiety disorders are the most common mental health problem occurring among seniors. In that study, one-month prevalence rates for anxiety disorders were found to be twice as high as mood disorders among older adults. GAD is among the most common anxiety disorders among older adults, with six-month prevalence rates (excluding a co-morbid mood or panic disorder) in the United States of 1.9% and a lifetime prevalence rate of 4.6% in this population (Blazer, George, & Hughes, 1991). In the Netherlands, GAD was found to be the most commonly reported anxiety disorder in late adulthood, with a six-month prevalence of 11.5% for those aged 65 to 74 and 6.9% for those aged 75 to 85 (Beekman et al., 1998). Nonetheless, consistent with the findings showing reduced levels of worry in older adults, epidemiological data indicate that anxiety disorders are less prevalent among older adults than among middle aged and younger individuals (Blazer et al., 1991; Flint, 1994; Regier et al., 1988) including at least one study using a Canadian sample (Bland, Newman, & Orn, 1988)

In an effort to better understand factors associated with high levels of worry in seniors Wisocki, Hunt, and Souza (1993, cited by Wisocki, 1994) screened 300 seniors to identify 58 (19.3%) chronic worriers, based on the participants' own self-designation and on self-reports of the percentage of days per week spent worrying. Twenty-eight of these self-identified chronic worriers participated in focus group discussions on how they experience their own aging, and on their observations of their worry-related tendencies. Worrying was viewed by this group as prohibiting action, as leading to difficulty making decisions, and as causing somatic problems. They also believed that worry was associated with depression, anxiety, loneliness, and insomnia along with social withdrawal or

irritability. The focus groups did not reach a consensus on whether or not the experience of worry had changed over the course of their life-span. Some believed that they had always been worriers. However, the majority felt that their worries had intensified and that worries in later life pertained to more serious concerns. This compared with perceptions of their younger years when they reported worrying about more trivial issues. Importantly, this group reported an increased tendency to worry when a negatively charged potential future event could not be resolved, suggesting that loss of control over certain life parameters may have made these individuals particularly prone to worry. This group of seniors expressed negative views about aging. Specifically, they described late adulthood as a time of social isolation and loneliness, and as a time where they experienced physical constraints along with the possibility of becoming ill. They also expressed concerns about both having to depend on others, and about having more people to care for. Such reports suggest that these older chronic worriers had difficulty with some of the challenges associated with aging.

Further evidence for this possibility may be drawn from the research literature on the age of onset of GAD, which suggests that although excessive worry associated with GAD typically begins in adolescence, or in earlier adulthood (Blazer et al., 1991; Brown, Barlow, & Liebowitz, 1994) some people report the onset of GAD symptoms in later life (Blazer et al., 1991; Beck, Stanley, & Zebb, 1996; Stanley & Beck, 2000). Additionally, in examining the emergence of GAD symptoms in adulthood, some research evidence suggests that these symptoms often develop following the experience of stressful life events (Blazer, Hughes, & George, 1987), such as major financial loss (Ganzini, McFarland, & Cutler, 1990). Also consistent with this idea, longitudinal data have

revealed clinically significant increases in anxiety following threatening life experiences such as a spouse or a relative developing an illness or experiencing a major interpersonal conflict (De Beurs, Beekmanm Geerlings, Deeg, Van Dyck & Van Tilburg, 2001).

Although research on the prevalence of GAD is not directly comparable to research on worry per se, such findings raise speculation about factors that characterize the minority of older adults who report relatively high levels of worry. In light of the research described above, it seems possible that older individuals with high levels of worry may have difficulty coping with some of the constraints associated with aging. For example, declining physical capacities, the potential loss of a close friend or family member, and the possibility of stress associated with fixed financial resources are life situations that may be less amenable to change, and affected individuals could benefit from adaptations to their coping efforts (Wrosch, Heckhausen, & Lachman, 2000). Such adaptations are described below.

Adaptation to Less Controllable Life Events in Late Adulthood

Consistent with the aforementioned ideas, Heckhausen (1997) found that older adults tended to perceive less personal control over attaining their goals for the next 5-10 years, relative to middle aged and younger adults. The older participants in this study reported a greater number of loss-avoidant goals (e.g., maintaining health, keeping one's apartment) relative to middle-aged and younger individuals who in turn, reported more gain striving goals. Similarly, older individuals report a greater number of health-related problems relative to younger adults, which they tended to appraise as less controllable (Folkman, Lazarus, Pimley, & Novacek, 1987; Aldwin, 1991) and as more threatening (Aldwin, Sutton, Chiara, & Spiro, 1996).

In their description of primary and secondary control strategies, Heckhausen and Schultz (1995) have adopted a lifespan development perspective to understanding how individuals adapt to changes in control over life circumstances. Primary control refers to direct attempts to deal with life stressors by targeting the external environment. In other words, these strategies focus on changing the external demands of stressful situations by engaging in behavioural action. Secondary control refers to coping via intra-psychic factors, which focus primarily on cognitive factors such as the meaning attached to a situation or the amount of emotional investment, with the goal of minimizing loss. These strategies include cognitive reappraisal, accepting one's limits, lowering aspirations, flexible goal adjustment, and downward comparison. Theorists contend that exerting primary control has greater functional primacy over secondary control processes through the lifespan, given that such processes allow for a sense of agency in exploring and shaping one's environment to meet one's needs and to optimize one's potential (Heckhausen & Schultz, 1995; Schultz & Heckhausen, 1997). Heckhausen and Schultz argue that the use of primary control strategies increases through adolescence and earlier adulthood and level off in middle adulthood, after which the use of such strategies declines. Such a decline occurs in conjunction with losses and declining resources in late adulthood that render such mechanisms inefficient, frustrating, and even heighten the salience of loss. To cope with such a threat, the adaptive value of a selective focus on secondary control strategies has been highlighted (Heckhausen & Schultz; Shultz & Heckhausen). This is believed to have an emotional regulatory function in decreasing the likelihood of experiencing failure and in enabling the individual to focus resources on areas where primary control may still be exerted. These researchers have suggested that

the adaptive value of secondary control strategies over primary control strategies is dependent on the nature of a given stressor. For example a switch from primary to secondary control strategies would be particularly adaptive for stressors that are experienced as less amenable to change.

Findings from several research groups have confirmed that older individuals seem to mobilize their coping efforts in accordance with the situational demands of life stressors. For example, adults aged 60-76 were found to use more secondary control strategies such as lowering their aspirations, relative to younger individuals (Wrosch et al., 2000) and the tendency to flexibly adjust one's goals were found to increase over the adult lifespan, particularly during the later years (Heckhausen, 1997). This seems to be an adaptive process among older individuals since well-being was positively associated with use of the secondary control strategy of positive reappraisal among those in middle and late adulthood, but this finding was not apparent among younger adults (Wrosch et al.). In that same study, the use of primary control strategies such as persistence was associated with well-being among middle aged and younger adults but was not associated with subjective well-being among older adults, particularly when health problems and financial strain were experienced. Importantly, the extent of these relations was dependent on the experience of chronic and presumably, less controllable stressors. More specifically, Wrosch et al. found that positive reappraisal rather than persistent goal striving was associated with better psychological well-being in middle aged and older adults, but only when health-related problems or financial strain were high. This relationship was not evident among younger adults.

Coping

Similar theories have emerged from a parallel research literature on coping processes. Broadly, coping theorists have distinguished between two types of coping processes to manage stressful life events: problem focussed coping to alter or manage the external demands of a stressful situation and the person-environment relation, and emotion-focused coping, to regulate distressing emotions (Folkman & Lazarus, 1980; Folkman, Lazarus, Dunkel-Schetter, DeLongis, & Gruen, 1986), processes that are generally used together in most stressful situations (Folkman & Lazzarus, 1980). Problem-focused coping strategies are analogous to primary control and include confronting the external demands of a situation or cognitively preparing for action. In contrast, emotion-focussed coping, which is similar to the secondary control strategies described above, encompasses a variety of strategies to regulate emotional responses including positive-reappraisal or situation redefinition, acceptance, seeking social support, emotional expression, avoidance or distraction, exercising restraint, and distancing (Aldwin et al., 1996; Folkman et al., 1986). This broad distinction however, seems to be over simplified since factor analytic studies have supported multiple-dimensions of coping behaviours which include problem-engagement, social support / emotion management, and avoidance (Amirkhan, 1990; Cook & Heppner, 1997) in addition to more refined dimensions of specific coping behaviours (Carver, Scheir, & Weintraub, 1989; Tobin, Holroyd, Reynolds, & Wigal, 1989).

In their cognitive theory of stress and coping, Lazarus, Folkman and colleagues (e.g., Folkman & Lazarus, 1985; Folkman et al., 1986) emphasized the importance of cognitive appraisal in mobilizing resources and determining coping behaviour. Primary

appraisal relates to how the stressor is experienced (ie., threat, loss, challenge) and degree of personal investment (ie., determining what is at stake). In secondary appraisal, the individual evaluates the coping resources and options that are available for a given stressful encounter. Perceived controllability or changeability of a given stressful situation, a secondary appraisal process, is believed to be a particularly important factor in influencing coping behaviour (Folkman, 1984).

Goodness of Fit Models of Coping

Theorists contend that coping is most effective when a “good fit” occurs between how controllable (typically defined as degree of changeability) a situation is perceived to be and the selection of coping efforts (Conway & Terry, 1992; Forsythe & Compass, 1987; Endler, Speer, Johnson, & Flett, 2000; Vitaliano, DeWolfe, Maiuro, Russo, & Katon, 1990). Specifically, it has been argued that when a situation is perceived as more controllable, greater relative use of problem-focussed coping is believed to be most helpful, whereas continued reliance on problem-focused coping when a situation is less controllable may be maladaptive. In a similar vein, a focus on emotion-focused coping is believed to be helpful when a stressor is perceived to be less controllable.

Research has generally supported the hypothesis that problem-focused coping strategies tend to be used more often when a situation is appraised as more controllable whereas greater use of emotion focused coping strategies has been found during situations that were appraised as less controllable (Carver et al., 1989; Endler et al., 2000; Folkman & Lazarus, 1980; Folkman et al., 1986; Park, Folkman, & Bostrom, 2001; Zakowski, Hall, Klein, & Baum, 2001). In fact, persevering with attempts to alter the external environment through instrumental action when faced with low environmental

affordances for control have been associated with a range of negative outcomes including heightened levels of stress and greater emotional suffering (Evans, Shapiro, & Lewis, 1993).

Findings regarding the goodness of fit model have been mixed. In an earlier study, Forsythe and Compass (1987) asked a sample of undergraduate students to rate their most distressing recent event and to categorize their perceived control over the event as either high or low. Psychological symptomatology were also measured at the time of testing. These researchers found that those who reported greater relative use of problem-focused compared to emotion-focused coping, when the distressing event was perceived as controllable, reported fewer symptoms. In contrast, when control was perceived to be low, those who relied on emotion-focused coping efforts tended to report fewer symptoms.

More recent studies using similar paradigms have found partial support for the goodness of fit model (Conway & Terry, 1992; Macrodimitris & Endler, 2001; Oseowiecki & Compass, 1998; Park et al., 2001; Vitaliano et al., 1990). When partial support has been found the bulk of the evidence has indicated that use of problem-focused coping was associated with better self-reported psychological functioning (e.g., less anxiety; less depression) when the situation was appraised as more controllable (Oseowiecki & Compass, 1998; Macrodimitris & Endler, 2001; Park et al., 2001; Vitaliano et al., 1990). The corresponding findings for emotion-focused coping have been less consistent, which likely reflect the variable definitions of emotion-focused strategies. These conceptualizations have included distancing and positive reappraisal (Park et al., 2001), self-denigration and escapism (Conway & Terry), not dwelling on a problem

(Osowiecki & Compas, 1998), a combination of wishful thinking, self-blame, and avoidance (Vitaliano et al., 1990; Zakowski et al., 2001), and distraction, avoidance, and focus on emotions (Macrodimitris & Endler, 2001).

Nonetheless, some studies have found evidence for the adaptive value of emotion-focused coping strategies during situations that were perceived as uncontrollable. For example, Zakowski et al. (2001) found that during situations perceived as controllable, emotion-focused coping efforts (ie., wishful thinking, self-blame, and avoidance) were associated with greater psychological symptomatology (ie., anxiety, depression), whereas in situations perceived as uncontrollable, the use of these emotion-focused coping efforts were associated with fewer psychological symptoms. In another study, distancing oneself from a stressful situation was associated with fewer depressive symptoms, when the stressor was appraised as less controllable (Park et al., 2001). Further support for the goodness of fit hypothesis, as it relates to emotion-focused coping, has also been demonstrated by Terry and Hynes (1998) who studied the coping styles of women who had recently undergone a failed in vitro fertilization, a stressful situation where very little control over the outcome may be exerted. The findings showed that greater use of coping strategies which focussed on re-appraising the meaning of this stressor or talking about their emotions were associated with better psychological adjustment. In that same study, the extremes of trying to solve the problem or avoid the situation were associated with poor psychological adjustment.

Other studies have found that the relationship between potentially maladaptive coping styles and depression were less marked when applied to situations with low perceived control. For example, Conway and Terry (1992) found that the relationship

between self-denigrative coping and depression was less marked when a situation was appraised as less controllable. Similarly, Vitaliano et al. (1990) found that the use of emotion-focused coping strategies (a combination of wishful thinking, self-blame, and avoidance) was associated with fewer depressive symptoms when the stressor was appraised as less controllable, compared to when a situation was appraised as more controllable.

Although little research on this topic has been done with samples of older adults, at least one study has included a sample of older individuals (mean age = 66, $SD=8.68$) who were caregivers of spouses with Alzheimer's disease (Vitaliano et al., 1990). The participants in that study rated their coping behaviours and their perceptions of the controllability of the stressors that they experienced in relation to caregiving. For individuals who perceived their stressors to be relatively controllable, instrumental coping was associated with less depression, whereas for those who appraised their stressors as uncontrollable, the negative association between instrumental coping and depression was significantly less marked.

Taken together, these findings suggest that problem-focused coping is associated with better psychological adjustment, particularly when a situation is appraised as controllable. When a situation is appraised as less controllable some evidence has emerged suggesting that gaining some emotional distance from the situation may have some adaptive value and that the association between certain types of maladaptive emotion-focused coping efforts (e.g., self-criticism, escape avoidance) and poor psychological adjustment, are lessened.

The goodness of fit model offers a theoretical framework for understanding factors that may distinguish high from low worriers in late adulthood. More specifically, high worriers who seem to have difficulty tolerating uncertainty, experience heightened states of anxiety, and who also harbour negative beliefs about their ability to deal effectively with life difficulties (Belzer, D’Zurilla, & Maydeu-Olivares, 2002; Dugas, Freeston, & Ladouceur, 1997; Ladouceur et al., 1998), may have difficulty mobilizing their resources in accordance with the determinants of stressful life situations. In contrast, low worriers may have learned the adaptive value of using their situational appraisals to guide their coping efforts. Such processes are particularly relevant for understanding worry among older adults, since older individuals are increasingly faced with a relatively uncontrollable life stressors, which often call for a greater reliance on secondary control or emotion-focused coping strategies. Further support for these ideas may be derived from interviews with older chronic worriers (Wisocki, Hunt, and Souza, 1993, cited by Wisocki, 1994), which suggested that these individuals have particular difficulty associated with age-related constraints, and report worrying mostly about situations that were perceived as uncontrollable.

The Present Research

The research that has been conducted to date on worry in late adulthood is in an early stage of development. Accordingly, a broad-based empirical strategy was used to further develop this area of research in several domains. More specifically, three main objectives guided the present research.

Objective 1 (Study 1)

The objective of Study 1 was to further develop the existing knowledge base on the content of worries in late adulthood. More specifically, self-monitoring data of worry themes were gathered and compared to worry themes that emerged from the WS-R worry checklist.

Objective 2 (Study 2)

The objective of Study 2 was to further investigate the hypothesis that there are age-related reductions in the experience of worry in late adulthood and to begin to explore possible underlying mechanisms. More specifically, retrospective self-report and age-comparisons were used to provide confirmatory evidence that age-related reductions in worrying do in fact occur. Additionally, age-comparisons on constructs closely related to worry were made to better understand factors associated with the hypothesized age-related change. In accordance with the research on worry described above, the constructs compared between younger and older adult sample were: intolerance of uncertainty, beliefs in the functional value of worrying, monitoring information processing styles, interpretations of ambiguity, and the tendency to engage in elaborative worry thought sequences in the form of “what if...” questioning.

Objective 3 (Study 3)

The objective of Study 3 was to begin to understand factors associated with worry proneness in later adulthood. Accordingly, Study 3 initiated research on a topic that has not been previously assessed in relation to worry in the general population, but which is believed to be particularly relevant in distinguishing high from low worriers in late adulthood. Namely, the mobilization of coping efforts in relation to perceived

controllability of life stressors were examined to determine whether such processes relate to worry proneness among older adults.

Participants

The results are presented in three studies, each focussing on one of the three objectives outlined above. Data were collected with two samples of older adults who were each compared to one common comparison sample of younger adults. Given that the older samples overlapped between studies, the descriptions of the participants are each presented below and are later referred to under the corresponding studies.

Older Sample #1 (Studies 1 & 2)

This sample of older individuals completed the worry theme measures, measures of worry frequency and retrospective changes in worrying, intolerance of uncertainty, and beliefs about the functional value of worrying. This convenience sample consisted of 113 community-dwelling adults aged 65 and over who were recruited from lists of people who had previously participated in research at the Adult Development and Aging laboratory at Concordia University ($n = 106$) and via word of mouth ($n = 7$). Those who were participants in previous studies were originally recruited from community organizations, and through advertisements in local newspapers. Of the 113 participants, data from one male participant was not available for analysis because his limited cognitive capacity prevented him from completing most of the measures, and a second male participant was dropped from further study because his troubled mental status at the time of testing brought the validity of his responses into question. This left 111 participants available for the study.

Table 1 presents a demographic profile of the participants. The participants ranged in age from 65 to 92 ($M = 74.18$, $SD = 6.13$), and were 61.3% female. As can be seen, the participants were well educated, most perceived themselves to be in good health, and the majority reported being financially comfortable. Approximately 48% of the participants were married, 29% were widowed, 16% were either divorced or separated, and 7% were never married. The consent form for Older Sample #1 is presented in Appendix A.

Older Expanded Sample #2 (Studies 2 & 3)

A second convenience sample of older individuals was recruited to complete measures which focused on information processing biases, the tendency to engage in worry thought sequences, coping and appraisal of situational controllability, which were not previously completed by the first older sample. This sample of older individuals consisted of 154 community-dwelling adults aged 65 and over. A larger number of older participants were required to achieve adequate power to detect interactions in multiple regressions, which were conducted on the coping data. Seventy-three of these individuals had participated as part of the first older sample and had expressed a willingness and availability to continue participating in our research program. The remaining participants were recruited from community organizations ($n = 51$), an advertisement in a Montreal area newspaper ($n = 28$), and via word of mouth ($n = 2$). Of the 154 participants, two were dropped from further analyses because their troubled mental status at the time testing brought the validity of their responses into question, two were dropped because their language and comprehension abilities were not sufficient to complete the test battery, and one participant did not complete the majority of the questionnaires. This left

Table 1

*Demographic Profile of Older Sample #1 (N = 111)**Age:*

Mean = 74.18

SD = 6.13

Range = 65 - 92

Gender:

61.3% Female

38.7% Male

Years of education:

Mean = 14.13

SD = 3.63

Range = 3 - 21

Perceived health:

Very poor	0%
Poor	.9%
Fair	17.1%
Good	55%
Very good	27%

Perceived finances:

Very difficult	0%
Difficulty	.9%
Fairly difficult	2.7%
Not bad	10.8%
Fairly comfortable	27.9%
Comfortable	41.4%
Very comfortable	16.2%

Marital status:

Married / co-habiting	47.7%
Widowed	28.8%
Divorced / separated	16.2%
Never married	7.2%

149 participants available for study. Table 2 presents a demographic profile of the participants. The participants ranged in age from 65 to 89 ($M = 73.37$, $SD = 5.51$), and were 59.1% female. Similar to the first older sample, the participants were well educated, most perceived themselves to be in good health, and the majority reported being financially comfortable. Approximately 48% of the participants were married, 28% were widowed, 16% were either divorced or separated, and 8% were never married. The consent form for Older Expanded Sample #2 is presented in Appendix B.

Younger Comparison Sample (Study 2)

A convenience sample of younger individuals were recruited for the age comparisons conducted in Study 2. To be time and resource efficient, all of the measures required for the age comparisons were administered to the same sample of younger adults and were compared with the applicable older sample. The younger sample consisted of 106 university students who were recruited from an on-campus recruitment booth ($n = 66$), from undergraduate classes ($n = 32$), and via word of mouth ($n = 8$), at Concordia University.

Table 3 provides a demographic overview of the sample. They ranged in age from 19 to 37 ($M = 24.18$, $SD = 4.22$), and were 58.5% female. Most of the participants (83%) were full time students, while the remaining 17% were engaged in part-time studies. The participants came from a variety of academic disciplines, with 66% in arts and sciences, 13.6% studying commerce, 3.9% studying engineering, 1% from fine arts, 5.9% from graduate studies, and 9.7% were independent students. Most of the participants reported being in good health, and 87.7% were never married. Their perceived financial status varied widely, with the majority of participants centred around the mid-point ("not bad, I

Table 2.

*Demographic Profile of Expanded Older Sample #2 (N = 149)**Age:*

Mean = 73.37

SD = 5.51

Range = 65 - 89

Gender:

59.1% Female

40.9% Male

Years of education:

Mean = 14.45

SD = 3.36

Range = 5 - 21

Perceived health:

Very poor	.7%
Poor	1.3%
Fair	16.8%
Good	49.7%
Very good	31.5%

Perceived finances:

Very difficult	0%
Difficulty	2.7%
Fairly difficult	6.7%
Not bad	15.4%
Fairly comfortable	24.8%
Comfortable	38.3%
Very comfortable	12.1%

Marital status:

Married / co-habiting	48.3%
Widowed	27.5%
Divorced / separated	16.1%
Never married	8.1%

Table 3.

*Demographic Profile of the Younger Sample (N = 106)**Age:*

Mean = 24.18

SD = 4.22

Range = 19 - 37

Gender:

58.5% Female

41.5% Male

Student status:

83.0% Full-time

17.0% Part-time

Perceived health:

Very poor	0%
Poor	3.8%
Fair	18.9%
Good	47.2%
Very good	30.2%

Perceived finances:

Very difficult	1.9%
Difficulty	5.7%
Fairly difficult	18.9%
Not bad	26.4%
Fairly comfortable	22.6%
Comfortable	19.8%
Very comfortable	4.7%

Marital status:

Married / co-habiting	9.4%
Widowed	0%
Divorced / separated	2.8%
Never married	87.7%

can manage”) on a 7-point financial rating scale. The consent form for the younger sample is presented in Appendix C.

STUDY 1:

MULTI-MODAL ASSESSMENT OF WORRY THEMES IN LATE ADULTHOOD

The purpose of this initial study was to gain a better understanding of worry themes that commonly occur in late adulthood. As was described above, much of the research in this area has measured worry themes using the WS and the WS-R (e.g., Wisocki, 1994; Skarborn & Nicki, 2000) where worry themes focused predominantly on potential losses that are thought to be specifically relevant for older individuals, such as loss of physical and emotional capacities, social support, independence, and serious financial trouble. Such research has shown that worries about health along with worries about world and socio-political issues, are relatively common among older individuals (e.g., Watari & Brodbeck, 2000). Several other studies, which employed open-ended measurement of worry themes, have confirmed that health-related worries commonly occur among older adults (de Róiste, 1996; Doucet et al., 1998). However, inconsistencies have emerged when different methodologies were used. For example, the extent to which seniors worry about world or socio-political issues remains to be clarified since these were not commonly observed in studies using open-ended measures (de Róiste, 1996; Diefenbach et al., 2001; Doucet et al., 1998).

Similarly, the finding of relatively high levels of worry about interpersonal issues among seniors in some open-ended inquiries of worry (Diefenbach et al., 2001; Doucet et al., 1998), contrasts with data from checklist measures (e.g., Skarborn & Nicki, 1996; 2000). Additionally, given that many community-dwelling older individuals remain engaged in daily activities (Arbuckle et al., 1994; Baltes et al., 1990; Pushkar et al., 1997; Rowe & Kahn, 1997), it is possible that worries associated with continued social

engagement and everyday activities (e.g., volunteer work, social commitments) remain common in late adulthood but have failed to emerge with relatively high frequency on previous measures of worrying due to a limited focus on such worries on the WS and WS-R checklists. Finally, given that worries about death and loneliness emerged with relatively high frequency in only one study using open-ended self-report of worry themes (de Róiste, 1996) but not in others, this issue warranted clarification.

The present study employed a diary-based method to capture naturally occurring worry themes in a sample of community-dwelling and relatively healthy individuals aged 65 and over. The participants were asked to record and describe up to five worries per day over a seven-day period. A bottom-up, data-driven approach to coding worry categories was employed to avoid contamination of the emergent themes due to preconceived ideas. These worry themes were also categorized at both a micro-level coding scheme and a broad-based classification of these codes, which allowed for a thorough assessment of the worries that emerged on the diary. Additionally, to provide an indicator of the extent to which the diary captured actual worries that were in fact associated with discomfort, the participants also rated their most disturbing worry of the previous day in terms of amount of associated disturbance, and the extent to which they continued to worry about it the next day. Furthermore, since worry has been associated with perceived sleep disturbance and distress associated with insomnia among older individuals (Fichten et al., 2001), the participants also indicated whether or not their most disturbing worries each day were associated with sleep disturbance. Finally, the WS-R checklist was completed for comparison purposes, and measures of both trait worry and the WS-R were used to verify the convergent validity of the diary measure. To minimize

contamination of worry diary responses, the WS-R was completed at the laboratory whereas the worry diary was subsequently completed at home over a seven-day period.

Stemming from previous research on this topic, several hypotheses were tested. The first four hypotheses summarize expectations about the worry themes that were predicted to emerge on the worry diary, and how they were expected to differ from the worry checklist measure.

Hypothesis 1

Consistent with previous research using both questionnaire-based and open-ended methodologies, it was predicted that health-related worries would emerge with relatively high frequencies on both the worry diary measure and on the WS-R.

Hypothesis 2

It was predicted that worries about the state of the world or socio-political worries would be relatively common on the WS-R but not on the worry diary measure.

Hypothesis 3

Worries about death and loneliness were expected to be relatively infrequent on the worry diary. In contrast to popular stereotypes, research has consistently shown that death anxiety is relatively low among older individuals (e.g., Fortner, Neimeyer, & Rybarczyk, 2000; Thorson & Powell, 2000). Worries about loneliness have only emerged with some frequency in one study (de Róiste, 1996). However, that study collapsed this theme with other factors associated with age including death and physical decline. Consequently, in contrast to popular stereotypes, there was little reason to believe that such worries would be commonly reported on the diary measure.

Hypothesis 4

Given that many commonly experienced worries involve themes of everyday issues such as work / school, love relationships, family members and friends (Dugas et al., 1995; Laberge et al., 2000), and that many older individuals maintain continued engaged in life activities (Arbuckle et al., 1994; Baltes et al., 1990; Pushkar et al., 1997; Rowe & Kahn, 1997), it was predicted that many worries which are not present on the WS-R, would appear in the diary measure. Many such worries were expected to reflect concerns about the everyday life activities of seniors, which go beyond the themes of loss associated with aging, that characterize many of the WS-R items.

In addition to the preceding four hypotheses regarding worry content, several predictions were made regarding the pattern of association between the frequency of worries on the diary with other standardized measures, which were expected to support the convergent validity of the new diary-based measure.

Hypothesis 5

It was predicted that evidence for the convergent validity of the worry diary would emerge through a pattern of general and theme specific associations between the worry diary and the WS-R, in addition to an association between the worry diary and a measure of trait worry. Similarly, it was also predicted that health and financial status would be associated with corresponding worries on the worry diary. Finally, consistent with previous research on worry among older adults (e.g., Watari & Brodbeck, 2000; Wisocki et al., 1986), it was predicted that worry would be associated with poorer perceived health along with greater perceived financial difficulties.

Method

Participants

The participants in this set of analyses were the first sample of older adults, who were described above. To summarize, the older sample consisted of 111 individuals over the age of 65 who were living independently in the community and were recruited from lists of individuals who had participated in a previous study at the Adult Development and Aging Laboratory ($n = 106$) and via word of mouth ($n = 7$). They ranged in age from 65 to 92, with a mean age of 74.18 ($SD = 6.13$), and were 61.3% female. A demographic overview of the sample was presented in Table 1.

Measures

Demographic Variables

Information on the demographic variables of age, gender, years of education, perceived health, perceived finances were ascertained in the context of an interview on participants' life reflections (for further details on the life reflections interview, refer to Pushkar, Basevitz, Conway, Mason, & Chaikelson, in press). These data were used to provide a better understanding of the socio-demographic context of worry among older adults. Years of education was operationalized as the highest level of educational attainment rated according to a standard scale, which was based on the current educational system in Quebec. Perceived health and financial status were measured with single items that were rated by the participants, using a visual-analogue rating scale. Perceived health was measured with a single 5-point scale ranging from "very poor" to "very good". Perceived financial status was measured with a single 7-item scale ranging

from “very difficult, I can’t manage at all” to “very comfortable, I can afford everything that I need or want”. The demographic rating scales are presented in Appendix D.

Trait Worry

The Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) is a widely used measure of trait (or pathological) worry. This questionnaire consists of 16-items which measure the general tendency to worry, difficulty controlling worries, and extent of disturbance associated with worrying. The items are rated on a 5-point scale with possible scores ranging from 16 to 80. The PSWQ has excellent psychometric properties with test-retest reliability coefficients in the range of .74-.93 after 2 to 10 weeks and internal consistency coefficients in the range of .91-.95 (Meyer et al., 1990; Molina & Borkovec, 1994). In terms of convergent validity, the PSWQ is correlated with both cognitive and somatic components of anxiety and has been shown to be specifically associated with worry about exam performance (Meyer et al.). This questionnaire has also showed evidence of discriminant validity in distinguishing between individuals who met diagnostic criteria for GAD from those who did not (Meyer et al.).

The PSWQ has also shown good psychometric properties in samples of older adults, with good internal consistency found in both non-selected community-based samples and in clinical samples of older individuals with GAD (Beck et al., 1995; Stanley et al., 2001). Additionally, at least one study has provided evidence demonstrating the convergent and divergent validity of this scale among older adults. In that study, the PSWQ correlated significantly with other measures of worry, fears, and anxiety but not with standardized measures of depression (Stanley et al.). Additionally, the PSWQ has been found to be sensitive to change following treatment for GAD among seniors

(Stanley, Beck, & Glassco, 1996). In this sample of older adults the internal consistency for the PSWQ was .91. The PSWQ is presented in Appendix E.

Content-Based Measure of Worry

The Worry Scale-R (WS-R; Wisocki, 1993) is an 88-item worry checklist, measuring extent of worry in a variety of domains that are believed to be common in late adulthood. Specifically, the WS-R measures worries in the following six domains: *finances* (10 items; e.g., “I’ll lose my home”, “I won’t be able to help my children financially”), *health* (20 items; e.g., “my eyesight or hearing will get worse”; “I’ll have to go to a nursing home or hospital”), *social conditions* (14 items; e.g., “that no one will want to be around me”; “no one will come to my aid if I need it”), *personal concerns* (18 items; e.g., “I’ll be vulnerable”, “I’ll get depressed”), *family concerns* (15 items; e.g., “my children won’t be happy”; “there will be conflict in the family”), and *world issues* (11 items; e.g., “we will have another war”; “the environment is being destroyed”). Respondents indicate the extent to which they worry about each item using a 5-point scale ranging from 0 (“never”) to 4 (“much of the time; more than 2 times a day”). The WS-R is scored by either summing the responses for each content scale or by using the total WS-R score based on all 88 items, with total scores ranging from 0 to 352.

In terms of the internal consistency, Skarborn and Nicki (2000) found internal consistency coefficients for each WS-R scale to be above .90. Test-retest reliability data is available from studies using the earlier version of this scale (the WS). Using the WS, Stanley et al. (2001) found test-retest reliability coefficients to be in the range of .58 to .77 after a 5 to 20 week interval in a clinical sample of older adults with GAD, and this research group also found test-retest reliability coefficients in the range of .58 to .80 after

a 2 to 4 week interval in a non-clinical sample of older individuals (Stanley, Beck, & Zebb, 1996).

In terms of convergent validity, Skarborn and Nicki (2000) found that each of the WS-R content scales correlated with the corresponding scales on a diary version of the WS-R completed over a 3-day self-monitoring period. WS-R total scores were also found to correlate with a measure of trait worry (Skarborn & Nicki, 2000). Finally, a study on the psychometric properties of the earlier WS showed that this measure was sensitive to change following a cognitive-behavioural intervention for seniors with GAD (Stanley, Beck, & Glassco, 1996).

In the present sample, the internal consistency for the six WS-R content scales ranged from .84 to .93, and was .97 for the total WS-R scale. The WS-R is presented in Appendix F.

Worry Diary

The Worry Diary (WD) was developed for the present study to provide an open-ended measure of naturally occurring worries over a seven-day self-monitoring period. The WD contains space for brief descriptions of up to five worries for each of the seven days. The respondents were given the option of completing the diary as each day progressed or in the evening, but were also asked to update their diary each morning to include worries that occurred during the night. After each day, the respondents were asked to select the most disturbing worry of the previous day and to rate: a) whether or not the worry disturbed their sleep, b) the extent of disturbance associated with the worry, and c) the extent to which they continued to worry about that particular worry. These three items were included to assess the extent to which the WD captured at least some

worries that caused disturbance and endured over a period of at least one day. Different colour paper in the WD was also used to indicate separate days of the self-monitoring period.

Prior to completing the WD, instructions were provided about how to complete the diary. These instructions were also included on the front sheet and included a clarification of the defining features of “worry” which was explicitly defined for participants as: 1) a thought, 2) about the possibility of one or more negative events occurring, and 3) causing discomfort. These defining features were also highlighted on the instruction sheet for easy reference. To further facilitate the respondents’ understanding of the future-directedness of worries, concrete examples of worries were provided. Finally, the phone number for the Adult Development and Aging Laboratory was provided on the instruction sheet and respondents were encouraged to phone if they had questions or difficulties with the WD. A sample day from the WD, along with the instructions for completing this measure are presented in Appendix G.

Worry diary coding system. A coding system for the worry themes was developed collaboratively by myself and by an undergraduate student in psychology, using a “bottom-up”, data driven approach. That is, the data guided the categories that were included. The guiding principle was to categorize worries at a micro-theme level to allow for an understanding of the specific worries that emerged from the data, with the idea that many micro-level categories would eventually be collapsed with other similar themes to form broader categories. This allowed for interpretation at both specific and broader levels. An initial classification system was developed by reviewing the themes that emerged from half of the diary entries. The data were coded by the undergraduate student

who participated in the development of the coding system, under the supervision of the graduate student. New categories were only added with the mutual agreement of both the supervisor and coder that a particular worry did not fit into a pre-existing category.

In total, 36 specific worry categories emerged. Additionally, worries that were not classifiable in the coding system were coded according to the following non-classifiable categories: 1) the source of the worry was not clear (e.g., “bad weather”), 2) the worry was a description of an event rather than a worry (e.g., “ate too much at a party - felt heavy and tired”), 3) a description of a non-anxious emotion (“the outing was cancelled - disappointing and frustrating”). These three categories were not included in analyses of worry content. Inter-rater reliability was ascertained by my independently coding 26 diaries containing 162 worries (27% of valid diaries). The inter-rater agreement for the specific (ie., micro-level) worry content codes were 78%. The WD coding system along with coding guidelines, are presented in Appendix H.

Procedure

This research was conducted as part of a larger study on the life reflections of older adults. The participants were initially contacted by telephone and were provided with information about the study and what participation would involve. Individual appointments were arranged for those who expressed interest in participating. All testing was conducted at the Adult Development and Aging Laboratory of Concordia University. Participants met individually with an interviewer, who was either an undergraduate student in psychology, a graduate student in clinical psychology, or a collaborating professor.

Upon arrival to the laboratory, the participants were provided with a description of the study and questions were answered prior to obtaining informed consent. After conducting the life reflections interview (which was not used in the present investigation), a series of psycho-social measures were completed including the worry questionnaires (WS-R and PSWQ). The WD was subsequently completed at home and separately from the WS-R, which was hoped to minimize the risk of contaminating the diary responses. The participants were asked to start their WD the day after their testing at the laboratory and to return the WD by mail seven days after the diary was begun. A pre-paid, stamped envelope was provided to the participants for that purpose. To reduce the amount of time spent at the laboratory, the participants were also given several other questionnaires (not used for the present study) to complete at home and to return with the WD. The participants were phoned one week following their initial visit to see whether they had any questions, to prompt them to return their package, and to thank them again for their participation. The instructions on the take-home package also included the phone number to the laboratory, which the participants were encouraged to use if they had any questions. The return rate for either partially or fully completed take-home packages was 95%.

Results

The primary purpose of this study was to qualitatively describe the worry content stemming from the WD measure and to compare this with the worries that emerged on the WS-R checklist. Because both a standardized worry checklist and an open-ended diary format were used, this allowed for a more comprehensive assessment of worry themes common in late adulthood. This was followed by a series of correlational analyses

to assess the convergent validity of the WD and to describe the demographic correlates of worry in this sample.

Worry Themes in Late Adulthood: A Descriptive Analysis

Assessment of WD content

Of the 111 participants in the study, 5 completed a pilot version of the WD, and 11 did not return completed worry diaries, leaving 95 participants with complete WD data available for analysis. Of these participants, 12.6% ($n = 12$) reported that they did not worry about anything during the week, whereas 87.4% ($n = 83$) indicated at least one worry. On the WD, the participants indicated a mean of 5.55 ($SD = 5.27$) worries during the seven-day monitoring period. The 83 participants who reported at least one worry, indicated a mean of 6.35 ($SD = 5.16$) worry repetitions during the week.

The number of participants reporting each specific worry and the mean repetitions for each worry are presented in Table 4. As can be seen this sample of older individuals reported a wide range of worries. Despite efforts to operationally define “worry” for the participants, an initial perusal of the worry content suggested that the WD may have elicited a blend of worries along with several topics which might not have been bona fide worries but rather irritants or concerns (e.g., using appliances, completing documents, miscellaneous hassles). However, given that the construct of “worry” was clearly defined for the participants and given the pattern of correlations described below, it is possible that many such topics were actual worries.

As can be seen in Table 4, worries about personal health were the most commonly reported worries. This theme was reported by 31.6% of respondents and was also among the most likely worries to reoccur during the seven-day monitoring period, with a mean

Table 4

Frequency of Specific Worry Themes on the Seven-Day Worry Diary (N = 95)

	<i>n</i>	%	<i>M</i>	<i>SD</i>	Range
		indicating	repetitions	repetitions	repetitions
Personal health	30	31.6	2.30	1.44	1 - 6
General hassles	23	24.2	1.39	1.03	1 - 5
Financial	20	21.1	1.75	1.74	1 - 8
Social evaluative (non-family)	19	20	1.58	1.22	1 - 6
Work-related (e.g., volunteer)	18	18.9	1.83	1.69	1 - 8
Time-related	16	16.8	1.19	.54	1 - 3
Social plans	14	14.7	1.57	1.02	1 - 4
Fixing / using appliances	13	13.7	1.77	1.01	1 - 4
Children's health	12	12.6	1.75	1.22	1 - 5
Social evaluative (family)	12	12.6	1.22	1.22	1 - 5
Completing documents	10	10.5	1.40	.70	1 - 3
Decision to make	10	10.5	1.60	.84	1 - 3
Travel plans	10	10.5	1.60	.84	1 - 3
Children's safety	9	9.5	1.11	.33	1 - 2
Receiving medical results	9	9.5	1.33	0.5	1 - 2
Friend's health	9	9.5	2.22	1.30	1 - 5
Spouse's health	8	8.4	1.88	1.13	1 - 4
Physical limitations	8	8.4	1.13	.35	1 - 2
Political / world issue	8	8.4	2.25	1.28	1 - 4
Other family: health	7	7.4	2.28	1.98	1 - 6
Children's finances and job stability	4	4.2	1.25	.50	1 - 2
Children's well-being	4	4.2	1	0	1
Death / dying	4	4.2	1.50	.58	1 - 2
Loneliness	4	4.2	1.25	.50	1 - 2
Grandchildren's health	3	3.2	1	0	1
Grandchildren's well-being	3	3.2	1	0	1
Natural disaster	3	3.2	1.33	.57	1 - 2
Personal safety	3	3.2	1	0	1
Pets	3	3.2	1	0	1
Spouse's safety	3	3.2	2	1.73	1 - 4
Friend's well-being	2	2.1	3.5	2.12	2 - 5
Other family: Safety	2	2.1	1	0	1
Spouse's well-being	2	2.1	1	0	1
Cosequences to others: health problem	1	1.1	1	-	1
Friend's safety	1	1.1	1	0	1
Grandchildren's safety	1	1.1	1	0	1
Other family: Well being	1	1.1	2	0	2
Non-categorizable worry	15	15.8	1.20	.41	1 - 2
Total worries	83	87.4	6.35	5.16	1 - 25

of 2.30 ($SD = 1.44$) repetitions. Worries about general hassles, financial, and social evaluative worries (non-family) were reported by 20% to 24.2% of respondents. Furthermore, when combining social evaluative worries across family members and non-family members, such worries were reported by 32.6% of respondents, a relatively high percent of this sample. It is noteworthy that worries that seemed to reflect continued engagement in life such as work and time-related worries, along with worries about social plans were also among the most common worries reported in this sample. Conversely, it is also noteworthy that many worries commonly believed to be associated with late adulthood such as worries about death / dying, loneliness, and personal safety due to feelings of vulnerability, were each reported by less than 5% of this sample.

As was mentioned above, in order to assess more global worry themes and to reduce the data for correlational analyses, several of the micro-level worry categories were collapsed into 12 broader worry themes (see Appendix H). Specifically, worries about the health and safety of friends and family members were collapsed into a single *others' health and safety* category. Additionally, worries about *personal health* was expanded to include specific worries about one's physical limitations, receiving medical results, consequences to others as a result of a health problem, and personal safety. Worries about the well-being of family members and friends were collapsed into a single *others' well-being* category. Social evaluative worries, worries about social plans, and worries about loneliness were collapsed into a broader *social worries* category. Furthermore, work-related and time-related worries were collapsed into a single category based on *work and time-related* responsibilities. Finally, the *general hassles* category was

expanded to include worry about travel plans (not due to physical threat), completing documents, and using / fixing appliances.

The number of participants reporting each broad worry theme and the mean repetitions for each theme are presented in Table 5. Using these more global classifications, worry about personal health and safety continued to be the most common worry, reported by 43.2% of the respondents. However, worries about others' health and safety also emerged as a common worry theme, reported by 40% of the participants. Worries stemming from social interactions, work and time-related responsibilities, and general hassles remained common in the broader coding system, and were reported by between 30.5% and 40% of respondents.

Assessment of WS-R content

The scores on the WS-R content scales are presented in Table 6, for comparison with the WD. These scores were computed as mean item scores for each of the content scales (ie., scores ranging from 0 – 4) to avoid contaminating the data by an unequal number of items on each scale. Table 6 also presents the percentage of participants who reported worrying at least once per week (corresponding to a score of “2” on a 0-4 WS-R rating scale) about an item within each WS-R worry domain.

Consistent with the WD data, worries about health emerged with relatively high frequency on the WS-R, where 59.5% of respondents reported worrying once per week about at least one health-related item. In contrast to the WD data, however, worries about world issues (e.g., socio-political and environmental problems) emerged as the most common worry theme on the WS-R, where 60.4% of participants reported worrying about at least one such worry per week.

Table 5

Frequency of Broad Worry Themes on the Seven-Day Worry Diary (N = 95)

	<i>n</i>	% indicating	<i>M</i> repetitions	<i>SD</i> <i>repetitions</i>	Range repetitions
Personal health and safety	41	43.2	2.29	1.62	1 - 8
Others' health and safety	38	40	2.50	1.89	1 - 9
General hassles	38	40	2.24	2.12	1 - 11
Social	37	38.9	2.11	1.45	1 - 6
Work and time-related	29	30.5	1.79	1.54	1 - 9
Financial	20	21.1	1.75	1.74	1 - 8
Others' well-being	12	12.6	1.92	1.08	1 - 5
Decision to make	10	10.5	1.60	.84	1 - 3
Political / world issue	8	8.4	2.25	1.28	1 - 4
Death / dying	4	4.2	1.50	.57	1 - 2
Natural disaster	3	3.2	1.33	.58	1 - 2
Pets	3	3.2	1	0	1
Non-categorizable	15	15.8	1.20	.41	1 - 2
Total worries	83	87.4	6.35	5.16	1 - 25

Mean Item Scores on WS-R and Percentage of Participants Reporting Scale Items Once or More Per Week (N = 111)

WS-R scale	M	SD	% of participants reporting scale items once or more per week	Mean % of scale items reported once or more per week	SD
World issues	.84	.64	60.4%	20.1%	24.8
Health	.76	.57	59.5%	16%	21.5
Personal concerns	.52	.44	45%	9.6%	15.7
Social conditions	.41	.45	33.3%	7.2%	14.9
Fiances	.39	.43	31.5%	7%	14.2
Family concerns	.39	.48	32.4%	7.2%	15.4
Total WS-R	.56	.41	79.3%	11.3%	14.3

Summary of Worry Content Assessment

To summarize, the finding of a relatively high occurrence of health-related worries on both the WS-R and the WD is consistent with Hypothesis 1. Additionally, the finding that worries about world issues were only common worries on the checklist measure but not on the diary measure is consistent with Hypothesis 2. Hypothesis 3 also received some support since worries about death and loneliness were each reported on the WD by only 4.2% of the sample and when they were reported, neither of these worries repeated on more than two days during the worry monitoring period. Hypothesis 4 predicted that worries about everyday concerns would be evident on the WD measure and that many such worries would not be well represented on the WS-R. It is striking that many such worries emerged with relatively high frequency on the WD and included worries about social plans, in addition to worries about work and time related responsibilities. Given that these worries occurred relatively frequently in this sample of older adults, it is also striking that such worry items were not well represented on the WS-R checklist. Consequently, in accordance with Hypothesis 4, it seems that worries about such everyday concerns do in fact occur with relatively high frequency in late adulthood.

Non-Classifiable WD Content

With regard to non-classifiable WD content, 15 participants mentioned a mean of 1.2 ($SD = .41$) items that were non-classifiable because they could have reflected more than one possible worry theme, 12 participants mentioned a mean of 1.6 ($SD = .99$) worries that appeared to be a description of an event and could therefore not be classified

as a worry, and 14 participants mentioned a mean of 1.4 ($SD = .84$) worries that appeared to be descriptions of other emotions (e.g., anger).

Did the WD Measure Worry?

In interpreting the worries that emerged on the WD it is important to establish the extent to which the WD measured bona fide worries that were associated with at least some disturbance. To assess this, the disturbance ratings associated with each worry are discussed below, and correlational analyses between the WD measures along with other measures of worry are presented to provide some evidence for the convergent validity of the WD.

Disturbance Associated with WD Worries

As was described above, on each day of the self-monitoring period, the participants were asked to select their most disturbing worry and to rate: a) whether the worry disturbed their sleep, b) the extent of disturbance experienced, and c) the extent to which they continued to worry about that topic one day later. Given that the number of days when worries were experienced varied, the participants also varied in the number of most disturbing worries that they rated. Consequently, rather than provide a mean rating based on inconsistent numbers of data points, the maximum scores for the week on each disturbance indicator were used and are displayed in Table 7. These data provided an indication of the extent to which the participants experienced disturbance associated with at least one worry in each category during the self-monitoring period.

Among the 83 participants who reported one or more worries during the week, 50.6% reported at least one night of worry-related sleep disturbance, with a mean of 1.13 ($SD = 1.54$) nights of such sleep disturbance. Examination of the maximum disturbance

Table 7

Disturbance Associated with Most Disturbing Worries of the Day on the Worry Diary (N = 83)

	<i>n</i> ^a	Disturbed sleep? %	Max. Disturbance <i>M</i>	<i>SD</i>	Max. still worried? <i>M</i>	<i>SD</i>
All categories	83	50.6	2.77	.77	2.63	.92
Personal health and safety	34	70.6	2.68	.81	2.77	.92
Others' health and safety	30	56.7	3.13	.63	2.87	.86
General hassles	29	44.8	2.79	.73	2.69	.93
Social	29	62.1	3.07	.75	2.79	.86
Work and time-related	26	53.8	2.89	.77	2.85	.97
Financial	15	73.3	3.00	.54	2.73	.59
Others' well-being	7	42.9	2.71	.95	2.57	.79
Decision to make	7	57.1	3.29	.76	2.86	.90
Political / world issue	6	83.3	3.00	.89	3.17	.75
Death / dying	3	100	3.33	.57 _b	3.00	0
Natural disaster	1	100	3.00	-. _b	3.00	-. _b
Pets	1	100	3.00	-. _b	3.00	-. _b
Non-categorizable	9	22.2	2.78	.67	2.22	.67

^a Number of participants who selected as the most disturbing worry of the day.

^b Not applicable because *n* = 1.

ratings (collapsed across categories) showed that the mean score on this 4-point scale was 2.77 ($SD = .77$), where a score of 2 represented “a little disturbance” and a score of 3 represented “a lot of disturbance”. For the maximum rating on the 4-point scale measuring the degree to which the worry continued one day later, the mean score was 2.63 ($SD = .92$) where a score of 2 represented “I continue to be a little worried about it” and a score of 3 represented “I am almost as worried about it as I was before”. The findings suggested that at least one worry that participants reported on WD was associated with moderate amounts of disturbance and continued worry the next day.

Table 7 also presents the mean disturbance ratings for each of the broad worry themes, when selected as the most disturbing worry of the day. The number of participants reporting each theme as most disturbing mirrored the general frequency of occurrence of each worry (as seen in Table 6). This finding provided evidence that no worry theme was disproportionately represented in relative frequency but not in disturbance. Statistical analyses comparing disturbance associated with different worry themes were not used due to gross variations in sample sizes and partially overlapping samples. However, examining the maximum disturbance and extent of continued worry ratings suggested little variability across themes and indicated that most ratings hovered around a moderate degree of disturbance and continued worry.

Correlational Analyses

Correlational analyses were planned to determine the extent to which the WD showed evidence of convergent validity with other measures of worry. A secondary purpose of the correlational analyses was to assess the socio-demographic context of worrying in this sample by assessing the pattern of associations between worry variables

and the demographic variables of age, gender, and years of education along with perceptions of health and financial status.

Data screening procedures. Prior to conducting these analyses, all variables were screened for suitability for statistical analyses. Outliers were defined as scores that were more than three standard deviations from the mean. Following procedures recommended by Tabachnick and Fidell (1996) outliers were re-coded so that they maintained their relative position in the distribution but remained within three standard deviations from the mean. Also following procedures outlined by Tabachnick and Fidell, data that remained significantly skewed were transformed using either square root or logarithmic transformation to reduce the impact of skewness. For the WD data, the broad (rather than micro-level) worry themes were used for the correlational analyses. The unit of analysis focused on the total number of worries reported during the week along with the number of times each participant reported worrying about each theme. Due to extremely skewed distributions for the WD categories that were reported by less than 20% of the participants, the following worry categories were not used for the correlational analyses due to concerns about the reliability of the data: others' well-being, decisions to make, political / world issue, death / dying, natural disaster, and pets.

Further details of the data screening procedures and adjustments that were made to the data are presented in Appendix I. However, it is relevant to note here that square root transformations were applied to the following variables: total WD worries, WS-R total and content scales, and number of nights with sleep related disturbance.

Additionally, logarithmic transformations were applied to the following variables: personal health and safety, others' health and safety, general hassles, social, and work /

time-related worries. Finally, the number of financial worries on the WD were dichotomized (ie., either reported or not). These transformations were necessary to reduce the impact of positively skewed distributions. Such skewed distributions were expected, and reflected the fact that the majority of people worried very little (or not at all) about specific worry themes while a minority of individuals reported several repetitions of such worries.

Correlations between diary and questionnaire measures. Hypothesis 5 predicted that the total number of worries during the seven-day WD monitoring period would be correlated with other worry indices (ie., WS-R, and PSWQ). Hypothesis 5 also predicted that there would be a pattern of theme-specific correlations between the WD and the WS-R content scales, and that indices of health and financial status would be associated with corresponding worries on the WD.

The inter-correlations among these variables are presented in Table 8. As predicted, the total number of WD worries were positively associated with total WS-R scores and with each of the WS-R content scales. Total WD worries also correlated significantly with the PSWQ. However, this latter correlation was significantly less marked than the corresponding correlation for the total WS-R, $t(92) = 2.06, p < .05$.

There was a pattern of inter-correlation between the worry content areas measured by the WD and the WS-R content scales. Specifically, WS-R health worries correlated with WD worries about personal health and safety as well as others' health and safety. Interestingly, worries about personal health and safety on the WD also correlated with financial worries on the WS-R. WD worries about others' health and safety were

Table 8

Correlations Between Worry Diary Frequencies and Worry Questionnaires, Life Situational Factors, and Worry Diary Disturbance (N = 95)

	Worry Diary Themes						Total WD ^a
	Personal health & safety ^b	Others' health & safety ^b	General hassles ^b	Social ^b	Work / Time related ^b	Financial ^c	
<i>WS-R Content scales:</i>							
Health ^a	.22*	.24*	.18	.18	.11	.16	.34**
Finance ^a	.32**	.17	.09	.15	.19	.28**	.33**
Personal ^a	.15	.18	.22*	.34**	.14	.17	.33**
Social ^a	.14	.21*	.26*	.31**	.09	.16	.36***
Family ^a	-.17	.32**	.11	.29**	.13	-.01	.21*
World ^a	.07	.25*	.08	.33**	.19	.17	.35***
Total WS-R ^a	.17	.30**	.20	.35**	.17	.19	.41***
PSWQ:	.12	.12	-.04	.17	.00	.09	.22*
<i>Life situation:</i>							
Perceived health	-.25*	-.24*	-.24*	-.14	-.11	-.07	-.35***
Perceived finances	.05	-.22*	-.01	-.14	.01	-.34**	-.17
<i>Worry diary disturbance:^d</i>							
# nights missed sleep ^a	.48***	.28*	.08	.19	.08	.19	.46***
Max. Disturbed	.11	.46***	.23*	.34**	.17	.13	.54***
Still worried?	.28**	.37**	.18	.25*	.23*	.14	.53***

^a Scores reflect square root transformations. ^b Scores reflect logarithmic transformations.

^c Scores dichotomized. ^d $n = 83$ for worry disturbance ratings.

* $p < .05$. ** $p < .01$. *** $p < .001$.

associated with a range of WS-R subscales including worries about social conditions, family, and world issues. Social worries on the WD also correlated with a range of WS-R sub-scales including worries personal concerns, social conditions, family concerns, and world issues. Furthermore, financial worries on the WD were specifically correlated with the corresponding category on the WS-R. It is noteworthy that work and time-related worries on the WD did not correlate with other worry measures. It is also noteworthy that worries about general hassles on the WD converged with at least two WS-R content scales, suggesting that some of these “hassles” are in fact associated with a tendency to report content-based worry.

The worries reported on the WD also showed a meaningful pattern of association with perceived health and financial status. Poorer subjective health was associated with WD worries in that domain. Similarly, poorer perceived financial status was associated with greater financial worries. However, this pattern of inter-correlation was not limited to a domain-specific pattern of association. For example, poorer perceived health was also associated with WD worries about others’ health and safety in addition to worries about general hassles, and a poorer perceived financial situation were also association with WD worries about others’ health and safety.

Taken together, these correlations provide some support for Hypothesis 5 and suggest that the WD did measure a construct similar to those measured by the WS-R scales, and to a lesser extent, the PSWQ. Nonetheless, a pattern of theme-specific correspondence was not always apparent.

The socio-demographic context of worry in late adulthood. Consistent with previous research, Hypothesis 5 also predicted that the tendency to worry would be

associated with poorer perceived health and financial status. The pattern of association between worry with gender, years of education, and age were also assessed. Table 9 presents the correlations among the total WS-R, PSWQ, total WD worries, and these demographic variables. As can be seen, this pattern of association was mostly unremarkable, except for the negative correlation between the content-based measures of worrying (WS-R and WD) and health status. None of the worry indices were associated with age, gender, or with perceived financial status. Finally, total WD worries were positively associated with years of education. Because the other worry indices were not correlated with years of education, it is possible that this association reflected the demands of the diary task.

Discussion

The major purpose of this study was to extend the scientific knowledge on the content of worries in late adulthood by applying a multi-method approach to study worry content among individuals aged 65 and over. Because the diary measure was developed for this study, evidence for the convergent validity of this measure was sought and assessment of the disturbance associated with the worries that emerged were used to better understand the extent to which the WD actually measured worrying behaviour. Given the relevance of this latter question for interpretation of this data, evidence for the convergent validity of the WD will be discussed first, followed by a discussion of the worry content that emerged.

Did the WD Adequately Measure Naturally Occurring Worries?

The correlations between the WD and other worry indicators generally supported the convergent validity of this measure. Total WD worries correlated with both total

Table 9

Correlations Between Worry Indices and Demographic Variables

	WD total ($N = 95$)	WS-R Total (sqrt; $N = 111$)	PSWQ ($N = 111$)
Age	-.03	-.07	.00
Gender ^a	.07	.09	.05
Years education	.22*	.05	-.07
Health rating ^b	-.35***	-.25**	-.17
Finances rating ^b	-.17	-.13	-.12

^aMale gender coded as 1; female gender coded as 2. ^b Higher scores indicate better perceived health and a better perceived financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

WS-R scores along with PSWQ scores, although the association for the PSWQ was relatively weak. The finding that total WD worries were more strongly associated with the WS-R relative to the PSWQ made intuitive sense since the WD and WS-R were both measures of worry content. However, this finding suggests that the WD has demonstrated more convincing evidence that it measured worry content but did not necessarily measure the general tendency to experience disruptive worry.

The WD also showed a pattern of association with corresponding content categories on the WS-R content scales. For example, health-related worries on the WD were associated with health-related worries on the WS-R and similar associations were found for social and financial worries. Interestingly, these patterns of association were not limited to content-specific associations. For example, worries about personal health and safety on the WD also correlated with financial worries on the WS-R, possibly reflecting financial strains associated with one's deteriorating health, which may include a need for greater financial resources and instrumental support. The finding that WD worries about others' health and safety were associated with a range of other WS-R subscales including social conditions, family, and world issues may be partially explained by the common elements of concern for the well-being of others and in the case of social conditions, by the possibility of losing instrumental or social support. Social worries on the WD also correlated with a range of WS-R content scales including personal concerns, social conditions, family concerns, and world issues. For all but world issues, this pattern provided evidence of convergent validity since the broadly defined WD social category included elements of worry about interpersonal conflict, social evaluative concerns, and

worry about loneliness, that converge with similar themes in the social conditions, personal, and familial worry sections on the WS-R.

The worries reported on the WD also showed a meaningful pattern of association with perceived health and financial status. Poorer subjective health was associated with WD worries in that domain in addition to worries about others' health and safety, and daily hassles. Similarly, a poorer perceived financial situation was positively associated with financial worries on the WD but was also associated with worries about others' health and safety. It is possible that health and financial problems predispose older individuals to worry about a variety of topics, which include but are not limited to these domains. For example, poorer perceived health may predispose people to not only worry about their own health problems but to also worry about the health of a significant other and to worry more about daily life hassles, which are likely to be more cumbersome under poor health conditions. Of course, the direction of these associations are speculative and may not be conclusively inferred from these data.

It is noteworthy, that work and time-related worries did not correlate with other worry measures. Given that most of the converging evidence came from an association between the two content-based measures, the lack of an association between WD work and time-related worries with any of the WS-R content scales likely reflects the fact that no indicator on the WS-R captured such worry themes. This issue will be discussed below. It is also noteworthy that worries about general hassles on the WD were positively correlated with two worry content scales on the WS-R. This was somewhat surprising given that the descriptions of these "hassles" led me to question whether or not these reflected bona-fide worries or rather, minor inconveniences. Although it is important to

not over-interpret these data, these correlations along with the finding that the disturbance ratings associated with this WD category were not distinct from the other categories suggested that this may in fact, have measured a tendency to worry about routine and daily events.

To summarize, these data provided converging evidence that the WD did in fact measure a construct related to a tendency to worry about a variety of topics, although it provided less convincing evidence as an indicator of trait worry. This was adequate for the purposes of the present study, which sought to better understand common worry themes but not necessarily trait or pathological worry among older individuals. Nonetheless, examination of the worry disturbance ratings, the extent to which worries disrupted sleep, and extent of continued worry after a day, also indicated that at least some of these worries were not trivial and were associated with moderate degrees of disturbance.

Multi-Method Assessment of Worry Content

Turning now to the content of worries expressed on the WD and on the WS-R, this study showed both consistency and inconsistency between these two measurement formats. The finding that worries about health were relatively common across both measures is consistent with a growing body of research in this area (e.g., de Róiste, 1996; Doucet et al., 1998; Powers et al., 1992; Skarborn & Nicki, 1996; Watari & Brodbeck, 2000; Wisocki, 1988), which suggests that health-related worries may be a dominant worry theme among older individuals. Interestingly however, although worries about the state of the world were the most commonly reported worry on the WS-R, worries about political or world issues were only reported by 8.4% of respondents on the WD. This

finding suggested that these may in fact be concerns that emerge when prompted, rather than naturally occurring worries. This finding also draws into question the accumulating body of evidence using the WS-R, suggesting that worries about the state of the world are relatively common among older adults (Skarborn & Nicki, 2000; Watari & Brodbeck, 2000). In interpreting this finding, it is also important to consider that these data were collected prior to the terrorist attacks on the United States in September 2001. Since that time, it is possible that worries about the state of the world have become a more salient daily concern.

The worry themes that emerged on the WD provided intriguing results. After worries about health, the most commonly experienced specific worries by this sample of older individuals were themes that likely reflect active engagement in life. Worries that were commonly experienced included worries about daily life hassles, worries about social evaluation and social plans, and worries about work (primarily volunteer work) and time-related issues. Such worries were not drastically different from those commonly found among younger individuals (Dugas et al., 1995; Laberge et al., 2000), which indicates that worry content in late adulthood may not be as distinctive as the content of the WS-R suggests. In contrast, several worries specifically associated with the aging process such as worries about death and dying, loneliness, fears about personal safety and vulnerability, and specific worries about an inability to engage in physical activity were relatively uncommon on the WD.

These latter findings are consistent with other research showing a linear reduction in anxiety about the aging process over the course of the adult lifespan (Lynch, 2000) in addition to reduced anxiety about death among older adults (Fortner et al., 2000; Thorson

& Powell, 2000). Taken together, the findings of relatively low levels of worry about some issues that are relevant to the aging process, likely reflects the idea that as older adults face the challenges associated with aging they may learn that they are able to cope effectively.

Implications for Researchers and Clinicians

The findings based on the WD have implications for both the future assessment of worry themes among older adults and for clinicians who work with older individuals. The WS-R is a useful index of worry in late adulthood that has been shown to be valid and reliable in a variety of studies. This measure has also been instrumental in developing a base of knowledge about this topic. Nonetheless, these data suggest that the WS-R may be limited in scope by focussing an inordinate amount of attention to worry themes of potential loss associated with aging, and under-representing other worry themes reflecting continued life engagement. While no measure of worry content would be expected to capture all or even most worry themes in a given population, it is important that such a measure provide a balanced and representative sampling of commonly occurring worry themes. The findings suggest that reducing some of the loss-based content of the WS-R and adding worry themes associated with social and work-related concerns, might provide a measure that more accurately represents the worrisome experiences of community-dwelling seniors.

These findings also have implications for clinicians who work with this population. It is always good clinical practice to conduct individual-based assessments which incorporate knowledge from the research literature but which is not overly influenced by prior assumptions about a given population. However, these findings

suggest that clinicians who work with older adults should not assume that the worries of older individuals will necessarily differ from those of younger people who they see in their clinical practice. The findings do suggest however, that worries about health may be particularly common in older populations.

Limitations and Direction for Future Research

Such recommendations require due consideration of a major limitation of this study. Specifically, this sample consisted of a generally healthy group of community-dwelling and active seniors who volunteered to participate in multiple research projects. These findings may not generalize to a less healthy and less active group. Since worry has been shown to be associated with poorer health status in prior research (Skarborn & Nicki, 1996; Wisocki, 1988) and that homebound seniors seem to be more vulnerable to worry about losses due to physical limitations, illness and safety of close others, and worries about care-giving, relative to community active seniors (Wisocki et al., 1986), further research is needed prior to extending these findings to other populations of older adults. Another noteworthy limitation of this study is that because the WD was completed outside of the laboratory, it was at times unclear whether the respondents adhered to the definition of worry that was provided. Despite efforts to exclude worries that were clearly descriptions of non-anxious emotions or seemed to be descriptions of events, it is possible that some of the coded items may have been irritations rather than worries. Future research employing a diary format to measure naturally occurring worry themes should ensure that respondents limit their responses to actual worries by refining the structure of this measure to include specific details of the worries. For example, respondents may be asked to specify their feared future-directed outcomes in their

descriptions of worries. An additional precaution may be to review the content of the diaries with the participants to clarify the nature of any unclear worry themes. Finally, further research is needed to determine whether worry themes among clinical samples of older individuals are distinct from those observed in non-clinical samples. Diefenbach et al. (2001) have initiated work on this topic and found that although older individuals with GAD worried about a greater variety of topics relative to a non-clinical sample of older adults, there were no significant differences in the pattern of worry content. By incorporating such suggestions it is believed that continued work in this area would help to provide more conclusive evidence about the nature of worry content among older adults.

STUDY 2:

AGE-RELATED CHANGES IN WORRY

The findings from Study 1 suggested that community-dwelling and relatively healthy older individuals worry about a variety of topics, which include but are not limited to topics associated with the aging process. However, an accumulating body of research also suggests that the general tendency to worry seems to decrease in late adulthood (Babcock et al., 2000; Doucet et al., 1998; Powers et al., 1992; Skarborn & Nicki, 2000). Study 2 sought to extend this body of research using two different methodologies to assess age-related changes in the tendency to worry. First, older adults were asked to retrospectively recall whether they perceived a change in their worry frequency relative to when they were younger. Second, samples of older and younger adults were compared on a standardized measure of trait worry and on measures of worry-related features. The latter measures were included to determine whether processes that are associated with a tendency to worry in the general adult population also shift with age. Each of the following features were hypothesized to be relatively low among older adults: intolerance of uncertainty, beliefs in the functional value of worrying, and information processing features such as the tendency to focus attention to threat, to interpret ambiguous situations as threatening, and to engage in elaborated worry thought sequences directed at threatening future outcomes. These hypotheses were derived from the literature on emotion and aging, which suggested that reduced negative affect among older individuals reflects a shifting goal structure which allows for a minimization of negative experiences in the face of a more time-limited future (Carstensen, 1993; 1995; Carstensen et al., 1999; Carstensen et al., 1995; Fredrickson & Carstensen, 1998). The

idea that older individuals harbour fewer beliefs in the functional value of worry is also derived from the possibility that through an accumulation of life experiences, older individuals may have learned that feared outcomes associated with worry rarely occur (Borkovec & Newman, 1999). Examination of age differences in such processes would provide evidence that the hypothesized age-related reduction in worrying may not be solely attributable to external circumstances such as a general diffusion of responsibilities. Although longitudinal data are ultimately needed to determine that this change reflects a developmental shift rather than a cohort effect, it was hoped that converging evidence from this multi-method approach would provide more convincing evidence for this potentially age-related phenomenon. To my knowledge, this was the first study to examine the association between worry and related process constructs among older adults. Consequently, prior to assessing for age differences, it was also important to assess whether the association between worry and the associated features listed above generalize to older individuals.

Although prior research suggested that as a group, older individuals report a reduced tendency to worry, a small minority of older adults describe themselves as chronic worriers. Reports from these high worriers suggest that their worries have increased in later life and that they may experience difficulties associated with life constraints imposed by aging (Wisocki, 1994). Consequently, it was also predicted that a minority of older individuals would report an increased tendency to worry relative to when they were younger in their retrospective accounts. Reasons underlying these perceived changes were also explored through a qualitative assessment. To summarize, three hypotheses were tested:

Hypothesis 1

It was predicted that older adults would report a reduced tendency to worry. This pattern was expected in both cross-sectional age comparisons and via the retrospective reports of the older adults. Possible reasons for decreases in worry were explored. It was predicted that at least some participants would report that intra-psyche changes accounted for the decrease.

Hypothesis 2

Although the majority of seniors were expected to report reductions in their worrying, it was also predicted that a minority of older adults would report increased worry relative to when they were younger. Possible reasons for such changes were explored.

Hypothesis 3

Finally, it was predicted that older individuals would show reductions relative to younger adults in several features associated with worry. More specifically, it was predicted that older adults would be less intolerant of uncertainty, harbour fewer beliefs in the functional value of worrying, show less of a tendency to attend to threat and to perceive ambiguous information as threatening, and show a reduced tendency to engage in elaborated worry thought sequences. With regard to the latter feature, measurement of subjective arousal while engaged in worrisome thought sequences were also ascertained since high worriers have been shown to report increased subjective discomfort while engaged in such tasks (Vasey & Borkovec, 1992). This was used in exploratory analyses to determine whether older and younger adults also differ in their emotional reactivity to discussing their worries. Although previous research suggests that older individuals

worry less than younger adults, research also suggests that older adults do not differ from younger adults in the intensity of emotional experiences (Levensen et al., 1991; Tsai et al., 2000). Consequently, no a priori hypotheses guided this exploratory analysis.

The results from the study are presented in two sections, reflecting the fact that the data were collected in two waves of testing using different samples of older individuals, who were each compared to the same sample of younger individuals. The findings for the retrospective reports of changes in worrying along with the age comparisons on trait worry, intolerance of uncertainty, and beliefs in the functional value of worrying are presented in Section 1. The age comparisons on measures of attention to threat, interpretation of ambiguous situations, and the tendency to engage in worry thought sequences are presented in Section 2.

Method

Section 1:

Age-Differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying

Participants

Analyses with the first sample of older adults and the common comparison sample of younger adults are reported in Section 1. Tables 1 and 3 (presented above) provided a demographic overview of the older and younger participants. To summarize, the older sample consisted of 111 individuals aged 65 and over who were living independently in the community. They were recruited from lists of individuals who had participated in a previous study at the Adult Development and Aging Laboratory of Concordia University ($n = 106$) and via word of mouth ($n = 7$). They ranged in age from 65 to 92, with a mean age of 74.18 ($SD = 6.13$), and were 61.3% female. The younger

adults were university students who were recruited from classrooms and an on-campus recruitment booth at Concordia University. The younger sample included 106 individuals ranging in age from 19 to 37, with a mean age of 24.18 ($SD = 4.22$) and were 58.5% female.

Measures

Demographic variables. Information on the demographic variables of age, gender, marital status, years of education, perceived health, and perceived finances were measured and were used to describe the sample. For the older sample, these variables were measured in the context of an interview on participants' life reflections (for further details, see Pushkar et al., in press). For the younger sample, the same questions were drawn from the life reflections interview and were administered using the same procedures. Years of education were operationalized as the highest level of educational attainment rated according to a standard scale, which was based on the current educational system in Quebec. Perceived health and financial status were measured with single item ratings. These demographic items were described above in Study 1 and are presented in Appendix D.

Changes in worrying interview. Retrospective reports of perceived changes in worrying among older adults were measured using a brief interview. The participants were asked the following questions:

“For the next part, I'd like you to think back to when you were a young adult (in your 20s or 30s) (pause). Generally, do you perceive any changes in the frequency of your worries now, compared to when you were younger? Have there been changes in how often you worry?”

If changes were perceived, the participants were asked: “why do you think you worry (less/more) now compared to when you were younger?”

The interviews were audio-taped and were subsequently transcribed for later coding. The data were coded by myself using a bottom-up (data driven) approach. First, all of the responses were read and were considered in developing a coding system. After the coding system was finalized, each response was classified.

Perceived changes or stability in worrying were coded as follows: *increased*, *decreased*, *no perceived change*, or *ambivalent* response. A minority of participants provided an unclear response. In these cases, the response was recorded as *uncodeable*.

When increases in worrying were perceived, four broad reasons for this change emerged from the data: 1) a perception of more available time to worry (labelled *more time*); 2) a perception that worries in late adulthood involve more serious issues (labelled *more serious concerns*) which are less controllable and which were perceived as having more serious consequences. This theme also included specific references to increased worrying due to the challenges of aging such as health problems or a loss of independence. Other coded themes included: 3) a perception of increased responsibility to others including family members and children (labelled *increased responsibility*), and 4) a realization of a need to be prudent and aware of potential danger (labelled *awareness of danger*), which contrasted with perceptions of themselves as more care-free in earlier adulthood.

For the perceived decreases in worrying, two broad categories were evident: 1) perceived *changes in self* and 2) perceived *changes in life circumstances*. Examples of *changes in self* included: a perception of reduced worry due to better emotional regulation skills, having learned that worry is a waste of time and that worrisome concerns rarely materialize, having a better perspective on what is important along with a

more adaptive orientation to problems, and an increased ability to disengage when faced with an uncontrollable situation. Examples of *changes in life circumstances* included: having fewer work-related problems, perceiving a more time-limited future, fewer familial responsibilities, and feeling more financially secure and settled. It is recognized that these broad categories may be inextricably linked. The decision of which category to place a response was based on whether the participant referred to something inside the self, outside the self, or both.

In recognition that there may be multiple reasons for changes in worrying, no limits were placed on the number of coded reasons for perceived changes in worrying. For example, it was possible to report both perceived *changes in self* and perceived *changes in life circumstances*, if that is what the participant stated. To gain an estimate of the reliability of these codes, a second coder (an undergraduate student in psychology), was first trained on the coding system and then independently coded 23 interviews (21% of the interviews). The inter-rater agreement for first question about whether changes were perceived in the frequency of worrying, was 96%. For the reasons for changes in worrying, where more than one response was possible, the inter-rater agreement was 78% for the *number* of reasons provided by each respondent. When the same *content* was coded, the inter-rater agreement was 74%.

Trait worry. The PSWQ was used as a measure of trait worry, a measure that has been shown to be reliable and valid among both younger and older adults. Please refer to Study 1 for a description of the psychometric properties of this scale. In the present study, internal consistency coefficients of .91 and .93 were obtained for the older and younger samples, respectively. The PSWQ is presented in Appendix E.

Intolerance of uncertainty. The Intolerance of Uncertainty Scale (IUS; Buhr & Dugas, 2002; Freeston et al., 1994) is a 27-item questionnaire measuring a general tendency to find uncertain situations stressful and upsetting, to have difficulty acting when faced with uncertainty, and to believe that unexpected events are unfair and should be avoided. Each of the 27 items on the IUS are rated on a 5-point Likert scale, with possible scores ranging from 27 to 135. Higher scores on this scale indicate greater difficulty tolerating uncertainty. The IUS has shown excellent internal consistency ($\alpha = .94$) and a five week test-retest reliability coefficient of .74 (Buhr & Dugas). Although correlated with other measures of mental health, the IUS shows a particularly strong association with trait worry, where it predicts a unique share of the variance (Buhr & Dugas; Dugas et al., 2001; Freeston et al.; Ladouceur et al., 1999). In terms of its discriminant validity, the IUS was shown to be a pivotal variable in discriminating between individuals with and without GAD (Dugas et al., 1998). In further support of its construct validity, the IUS has also been shown to be associated with a tendency to seek out further evidence prior to making a decision when faced with an ambiguous behavioural task (Ladouceur et al., 1997).

In the present study, the internal consistency coefficients were .91 for each of the younger and older samples. The IUS is presented in Appendix J.

Beliefs about worry. Beliefs about the functional value of worrying were assessed using the Why Worry Scale (WWS; Freeston et al., 1994), a 20-item scale measuring various beliefs that are believed to be common among individuals who are prone to worrying. Each item is rated on a 5-point Likert scale with total possible scores ranging from 20 to 100. Higher scores indicate a greater number of beliefs about the functional

value of worrying. Worry-related beliefs on the WWS include: beliefs that worrying will lead to solution generation (e.g., “if I worry less, I have less of a chance of finding a solution”), increased control (e.g., “I worry to try to protect myself”), and a more efficient root to dealing with life difficulties (e.g., “if I worry I can find a better way to do things”). The scale also includes beliefs that worry will somehow avert negative outcomes (e.g., “even if I know that it’s not true, I feel that worrying helps to decrease the likelihood that the worst will happen”).

The WWS has displayed good internal consistency, ($\alpha = .87$; Freenston et al., 1994). In terms of construct validity, the WWS was able to discriminate between individuals with and without GAD (Dugas et al., 1998; Freeston et al., 1994), and has been shown to account for unique variance in trait worry (Freeston et al., 1994).

In the present study, internal consistency coefficients for the WWS were .88 for each of the younger and older samples. The WWS is presented in Appendix K.

Section 2:

Age Differences in Attention to Threat, Interpretation of Ambiguity, and the Tendency to Engage in Worry Thought Sequences.

Participants

The participants included in Section 2 analyses were the second expanded sample of older adults and the common younger comparison sample. A demographic overview of each sample was presented above in Tables 2 and 3.

To summarize, the older sample consisted of 149 individuals aged 65 and over who were living independently in the community. Seventy-three of the older participants had participated previously in this research as part of the first sample of older individuals.

The remaining participants were recruited from community organizations ($n = 51$), an advertisement in a Montreal-area newspaper ($n = 28$), and via word of mouth ($n = 2$). The older participants ranged in age from 65 to 89, with a mean age of 73.37 ($SD = 5.51$), and were 59.1% female. The younger adults were the same individuals who were described above in Section 1.

Measures

Demographic variables. Information on demographic variables of age, gender, marital status, years of education, perceived health, and perceived finances were measured. These items were described in Section 1 and are presented in Appendix D.

Information-seeking style. The Miller Behavioural Style Scale (MBSS; Miller, 1987) was used to measure characteristic ways that people selectively attend to and process threat-relevant cues. This scale measures the extent to which individuals use a *monitoring* (a tendency to seek out information) or a *blunting* (a tendency to distract oneself) informational style. Respondents are asked to consider how they would react to four hypothetical stress-evoking scenes that are largely uncontrollable (e.g., “vividly imagine that you are afraid of the dentist and have to get some dental work done”), and to answer a series of questions about how they would respond. Half of the responses are monitoring responses (e.g., “I would watch all the dentist’s movements and listen for the sound of the drill”). The other half are blunting responses (e.g., “I would try to think about pleasant memories”). Two sets of scores are derived from the MBSS: 1) the total number of monitoring endorsements across the four scenarios and 2) the total blunting endorsements across the four scenarios. The scales are scored by calculating separate

sums for each of the monitoring and blunting scales, yielding scores that range from 0 to 16 for each scale.

The internal consistency of the MBSS has been shown to be adequate, with coefficients ranging from .75 to .79 on the monitoring scale and from .67 to .69 on the blunting scale (Miller, 1987). In support of the scale's construct validity, Miller (1987) conducted a laboratory-based assessment of how "monitors" and "blunters" perform on a series of stressful behavioural tasks. In that study, individuals who scored high on monitoring and low on blunting tended to seek out more threat-relevant information compared with those who showed the reverse pattern on these scales. Importantly, participants who were high on monitoring and low on blunting maintained a heightened level of anxiety whereas those who showed the reverse pattern experienced reductions in their anxiety while exposed to the stressor. Numerous other studies have found evidence supporting the criterion validity of this scale (see Miller, 1995, 1996, for reviews). For example, among women who were at increased risk for ovarian cancer, Schwartz, Lerman, Miller, Daly, and Masny (1995) showed that higher monitoring scores were associated with greater perceived risk of getting the disease, more intrusive thoughts about this possibility, and higher levels of psychological distress. Monitoring has been shown to be distinct from depression, trait anxiety, and desire for control (Miller, 1995), providing support for the scales' discriminant validity.

In the present study, the Kuder-Richardson internal consistency coefficients (equivalent Cronbach's alpha for dichotomous scores) were .70 and .54 for the monitoring and blunting scales, respectively, in the older sample. The comparable

coefficients were .67 (monitoring) and .51 (blunting) in the younger sample. The MBSS is presented in Appendix L.

Perception of ambiguous situations. The Ambiguous-Unambiguous Situations Diary (AUSD; Davey et al., 1992) consists of 28 fictitious diary entries that respondents are asked to imagine are their own. Fourteen of the items are worded in an unambiguous way. Seven of these unambiguous items are clearly benign (e.g., “I really enjoyed seeing my old school friend, David, last night. It has been a year since we last saw each other”) whereas the other seven items are clearly threatening (e.g., “I have been feeling sick all day, if I still feel like this tomorrow I’ll have to go to the doctor”). The remaining 14 items are worded ambiguously and could be interpreted as either threatening or non-threatening (e.g., “while on the way out tonight I was stopped in the street”; “I was walking along the seafront when I saw my friend Helen waving in the sea”). Respondents are asked to imagine themselves in each situation and to indicate whether they would be concerned (ie., worried) or unconcerned. The ambiguous items were drawn mainly from the ambiguous sentences used by Eysenck et al. (1991) in a study on the association between anxiety and interpretation of ambiguous material. Three scores are derived from the AUSD: 1) the total number of ambiguous responses that were endorsed as concerning, 2) the total number of unambiguous positive responses that were concerning, and 3) the total number of unambiguous negative responses that were endorsed as concerning.

There exists only limited data on the psychometric properties of this scale. Davey et al. (1992) found that both worry and anxiety were associated with a tendency to perceive ambiguous and unambiguous situations as threatening. Recently, Dugas et al. (in

press) also found that concern about the ambiguous situations on the AUSD were associated with both trait worry and with intolerance of uncertainty.

For the present study, several of the items on the AUSD were re-worded because the AUSD, which was developed in Britain, contained phrases that are not commonly used in Canada. For example, for the item: “As I walked along the quayside I overheard three men discussing the best way to blow up a dinghy”, quayside was replaced with “pier”. Additionally, because many of the items were particularly relevant for a student population, five items (3 ambiguous and 2 unambiguous) were altered so that they would be relevant for both younger and older adults. For example, the ambiguous item “I got a piece of coursework back today and was surprised at the mark it received” was changed to: “I got a letter from the government today and was surprised to see what was in it”. For each of these changes, the source of the ambiguity (ie., “surprised” as the ambiguous term) was maintained. Finally, one item was dropped from the ambiguous scale due to concern that the item may have been less relevant for the younger sample (ie., “my grandson had to go to the doctor today. The doctor was going to check his growth”), leaving 13 items on the ambiguous scale.

The AUSD is scored by summing the items identified as concerning for each of the scales. Possible scores ranged from 0 to 7 for each of the unambiguous scales and from 0 to 13 for the ambiguous scale. Internal consistencies in these samples were assessed using the Kuder-Richardson internal consistency coefficient. For the older sample the internal consistencies coefficients were .82 for the unambiguous positive, .52 for the unambiguous negative, and .75 for the ambiguous scale. For the younger sample, the corresponding coefficients were .71 for the unambiguous positive scale, .59 for the

unambiguous negative scale, and .57 for the ambiguous scale. The AUSD is presented in Appendix M.

Worry thought sequences. The tendency to engage in worry thought sequences was measured using the “catastrophizing” interview (cf., Vasey & Borkovec, 1992), with a modified interview script applied by Provencher et al. (2000). The term “worry thought sequences” was adopted rather than “catastrophic thought sequences” because the term “catastrophic” did not adequately reflect the content of many of the thought sequences that emerged.

During this task, participants are asked a series of iterative questions about the feared consequences associated with a current worry. The interview proceeds until 1) the participant could not think of another response or otherwise stated that they would be able to cope with the consequences, 2) the participant was unwilling to continue, or 3) the participant said the same response on two consecutive steps. Subjective feelings of psychological discomfort during the interview were also measured at each step, using a visual analog scale, which ranged from 0 (no discomfort) to 100 (extreme discomfort). The main variables of interest were the number of worry steps, and changes from baseline in subjective feelings of psychological discomfort during the interview. Measurement of worry content, general disturbance associated with their selected worry (pre-interview), and perceived likelihood of the worry actually occurring were also ascertained to verify whether the groups differed on these potentially confounding variables. Notice that general worry disturbance differs from subjective discomfort ratings in that the former refers to an initial 4-point rating that was conducted at the worry topic generation phase, whereas the latter were measured immediately preceding and

during the interview. Further details on the catastrophizing interview and its scoring procedures are presented below.

Several researchers have used this interview in studies on the underlying features of worry. Using this interview, high worriers have been shown to produce a greater number of worry steps (Davey & Levy, 1998; Vasey & Borkovec, 1992), perceive their worries as more likely to occur (Provencher et al., 2000; Vasey and Borkovec, 1992) and the content of the worry steps were judged to be more “catastrophic” among high worriers (Provencher et al., 2000).

Worry Interview Procedure

The worry interview proceeded in three steps: 1) a worry topic generation, 2) a practice phase, and 3) a topic selection and interview phase.

Topic generation phase. To select a topic for the interview, the participants were first asked to list up to three current worries. A standard procedure was used to elicit these worry topics. First, worry was defined as: 1) a thought, 2) about the possibility of something negative occurring, and 3) causing discomfort. The interviewer then left the room for five minutes while the participant listed up to three current worries, and rated the disturbance associated with each worry on a 4-point scale, where 1 indicated “no disturbance” and 4 indicated “extreme disturbance”. The standard script and form for the topic generation phase are presented in Appendix N.

Practice phase. Prior to beginning the interview, a practice example was used to help the participants to become familiar with the iterative questioning style that was used throughout the interview and to help the participants to focus their responses. For this practice interview, the participants were asked to think of a topic that was interesting for

them. Once this topic was selected, the participants were asked a series of repetitive questions about the features underlying this interest using the following probe: “what is it about ___ that you find interesting”, where ___ referred to the response from the previous step. The interview was stopped once the participants seemed to understand the iterative questioning style (typically after three steps) and they were informed that a similar questioning style would be used during the worry interview. The script for the practice trial is also presented in Appendix N.

Topic selection and interview phase. The participants’ worry disturbance ratings (during the topic generation phase) were used to guide the selection of the worry topic for the interview. While considering these ratings, they were asked to select their most disturbing worry from those that they listed. The participants were then asked if they would be willing to discuss the details of their worry and to have the interview audio-taped. If they were unwilling to have the interview audio-taped, the interviewer proceeded without the audio-tape. If the participant was hesitant to discuss their most disturbing worry they were asked if they wished to select a different worry from the list.

Once the target worry was selected, the interviewer asked “what is it about ___ that worries you”, where ___ signified the topic of their worry. The purpose of this question was to allow the interviewer to better understand the “if-then” relation associated with their worry. This facilitated the direction of the next question. The interviewer then asked “if ___ actually occurred, what do you worry would happen next?”, where ___ was the perceived consequence of the previous step. At each step, the interviewer clarified the worry using a series of standard probes (presented in Appendix N) and wrote the participants’ answers on a response sheet (presented in Appendix N).

This same question was repeated after each step until one of three stop rules occurred: 1) the participant could not think of another response (e.g. “I don’t know what would happen next”) or otherwise stated that they would be able to cope with the consequences (e.g., “I guess I would just deal with it”; “nothing would happen”; “I wouldn’t worry”), 2) the participant did not wish to continue, or 3) the participant mentioned the same response on two consecutive steps. After each step, the participants were asked to rate their level of psychological discomfort using a visual analog scale that was placed in front of them, ranging from 0 to 100 where 0 indicated no discomfort and 100 signifying extreme discomfort. Following the interview, the interviewer reviewed each of their responses and asked the participants to rate the likelihood of each step occurring, assuming that each of the previous steps had occurred. A visual analog scale was also used for this rating with possible responses ranging from 0 (0% likelihood) to 100 (100% likelihood). The visual analogue rating scales along with a sample interview form are presented in Appendix N.

If the participants appeared upset while talking about their worry, they were reminded that the interview could be stopped at any time that they wished. Two interviews (one older participant and one younger participant) were stopped prematurely due to participants’ hesitation to discuss the worry. Following the interview, time was taken to ask the participants about their experiences in this procedure and on other tasks.

Interview scoring procedures. Although the interviewers were trained to recognize when stop rules had occurred, these were at times overlooked during the interview situation. Other interviews were prematurely stopped. Consequently, to maintain consistency across interviews the number of worry steps were independently

rated by two trained research assistants (one undergraduate student in psychology and one graduate student in a related discipline). The coders also classified the target worry into one of 10 broad worry content themes that emerged during this task. While scoring the interviews, the coders used both the audio-taped recordings of the interview and followed the process of the interview using the notes that the interviewers produced on the response sheets. The availability of these materials helped the coders to better understand the flow of the interview. However, the coders were free to decide on the number of worry steps, independently of what the interviewers had noted. For example, the coders were free to decide that a stop rule had occurred earlier than an interviewer had indicated and they were free to discard interviews that ended prior to a stop rule occurring. I independently scored 22 and 31 interviews for younger and older participants, respectively (representing 22% and 23% of the valid interviews for younger and older participants). Inter-rater agreement for the number of worry steps was 82% for the younger adults and 77% for the older adults. Inter-rater agreement for worry theme codes were 82% for the younger adults and 100% for the older adults.

General Procedure

Both younger and older participants were contacted by telephone and were provided with further information about the study. If they remained interested, an individual appointment for testing was arranged. At the time of testing, the participants were provided with an overview of the study and questions were answered prior to getting informed consent. After completing the study, the participants were thanked and were offered the opportunity to receive a summary of the results.

For the first older sample (Section 1) testing was done in the context of the larger study on the life reflections of older adults (which also included the worry diary study presented above). Individual appointments for testing were arranged with an undergraduate psychology student, a graduate student in clinical psychology, or a collaborating professor. The participants completed some of the questionnaire-based measures at the laboratory whereas others were completed in the take-home package that was returned by mail in a pre-paid addressed envelope, along with the worry diary. The demographics measures and the changes in worrying interview were always completed at the laboratory. The PSWQ and WWS questionnaires were typically completed at the laboratory whereas the IUS was typically completed as part of the take-home package. However, flexibility was applied in determining which measures were completed at the laboratory and in the take-home package to accommodate the participants' preferences. As was mentioned in Study 1, the return rate for the take-home packages was 95%.

For the second sample of older adults (Section 2) the testing was conducted as part of a larger study on worry and coping styles. Individual appointments for testing were arranged with either an undergraduate psychology student or a graduate student in clinical psychology. Testing was typically conducted at the Adult Development and Aging Laboratory at Concordia University. However, older participants who expressed an interest in participating but who reported difficulty coming to the laboratory were offered the opportunity to have the testing conducted in their home. Six participants were tested in their homes whereas the remaining participants were tested at the laboratory. The request for in-home testing reflected a convenience rather than a necessity as each of these participants remained ambulatory. Given the high rate of return of the take-home

package for the first older sample, a similar procedure was conducted with the second older sample in order to allow the participants the convenience of completing some questionnaires at home. The participants were asked to complete the questionnaire package within one week of the testing and to return the completed questionnaires in the envelope that was provided. The demographics measure and the worry interview were always completed at the laboratory. The PSWQ and MBSS were typically completed at the laboratory, whereas the AUSD was typically completed in the take-home package. The return rate for the take-home package in this sample was 96%.

The younger adults were also tested individually using the same procedures described above. However, for the younger adults, all testing was carried out at the Adult Development and Aging Laboratory at Concordia University and all the measures were completed at the laboratory.

Results

Section 1:

Age-differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying

Data Screening

Prior to conducting analyses, the data were screened for missing values, the presence of outliers, and for skewed distributions. Procedures recommended by Tabachnick and Fidell (1996) were used to make necessary adjustments to the data. The details of the data screening procedures and adjustments that were made are presented in Appendix O. However, it is relevant to note here that a square root transformation was applied to the WWS to reduce the impact of skewness.

Retrospective Reports of Changes in Worrying

The focus of this set of analyses was to assess the extent to which older individuals report changes in their worrying, and where applicable, their perceived reasons for the changes. Hypothesis 1 predicted that the majority of older adults would report a reduced tendency to worry relative to when they were younger adults. Hypothesis 2 predicted that a minority of older adults would report an increased tendency to worry, relative to when they were younger. Of the 111 participants who were interviewed, one participant's interview was unavailable due to recording error, reducing the number of participants to 110 for this analysis.

Figure 1 graphically presents the participants' responses to the changes in worrying question. As predicted, the largest proportion of the participants (46.4%) perceived decreases in their frequency of worrying relative to when they were younger, whereas a sizeable minority (24.5%) of the participants reported increased worry. An additional 24.5% of respondents perceived no change in their frequency of worrying over time. Finally a very small minority of respondents reported either ambivalence about this issue (3.6%) or were not able to clearly answer the question (.9%).

Comparisons were also made to determine whether those who reported increases, decreases, or stability in their worrying differed in absolute worry scores at the time of testing. In addition to the PSWQ, the Worry Scale-Revised (WS-R; see description in Study 1) was available for analysis in this older sample. This measure was not a major focus of Study 2 because the WS-R items were less relevant for the younger adults. However, given that both worry measures were relevant for this particular analysis and since this analysis only included the older sample, they were both included. These trait and content-based measures of worry were moderately correlated ($r = .51, p < .001$), and

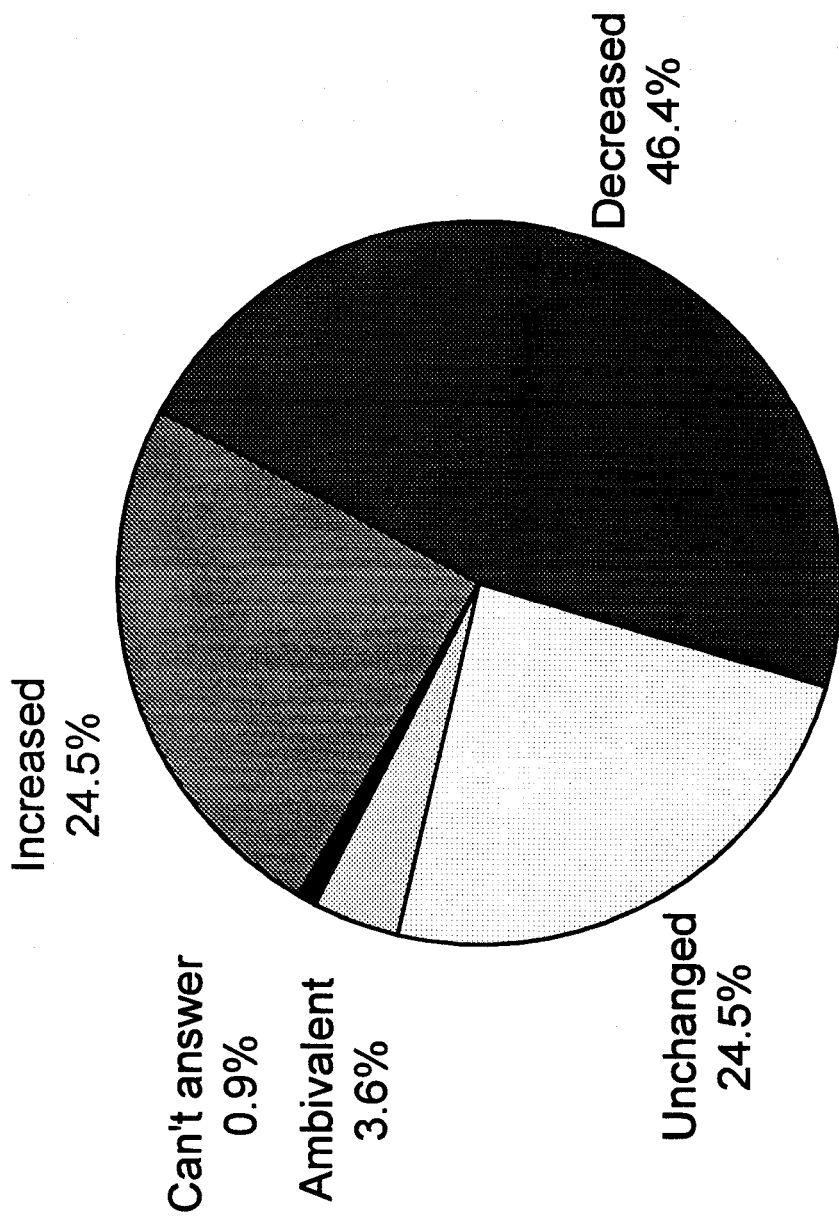


Figure 1. Percentage perceiving increased, decreased, and stability in worry frequency (n=110).

were consequently entered in a Principle Components Factor Analysis (PCA) to elicit a single worry index for these comparisons. The PCA yielded a single factor, which accounted for 75.2% of the shared variance (eigenvalue=1.50) in these measures. Interestingly, an Analysis of Variance showed no significant differences on the worry factor between those who reported increased, decreased, or stable levels of worry, $F(2, 102) = .71, n.s.$

In an effort to determine what might underlie the perceived changes in worry, the participants who reported changes were also asked why this change had occurred. Four participants who reported decreased worry and one participant who reported increased worry were not available for this analysis due to responses that were too vague to be coded, reducing the number of participants to 47 and 26 for decreases and increases, respectively. Additionally, because the participants were free to provide more than one reason, the individuals included in each category sometimes overlapped, producing a sum of the percentage breakdown that exceeded 100.

The percentage of participants who reported each reason for change are presented in Table 10. For those who reported increased worry, no dominant reason for this change was evident. Between 30.7% and 38.5% reported a perceived increase in worry due to either a perception *more serious concerns* in their later years, an increased sense of *responsibility*, or a heightened *awareness of danger*. A smaller proportion of the participants (15.4%) reported increased worry due to having *more time* to think about worrisome concerns.

For those who reported reduced worry, the majority of respondents (65.9%) indicated that they worried less due to perceived *change in life circumstances* such as

Table 10

Reasons for Perceived Changes in Worrying

	% reporting	<i>n</i>
<i>Reasons for increase (n = 26):</i>		
Increased sense of responsibility	38.5%	10
More serious concerns	34.6%	9
Heightened awareness of danger	30.7%	8
More time	15.4%	4
<i>Reasons for decrease (n = 47):</i>		
Change in self	42.6%	20
Changes in life circumstances	65.9%	31

decreased levels of responsibility. However, a substantial minority of participants (42.6%) attributed their decreases in worrying to *changes in self*.

Exploratory analyses were conducted to determine whether either of these reasons for decreased worry were associated with differential levels of worry factor scores. Sixteen individuals uniquely mentioned changes in self and 27 individuals uniquely mentioned changes in life circumstances. A t-test comparing worry factors scores between these groups revealed no significant differences, $t(41) = .70$, n.s. in absolute levels of worry. A similar comparison was not possible for the reasons for perceived increases in worry because after removing the participants who provided multiple reasons, the cell sizes were very small, ranging from 2 to 8.

Age-Differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying

Hypothesis 1 predicted that age-related changes in worry would be evident via comparisons between younger and older adults on trait worry. Hypothesis 3 predicted that age differences would also be evident on features related to worry; namely, in intolerance of uncertainty and the beliefs about the functional value of worrying. Because this was the first study to assess these latter two constructs in relation to worry among older adults, it was also important to verify whether these constructs were associated with trait worry in both older and younger samples.

Inter-correlations among the variables. The inter-correlations between the PSWQ, WWS, and IUS, along with demographic variables for both younger and older adults are presented in Table 11. Importantly, trait worry was associated with both the WWS and with the IUS in both samples, and the correlations were of similar magnitude in each sample. In the older sample, age, gender, and years of education were not

Table 11

Correlations Among PSWQ, IUS, WWS, and Demographic Variables

Younger sample (n = 106):

	PSWQ	IUS	WWS (sqrt)
<i>Demographics:</i>			
Age	-.12	-.18	-.22*
Gender ^a	.29**	.09	.01
Health rating ^b	-.28**	-.27**	-.26**
Finances rating ^b	-.07	-.03	-.06
<i>Worry-related questionnaires:</i>			
PSWQ			
IUS	.56***		
WWS (sqrt)	.54***	.53***	

Older sample (n = 111)

	PSWQ	IUS	WWS (sqrt)
<i>Demographics:</i>			
Age	.00	.08	-.04
Gender ^a	.05	-.04	-.06
Years education	-.07	-.08	-.02
Health rating ^b	-.17	-.07	-.27**
Finances rating ^b	-.12	-.07	.04
<i>Worry-related questionnaires:</i>			
PSWQ			
IUS	.56***		
WWS (sqrt)	.52***	.42***	

^a Male gender coded as 1; female gender coded as 2.^b Higher scores indicate better health and a better financial situation.* $p < .05$. ** $p < .01$. *** $p < .001$.

significantly associated with trait worry, nor with intolerance of uncertainty and beliefs about worrying. Additionally, for the older participants, there were few associations between perceived health and the worry measures, with only beliefs about worry showing a negative association with perceived health. In the younger sample, female gender was associated with a tendency to worry more. Also in the younger sample, poorer perceived health was associated with a greater tendency to worry, to be more intolerant of uncertainty, and to harbour more beliefs about the functional value of worrying. In both samples, perceived financial status was not associated with the tendency to worry.

Prior to conducting the principle age comparison, age differences on the demographic variables of health and financial status were conducted. Interestingly, there were no differences between the older ($M = 4.08$, $SD = .69$) and younger adults ($M = 4.04$, $SD = .80$) on perceived health, $t(215) = .43$, n.s., but there was a significant age differences on perceived financial status, with older adults ($M = 5.56$, $SD = 1.01$) perceiving a better financial situation relative to younger adults ($M = 4.41$ $SD = 1.37$), $t(215) = 7.08$, $p < .001$, $\eta^2 = .19$.

Age comparison analyses. As was mentioned above the PSWQ, IUS, and WWS showed a strong, but non-redundant pattern of association in both age groups, and were consequently entered into a multivariate analysis of variance (MANOVA) to test for age differences. A test of the assumption of homogeneity of variance-co-variance matrices yielded a satisfactory result. Using Tabachnick and Fidell's recommended alpha level of .001 to evaluate the significance of Mahalanobis' distance, no multivariate outliers were detected.

The means for the older and younger adults on the PSWQ, IUS, and WWS, are presented in Table 12. Overall, with the use of Wilks' Lamda, there was an overall multivariate difference between age groups on the combined dependent measures, $F(3, 313) = 26.97, p < .001$, with $\eta^2 = .28$. Because the variables were correlated, a Roy-Bargmann stepdown analysis was planned to determine the relative contribution of each measure to the multivariate effect. In this analysis, the DV that was entered at the first step is tested for group differences in a univariate analysis. At subsequent steps each DV is tested to see whether it significantly contributes to the explained variance, after controlling for the DVs that were entered at previous steps. Since this analysis is in fact an analysis of covariance, a test of homogeneity of regression was necessary to determine whether the relationship between the covariates (variables entered at an earlier step of the step-down analysis) and the DVs were similar across groups. The results indicated that homogeneity of regression was achieved.

For the stepdown analysis, the PSWQ was entered on the first step, followed by the IUS on step 2, and the WWS on step 3. This order of entry followed the theoretical rationale that trait worry would be the primary source of variance in the age comparisons followed by intolerance of uncertainty, which holds a central underlying process variable in conceptualizations of worry. This order of entry also allowed for the assessment of whether the IUS and the WWS would account for additional variance in predicting group differences, after controlling for variance already accounted for by the PSWQ. As predicted, the PSWQ made a significant contribution in predicting age differences, with older adults showing lower scores on this measure, $F(1, 215) = 31.02, p < .001, \eta^2 = .13$. Interestingly, after controlling for variance already accounted for by the PSWQ, the IUS

Table 12

Means Scores on PSWQ, IUS, and WWS in Younger and Older Samples

Measure	<i>Younger sample (n=106)</i>			<i>Older sample (n=111)</i>		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
PSWQ	47.27	13.58	16 - 79	37.53	11.78	16 - 71
IUS	62.24	16.77	27 - 106	49.03	12.68	27 - 88
WWS	43.27	12.97	23 - 82	30.62	9.21	20 - 60
WWS (sqrt)	6.51	.97	4.8 - 9.1	5.48	.78	4.5 - 7.7

made a significant contribution to the age differences, with the older adults scoring lower on this measure relative to the younger adults, $F(1, 214) = 14.55, p < .001, \eta^2 = .06$. Similarly, on the third step, after controlling for variance account for by both the PSWQ and the IUS, the WWS made a significant contribution to predicting age differences, again, with older adults scoring lower on this measure relative to younger adults, $F(1,213) = 26.62, p < .001, \eta^2 = .11$.

Because the IUS and WWS each contributed unique explained variance in predicting age differences, it was possible that it was these constructs and not worry per se that were the primary source of the observed age-related changes in worrying. Consequently, a second step-down analysis was conducted, this time with PSWQ scores entered last. When the IUS was entered on the first step of this analysis, age differences on this variable emerged, $F(1, 215) = 43.12, p < .001, \eta^2 = .17$. After controlling for variance associated with the IUS, the WWS contributed significantly to the explained variance associated with the age differences, $F(1, 214) = 31.93, p < .001, \eta^2 = .13$. Interestingly, age differences on the PSWQ were not significant after controlling for the IUS and the WWS on earlier steps, $F(1,213) = .03, n.s.$

Section 2:

Age Differences in Attention to Threat, Interpretation of Ambiguity, and the Tendency to Engage in Worry Thought Sequences

Replication of Age Differences in Trait Worry and Demographic Variables

The data from this second expanded sample of older participants allowed for a second set of age comparisons on the PSWQ, along with perceptions of health and perceived finances. Consistent with the findings reported in Section 1, the older

participants in this sample reported lower PSWQ scores ($M = 39.51, SD = 12.30$), relative to younger participants ($M = 47.27, SD = 13.58$), $t(253) = -4.76, p < .001, \eta^2 = .08$. Perceptions of health did not differ between younger ($M = 4.04, SD = .80$) and older adults ($M = 4.11, SD = .75$), $t(253) = .71, ns$, whereas perceived finances differed significantly between the groups, with older adults ($M = 5.26, SD = 1.22$) reporting a better financial situation, relative to the younger adults ($M = 4.41, SD = 1.37$), $t(253) = 5.21, p < .001, \eta^2 = .10$. These findings were all consistent with those reported in Section 1.

Age-Differences in Attention to Threat and Interpretation of Ambiguity

Hypothesis 3 predicted that older adults would show lower monitoring scores on the MBSS and a lessened tendency to interpret the ambiguous information as concerning on the AUSD, compared to the younger adults. No specific hypotheses were made for the blunting scale of the MBSS nor for the unambiguous scales of the AUSD. Nonetheless, the association between these variables with trait worry were assessed in exploratory analyses. Only variables that showed significant associations with worry in both samples were considered for the age comparison analyses. This was based on the rationale that if variables were not significantly associated with worry in both samples they were unlikely to partially account for the observed age differences.

Data Screening. Of the 149 older participants, 8 did not return the AUSD and 2 did not complete the MBSS. Due to the inordinate number of participants in the older sample compared with the younger sample, missing data on these measures were handled by list-wise deletion of the cases with missing data. This reduced the number of older

participants to 140. For the younger sample, one participant did not complete the MBSS and the AUSD, reducing the number of younger participants to 105 for these analyses.

Prior to conducting the analyses, the data were screened for the presence of outliers and to assess the significance of skewness. The details of the data screening procedures and adjustments are presented in Appendix O. It is relevant to note here however, that a square root transformation was applied to the unambiguous positive scale of the AUSD in both the older and younger samples to reduce the impact of these positively skewed distributions.

Inter-correlations among the variables. Tables 13 and 14 present the inter correlations among the MBSS, AUSD, PSWQ, and the demographic variables for the younger and older samples, respectively. As can be seen, in both younger and older samples, worrying was associated with a monitoring style, and with a tendency to be concerned when faced with both ambiguous and unambiguous negative situations. Consequently, these variables were of primary interest for the age comparisons. Because these three variables showed a pattern of inter-correlation in both samples they were entered into a MANOVA to assess for age differences.

To highlight some of the associations with demographic variables, female gender was associated with a tendency to worry in the younger sample, but not in the older sample. However, female gender was associated with greater concern on the unambiguous negative scale in the older sample. Higher PSWQ scores were associated with poorer perceived health in both samples, and with perceived financial difficulty in the older sample but not in the younger sample. Interestingly, poorer perceived health is

Table 13

Correlations Among Information Processing Questionnaires, PSWQ, and Demographic Variables in Younger Sample

Variables	PSWQ	Ambiguous	Unamb. neg.	Unamb. pos. (sqrt)	Monitoring	Blunting
<i>Demographics (N = 106):</i>						
Age	-.12	-.05	-.17	-.11	.00	-.06
Gender ^a	.29**	.08	.17	.00	.13	-.03
Health rating ^b	-.28**	-.10	-.03	-.07	-.02	.13
Finances rating ^b	-.06	.03	.06	.03	.02	-.12
<i>AUSD (N = 105):</i>						
Ambiguous	.26**					
Unambiguous negative	.26**	.38***				
Unambiguous positive (sqrt)	.11	.34***	.00			
<i>MBSS (N = 105):</i>						
Monitoring	.29**	.14	.26**	-.01		
Blunting	.04	-.04	.06	.10	-.01	

^a Male gender coded as 1; female gender coded as 2.

^b Higher scores indicate better health and a better financial situation.

** $p < .01$. *** $p < .001$.

Table 14

Correlations Among Information Processing Questionnaires, PSWQ, and Demographic Variables in Older Sample

Variables	PSWQ	Ambiguous	Unamb. neg.	Unamb pos. (sqrt)	Monitoring	Blunting
<i>Demographics (N = 149):</i>						
Age	-.07	-.01	-.02	.11	.16	-.17*
Gender ^a	.07	.14	.26**	-.02	.08	.06
Years education	-.17*	-.15	-.13	.02	-.08	-.17*
Health rating ^b	-.28***	-.14	-.06	-.09	-.30***	.04
Finances rating ^b	-.22**	-.13	-.07	-.03	-.13	-.12
<i>AUSD (N = 141):</i>						
Ambiguous	.30***					
Unambiguous negative	.40***	.40***				
Unambiguous positive (sqrt)	.10	.60***	.11			
<i>MBSS (N = 147):</i>						
Monitoring	.28**	.27**	.14	.12		
Blunting	-.05	-.04	.03	-.13	-.12	

^a Male gender coded as 1; female gender coded as 2.

^b Higher scores indicate better health and better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

also associated with a tendency to monitor in the older sample but not in the younger sample.

Age comparison analyses. Prior to conducting the multivariate analysis, the monitoring, along with the concern about ambiguous and unambiguous negative scales were assessed for the presence of multivariate outliers. Using an alpha level of .001 to examine the significance of Mahalanobis distance, no multivariate outliers were detected in the older sample. However, one multivariate outlier was detected in the younger sample, resulting from the combination of a high score on the ambiguous scale, a relatively low score on the monitoring scale, and a very low score on the unambiguous negative scale. Because MANOVAs are particularly sensitive to outliers (Tabachnick & Fidell, 1996), and because little can be done to adjust for this problem, this case was dropped from this set of analyses. Tests for the assumptions of homogeneity of the variance-covariance matrices between the samples were satisfactory.

The means for the younger and older participants in monitoring, and ambiguous and unambiguous negative scale are presented in Table 15. Overall, Wilks' Lamda test of multivariate significance revealed a significant difference between the older and younger adults on the combined dependent variables, $F(3, 240) = 9.57, p < .001, \eta^2 = .11$. There was no theoretical rationale to guide a step-down analysis to tease apart the sources of variance accounting for the group difference. Consequently, univariate follow-up analyses were conducted and revealed that concern about ambiguous situations, $F(1, 242) = 14.86, p < .001, \eta^2 = .06$ and concern about unambiguous negative situations, $F(1, 242) = 15.72, p < .001, \eta^2 = .06$ differed significantly between the age groups. Counter to Hypothesis 3, however, the direction of this effect indicated that the older adults reported

Table 15

Means Scores on Information Processing Style Questionnaires in Older and Younger Samples

Scale	Older sample ($n = 140$)			Younger sample ($n = 104$)			Univariate <i>F</i>
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range	
Monitoring	10.24	2.77	2 - 16	10.78	2.87	3 - 16	2.17
Ambiguous	7.58	2.91	1 - 13	6.22	2.46	0 - 12	14.86***
Unamb. Neg.	5.47	1.29	2 - 7	4.74	1.60	0 - 7	15.72***

*** $p < .001$

more concern than the younger adults. There were no age differences in the tendency to monitor, in the univariate analysis.

Age Differences in the Tendency to Engage in Worry Thought Sequences

Hypothesis 3 predicted that older adults would show a lessened tendency to elaborate on their worries as evidenced by fewer worry thought sequences on the “catastrophizing” interview. Additionally, age differences in changes from baseline in psychological discomfort during the interview were assessed. Given that the number of worry steps and by association, the number of subjective discomfort ratings differed across participants, the maximum level of subjective discomfort during the interview was used to assess changes from baseline in experiences of psychological discomfort. Measurement of worry content, general disturbance associated with their selected worry (pre-interview), and their perceived likelihood of the worry were also ascertained to verify whether age differences on these variables were evident, and could have potentially confounded the results. Notice again that pre-interview worry disturbance refers to the initial 4-point rating that was conducted at the worry topic generation phase, whereas baseline subjective discomfort ratings refer to the 0 to 100 analogue scale ratings, which were done immediately preceding the interview. Since the number of steps varied across participants the perceived likelihood of only the initial worry was selected for analysis, to maintain consistency across participants. A summary of the worry topics that participants selected for the catastrophizing interview are presented in Table 16.

Data screening. Due to complexities associated with this interview, it was necessary to drop a relatively large number of cases from this set of analyses.

Specifically, in the older sample four participants were dropped because they reported

Table 16

Frequency of Target Worry Themes for Catastrophizing Interview in Older and Younger Samples

Worry theme	Older sample <i>n</i>	Younger sample <i>n</i>
Health (self)	27	1
Health (others)	26	10
Non-health problems in others	27	5
Academic	0	27
Financial / occupational	17	22
Societal	11	0
Interpersonal	12	16
Self-development	3	8
Life changes / decisions	9	10
Natural disaster	1	0
Total	133	99

having no worries on which to base the interview, one interview was stopped prematurely due to the participant's discomfort in discussing the topic, and eleven interviews were dropped due to interviewer error (e.g., stopping the interview before the coders judged a stop rule to have occurred). In the younger sample, six participants were dropped due to interviewer error and one younger participant stopped the interview prematurely due to discomfort discussing the topic. This left 133 older participants and 99 younger participants available for the analyses. Additionally, three younger participants were unable to offer a prediction about the likelihood of their worry occurring. Consequently, 96 younger participants were available for that age comparison.

The data were screened for skewness and for the presence of outliers. A detailed account of the data screening procedures and adjustments are presented in Appendix O. To summarize, a logarithmic transformation was applied to the number of steps in the catastrophizing interview and a square root transformation was applied to subjective discomfort ratings at baseline, to reduce the impact of positive skewness in these variables. The square root transformation was also applied to the maximum subjective discomfort ratings for analyses that required comparison with baseline ratings. In order to facilitate interpretation of the data, the means for both the transformed and the untransformed data are presented in the tables.

For the univariate age comparisons, the assumption of homogeneity of variance was assessed by insuring that F_{max} (the largest within group variance divided by the smallest within-group variance) did not exceed three, which is the point at which Keppel (1991) reports that variance heterogeneity increases the probability of making a type I or type II error. This assumption was met for all age comparisons.

Inter-correlation among the variables. In order to provide an indication of the construct validity of the “catastrophizing” interview, the inter-correlations among the interview variables, and with the PSWQ were assessed. These correlations are presented in Tables 17 and 18 for younger and older samples, respectively. As can be seen the PSWQ showed a significant positive association with the number of worry steps in the younger sample, but not in the older sample. In terms of worry-related disturbance, in the older sample, the PSWQ was positively associated with maximum subjective discomfort during the interview, and with the degree to which the participants perceived their worry topic to be disturbing (pre-interview). In the younger sample, the PSWQ was associated with subjective discomfort at baseline and with the degree to which they perceived their worry topic to be disturbing (pre-interview). The number of steps and maximum discomfort ratings during the interview, showed a pattern of positive association in both samples. Although only linked with trait worry among the younger individuals, it appears that the interview did measure the degree to which participants engaged in a process that was associated with worry-related discomfort.

The demographic variables showed few associations with the “catastrophizing” interview variables. For the younger but not for the older sample, poorer perceived financial situation was associated with a greater number of worry steps and with a higher level of maximum subjective discomfort during the interview.

Age comparison analyses. It was hypothesized that older adults would show a reduced tendency to engage in worry thought sequences, relative to the younger adults. First, the results for the entire samples are presented. This is followed by a repeated set of analyses with a sub-sample of each age group who were matched by worry topic.

Table 17

Correlations Among Catastrophizing Interview Variables, PSWQ, and Demographic Variables in Younger Sample (N = 99)

	PSWQ	# steps (log)	Baseline discomf. (sqrt)	Max. discomf.	Worry Likelihood
<i>Demographics:</i>					
Age	-.12	-.11	.07	.15	.17
Gender ^a	.27**	-.10	.10	.00	.03
Health rating ^b	-.29**	-.06	-.07	-.11	-.08
Finances rating ^b	-.07	-.25*	.01	-.21*	.03
<i>Catastrophizing interview variables:</i>					
# steps (log)	.20*				
Baseline discomf (sqrt.)	.20*	.06			
Maximum discomf	.15	.35***	.36***		
Perceived worry likelihood	.17	.06	.25*	.20	
Worry disturbance (pre-interview)	.39***	.08	.08	.18	.21*

^a Male gender coded as 1; female gender coded as 2. ^b Higher scores indicate better health and a better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 18

Correlations Among Catastrophizing Interview Variables, PSWQ, and Demographic Variables in Older Sample (N = 133)

	PSWQ	# steps (log)	Baseline discomf. (sqrt)	Maximum discomf. (sqrt)	Worry Likelihood
<i>Demographics:</i>					
Age	-.04	-.03	.00	-.07	.14
Gender ^a	.04	.08	.09	.10	-.13
Years education	-.14	.14	-.05	-.04	.06
Health rating ^b	-.28**	.14	-.11	-.14	-.06
Finances rating ^b	-.21*	.03	-.11	-.14	-.03
<i>Catastrophizing variables:</i>					
# steps (log)	.14				
Baseline discomf (sqrt)	.16	.05			
Maximum discomf	.37***	.34***	.49***		
Perceived worry likelihood	.08	.21*	.08	.18*	
Worry disturbance (pre-interview)	.37***	.18*	.18*	.31***	.26**

^a Male gender coded as 1; female gender coded as 2. ^b Higher scores indicate better health and a better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

The means for the catastrophizing interview variables are presented in Table 19. A comparison between the older and the younger participants on the number of steps during the interview revealed a significant age difference, with older participants exhibiting fewer worry steps on the interview, relative to younger participants $t(230) = -3.68, p < .001, \eta^2 = .06$. In order to investigate whether the older and younger participants differed in their change from baseline in subjective feelings of discomfort during the interview, a 2 (age group) x 2 (subjective discomfort ratings at baseline and maximum point during the interview) between-within analysis of variance (ANOVA) was conducted. The findings showed no significant main effect of age group $F(1, 230) = .00$, n.s., and no significant age group by subjective discomfort interaction $F(1, 230) = .27$, n.s. There was however, a significant effect of discomfort, indicating that participants' level of discomfort significantly increased from baseline during the interview, $F(1, 230) = 184.54, p < .001$, partial $\eta^2 = .45$. In other words, the older and younger participants increased to the same extent in their subjective discomfort levels. There were no significant age differences in the perceived likelihood of the target worry, $t(227) = .19$, n.s. However, there was a significant age difference on how generally disturbing they perceived their target worry to be, $t(230) = -3.17, p < .01, \eta^2 = .04$, with younger adults perceiving more disturbance relative to older participants.

Age Differences in the Tendency to Engage in Worry Thought Sequences in a Sub-Sample of Participants Matched by Worry Topic

As was seen above in Table 16, the worry topics varied between age groups. It was possible that the aforementioned findings were influenced by this difference. Similarly, it was also possible that the age difference in the number of steps could have

Table 19

Means for Catastrophizing Interview Variables

Interview variables	Older sample (<i>N</i> = 133)			Younger sample (<i>N</i> = 99)		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
# of steps	4.28	3.40	1 - 16	7.34	6.62	1 - 25
# of steps (log)	.51	.33	0 - 1.2	.69	.41	0 - 1.4
Baseline discomfort	16.80	22.08	0 - 84	14.12	17.37	0 - 65
Baseline discomfort (sqrt)	2.86	2.94	0 - 9.2	2.76	2.56	0 - 8.1
Max. discomfort	41.90	33.63	0 - 100	40.14	30.78	0 - 100
Max. discomfort (sqrt)	5.52	3.39	0 - 10	5.63	2.92	0 - 10
Perceived Likelihood	49.69	30.75	0 - 100	48.93	29.04	0 - 100
Worry disturbance (pre-interview)	2.84	.72	1 - 4	3.12	.63	2 - 4

been influenced by the fact that the older participants reported less pre-interview disturbance associated with their target worry. For these reasons, a second set of analyses were conducted using a sub-sample of older and younger participants who were matched by worry topic. The matching of participants was done by dropping cases from the age group with a greater number of cases on each given worry theme. Wherever possible, the participants were also matched on their pre-interview worry disturbance rating. When pre-interview disturbance ratings were equal, random selection was used to drop the required number of cases. As can be seen in Table 20, matching based on worry topic resulted in a sub-sample of 57 individuals in each age group. Despite efforts to match participants within worry themes based on pre-interview disturbance levels, this was not always possible. Consequently, a significant age difference remained on how disturbing they perceived their worry topic to be, $t(112) = -2.34, p < .05, \eta^2 = .05$, with older adults ($M = 2.79, SD = .77$) showing less worry disturbance, relative to the younger adults ($M = 3.09, SD = .58$). Because of this difference, the following analyses were conducted as analyses of covariance (ANCOVA), with pre-interview worry disturbance as a covariate.

Data screening. Prior to conducting analyses, the data were assessed for skewness and for the presence of outliers. No outliers were detected, but the same pattern of skewness as was found in the original sample was evident. Consequently, the same data transformations that were used for the analyses using the unselected sample were also required for this sub-sample. Additionally, a check for multivariate outliers was required to ensure that there were no unusual patterns among each dependent variable and the covariate. Using an alpha level of .001 to evaluate the significance Mahalanobis distance, no multivariate outliers were detected for any of the DVs. The assumption of

Table 20

Frequency of Target Worry Themes for Catastrophizing Interview in Matched Sub-Samples

Worry theme	Older sample <i>n</i>	Younger sample <i>n</i>
Health (self)	1	1
Health (others)	10	10
Non-health problems in others	5	5
Academic	0	0
Financial / occupational	17	17
Societal	0	0
Interpersonal	12	12
Self-development	3	3
Life changes / decisions	9	9
Natural disaster	0	0
Total	57	57

homogeneity of variance between the age groups was also assessed by verifying that F_{max} did not exceed 3. This assumption was met. Additionally, a test for homogeneity of regression was required to ensure that the slope of the relationship between the covariate and the dependent variables were similar in both age groups. This check yielded satisfactory results.

Inter-correlation among the variables. Table 21 presents the inter-correlations among the catastrophizing interview variables in the older and younger sub-samples. As can be seen, the pattern of association among the variables were similar to the pattern for the whole sample although some correlations lost statistical significance, possibly due to a loss of statistical power. In other words, aside from matching by worry topic, there was no reason to believe that selecting participants based on matched worry themes compromised the validity of the interview variables.

Age comparisons analyses. The means for the catastrophizing interview are presented in Table 22. For the ANCOVA comparing age groups in the perceived likelihood of the worry occurring, neither the covariate (pre-interview worry disturbance) nor the likelihood ratings yielded a significant age difference. For the ANCOVA comparing younger and older adults on number of steps, the effect of the covariate (pre-interview worry disturbance) was significant, $F(1,111) = 4.70, p < .05$. After adjusting for the covariate, age differences on the number of steps remained significant, indicating that the older adults went fewer steps in the catastrophizing interview, relative to the younger adults $F(1,111) = 6.82, p < .05, \eta^2 = .06$.

For the between-within analysis comparing older and younger adults on their subjective discomfort ratings at baseline and during the interview, there was a significant

Table 21

Correlation Among Catastrophizing Interview Variables and PSWQ in Older and Younger Matched Sub-Samples (n = 57)

	PSWQ	# steps (log)	Baseline discomf. (sqrt)	Max. discomf.	Perceived Likelihood
<i>Older sample:</i>					
# of steps (log)	.18				
Baseline discomfort (sqrt)	.25	-.05			
Maximum discomfort	.36**	.31*	.57***		
Perceived likelihood	.04	.21	.07	.20	
Worry disturbance (pre-interview)	.50***	.28*	.22	.43**	.18
<i>Younger sample:</i>					
# steps (log)	.23				
Baseline discomfort (sqrt)	.11	.02			
Maximum discomfort	.18	.37**	.34**		
Perceived likelihood	.09	.15	.15	.18	
Worry disturbance (pre-interview)	.24	.13	.08	.26*	.16

*p<.05 **p<.01 ***p<.001

Table 22

Means for Catastrophizing Interview Variables in Matched Sub-Samples

Interview variables	<i>Older sample (n=57)</i>			<i>Younger sample (n=57)</i>		
	<i>M</i>	<i>SD</i>	Range	<i>M</i>	<i>SD</i>	Range
# of steps	4.02	3.33	1 - 14	7.32	6.81	1 - 25
# steps (log)	.47	.35	0 - 1.1	.69	.40	0 - 1.4
Baseline discomfort	21.49	25.56	0 - 84	12.42	16.67	0 - 60
Baseline discomfort (sqrt)	3.37	3.21	0 - 9.2	2.48	2.53	0 - 7.7
Max discomfort	41.86	33.75	0 - 100	43.37	31.85	0 - 100
Max. discomfort (sqrt)	5.63	3.21	0 - 10	5.90	2.95	0 - 10
Perceived likelihood	51.23	33.30	0 - 100	48.02	29.10	0 - 100
Worry disturbance (pre-interview)	2.79	.77	1 - 4	3.09	.58	2 - 4

effect of the covariate (pre-interview worry disturbance) $F(1,111) = 8.54, p < .01$.

Consistent with the findings for the unselected sample, there was no significant main effects of age group on overall subjective discomfort levels, $F(1,111) = 1.64, n.s.$ Also consistent with the findings from the unselected sample, there was a significant effect of condition showing that maximum subjective discomfort levels were higher than baseline discomfort levels $F(1,112) = 103.79, p < .001, \text{partial } \eta^2 = .48$. However, in contrast to the findings with the unselected samples, the interaction of age group and discomfort level was also significant, $F(1, 112) = 4.35, p < .05, \text{partial } \eta^2 = .04$. This interaction reflected higher baseline levels of subjective discomfort for the older participants in this sub-sample.

Discussion

The major purpose of this study was to further investigate whether older individuals experience reductions in worrying, and to better understand factors associated with this hypothesized change.

Evidence for an Age-Related Decrease in Worrying

This study has provided evidence in support of such an age-related decrease in worrying, and builds on an emerging literature showing similar results (Babcock et al., 2000; Doucet et al., 1998; Powers et al., 1992; Skarborn & Nicki, 2000). It has also provided a novel contribution to this literature through retrospective accounts of the older participants, which showed that the dominant response to an inquiry about changes in worry frequency was a perceived reduction. Although longitudinal data are ultimately required to draw the conclusion that these findings reflect a bona fide developmental shift rather than a cohort effect or a report bias, the converging evidence from these two

methodologies underscores the possibility of a developmental shift. Such a shift would also be consistent with longitudinal data from the research literature on emotion and aging, which suggests that the experience of negative affect decreases with age and that an increased ability to minimize negative emotional states occurs in later life (Carstensen et al., 2000; Gross et al., 1997; Turk-Charles et al., 2001).

Reasons for Perceived Changes in Worry

It was important to better understand why this change might occur. Accordingly, the older participants were asked for their impressions about the reasons underlying their perceived changes in worry. For those who perceived a decrease, most reported that this reflected a change in life circumstances where they had fewer work-related and familial responsibilities, and felt more settled in life. However, a significant minority of those who reported decreased worry also reported that this decrease reflected an intra-psychic shift. Such accounts are consistent with the hypothesis that situational factors only partially account for this change.

Although a perceived reduction in worry was the dominant response, it is noteworthy that a significant minority of respondents (24.5%) reported that the frequency of their worrying had increased relative to when they were younger and another 24.5% of respondents noted that their worry frequency had not changed. The participants provided a variety of reasons for this perceived increase, which included but were not limited to the idea that worries in later life reflect more serious concerns such as those associated with the constraints of aging. In fact, only 9 individuals (8.6%) of the 105 valid interviews reported an increase in worrying due (in part or whole) to this reason. Other reasons for perceived increases in worry that were reported with similar frequency were

perceptions of increased responsibility in later life and a heightened awareness of danger, relative to their younger years. The findings suggest that only a minority of relatively healthy seniors experience heightened and increasing levels of worry due to factors linked with the declines and constraints associated with aging, and contrasts with common stereotypes that many older adults experience worry due these factors. The findings also suggest that a minority of seniors who have unsettled family lives (e.g., continued financial and social instability among their children), may be at risk for heightened levels of worry in later life.

Despite the heterogeneity in participants' perceived changes in worrying, it is interesting that absolute worry scores at the time of testing did not differ between those who reported increases, decreases, and stability in their worry. Thus, this data should not be misconstrued as indicating that increases in worrying reflect heightened states of worry and conversely, decreases in worrying should not be interpreted as reflecting relatively worry-free experiences in later life. Accordingly, those who reported increases in worrying in this sample are distinct from the chronic worriers in Wisocki's (1994) focus groups, who tended to harbour negative views of aging and seemed to have difficulties associated with the constraints of later life. There are several possible interpretations of the finding that no differences in absolute levels of worry were observed between these groups. First, it is possible that the absence of group differences could reflect recall biases. Unfortunately, there is no way of assessing this possibility with the current data set. Assuming however, that the results are both valid and reliable, it is possible that those who reported decreases in worrying were more likely to have been worriers in their younger years, whereas those with increases in worrying may have been

less likely to worry in their younger years. Accordingly, the changes in worrying may have aligned the group means. However, as exemplified by the heterogeneity of reasons provided for the perceived changes, this explanation is probably oversimplified. Future research assessing psychosocial profiles associated with increases, decreases, and stability in worry will be necessary to better understand factors associated with such perceived changes over the adult lifespan.

Age Differences in Features Associated with Worry

A second and more indirect approach to better understand why older individuals show decreases in their levels of worry was to determine whether other features that are associated with worry, also shift with age. The theoretical framework outlined by SST suggested that the increasing saliency of emotional regulatory goals might lead to several shifts in these features. Namely, it was predicted that seniors would be less willing to engage in over-elaborated worry thought sequences (which are associated with feelings of discomfort), would be less likely to focus attention to threat and to interpret ambiguous situations as threatening, and would be more tolerant of uncertainty, relative to younger adults. It was also predicted that older individuals would have learned through their experiences to perceive less functional value in worrying.

Partial support for these hypotheses was found. Both intolerance of uncertainty and belief in the functional value of worry were associated with trait worry in both the younger and the older samples. Age differences in both intolerance of uncertainty and beliefs about worry emerged in the expected direction, even after trait worry was co-varied. Interestingly, once age differences on these constructs were statistically accounted for, the age difference on trait worry was no longer statistically significant. Prior to

offering an interpretation of this finding it is important to emphasize that the absence of an age difference on trait worry after co-varying for the aforementioned variables could reflect a statistical anomaly due to shared variance among these constructs rather than a meaningful finding. Accordingly, it is necessary to interpret this finding with caution and to await replication prior to drawing stronger conclusions. However, if this does emerge as a replicable and reliable finding, it might reflect the idea that having difficulty tolerating uncertainty and harbouring erroneous beliefs about the functional value of worrying predisposes people to worry (Dugas et al., 1998) and consequently, developmental shifts in worrying might occur in part, due to prior changes in these areas. Such a proposition is further supported by research showing that changes in intolerance of uncertainty were found to precede changes in worry in a therapeutic context (Dugas & Ladouceur, 2000).

The findings from the catastrophizing interview also support the hypothesis that older individuals would engage in fewer elaborative worry steps, relative to younger adults. These findings may not be attributable to age differences in the nature of worry themes since the findings were replicated after matching participants by worry topic and after co-varying for disturbance associated with the targeted worry. The theoretical rationale for this age difference was grounded in a motivational model whereby older adults were purported to selectively focus less energy and attention on such thoughts, which were in fact shown to be associated with feelings of discomfort in the present study. Although such an explanation is consistent with theoretical models of emotion and aging (Carstensen, 1993, 1995; Carstensen, Isaacowitz, & Charles, 1999; Carstensen, Hanson, & Freund, 1995; Fredrickson & Carstensen, 1998) and provide a compelling

framework for understanding why age-related reductions in worrying occur, there are several other explanations which warrant consideration. For example, observations during the interviews suggested that the older participants were not accustomed to engaging in such a thought “game” and in fact, often reverted to tangential and over-elaborated speech similar to off-target verbosity, a pattern of speech characterized by an overabundance of unfocused speech which has been found in a minority of seniors (Pushkar, Basevitz, Arbuckle, Nohara, & Peled, 2000). This contrasted with observations of the younger individuals who seemed to have immediate access to a repertoire of underlying worry thought sequences. It was possible that this observation reflected an age difference in the desire to engage in such a cognitive activity. Fortunately, as part of the test battery the short form of the Need for Cognition Scale (NCS; Cacioppo, Petty, & Kao, 1984) was also completed by a sub-sample of 88 older and 82 younger participants. The NCS measures a tendency to enjoy effortful cognitive endeavours. Consequently, it was possible that an age-related change in the need for cognition could help to explain these findings. However, the NCS neither correlated with the number of steps on the catastrophizing interview (in both samples) nor differed between age groups, thus making this explanation less tenable. Relatedly, it was possible that age-related declines in inhibitory process (Kane, Hasher, Stoltzfus, Zacks, & Connelly, 1994) have led to a tendency to engage in tangential thought and accordingly, difficulty focussing on elaborated thoughts underlying their worries. Or alternatively, age-related declines in processing speed (Salthouse, 1996; Sliwinski & Buschke, 1999) could account for this age difference due to lessened cognitive capacity to engage in this worry-related process. Finally, although research on emotion and aging has suggested that older individuals do

not differ from younger individuals in their subjective reports of emotion, they do show a lessened physiological reactivity during emotional induction tasks, compared with younger adults (Tsai et al., 2000). It is possible therefore, that such reduced physiological reactivity helped to preclude the rapid escalation of worry thought sequences.

Nonetheless, regardless of the reason for this age difference, it is both interesting and informative that older individuals either access or express a less elaborated sequence of thoughts underlying their worries. This finding provides further behavioural evidence for an age-related shift in worry processes, and suggests a need for further research investigating why this may occur.

Interestingly, despite elaborating on fewer worry steps, age differences were not observed in subjective feelings of discomfort during the catastrophizing interview. Both younger and older adults increased from baseline to the same extent on this measure. This finding is consistent with previous research suggesting that older and younger adults do not differ in their capacity to experience emotion and in their intensity of felt emotion (Carstensen et al., 2000; Levenson et al., 1991). The findings of age-related changes in the number of worry steps but no age differences in subjective emotional reactivity during the catastrophizing interview, suggests that older adults may not be accustomed to engaging in such a process, but when they do focus attention on this, they react in a similar manner as younger individuals. This finding is important as it suggests that when older adults do engage in elaborated worrisome concerns, they are not experienced as less distressing than those of adults at other stages of development.

In interpreting the results from the catastrophizing task it was important to determine the extent to which this task actually captured features associated with a

tendency to worry. The correlations between catastrophizing variables and the PSWQ provided only inconsistent evidence that these processes related to the general tendency to worry. Within the younger sample the number of worry steps did show a modest positive correlation with the PSWQ but this correlation was not statistically significant within the older sample. The absence of this association in the older sample was perplexing and draws into question the extent to which the number of worrisome steps on the interview related to a general tendency to worry. It is possible that this lack of association was affected by the limited range of high worry scores on the PSWQ in the older sample. It is also possible however, that trait worry is not associated with a tendency to engage in worry thought sequences, as measured by this task, among older individuals. Nonetheless, within the older sample the number of worry steps was positively correlated with general disturbance associated with the targeted worry, with greater perceived likelihood that the worry would occur, and with the maximum level of subjective discomfort experienced during the interview. Thus, it might be that the number of worry steps captured a process related to proximal worry but not necessarily associated with a general tendency to worry. Despite the sparse pattern of association between the number of steps and the PSWQ, the inter-correlation between the number of steps and discomfort ratings in both samples suggested that the catastrophizing task captured at least some elements of what was expected.

Turning now to the information processing styles questionnaires, as predicted, trait worry was associated with higher monitoring scores on the MBSS and with heightened concern about both ambiguous and unambiguous negative scenarios on the AUSD, in both samples. The finding that these patterns of association were apparent in

both older and younger samples suggested that these constructs are related to worry proneness among both younger and older individuals. Age differences on these variables did emerge. Interestingly however, the direction of these effects were counter to what was hypothesized. The older individuals expressed more concern relative to younger individuals on both the ambiguous and unambiguous negative scenarios on the AUSD. One interpretation of this finding is that when these potential concerns were brought to the attention of the older individuals, they were more likely to make threatening interpretations and to express concern due to a greater sense of vulnerability. This possibility is supported by the idea that many of the ambiguous and unambiguous negative scenarios reflected potential negative occurrences that could be interpreted as taxing the limited resources of many seniors or that were perhaps particularly relevant for seniors (e.g., “when I received my government cheque today I was astonished to see how much money I received”; “I have been feeling sick all day, if I still feel like this tomorrow I’ll have to go to the doctor”). It is interesting however, that the older adults reported greater worry about these particular scenarios but yet scored lower than the younger adults on trait worry, intolerance of uncertainty, and beliefs about the functional value of worrying. One important distinction between these sets of questionnaires was that that latter three inquired about general trait-like tendencies whereas the AUSD asked respondents to specifically focus on situational threats. This pattern of findings suggests that older individuals generally engage in less worry-related thinking but when their attention is focused on potential threat they are just as likely and perhaps even more likely than younger individuals to perceive them as threatening. This interpretation is also consistent with the findings from the catastrophizing task where the older individuals

were just as likely as the younger individuals to experience increases in psychological discomfort when focussing on potential threat, but yet seemed to have a less elaborated repertoire of thoughts underlying their worries. This could reflect a lessened trait-like tendency to engage in such processes.

The finding that older and younger individuals did not differ in their reported tendency to *monitor* during the uncontrollable scenarios presented on the MBSS was counter to the hypothesis that this tendency would be lower among seniors. This finding suggested that age differences in sustained attention toward threat, though related to worry, may not help to explain the age-related reductions in worrying. However, several other factors should also be considered prior to drawing conclusions. In hindsight, the monitoring scale of the MBSS, although correlated with trait worry, may not have entirely captured the attentional bias toward threat that has often been observed among highly anxious individuals. Recent research on this topic has provided convincing evidence that this bias occurs at a pre-attentive level (Mathews & Mackintosh, 1998), and consequently may not have been adequately measured by this questionnaire. Additionally, research by Borkovec and colleagues (e.g., Borkovec, 1994; Borkovec & Inz, 1990; Borkovec & Newman; Borkovec & Hu, 1990) suggests that in addition to a pre-attentive bias toward threat, worry is also associated with cognitive avoidance of anxious emotions, thus preventing emotional processing and habituation. The monitoring scale would not have captured such a phenomenon. Although these initial findings suggest no age differences in the tendency to focus on potential threat, continued examination of attention to threat constructs using multi-method approach would be both

interesting and informative in developing a better understanding of the factors contributing to age-related changes in worry.

Summary and Conclusion

Taken together, the findings from this age comparison study have shown that although capable of experiencing levels of emotional reactivity (catastrophizing interview) and concern about potentially worrisome situations (AUSD) at levels similar to and even greater than younger individuals, data from multiple sources suggests a reduced general tendency to worry among older individuals. This study has also begun to shed light on why this might occur. Several possibilities include a lessened tendency to engage in worry thought sequences focused on potential negative outcomes, increased ability to tolerate uncertainty, and harbouring fewer beliefs in the functional value of worrying.

More broadly, it was argued above that the observed age differences in worry could reflect both changes in life situational factors and intra-psychic shifts relating to emotional regulatory processes. There is however, another possible explanation that should also be considered. Namely, cognitive declines including age-related reductions in processing speed (Salthouse, 1996; Sliwinski & Buschke, 1999) could account for the observed age-differences in worry due to lessened cognitive capacity to engage in worry processes. However, this explanation appears to be less tenable since other features associated with worry but which are likely to be influenced by such cognitive declines (ie., beliefs about the functional value of worrying), also showed an age-related decrease.

Limitations and Direction for Future Research

Several limitations are noteworthy in interpreting these findings. Namely, this study was based on a sample of relatively healthy community-dwelling seniors who volunteered for research, a factor which likely reflects active engagement in life activity. Furthermore, the comparison sample of younger adults consisted of a convenience sample of university students. Consequently, the findings may not generalize to less healthy or active individuals and to younger individuals who are less educated. Additionally, as was highlighted above, the age differences in worry were based on cross-sectional comparisons and on retrospective recall, which may have been affected by cohort effects and by recall biases. Accordingly, longitudinal research is required prior to drawing stronger conclusions regarding the possibility of age-related reductions in worrying and the temporal sequence of the proposed worry process variables in facilitating such a change. Finally, as was described above, the information processing style questionnaires may not have adequately captured the pre-attentive biases toward threat that have been observed among highly anxious individuals. Research assessing age differences in these processes using innovative attentional paradigms (see Mathews, 1993; Mathews & MacLeod, 2002; Mathews & Mackintosh, 1998, for reviews) will help to better understand the extent to which seniors shift attention away from threat along with the role of such processes in the observed age-related reductions in worrying.

To my knowledge this was the first study to investigate such issues in relation to worry among older individuals. Accordingly, the accumulated knowledge in this area remains at an early stage of development. Several research questions in particular warrant future attention at this juncture. Specifically, the issue of whether these age differences in worrying reflect developmental shifts requires research incorporating a longitudinal

design. Such longitudinal research may also be used to shed light on how other factors such as reductions in intolerance of uncertainty and in beliefs about worry temporally relate to reductions in worrying. It would be particularly intriguing for longitudinal research to assess worry and related features before and after developmental milestones such as retirement. Such a design, which would assess worry before and after a major life transition that is often associated with a reduction in many responsibilities, may help to disentangle the extent to which these changes are influenced by intra-psychic and situational factors.

Clinical Implications

Although this research is at an early state of development, the finding that intolerance of uncertainty and beliefs in the functional value of worry were strongly associated with trait worry in older individuals offers direction for clinicians who work with highly anxious seniors. These constructs are strong predictors of worry in the general adult population (Dugas et al., 1998), and have been integral components of a treatment program for individuals with GAD (Ladouceur, Dugas et al., 2000). The initial findings that such associations generalize to older adults suggests that clinical efforts focused on helping chronically worried seniors to better tolerate uncertainty and to more realistically appraise erroneous beliefs in the functional value of worrying will likely be helpful.

STUDY 3:
WORRY PRONENESS IN LATE ADULTHOOD AND
ADAPATATION TO LIFE STRESS

Study 2 provided evidence that worry, along with several associated features decrease in later adulthood. However, the retrospective recall data also suggested that a minority of seniors perceived increases in worrying, relative to when they were younger. Although those reporting an increase did not show remarkable levels of absolute worry, this finding along with other research suggesting that a minority of seniors report heightened levels of worry (Wisocki, 1994), suggests a need for further research on factors associated with worry proneness in later life. The research described in Study 2 has begun to address this issue by showing that intolerance of uncertainty and beliefs about the functional value of worry, both potent predictors of worry in the general adult population (Dugas et al., 1998), are also strongly related to worry in older adults. Study 2 also showed that a tendency to focus attention toward threat, and to perceive ambiguous situations as threatening were related to worry in late adulthood.

The purpose of Study 3 was to begin to better understand some of the factors that may distinguish high from low worriers in later life. One process that may be particularly relevant to this issue stems from the finding that many life stressors in late adulthood are perceived as less amenable to change, compared to those experienced by younger and middle-aged adults (Aldwin, 1991; Aldwin et al., 1996; Folkman et al., 1987; Heckhausen, 1997; Kant, D'Zurilla, & Maydeu-Olivares, 1997). Theorists contend that older individuals adapt to less controllable life circumstances by adopting secondary control strategies such as shifting goals, and altering the meaning associated with

potentially stressful life events (Heckhausen & Shultz, 1995; Heckhausen, 1997; Shultz & Heckhausen, 1997), and that such processes are associated with favourable psychological outcomes (Wrosch et al., 2000). It is possible that high worriers have difficulty making such adjustments due to heightened levels of anxiety and difficulty tolerating uncertainty.

The methodological framework for this study was drawn from a small but growing scientific literature on the “goodness of fit” between coping efforts and the perceived controllability of life stressors (e.g., Conway & Terry, 1992; Forsythe & Compass, 1987; Endler et al, 2000; Macrodimitris & Endler, 2001; Oseowiecki & Compass, 1998; Park et al., 2001; Vitaliano et al., 1990; Zakowski et al., 2001). Although findings have varied, research in the general adult population, has generally supported the hypothesis that adopting problem-focused coping strategies during stressors that are perceived as controllable and emotion-focused coping strategies when stressors are perceived as less controllable, are associated with adaptive psychological outcomes, including reduced anxiety.

Study 3 investigated the extent to which seniors with relatively high levels of worry, have difficulty making such adjustments. Specifically, respondents were asked to complete a questionnaire-based measure of situational coping. They also completed a situational appraisal questionnaire, which included an index measuring the degree to which the target stressor was perceived as uncontrollable. Although research on the goodness of fit between appraisal and coping behaviours have typically conceptualized mental health indices as outcomes, in the present study coping behaviours were conceptualized as the outcome variables. More specifically, the present study examined

the interaction of worry and the degree to which a stressor was perceived as uncontrollable in predicting coping behaviours. This framework flows logically from the theoretical conceptualization that high and low worriers differ in the extent to which they use their situational appraisals to guide their coping efforts.

The measure of coping behaviour that was selected for the present study (The COPE, Carver et al., 1989) contains several clusters of coping strategies. Of particular interest were coping behaviours focused on active problem-solving along with emotion-focused strategies such as trying to alter the meaning attributed to a given stressful situation, acceptance, or otherwise talking about their feelings with others. Theory and research also support the notion that when faced with uncontrollable life circumstances or unattainable goals with little opportunity for change, it is sometimes adaptive to disengage from or alter one's commitment to a goal (Wrosch, Scheir, Carver, & Schulz, 2003). Accordingly, this strategy was also assessed in an exploratory analysis.

In approaching these analyses it was important to consider the idea people do not necessarily use particular coping strategies independently of others (Cook & Heppner, 1997; Folkman & Lazarus, 1980; Tennen, Affleck, Armeli, & Carney, 2000). For example, use of coping strategies to reduce emotional arousal also facilitates problem-solving efforts (Forsythe & Compass, 1987). Consequently to gain a more comprehensive understanding, researchers have emphasized the importance of examining both absolute coping indices and the use of particular coping indices relative to others (Conway & Terry, 1990; Forsythe & Compass, 1987; Vitaliano et al., 1987). In fact, findings from assessments of the goodness of fit between situational appraisals and coping behaviours have differed depending on whether absolute or relative coping indices were used

(Conway & Terry, 1990; Forsythe & Compass, 1987). Accordingly, both absolute and relative coping behaviours were examined in the present investigation.

The construct of perceived control is complex and involves multiple dimensions (Evans et al., 1993; Skinner, 1996). These include: 1) the extent to which one perceives her or himself as competent or self-efficacious to control the outcome of a given situation, and 2) whether or not the individual perceives that the means exist to control the outcome of a situation (Skinner, 1996). Otherwise stated, control-related beliefs include: 1) whether the individual believes that he or she has the ability to control the outcome of a given situation, and 2) beliefs about whether there is a connection between the efforts of a generic person and a situational outcome (Evans et al., 1993). Although both dimensions are relevant, perceived controllability of the stressor was operationalized according to the second dimension: the extent to which the individual perceived the stressful situation to be controllable by anyone. The measure selected to capture this construct, the uncontrollable-by-anyone scale of the Situational Appraisal Measure (SAM; Peacock & Wong, 1990) asks respondents to indicate the extent to which the situation was perceived as uncontrollable by a generic person. Thus, degree of *uncontrollability* rather than *controllability* was the construct that was assessed. This is theoretically fitting given the potential saliency of loss of control in the lives of older adults.

To provide a better context to interpret the findings from the goodness of fit analyses, the bi-variate correlations between worry and coping behaviours were also assessed. Surprisingly little research has assessed this relationship, perhaps since worry itself may be viewed as coping behaviour (M. Conway, personal communication,

September, 1998). However, developing a better understand of this association is relevant since high and low worriers could vary systematically in their approach to life stress. If high worriers do indeed engage in coping behaviours that reinforce or intensify their worrying, such behavioural patterns could serve as concrete targets for psychological interventions. The few studies that have assessed the association between worry and coping have found that worry is associated with avoidance behaviours, coping via emotional discharge (Davey et al., 1992; Davey, 1993; Jung, 1992), along with seeking out further stressor-related information (Davey et al., 1992), but not with active engagement in problem-solving. Similar findings were reported in a pilot study on the association between coping and worry among older adults (Basevitz, Pushkar, Dalton, Chaikelson & Conway, 2000). Data from that study showed that worry among community-dwelling seniors was associated with a pattern of withdrawal from life stressors and a tendency to express emotion. Basevitz et al. also found that worry was neither associated with problem-solving efforts nor with attempts to alter the meaning of the stressor. A secondary purpose of the present study was to determine whether the findings reported by Basevitz et al. would be replicated in the present sample. Such analyses served as a backdrop to better understand the goodness of fit analyses, which was the primary focus of the study. To summarize, several hypotheses were tested:

Hypothesis 1

Hypothesis 1 predicted that worry would be associated with a tendency to cope by using avoidance strategies or by otherwise expressing emotion, but not with a tendency to engage in problem solving.

Hypothesis 2

Hypothesis 2 predicted that appraisal of situational uncontrollability would interact with worry in predicting coping behaviour. Specifically, it was predicted that high worriers would fail to exhibit a match between their perception of situational uncontrollability and their coping efforts. Those reporting relatively low levels of worry were expected to use their appraisal of uncontrollability to guide their coping behaviours. It was predicted that when low worriers perceived stressful situations as uncontrollable, they would apply less problem-focused efforts and greater use of alternative coping behaviours such as emotion-focused coping. This pattern was not expected to be evident with increasing levels of worry. Given a lack of consensus on which specific emotion-focused strategies might be particularly relevant for this goodness of fit, a variety of such coping efforts were selected for assessment based on their relevance as potentially adaptive strategies when faced with uncontrollable situations and based on the reliability of the scales.

Method

Participants

The second expanded sample of older adults were the participants in this study. To summarize, the sample consisted of 149 community-dwelling adults aged 65 and older. They had a mean age of 73.37 ($SD = 5.51$) and were 59.1% female. The majority of the participants reported that they were in good or very good health and that they were fairly to very comfortable financially. A demographic summary was presented above in Table 2.

Measures

Demographic Variables

Information on the demographic variables of age, gender, marital status, years of education, perceived health, and perceived finances were obtained via a brief interview. As was described above, years of education were operationalized as the highest level of educational attainment rated according to a standard scale, which was based on the current educational system in Quebec. Perceived health and financial status were measured using the single item scales that were described in Studies 1 and 2. The demographic rating scales are presented in Appendix D.

Trait Worry

The tendency to worry was measured using the PSWQ (Meyer et al., 1990), a widely used measure of trait worry with excellent psychometric properties. A full description of this measure is presented in Study 1. For this sample of older adults, the internal consistency coefficient on the PSWQ was .91. The PSWQ is presented in Appendix E.

Content-Based Measure of Worry

The total score on the WS-R was used to provide an omnibus indicator of content-based worry. The scale was included to complement the PSWQ in providing a second indicator of worry status. A description of the psychometric properties of the WS-R was presented in Study 1. The internal consistency for the Total WS-R in the present sample was .98.

Situational Coping

Coping was measured with the situational version of the COPE (Carver et al., 1989), a widely used measure of coping behaviour, where respondents are asked to describe a recent stressful event and to rate the extent to which they used each of the listed coping behaviours. The COPE includes 60 items with 15 conceptually distinct 4-item scales, which were theoretically derived and have been supported by factor analyses (Carver et al., 1989; Clark, Bormann, Cropanzano, & James, 1995; Cook & Heppner, 1997). Each item is scored from 1 (“I didn’t do this at all”) to 4 (“I did this a lot”), with scale scores ranging from 4 to 16, and total COPE scores ranging from 60 to 240. The 15 COPE scales are: *active coping, planning, suppression of competing activities, restraint, use of emotional support, use of instrumental support, focus on and venting emotions, behavioural disengagement, mental disengagement, denial, positive reinterpretation and growth, acceptance, turning to religion, humour, and substance use*. The COPE along with descriptions of the scales are presented in Appendix P.

Internal consistency coefficients for these scales have been shown to range from excellent to acceptable (Carver et al, 1989; Cook & Heppner, 1997). One exception however, was the mental disengagement scale, where internal consistency coefficients ranged from .45 to .46 (Carver et al, 1989; Cook & Heppner, 1997). Because the items on this scale reflected more diverse coping tactics relative to the other scales (e.g., “I went to the movies or watched T.V. to think about it less”; “I slept more than usual”) Carver et al., suggested that this scale forms a “multiple act criterion” (Fishbein & Ajzen, 1974) but not necessarily a unitary class of behaviour. The scales on the dispositional version of the

COPE have shown stable 6 to 8 week test-retest reliability, with coefficients ranging from .42 to .89 on the different scales (Carver et al., 1989).

The convergent and discriminant validity of the COPE has been demonstrated by Clark et al. (1995), who found that the individual scales correlated with similar but not with conceptually distinct indices from other coping inventories. Finally, greater reported use of seemingly adaptive coping indices on the COPE such as active coping, planning, and positive reinterpretation and growth were associated with other adaptive traits such as optimism, whereas seemingly maladaptive coping dimensions such as denial and behavioural disengagement were associated with trait anxiety and with a less optimistic outlook (Carver et al., 1989).

Situational Appraisal

Appraisal of the target stressor was measured using the Stress Appraisal Measure (SAM; Peacock & Wong, 1990). The SAM consists of seven scales measuring various appraisal dimensions. Only two scales were used in the present study: 1) the *uncontrollable-by-anyone* scale, and 2) the *stressfulness* scale, measuring the extent to which the stressor was perceived as stressful, taxing resources, and warranting a coping response. The latter scale was included due to the expectation that worry would be associated with higher levels of perceived stress associated with the target stressor, which warranted a need to control for such potentially confounding variance.

On the SAM, respondents are asked to consider a stressor (in this case, the stressor described on the COPE) and to indicate the extent to which they perceived each item as applicable, with responses ranging from 1 (“not at all”) to 5 (“extremely”). Each scale consists of four items, with scores ranging from 4 to 16. Higher scores on both the

uncontrollable-by-anyone and stressfulness scales indicate greater perceived uncontrollability and greater perceived stress. Because some initial pilot data suggested that these older participants had difficulty correctly interpreting the meaning of high scores on the uncontrollable-by-anyone scale (possibly because the meaning of higher scores was opposite to other related scales), the correct interpretations of high scores on this scale were clarified in a bold-faced note under each item.

In their validation of the SAM, Peacock and Wong (1990) have demonstrated that the appraisal scales are mutually independent and the structure of the scale was supported by a factor analysis. The construct validity of the uncontrollable-by-anyone scale was demonstrated in a series of studies where people were presented with hypothetical situations, which they were asked to appraise using the SAM (Peacock & Wong, 1990; Peacock & Wong, 1996). In these studies, situational vignettes that were intended to describe uncontrollable events did in fact receive higher ratings on the uncontrollable-by-anyone scale relative to other situational vignettes. For the stressfulness scale, higher perceived stress was associated with perceptions of a stressor as threatening (Peacock & Wong, 1990). Finally, both appraisal of uncontrollability and stressfulness were positively associated with dysphoric mood and with more psychological symptomatology (Peacock & Wong, 1990). In this sample of older adults, the internal consistency of the appraisal scales were .83 for the uncontrollable-by-anyone scale and .76 for the stressfulness scale. The SAM is presented in Appendix Q.

Procedure

The procedures were the same as those described for the older sample in Section 2 of Study 2. To summarize, individual appointments for testing were arranged with either

an undergraduate student or a graduate student in clinical psychology. Most participants were tested at the Adult Development and Aging Laboratory at Concordia University. However, those who expressed an interest in participating, but who reported difficulty coming to the laboratory, were offered the opportunity to have the testing conducted in their home. Six participants were tested in their homes. In all cases, the in-home testing reflected a convenience rather than a necessity. Prior to beginning, the participants were provided with a general orientation to the study and questions were answered prior to gaining informed consent. The participants then completed the questionnaires used for the present study in addition to other measures, which were used for other studies on coping and worry. As was described in Studies 1 and 2, several of these measures were completed as part of a take-home package. However, all measures that were used for the present study were completed at the laboratory. After completing the study, the participants were thanked for their participation, were asked about their experience in participating, and questions were answered.

Results

Data Screening

Of the 149 participants, one participant reported experiencing no stressful life events in the recent past and consequently could not complete the situational COPE and SAM questionnaires. Another participant did not wish to complete these scales. Two additional participants did not complete the SAM, leaving 145 participants (59 males and 86 females) with complete data for both the COPE and SAM scales.

Prior to conducting analyses the data were screened for missing data, the presence of outliers, and skewness of the data distributions were assessed. Necessary adjustments

to the data distributions were made in accordance with the recommendations outlined by Tabachnick and Fidell (1996). A detailed account of these data screening procedures and adjustments are presented in Appendix R. To summarize, a square root transformation was applied to the total worry score on the WS-R, and a logarithmic transformation was applied to the denial scale of the COPE, to reduce the impact of skewness.

Data Reduction

The COPE

Efforts were made to reduce the 14 COPE subscales to a smaller number of interpretable coping indices, which would be used to test the hypotheses outlined above. First, the endorsement frequency of each coping scale was examined. The humour and substance-use coping scales were only endorsed by a minority of respondents. Specifically, 57.1% of the participants did not endorse any items on the humour coping scale and 88.4% of the participants did not endorse any items on the substance use scale, leading to distributions that were highly skewed. Because reported use of these coping styles were relatively rare, and given that these scales were not of primary interest to this study, these scales were not used.

A principle components analysis (PCA) with Varimax rotation was conducted to reduce the number of remaining COPE scales. The COPE scale scores rather than the individual items were entered into a PCA. Prior to conducting this analysis, each of the COPE scales were examined to determine their suitability for a PCA. The means, and Cronbach's alpha internal consistency coefficients for each of the COPE scales are presented in Table 23. In an effort to maximize the clarity and the interpretability of the emergent factors, only the COPE scales with internal consistency coefficients greater

Table 23

Means and Internal Consistency Coefficients for COPE and SAM Scales

	<i>M</i>	<i>SD</i>	α
<i>COPE Scales^a :</i>			
Acceptance	11.86	3.14	.70
Planning	11.12	3.65	.85
Active coping	10.60	3.22	.71
Emotional support	9.99	3.97	.91
Positive reinterpretation and growth	9.92	3.23	.70
Restraint	9.09	3.47	.75
Instrumental support	8.93	3.66	.78
Suppression of competing activities	8.57	3.16	.67
Focus on and venting emotions	8.50	3.22	.79
Turning to religion	7.85	4.65	.97
Mental disengagement	7.49	2.64	.60
Behavioural disengagement	6.08	2.27	.49
Humour	5.84	2.79	.88
Denial	5.67	2.29	.52
Substance use	4.44	1.68	.87
Total COPE	125.96	24.41	.91
<i>SAM scales^a :</i>			
Stressfulness	12.99	3.38	.76
Uncontrollability	11.32	5.15	.83

^a Higher scores indicate more coping effort, greater perceived stress, and greater perceived uncontrollability.

than .70 were included in the PCA. Accordingly, the mental disengagement, behavioural disengagement, denial, and suppression of competing activity scales were not included.

Four factors with eigenvalues greater than one emerged from the PCA, which accounted for a total of 76.1% of the common variance. The factor loadings are presented in Table 24. The first factor accounted for 38.2% of the variance and had strong loadings from the *active coping* and *planning* scales. This factor also had secondary loadings from use of *instrumental support*, *positive reinterpretation and growth*, and *restraint coping*. Because of the strong loadings from scales measuring an active, problem-focused approach to dealing with the situational stressor, this factor was labelled *problem-focused coping*. The second factor accounted for 14.6% of the variance and had strong loadings from use of *emotional support*, *focus on and venting emotions*, and use of *instrumental support*. Due to the common focus on expressing emotion, this factor was labelled *emotion-focused coping*. The third factor accounted for 12% of the variance, and had loadings from *religious coping*, *positive reinterpretation and growth*, and *restraint*. This factor seemed to reflect a tendency to cope by attempting to alter one's internal reaction to and meaning attributed to the stressor. Consequently, this factor was labelled *meaning-focused coping*, a term that was previously used by Park and Folkman (1997). The fourth factor accounted for 11.3% of the variance and had a single positive loading from the *acceptance coping* scale. Tabachnick and Fidell (1996) advise against interpreting factors with single loadings, because they tend to be unreliable. Consequently, rather than using this fourth factor, the non-factor analyzed acceptance coping scale from the COPE was used.

Table 24

*Structure Coefficients, and Eigenvalues for Principle Components Analysis
of COPE Scales*

COPE scales:	Factor 1	Factor 2	Factor 3	Factor 4
Active coping	.91	.20	.13	-.02
Planning	.83	.24	.06	.15
Emotional support	.16	.88	.06	.21
Focus on and venting emotions	.08	.74	.25	-.33
Instrumental support	.45	.72	-.04	.16
Turning to religion	-.08	.10	.88	.08
Positive reinterpretation and growth	.43	.05	.64	.24
Restraint	.49	.11	.52	-.16
Acceptance	.07	.07	.13	.92
<i>Eigenvalues</i>	3.44	1.31	1.08	1.02

Although Table 23 (above) showed that the internal consistency of the behavioural disengagement scale was poor, this scale closely resembles the goal disengagement construct described by Wrosch et al. (2003), which may be an adaptive approach to life stress when an individual is faced with an unattainable goal or an extremely uncontrollable situation. Consequently, given its potential importance, this non-factor-analyzed scale was retained for the analyses, but results using this scale were interpreted with caution.

To summarize, the COPE scale was reduced to five coping indices: three factors that emerged from the PCA (*problem-focused*, *emotion-focused*, and *meaning-focused*), and two non-factorized COPE scales (*acceptance coping* and *behavioural disengagement*).

Calculation of relative coping indices. To test the goodness of fit hypothesis, both the absolute and relative coping indices were used. In order to calculate relative coping scores, the coping indices, which included both factor scores and scale scores, needed to be converted to the same metric. Consequently, scale scores rather than factor scores were always used to calculate relative coping indices. More specifically, the three coping factors were converted into scale scores to maintain consistency with the acceptance and behavioural disengagement scales. To do this, the COPE scales that loaded on each of the three factors were used to guide the development of new scales. For example, in constructing a problem-focused coping scale, which had factor loadings from both active-coping and planning scales, the eight items on these scales were combined to form a single scale. The internal consistencies for each of these new factor-derived scales were .88 for problem-focused coping, .89 for emotion-focused coping, and .86 for meaning-

focused coping. Procedures outlined by Vitaliano et al., (1987) and by Conway and Terry (1990), were then used to calculate relative coping indices. Specifically, each of the five scales were reduced to mean item scores (ie., ranging from 0 to 4) to ensure that the results were not biased by the number of items included on the scales. Relative coping indices were then calculated by dividing each mean item score by the sum of the five mean item-scores. For example, the relative coping score for problem-focused coping was calculated as follows:

$$\text{Relative problem focused coping} = \frac{\text{Mean item score for problem-focused coping}}{\text{Sum of mean item scores for all five scales}}$$

Worry Scales. The situational (WS-R) and trait (PSWQ) measures of worrying were strongly correlated, $r = .54, p < .001$. In an effort to provide a unitary measure of worry (reflecting both worry about a variety of topics and trait worry), and to reduce the number of required analyses, these scales were entered into a PCA. A single factor emerged which accounted for 77% of the common variance (eigenvalue = 1.54). Worry factor scores were used to test the hypotheses.

Correlation Between Worry and Coping

Prior to testing the goodness of fit hypothesis, the association between the absolute coping scales and worry was assessed. Hypothesis 1 predicted that worry in late adulthood would be associated with a pattern of avoidance-based coping and / or emotional discharge but not with problem-focused coping strategies. Table 25 presents the correlations between worry factor scores and both the coping and appraisal indices. In addition to the five absolute coping indices that were used to test the goodness of fit hypothesis, the denial, mental disengagement, and suppression of competing activities scales were also included to more comprehensively evaluate the association between

Table 25

*Correlations Between Worry Factor Scores and Absolute Coping Indices
Before and After Controlling for Perceived Stressfulness*

	Worry ^b	Partial <i>r</i> with worry controlling for stressfulness ^c
<i>Coping variables^a:</i>		
Problem-focused factor	.07	.00
Emotion-focused factor	.15	-.02
Meaning-focused factor	.14	.00
Acceptance scale	-.10	-.11
Behavioural disengagement scale	.16*	.07
Mental disengagement scale	.22**	.10
Denial scale (log)	.16*	.09
Suppressing competing activities scale	.24**	.09
Total COPE	.22**	.01

^a Higher scores indicate greater coping effort. ^b*n* = 147. ^c*n* = 145.

* *p* < .05. ***p* < .01.

worry and coping in this sample of older adults. Given the relatively low internal consistency of these three latter coping scales, however, those results should be interpreted with caution.

As can be seen in Table 25, worry was associated with a tendency to report more coping behaviour in general. The associations between worry and the specific coping indices revealed a pattern of positive association between worry and avoidance-based strategies such as behavioural disengagement (altering one's goals), mental-disengagement (seeking out distraction), and denial of the stressor's existence. Suppression of competing activities, which was associated with worry as well, may have also reflected avoidance behaviour since high worriers did not appear to follow-through with direct problem-solving efforts. Consequently, Hypothesis 1, which suggested that worry would be associated with a pattern of avoidance-based coping but not problem-focused strategies, was supported. However, counter to the initial pilot data on this topic (Basevitz et al, 2000), worry was not associated with the emotion-focused coping index.

Because worry was associated with appraising the target stressor as more stressful, $r = .45$, $p < .001$, the partial correlations between worry and coping after accounting for variance associated with perceived stress were also assessed and are presented in Table 25. Interestingly, after co-varying perceived stress, worry was no longer associated with any of the coping indices. It seems that the use of avoidance coping among high worriers may be accounted for their heightened perception of stress.

Test of the Goodness of Fit Hypothesis using Absolute Coping Indices

Inter-correlation among the Variables

Prior to assessing the goodness of fit hypothesis, the inter-correlations between the worry, coping, and appraisal indices, along with life situational and demographic variables were examined and are presented in Table 26. As can be seen, higher levels of worry were strongly associated with appraisal of situational stress. Appraisal of stress was also associated with greater use of emotion-focused coping, meaning-focused coping, and behavioural disengagement. Not surprisingly, situations that were perceived as uncontrollable were also appraised as more stressful. Given this pattern, any association between worry and coping behaviour, along with interactions between worry and perceived uncontrollability in predicting coping behaviour, could be confounded by the finding that high worriers also perceived their target stressors to be more stressful. Given this possibility, appraisal of stress was co-varied in each analysis. The relationship between the demographic variables with coping and worry are considered below after the presentation of the major analyses.

Multiple Regression Analyses

A series of hierarchical multiple regression (HMR) analyses were used to test the goodness of fit hypothesis (Hypothesis 2), which suggested that high worriers would not adjust their coping efforts in accordance with their appraisal of situational uncontrollability, whereas low worriers were expected to do this. For example, it was predicted that low worriers would shift their coping efforts away from problem-focused coping when they perceived the situation to be relatively uncontrollable, whereas high worriers were not expected to do this. For the non problem-focused coping indices (emotion-focused, meaning focused, acceptance, and behavioural disengagement) the converse pattern was expected. That is, low worriers were expected to report greater use

Table 26

Correlations Among Worry, Absolute Coping Indices, and Appraisal Scales (N = 147)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
1. Worry Factor												
2. Problem-focused factor ^{ab}	.07											
3. Emotion-focused factor ^{ab}	.15											
4. Meaning-focused factor ^{ab}	.14											
5. Acceptance ^a	-.10	.07	.07	.13								
6. Behavioural disengagement ^a	.16*	-.04	.11	.21*	-.12							
7. Appraisal of stressfulness ^{ac}	.45***	.15	.36***	.33***	.00	.22**						
8. Appraisal of uncontrollability ^{ac}	.16	-.15	.16	.08	.15	.16	.43***					
9. Age	.00	-.09	-.08	-.10	-.06	.02	-.03	.02				
10. Gender ^d	.12	-.17*	.22**	.24**	.04	.15	.30***	.20*	-.06			
11. Years of education	-.10	.12	-.07	-.08	.11	.00	-.06	.01	.00	-.15		
12. Health rating ^e	-.33***	-.04	.13	.08	.03	-.01	-.19*	-.06	-.07	.12	.03	
13. Finances rating ^e	-.22**	-.12	-.02	-.16	.02	.00	-.13	.09	-.03	-.02	.07	.23**

^aHigher scores indicate more coping behaviour and greater appraisal of stress and uncontrollability.

^bBlank inter-correlations among the COPE factors reflect an orthogonal factor structure. ^cN = 145. ^dMale gender coded 1; female gender coded 2. ^eHigher scores indicate better health and a better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

of these strategies when they perceived the situation to be uncontrollable, whereas high worriers would not be expected to exhibit this pattern.

To test these hypotheses, a series of HMRs were conducted, each predicting a separate coping index. For each analysis, appraisal of situational stress was entered on step 1, and was consequently co-varied from subsequent steps. At step 2, worry factor scores and perceived uncontrollability of the stressor were entered into the equation. At step 3, the interaction of worry by perceived uncontrollability was added. In order to avoid destabilizing the regression equation due to a high correlation between the interaction term and the main effects, each of the independent variables (IVs) were “centred” by transforming the IVS into Z-scores prior to calculating the interaction term. Five HMRs were conducted for each of the absolute coping indices.

Tables 27 through 31 present the results of the HMRs for each of the five absolute coping indices. Using a criterion of $p < .001$ to assess the significance of Mahalanobis’ distance, one multivariate outlier was detected among the IVs. This outlier resulted from the combination of very high scores on the worry factor, and appraisals of situational uncontrollability and stressfulness. However, examination of Cook’s distance indicated that this outlier did not significantly impact any of the five regression equations and was consequently kept in the analyses.

For the absolute *problem-focused coping* index (Table 27), after all four variables were entered at the end of step 3, $R^2 = .16$ (.13 adjusted), $F(4, 140) = 6.44$, $p < .001$. At step 1, perceived stressfulness did not account for a significant amount of variance in problem-focused coping. At step 2, the addition of worry factor scores, and appraisal of uncontrollability accounted for an additional 6% of the variance in problem-focused

Table 27

Summary of Hierarchical Multiple Regression Predicting Absolute Problem-Focused Coping (N = 145)

Variable	B	SE B	β	sr ² (unique)
Step 1				
Appraisal of stressfulness	.15	.08	.15	.02
Step 2				
Appraisal of stressfulness	.28	.10	.28**	.05
Worry	-.02	.09	-.02	.00
Appraisal of uncontrollability	-.27	.09	-.27**	.06
Step 3				
Appraisal of stressfulness	.26	.10	.25**	.04
Worry	-.08	.09	-.08	.01
Appraisal of uncontrollability	-.21	.09	-.21*	.03
Worry x Appraisal of uncontrollability	.27	.08	.28***	.07
				R ² = .16
				Adjusted R ² = .13
				R = .39

Note. R² = .02, n.s. for Step 1; $\Delta R^2 = .06$, $p < .05$ for Step 2; $\Delta R^2 = .07$, $p < .001$ for Step 3.

* $p < .05$. ** $p < .01$, *** $p < .001$.

Table 28

Summary of Hierarchical Multiple Regression Predicting Absolute Emotion-Focused Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	.37	.08	.36***	.13
Step 2				
Appraisal of stressfulness	.38	.10	.38***	.09
Worry	-.02	.09	-.02	.00
Appraisal of uncontrollability	.00	.09	.00	.00
Step 3				
Appraisal of stressfulness	.38	.10	.38***	.10
Worry	.00	.09	.00	.00
Appraisal of uncontrollability	-.02	.09	-.02	.00
Worry x Appraisal of uncontrollability	-.09	.08	-.09	.01
				$R^2 = .14$
				Adjusted $R^2 = .12$
				$R = .37$

Note. $R^2 = .13$, $p < .001$ for Step 1; $\Delta R^2 = .00$, n.s. for Step 2; $\Delta R^2 = .01$,

n.s. for Step 3.

*** $p < .001$

Table 29

Summary of Hierarchical Multiple Regression Predicting Absolute Meaning-Focused Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	.33	.08	.33***	.11
Step 2				
Appraisal of stressfulness	.36	.10	.36***	.08
Worry	.00	.09	.00	.00
Appraisal of uncontrollability	-.07	.09	-.07	.00
Step 3				
Appraisal of stressfulness	.37	.10	.36***	.09
Worry	.02	.09	.02	.00
Appraisal of uncontrollability	-.09	.09	-.09	.01
Worry x Appraisal of uncontrollability	-.09	.08	-.10	.01
				$R^2 = .12$
				Adjusted $R^2 = .09$
				$R = .35$

Note. $R^2 = .11$, $p < .001$ for Step 1; $\Delta R^2 = .00$, n.s. for Step 2; $\Delta R^2 = .01$, n.s.

for Step 3.

*** $p < .001$

Table 30

Summary of Hierarchical Multiple Regression Predicting Absolute Acceptance-Based Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	.00	.26	.00	.00
Step 2				
Appraisal of stressfulness	-.08	.32	-.03	.00
Worry	-.37	.29	-.12	.01
Appraisal of uncontrollability	.57	.29	.18*	.03
Step 3				
Appraisal of stressfulness	-.08	.32	-.02	.00
Worry	-.36	.30	-.12	.01
Appraisal of uncontrollability	.57	.29	.18*	.03
Worry x Appraisal of uncontrollability	-.03	.26	-.01	.00
				$R^2 = .04$
				Adjusted $R^2 = .01$
				$R = .20$

Note. $R^2 = .00$, n.s. for Step 1; $\Delta R^2 = .04$, n.s. for Step 2 ; $\Delta R^2 = .00$, n.s. for

Step 3.

* $p < .05$

Table 31

Summary of Hierarchical Multiple Regression Predicting Absolute Behavioural Disengagement Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	.50	.19	.22**	.05
Step 2				
Appraisal of stressfulness	.34	.23	.15	.01
Worry	.18	.21	.08	.00
Appraisal of uncontrollability	.18	.21	.08	.00
Step 3				
Appraisal of stressfulness	.33	.23	.15	.01
Worry	.15	.21	.07	.00
Appraisal of uncontrollability	.21	.21	.09	.01
Worry x Appraisal of uncontrollability	.12	.18	.06	.00
				$R^2 = .06$
				Adjusted $R^2 = .03$
				$R = .25$

Note. $R^2 = .05$, $p < .01$ for Step 1; $\Delta R^2 = .01$, n.s. for Step 2 ; $\Delta R^2 = .00$, n.s.

for Step 3.

** $p < .01$

coping, $F_{inc}(2, 140) = 4.56, p < .05$. Examination of the beta weights and the semi-partial correlations indicated that only appraisal of uncontrollability emerged as a significant predictor. The direction of this effect indicated that perceiving the situation as uncontrollable was associated with less reported use of problem-focused coping. Interestingly, appraisal of stressfulness also emerged as a significant predictor at this step, with more perceived stress predicting greater use of problem-focused coping. Finally, consistent with Hypothesis 1, at step 3 the Worry x Perceived Uncontrollability interaction contributed an additional 7% to the predicted variance in problem-focused coping, $F_{inc}(1, 140) = 12.12, p < .001$.

To present this interaction effect in an intuitively meaningful manner, the sample was divided into relatively low, medium, and high worriers based on their worry factor percentile scores. Table 32 presents the partial correlations between appraisal of uncontrollability and problem-focused coping for each of these worry sub-groups, after accounting for variance associated with perceived stress. As can be seen, greater perceived uncontrollability was associated with less problem-focused coping for the low worriers. The magnitude of this negative correlation was less marked (and non statistically significant) for the medium worriers. Finally, for the high worriers, this correlation approached zero. Accordingly, this interaction effect provided support for the goodness of fit hypothesis, for problem-focused coping.

For the HMR predicting absolute *emotion-focused coping* (Table 28), after all four variables were entered at the end of step 3, $R^2 = .14$ (.12 adjusted), $F(4,140) = 5.71, p < .001$. For this analysis, only perceived stressfulness emerged as a significant predictor, with more perceived stress associated with greater use of emotion-focused

Table 32

Partial Correlations Between Absolute Problem-Focused Coping and Appraisal of Uncontrollability for Low, Medium, and High Worriers (Controlling for Appraisal of Stressfulness)

	Partial r with appraisal of uncontrollability ^a
<i>Low worriers (n = 48):</i>	
Absolute problem-focused coping ^a	-.44**
<i>Medium worriers (n = 49):</i>	
Absolute problem-focused coping ^a	-.23
<i>High worriers (n = 48):</i>	
Absolute problem-focused coping ^a	.02

^aHigher scores indicate more coping behaviour and greater perceived uncontrollability.

** $p < .01$

coping. More specifically, when entered alone at step 1, appraisal of stress contributed 13% to the explained variance in emotion-focused coping, $F_{inc}(1,140) = 21.85, p < .001$. At steps 2 and 3, no added variance in the use of emotion-focused coping was accounted for by worry, appraisal of uncontrollability, or by the interaction of these variables.

For the HMR predicting *meaning-focused coping* (Table 29), after all four variables were entered at the end of step 3, $R^2 = .12$ (.09 adjusted), $F(4, 140) = 4.73, p < .01$. This however, seemed to be largely attributable to the variance accounted for by perceived stressfulness of the situation, which was positively associated with meaning-focused coping. At step 1, appraisal of stressfulness emerged as a significant predictor, contributing 11% to the explained variance in palliative coping, $F_{inc}(1, 140) = 16.97, p < .001$. The addition of worry factor scores and appraisal of uncontrollability at step 2 did not significantly contribute to the explained variance in meaning focused coping. Similarly, when the interaction of worry and perceived control were entered at step 3, no additional variance in meaning-focused coping was accounted for.

For the HMR predicting absolute *acceptance-based coping* (Table 30), R for regression was not significantly different from zero at the end of step 3 with all four variables entered into the equation, $F(4, 140) = 1.45, n.s.$ At step 1, appraisal of stressfulness did not emerge as a significant predictor of acceptance-based coping. At step 2, the addition of worry and appraisal of situational uncontrollability did not significantly add to the predicted variance in acceptance-based coping. However, examination of the beta weights indicated that appraising the situation as uncontrollable was associated with greater use of acceptance-based coping. The addition of the Worry x

Perceived Uncontrollability interaction at step 3, did not significantly add to the explained variance in the use of acceptance-based coping.

For the HMR predicting absolute *behavioural disengagement* (Table 31), R for regression was not significantly different from zero at the end of step 3, with all four variables entered, $F(4, 140) = 2.29$, n.s. At step 1, appraisal of stressfulness was a significant positive predictor of behavioural disengagement, contributing 5% to the predicted variance in behavioural disengagement, $F_{inc}(1, 143) = 7.30$, $p < .01$. However, when the worry factor and appraisal of uncontrollability were entered at step 2, appraisal of stressfulness no longer emerged as a significant predictor of behavioural disengagement. Neither the addition of worry factor scores and perceived uncontrollability at step 2, nor the addition of the interaction term at step 3 contributed significantly to the explained variance in behavioural disengagement.

To summarize, the results for the HMRs predicting absolute coping indices supported the goodness of fit hypothesis in predicting problem-focused coping. For the non-problem-focused coping indices, the goodness of fit hypothesis was not supported. The comparable analyses predicting relative coping indices are presented below.

Test of the Goodness of Fit Hypothesis using Relative Coping Indices

Inter-Correlation among the Variables

Prior to testing the goodness of fit hypothesis for the relative coping indices, the pattern of inter-correlation among the relative coping indices with situational appraisal, worry, and the demographic variables were examined and are presented in Table 33. Because these coping indices were not derived from orthogonal factor scores, it was possible to examine the pattern of inter-correlation among the relative coping indices.

Table 33

Correlations Among Worry, Relative Coping Indices, and Appraisal Scales (N = 147)

Variables	1	2	3	4	5	6	7	8	9	10	11	12
I. Worry Factor												
2. Problem-focused factor ^{ab}												
3. Emotion-focused factor ^{ab}												
4. Meaning-focused factor ^{ab}												
5. Acceptance ^a												
6. Behavioural disengagement ^a												
7. Appraisal of stressfulness ^{ac}												
8. Appraisal of uncontrollability ^{ac}												
9. Age												
10. Gender ^c												
11. Years of education												
12. Health rating ^c												
13. Finances rating ^c												
	-.02	-.02	-.18*	-.30***	-.29***	-.24**						
	.13		-.40***	-.36***	-.29***	-.24**						
	.09	-.18*	-.40***	-.36***	-.29***	-.24**						
	-.23**	-.40***	-.36***	-.29***	-.24**	-.24**						
	.10	-.37***	-.21*	-.07	-.24**	-.24**						
	.45***	.00	.24**	.16	-.32***	.03						
	.16	-.21*	.03	-.02	.10	.09	.43***					
	.00	-.03	-.03	-.08	.04	.08	-.03	.02				
	.12	-.23**	.13	.11	-.05	.08	.30***	.20*	-.06			
	-.10	.10	-.07	-.11	.09	-.06	-.06	.01	.00	-.15		
	-.33***	-.07	.10	.07	-.01	-.08	-.19*	-.06	-.07	.12	.03	
	-.22**	-.08	.01	-.12	.10	.06	-.13	.09	-.03	-.02	.07	.23**

^aHigher scores indicate more coping behaviour and greater appraisal of stress and uncontrollability.

^bBlank inter-correlations among the COPE factors reflect an orthogonal factor structure. ^cN = 145. ^dMale gender coded 1; female gender coded 2. ^eHigher scores indicate better health and a better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

The negative correlations among most of the relative coping indices indicated that as the relative use of one coping style increased, the others decreased. In other words, it seems that these relative indices captured a tendency to focus more on one coping style relative to the other, which was the intention in constructing these indices. The relationships between worry and the relative coping indices were similar in magnitude to the corresponding correlations for the absolute coping scores. However, only the association between worry and relative acceptance-based coping emerged as significant.

Interestingly, the direction of this correlation suggested that higher levels of worry were associated with relatively low reported use of acceptance-based coping.

Turning now to the associations between the relative coping indices and situational appraisal, perceiving the situation to be stressful was associated with lower relative use of acceptance-based coping. In contrast, perceiving the situation to be more stressful was associated with greater relative use of emotion-focused coping. Examining the relationship between appraisal of situational uncontrollability and the relative coping indices indicated that participants who rated their stressors as uncontrollable tended to report relatively less use of problem-focused coping.

Since worry was previously shown to be associated with greater perceived stress, the partial correlations between the relative coping indices and worry, after controlling for perceived stress were also assessed and are presented in Table 34. As can be seen, the negative correlation between worry and relative acceptance-based coping was no longer significant after partialling out perceived stress. Thus, similar to the corresponding associations for absolute coping indices, it seems that the finding that worry is associated with relatively less use of acceptance-based coping may be accounted for by the high

Table 34

Partial Correlations Between Worry Factor Scores and Relative Coping Indices, Controlling for Perceived Stressfulness (N = 145)

	Partial <i>r</i> with worry
<i>Coping indices^a:</i>	
Relative problem-focused	-.02
Relative emotion-focused	.01
Relative meaning-focused	.03
Relative acceptance coping	-.10
Relative behavioural disengagement	.10

^a Higher scores indicate greater relative coping efforts.

levels of stress that are perceived by these older worriers. The pattern of association between the relative coping and the demographic are considered in a separate section below, after presenting the HMRs which tested the major hypotheses.

Multiple Regression Analyses

The pattern of correlations described above suggested that perceived stress associated with the target stressor emerged as a salient dimension, which affected relative coping behaviour. As was described above, perceived stress also contained overlapping variance with worry and with perceived uncontrollability of the situation. Thus, consistent with the HMR analyses predicting absolute coping styles, perceived stressfulness of the situation was co-varied by entering this variable on the first step of each HMR.

To test the goodness of fit hypothesis for the relative coping indices, a series of HMRs were conducted predicting each relative coping index. The analyses followed the same format as those used in predicting absolute coping indices. Tables 35 through 39 present the HMRs for each of the five relative coping indices.

The findings from this set of HMRs were strikingly similar to the results for the absolute coping indices. For *relative problem-focused coping* (Table 35), after all four variables were entered at the end of step 3, $R^2 = .14$ (.11 adjusted), $F(4, 140) = 5.51$, $p < .001$. At step 1, perceived stressfulness did not account for a significant amount of variance in problem-focused coping. At step 2, the addition of worry factor scores, and appraisal of uncontrollability accounted for an additional 6% of the variance in problem-focused coping, $F_{inc}(2, 140) = 4.22$, $p < .05$. Examination of the beta weights and the semi-partial correlations indicated that only appraisal of uncontrollability was a

Table 35

Summary of Hierarchical Multiple Regression Predicting Relative Problem-Focused Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	.00	.00	.00	.00
Step 2				
Appraisal of stressfulness	.01	.00	.13	.01
Worry factor	.00	.00	-.03	.00
Appraisal of uncontrollability	-.01	.00	-.26**	.06
Step 3				
Appraisal of stressfulness	.01	.01	.10	.01
Worry factor	-.01	.00	-.10	.01
Appraisal of uncontrollability	-.01	.00	-.20*	.03
Worry x Appraisal of uncontrollability	.01	.00	.30***	.08
				$R^2 = .14$
				Adjusted $R^2 = .11$
				$R = .37$

Note. $R^2 = .00$, n.s. for Step 1; $\Delta R^2 = .06$, $p < .05$ for Step 2; $\Delta R^2 = .08$, $p < .001$ for Step 3.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 36

Summary of Hierarchical Multiple Regression Predicting Relative Emotion-Focused Coping (N = 145)

Variable	B	SE B	β	sr ² (unique)
Step 1				
Appraisal of stressfulness	.01	.00	.24**	.06
Step 2				
Appraisal of stressfulness	.01	.00	.28**	.05
Worry	.00	.00	.01	.00
Appraisal of uncontrollability	.00	.00	-.09	.01
Step 3				
Appraisal of stressfulness	.01	.00	.28**	.05
Worry factor	.00	.00	.03	.00
Appraisal of uncontrollability	-.01	.00	-.11	.01
Worry x Appraisal of uncontrollability	.00	.00	-.10	.01
				R ² = .08
				Adjusted R ² = .05
				R = .27

Note. R² = .06, $p < .01$ for Step 1; $\Delta R^2 = .01$, n.s. for Step 2; $\Delta R^2 = .01$, n.s.

for Step 3

** $p < .01$

Table 37

Summary of Hierarchical Multiple Regression Predicting Relative Meaning-Focused Coping (N = 145)

Variable	B	SE B	β	sr ² (unique)
Step 1				
Appraisal of stressfulness	.01	.00	.16	.03
Step 2				
Appraisal of stressfulness	.01	.00	.20	.03
Worry	.00	.00	.03	.00
Appraisal of uncontrollability	-.01	.00	-.11	.01
Step 3				
Appraisal of stressfulness	.01	.00	.21*	.03
Worry	.00	.00	.06	.00
Appraisal of uncontrollability	-.01	.00	-.14	.02
Worry x Appraisal of uncontrollability	-.01	.00	-.12	.01
				R ² = .05
				Adjusted R ² = .02
				R = .23

Note. R² = .03, n.s. for Step 1; ΔR^2 = .01, n.s. for Step 2 ; ΔR^2 = .01, n.s.

for Step 3.

**p* < .05

Table 38

Summary of Hierarchical Multiple Regression Predicting Relative Acceptance-Based Coping (N = 145)

Variable	<i>B</i>	<i>SE B</i>	β	sr^2 (unique)
Step 1				
Appraisal of stressfulness	-.02	.00	-.32***	.10
Step 2				
Appraisal of stressfulness	-.03	.02	-.41***	.11
Worry	-.01	.01	-.09	.01
Appraisal of uncontrollability	.02	.01	.29***	.07
Step 3				
Appraisal of stressfulness	-.02	.01	-.40***	.11
Worry	.01	.01	-.08	.00
Appraisal of uncontrollability	.02	.01	.28**	.06
Worry x Appraisal of uncontrollability	.00	.01	-.07	.00
				$R^2 = .19$
				Adjusted $R^2 = .16$
				$R = .43$

Note. $R^2 = .10$, $p < .001$ for Step 1; $\Delta R^2 = .08$, $p < .01$ for Step 2 ; $\Delta R^2 = .00$, n.s.

for Step 3.

** $p < .01$. *** $p < .001$

Table 39

*Summary of Hierarchical Multiple Regression Predicting Relative Behavioural
Disengagement Coping (N = 145)*

Variable	B	SE B	β	sr ² (unique)
Step 1				
Appraisal of stressfulness	.00	.00	.03	.00
Step 2				
Appraisal of stressfulness	.00	.00	-.06	.00
Worry	.01	.00	.12	.01
Appraisal of uncontrollability	.00	.00	-.06	.01
Step 3				
Appraisal of stressfulness	.00	.01	.06	.00
Worry	.01	.00	.12	.01
Appraisal of uncontrollability	.00	.00	.09	.01
Worry x Appraisal of uncontrollability	.00	.00	-.02	.00
				R ² = .02
				Adjusted R ² = -.01
				R = .14

Note. R² = .00, n.s. for Step 1; Δ R² = .02, n.s. for Step 2 ; Δ R² = .00, n.s.

for Step 3.

significant predictor, with the direction indicating that appraising the situation as uncontrollable was associated with less problem-focused coping efforts. At step 3, the interaction of worry x perceived uncontrollability interaction contributed an additional 8% to the predicted variance in relative problem-focused coping, $F_{inc}(1, 140) = 12.90, p < .001$.

To facilitate interpretation of this interaction, Table 40 presents the partial correlations between appraisal of uncontrollability and relative use of problem-focused coping for low, medium, and high worriers, after controlling for variance associated with perceived stress. Similar to the findings for the absolute coping index, the pattern revealed a negative correlation between perception of uncontrollability and relative use of problem-focused coping, within a sub-sample of relatively low worriers. For medium worriers, the correlation was in the same direction but was no longer statistically significant. Finally, for the high worriers, the correlation coefficient approached zero, suggesting no relationship between appraisal of uncontrollability and relative use of problem focused coping, within a sub-sample of high worriers.

For the HMR predicting *relative emotion-focused coping* (Table 36), after all four variables were entered at the end of step 3, $R^2 = .08$ (.05 adjusted), $F(4, 140) = 2.84, p < .05$. At step 1, perceived stressfulness emerged as a significant predictor accounting for 6% of the explained variance, $F_{inc}(1, 140) = 9.01, p < .01$. The direction of this effect indicated that greater appraisal of stress was associated with relatively greater use of emotion-focused coping. At steps 2 and 3, no added variance in the relative use of emotion-focused coping was accounted for by worry, appraisal of uncontrollability, or by the interaction of these variables.

Table 40

Partial Correlations Between Relative Problem-Focused Coping and Appraisal of Uncontrollability for Low, Medium, and High Worriers (Controlling for Appraisal of Stressfulness)

	Partial r with appraisal of uncontrollability ^a
<i>Low worriers (n = 48):</i>	
Relative problem-focused coping ^a	-.45**
<i>Medium worriers (n = 49):</i>	
Relative problem-focused coping ^a	-.17
<i>High worriers (n = 48):</i>	
Relative problem-focused coping ^a	.01

^aHigher scores indicate more coping behaviour and greater perceived uncontrollability.

** $p < .01$

For the HMR predicting relative use of *meaning-focused coping* (Table 37), after all four variables were entered at the end of step 3, R for regression was not significantly different from zero $F(4, 140) = 1.88$, n.s. As can be seen in the table, no statistically significant increments in explained variance of relative meaning-focused coping emerged at any of the three HMR steps.

For the HMR predicting *relative use of acceptance-based coping* (Table 38), after all four variables were entered at the end of step 3, $R^2 = .19$ (.16 adjusted), $F(4, 140) = 8.01$, $p < .001$. At step 1, appraisal of situational stress accounted for 10% of the explained variance in relative use of acceptance coping $F_{inc}(1, 140) = 16.58$, $p < .001$, where higher levels of stress were associated with less relative focus on acceptance coping. When worry and perceived uncontrollability were added at step 2, an additional 8% of the variance was accounted for, $F_{inc}(2, 140) = 6.74$, $p < .01$. Examination of the standardized beta weights indicated that only appraisal of uncontrollability emerged as a significant predictor, where greater perceived uncontrollability was associated higher levels of relative acceptance-based coping. The addition of the Worry x Appraisal of Uncontrollability interaction at step 3 did not contribute to the predicted variance in relative acceptance-based coping.

For the HMR predicting *relative use of behavioural disengagement* (Table 39), after all four variables were entered at the end of step 3, R for regression was not significantly different from zero, $F(4, 140) = .67$, n.s. No significant increments in accounted variance were statistically significant at each of the three HMR steps.

In summary, the findings predicting relative coping indices mirrored the findings for absolute coping. That is, the goodness of fit hypothesis was supported for the relative use of problem-focused coping but not for the relative use of the other coping indices.

Correlations Between Coping, Appraisal, and Demographic Variables

The pattern of inter-correlations between worry, coping, appraisal and the demographic variables were presented above in Table 26, for absolute coping and in Table 33, for the relative coping indices. The pattern of association between worry and the demographic variables was assessed to better understand whether these factors influenced the experience of worry in older adults. Age, gender, and years of education were not associated with worrying. Interestingly, worry was significantly associated with poorer perceived health and with a more difficult financial situation. The pattern of association between these variables with coping behaviour also showed an interesting pattern of association. Poorer perceived health was associated with a greater appraisal of situational stress. For absolute coping behaviour, female gender was associated with less problem-focused coping, along with greater use of emotion and meaning-focused coping. For the relative coping indices however, female gender was only associated with less problem-focused coping. Finally, female gender was associated with a tendency to appraise the situation as both stressful and uncontrollable.

There was little reason to suspect that the association between worry or the coping indices with the demographic variables would have affected the results from the HMR analyses because these variables did not significantly correlate with both worry and the coping indices, where the overlapping variance was contained. That is, there was little reason to expect that these associations would have influenced the findings, which

attempted to explain overlapping variance between worry and coping-related behaviour. However, to ensure that these variables did not suppress important findings from emerging, the HMRs were repeated after including gender, perceived finances, and perceived health at Step 1. The inclusion of these variables did not change the pattern nor the magnitude of the results from the HMRs. The results of these HMRs predicting absolute and relative use of problem-focused coping, where significant interaction effects were found, are presented in Appendix S.

Discussion

The major purpose of this study was to test the hypothesis that older adults who report high levels of worry, also make inefficient use of their coping resources by failing to match their coping efforts in accordance with their appraisal of situational uncontrollability. Assessment of this hypothesis was believed to be particularly relevant in studying worry proneness in older adults since seniors are faced with decreasing levels of perceived control over many life stressors (Aldwin, 1991; Aldwin et al., 1996; Folkman et al., 1987; Heckhausen, 1997; Kant et al., 1997). Consequently, the ability to adjust response sets based on one's appraisal of a stressor is likely to be an important skill for seniors and one that high worriers may have difficulty doing due to heightened levels of anxiety. A secondary purpose of the study was to better understand the association between worry and coping behaviour among older adults. It was predicted that worry would be associated with avoidance and emotion-focused coping but not with problem-focused coping strategies.

Worry and Coping Behaviour

Regarding the association between worry and coping behaviour, this data suggested that worry among older adults was associated with a pattern of avoidance behaviours but not with emotion-focused coping strategies. Consequently, Hypothesis 1 was only partially supported. It seems that worry is specifically associated with a pattern of withdrawal and avoidance-based coping. These findings are consistent with a similar pattern among younger adults (Davey et al., 1992; Davey, 1993; Jung, 1992) and suggest that older and younger worriers behave in a similar manner when faced with life stress. Interestingly however, the association between worry and avoidance coping disappeared once perceived stress was co-varied. It may be that an elevated perception of stress among high worriers links worry to coping behaviour. Accordingly, it is plausible that it is not worry per se that affects coping behaviour but rather the heightened levels of stress perceived by high worriers, which influences this pattern.

One question that arises from these findings is whether or not high worriers did in fact report more objectively stressful events on the COPE. This possibility cannot be ruled out. However, stress is inherently a subjective phenomenon and it is these subjective appraisals that are relevant in predicting coping behaviour. For these reasons, the objective stressfulness of the situations reported by high worriers are believed to be less relevant than the subjective experiences of high worriers.

The Goodness of Fit Hypothesis

Turning now to the tests of the goodness of fit hypothesis, worry and appraisal of uncontrollability did interact in predicting problem-focused coping, a finding that was independent of perceived stress. As hypothesized, low worriers used their appraisal of

situational uncontrollability to guide their problem-solving behaviours. That is, the low worriers who perceived the target situation to be uncontrollable showed a reduced tendency to engage in problem-solving whereas those who perceived the situations as less uncontrollable (ie., more controllable) reported greater use of problem-solving. This seemingly adaptive pattern was less apparent as worry levels increased and was completely absent among high worriers. Importantly, this was a robust finding, which emerged at approximately the same magnitude for both absolute and relative coping indices. Low worriers may be able to more calmly and rationally adjust their coping responses according to their situational appraisals due to less difficulty tolerating uncertainty and a lessened state of anxiety, both of which are elevated among high worriers. It is noteworthy that higher levels of worry were not associated with a tendency to perceive the stressor as uncontrollable. Consequently, high worriers' apparent difficulty in using their situational appraisals to guide their self-reported coping responses, may not be attributed to heightened perceptions of situational uncontrollability.

In contrast to the data predicting problem-focused coping, tests of the goodness of fit hypotheses for emotion-focused, meaning-focused, acceptance, and behavioural disengagement were not supported by this data. Worry did not interact with perceived uncontrollability in predicting these coping indices. This is consistent with the finding that perceiving the situation to be uncontrollable was specifically associated with a reduced focus on problem-focus coping but not with the other coping indices. Accordingly, it seems that appraisal of uncontrollability was perceived by these participants as uniquely relevant in guiding problem-focused coping efforts.

Interpretation of these findings must consider the substantial limitations of this methodology. Omnibus indicators of coping behaviour measured at a single point in time have come under criticism in recent years (e.g., Coyne & Racioppo, 2000) due to a general failure to recognize the multidimensional and transactional manifestation of coping behaviour, which vary over the course of a given stressor and in accordance with one's goals. Relatedly, research using coping questionnaires has also been criticized for using between-subjects designs to essentially answer within subjects questions such as how coping behaviours vary over time (Lazarus, 2000). Tennen et al. (2000) provided several examples of how the examination of daily fluctuations in coping behaviour have yielded a richer and potentially more meaningful set of findings compared to studies that have employed between-subjects analyses measured at a single point in time. In fact, one recent study assessed the goodness of fit between appraisal of control and coping among HIV positive individuals and their caregivers, by employing multiple measurements of these variables over time (Park et al., 2001). These researchers found evidence for the goodness of fit hypothesis only when assessed as a function of within-subject variation and not when assessed as a between subject variable. The present study, which measured coping behaviour at one point in time and across respondents, is no exception to the aforementioned criticism. Furthermore, the seemingly logical hypothesis that it is adaptive to use problem-focused coping in controllable situations and emotion-focused coping in uncontrollable situations is flawed by the observation that problem-focused and emotion focused coping tend to co-occur and influence the emergence of the other (Cook & Heppner, 1997; Tennen et al., 2000). To illustrate this point, Coyne and Racioppo noted that even in the face of a seemingly uncontrollable event such as a natural disaster,

problem-focused efforts aimed at protecting oneself and minimizing losses would likely be adaptive. Finally, coping questionnaires have been criticized recently due to a failure to find an association between self-reported retrospective accounts of coping and actual coping behaviour (Smith, Leffingwell, & Ptacek, 1999; Stone et al., 1998), drawing into question the nature of the construct being measured by these questionnaires. Regarding the latter criticism however, the findings of this study at the very least, show that at the time of assessment high worriers less readily notice a link between appraisal of control and the applicability of problem-solving efforts.

Given these complexities in measuring coping behaviour it is remarkable that evidence for the goodness of fit hypothesis emerged in predicting problem-focused coping, and attests to the saliency of this particular aspect of coping in relation to appraisals of situational control. However, it is equally important to consider that the lack of evidence for such an interaction in predicting other coping behaviours may have been due to a lack of methodological sensitivity to capture this phenomenon. For example, older adults with lower levels of worry may use a more timely combination of problem-focused, emotion-focused, meaning focused, acceptance, and disengagement strategies over the course of life stressors, relative to those with higher levels of worry. It was not possible to assess for such a transactional process with the current methodology. Despite this possibility, the pattern of findings suggests that adjusting one's problem-focused coping efforts depending on the perceived controllability of a situation may be particularly salient in distinguishing the coping behaviours of high and low worriers in late adulthood.

Clinical Implications

This study builds on a growing literature testing the goodness of fit between appraisal of control and coping style in predicting mental health (Conway & Terry, 1992; Forsythe & Compass, 1987; Endler et al, 2000; Macrodimitris & Endler, 2001; Oseowiecki & Compass, 1998; Park et al., 2001; Vitaliano et al., 1990; Zakowski et al., 2001), and is the first to assess this in relation to worry among older adults.

Notwithstanding the aforementioned limitations, these findings lend themselves to several clinical implications for work with seniors who experience disturbance associated with worry. First, the association between worry and perceived stress suggests that chronically worried older adults may harbour potentially unrealistic and negative appraisals of life stressors. Cognitive correction techniques aimed at such appraisals may be particularly effective in helping to lower the subjective experience of distress. Second, high worriers may have difficulty altering their response styles (e.g., disengaging from problem-solving) when faced with less controllable stressful life events. Treatments for GAD often focus on distinguishing worries about remote or potential problems from immediate concerns that may be more amenable to problem-solving (e.g., Dugas, 2000). Similar strategies such as helping worried older adults to overtly articulate their appraisals of stressful situations and to act accordingly, may be useful. In applying such strategies, it is noteworthy that older individuals do not exhibit core problem-solving deficits when compared with younger adults (D'Zurilla, Maydeu-Olivares, & Kant, 1998). Rather, D'Zurilla et al's cross-sectional data suggest that both self-reported problem-solving skills and beliefs about problem-solving become increasingly functional and adaptive from early adulthood to middle age, with only slight (and non-significant)

reductions in these occurring in late adulthood. D’Zurilla et al. speculate that such changes in later life reflect the increasing presence of unchangeable life stressors. They suggested that problem-solving training for older individuals who experience such difficulties should focus on cognitive reappraisals of unchangeable events with efforts focused on finding alternative intra-psychic means of coping. The data from this study provide some support for this notion, at least regarding the importance of disengaging from problem-solving when faced with less controllable life events.

Limitations and Direction for Future Research

Several important limitations of this research should be considered. First, the limits of the methodology used to assess coping have been described above. Second, although the findings suggest a lack of association between appraisal of situational control and problem-solving efforts among high worriers, it was not clear whether there was a deficit among high worriers at the level of appraisal of situational control, or at the level of implementing coping actions. Third, this sample of older adults exhibited a limited range of variability in their worry scores, particularly at the upper levels. This is exemplified by their scores on the PSWQ, where well-established norms are available. When examined as a function of percentile rank on the worry factor, mean scores on the PSWQ were 29.5 ($SD = 5.70$), 35.88 ($SD = 5.70$), and 52.92 ($SD = 9.77$) for low, medium, and high worriers respectively. When compared with norms on this measure, the low and medium worriers were well below the mean score for unselected samples of adults ($M = 47.65$, $SD = 12.99$) and even the high worriers were below the mean scores of individuals with GAD, which are typically in the 63 to 68 range (Molina & Borkovec, 1994). It is possible that different findings may have emerged if a greater number of

worriers were included in the sample, which would have led to greater variability at the upper end of the worry continuum. Relatedly, this study was based on a sample of relatively healthy and mobile older individuals who were living independently in the community. The findings may not generalize to older adults who are less healthy and less active. Finally, this study assessed the construct of control only in the context of the *perceived uncontrollability* of a specific situation. As was highlighted above, control is a multidimensional construct, which includes other dimensions that are relevant for the aging adult such as general beliefs about one's own competency to control situational outcomes (Evans et al., 1993). Although this latter construct is important and would likely impact the experiences of high worriers, it was not the particular focus of this study.

Future research is needed to better understand the experiences of high worriers when faced with life stressors, particularly when these situations are perceived as relatively uncontrollable. Coping researchers have been making increasing use of daily process studies in assessing fluctuations and consistency in coping behaviours over time (e.g., Cheng, 2001; Ptacek, Smith, & Zanas, 1992; Schwartz, Neale, Marco, Shiffman, & Stone, 1999; Tennen et al., 2000). Future research testing the goodness of fit hypothesis could benefit from similar designs, which would capture the transactional nature of coping behaviour and would generate a better understanding of potentially subtle differences between high and low worriers. For example, such research may consider the possibility that compared with high worriers, low worriers may be more effective in their ability to cope with less controllable events by using a combination problem-focused efforts to realistically assess practical options, while also focusing on a range of strategies

to help them to regulate emotion. The relative focus on different strategies may in fact depend on the time lapsed since the onset of the stressor. Such research should also consider the possibility that the specific emotional regulation strategies that are used may be less important than the process of selecting out a self-soothing strategy used to regulate emotion. That is, helpful self-soothing strategies will likely differ between individuals but the process of searching for and discovering one's own self-soothing strategy might be a process variable that differs between high and low worriers. Such a research program would clearly require an ambitious effort along with creativity in selecting a measurement strategy. However, further research in this area would likely yield more conclusive and clinically relevant findings. Once these patterns are established, more focused efforts will be needed to better understand the specific processes that could potentially lead to difficulties among high worriers in dealing with uncontrollable life stressors.

Summary and Conclusion

These findings do offer an important glimpse into how older worriers may differ from others with regard to coping behaviour. Older worriers seem to experience heightened perceptions of stress and consequently tend to avoid stressors. Unfortunately, such a pattern could have negative consequences since avoidance will serve to perpetuate high levels of anxiety due to failed habituation. Furthermore, these individuals have difficulty mobilizing their resources to directly challenge stressors that are experienced as more controllable, which is something that low worriers seem better able to do. This pattern also suggests that highly worried older adults may experience a general difficulty in allowing their appraisals to guide their coping efforts. It is hoped that continued

investigation into this and related phenomena will guide clinical interventions for older individuals who are bothered by chronic worry.

GENERAL DISCUSSION AND CONCLUSION

A broad-based research strategy guided this set of studies on worry among older adults, which included: a detailed investigation of worry themes, factors associated with an age-related reduction in worry, and predictors of worry proneness among older adults. Such a broad-based strategy might be considered both a limitation and strength. It is a limitation since this approach may have precluded a more in-depth understanding of each area, where many questions remain unanswered. It is a strength because drawing attention to these three areas, which each require further development is, I believe, an important step in fostering more refined future research in this under-investigated area. Continued research in each of these areas will ultimately lead to a better understanding of worry processes across the lifespan and in particular, among older individuals. From a lifespan development perspective, such research will help to better our understanding of emotional development with a particular focus on changes and stability in the experience of worry through adulthood. From a clinical perspective, continued research in these domains will help to generate a clinical profile of older individuals who experience chronic worry and how they differ both from others in their cohort and from adults at earlier stages of development.

Notwithstanding the broad-based nature of this research, the studies did provide an interesting and informative overview of worry among older adults. Worry in late adulthood seems to be marked by both continuities and discontinuities from earlier experiences. For example, older individuals experience a wide range of worries. In this sample of relatively healthy and community-dwelling seniors, common themes included worries about social relationships and daily activities, which are similar to the worries of

people at earlier stages of development. However, worries about health-related issues seem to be experienced with particularly high frequency in later life, as well, which seems to be a discontinuity from earlier life. Additionally, many processes associated with worry among younger adults such as intolerance of uncertainty and beliefs about the functional value of worrying are also associated with worry among older adults. Yet on average, older individuals worry less relative to younger individuals, a shift that may in part be accounted for by an increasing ability to tolerate uncertainty, an accumulation of life experience reminding them that worrying is not productive, and a reduced willingness to engage in worrisome thinking. In further support of the heterogeneity of worry processes in late adulthood, a minority of seniors reported experiencing increases in worrying relative to when they were younger adults. Factors associated with such an increase remain unclear and warrant future investigation. The data do suggest however, that difficulty disengaging from the problem-solving processes, in the face of situations that they perceive as relatively uncontrollable, may occur among seniors who worry excessively.

It is striking that average levels of worry among older individuals are relatively low despite the many challenges that remain in late adulthood. There is much that can be learned from studying this process of change, which likely involves some intra-psychic shifts. I am reminded of the following adage which was recounted by one of our older participants: “today is the tomorrow that you worried about yesterday” (Dale Carnegie); “The past is history, the future is mystery, and the present is a gift. Accept it.” (unknown source). Perhaps many seniors have learned to internalize similar ideologies and are better able to savour and appreciate the present. It is possible that further research on how

many seniors are able to internalize such ideologies could provide useful information that might help others at earlier stages of adult development. Or perhaps more realistically, embracing such an ideology reflects a developmental process, which many younger people can only await.

REFERENCES

- Aldwin, C.M. (1991). Does age affect the stress and coping process? Implications of age differences in perceived control. *Journal of Gerontology: Psychological Sciences*, 46, P174-180.
- Aldwin, C.M., Sutton, K.J., Chiara, G., & Spiro, A. (1996). Age differences in stress, coping, and appraisal: Findings from the normative aging study. *Journal of Gerontology: Psychological Sciences*, 51B, P179-188.
- American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- Amirkhan, J.H. (1990). A factor analytically derived measure of coping: The coping strategy indicator. *Journal of Personality and Social Psychology*, 59, 1066-1074.
- Arbuckle, T.Y., Pushkar-Gold, D., Chaikelson, J.S., & Lapidus, S. (1994). Measurement of activity in the elderly: The Activities Checklist. *Canadian Journal on Aging*, 13, 550-565.
- Babcock, R.L., Laguna, L.B., Laguna, K.D., & Urusky, D.A. (2000). Age differences in the experience of worry. *Journal of Mental Health and Aging*, 6, 227-235.
- Baltes, M.M., Wahl, H.-W., & Schmid-Furtoss, U. (1990). The daily life of elderly Germans: Activity patterns, personal control, and functional health. *Journal of Gerontology: Psychological Sciences*, 45, P173-179.
- Basevitz, P.J., Pushkar, D., Dalton, C., Chaikelson, J., & Conway, M. (2000, June). *Worry in late adulthood: Associations with coping behaviour*. Poster session presented at the annual meeting of the Canadian Psychological Association, Ottawa, Ontario.
- Beck, J.G., Stanley, M.A., & Zebb, B.J. (1995). Psychometric properties of the Penn State Worry Questionnaire in older adults. *Journal of Clinical Geropsychology*, 1, 33-42.
- Beck, J.G., Stanley, M.A., & Zebb, B.J. (1996). Characteristics of generalized anxiety disorder in older adults: A descriptive study. *Behaviour Research and Therapy*, 34, 225-234.
- Beekman, A.T.F., Bremmer, M.A., Deeg, D.J.H., Van Balkom, A.J.L.M., Smit, J.H., DeBeurs, E., et al. (1998). Anxiety disorders in later life: A report from the longitudinal aging study Amsterdam. *International Journal of Geriatric Psychiatry*, 13, 717-726.
- Belzer, K.D., D'Zurilla, T.J., & Maydeu-Olivares, A. (2002). Social problem-solving and

- trait anxiety as predictors of worry in a college student population. *Personality and Individual Differences*, 33, 573-585.
- Bland, R.C., Newman, S.C., & Orn, H. (1988). Prevalence of psychiatric disorders in the elderly in Edmonton. *Acta Psychiatrica Scandinavica*, 77(suppl.338), 57-63.
- Blazer, D., George, L.K., & Hughes, D. (1991). The epidemiology of anxiety disorders: An age comparison. In C. Salzman & B.D. Lebowitz (Eds.), *Anxiety in the elderly: Treatment and research*. New York: Springer.
- Blazer, D., Hughes, D., & George, L.K. (1987). Stressful life events and the onset of a generalized anxiety syndrome. *American Journal of Psychiatry*, 144, 1178-1183.
- Borkovec, T.D. (1988). Comments on "worry as a phenomenon relevant to the elderly". *Behavior Therapy*, 19, 381-383.
- Borkovec, T.D. (1994). The nature, functions, and origins of worry. In G.C.L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 5-33). Chichester, England: Wiley.
- Borkovec, T.D. & Hu, S. (1990). The effect of worry on cardiovascular response to phobic imagery. *Behaviour Research and Therapy*, 28, 69-73.
- Borkovec, T.D., & Inz, J. (1990). The nature of worry in generalized anxiety disorder: A predominance of thought activity. *Behaviour Research and Therapy*, 28, 153-158.
- Borkovec, T.D., Robinson, E., Pruzinsky, T., & DuPree, J.A. (1983). Preliminary exploration of worry: Some characteristics and processes. *Behaviour Research and Therapy*, 21, 9-16.
- Borkovec, T.D., & Newman, M.G. (1998). Worry and generalized anxiety disorder. In A.S. Bellack, M. Hersen (Series Eds.) & P. Salkovskis (Vol. Ed.), *Comprehensive Clinical Psychology: Vol. 6. Adults: Clinical Formulation & Treatment* (pp. 439-459). New York: Elsevier Science.
- Brown, T.A., Barlow, D.H., & Liebowitz, M.R. (1994). The empirical basis of generalized anxiety disorder. *American Journal of Psychiatry*, 151, 1272-1280.
- Brown, T.A., O'Leary, T.A., & Barlow, D.H. (2001). Generalized anxiety disorder. In D.H. Barlow (Ed.), *Clinical handbook of psychological disorders: A step by step treatment manual* (3rd ed., pp 154-208). New York: Guilford.
- Buhr, K., & Dugas, M.J. (2002). The intolerance of uncertainty scale: Psychometric properties of the English version. *Behaviour Research and Therapy*, 40, 931-945.
- Cacioppo, J.T., Petty, R.E., & Kao, C.K. (1984). The efficient assessment of need for

- cognition. *Journal of Personality Assessment*, 48, 306-307.
- Carstensen, L.L. (1992). Social and emotional patterns in adulthood: Support for socioemotional selectivity theory. *Psychology and Aging*, 7, 331-338.
- Carstensen, L.L. (1993). Motivation for social contact across the life span: A theory of socioemotional selectivity. In J. Jacobs (Ed.), *Nebraska Symposium on motivation: Vol. 40. Developmental perspectives on motivation* (pp. 209-254). Lincoln: University of Nebraska Press.
- Carstensen, L.L. (1995). Evidence for a life-span theory of socioemotional selectivity. *Current Directions in Psychological Science*, 4, 151-156.
- Carstensen, L.L., & Fredrickson, B.L. (1998). Influence of HIV status and age on cognitive representations of others. *Health Psychology*, 17, 494-503.
- Carstensen, L.L., Hanson, K.A., & Freund, A.M. (1995). Selection and compensation in adulthood. In R.A. Dixon & L. Backman (Eds.), *Compensating for psychological deficits and declines: Managing losses and promoting gains* (pp. 107-126). Mahwah, New Jersey: Lawrence Erlbaum Associates.
- Carstensen, L.L., Isaacowitz, D.M., Charles, S.T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165-181.
- Carstensen, L.L., Pasupathi, M., Mayr, U., & Nesselroade, J.R. (2000). Emotional experience in everyday life across the adult life span. *Journal of Personality and Social Psychology*, 79, 644-655.
- Carver, C.S., Scheir, M.F., & Weintraub, J.K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, 56, 267-283.
- Cheng, C. (2001). Assessing coping flexibility in real-life and laboratory settings: A multimethod approach. *Journal of Personality and Social Psychology*, 80, 814-833.
- Clark, K.K., Bormann, C.a., Cropanzano, R.S., & James, K. (1995). Validation evidence for three coping measures. *Journal of Personality Assessment*, 65, 434-455.
- Constans, J.I., Mathews, A., Brantley, P.J., & James, T. (1999). Attentional reactions to an MI: The impact of mood state, worry, and coping style. *Journal of Psychosomatic Research*, 46, 415-423.
- Conway, M., Csank, P.A.R., Holm, S.L., & Blake, C. (2000). On assessing individual differences in rumination on sadness. *Journal of Personality Assessment*, 75, 404-425.

- Conway, V.J., & Terry, D.J. (1992). Appraised controllability as a moderator of the effectiveness of difference coping strategies: A test of the goodness of fit hypothesis. *Australian Journal of Psychology, 44*, 1-7.
- Cook, S.W., & Heppner, P.P. (1997). A psychometric study of three coping measures. *Educational and Psychological Measurement, 57*, 906-923.
- Coyne, J.C., & Racioppo, M.W. (2000). Never the twain shall meet? Closing the gap between coping research and clinical intervention research. *American Psychologist, 55*, 655-664.
- Davey, G.C.L. (1993). A comparison of three worry questionnaires. *Behaviour Research and Therapy, 31*, 51-56.
- Davey, G.C.L. (1994a). Pathological worrying as exacerbated problem-solving. In G.C.L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 247-261). Chichester, England: Wiley.
- Davey, G.C.L. (1994b). Trait factors and Ratings of Controllability as predictors of worrying about significant life stressors. *Personality and Individual Differences, 16*, 379-384.
- Davey, G.C.L., Hampton, J., Farrell, J., & Davidson, S. (1992). Some characteristics of worrying: Evidence for worrying and anxiety as separate constructs. *Personality and Individual Differences, 13*, 133-147.
- Davey, G.C.L., Tallis, F., & Capuzzo, N. (1996). Beliefs about the consequences of worrying. *Cognitive Therapy and Research, 20*, 499-520.
- Davey, G.C.L., & Levy, S. (1998). Catastrophic worry: Personal inadequacy and a perseverative iterative style as features of the catastrophizing process. *Journal of Abnormal Psychology, 107*, 576-586.
- De Beurs, E., Beekman, A., Geerlings, S., Deeg, D., Van Dyck, R., & Van Tilburg, W. (2001). On becoming depressed or anxious in late life: Similar vulnerability factors but different effects of stressful life events. *The British Journal of Psychiatry, 179*, 426-431.
- de Róiste, Á. (1996). Sources of worry and happiness in Ireland. *The Irish Journal of Psychology, 17*, 193-212.
- Diefenbach, G.J., Stanley, M.A., & Beck, J.G. (2001). Worry content reported by older adults with and without generalized anxiety disorder. *Aging and Mental Health, 5*, 269-274.

- Doucet, C., Ladouceur, R., Freeston, M.H., & Dugas, M.J. (1998). Thèmes d'inquiétudes et tendance à s'inquiéter chez les aînés. *La Revue Canadienne du vieillissement*, *17*, 361-371.
- Dugas, M. (2000, June). Generalized Anxiety Disorder: Differential diagnosis and cognitive-behavioural treatment. Workshop presented at the annual meeting of the Canadian Psychological Association, Ottawa, Ontario.
- Dugas, M.J., Freeston, M.H., Doucet, C., Lachance, S., & Ladouceur, R. (1995). Structured versus free-recall measures: Effect on report of worry themes. *Personality and Individual Differences*, *18*, 355-361.
- Dugas, M.J., Freeston, M.H., & Ladouceur, R. (1997). Intolerance of uncertainty and problem orientation in worry. *Cognitive Therapy and Research*, *21*, 593-606.
- Dugas, M.J., Gagnon, F., Ladouceur, R., & Freeston, M.H. (1998). Generalized anxiety disorder: A Preliminary test of a conceptual model. *Behaviour Research and Therapy*, *36*, 215-226.
- Dugas, M.J., Gosselin, P., & Ladouceur, R. (2001). Intolerance of uncertainty and worry: Investigating specificity in a nonclinical sample. *Cognitive Therapy and Research*, *25*, 551-558.
- Dugas, M.J., Hedayati, M., Karavidas, A., Buhr, K., Francis, K., & Phillips, N. (in press). Intolerance of uncertainty and information processing: Evidence of biased recall and interpretation. *Cognitive Therapy and Research*.
- Dugas, M.J., & Ladouceur, R. (2000). Treatment of GAD: Targeting intolerance of uncertainty in two types of worry. *Behavior Modification*, *24*, 635-657.
- Dupuy, J.-B., Beaudoin, S., Rhéaume, J., Ladouceur, R., & Dugas, M. (2001). Worry: Daily self-report in clinical and non-clinical populations. *Behaviour Research and Therapy*, *39*, 1249-1255.
- D'Zurilla, T.J., Maydeu-Olivares, A., & Kant, G.L. (1998). Age and gender differences in social problem-solving ability. *Personality and Individual Differences*, *25*, 241-252.
- Endler, N.S., Speer, R.L., Johnson, J.M., & Flett, G. (2000). Controllability, coping, efficacy, and distress. *European Journal of Personality*, *14*, 245-264.
- Evans, G.W., Shapiro, D.H., & Lewis, M.A. (1993). Specifying dysfunctional mismatches between different control dimensions. *British Journal of Psychology*, *84*, 255-273.
- Eysenck, M.W., Mogg, K., May, J., Richards, A., & Mathews, A. (1991). Bias in

- interpretation of ambiguous sentences related to threat in anxiety. *Journal of Abnormal Psychology*, 100, 144-150.
- Fichten, C.S., Libman, E., Creti, L., Amsel, R., Sabourin, S., Brender, W. & Bailis, S. (2001). Role of thoughts during nocturnal awake times in the insomnia experience of older adults. *Cognitive Therapy and Research*, 25, 665-692.
- Fishbein, M. & Ajzen, I. (1974). Attitudes towards objects as predictors of single and multiple behavioural criteria. *Psychological Review*, 81, 59-74.
- Flint, A.J. (1994). Epidemiology and co-morbidity of anxiety disorders in the elderly. *American Journal of Psychiatry*, 151, 640-649.
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, 46, 839-852.
- Folkman, S., & Lazarus, R.S. (1980). An analysis of coping in a middle-aged community sample. *Journal of Health and Social Behavior*, 21, 219-239.
- Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48, 150-170.
- Folkman, S., Lazarus, R.S., Dunkel-Schetter, C., DeLongis, A., & Gruen, R.J. (1986). Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *Journal of Personality and Social Psychology*, 50, 992-1003.
- Folkman, S., Lazarus, R.S., Pimley, S., & Novacek, J. (1987). Age differences in stress and coping processes. *Psychology and Aging*, 2, 171-184.
- Forsythe, C.J., & Compas, B.E. (1987). Interaction of cognitive appraisals of stressful events and coping: Testing the goodness of fit hypothesis. *Cognitive Therapy and Research*, 11, 473-485.
- Fortner, Neimeyer, & Rybarczyk (2000). Correlates of death anxiety in older adults: A comprehensive review In A. Tomer (Ed.), *Death attitudes and the older adult: Theories, concepts, and applications* (pp. 95-108). Philadelphia: Taylor & Francis.
- Fredrickson, B.L., & Carstensen, L.L. (1998). Choosing social partners: How old age and anticipated endings make people more selective. In M.P. Lawton & T.A. Salthouse (Eds.). *Essential papers on the psychology of aging* (pp. 511-538). New York: University Press.
- Freeston, M.H., Rhéaume, J., Letarte, H., Dugas, M., & Ladouceur, R. (1994). Why do people worry? *Personality and Individual Differences*, 17, 791-802.

- Fresco, D.M., Frankel, A.N., Mennin, D.S., Turk, C.L., & Heimberg, R.G. (2002). Distinct and overlapping features of rumination and worry: The relationship of cognitive production to negative affective states. *Cognitive Therapy and Research, 26*, 179-188.
- Fung, H.H., Carstensen, L.L., & Lang, F.R. (2001). Age-related patterns in social networks among European Americans and African Americans: Implications for socioemotional selectivity across the life span. *International Journal of Aging and Human Development, 52*, 185-206.
- Gana, K., Martin, B., & Canouet, M.-D. (2001). Worry and anxiety: Is there a causal relationship? *Psychopathology, 34*, 221-229.
- Gazini, L., McFarland, B.H., & Cutler, D. (1990). Prevalence of mental disorders after catastrophic financial loss. *The Journal of Nervous and Mental Disease, 178*, 680-685.
- Gross, J.J., Carstensen, L.L., Tsai, J., Skorpen, C.G., & Hsu, A.Y.C. (1997). Emotion and aging: Experience, expression, and control. *Psychology and Aging, 12*, 590-599.
- Heckhausen, J. (1997). Developmental regulation across adulthood: Primary and secondary control of age-related challenges. *Developmental Psychology, 33*, 176-187.
- Heckhausen, J., & Schultz, R. (1995). A life-span theory of control. *Psychological Review, 102*, 284-304.
- Ingram, R.E., & Kendall, P.C. (1987). The cognitive side of anxiety. *Cognitive Therapy and Research, 11*, 523-536.
- Jung, J. (1992). The relationship of worrying, coping, and symptoms among college men and women. *The Journal of General Psychology, 120*, 139-148.
- Kane, M.J., Hasher, L., Stoltzfus, E.R., Zacks, R.T., & Connelly, S.L. (1994). Inhibitory attentional mechanisms and aging. *Psychology and Aging, 9*, 103-112.
- Kant, G.L., D'Zurilla, T.J., & Maydeu-Olivares, A. (1997). Social problem solving as a mediator of stress-related depression and anxiety in middle-aged and elderly community residents. *Cognitive Therapy and Research, 21*, 73-96.
- Keppel, G. (1991). *Design and analysis: A researcher's handbook* (3rd ed.). Englewood Cliffs, NJ: Prentice Hall.
- Laberge, M., Fournier, S., Freeston, M.H., Ladouceur, R., & Provencher, M.D. (2000). Structured and free-recall measures of worry themes: Effect of order of presentation on worry report. *Journal of Anxiety Disorders, 14*, 429-436.

- Labouvie-Vief (1997). Cognitive-emotional integration in adulthood. In K.W. Schaie & M.P. Lawton (Eds.). *Annual review of gerontology and geriatrics: Vol. 17. Focus on emotion and adult development* (pp. 206-237). New York: Springer.
- Labouvie-Vief, G., DeFoe, M., & Bulka, D. (1998). Speaking about feelings: Connections of emotion across the life span. In M.P. Lawton & T. A. Salthouse (Eds.). *Essential papers on the psychology of aging*. New York: University Press.
- Ladouceur, R., Blais, F., Freeston, M.H., & Dugas, M.J. (1998). Problem-solving and problem orientation in generalized anxiety disorder. *Journal of Anxiety Disorders, 12*, 139-151.
- Ladouceur, R., Dugas, M.J., Freeston, M.H., Léger, Gagnon, & Thibodeau, N. (2000). Efficacy of a cognitive-behavioural treatment for generalized anxiety disorder. *Journal of Consulting and Clinical Psychology, 68*, 957-964.
- Ladouceur, R., Dugas, M.J., Freeston, M.H., Rhéaume, J., Blais, F., Boisvert, J.-M., et al. (1999). Specificity of generalized anxiety disorder symptoms and processes. *Behavior Therapy, 30*, 191-207.
- Ladouceur, R., Gosselin, P., & Dugas, M.J. (2000). Experimental manipulation of intolerance of uncertainty: A study of a theoretical model of worry. *Behaviour Research and Therapy, 38*, 933-941.
- Ladouceur, R., Talbot, F., & Dugas, M.J. (1997). Behavioral expressions of intolerance of uncertainty in worry: Experimental findings. *Behavior Modification, 21*, 355-373.
- Lang, F.R., & Carstensen, L.L. (1994). Close emotional relationships in late life: Further support for proactive aging in the social domain. *Psychology and Aging, 9*, 315-324.
- Lang, F.R., & Carstensen, L.L. (2002). Time counts: Future time perspective, goals, and social relationships. *Psychology and Aging, 17*, 125-139.
- Lazarus, R.S. (2000). Toward better research on stress and coping. *American Psychologist, 55*, 665-673.
- Lynch, S.M. (2000). Measurement and prediction of aging anxiety. *Research on Aging, 22*, 533-558.
- Levensen, R.W., Carstensen, L.L., Friesen, W.V., & Ekman, P. (1991). Emotion, physiology, and expression in old age. *Psychology and Aging, 6*, 28-35.
- MacLeod, A.K., Williams, J.M.G., & Bekerian, D.A. (1991). Worry is reasonable: The

- role of explanations in pessimism about future personal events. *Journal of Abnormal Psychology*, 100, 478-486.
- Macrodimitris, S.D. & Endler, N.S. (2001). Coping, control, and adjustment in type 2 diabetes. *Health Psychology*, 20, 208-216.
- Mathews, A. (1993). Attention and memory for threat in anxiety. In H.W. Krohne (Ed.), *Attention and avoidance: Strategies in coping with aversiveness* (pp 119-135). Seattle, WA: Hogrefe and Huber.
- Mathews, A., & Klug, F. (1993). Emotionality and interference with color-naming in anxiety. *Behaviour Research and Therapy*, 31, 57-62.
- Mathews, A., & Mackintosh, B. (1998). A cognitive model of selective processing in anxiety. *Cognitive Therapy and Research*, 22, 539-560.
- Mathews, A., & MacLeod, C. (1985). Selective processing of threat cues in anxiety states. *Behaviour Research and Therapy*, 23, 563-569.
- Mathews, A., & MacLeod, C. (2002). Induced processing biases have causal effects on anxiety. *Cognition and Emotion*, 16, 331-354.
- Mathews, A., May, J., Mogg, K., & Eysenck, M. (1990). Attentional bias in anxiety: Selective search or defective filtering? *Journal of Abnormal Psychology*, 99, 166-173.
- Mathews, A., Mogg, K., Kentish, J., & Eysenck, M. (1995). Effect of psychological treatment on cognitive bias in generalized anxiety disorder. *Behaviour Research and Therapy*, 33, 293-303.
- Mathews, A., Richards, A., & Eysenck, M. (1989). Interpretation of homophones related to threat in anxiety states. *Journal of Abnormal Psychology*, 98, 31-34.
- Meyer, T.J., Miller, M.L., Metzger, R.L., & Borkovec, T.D. (1990). Development and validation of the Penn State Worry Questionnaire. *Behaviour Research and Therapy*, 28, 487-495.
- Miller, S.M. (1987). Monitoring and blunting: Validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology*, 52, 345-353.
- Miller, S.M. (1995). Monitoring versus blunting styles of coping with cancer influence the information patients want and need about their disease. *Cancer*, 76, 167-177.
- Miller, S.M. (1996). Monitoring and blunting of threatening information: Cognitive

- interference and facilitation in the coping process. In I. Sarason & G.R. Pierce (Eds.), *Cognitive interference: Theories, methods, and findings. The LEA series in personality and clinical psychology* (pp. 175-190). Hillsdale, NJ, England: Lawrence Erlbaum Associates.
- Mogg, K., Mathews, A., & Weinman, J. (1989). Selective processing of threat cues in anxiety states: A replication. *Behaviour Research and Therapy*, 27, 317-323.
- Molina, S., & Borkovec, T.D. (1994). The Penn State Worry Questionnaire: Psychometric properties and associated characteristics. In G.C.L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 247-261). Chichester, England: Wiley.
- Mroczek, D.K., & Kolarz, M. (1998). The effect of age on positive and negative affect: A developmental perspective on happiness. *Journal of Personality and Social Psychology*, 75, 1333-1349.
- Neikrug, S.M. (1998). The value of gerontological knowledge for elders: A study of the relationship between knowledge on aging and worry about the future. *Educational Gerontology*, 24, 287-296.
- Osowiecki, D., & Compass, B.E. (1998). Psychological adjustment to cancer: Control beliefs and coping in adult cancer patients. *Cognitive Therapy and Research*, 22, 483-499.
- Park, C.L., Folkman, S., & Bostrom, A. (2001). Appraisal of controllability and coping in caregivers and HIV+ men: Testing the goodness-of-fit hypothesis. *Journal of Consulting and Clinical Psychology*, 69, 481-488.
- Peacock, E.J., & Wong, P.T.P. (1990). The stress appraisal measure (SAM): A multidimensional approach to cognitive appraisal. *Stress Medicine*, 6, 227-236.
- Peacock, E.J., & Wong, P.T.P. (1996). Anticipatory stress: The relation of locus of control, optimism, and control appraisals to coping. *Journal of Research on Personality*, 30, 204-222.
- Powers, C.B., Wisocki, P.A., & Whitbourne, S.K. (1992). Age differences and correlates of worrying in younger and older adults. *The Gerontologist*, 32, 82-88.
- Provencher, M.D., Freeston, M.H., Dugas, M.J., & Ladouceur, R. (2000). Catastrophizing assessment of worry and threat schemata among worriers. *Behavioural and Cognitive Psychotherapy*, 28, 211-224.
- Ptacek, J.T., Smith, R.E., & Zanas, J. (1992). Gender, appraisal, and coping: a longitudinal analysis. *Journal of Personality*, 60, 747-770.

- Pushkar, D., Arbuckle, T., Conway, M., Chaikelson, J., & Maag, U. (1997). Everyday activity parameters and competence in older adults. *Psychology and Aging, 12*, 600-609.
- Pushkar, D., Basevitz, P., Arbuckle, T., Nohara-LeClair, M., & Peled, M. (2000). Social behavior and off-target verbosity in elderly people. *Psychology and Aging, 15*, 361-374.
- Pushkar, D., Basevitz, P., Conway, M., Mason, S., & Chaikelson, J. (In Press). Emergent values and the experience of aging. *Journal of Adult Development*.
- Regier, D.A., Boyd, J.H., Burke, J.D., Rae, D.S., Myers, J.K., Kramer, M. et al. (1988). One-month prevalence of mental disorders in the United States. *Archives of General Psychiatry, 45*, 977-986.
- Robichaud, M., Dugas, M.J., & Conway, M. (in press). Gender differences in worry and associated cognitive-behavioral variables. *Journal of Anxiety Disorders*.
- Rowe, J.W., & Kahn, R.L. (1997). Successful aging. *The Gerontologist, 37*, 433-440.
- Russell, M., & Davey, G.C.L. (1993). The relationship between life event measures and anxiety and its cognitive correlates. *Personality and Individual Differences, 14*, 317-322.
- Salthouse, T.A. (1996). General and specific speed mediation of adult age differences in memory. *Journals of Gerontology, 51B*, P30-P42.
- Schwartz, J.E., Neale, J., Marco, C., Shiffman, S.S., & Stone, A.A. (1999). Does trait coping exist? A momentary assessment approach to evaluation of traits. *Journal of Personality and Social Psychology, 77*, 360-369.
- Schwartz, M.D., Lerman, C., Miller, S.M., Daly, M., & Masny, A. (1995). Coping disposition, perceived risk, and psychological distress among women at risk for ovarian cancer. *Health Psychology, 14*, 232-235.
- Schultz, R., & Heckhausen, J. (1997). Emotion and control: A life-span perspective. In K.W. Schaie & M.P. Lawton (Eds.). *Annual review of gerontology and geriatrics: Vol. 17. Focus on emotion and adult development* (pp. 206-237). New York: Springer.
- Skarborn, M. & Nicki, R. (1996). Worry among Canadian Seniors. *International Journal of Aging and Human Development, 43*, 169-178.
- Skarborn, M. & Nicki, R. (2000). Worry in pre- and post-retirement persons. *International Journal of Aging and Human Development, 50*, 61-71.

- Skinner, E.A. (1996). A guide to constructs of control. *Journal of Personality and Social Psychology, 71*, 549-570.
- Sliwinski, M., & Buschke, H. (1999). Cross-sectional and longitudinal relationships among age, cognition, and processing speed. *Psychology and Aging, 14*, 18-33.
- Smith, R.E., Leffingwell, T.R., & Ptacek, J.T. (1999). Can people remember how they coped? Factors associated with discordance between same-day and retrospective reports. *Journal of Personality and Social Psychology, 76*, 1050-1061.
- Stanley, M.A., & Beck, J.G. (2000). Anxiety disorders. *Clinical Psychology Review, 20*, 731-754.
- Stanley, M.A., Beck, J.G., & Glassco, J.D. (1996). Treatment of generalized anxiety in older adults: A preliminary comparison of cognitive-behavioral and supportive approaches. *Behavior Therapy, 27*, 565-581.
- Stanley, M.A., Beck, J.G., & Zebb, B.J. (1996). Psychometric properties of four anxiety measures in older adults. *Behaviour Research and Therapy, 34*, 827-838.
- Stanley, M.A., Novy, D.M., Bourland, S.L., Beck, J.G., & Averill, P.M. (2001). Assessing older adults with generalized anxiety: A replication and extension. *Behaviour Research and Therapy, 39*, 221-235.
- Staudinger, U.M., Marsiske, M., & Baltes, P.B. (1995). Resilience and reserve capacity in later adulthood: Potentials and limits of development across the life span. In D. Cicchetti & D. Cohen (Eds.), *Developmental Psychopathology: Vol. 2. Risk, disorder, and adaptation* (pp. 801-834). New York: Wiley.
- Stöber, J., & Joormann, J. (2001). Worry, procrastination, and perfectionism: Differentiating amount of worry, pathological worry, anxiety, and depression. *Cognitive Therapy and Research, 25*, 49-60.
- Stone, A.A., Schwartz, J.E., Neale, J.M., Shiffman, S., Marco, C.A. Hickcox, M., et al. (1998). A comparison of coping assessed by ecological momentary assessment and retrospective recall. *Journal of Personality and Social Psychology, 74*, 1670-1680.
- Szabó, M., & Lovibond, P.F. (2002). The cognitive content of naturally occurring worry episodes. *Cognitive Therapy and Research, 26*, 167-177.
- Tabachnick, B.G., & Fidell, L.S. (1996). *Using multivariate statistics* (3rd ed.). New York: HarperCollins.
- Tallis, F., Davey, G.C.L., & Capuzzo, N. (1994). The phenomenology of non-

- pathological worry: A preliminary investigation. In G.C.L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 61-89). Chichester, England: Wiley.
- Tennen, H., Affleck, G., Armeli, S., & Carney, M.A. (2000). A daily process approach to coping: Linking theory, research, and practice. *American Psychologist, 55*, 626-636.
- Terry, D.J., & Hynes, G.J. (1998). Adjustment to a low-control situation: Reexamining the role of coping responses. *Journal of Personality and Social Psychology, 74*, 1078-1092.
- Thorson, J.A., & Powell, F.C. (2000). Death anxiety in younger and older adults. In A. Tomer (Ed.), *Death attitudes and the older adult: Theories, concepts, and applications* (pp. 123-136). Philadelphia: Taylor & Francis.
- Tobey, B.K. (1996). A comparison of worry in the psychiatric and community elderly (Doctoral dissertation, Allegheny University, 1996). *Dissertation Abstracts International, 58*, 1-B.
- Tobin, D.L., Holroyd, K.A., Reynolds, R.V., & Wigal, J.K. (1989). The hierarchical factor structure of the coping strategies inventory. *Cognitive Therapy and Research, 13*, 343-361.
- Tsai, J.L., Levensen, & Carstensen, L.L. (2000). Autonomic, subjective, and expressive responses to emotional films in older and younger Chinese Americans and European Americans. *Psychology and Aging, 15*, 684-693.
- Turk-Charles, S., Reynolds, C.A., & Gatz, M. (2001). Age-related differences and change in positive and negative affect over 23 years. *Journal of Personality and Social Psychology, 80*, 136-151.
- Vasey, M.V., & Borkovec, T.D. (1992). A catastrophizing assessment of worrisome thoughts. *Cognitive Therapy and Research, 16*, 505-520.
- Vitaliano, P.P., DeWolfe, D.J., Maiuro, R.D., Russo, J., & Katon, W. (1990). Appraised changeability of a stressor as a modifier of the relationship between coping and depression: A test of the hypothesis of fit. *Journal of Personality and Social Psychology, 59*, 582-592.
- Watari, K.F., & Brodbeck, C. (2000). Culture, health, and financial appraisals: Comparison of worry in older Japanese Americans and European Americans. *Journal of Clinical Geropsychology, 6*, 25-39.
- Wells, A. (1999). A cognitive model of generalized anxiety disorder. *Behavior Modification, 23*, 526-555.

- Wells, A., Carter, K. (1999). Preliminary tests of a cognitive model of generalized anxiety disorder. *Behaviour Research and Therapy*, 37, 585-594.
- Wisocki, P.A. (1988). Worry as a phenomenon relevant to the elderly. *Behavior Therapy*, 19, 369-379.
- Wisocki, P.A. (1993). The Worry Scale-Revised. Unpublished manuscript, University of Massachusetts at Amherst.
- Wisocki, P.A. (1994). The experience of worry among the elderly. In G.C.L. Davey & F. Tallis (Eds.), *Worrying: Perspectives on theory, assessment and treatment* (pp. 247-261). Chichester, England: Wiley.
- Wisocki, P.A., Handen, B., & Morse, C.K. (1986). The worry scale as a measure of anxiety among homebound and community active elderly. *The Behavior Therapist*, 5, 91-95.
- Wrosch, C., Heckhausen, J., & Lachman, M.E. (2000). Primary and secondary control strategies for managing health and financial stress across adulthood. *Psychology and Aging*, 15, 387-399.
- Wrosch, C., Scheir, M.F., Carver, C.S., & Schultz, R. (2003). The importance of goal disengagement in adaptive self-regulation: When giving up is beneficial. *Self and Identity*, 2, 1-20.
- Zakowski, S.G., Hall, M.H., Klein, L.C., & Baum, A. (2001). Appraised control, coping, and stress in a community sample: A test of the goodness-of-fit hypothesis. *Annals of Behavioral Medicine*, 23, 158-165.
- Zebb, B.J., & Beck, J.G. (1998). Worry versus anxiety: Is there really a difference? *Behaviour Modification*, 22, 45-61.

Appendix A

Consent Form for Older Sample #1

ID # _____

CONSENT FORM

I, _____, consent to participate in the study on peoples' reflections about their lives and on the worries that people experience, which is being conducted by Drs. Pushkar, Conway, Chaikelson, Mason, and by Paul Basevitz, of the Centre for Research in Human Development at Concordia University.

I understand that:

1. Participation in this study will involve completing an interview about my reflections on my life and maintaining a diary of the worries that I experience for one week. I will also be asked to complete a number of questionnaires and measures, which include readings of my blood pressure as I perform a task. These blood pressure recordings will be painless, safe, and non-invasive (no needles are involved), requiring only the placement of a blood pressure cuff around my arm.
2. The interview will be audiotaped so that responses may be reliably scored.
3. Any information that is learned about me or anyone else through my participation in the study will be confidential. The results of the study will be available only to the investigators, who may use the results for scientific purposes such as publication in a scientific journal or presentation at a scientific meeting, as long as I am not identified as a participant in the study.
4. My participation is completely voluntary and I may withdraw from the study at any time.
5. My decision whether or not to participate will in no way affect my eligibility to participate in any future studies.
6. I will receive an explanation of the findings of the study when they become available.

Date: _____

Signature _____

Appendix B

Consent Form for Older Expanded Sample #2

ID # _____

CONSENT FORM

I, _____, consent to participate in the study on how people deal with life difficulties, which is being conducted by Drs. Chaikelson, Pushkar, and Conway, and by Connie Dalton and Paul Basevitz at the Centre for Research in Human Development at Concordia University.

I understand that:

1. Participation in this study will involve completing several questionnaires and short interviews which include measures of how I deal with difficult life situations, the extent to which I worry, and a short interview where I will be asked to focus on and discuss a current worry. I will also be asked to complete an interview on how my stress levels have fluctuated during my adult life and will be asked to have my blood pressure measured during this interview.
2. With my permission, certain portions of the session will be audiotaped so that responses may be reliably scored.
3. Any information that is learned about me or anyone else through my participation in the study will be confidential. The results of the study will be available only to the investigators, who may use the results for scientific purposes such as publication in a scientific journal or presentation at a scientific meeting, as long as I am not identified as a participant in the study.
4. My participation is completely voluntary and I may withdraw from the study at any time.
5. My decision whether or not to participate will in no way affect my eligibility to participate in any future studies.
- 6) If I agree to participate I will receive an explanation of the findings when they become available.

Date: _____

Signature _____

Appendix C

Consent Form for Younger Sample

ID # _____

CONSENT FORM

I, _____, consent to participate in the study on how people deal with life difficulties, which is being conducted by Drs. Chaikelson, Pushkar, and Conway, and by Paul Basevitz and Connie Dalton at the Centre for Research in Human Development at Concordia University.

I understand that:

1. Participation in this study will involve completing several questionnaires and short interviews which include measures of how I deal with difficult life situations, the extent to which I worry, and a short interview where I will be asked to focus on and discuss a current worry.
2. With my permission, certain portions of the session will be audiotaped so that responses may be reliably scored.
3. Any information that is learned about me or anyone else through my participation in the study will be confidential. The results of the study will be available only to the investigators, who may use the results for scientific purposes such as publication in a scientific journal or presentation at a scientific meeting, as long as I am not identified as a participant in the study.
4. My participation is completely voluntary and I may withdraw from the study at any time.
5. My decision whether or not to participate will in no way affect my eligibility to participate in any future studies.
- 6) If I agree to participate I will receive an explanation of the findings when they become available.
- 7) As a token of appreciation for participation in this study I will be entered into a lottery for the possibility of winning one of 3 cash prizes (1 prize of \$100 and 2 prizes of \$50 will be given out).

Date: _____

Signature: _____

Appendix D:

Demographic Rating Scales

Demographic Rating Scales

1) How would you rate your overall health at the present time:

1	2	3	4	5
Very poor	poor	fair	good	very good

2) Would you describe your financial situation as being?

- a. Very difficult, I can't manage at all
- b. Difficult, I can't afford some necessities.
- c. Fairly difficult, I can't afford many luxuries.
- d. Not bad, I can manage.
- e. Fairly comfortable, I can afford all necessities.
- f. Comfortable, I can afford everything I need as well as some luxuries.
- g. Very comfortable, I can afford everything I need or want.

3) How far did you go in school?

_____ years

Rating scale:

<High school = highest grade

High school = 11 years

Special training = usually 12-13 years (if finished high school), but find out how many years of training and add to the number of high school years that participant completed.

Bachelor's degree = 16 years

Master's degree = 18 years

PhD = 21 years

For other post-undergraduate education (e.g., medical school), find out how many years post-undergraduate, and add to 16.

Appendix E

Penn State Worry Questionnaire

Meyer, Miller, Metzger, & Borkovec (1990)

ID # _____

The Penn State Worry Questionnaire

Please enter the number that best describes how typical or characteristic each item is of you, putting the number next to each item.

1 2 3 4 5
Not at all typical Somewhat typical Very Typical

- ___ 1) If I don't have enough time to do everything, I don't worry about it.
- ___ 2) My worries overwhelm me.
- ___ 3) I don't tend to worry about things.
- ___ 4) Many situations make me worry.
- ___ 5) I know I shouldn't worry about things, but I just can't help it.
- ___ 6) When I'm under pressure, I worry a lot.
- ___ 7) I am always worrying about something.
- ___ 8) I find it easy to dismiss worrisome thoughts.
- ___ 9) As soon as I finish one task, I start to worry about everything else I have to do.
- ___ 10) I never worry about anything.
- ___ 11) When there is nothing more I can do about a concern, I don't worry about it anymore.
- ___ 12) I've been a worrier all my life.
- ___ 13) I notice that I have been worrying about things.
- ___ 14) Once I start worrying, I can't stop.
- ___ 15) I worry all the time.
- ___ 16) I worry about projects until they are all done.

Appendix F

Worry Scale-Revised

Wisocki (1993)

	<u>Never</u>	<u>Rarely</u> 1-2 times per month	<u>Sometimes</u> 1-2 times per week	<u>Often</u> 1-2 times per day	<u>Much of the time</u> more than 2 times a day
55. I won't be independent					
56. I'll have to make decisions by myself					
57. I won't be able to leave my business affairs in order					
58. I won't have a spouse to do things with					
59. I'll have to make new friends					
60. I won't be able to do whatever I want whenever I want to do it					
61. I won't be able to manage by myself					
62. No one will care for my pet(s) when I'm gone					
<u>Family Concerns</u>					
63. My children won't be happy					
64. My children won't be successful					
65. My children spend too much money					
66. My grandchildren will not do well in school					
67. My children will die before I do					
68. My children will have serious health problems					

<u>Never</u>	<u>Rarely</u>	<u>Sometimes</u>	<u>Often</u>	<u>Much of</u>
	1-2	1-2	1-2	<u>the time</u>
	times	times	times	more than
	per	per	per	2 times
	month	week	day	a day

69. My children and grandchildren won't make the right decisions.				
70. My children are not capable of being on their own				
71. My children don't save enough money				
72. My children won't grow up in a safe world				
73. My children don't respect me				
74. My children are not helpful to me				
75. My children will abandon me				
76. There will be conflicts in the family				
77. I'm not sure how to make out my will				
<u>World Issues</u>				
78. Social Security benefits will be reduced				
79. Someone I know will be infected with AIDS				
80. The country is facing serious economic problems				
81. We will have another war				
82. Nuclear power plants are a major problem				

Appendix G

Worry Diary Instructions and Sample Day

Life Reflections / Worry Study

WORRY DIARY

Thank you for taking the time to complete the “worry diary” portion of our study. It is hoped that such research will ultimately lead to the development of new strategies which may be used to help people who are bothered by excessive worry. This worry diary is designed to measure the types of worries that are typically experienced, in addition to the strategies that people use to control their worries. Please try to complete this diary for seven consecutive days. Should you be unable to complete the diary on a given day, please complete your next diary entry on the next possible day. It is preferable if you start your diary the day after your interview with us at Concordia. If this is not possible, please start as soon as you can.

Describing your worries:

It is important that we clarify exactly what we mean by ‘worry’. A worry is a thought that you experience about the possibility of one or more negative events occurring. It is different from other thoughts in that worrying usually makes you feel uncomfortable. Examples of things that some people report worrying about include: Worrying about the well being of children or grandchildren; worrying about having enough money to pay bills, worrying about what other people will think about something you did, worrying about meeting a deadline, worrying about one’s health or the health of someone close, worrying about the loss of one’s independence or about being alone, worrying about something happening to one’s property.

These are just a few examples of the things that some people worry about. We’re interested in the things that worry you. Because we want to get a realistic understanding of what people worry about it is important that you don’t try to artificially “come up” with things so that you will have something to write in your diary. Simply report the worries that you naturally experience throughout the week, however many or few they may be. Also, when you report your worries, please describe them so that it is clear exactly what the worry is.

If you have any questions or difficulty completing this worry diary, please phone Paul Basevitz, Anne-Julie Berube, Laurent Turgeon-Dharmoo, Alyssa Rimoin, or Connie Isenberg at 848-2258. Thanks again for your help with this study. We hope that your participation in our study has been a pleasant experience.

Sincerely,

The Life Reflections / Worry Study Team

WORRIES FOR DAY 1

Please describe the worries that you experienced during day 1. You may want to fill in your descriptions of the worries that you experience as the day progresses. However, it is important that you update your diary the morning after to include any worries that occurred during the night. Also, please don't forget to complete Part 2 of your diary the morning after day 1.

Date of Day 1: _____
 Month Day Year

SECTION 1.

Reflecting back on your day and night, please describe all worries that you experienced. If you did not worry about anything during day 1, please leave this section blank, and continue the worry diary tomorrow.

If you did not worry about anything today, please check here _____

Worry #1

Approximate time of the worry: _____ A.M. / P.M. (Circle)

Please briefly describe the worry:

Worry #2

Approximate time of the worry: _____ A.M. / P.M. (Circle)

Please briefly describe the worry:

Day 1 (Continued)

Worry #3

Approximate time of the worry: _____ A.M. / P.M. (Circle)

Please briefly describe the worry:

Worry #4

Approximate time of the worry: _____ A.M. / P.M. (Circle)

Please briefly describe the worry:

Worry #5

Approximate time of the worry: _____ A.M. / P.M. (Circle)

Please briefly describe the worry:

Day 1 (Continued)

SECTION 2.

Please complete this section the morning after day 1 (after you've finished describing the worries that you experienced during the day and night of day 1). If you did not worry about anything during day 1, please leave this section blank, and continue your worry diary on day 2.

INSTRUCTIONS:

Please select one worry that you reported on day 1 of your diary. The worry that you should select should be the one that caused you the most concern.

A) What was the worry # for the worry you selected? _____
(the worry # is marked above your description of the worry)

B) Did the worry disturb you while you were trying to sleep at night? Yes / No (Circle)

C) Please use the scale below to indicate how disturbing this worry was for you (circle the most appropriate number)

1	2	3	4
not much disturbance	a little disturbance	a lot of disturbance	extreme amounts of disturbance

D) Please use the scale below to rate the extent to which you are currently still worried about the worry that you selected (circle the most appropriate number)

1	2	3	4
I am no longer worried about it	I continue to be a little worried about it	I am almost as worried about it as I was before	I am just as worried or more worried than before

Appendix H

Worry Diary Coding System

Worry Diary Coding System

General Coding Guidelines

- 1) If there are two distinct worries listed, and there is enough clear information to indicate this, count as two worries.
- 2) In deciding between one or more worry categories, use the available information to determine the overriding worry theme. It may be helpful to try to decipher an if-then type relationship using the available information. For example, one participant was worried about expressing condolences to a friend whose husband died. The available information suggested that the worry was of an interpersonal nature rather than about death / dying.
- 3) In some cases you may have to make a reasonable assumption based on the information included in the diary. If you do not have enough information to make a reasonable assumption, consider one of the non-categorizable codes.
- 4) Unless the information in the diary is clearly a description of an event or of a non-anxious emotion, assume that each diary entry reflects a worry. This assumption is based on the idea that respondents were asked to record worries and worries were defined for the respondents. It is acknowledged that this assumption may lead to an over-inclusive coding system.
- 5) Do not code the exact same worry content more than once in the same day. Since we cannot accurately decipher when a particular worry episode ends and another begins this practice will reduce the likelihood of coding the same worry twice. Note however, that the same *code* can be applied more than once in a daily diary entry when the *content* is different.

Worry Theme Codes

Broad theme: *Personal health and safety.* Health refers to both physical and mental health (including worries about memory problems). Safety refers to worries about the physical safety.

Specific themes:

- 1) ***Personal health (general):*** Includes worries about one's general physical and mental health. This category includes worries about memory, and insomnia.
- 2) ***Consequences to others as a result of a health problem:*** Includes worries about practical and psychological affects on others as a result of a personal health problem.
- 3) ***Physical limitation:*** Worries about one's ability to maintain physical mobility and to have enough energy to engage in desired physical activity.
- 4) ***Receiving medical results:*** Worries about going to a doctor and / or receiving a currently unknown medical result. If a health problem is already known and this is the source of the worry, code under personal health (general).
- 5) ***Personal safety:*** Concerns about one's physical safety that do not otherwise fit into any of the above (personal health) categories.

Broad theme: *Others' health and safety.* Health refers to both physical and mental health (including worries about memory problems). Safety refers to worries about the physical safety of a significant other.

Specific themes:

- 6) ***Spouse's Health***
- 7) ***Spouse's Safety***
- 8) ***Children's health***
- 9) ***Children's safety***
- 10) ***Grandchildren's health***
- 11) ***Grandchildren's safety***
- 12) ***Friend's Health***
- 13) ***Friend's Safety***
- 14) ***Other family member's health***
- 15) ***Other family member's safety***

Broad Theme: *General hassles*

Specific themes:

- 16) ***Daily hassles:*** This is a general category that includes worries about seemingly everyday occurrences that may be considered hassles. This category is only used for worries that do not clearly fit into other categories or where not enough information is presented to place it in a different category. Examples of content that received this code include: worries about errands such as Christmas shopping, worry associated with going to the bank and finding that it is closed, worry about knitting a sweater, worrying about forgetting to bring an important belonging to an event, worry about trying something new, worry about parking illegally.

17) Completing documents: Worries about completing forms, and official documents (e.g., tax forms, passport renewal).

18) Fixing / using appliances: Worries about fixing household or other appliances (e.g., using a computer).

19) Travel plans: Worries about not being able to get to a planned destination (e.g., due to the weather conditions). If the underlying reason is due to a physical limitation, code as *physical limitation*.

Broad Theme: Social

Specific themes:

20) Social evaluative (family): Interpersonal worries associated with how they are perceived by family members.

21) Social evaluative (non-family): Interpersonal worries associated with how they are perceived by non-family members (including friends, work colleagues, and romantic partners to whom the participant is not married).

22) Loneliness: Includes worries about not having enough social partners, worries about how they will cope with being single, and worries about not finding another romantic partner.

23) Social plans: Worries about arranging and/or having to cancel social plans.

Broad theme: Work and Time-related worries

Specific themes:

24) Work-related: Includes worries associated with volunteer work, event planning, and worries about a class.

25) Time-related: Worries associated with having too many things to do, and being able to get things done on time.

26) Broad theme: Financial. Includes general financial worries, or worries about specific situations where the source of the worry is financial (e.g., worries about a tax situation, worries about the outcome of a financial dispute).

Broad theme: Others' well-being. Worries about the general well being of others where the worry is not associated with health or safety. Examples include: worries about children not getting along, and grandchildren not doing well in school.

Specific themes:

27) Spouse's well-being

28) Children's well being

29) Children's finances / job stability

30) Grandchildren's well-being

31) Friend's well-being

32) Other family: well-being

33) Broad theme: Decision to make. Worries about making a life decision, where the decision is the main source of the worry (e.g., worry associated with a decision to sell the house or move to a different city).

34) Broad theme: Political / world issue. Worries about a political situation (local or abroad) or worries about the state of the world (e.g., possibility of war). Note: if the worry is about the safety of a family member or friend living in a potentially dangerous situation abroad, code as *other's safety*.

35) Broad theme: Death / dying. Worry where death or dying is specifically mentioned. This includes worries about one's own death, how a spouse will cope after the respondent's death, worries associated with the death of a family member or friend, and worries about the possibility of somebody dying. Note: this category does not include worries about the health and safety of others, and is coded only when death or dying is specifically mentioned.

36) Broad theme: Natural disaster. Worries about the possibility of a natural disaster occurring (e.g., another ice storm).

37) Broad theme: Pets. Worry associated with the well-being of a pet or another specific animal.

Non-Categorizable Coding Options

1) Worry could reflect a variety of concerns. Use this code when the source of the worry could reflect a variety of concerns and the coder could not make a reasonable assumption based on the information contained in the diaries.

Examples:

- a) Worry due to spouse's difficulty convincing their son to register to vote. This could reflect an interpersonal worry, a worry about a political situation, or something else.
- b) Worry about "bad weather": this could reflect a concern about travel plans, social plans, natural disaster, personal safety, others' safety, or something else.

2) Clearly a description of an event rather than a worry.

Examples:

- a) "Ate too much at a party - felt heavy and tired"
- b) "Prepared diner at a friend's house"
- c) "Worked on taxes"

3) Clearly descriptions of non-anxious emotions

Examples:

- a) "outing was cancelled – disappointing and frustrating".
- b) "Relief because the operation went well".
- c) "woke up feeling much better and improved".

Appendix I

Data Screening for Study 1

Data Screening for Study 1

Screening WD data

The broader, collapsed worry themes were used for the correlational analyses. The unit of analysis focused on the total number of worries reported during the week along with the number of times each participant reported worrying about each theme. For the total number of worries reported on the diary, two outliers were detected and were recoded according to the procedures outlined above. Because this distribution remained significantly skewed, a square root transformation was also applied to reduce the impact of skewness.

In examining the frequency of worries about each theme, extreme positive skewness was found, particularly for those themes that were reported by only minority of the respondents. This skewness was expected, and reflected the fact that the majority of people worried very little (or not at all) about certain worry themes while a minority of individuals reported several repetitions of such worries. Recoding of outliers and data transformation did not solve this problem for the worry themes that were reported by less than 20% of respondents. Consequently, due to concerns about the reliability of analyses with extremely skewed data distributions the following worry themes, which were reported by less than 20% of respondents were dropped from further analyses: others' well-being, decisions, society, death, natural disaster, and pets. Furthermore, examination of the data distributions for worry about one's own health, others' health, daily hassles, and social concerns revealed several outliers reflecting the fact that less than five percent of the participants worried more than four times about each topic. Consequently, for these categories, all occurrences of four or more worry repetitions were collapsed so that the

distributions for these topics ranged from 0 to 4. Similarly, less than five percent of the sample reported more than two occurrences of occupational / time related worries. Consequently, for this worry category, all occurrences greater than two were collapsed so that scores for this worry theme ranged from 0 to 2. After re-coding these outliers, several of these distributions remained significantly skewed. To reduce the impact of skewness, logarithmic transformations were applied to the self-health, others' health, daily hassles, social, and occupational / time related worry distributions. Finally, the skewed distribution for financial worries was not corrected by any transformation or by re-coding outliers. Consequently, this distribution was dichotomized, with 0 indicating the absence of worry and 1 indicating the presence of one or more worries in the area of finances.

Of the three measures of worry disturbance (sleep interference, disturbance rating, and continued worry one day later), only the number of nights with worry-related sleep disturbance required transformation. For this variable, one outlier was re-coded so that it remained extreme but within three standard deviations from the mean, and a square root transformation was applied to reduce the impact of skewness.

Screening Questionnaire Data

For the demographic variables, one univariate outlier was detected on the perceived financial situation measure. This outlier was recoded so that it remained extreme but within three standard deviations from the mean. For the total WS-R score, one univariate outlier was detected and between 1 and 3 outliers were detected on each of the WS-R content scales. These outliers were re-coded according to the procedures described above. Data distributions that remained significantly skewed after the outliers were recoded were transformed to reduce the impact of skewness. Accordingly, square-

root transformations were applied to the WS-R total and to each of the WS-R content scales.

Appendix J

Intolerance of Uncertainty Scale

Buhr & Dugas (2002)

Freeston, Rhéaume, Letarte, Dugas, & Ladouceur (1994)

ID# _____

Uncertainty

You will find below a series of statements which describe how people may react to the uncertainties of life. Please use the scale below to describe to what extent each item is characteristic of you (please write the number that describes you best in the space before each item).

1	2	3	4	5
not at all characteristic of me	a little characteristic of me	somewhat characteristic of me	very characteristic of me	entirely characteristic of me

1. ____ Uncertainty stops me from having a firm opinion.
2. ____ Being uncertain means that a person is disorganized.
3. ____ Uncertainty makes life intolerable.
4. ____ Its not fair that there are no guarantees in life.
5. ____ My mind can't be relaxed if I don't know what will happen tomorrow.
6. ____ Uncertainty makes me uneasy, anxious, or stressed.
7. ____ Unforeseen events upset me greatly.
8. ____ It frustrates me not having all the information I need.
9. ____ Being uncertain allows me to foresee the consequences beforehand and to prepare for them.
10. ____ One should always look ahead so as to avoid surprises.
11. ____ A small unforeseen event can spoil everything, even with the best of planning.
12. ____ When its time to act uncertainty paralyses me.
13. ____ Being uncertain means that I am not first rate.
14. ____ When I am uncertain I can't go forward
15. ____ When I am uncertain I can't function very well.

1	2	3	4	5
not at all	a little	somewhat	very	entirely
characteristic	characteristic	characteristic	characteristic	characteristic
of me	of me	of me	of me	of me

16. ___ Unlike me, others always seem to know where they are going with their lives.

17. ___ Uncertainty makes me vulnerable, unhappy, or sad.

18. ___ I always want to know what the future has in store for me.

19. ___ I hate being taken by surprise.

20. ___ The smallest doubt stops me from acting.

21. ___ I should be able to organize everything in advance.

22. ___ Being uncertain means that I lack confidence.

23. ___ I think its unfair that other people seem sure about their future.

24. ___ Uncertainty stops me from sleeping well.

25. ___ I must get away from uncertain situations.

26. ___ The ambiguities in life stress me.

27. ___ I can't stand being undecided about my future.

Appendix K

Why Worry Scale

Freeston, Rhéaume, Letarte, Dugas, & Ladouceur (1994)

ID# _____

Why Worry?

Everyone worries from time to time. You will find below a series of statements that could relate to worries. Please use the scale shown below to describe to what extent each item is characteristic of you (please write the number that describes you best, in the space before each item).

1	2	3	4	5
not at all characteristic of me	a little characteristic of me	somewhat characteristic of me	very characteristic of me	entirely characteristic of me

-
- _____ 1) When I worry, I feel that I am the only one to have difficulties.
- _____ 2) Worrying about less important things distracts me from more emotional subjects that I don't want to think about.
- _____ 3) If I worry, I can find a better way to be as a person.
- _____ 4) I worry because I am accustomed to worrying.
- _____ 5) I worry because I was taught to always expect the worst.
- _____ 6) I worry because if the worst happens, I would feel guilty if I hadn't worried.
- _____ 7) I worry to try to protect the world.
- _____ 8) If I worry I can find a better way to do things.
- _____ 9) I worry to try to protect myself.
- _____ 10) If I don't worry and the worst happens, it would be my fault.
- _____ 11) I worry about the past in order to try to learn from my mistakes.
- _____ 12) When I worry, I think that life seems much easier for others than for me.
- _____ 13) I worry to try to have better control over my life.
- _____ 14) I worry because if the worst happens, I wouldn't be able to cope.
- _____ 15) I worry in order to avoid disappointment.

1	2	3	4	5
not at all characteristic of me	a little characteristic of me	somewhat characteristic of me	very characteristic of me	entirely characteristic of me

_____ 16) When I worry, I tell myself that there must always be a solution to every problem.

_____ 17) I worry about lots of things so I won't think about more important things.

_____ 18) By worrying I can stop bad things from happening.

_____ 19) Even if I know that it's not true, I feel that worrying helps to decrease the likelihood that the worst will happen.

_____ 20) If I worry less, I have less chance of finding a better solution.

Appendix L

Miller Behavioural Style Scale

Miller (1987)

Subject #: _____

Date: ___/___/___

MONITOR-BLUNTER STYLE SCALE

1. Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do? Check all of the statements that might apply to you.

- I would ask the dentist exactly what he/she was going to do.
- I would take a tranquilizer or have a drink before going.
- I would try to think about pleasant memories.
- I would want the dentist to tell me when I would feel pain.
- I would try to sleep.
- I would watch all the dentist's movements and listen for the sound of the drill.
- I would watch the flow of water from my mouth to see if it contained blood.
- I would do mental puzzles in my mind.

2. Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do? Check all of the statements that might apply to you.

- I would sit by myself and have as many daydreams and fantasies as I could.
- I would stay alert and try to keep myself from falling asleep.
- I would exchange life stories with the other hostages.
- If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.
- I would watch every movement of my captors and keep an eye on their weapons.
- I would try to sleep as much as possible.
- I would think about how nice it's going to be when I get home.
- I would make sure I knew where every possible exit was.

3. Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Check all of the statements that might apply to you.

- I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.
- I would review the list of duties for my present job and try to figure out if I had fulfilled them all.
- I would go to the movies to take my mind off things.
- I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered the supervisor's opinion of me.
- I would push all thoughts of being laid off out of my mind.
- I would tell my spouse/significant other that I'd rather not discuss my chances of being laid off.
- I would try to think which employees in my department the supervisor might have thought had done the worst job.
- I would continue doing my work as if nothing special was happening.

4. Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Check all of the statements that might apply to you.

- I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.
- I would make small talk with the passenger beside me.
- I would watch the end of the movie, even if I had seen it before.
- I would call for the flight attendant and ask her exactly what the problem was.
- I would order a drink or tranquilizer from the flight attendant.
- I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.
- I would talk to the passenger beside me about what might be wrong.
- I would settle down and read a book or magazine or write a letter.

Subject #: _____

Date: ___/___/___

MONITOR-BLUNTER STYLE SCALE

1. Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do? Check **all** of the statements that might apply to you.

M I would ask the dentist exactly what he/she was going to do.

B I would take a tranquilizer or have a drink before going.

B I would try to think about pleasant memories.

M I would want the dentist to tell me when I would feel pain.

B I would try to sleep.

M I would watch all the dentist's movements and listen for the sound of the drill.

M I would watch the flow of water from my mouth to see if it contained blood.

B I would do mental puzzles in my mind.

2. Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do? Check **all** of the statements that might apply to you.

B I would sit by myself and have as many daydreams and fantasies as I could.

M I would stay alert and try to keep myself from falling asleep.

B I would exchange life stories with the other hostages.

M If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.

M I would watch every movement of my captors and keep an eye on their weapons.

B I would try to sleep as much as possible.

B I would think about how nice it's going to be when I get home.

M I would make sure I knew where every possible exit was.

3.

Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about lay-offs has been made and will be announced in several days. Check all of the statements that might apply to you.

 M I would talk to my fellow workers to see if they knew anything about what the supervisor's evaluation of me said.

 M I would review the list of duties for my present job and try to figure out if I had fulfilled them all.

 B I would go to the movies to take my mind off things.

 M I would try to remember any arguments or disagreements I might have had with the supervisor that would have lowered the supervisor's opinion of me.

 B I would push all thoughts of being laid off out of my mind.

 B I would tell my spouse/significant other that I'd rather not discuss my chances of being laid off.

 M I would try to think which employees in my department the supervisor might have thought had done the worst job.

 B I would continue doing my work as if nothing special was happening.

4.

Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Check all of the statements that might apply to you.

 M I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.

 B I would make small talk with the passenger beside me.

 B I would watch the end of the movie, even if I had seen it before.

 M I would call for the flight attendant and ask her exactly what the problem was.

 B I would order a drink or tranquilizer from the flight attendant.

 M I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.

 M I would talk to the passenger beside me about what might be wrong.

 B I would settle down and read a book or magazine or write a letter.

Appendix M

Ambiguous-Unambiguous Situations Diary

Davey, Hampton, Farrell, & Davidson (1992)

IDNO_____

Concerned or Unconcerned?

Instructions:

Imagine that the following are extracts from your diary. Read each extract and then decide whether the event for that day would cause you some concern (e.g., worry) or not. If you think the event would cause you some concern, tick the line marked "concerned", if you do not think it would cause undue concern, tick the line marked "unconcerned". Please tick only one response for each diary extract. There are no right or wrong answers to this, just decide how you yourself would feel in each case.

1) Monday May 23 1999

I have too much to do right now and on top of all that I was just informed of another obligation.

_____ Concerned _____ Unconcerned

2) Tuesday May 24 1999

My new hobby is going very well. So far I have had three people express interest in buying one of my paintings.

_____ Concerned _____ Unconcerned

3) Wednesday May 25 1999

I got a letter from the government today and was surprised to see what was in it.

_____ Concerned _____ Unconcerned

4) Thursday May 26 1999

My grandson had to go to the doctor today. The doctor was going to check his growth.

_____ Concerned _____ Unconcerned

5) Friday May 27 1999

I went to the hairdresser's this morning, my new hair style is atrocious. I look awful.

_____ Concerned _____ Unconcerned

6) Saturday May 28 1999

When I received my government cheque today
I was astonished to see how much money I
received.

_____ Concerned _____ Unconcerned

7) Sunday May 29 1999

I went to Amanda's party last night.
It was fun!

_____ Concerned _____ Unconcerned

8) Monday May 30 1999

I have been feeling sick all day, if I still feel
like this tomorrow I'll have to go to the doctor.

_____ Concerned _____ Unconcerned

9) Tuesday May 31 1999

It's a lovely day. I find it easy to be cheerful
when the sun is shining.

_____ Concerned _____ Unconcerned

10) Wednesday June 1 1999

While on the way out tonight I was stopped
in the street.

_____ Concerned _____ Unconcerned

11) Thursday June 2 1999

Our teams for the competition were announced
today, I can't believe that I have been picked to
play for the second team.

_____ Concerned _____ Unconcerned

12) Friday June 3 1999

I have just come back from the travel agents and
have managed to book a really cheap two week
summer holiday.

_____ Concerned _____ Unconcerned

13) Saturday June 4 1999

I was walking along the seafront when I saw my friend Helen waving in the sea. _____ Concerned _____ Unconcerned

14) Sunday June 5 1999

We had invited some friends for a barbecue, but no one turned up. _____ Concerned _____ Unconcerned

15) Monday June 6 1999

I received a letter from the bank this morning telling me that I have exceeded my overdraft limit and will have to pay quite a heavy bank charge. _____ Concerned _____ Unconcerned

16) Tuesday June 7 1999

I phoned the doctor today and was surprised to hear the results of last week's check-up. _____ Concerned _____ Unconcerned

17) Wednesday June 8 1999

Not only was yesterday's meal out very disappointing, but I now also think that I have food poisoning. _____ Concerned _____ Unconcerned

18) Thursday June 9 1999

Our boss at work discussed the company's poor performance and agreed that I was the most responsible. _____ Concerned _____ Unconcerned

19) Friday June 10 1999

On my first night as a chef in the restaurant,
I was called to the customers' tables twice. _____ Concerned _____ Unconcerned

20) Saturday June 11 1999

At the reception I stood up and made a speech
which made everybody giggle. _____ Concerned _____ Unconcerned

21) Sunday June 12 1999

I really enjoyed seeing my old school friend, David,
last night. It has been at least a year since
we last saw each other. _____ Concerned _____ Unconcerned

22) Monday June 13 1999

While talking to them, I was surprised at the
convictions of one of my friends. _____ Concerned _____ Unconcerned

23) Tuesday June 14 1999

My performance in the play was commented
on by everyone. _____ Concerned _____ Unconcerned

24) Wednesday June 15 1999

A group of friends and I had planned a weekend
away at the beginning of next month. Unfortunately
it has to be postponed for a couple of weeks and I
won't be able to go now as I'll be busy. _____ Concerned _____ Unconcerned

25) Thursday June 16 1999

On walking into the bank I saw the bank clerk
handing over lots of money to a man. _____ Concerned _____ Unconcerned

26) Friday June 17 1999

I was really pleased when I passed my driving test today. This calls for a big celebration. _____ Concerned _____ Unconcerned

27) Saturday June 18 1999

I had a successful shopping trip this afternoon and have bought a beautiful outfit to wear to my cousin's wedding. _____ Concerned _____ Unconcerned

28) Sunday June 19 1999

As I walked along the pier I overheard three men discussing the best way to blow up a dinghy. _____ Concerned _____ Unconcerned

Ambiguous-Unambiguous Situations Diary

Scoring Information

Unambiguous positive: Items 2, 7, 9, 12, 21, 26, 27.

Unambiguous negative: Items 1, 5, 8, 14, 15, 17, 24.

Ambiguous: Items 3, 6, 10, 11, 13, 16, 18, 19, 20, 22, 23, 25, 28.

Appendix N

“Catastrophizing” Interview Forms

Interview Scripts

Topic Generation Phase Script

Say: I'd like to talk to you about the things that have worried you lately. You might be wondering what I mean by a "worry". A worry is: 1) a thought, 2) about the possibility of something negative occurring, and 3) it causes you some discomfort. I'll give you a few minutes to think of the things that you are worried about these days and I'd like you to briefly list them on this sheet of paper. Please limit your description of the worry to only the most important point. Also, for each worry that you experience please rate how disturbing this worry is for you using the scale on this sheet. I'm going to leave you also for a few minutes while you write down the topics that you are worried about at this time in your life. Again, please limit your description of the worry to only the most important point (perhaps 1-2 sentences).

Practice Trial Script

Say: Before we begin this task I'd like to use a practice example to help you become familiar with the type of questions I'll be asking you later. This is just a practice example to help you understand the task that we will be doing next. I'd like you to briefly tell me about something that you find interesting, anything you find interesting. So that I can show you the task we'll be doing it is important that you keep your description of this interest brief. For example, you might say "I'm interested in reading". O.K., now please briefly tell me about something you are interested in.

Ask: "what is it about _____ that you find interesting?" (repeat this question for each response until the participant seems to understand the task.

When the participant understands, say: "O.K., now you see the purpose of this exercise was just for me to show you the way that I'll be questioning your responses. We'll be doing something similar in the next task. You see that it is important to limit each of your responses to only the most important points.

Standard Probes

- 1) Unclear response: say "I'm not sure I understand, can you please summarize what would worry you if this happened?"
- 2) Clarifying statement: "So, you're saying that if _____ happened then you would be worried that _____?"
- 3) If the participant provides a range rather than a specific number for the discomfort rating. Examples: "could you try to approximate a specific number using this scale"; "is it more 65 or more 70".

IDNO_____

Target Worry Selection Form

Description of Current Worries

1)

How much disturbance does this worry cause?

1	2	3	4
not much	a little	a lot of	extreme
disturbance	disturbance	disturbance	disturbance

2)

How much disturbance does this worry cause?

1	2	3	4
not much	a little	a lot of	extreme
disturbance	disturbance	disturbance	disturbance

3)

How much disturbance does this worry cause?

1	2	3	4
not much	a little	a lot of	extreme
disturbance	disturbance	disturbance	disturbance

Visual Analogue Scale for Subjective Discomfort Ratings

Say: "Using this scale of 0 to 100, where 0 signified no discomfort, 100 signifies extreme discomfort, and descriptors are shown to help you approximate your current level of discomfort, how much psychological discomfort are you currently experiencing while discussing this with me".

0 _____ 100
 no extreme
 discomfort
 discomfort

0 = no discomfort
 1 - 20 = little discomfort
 21 - 40 = some discomfort
 41 - 60 = moderate discomfort
 61 - 80 = a lot of discomfort
 81 - 100 = extreme discomfort

Visual Analogue Scale for Likelihood Ratings

Say "on a scale of 0 to 100, where 0 means 0% likelihood and 100 means 100% likelihood, please tell me how likely you feel _____ is to occur"

0% _____ 100%

0 = 0% likelihood
 100 = 100% likelihood

Appendix O*Data Screening for Study 2*

Data Screening for Study 2

Section 1: Age-differences in Worry, Intolerance of Uncertainty, and Beliefs about Worrying

Prior to conducting analyses, the data were screened for missing values, the presence of outliers, and for skewed distributions. Procedures recommended by Tabachnick and Fidell (1996) were used to make necessary adjustments to the data.

Older sample. Prior to conducting analyses, the data were screened for missing values, the presence of outliers, and for skewed distributions. For the older sample, one participant did not complete the WWS, and eight participants did not return the IUS in the mail. Tabachnick and Fidell (1996) suggest several ways of dealing with missing data, which include dropping the missing cases when they are not essential, and substituting the mean of a sub-sample of participants that most closely resemble the case on relevant dimensions. Because these measures were an integral component of the present study, missing data on these scales were handled by substituting the mean of the remaining participants within the missing participants' age and gender group. Age group was determined using a median split (age of 73) to divide the participants. Outliers, defined as scores in excess of three standard deviations from the mean, were handled by recoding outlying values so that they remained at the extreme end of the distribution while not exceeding three standard deviations from the mean. Accordingly, one older participant's score on the WWS was recoded, and a square-root transformation was applied to this measure to reduce the impact of skewness. Additionally, two outliers were detected and recoded on the IUS. As was described in Study 1, one outlier was detected and recoded for the item inquiring about their perceived financial situation.

Younger sample. For the younger sample, one female participant did not complete IUS. This missing score was replaced with the mean of other females on this scale. No outliers or significant skewness were detected for the younger sample. However, because a square root transformation was applied to the WWS in the older sample, this same transformation was required in the younger sample, for comparison purposes. This transformation did not significantly impact the skewness of the distribution in the younger sample.

Section 2: Age Differences in Attention to Threat, Interpretation of Ambiguity, and the Tendency to Engage in Worry Thought Sequences

In the older sample, three outliers were detected for the unambiguous negative scale of the AUSD and one outlier was detected on the monitoring scale of the MBSS. These scores were recoded so that they maintained their relative position in the distribution but remained within three standard deviations of the mean. In addition, one outlier was detected on the item measuring perceived health. The outlier was due to a participant who perceived his health as “very poor” when the majority the participants in the older sample perceived their health as “good”. This score was re-coded so that it remained extreme but within three standard deviations from the mean. Finally, the unambiguous positive scale of the AUSD was positively skewed. A square root transformation was applied to this variable, which reduced the impact of skewness. For the younger sample, one participant did not complete the MBSS Scale and the AUSD, reducing the number of younger participants to 105 for these analyses. No univariate outliers were detected in the younger sample. However, as in the older sample,

the unambiguous positive scale was positively skewed. A square root transformation was applied to this variable, which reduced the impact of skewness.

Section 2: Age Differences in the Tendency to Engage in Worry Thought Sequences

General sample. In the older sample, four outliers were detected on the number of worry steps, and one outlier was detected on subjective level of discomfort at baseline. These scores were re-coded so that they remained at the upper limit of the distribution but still remained within three standard deviations of the mean. No outliers were detected on these variables for the younger sample. After adjusting for outliers, a positive skewness remained for the number of worry steps and for discomfort levels at baseline, in both the older and younger samples. Logarithmic and square root transformations corrected the skewness problem for the number of steps and discomfort at baseline, respectively. Although the maximum discomfort level during the interview was not skewed, it was necessary to apply a square root transformation to this variable as well, for analyses requiring a comparison with discomfort at baseline. This transformation did not significantly impact the skewness for this variable.

Sub-sample of participants matched by worry topic. Prior to conducting analyses, the data were assessed for skewness and for the presence of outliers. No outliers were detected, but the same pattern of skewness as was found in the original sample were evident. Consequently, the same data transformations that were used for the analyses using the unselected sample were also required for this sub-sample. Additionally, a check for multivariate outliers was required to ensure that there were no unusual patterns among each dependent variable and the covariate. Using an alpha level of .001 to evaluate the significance Mahalanobis distance, no multivariate outliers were detected for any of the

DVs. The assumption of homogeneity of variance between the age groups was also assessed by verifying that F_{max} did not exceed 3. This assumption was met. Additionally, a test for homogeneity of regression was required to ensure that the slope of the relationship between the covariate and the dependent variables were similar in both age groups. This check yielded satisfactory results.

Appendix P

The COPE

Carver, Scheir, & Weintraub (1989)

ID # _____

Participant Form:

COPE

These items deal with the ways you coped with the stressful event that you just described. There are many ways to try to deal with problems. These items ask what you did to cope with this particular stressful event. Each item says something about a particular way of coping. We want to know to what extent you did what the items say. There are no wrong or right answers, so choose the most accurate answer for YOU- not what you think "most people" would say or do.

1 = I did not do this at all

2 = I did this a little bit

3 = I did this a medium amount

4 = I did this a lot

- | | | | | | |
|-----|--|---|---|---|---|
| 1. | I tried to grow as a person as a result of the experience. | 1 | 2 | 3 | 4 |
| 2. | I turned to work or other activities to take my mind off things. | 1 | 2 | 3 | 4 |
| 3. | I got upset and let my emotions out. | 1 | 2 | 3 | 4 |
| 4. | I tried to get advice or help from other people about what to do. | 1 | 2 | 3 | 4 |
| 5. | I concentrated my efforts on doing something about the situation I was in. | 1 | 2 | 3 | 4 |
| 6. | I said to myself "this isn't real". | 1 | 2 | 3 | 4 |
| 7. | I put my trust in God. | 1 | 2 | 3 | 4 |
| 8. | I laughed about the situation. | 1 | 2 | 3 | 4 |
| 9. | I admitted to myself that I couldn't deal with it, and quit trying. | 1 | 2 | 3 | 4 |
| 10. | I restrained myself from doing anything too quickly. | 1 | 2 | 3 | 4 |
| 11. | I discussed my feelings with someone. | 1 | 2 | 3 | 4 |

ID # _____

1 = I did not do this at all

2 = I did this a little bit

3 = I did this a medium amount

4 = I did this a lot

- | | | | | | |
|-----|---|---|---|---|---|
| 12. | I used alcohol or other drugs to make myself feel better. | 1 | 2 | 3 | 4 |
| 13. | I got used to the idea that it happened. | 1 | 2 | 3 | 4 |
| 14. | I talked to someone to find out more about the situation. | 1 | 2 | 3 | 4 |
| 15. | I kept myself from getting distracted by other thoughts or activities. | 1 | 2 | 3 | 4 |
| 16. | I daydreamed about things other than this. | 1 | 2 | 3 | 4 |
| 17. | I got upset, and was really aware of it. | 1 | 2 | 3 | 4 |
| 18. | I sought God's help. | 1 | 2 | 3 | 4 |
| 19. | I made a plan of action. | 1 | 2 | 3 | 4 |
| 20. | I made jokes about it. | 1 | 2 | 3 | 4 |
| 21. | I accepted that this had happened and that it couldn't be changed. | 1 | 2 | 3 | 4 |
| 22. | I held off doing anything about it until the situation permitted. | 1 | 2 | 3 | 4 |
| 23. | I got emotional support from others. | 1 | 2 | 3 | 4 |
| 24. | I just gave up trying to reach my goal. | 1 | 2 | 3 | 4 |
| 25. | I took additional action to try to get rid of the problem. | 1 | 2 | 3 | 4 |
| 26. | I tried to lose myself for a while by drinking alcohol or taking drugs. | 1 | 2 | 3 | 4 |
| 27. | I refused to believe that it had happened. | 1 | 2 | 3 | 4 |

ID # _____

1 = I did not do this at all

2 = I did this a little bit

3 = I did this a medium amount

4 = I did this a lot

- | | | | | | |
|-----|---|---|---|---|---|
| 28. | I let my feelings out. | 1 | 2 | 3 | 4 |
| 29. | I tried to see it in a different light, to make it seem more positive. | 1 | 2 | 3 | 4 |
| 30. | I talked to someone who could do something concrete about the problem. | 1 | 2 | 3 | 4 |
| 31. | I slept more than usual. | 1 | 2 | 3 | 4 |
| 32. | I tried to come up with a strategy about what to do. | 1 | 2 | 3 | 4 |
| 33. | I focused on dealing with this problem, and if necessary let other things slide a little. | 1 | 2 | 3 | 4 |
| 34. | I got comfort and understanding from someone. | 1 | 2 | 3 | 4 |
| 35. | I drank alcohol or took drugs, in order to think about it less. | 1 | 2 | 3 | 4 |
| 36. | I joked around about it. | 1 | 2 | 3 | 4 |
| 37. | I gave up the attempt to get what I wanted. | 1 | 2 | 3 | 4 |
| 38. | I looked for something good in what was happening. | 1 | 2 | 3 | 4 |
| 39. | I thought about how I might best handle the problem. | 1 | 2 | 3 | 4 |
| 40. | I pretended that it hadn't really happened. | 1 | 2 | 3 | 4 |
| 41. | I made sure not to make matters worse by acting too soon. | 1 | 2 | 3 | 4 |

ID # _____

1 = I did not do this at all

2 = I did this a little bit

3 = I did this a medium amount

4 = I did this a lot

- | | | | | | |
|-----|---|---|---|---|---|
| 42. | I tried hard to prevent other things from interfering with my efforts at dealing with it. | 1 | 2 | 3 | 4 |
| 43. | I went to the movies or watched TV, to think about it less. | 1 | 2 | 3 | 4 |
| 44. | I accepted the reality of the fact that it had happened. | 1 | 2 | 3 | 4 |
| 45. | I asked people who have had similar experiences what they did. | 1 | 2 | 3 | 4 |
| 46. | I felt a lot of emotional distress and I found myself expressing those feelings a lot. | 1 | 2 | 3 | 4 |
| 47. | I took direct action to get around the problem. | 1 | 2 | 3 | 4 |
| 48. | I tried to find comfort in my religion or spiritual beliefs. | 1 | 2 | 3 | 4 |
| 49. | I forced myself to wait for the right time to do something. | 1 | 2 | 3 | 4 |
| 50. | I made fun of the situation. | 1 | 2 | 3 | 4 |
| 51. | I reduced the amount of effort I put into solving the problem. | 1 | 2 | 3 | 4 |
| 52. | I talked to someone about how I felt. | 1 | 2 | 3 | 4 |
| 53. | I used alcohol or other drugs to help me get through it. | 1 | 2 | 3 | 4 |
| 54. | I learned to live with it. | 1 | 2 | 3 | 4 |
| 55. | I put aside other activities in order to concentrate on the situation. | 1 | 2 | 3 | 4 |

ID # _____

1 = I did not do this at all

2 = I did this a little bit

3 = I did this a medium amount

4 = I did this a lot

- | | | | | | |
|-----|--|---|---|---|---|
| 56. | I thought hard about what steps to take. | 1 | 2 | 3 | 4 |
| 57. | I acted as though it hadn't even happened. | 1 | 2 | 3 | 4 |
| 58. | I did what had to be done, one step at a time. | 1 | 2 | 3 | 4 |
| 59. | I learned something from the experience. | 1 | 2 | 3 | 4 |
| 60. | I prayed or meditated. | 1 | 2 | 3 | 4 |

The COPE

Scoring Information and Scale Descriptions

1) Positive reinterpretation and growth: Re-framing a stressor in a more positive manner or trying to learn something from the experience.

Items 1, 29, 38, 59.

2) Mental disengagement: Mentally distracting oneself from the stressor, including the use of distracting behaviours.

Items: 2, 16, 31, 43.

3) Focus on and venting emotion: Engaging in one's emotional experience and expressing such emotions.

Items: 3, 17, 28, 46.

4) Instrumental support: Seeking out advice, assistance, or information about how to handle the stressor.

Items: 4, 14, 30, 45.

5) Active coping: Initiating direct action in attempting to remove or circumvent the stressor.

Items: 5, 25, 47, 58.

6) Denial: Refusing to believe that the stressor exists and acting accordingly.

Items: 6, 27, 40, 57.

7) Turning to religion: Seeking comfort or assistance in one's religion or spiritual beliefs.

Items: 7, 18, 48, 60.

8) Humour: Laughing or joking about the stressful situation.

Items: 8, 20, 36, 50.

9) Behavioural disengagement: Reducing one's effort to deal with the stressor or disengaging from one's goals.

Items: 9, 24, 37, 51.

10) Restraint: Holding oneself back and trying not to act prematurely, while also focusing on timely action.

Items: 10, 22, 41, 49.

11) Emotional support: Discussing one's feelings with others and seeking out comfort or understanding.

Items: 11, 23, 34, 52.

12) Substance use: Use of alcohol or other drugs to help cope with the stressor.

Items: 12, 26, 35, 53.

13) Acceptance: Accepting the reality of the stressful situation and learning to live with it.

Items: 13, 21, 44, 54.

14) Suppression of competing activities: An attempt to put other distracters aside in order to deal with the problem.

Items: 15, 33, 42, 55.

15) Planning: Thinking about how to handle the stressor and coming up with a plan of action.

Items: 19, 32, 39, 56.

Appendix Q

Situational Appraisal Measure (SAM)

Peacock & Wong (1990)

SAM

ID# _____

Section A: This questionnaire is concerned with your thoughts about various aspects of the situation identified previously. There are no right or wrong answers. Please respond according to how you view this situation right **NOW**. Please answer all questions. Answer each question by **CIRCLING** the appropriate number corresponding to the following scale.

**** Please note the direction of the wording for questions # 1, 3, 12, 15**

	1	2	3	4	5			
	Not at All	Slightly	Moderately	Considerably	Extremely			
1.	Was this a totally hopeless situation? (Note: high scores = hopeless)			1	2	3	4	5
2.	Did this situation create tension in me?			1	2	3	4	5
3.	Was the outcome of this situation uncontrollable by anyone? (Note: high scores = uncontrollable)			1	2	3	4	5
4.	To what extent was this situation a chronic stressor for me (ongoing and long-lasting)?			1	2	3	4	5
5.	Did this situation have important consequences for me?			1	2	3	4	5
6.	How much was I affected by the outcome of this situation?			1	2	3	4	5
7.	To what extent did I expect this situation to occur?			1	2	3	4	5
8.	Did I have the ability to do well in this situation?			1	2	3	4	5
9.	Did this situation have serious implications for me?			1	2	3	4	5
10.	Did I have what it took to do well in this situation?			1	2	3	4	5
11.	Did this situation tax or exceed my coping resources?			1	2	3	4	5
12.	Was it beyond anyone's power to do anything about this situation? (Note: high scores = beyond anyone's power)			1	2	3	4	5

	1 Not at All	2 Slightly	3 Moderately	4 Considerably	5 Extremely			
13.	How predictable was this situation?			1	2	3	4	5
14.	To what extent was this situation a single event that was brief and severe?			1	2	3	4	5
15.	Was the problem unresolvable by anyone? (Note: high scores = unresolvable)			1	2	3	4	5
16.	Was I able to overcome the problem?			1	2	3	4	5
17.	To what extent did I perceive this situation as stressful?			1	2	3	4	5
18.	Did I have the skills necessary to achieve a successful outcome to this situation?			1	2	3	4	5
19.	To what extent did this event require coping efforts on my part?			1	2	3	4	5
20.	Did this situation have long-term consequences for me?			1	2	3	4	5
21.	To what extent was I surprised when this situation occurred?			1	2	3	4	5

Situational Appraisal Measure

Scoring Information

Uncontrollable-by-anyone scale: Items 1, 3, 12, 15.

Stressfulness scale: Items 2, 11, 17, 19.

Appendix R

Data Screening for Study 3

Data Screening for Study 3

On the COPE scales, one female participant completed only 2 of the 4 items on the religious coping scale. In an effort to avoid dropping this case from the regression analyses, mean substitution based on the scores of other females in her age range was used. Additionally, one female participant did not complete the health and the social worry sub-scales on the WS-R, which precluded the computation of the total WS-R score for this participant. In an effort to avoid dropping the case, the health and social worry scale means for other female participants in her age range were used in the computation of the total WS-R score for this participant.

Treatment of Outliers and Scale Adjustment

Outliers, defined as values that exceeded three standard deviations from the mean, were handled by re-coding values so that they maintained their relative position in the data distribution but remained within three standard deviations of the mean. Data distributions that remained significantly skewed after outliers were re-coded were transformed following procedures recommended by Tabachnick and Fidell (1996) to reduce the impact of skewness. On the COPE and SAM scales, a screen for univariate outliers revealed one outlier on the mental disengagement scale, one outlier on the behavioural disengagement scale, and three outliers on the denial scale. After these outliers were recoded following the procedures described above, a logarithmic transformation was necessary to reduce the impact of skewness on the denial scale. None of the remaining COPE and SAM scales were significantly skewed.

On the WS-R, four univariate outliers were detected due to extremely high worry scores, relative to the rest of the sample. After these outliers were recoded a square root

transformation was applied, to reduce the impact of skewness. No outliers or significant skewness were detected on the PSWQ.

Appendix S

*Hierarchical Multiple Regressions Predicting Absolute and Relative Problem-Focused
Coping, after Co-varying Gender, Financial, and Health Status*

Table A1

Summary of Hierarchical Multiple Regression Predicting Absolute Problem-Focused Coping Controlling for Gender, Financial, and Health Status (N = 145)

Variable	B	SE B	β	sr ² (unique)
Step 1				
Gender ^a	-.37	.17	-.18*	.03
Perceived health ^b	.01	.12	.01	.00
Perceived finances ^b	-.10	.07	-.12	.01
Step 2				
Gender	-.52	.18	-.26**	.06
Perceived health	.08	.12	.06	.00
Perceived finances	-.09	.07	-.10	.00
Appraisal of stressfulness	.23	.09	.23*	.04
Step 3				
Gender	-.49	.17	-.24**	.05
Perceived health	.07	.12	.05	.00
Perceived finances	-.06	.07	-.07	.00
Appraisal of stressfulness	.34	.10	.34**	.07
Worry	-.02	.09	-.02	.00
Appraisal of uncontrollability	-.24	.09	-.24**	.05
Step 4				
Gender	-.44	.17	-.22**	.04
Perceived health	.03	.11	.02	.00
Perceived finances	-.07	.07	-.08	.00
Appraisal of stressfulness	.31	.10	.31**	.06
Worry	-.10	.09	-.09	.00
Appraisal of uncontrollability	-.18	.09	-.18*	.02
Worry x Appraisal of uncontrollability	.26	.08	.27***	.07
				R ² = .20
				Adjusted R ² = .16
				R = .45

Note. R² = .05, n.s. for Step 1; $\Delta R^2 = .04$, $p < .05$ for Step 2; $\Delta R^2 = .05$, $p < .05$ for Step 3; $\Delta R^2 = .07$, $p < .001$ for Step 4.

^aMale gender coded as 1; female gender coded as 2. ^bHigher scores indicate better health and a better financial situation.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table A2

Summary of Hierarchical Multiple Regression Predicting Relative Problem-Focused Coping Controlling for Gender, Financial, and Health Status (N = 145)

Variable	B	SE B	β	sr ² (unique)
Step 1				
Gender ^a	-.03	.01	-.25**	.06
Perceived health ^b	.00	.01	-.03	.00
Perceived finances ^b	.00	.00	-.08	.00
Step 2				
Gender	-.03	.01	-.27**	.06
Perceived health	.00	.01	-.01	.00
Perceived finances	.00	.00	-.08	.00
Appraisal of stressfulness	.00	.00	.06	.00
Step 3				
Gender	-.03	.01	-.25**	.05
Perceived health	.00	.01	-.03	.00
Perceived finances	.00	.00	-.05	.00
Appraisal of stressfulness	.01	.01	.19	.02
Worry	.00	.01	-.06	.00
Appraisal of uncontrollability	-.01	.01	-.23*	.04
Step 4				
Gender	-.02	.01	-.23**	.04
Perceived health	.00	.01	-.06	.00
Perceived finances	.00	.00		.00
Appraisal of stressfulness	.01	.01	.15	.01
Worry	-.01	.01	-.14	.01
Appraisal of uncontrollability	-.01	.01	-.17	.02
Worry x Appraisal of uncontrollability	.01	.00	.29***	.08
				R ² = .20
				Adjusted R ² = .15
				R = .44

Note. R² = .07, p < .05 for Step 1; ΔR^2 = .00, n.s. for Step 2; ΔR^2 = .05, p < .05 for Step 3; ΔR^2 = .08, p < .001 for Step 4.

^aMale gender coded as 1; female gender coded as 2. ^bHigher scores indicate better health and a better financial situation.

*p < .05. **p < .01. ***p < .001.