

AGE DIFFERENCES IN EMOTION REGULATION
IN INTERPERSONAL SITUATIONS:
THE ROLE OF AFFECT COMPLEXITY AND EXPRESSIVITY

A Thesis

Presented to

The Academic Faculty

by

Abby L. Heckman

In Partial Fulfillment
Of the Requirements for the Degree
Master of Science in Psychology

Georgia Institute of Technology

April 2004

Age Differences in Emotion Regulation in Interpersonal Situations:
The Role of Affect Complexity and Expressivity

Approved by:



Dr. Fredda Blanchard-Fields, Advisor



Dr. Chris Hertzog



Dr. Wendy Rogers

Date Approved 4/7/04

ACKNOWLEDGMENTS

This research was supported by National Institute on Aging grant R01 AG-15019 awarded to Fredda Blanchard-Fields and by an American Psychological Association Division 20 Master's proposal award to Abby Heckman. I would like to thank my committee, Dr. Fredda Blanchard-Fields, Dr. Christopher Hertzog, and Dr. Wendy Rogers, for their guidance and advice. Thanks to David Caruso and the staff at Multi-Health Systems for their assistance with the Mayer-Salovey-Caruso Emotional Intelligence Test. I would also like to thank everyone in the Blanchard-Fields Adult Development Lab, especially Andy Mienaltowski, Michelle Horhota, Judy Tang, Carolyn Beatty, Tasha Waugh, Jenny Tehan, Aghigh Ebrahimi, and Megan O'Grady for their support and their assistance with this project. Thank you also to Walter Coats and Gini Heckman for their encouragement and support.

TABLE OF CONTENTS

Acknowledgments	iii
List of Tables	v
List of Figures	vi
Summary	vii
Chapter 1 Introduction	1
Chapter 2 Method	18
Chapter 3 Results	24
Chapter 4 Discussion	31
Appendix A	42
Appendix B	43
Appendix C	45
Tables	47
Figures	58
References	64

LIST OF TABLES

Table 1	Demographics Characteristics of the Sample	47
Table 2	Ratings of Emotions Present in Vignettes by Vignette Type And Age Group	48
Table 3	Internal Consistency of Parcels for Each Vignette	49
Table 4	Intercorrelations of Parcels Across Vignettes in Each Vignette Type	50
Table 5	Unstandardized Factor Loadings and Standard Errors for Strategy Measurement Models in Each Vignette Type	51
Table 6	Correlations of Variables in High Anger Structural Model	52
Table 7	Correlations of Variables in Low Anger Structural Model	53
Table 8	Correlations of Variables in High Sadness Structural Model	54
Table 9	Correlations of Variables in Low Sadness Structural Model	55
Table 10	Means and Standard Errors of Strategies by Age and Vignette Type	56
Table 11	Means and Standard Deviations of Individual Difference Variables	57

LIST OF FIGURES

Figure 1	Hypothesized Measurement Model	58
Figure 2	Final Measurement Model	59
Figure 3	Structural Equation Model for High Sad Vignettes	60
Figure 4	Structural Equation Model for Low Sad Vignettes	61
Figure 5	Structural Equation Model for High Anger Vignettes	62
Figure 6	Structural Equation Model for Low Anger Vignettes	63

SUMMARY

Past research has demonstrated that older adults use more emotion-focused strategies to solve interpersonal problems than younger adults do. The present study examined this tendency in the context of regulating specific emotions associated with interpersonal problems. Participants imagined themselves in 8 hypothetical problems with a close friend. Each problem elicited high intensity anger, low intensity anger, high intensity sadness, or low intensity sadness. Participants rated the likelihood that they would use emotion regulation strategies to handle the specific emotion elicited. Factor analyses supported a 4-factor model of emotion regulation strategies, including strategies focused on passivity, solving the problem, expressing emotions, and seeking emotional information or support. This measurement model described emotion regulation strategy use in all 8 vignettes. Participants also completed measures of two affect complexity constructs: Labouvie-Vief's cognitive-emotional complexity and Carstensen's poignancy. Older adults demonstrated lower cognitive-emotional complexity and higher poignancy as compared to young adults, but only cognitive-emotional complexity explained age-related variance in strategy use. Emotional expressivity of discrete emotions was also assessed. Older adults reported expressing less anger but more sadness in their everyday life, and emotional expressivity mediated age differences in strategy use. Results are discussed in the context of developmental and cohort-related age differences in self-reported emotion regulation. The importance of investigating discrete emotions instead of global emotionality and the implications of different conceptions of affect complexity are highlighted.

CHAPTER 1

INTRODUCTION

Psychologists have demonstrated age-related declines in many aspects of cognition. Does this negative picture of aging carry over to less resource-demanding tasks? Research in everyday problem solving in social domains suggests it may not. When the parameters of the task allow older adults to rely more on social-cognitive factors such as emotion regulation and representations of accumulated experience, older adults perform as well as or better than younger adults. The present study examined this finding in the context of emotion regulation. The goals were: 1) to document age differences in strategies for regulating emotions that arise from interpersonal problems, and 2) to determine the underlying mechanisms accounting for these age differences.

Under what conditions do older adults demonstrate effective problem solving? One important distinction is how closely the everyday problem solving task is tied to the mechanics or the pragmatics of intelligence. The mechanics of intelligence involves basic information processing abilities such as memory and logical reasoning in novel situations (Baltes, 1987). These basic abilities are highly related to fluid intelligence and generally decline with age. The pragmatics of intelligence involves knowledge of strategies that are appropriate in different contexts (Baltes, 1987). The pragmatics of intelligence are associated with cultural knowledge and accumulated experience. Such knowledge can grow as individuals gain experience with different contexts of everyday life.

Several studies demonstrate age-related decline in everyday problem solving performance for tasks demanding the mechanics of intelligence. For example, Allaire and Marsiske (1999) asked older adults to complete cognitively demanding everyday tasks, such as using inductive reasoning to answer questions about food labels. Performance on these tasks was highly correlated with performance on laboratory tests of fluid intelligence, such as the Number Series Test of inductive reasoning. Not surprisingly, performance on these everyday problem solving tasks declined with age. When the context requires that the problem-solver rely heavily on the mechanics of intelligence in the form of cognitive abilities known to decline with age (such as fluid intelligence), older adults fare poorly (e.g., Diehl, Willis, & Schaie, 1995; Marsiske & Willis, 1995). However, whenever emotional or social factors are added to the mix, older adults' performance often does not decline. Instead, the social context allows the problem-solver to rely more on the pragmatics of intelligence than on the mechanics of intelligence. This affords opportunity for stability or improvement. For example, performance on the Everyday Problem Solving Inventory (EPSI), in which participants solve problems in interpersonal as well as instrumental domains, improves with increasing age (Cornelius & Caspi, 1987). Indeed, individuals' performance on the EPSI was only slightly related to their performance on a fluid abilities test.

We have seen that tasks highly related to the mechanics of intelligence decline with age, whereas tasks related more to the pragmatics of intelligence tend not to decline. Another task characteristic influencing whether age-related decline will or will not be observed is the nature of the criteria used to determine effective problem solving. For tasks requiring more of the mechanics of intelligence, there generally is only one correct

answer. In these tasks, correct answers indicate effective problem solving. For example, in an everyday inductive reasoning task about interpreting food labels, there is only one label that is highest in fat content (Allaire & Marsiske, 1999). However, when real-world problems are complex and vary on multiple dimensions (as is the case with interpersonal problems), it is more difficult to identify effective problem solving strategies. One method for assessing effectiveness in these situations is to compare participants' responses to judges' opinions. For example, effective problem solving on the EPSI is defined as endorsing strategies that judges deem most effective (Cornelius & Caspi, 1987). Using this method allows for some contextual variation, as judges might deem a strategy effective for one problem but not for another. However, it is unclear what criterion the judges take into account when they make their effectiveness ratings. Furthermore, it is not evident why the judges are uniquely qualified to determine which strategies are effective.

Some theorists suggest strategies for altering the problem situation (e.g., problem-focused strategies, primary control) are more effective than strategies for altering an individual's psychological state (e.g., emotion-focused strategies, secondary control; Heckhausen & Schultz, 1995). Documented age-related shifts from primary control to secondary control (Heckhausen & Schultz, 1995) with increasing age are viewed from a decline perspective. An alternative way of thinking about problem solving effectiveness is by taking a more contextual approach. This approach recognizes that it is not sufficient to judge some strategies as always more effective than other strategies (Berg, Strough, Calderone, Sansone, & Weir, 1998; Blanchard-Fields, Jahnke, & Camp, 1995). Instead, the degree of correspondence between the context in which a particular problem occurs

and the strategies for solving it must be taken into account. Perceived controllability and emotional salience are two contextual characteristics of problems that are important to match to strategies. If a problem is controllable (i.e., something can be done to change the problem situation), instrumental problem solving strategies such as taking action to fix the problem might be effective. However, if a problem is uncontrollable and no action will change the situation, passive emotion-focused strategies focused on emotion regulation might be effective. If the problem is unchangeable, there is no gain from fruitlessly trying to solve the problem. Research suggests older adults adjust their everyday problem solving strategies based on the controllability of the problem more than younger adults do (Blanchard-Fields & Irion, 1988). In other words, with respect to controllability, older adults might be more context sensitive and flexible in their problem solving styles than younger adults are.

Older adults also might be more sensitive to the emotional salience of problem contexts. Just as emotion-focused strategies might be more effective in uncontrollable situations than in controllable situations, they might be more effective in emotionally salient problems than in non-emotional problems. If a problem is not emotional, it probably is not effective to focus on emotion regulation instead of on fixing the problem. However, if a problem does evoke strong emotions, it might be wise to regulate the emotions before attempting to instrumentally fix the problem. In this way, being sensitive to the emotional content of a problem can result in effective strategy choices. Research suggests older adults do this more than young adults do (Blanchard-Fields et al., 1995). In one study, participants read vignettes describing emotional and non-emotional problems and described how the situation should be resolved. Older adults

used both emotion-focused and problem-focused strategies for the emotionally salient problems. For the non-emotional problems, older adults used problem-focused strategies alone. By adjusting their strategies depending on the emotional salience of the problem, older adults demonstrated context sensitivity. Younger adults tended to use problem-focused strategies regardless of the emotional salience of the problem (Blanchard-Fields et al., 1995). A similar finding emerged when comparing interpersonal (and typically emotionally salient) problems to instrumental problems. When solving interpersonal problems, older adults endorsed a strategy of avoiding the problem (a type of emotion-focused strategy) more than young adults did (Blanchard-Fields, Chen, & Norris, 1997). In addition, older adults prefer combinations of problem-focused and emotion-focused strategies, while younger adults prefer problem-focused strategies alone (Watson & Blanchard-Fields, 1998). However, in one study, no age differences were found in endorsement of emotion-focused strategies as a function of emotional salience (Watson, 1997). There are a number of methodological variations that could account for this discrepancy. One aim of the present study was to more directly manipulate emotional salience to introduce a more robust test of these age differences. However, in the present study, the focus was on strategies for regulating one's emotions, and not on strategies for solving the problem.

Explanations for Older Adults' Interpersonal Problem Solving and Emotion Regulation

We have seen that when we focus on contextual criteria, adults demonstrate adaptive interpersonal problem solving performance in later life. Older adults adapt their strategies to the emotional salience level of the problem more than younger adults do. What is it about emotionally salient problems that affords the opportunity for effective

everyday problem solving performance? There are several possible explanations for older adults' effective interpersonal problem solving. One is accumulated life experience. After a lifetime of interacting with people and interpreting social situations, it is logical to expect aging adults to have a growing knowledge of effective strategies for handling interpersonal problems in varying contexts. A related explanation stems from affect complexity theories. These theories assert that aging is accompanied by changes in emotions. Labouvie-Vief and Carstensen each propose affect complexity theories. Labouvie-Vief's theory suggests that these changes include increasing synthesis of cognition and emotion (e.g., Labouvie-Vief, 1992; 1998). Carstensen's theory suggests that these changes include increasing complexity in emotional experiences such that blends of positive and negative emotions are more common (e.g., Carstensen, Pasupathi, Mayr, & Nesselroade, 2000; Kennedy, Fung, & Carstensen, 2001).

Affect Complexity Theory #1: Labouvie-Vief's Theory of Cognitive-Emotional Complexity

One affect complexity theory is Labouvie-Vief's developmental theory of cognitive-emotional complexity (e.g., Labouvie-Vief, 1992; 1998). This theory conceptualizes affect complexity as the integration of emotional and cognitive modes of thinking. The integration of emotion into cognition is a major component of postformal theories. According to neo-Piagetian theorists, postformal thought is characterized by a belief that truth depends on context, that ambiguity and contradiction in problems are common, and that emotion and subjective factors play a role in reasoning (e.g., Labouvie-Vief, 1985; 1992; 1998). Postformal theories were developed as a way to extend Piaget's theory to adulthood. Although it has since been shown that postformal thought is not a

true stage in the Piagetian sense (because many adults never demonstrate postformal thinking; Labouvie-Vief, 1992), ideas generated from postformal theories influenced Labouvie-Vief's theory of cognitive-emotional complexity. This theory suggests that with increasing maturity, individuals integrate emotional and cognitive aspects of themselves and their environment. At low levels of affect complexity, emotion is seen as something caused by external agents. At high levels of affect complexity, emotion is seen as a complex reflection of internal states and environmental contexts.

Cognitive-emotional complexity is somewhat related to crystallized intelligence and the pragmatics of intelligence, but it is not closely related to fluid intelligence and the mechanics of intelligence (Labouvie-Vief, Chiodo, Goguen, Diehl, & Orwoll, 1995; Labouvie-Vief & Diehl, 2000). This finding is consistent with the theory; it suggests the cognitive component in cognitive-emotional complexity might come from accumulated knowledge, experience, and development. However, although older individuals have had more time and thus more opportunity to develop complex cognitions about emotions, cognitive-emotional complexity is not automatically achieved with age. In fact, cross-sectional studies suggest that, on average, cognitive-emotional complexity increases from adolescence to middle age and declines somewhat in later life (e.g., Blanchard-Fields & Norris, 1994; Labouvie-Vief et al., 1995; Labouvie-Vief, DeVoe, & Bulka, 1989). This drop in cognitive-emotional complexity after middle age could be due to a cohort effect. Older adults raised during the Depression era were not encouraged to think deeply about their emotions (Blanchard-Fields, 1998). Instead, they were encouraged to suppress their emotions. Variability in cognitive-emotional complexity within age groups exists, however (Blanchard-Fields & Norris, 1994), and it is most appropriate to view the

developmental theory of cognitive-emotional complexity as providing a framework for examining individual differences in affect complexity.

There are a number of methods used to conceptualize and measure Labouvie-Vief's cognitive-emotional complexity construct. These open-ended measures ask participants to describe their emotions, to describe themselves, or to complete sentences. Responses are qualitatively coded into lower and higher levels of cognitive-emotional complexity. Lower-level responses do not show evidence of an integration of cognition and emotion, while higher-level responses do. These measures are rich, qualitative sources of information about individuals' cognitive-emotional complexity. However, the qualitative coding associated with these measures is labor intensive and sometimes suffers from low inter-rater reliabilities. Therefore, an objective measure of cognitive-emotional complexity would be a useful tool to complement the qualitative measures. A promising candidate for such a measure is the Facilitating Thought subscale of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer, Salovey, & Caruso, 2002). An example item from this scale is, "What mood(s) might be helpful to feel when figuring out what caused a fight among three young children? Each of the three young children is telling a different story about how the fight started. Figuring out what happened requires attending to the details of the stories and weighing many facts." For this item, participants rate the usefulness of happiness, surprise, and sadness. Responses are scored based on their alignment with experts' ratings. This ability-based test assesses the degree to which participants can effectively use emotions to inform their thinking. By assessing one manifestation of integrating emotion and cognition, the test

taps Labouvie-Vief's concept of cognitive-emotional complexity, although it has not yet been used for this purpose.

For the present study, the most important research finding using qualitative measures of cognitive-emotional complexity is that the construct predicts strategy use above and beyond the effects of age. Cognitive-emotional complexity (conceptualized as ego level) was a better predictor of emotion-focused coping than age was in a sample of adolescents through mature adults (Blanchard-Fields & Irion, 1988). Individuals of higher cognitive-emotional complexity use fewer "ineffective" coping strategies such as escape, avoidance, and distancing (Labouvie-Vief, DeVoe, et al., 1989; Labouvie-Vief & Diehl, 2000; Labouvie-Vief, Hakim-Larson, & Hobart, 1987). One possible explanation of this finding is that passive strategies such as escape may be used when limited cognitive-emotional complexity (perhaps due to limited cognitive resources) makes it difficult to use more resource-demanding strategies. However, cognitive-emotional complexity has not been investigated in the context of emotion regulation strategies. Labouvie-Vief's theory asserts that mature individuals consider the environment as well as internal states in their cognitions about emotions. If her theory applies to emotion regulation, we would expect mature individuals to choose strategies to handle the emotions elicited by the problem. Instead of ignoring the emotions as a less mature individual might, an adult with a mature level of affect complexity would understand the emotional content of the problem and choose strategies accordingly. In general, Labouvie-Vief's theory would explain individuals' strategy choices by asserting that mature individuals have more complex cognitions about the emotions they see in situations.

Affect Complexity Theory #2: Carstensen's Socioemotional Selectivity Theory

Carstensen's conceptualization of affect complexity grows out of socioemotional selectivity theory (Kennedy et al., 2001). This theory's broadest goal is to explain older adults' focus on and expertise in emotion regulation (Carstensen, Isaacowitz, & Charles, 1999). Older adults (except for very old individuals) consistently report less negative affect than younger adults. This is true for studies using a number of methodological techniques including retrospective reports (Gross, Carstensen, Pasupathi, Tsai, Skorpen, & Hsu, 1997; Lawton, Kleban, & Dean, 1993), longitudinal studies (Charles, Reynolds, & Gatz, 2001), and experience sampling studies (Carstensen et al., 2000). Indeed, older adults report regulating their emotions more than young adults do (Lawton, Kleban, Rajagopal, & Dean, 1992).

Older adults' assertions that they control their emotions and experience less negative affect are backed up by experience sampling evidence. Carstensen et al. (2000) paged participants at five randomly selected times per day over the course of a week to signal them to complete a questionnaire about their current emotional states. The emotion questionnaire asked participants to indicate on a 7-point scale the degree to which they were feeling each of 19 emotions. Conditional probability analyses showed that across successive measurement occasions, older adults (up to a certain age) were more likely to maintain positive emotions and were more likely to maintain the absence of negative emotions. This trend reversed at some point in older adulthood, but even after the reversal, older adults still showed more emotional control than young adults did. If older adults regulate their emotions more than younger adults, they would be expected to use emotion regulation strategies when the situation calls for it. However, although all

of these studies report positive emotional outcomes for older adults, they do not show the process by which these outcomes occur. The evidence is suggestive of increased emotion regulation in older adults, but until this process is actually demonstrated, this conclusion is not certain.

If older adults do regulate their emotions more than young adults do, why does this occur? One explanation comes from socioemotional selectivity theory. This theory states that having a limited future time perspective motivates people to maximize positive emotional experiences (Carstensen et al., 1999). Individuals who feel they do not have much time left to live avoid spending their time on activities that lack immediate payoffs. Instead of pursuing interests that might pay off in the future, such as gaining information, older adults might spend their time maximizing positive affect. As with cognitive-emotional complexity, future time perspective is correlated with age but does not perfectly correspond to it. For example, young adults can have a limited future time perspective when they are about to move to a new place. Individuals with limited future time perspective prefer close social partners to new acquaintances, and they use anticipated emotional gain as a way to sort potential social partners (Fredrickson & Carstensen, 1990; Fung, Carstensen, & Lutz, 1999).

This focus on emotional gain in social relationships also fosters the desire to find meaning in relationships. Relationships that might have negative aspects (e.g., a strained relationship with one's adult child) are viewed in a different light when time limitations are perceived. As a result, mixed emotions may become more frequent. These mixed emotions are a manifestation of affect complexity in a different sense from Labouvie-Vief's definition of the term. For Carstensen, affect complexity involves the occurrence

of mixed emotions at the same time. Kennedy, Carstensen, and Pasupathi (1999; as cited in Kennedy et al., 2001) found that older adults endorsed both negative and positive emotions in response to vignettes describing negative scenarios. Young adults, on the other hand, tended to endorse only negative emotions for negative scenarios. Carstensen refers to this version of affect complexity, in which positive and negative emotions are experienced simultaneously, as *poignancy*. In the experience sampling study described above (Carstensen et al., 2000), older adults demonstrated more poignancy than young adults did.

In addition, the authors examined the number of factors required to reflect the structure of each age group's emotions. Larger numbers of eigenvalues greater than 1 in the individual's 19 X 19 emotion ratings correlation matrix indicated more complex emotional experiences. This value was positively correlated with age, indicating that older adults reported more complex combinations of emotions than younger adults did. This relationship remained after controlling for personality, health, and verbal fluency variables. Carstensen calls this form of affect complexity *differentiation*. Importantly, emotional differentiation seemed to be adaptive. It was related to less intense negative affect and less neuroticism, indicating that emotional differentiation may be associated with emotional control. Lawton et al. (1992) also found evidence for increasing emotional differentiation in adulthood. In their study of general emotional experiences in adults, different factor structures emerged for young adults on the one hand and middle aged and older adults on the other hand. For young adults, affective intensity composed one factor, but for middle aged and older adults, affective intensity loaded onto a negative intensity factor and a positive intensity factor.

These studies provide support for Carstensen's idea that emotional experiences are more complex in older adults than in younger adults. However, the new and exploratory nature of the poignancy and differentiation measures is a caveat to the tentative conclusion that Carstensen's notion of affect complexity is valid. In particular, the eigenvalue greater than one rule for determining the number of important factors is statistically incorrect in many cases (Fabrigar, Wegener, MacCallum, & Strahan, 1999). This makes Carstensen's differentiation measure problematic. In addition, the mechanism underlying emotional complexity is unknown. Carstensen maintains that perceiving a limited amount of time left in life may lead to differentiated emotional experiences (Kennedy et al., 2001). This assertion has not been tested, however. In fact, evidence that future time perspective explains any emotional behaviors other than relationships with social partners is not strong. Carstensen, Gross, and Fung (1998) implied that future time perspective explains why "aging individuals are increasingly motivated to regulate their emotional states" (pp. 326), but this assertion of the generalizability of socioemotional selectivity theory has not been directly tested. One area for testing the generalizability of Carstensen's theory is interpersonal problem solving. Individuals with complex emotional experiences might seek to regulate their emotions more than individuals with simple emotional experiences would. They might choose more emotion-focused strategies overall in their attempt to regulate their emotions.

We have seen that Carstensen's idea of affect complexity is motivational. Her theory asserts that having a limited future time perspective motivates individuals to focus on emotional goals. As a result, activities and relationships become infused with

emotional meaning. One result of this shift toward emotional goals is that mixed emotions become more prevalent. This experience of mixed emotions is the essence of Carstensen's affect complexity. In contrast to Carstensen's motivational approach, Labouvie-Vief's idea of affect complexity is more cognitive. Her theory asserts that maturity and development lead to increasingly complex cognitions about emotion. Cognition and emotion are integrated so that emotions inform cognitive processes. This conceptual complexity with regard to emotion is the hallmark of Labouvie-Vief's affect complexity.

Emotional Expressivity

Along with affect complexity, alternative theories are equally plausible explanations of interpersonal problem solving strategies and need to be tested. For example, it is possible that today's older adults were socialized to avoid emotion expression. During the Depression era, it was best to "bite the bullet" and not dwell on feelings. This type of cohort effect could explain older adults' preference for passive emotion-focused strategies (Blanchard-Fields, 1998). Because the emotion-focused strategies of past research only included passive strategies, it is important to examine the relationship between expressiveness and various emotion-focused strategies. If the cohort hypothesis is true, we would expect older adults to express fewer negative emotions. Past research in which older adults reported more control of their negative emotional expressions is in line with this prediction, although the results are somewhat inconsistent by study (Gross et al., 1997). If older individuals express negative emotions less often than younger individuals do, they may be less likely to use proactive emotion-focused strategies that involve showing others how they feel. Although we were not able

to disentangle cohort effects from developmental change in this cross-sectional study, we hoped to get an idea of the impact age differences in expressiveness have on strategy choices.

The Present Study

The present study aimed to extend past research both theoretically and methodologically. One goal was to examine the relative predictive utility of Labouvie-Vief's cognitive-emotional complexity theory and the emotional complexity component of Carstensen's socioemotional selectivity theory in the domain of interpersonal problem solving. We did this by giving participants two affect complexity measures: one corresponding to Labouvie-Vief's theory, and one corresponding to Carstensen's theory. If Labouvie-Vief's measure of affect complexity were a good predictor of individuals' emotion regulation strategies, we would infer that this construct plays a role in strategy selection. Similarly, if Carstensen's measure of affect complexity predicts individuals' strategy choices, we would infer that socioemotional selectivity theory has insights for emotion regulation in interpersonal problems. The goal was to explore the underlying mechanism of emotion regulation strategy choices.

Another goal of this study was to incorporate a wide range of strategy choices. Past research with emotional salience has addressed only passive emotion-focused strategies such as accepting the situation and avoiding the problem (Blanchard-Fields et al., 1995). This study also addressed proactive emotion-focused strategies such as venting and reflecting on emotions. By capturing the full range of emotional strategies, we gained a clear picture of what strategies are used with emotionally salient problems. We also used a more specific definition of emotional salience. Past research has

manipulated emotional salience in general. For example, vignettes that participants rated as having a high degree of “emotional involvement” were called highly emotionally salient, and vignettes rated as having a low degree of emotional involvement were called low in emotional salience (Blanchard-Fields et al., 1995). However, it is unclear what criteria participants used to determine a vignette’s emotional involvement. Criteria could have included the number of emotions experienced (e.g., a vignette eliciting anger and sadness could be rated as more emotionally salient than a vignette eliciting only anger) or the intensity of the elicited emotions (e.g., a vignette eliciting a high degree of anger and no sadness could be rated as more emotionally salient than a vignette eliciting no anger and low intensity sadness). Letting the criteria float freely is a limitation of past research that was addressed in the current study. In addition, past research focused solely on strategies used to solve the problem. In this study, we focused specifically on emotion regulation by asking participants for strategies they would use to regulate particular emotions.

Because differential emotions theory emphasizes the unique characteristics and functions of each discrete emotion (Izard, 1977), we manipulated the intensity of particular emotions in this study. The characteristics of sadness and anger suggest that different mechanisms may underlie each one. Sadness typically occurs in response to an unattained goal whose failure is not caused by someone else. It is often associated with a desire to withdraw from an unpleasant situation. It also focuses the person on himself or herself, or on getting help from others (Stearns, 1993). In contrast, anger often occurs when the individual believes someone else is responsible for an individual’s blocked goal (Lerner & Dodge, 1993). Anger mobilizes the individual, who often gains energy

from the experience of anger (Izard, 1993). The different functions of each emotion underscore the importance of manipulating discrete emotions when looking at developmental patterns.

Finally, the manipulation of emotional salience in this study will hold factors -- such as age-relevance and what makes the situation problematic -- constant. Past research has not controlled for these extraneous variables, and this may explain Watson's (1997) lack of age differences for emotionally salient problems.

CHAPTER 2

METHOD

Selection of Vignettes

Initial Selection of Vignettes. Forty-three vignettes for a pilot study were culled from real everyday problem situations reported by young, middle-aged, and older adults in previous studies conducted in our lab. These vignettes were selected to represent situations low in anger intensity, high in anger intensity, low in sadness intensity, and high in sadness intensity. Research on appraisals associated with particular emotions guided the initial selection of vignettes. For example, anger is associated with appraisals of another person playing a role in causing the problem (Smith & Lazarus, 1993). Low intensity anger vignettes were minor irritants, while high intensity anger vignettes were major problems. A preliminary pilot study conducted in our lab suggested a clear dissociation between vignettes rated as eliciting low intensity anger and high intensity anger. Sadness is associated with appraisals of irrevocable loss (Smith & Lazarus, 1993). Low intensity sadness vignettes described disappointing events, while high intensity sadness vignettes described major problems. Both anger and sadness are associated with appraisals of the problem being relevant and undesirable, so all vignettes included these characteristics.

Along with varying the emotional characteristics of the vignettes, we held some characteristics constant. All vignettes focused on a relationship between the participant and a very close friend. It is important to keep the problem domain constant in order to minimize extraneous context effects. In this study we went beyond controlling the

problem domain and also controlled for the intimacy and closeness of the relationship in an effort to control for extraneous context effects even more. In addition, we selected vignettes that were equally relevant to young, middle-aged, and older participants. Age-relevance is an important factor to control because it can have a large impact on strategy use (Watson, 1997) that could possibly be confounded with emotional salience. In the pilot study, we asked participants to rate the degree to which they identify with the problem depicted in the vignette. If different age groups identified with a vignette to a different degree, that vignette was judged age-relevant and was not included in the main study. Thus, although we were not able to control for all the dimensions in which problem situations vary, we controlled those variables that were likely to be relevant.

Participants. Nineteen young (ages 18-34), 13 middle-aged (ages 35-59), and 18 older adults (ages 60-80) participated in a pilot study to validate the characteristics of the vignettes described above. Young adults were students at a southeastern university and received course credit in exchange for their participation. Middle-aged and older adults were community members in Georgia and Florida, and received \$10.00 in exchange for their participation.

Materials and Procedure. Young adults completed the pilot study in a laboratory at a southeastern university. After agreeing to participate, middle-aged and older adults received the study materials in the mail and completed them in their own home. After reading each of the 43 vignettes, participants rated on a 4-point scale the intensity that they would feel each of 4 emotions: anger, fear, guilt, and sadness. They also rated the degree to which they identified with the main character on a 5-point scale anchored by 1 (I do not identify with the main character at all) and 5 (I identify with the main character

a great deal). Participants then rated the negative impact the problem would have on their life on a 5-point scale anchored by 1 (not at all) and 5 (a great deal). Additionally, participants rated the degree to which they would be able to handle the situation so as to achieve a positive outcome on a 4-point scale anchored by 1 (could not handle at all) and 4 (could handle completely). Based on these factors, we selected two high-sadness, two low-sadness, two high-anger, and two low-anger vignettes that were controlled for problem domain and age-relevance.

Main Study

Participants. Sixty-two young adults (38 women, 24 men), 62 middle-aged adults (37 women, 24 men, 1 not reported), and 64 older adults (33 women, 31 men) were recruited from a southeastern university and from the metropolitan area of a large southeastern city to participate in exchange for 3.5 extra credit units or \$40. See Table 1 for the demographics characteristics of our sample. Younger adults had significantly better self-reported health, $F(2,185) = 3.85, p < .03$, and higher Educational Testing Service Letter Sets scores, $F(2,185) = 25.03, p < .01$, than middle-aged and older adults. Older adults attained significantly higher Educational Testing Service Vocabulary scores than young and middle-aged adults, $F(2,185) = 11.03, p < .01$.

Design. This study employed a 3 (age) X 2 (emotional salience level) X 2 (discrete emotion) mixed-model design. Age and gender were between-subjects factors, and emotional salience level and discrete emotion were within-subjects factors. The levels of emotional salience were low and high, and the levels of discrete emotion were anger and sadness. The dependent variables were average endorsement of strategies. Individual difference measures of affect complexity and expressivity were predictors.

Materials and Procedure. Individuals participated in a laboratory at a southeastern university or at an off-site laboratory in a suburban office park. Participants read eight counterbalanced vignettes, two each in high sadness, low sadness, high anger, and low anger conditions, which were validated in the above pilot study. (See Appendix A for the complete text of the eight vignettes.) Instructions encouraged participants to place themselves in the situation and vividly imagine that the problem was happening to them.

Participants completed an emotion questionnaire for each problem. To assess Carstensen's notion of poignancy, participants rated the degree to which they would feel each of 19 emotions if they were in each problem situation (Carstensen et al., 2000). Within-subjects correlations between ratings of positive and negative emotions indicated participants' poignancy (Carstensen et al., 2000).

Participants completed a strategy questionnaire after finishing the emotion rating scale for each vignette. This questionnaire contained items from the COPE scale of coping strategies (Carver, Scheier, & Weintraub, 1989) and an emotional approach scale of coping (Stanton, Kirk, Cameron, & Danoff-Burg, 2000), as well as original questions. Participants responded to the items on a Likert scale ranging from 1 (I wouldn't do this at all) to 4 (I would definitely do this). They based their ratings on the likelihood that they would use that strategy to handle the emotion (i.e., in the anger vignettes, they rated the likelihood that they would use each strategy to handle their anger; in the sad vignettes, they rated the likelihood that they would use each strategy to handle their sadness). Example strategies include, "I talk to someone about how I feel" for proactive emotion-focused, "I try to hide my feelings" for passive emotion-focused, and "I take additional

action to try to get rid of the problem” for instrumental problem solving strategies. The full scale is listed in Appendix B.

After completing all the vignettes and their associated questions, the participants completed a variety of individual difference measures. Only the measures that are relevant to the current study are described here.

Cognitive-Emotional Complexity. We used the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT; Mayer et al., 2002) to assess Labouvie-Vief’s notion of affect complexity (i.e., cognitive-emotional complexity). This assessment tests the ability to perceive emotions, use emotions to facilitate thought, understand emotions, and manage emotions. Answers are scored based on their agreement with experts’ responses. Members of the International Society of Research in Emotion, a highly select group of emotion specialists, served as the panel of experts. For each response, participants received the score corresponding to the proportion of experts who endorsed that response. For example, if an individual chose 4 on a rating scale and 33% of the experts also chose 4, the individual’s score for that item would be .33. Of particular relevance to this study is the Facilitating Thought subscale, which measures the ability to integrate emotion and thought to make effective decisions. An example from this subscale is, “What mood(s) might be helpful to feel when figuring out what caused a fight among three young children? Each of the three young children is telling a different story about how the fight started. Figuring out what happened requires attending to the details of the stories and weighing many facts.” For this item, participants rated the usefulness of happiness, surprise, and sadness on 5-point Likert scales. The split-half

reliability of the test as a whole is .91; the Facilitating Thought subscale has a coefficient alpha of .76.

Emotional Expressivity. The Expressivity of Discrete Emotions scale (Trierweiler, Eid, & Lischetzke, 2002) assessed individuals' tendencies to show their emotions to others. Its emphasis on discrete emotions is important for the present study because we are interested in emotion regulation strategies for anger and sadness. This 24-item scale asks participants to use a 4-point scale to rate themselves on the degree to which they show specific emotions to others. Appendix C contains the scale. The subscales are tendency to express love, joy, fear, anger, shame, and sadness. Because of this study's emphasis on anger and sadness, only those subscales were analyzed. The internal consistency reliability of the anger subscale is .85; for sadness, it is .78.

CHAPTER 3

RESULTS

Preliminary Analyses

Emotion manipulation check. Before discussing the results, it is important to make sure our emotion manipulation worked. Participants of all ages described the emotional content of the vignettes in the expected manner. Table 2 lists the means and standard deviations of ratings by vignette type and age group. There was a tendency for the older adults to rate the high anger vignettes as high in sadness as well as anger.

Creating parcels. Items were aggregated into facet-representative parcels, which were used as the observed variables for the measurement and structural models. In facet-representative parceling, items from the same content area are averaged together. We formed our parcels based on theory. For example, the parcel of “accept problem” consisted of the items, “learn to live with it” and “accept that this has happened and that it can’t be changed.” Parcels have a number of measurement advantages over items, including higher reliability; higher commonality; higher ratio of common-to-unique factor variance; and more, smaller, and more-equal intervals (Little, Cunningham, Shahar, & Widaman, 2002). In addition, using parcels in structural equation modeling leads to fewer parameter estimates, higher indicator-to-participant ratios, and reduced sources of sampling error as compared to items (Little et al., 2002). The internal consistency of items within parcels are reported in Table 3. Although some of the parcels related to passive strategies (avoidance/denial in particular) had low reliability, they were

retained because these strategies are important theoretically and were important variables in past research. Future research should explore better ways to measure these constructs.

Aggregating vignettes. To determine whether the vignettes within each vignette type could be aggregated, we obtained correlations of parcels across vignettes within a vignette type. For example, if the strategy items for high anger vignette #1 were highly correlated with the strategy items for high anger vignette #2, we would be justified in aggregating strategy ratings into composite scores for high anger. These correlations were sufficiently high ($r > .3$) to justify aggregation for all vignette types. Table 4 contains these correlations. In addition, the pattern of age-related differences in strategies was similar for vignettes within the same vignette type. This provided further justification for aggregation.

Measurement Models

Before testing predictive models of strategy endorsement, we needed to determine the structure of the strategy questionnaire. Given the new and exploratory nature of the instrument, it was important to obtain an accurate model of its factorial structure. The strategy questionnaire was hypothesized to have a 3-factor structure of instrumental problem-focused, passive emotion-focused, and proactive emotion-focused strategies, depicted in Figure 1. However, this measurement model did not fit the data well. For example, for the high anger vignettes, the fit was $\chi^2(22, N = 188) = 109.58$, RMSEA = .15, CFI = .83.

Based on these results, and guided by the results of an exploratory factor analysis, we re-conceptualized the strategy questionnaire measurement model as a 4-factor one. The four factors were Passive, Express, Solve, and Seek, as shown in Figure 2. This

model theoretically extends the hypothesized model in at least two ways. First, the new model has a more precise conceptualization of strategies for solving the problem. In the original hypothesized model, strategies such as communicating with the source of the problem and asking for advice were classified as instrumental strategies. However, in emotional situations, these strategies are likely to be emotion-focused. Thus, our Solve factor now contains only actively solving the problem and planning to solve the problem. Second, the new model has a better conceptualization of strategies for active emotion regulation. Seek strategies focus on gathering emotion information from others or from yourself, while Express strategies focus on expressing the emotions that are present in the problem. This new four-factor model had good fit for the high anger vignettes, $\chi^2(28, N = 188) = 57.20$, RMSEA = .075, CFI = .95. Inspection of the modification indices and residuals did not indicate any substantive changes to the model would improve fit. In addition, the model had acceptable fit for all four vignette types (Low Anger: $\chi^2(28, N = 188) = 32.93$, RMSEA = .031, CFI = .99; High Sad: $\chi^2(28, N = 188) = 67.08$, RMSEA = .086, CFI = .94; Low Sad: $\chi^2(28, N = 188) = 63.20$, RMSEA = .082, CFI = .95). This cross-validation provided additional support for the measurement model. Table 5 contains the unstandardized factor loadings for each vignette type. The pattern of loadings is similar in the four vignette types, although the loadings on passive were not as consistent across vignettes as the other variables were.

Structural Models

Separate structural models predicting strategy endorsement were obtained for each vignette type. For all vignette types, the latent variables of age, poignancy, general expressivity of sadness/anger, and cognitive-emotional complexity each had a single

indicator. By inspection of the data, age-related patterns in the variables were judged to be sufficiently linear to proceed with structural equation modeling. The residuals for general expressivity of sadness/anger and cognitive emotional-complexity were fixed to values reflecting the reported reliability of the scales in past research. For the strategy latent variables, passive had three indicators, express had two indicators, solve had two indicators, and seek had three indicators. The correlation matrices of the indicators in each vignette are in Tables 6-9. Descriptive statistics of the indicators are in Tables 10-11. Because two individuals were missing data on the expressivity of sadness measure, two individuals were missing data on the expressivity of anger measure, and 8 individuals were missing data on the cognitive-emotional complexity measure, the Full Information Maximum Likelihood estimation procedure in LISREL 8.5 was used to model the data. RMSEA values were evaluated to determine the adequacy of model fit, with RMSEA values between .08 and .10 indicating mediocre fit and RMSEA values of .08 or less indicating acceptable fit (Browne & Cudeck, 1993). The following sections outline the results of the structural equation modeling. For these models, examination of the modification indices and residuals showed no further conceptually meaningful estimates would improve the fit of the model.

High Sad Vignettes. The model for the high sad vignettes contained significant direct and indirect paths from age to strategy endorsements. The completely standardized regression coefficients for the high sad vignettes are graphed in Figure 3. Overall, this model had acceptable fit, $\chi^2(67, N = 188) = 143.2$, RMSEA = .078. There was a negative direct relationship between age and express strategies, and also between age and seek strategies. Controlling for the other variables in the model, older adults were less

likely to endorse strategies of expressing their emotions or seeking emotional information or support. However, these negative direct effects were accompanied by positive indirect effects through general expressivity of sadness. There was a positive relationship between age and expressing sadness, such that older adults reported expressing their sadness more than younger adults did. In turn, individuals who expressed their sadness were more likely to use express and seek strategies. These mediated effects through expressivity of sadness can be interpreted as suppressor effects. Controlling for expressivity of sadness made the relationship between age and strategies even more strongly negative. There was also a mediated path from age to solve through expressivity of sadness. Older adults were more likely to express their sadness, and individuals who expressed their sadness were more likely to use solve strategies. Finally, cognitive-emotional complexity mediated the relationship between age and passive strategies. Older individuals generally had lower cognitive-emotional complexity, and individuals with lower cognitive-emotional complexity were more likely to use passive strategies. Poignancy was positively related to age (i.e., older adults were more poignant), but it did not predict strategy use.

Low Sad Vignettes. The model for the low sad vignettes was similar to the model for the high sad vignettes. The completely standardized regression coefficients for the low sad vignettes are graphed in Figure 4. Overall, this model had mediocre fit, $\chi^2 (67, N = 188) = 157.69$, RMSEA = .085. As in the high sad vignettes, there were negative direct effects from age to express and seek strategies, indicating that older individuals were less likely to use those strategies to handle their sadness. The full story is not seen in the direct effects, however, because there was a positive indirect effect of age on express and

seek strategies through expressivity of sadness. Older individuals were more likely to report a general tendency to express sadness, and individuals who reported expressing sadness were more likely to endorse express and seek strategies. This suppressor effect showed that when controlling for expressivity of sadness, the relationship between age and express and seek strategies became even stronger. In addition, expressing sadness mediated the relationship between age and solve strategies, such that individuals who reported generally expressing their sadness endorsed more solve strategies. Finally, individuals who expressed sadness were less likely to use passive strategies in these low sad vignettes. Poignancy and cognitive-emotional complexity did not predict strategy endorsement.

High Anger Vignettes. The model for the high anger vignettes contained significant direct and indirect paths from age to strategy endorsements. The completely standardized regression coefficients for the high anger vignettes are graphed in Figure 5. Overall, this model had acceptable fit, $\chi^2(69, N = 188) = 148.55$, RMSEA = .079. There was a negative direct path from age to express strategies, such that older adults were less likely to endorse express strategies than younger adults were. There was also a positive direct path from age to solve strategies, such that older individuals endorsed more solve strategies than younger individuals did. In addition to the direct age effects on express and solve, there were mediated age effects on passive strategy use. Older individuals were less likely to report a general tendency to express their anger, and individuals who do not express anger were more likely to endorse passive strategies. Finally, older individuals generally had lower cognitive-emotional complexity, and individuals with

lower cognitive-emotional complexity were more likely to endorse passive strategies.

Poignancy did not predict strategy endorsements.

Low Anger Vignettes. The model for the low anger vignettes showed minimal prediction of strategy endorsements. The completely standardized regression coefficients for the low anger vignettes are graphed in Figure 6. Overall, this model had acceptable fit, $\chi^2 (72, N = 188) = 127.05$, RMSEA = .064. The only significant predictor of strategy endorsement was a single indirect path from age to passive through cognitive-emotional complexity. Older adults tended to have lower cognitive-emotional complexity, and individuals with lower cognitive-emotional complexity tended to endorse passive strategies more. Poignancy and expressivity of anger did not predict strategy endorsements.

CHAPTER 4

DISCUSSION

The results of the present study suggest that age differences in emotion regulation strategies in interpersonal situations are mediated by emotional expressivity and cognitive-emotional complexity. The nature of these mediated relationships varies depending on the discrete emotion that is salient in the problem and the type of emotion regulation strategy. The different age patterns for expressing anger and sadness may shed light on past research findings, which inconsistently showed that older adults expressed negative emotions less often than younger adults did (Gross et al., 1997). The results of the present study have implications for research on the functions of discrete emotions, the importance of close relationships in late life, and the nature of affect complexity.

Emotion Regulation Strategies

For strategies focused on solving the problem, older individuals tended to endorse these strategies more than younger individuals, regardless of the emotional content of the situation. This is consistent with previous research, in which older adults use problem-focused strategies equally or more than younger adults do (Blanchard-Fields et al., 1995; Blanchard-Fields et al., 1997; Watson & Blanchard-Fields, 1998). This finding is underscored by the fact that older individuals use emotion-focused strategies along with instrumental strategies to solve the problem, as discussed below. In addition to the direct relationship between age and solve strategies that emerged in the high anger vignettes, the general tendency to express one's sadness mediated the age differences in solve

strategies for the sad situations. Older individuals tended to express their sadness more, and individuals who express their sadness are more likely to use solve strategies.

One way to think about these results is by considering the importance of close interpersonal relationships to individuals of different ages. According to socioemotional selectivity theory, individuals who believe they have limited time left are motivated to allot their resources toward maintaining existing intimate relationships. Because older adults are more likely to have a limited time perspective, they may be more motivated to solve the interpersonal conflict and maintain the friendship than younger adults are. Sherman's (1997; as cited in Sherman, De Vries, & Lansford, 2000) finding that older adults report lower levels of conflict with their best friend than younger adults do is consistent with this interpretation. Social interaction is associated with greater everyday satisfaction for older adults, provided that participants do not have difficulty with their daily activities (Lang & Baltes, 1997). Older adults' identification with their role as friend and their commitment to being a friend are strong predictors of self-reported life satisfaction (Siebert, Mutran, & Reitzes, 1999). Therefore, it may be adaptive for older adults to be motivated to preserve their close friendships by solving any problems that arise.

Older adults' preference for solve strategies may also arise from their accumulated life experience with interpersonal problems. Past research suggests that older adults use problem-focused strategies more than younger adults in domains where they are likely to have more experience (e.g., consumer, home) (Blanchard-Fields et al., 1997). If older adults also have more experience with interpersonal problems, this may be a factor influencing their preference for solve strategies. Research also suggests that

older adults use problem-focused strategies more often when the situation is controllable (Blanchard-Fields & Irion, 1988). Perhaps the older adults in the present study felt they had more control over regulating their emotions than the younger adults did. Perceived controllability over emotion regulation processes is an interesting area for future research.

For passive emotion-focused strategies, cognitive-emotional complexity was an important factor in whether older individuals endorsed these strategies more than younger individuals did. On average, older individuals had lower cognitive-emotional complexity than younger individuals. Individuals with lower cognitive-emotional complexity were more likely to use passive emotion-focused strategies. Therefore, cognitive-emotional complexity may be a factor that partially explains previous research, in which older adults used more passive emotion-focused strategies than young adults did (Blanchard-Fields et al., 1995; Blanchard-Fields et al., 1997). Perhaps individuals who are not able to use emotions to help them think about everyday situations are more likely to resort to passive strategies. This is consistent with Labouvie-Vief's finding that "ineffective" strategies such as avoidance and escape are more commonly endorsed by individuals of low cognitive-emotional complexity (Labouvie-Vief et al., 1987). However, it is important to point out that the age differences in passive emotion-focused strategies were much smaller than in past studies. In a qualitative study of problem solving strategies in highly emotional situations, older adults reported more acceptance and avoidance/denial strategies than younger adults did (Blanchard-Fields et al., 1995). A study using a questionnaire method reported similar findings for avoidance/denial strategies (Blanchard-Fields et al., 1997). However, these studies were focused on strategies for handling the problem, while the current study investigated strategies for regulating

specific emotions. Perhaps older adults do not rely on passive strategies for regulating their emotions to the same extent that they do for solving problems.

Seek and express strategies showed similar patterns of relationships with age and with the hypothesized mediators. In anger situations, older adults were less likely to endorse express strategies than younger adults were. There were no age differences in endorsement of seek strategies. In sad situations, older adults were less likely to endorse seek and express strategies than younger adults were. However, this negative effect was qualified by a positive mediated relationship through expressivity of sadness. In this way, expressivity of sadness acted as a suppressor variable. When expressivity of sadness was controlled, the relationship between age and seek/express strategies became even larger. Why might there be a negative relationship between age and seek/express strategies but a positive relationship between age and general expressivity of sadness? One possibility is that older adults generally feel comfortable expressing their sadness, but they do not express sadness when they have an interpersonal problem with a close friend. There is some evidence that older adults reveal painful self-disclosures (e.g., bereavement, loneliness) more than younger adults do (Coupland, Coupland, Giles, & Henwood, 1988). However, in the context of a problem with a close friend, older adults may not show sadness unless they think it will help maintain and promote the relationship. Socioemotional selectivity theory may shed light on the finding that in sad situations but not in anger situations, older adults were somewhat more likely to endorse seek and express strategies. Older adults with a limited time perspective might be motivated to share sadness with close associates as a way to maintain intimacy.

However, they may not be motivated to share anger with others, as this is more likely to damage the relationship.

Research on the functions of discrete emotions is consistent with the idea that expressing anger may harm interpersonal relationships, while expressing sadness may promote positive interpersonal interactions. In one study with hypothetical vignettes, school-age children associated negative interpersonal consequences (e.g., rejection) with expressing anger (Zeman & Garber, 1996). The children believed suppressing anger would prevent others from becoming upset. In contrast, expressing sadness was expected to lead to positive interpersonal interactions (e.g., receiving empathy and understanding). Similar implicit beliefs about anger and sadness exist in adult samples. Female undergraduates reported expressing sadness for the purpose of seeking comfort, and suppressing anger for the purpose of preserving interpersonal relationships (Timmers, Fischer, & Manstead, 1998). In another study, co-workers perceived employees of a software company who frequently expressed sadness as more likely to provide social support (Tiedens, 2001). Similarly, actors who expressed sadness during a mock job interview were perceived as more likeable than actors who expressed anger (Tiedens, 2001). Although these studies also demonstrated negative consequences of sad expressions (e.g., lower status jobs), more positive interpersonal consequences came from expressing sadness than anger.

Affect Complexity

The present study sheds light on the nature of affect complexity. As discussed in the introduction, Labouvie-Vief and Carstensen have different conceptions of the construct. In the present study, measures of their notions of affect complexity were

uncorrelated, suggesting they are indeed talking about different phenomena. In addition to not being related to each other, Labouvie-Vief's cognitive-emotional complexity and Carstensen's poignancy showed different relationships with age and with strategies. Cognitive-emotional complexity declined with increasing age. Poignancy, on the other hand, increased with age. Why might this be the case?

One key distinction between the constructs is their relative emphasis on ability. Our measure of cognitive-emotional complexity was a subscale of an emotional intelligence test. This test is based on an abilities model of emotional intelligence, in which higher scores indicate a more advanced ability to use emotion to facilitate thought in everyday life. This is somewhat consistent with Labouvie-Vief's notion of affect complexity as a correlate and outgrowth of cognitive development. Older adults' limited mechanics of intelligence may have played a role in their poor performance on this test. However, the emotional intelligence test should also be tapping aspects of pragmatic intelligence, such as one's accumulated knowledge about how to use emotions effectively. Past research using qualitative measures of cognitive-emotional complexity suggested that, unlike in the present study, middle-aged adults were the most emotionally complex. One possible reason for this discrepancy is that the test used in the present study was validated with a mostly young adult sample. The test may not measure the construct as well for middle-aged and older adults. Future research should examine the objective and the qualitative measures of cognitive-emotional complexity to examine their relatedness and their appropriateness as measures of the construct. Poignancy, on the other hand, is not defined or operationalized as an ability. Instead, it is a correlate and

outgrowth of changes in motivation with increasing age. As such, it would be expected to increase with age and not be related to abilities.

Another difference between the constructs is their hypothesized functions. Cognitive-emotional complexity involves integrating thought and emotions. As such, it should be related to emotion regulation strategy use. In the present study, it predicted passive emotion-focused strategies; individuals with higher cognitive-emotional complexity were less likely to use passive strategies. It did not predict other strategies. In contrast, poignancy's function should be to improve the emotional richness of life experiences. In this way, it does not necessarily serve the purpose of regulating emotions. Although we tentatively predicted that poignancy might be related to increased use of emotion-focused strategies, it is not surprising that this prediction was not supported. It is also possible that our measure of poignancy was problematic. In Carstensen's research with the construct, poignancy was assessed in experience sampling studies. Our hypothetical situations might not have elicited the same type of poignancy. A more problematic limitation was the low reliability of the poignancy measure. Because the poignancy variable was a correlation, and was being correlated with other variables, we had low power to detect relationships of poignancy to other constructs. This may have been a problem with past research as well, in which poignancy was not related to any variables besides age (Carstensen et al., 2000). Future research should explore other ways of measuring poignancy.

Although the question of adaptiveness was not directly addressed in this study, it is important to note that different conceptions of affect complexity may vary in their notions of adaptiveness as well. Labouvie-Vief has reported that cognitive-emotional

complexity is related to less use of coping and defense strategies that she deemed ineffective (Labouvie-Vief et al., 1987). She suggests that co-occurrence of emotions may be maladaptive in some instances because it may indicate a low level of emotional complexity (Labouvie-Vief & Medler, 2002). However, there is some evidence that it can be adaptive. Research suggests that co-occurrences of positive and negative emotions (i.e., poignancy) is related to lower levels of neuroticism, global stress, and daily stress (Ong & Bergeman, 2003). However, research on emotion differentiation illustrates the subtleness of affect complexity conceptions. Negative emotion differentiation is defined as small correlations in occurrences of negative emotions (e.g., anger, sadness). In other words, individuals who demonstrate negative emotion differentiation have discrete experiences of anger and sadness, and do not lump both experiences together as simply negative emotions. Positive emotion differentiation is the same concept applied to positive emotions, such as happiness and amusement. Negative emotion differentiation was positively related to using emotion regulation strategies in an experience sampling study (Feldman Barrett, Gross, Christensen, & Benvenuto, 2001). Although the researchers did not make conclusions about specific types of emotion regulation strategies, the increased use of strategies in general was interpreted as adaptive (it was seen as, “knowing what you’re feeling and knowing what to do about it”).

It is unclear what the relationship is between emotion differentiation, which is claimed to be adaptive, and experiencing negative and positive emotions simultaneously, which is also claimed to be adaptive. For example, an individual experiencing a highly emotional and complex event such as an adult child moving far away for a job might report feeling angry, sad, happy, and joyful. This individual would be described as high

in poignancy (because she reports positive and negative emotions) but low in emotional differentiation (because she reports multiple types of positive and negative emotions). The high level of poignancy might be seen as adaptive, while the low level of emotional differentiation might be seen as maladaptive. In addition, a high correlation among instances of emotions may be due to not understanding or differentiating between related emotions (e.g., “I feel generally negative, so I’ll rate negative emotions like anger and sadness as high”), but it might also be due to legitimate co-occurrence of those emotions (e.g., “I feel both angry and sad”). Future research should investigate the various conceptions of affect complexity in the context of an organized system of affect regulation strategies, and also investigate the adaptiveness of those strategies.

Are General Expressivity and Express Strategies Equivalent Constructs?

One could argue that general expressivity’s role as a mediator is unimportant because it is equivalent to the outcome variable of express strategies. Several findings suggest this is not the case. The different age patterns for general expressivity of anger and sadness demonstrates that the general expressivity variables are not measuring the same construct as the express strategies for handling emotions. General expressivity of sadness increased with age, while general expressivity of anger and express strategies decreased with age. In addition, general expressivity of anger was not significantly correlated with express strategies for handling anger at all. Finally, express strategies are goal-directed actions taken to regulate emotions; general expressivity is simply the tendency to show one’s emotions to others, regardless of one’s goals.

Conclusions

The present study shed light on explanations for age differences in strategy choices. However, this study has several limitations. First, we only indirectly explored the process of emotion regulation. We did not document emotion regulation as it happens to the individual. Rather, we presented hypothetical scenarios and asked participants to self-report how they think they would handle their emotions. This method leaves open the possibility that participants responded based on their ideas about what would be effective, as opposed to what they would actually do. To truly capture emotion regulation strategies, we would have to observe emotion regulation processes online. Second, our measure of cognitive-emotional complexity is not a measure used by the original theorist. Using an objective, abilities-based test (the MSCEIT) to measure a construct previously assessed only with qualitative measures could be problematic. Future research should use some of Labouvie-Vief's own cognitive-emotional complexity measures. Third, we explained only a small part of the variance in emotion regulation strategies. Future research should explore other individual difference variables that may play a role in emotion regulation strategies. Personality factors such as the Big Five and traits such as self-sufficiency or independence should be examined in future research. Fourth, by employing a cross-sectional design, we are not able to make conclusions about developmental changes. Because of the different attitudes toward emotion regulation in past decades, there is a very real possibility that our results are due to cohort differences.

Despite these limitations, this study provided important insights about the mechanisms of emotion regulation strategy choices. Expressivity of sadness is an

important factor involved with strategy endorsements for regulating sadness. Cognitive-emotional complexity is an important factor involved with passive emotion-focused strategy endorsements. Future research should explore the relationship between cognitive-emotional complexity and cognitive abilities, and examine other potential mediators of age differences in emotion regulation strategies. This study demonstrated the qualitative differences between expressing anger and sadness, and suggests it is unwise to aggregate across discrete emotion types when examining age differences in emotional expressivity. The present study also provided further demonstration of the large differences between Labouvie-Vief's and Carstensen's ideas about affect complexity. By exploring the processes that may underlie emotion regulation in interpersonal problems, we partially explained some age differences in everyday problem solving styles. We also verified the importance of investigating regulation strategies in response to discrete emotions, and of thinking deeply about what is meant by affect complexity.

Appendix A

Vignettes

High Sad

Imagine that you and one of your closest friends like to spend a lot of time together. Your friend is very dear to you. However, your friend has to move to another state. You do not get to see your friend much anymore. (MOVE)

Imagine that one of your closest friends has a new approach to life. You feel like your friend's new approach is very different from yours, and the two of you are drifting apart. You understand where your friend is coming from, but you will miss your friend dearly. (NEW)

Low Sad

Imagine that you and one of your closest friends used to spend a lot of time together. However, your friend started volunteering at an organization that keeps your friend pretty busy. You don't spend as much time together as you used to. (VOLUN.)

Imagine that you call one of your closest friends to see if you can spend some time together this evening. You haven't seen this friend in a while and you think it would be fun to get together. When you call your friend, your friend has already made plans and can't spend time with you this evening. (EVENING)

High Anger

Imagine that you invite one of your closest friends to spend some time with your family. After spending the day with them, your friend makes an offensive comment about your family members. (FAM)

Imagine that one of your closest friends knows a lot about fixing cars. Your friend often does minor repairs for you. You've always thought your friend charged you fairly. However, through discussions with acquaintances about the price of various car repairs, you realize that your friend has been overcharging you. (CAR)

Low Anger

Imagine that you are walking with one of your closest friends. Your friend is walking diagonally instead of in a straight line. Clearly, your friend is not paying attention. As a result, your friend keeps bumping into you. (WALK)

Imagine that one of your closest friends is a perfectionist. When you are together, everything has to be just so. (PERFEC.)

Appendix B

Strategy Questionnaire

Imagine that while you are experiencing this problem you feel angry (sad). How likely would you be to do each of the following things to handle your ANGER (SADNESS)? Please circle your response.

1. I would ask people who have had similar experiences what they did. (GET ADVICE)

1	2	3	4
I wouldn't do this at all.			I would definitely do this.

2. I would concentrate my efforts on doing something about the problem. (PROBLEM SOLVE)
3. I would turn to substitute activities to take my mind off things. (AVOIDANCE/DENIAL)
4. I would learn to live with it. (ACCEPT)
5. I would pretend that the problem hasn't really happened. (AVOIDANCE/DENIAL)
6. I would try to get emotional support from friends or relatives. (EMOTIONAL SUPPORT)
7. I would accept that this has happened and that it can't be changed. (ACCEPT)
8. I would refuse to believe that the problem has happened. (AVOIDANCE/DENIAL)
9. I would talk to someone about how I feel. (EMOTIONAL SUPPORT)
10. I would delve into my feelings to get a thorough understanding of them. (UNDERSTAND FEELINGS)
11. I would try to hide my feelings. (SUPPRESSION)
12. I would try to get advice from someone about what to do. (GET ADVICE)

13. I would make a plan of action to try to solve the problem. (PLAN)
14. I wouldn't let anyone see how I'm really feeling. (SUPPRESSION)
15. I would take action to try to get rid of the problem. (PROBLEM SOLVE)
16. I would put my trust in God. (not analyzed)
17. I would try to come up with a strategy about what to do to solve the problem.
(PLAN)
18. I would let my feelings come out freely. (EXPRESS)
19. I would allow myself to express my emotions. (EXPRESS)
20. I would feel free to express my emotions. (EXPRESS)
21. I would take time to figure out what I'm really feeling. (UNDERSTAND
FEELINGS)
22. I would talk to my friend about the problem. (COMMUNICATE)
23. I would be extra nice to my friend. (not analyzed)
24. I would end the friendship. (not analyzed)
25. I would confront my friend about the problem. (COMMUNICATE)
26. I would tell my friend not to contact me any more. (not analyzed)
27. I would try to please my friend. (not analyzed)
28. Feel free to briefly describe any other things you would do to handle your anger
(sadness) in this situation.

Note. The parcel that each item belongs to is listed in parentheses after each strategy.

Appendix C

Expressivity of Discrete Emotions Questionnaire

1. When you experience FEAR, how often do you show this emotion to other people?



2. When you experience LOVE, how often do you show this emotion to other people?
3. When you experience FURY, how often do you show this emotion to other people?
4. When you experience CARING, how often do you show this emotion to other people?
5. When you experience HAPPINESS, how often do you show this emotion to other people?
6. When you experience SHAME, how often do you show this emotion to other people?
7. When you experience EMBARRASSMENT, how often do you show this emotion to other people?
8. When you experience SADNESS, how often do you show this emotion to other people?
9. When you experience JOY, how often do you show this emotion to other people?
10. When you experience GUILT, how often do you show this emotion to other people?
11. When you experience WORRY, how often do you show this emotion to other people?
12. When you experience AFFECTION, how often do you show this emotion to other people?
13. When you experience RESENTMENT, how often do you show this emotion to other people?

14. When you experience REGRET, how often do you show this emotion to other people?
15. When you experience CHEERFULNESS, how often do you show this emotion to other people?
16. When you experience CONCERN, how often do you show this emotion to other people?
17. When you experience SORROW, how often do you show this emotion to other people?
18. When you experience UNHAPPINESS, how often do you show this emotion to other people?
19. When you experience INTIMACY, how often do you show this emotion to other people?
20. When you experience CONTENTMENT, how often do you show this emotion to other people?
21. When you experience ANXIETY, how often do you show this emotion to other people?
22. When you experience ANGER, how often do you show this emotion to other people?
23. When you experience RAGE, how often do you show this emotion to other people?
24. When you experience DEPRESSION, how often do you show this emotion to other people?

Note. The sadness subscale consisted of sadness, depression, sorrow, and unhappiness. The anger subscale consisted of anger, resentment, rage, and fury.

Table 1

Demographics Characteristics of the Sample

	Young		Middle-Aged		Old	
	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
Age	20.97	2.53	45.76	8.12	69.01	5.11
Health	4.03	0.85	3.65	0.96	3.66	0.82
Vocab	16.35	5.15	17.6	6.14	21.59	8
Letter Sets	22.32	4.73	17.45	4.87	16.53	5.14

Note. Age is reported in years. Health is self-reported on a 5-point scale: 1 = Poor, 2 = Fair, 3 = Good, 4 = Very Good, 5 = Excellent. Vocab = Educational Testing Service Advanced Vocabulary Test (Maximum score = 36). Letter Sets = Educational Testing Service Letter Sets Test (Maximum score = 30).

Table 2

Ratings of Emotions Present in Vignettes by Vignette Type and Age Group

		Young		Middle-Aged		Old	
		<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>	<u>M</u>	<u>SD</u>
High Anger	Anger	5.07	1.18	4.94	1.22	4.77	1.23
	Sadness	3.91	1.4	4.4	1.67	4.71	1.58
	Guilt	2.66	1.3	2.74	1.34	2.57	1.23
	Fear	2.42	1.15	2.85	1.22	2.35	1.24
Low Anger	Anger	3.03	1.13	3.49	1.26	3.05	0.99
	Sadness	1.35	0.87	2.09	1.35	2.13	1.35
	Guilt	1.53	0.87	1.96	0.99	1.49	0.55
	Fear	1.81	0.86	2.42	1.32	1.89	0.83
High Sadness	Anger	2.93	1.2	2.99	1.27	2.55	1.04
	Sadness	5.36	1.16	5.12	1.23	4.89	1.36
	Guilt	1.46	0.77	1.57	0.79	1.31	0.47
	Fear	3.1	1.44	2.87	1.4	2.25	1.03
Low Sadness	Anger	2.61	1.07	2.61	1.07	2.04	0.9
	Sadness	3.86	1.38	3.81	1.4	3.3	1.4
	Guilt	1.61	0.77	1.62	0.79	1.26	0.47
	Fear	2.04	1.05	1.97	0.96	1.5	0.62

Note. Ratings on 7-point scale of the degree to which participants would feel each emotion. 1 = Not at all, 4 = Moderately, 7 = Extremely

Table 3

Internal Consistency of Parcels for Each Vignette

	High Anger		Low Anger		High Sadness		Low Sadness	
	Family	Car	Walk	Perfec.	Move	New	Volun.	Evening
Avoidance/Denial	0.41	0.51	0.6	0.55	0.3	0.45	0.39	0.36
Accept Problem	0.68	0.73	0.74	0.71	0.68	0.65	0.65	0.59
Suppression	0.54	0.5	0.72	0.7	0.82	0.62	0.76	0.73
Express Feelings	0.88	0.9	0.93	0.89	0.92	0.91	0.91	0.91
Communication	0.77	0.78	0.73	0.8	0.7	0.78	0.77	0.86
Problem Solve	0.67	0.7	0.79	0.72	0.72	0.69	0.68	0.65
Plan	0.87	0.7	0.84	0.83	0.83	0.86	0.88	0.84
Understand Feelings	0.78	0.78	0.8	0.77	0.82	0.79	0.84	0.79
Get Advice	0.8	0.72	0.78	0.76	0.85	0.79	0.76	0.81
Emotional Support	0.72	0.68	0.8	0.77	0.79	0.76	0.77	0.77

Note. Internal consistency (alpha) values of parcels for each vignette. Each parcel consists of 2 or 3 items.

Table 4

Intercorrelations of Parcels Across Vignettes in Each Vignette Type

	High Anger	Low Anger	High Sad	Low Sad
Avoidance/Denial	0.37	0.37	0.45	0.51
Accept Problem	0.32	0.43	0.38	0.45
Suppression	0.58	0.54	0.54	0.58
Express Feelings	0.61	0.73	0.7	0.66
Communication	0.32	0.45	0.5	0.59
Problem Solve	0.38	0.41	0.48	0.57
Plan	0.4	0.45	0.46	0.52
Understand Feelings	0.65	0.66	0.62	0.72
Get Advice	0.48	0.4	0.62	0.68
Emotional Support	0.45	0.48	0.66	0.71

Table 5

Unstandardized Factor Loadings and Standard Errors for Strategy Measurement Models in Each Vignette Type

		High Anger		Low Anger		High Sad		Low Sad	
		Loading	SE	Loading	SE	Loading	SE	Loading	SE
Passive	Avoidance/Denial	1		1		1		1	
	Accept Problem	0.92	0.18	0.8	0.16	0.14	0.11	0.79	0.25
	Suppression	0.85	0.16	0.84	0.15	0.33	0.24	1.77	0.48
Express	Express Feelings	1		1		1		1	
	Communication	1.19	0.19	1.23	0.18	1.32	0.17	1.43	0.2
Solve	Problem Solve	1		1		1		1	
	Plan	1.09	0.12	1.21	0.16	1.48	0.19	1.45	0.23
Seek	Understand Feelings	1		1		1		1	
	Get Advice	1.6	0.23	1.35	0.16	1.75	0.24	1.4	0.16
	Emotional Support	1.61	0.23	1.43	0.17	1.91	0.26	1.6	0.18

Table 6

Correlations of Variables in High Anger Structural Model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1.00	0.15	-0.19	-0.13	0.02	0.15	0.01	0.00	-0.19	0.09	0.14	0.13	-0.07	-0.06
2. Poignancy		1.00	0.02	0.04	0.04	-0.01	0.15	0.05	-0.05	0.11	0.05	0.01	0.05	0.07
3. EDE - Anger			1.00	0.19	-0.15	-0.15	-0.15	0.16	0.10	0.11	0.02	-0.22	0.04	0.12
4. Facil. Thought				1.00	-0.21	-0.14	-0.15	0.00	0.01	0.09	-0.01	-0.19	-0.07	-0.08
5. Avoidance/Denial					1.00	0.42	0.43	-0.13	-0.29	-0.08	-0.10	0.25	0.24	0.23
6. Accept Problem						1.00	0.30	-0.12	-0.22	-0.14	-0.16	0.17	-0.05	-0.01
7. Suppression							1.00	-0.47	-0.30	-0.13	-0.17	-0.03	-0.03	-0.14
8. Express Feelings								1.00	0.54	0.31	0.33	0.21	0.20	0.36
9. Communication									1.00	0.42	0.44	0.10	0.14	0.27
10. Problem Solve										1.00	0.75	0.19	0.28	0.32
11. Plan											1.00	0.30	0.26	0.30
12. Understand Feelings												1.00	0.45	0.44
13. Get Advice													1.00	0.75
14. Emotional Support														1.00

Table 7

Correlations of Variables in Low Anger Structural Model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1.00	0.15	-0.19	-0.13	-0.01	-0.01	0.08	0.01	0.05	0.09	0.14	0.27	0.10	0.06
2. Poignancy		1.00	0.02	0.04	-0.01	0.00	0.13	0.02	0.09	0.11	0.05	0.06	0.10	0.08
3. EDE - Anger			1.00	0.19	-0.09	-0.12	-0.22	0.24	0.06	0.11	0.02	-0.17	-0.05	-0.03
4. Facil. Thought				1.00	-0.23	-0.18	-0.15	-0.02	-0.12	0.09	-0.01	-0.19	-0.15	-0.13
5. Avoidance/Denial					1.00	0.40	0.44	-0.10	-0.20	-0.03	-0.01	0.18	0.23	0.26
6. Accept Problem						1.00	0.27	-0.15	-0.25	0.03	-0.11	-0.03	0.01	0.01
7. Suppression							1.00	-0.49	-0.15	-0.06	-0.04	0.02	0.10	0.10
8. Express Feelings								1.00	0.53	0.29	0.30	0.31	0.24	0.27
9. Communication									1.00	0.34	0.40	0.32	0.34	0.33
10. Problem Solve										1.00	0.75	0.21	0.20	0.24
11. Plan											1.00	0.30	0.25	0.27
12. Understand Feelings												1.00	0.49	0.52
13. Get Advice													1.00	0.83
14. Emotional Support														1.00

Table 8

Correlations of Variables in High Sadness Structural Model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1.00	0.15	0.20	-0.13	-0.01	0.25	-0.13	0.01	-0.12	0.09	0.14	-0.01	-0.22	-0.19
2. Poignancy		1.00	-0.03	0.04	0.08	0.05	0.06	0.05	0.03	0.11	0.05	-0.03	0.03	0.07
3. EDE - Sadness			1.00	0.05	-0.03	-0.05	-0.31	0.45	0.23	0.17	0.20	0.19	0.26	0.30
4. Facil. Thought				1.00	-0.22	-0.09	-0.17	0.02	-0.03	0.09	-0.01	-0.14	-0.03	0.01
5. Avoidance/Denial					1.00	0.22	0.45	-0.12	-0.11	-0.11	-0.12	0.11	0.16	0.17
6. Accept Problem						1.00	0.10	-0.04	-0.18	0.11	0.01	0.00	-0.22	-0.12
7. Suppression							1.00	-0.55	-0.20	-0.04	-0.10	-0.06	0.00	-0.15
8. Express Feelings								1.00	0.54	0.26	0.36	0.39	0.30	0.45
9. Communication									1.00	0.32	0.50	0.38	0.41	0.50
10. Problem Solve										1.00	0.75	0.23	0.20	0.21
11. Plan											1.00	0.34	0.29	0.30
12. Understand Feelings												1.00	0.41	0.47
13. Get Advice													1.00	0.78
14. Emotional Support														1.00

Table 9

Correlations of Variables in Low Sadness Structural Model

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age	1.00	0.15	0.20	-0.13	-0.08	0.25	-0.14	0.05	-0.10	0.09	0.14	0.09	-0.22	-0.17
2. Poignancy		1.00	-0.03	0.04	-0.04	0.01	0.05	0.05	0.02	0.11	0.05	0.00	0.02	-0.01
3. EDE - Sadness			1.00	0.05	-0.08	0.03	-0.33	0.41	0.20	0.17	0.20	0.18	0.25	0.26
4. Facil. Thought				1.00	-0.10	0.03	-0.06	0.01	-0.12	0.09	-0.01	-0.13	-0.06	-0.02
5. Avoidance/Denial					1.00	0.23	0.40	-0.20	-0.15	-0.08	-0.06	-0.02	0.05	0.02
6. Accept Problem						1.00	0.08	0.01	-0.24	0.04	-0.05	-0.04	-0.26	-0.22
7. Suppression							1.00	-0.56	-0.26	-0.03	-0.05	-0.16	-0.10	-0.11
8. Express Feelings								1.00	0.52	0.20	0.29	0.39	0.28	0.36
9. Communication									1.00	0.30	0.38	0.43	0.44	0.49
10. Problem Solve										1.00	0.75	0.24	0.17	0.15
11. Plan											1.00	0.38	0.27	0.29
12. Understand Feelings												1.00	0.48	0.56
13. Get Advice													1.00	0.82
14. Emotional Support														1.00

Table 10

Means and Standard Errors of Strategies by Age and Vignette Type

Emo. Saliency	Discrete Emo.	Strategy	Young		Middle-Aged		Old	
			<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>	<u>M</u>	<u>SE</u>
Low	Anger	Passive	2.05	0.07	1.91	0.07	2.06	0.07
		Express	2.95	0.09	3.19	0.09	3.04	0.08
		Solve	2.48	0.09	2.97	0.09	3.00	0.09
		Seek	1.99	0.09	2.34	0.09	2.32	0.09
	Sadness	Passive	2.44	0.06	2.40	0.06	2.43	0.06
		Express	2.62	0.10	2.77	0.10	2.61	0.10
		Solve	2.67	0.10	2.86	0.10	2.92	0.10
		Seek	2.34	0.10	2.33	0.10	2.15	0.10
High	Anger	Passive	1.76	0.06	1.81	0.06	1.88	0.06
		Express	3.29	0.08	3.29	0.08	3.18	0.08
		Solve	3.22	0.08	3.30	0.08	3.38	0.08
		Seek	2.63	0.09	2.71	0.09	2.66	0.09
	Sadness	Passive	2.31	0.05	2.32	0.05	2.35	0.05
		Express	3.00	0.09	3.11	0.09	2.94	0.09
		Solve	2.49	0.10	2.77	0.10	2.92	0.09
		Seek	2.86	0.09	2.78	0.09	2.57	0.09

Note. Emo. Saliency = Emotional Saliency; Discrete Emo. = Discrete Emotion. Strategy endorsements range from 1 = I wouldn't do this at all, to 7 = I would definitely do this.

Table 11

Means and Standard Deviations of Individual Difference Variables

	Young		Middle-Aged		Old	
	M	SD	M	SD	M	SD
Poignancy	-0.24	0.40	-0.12	0.47	-0.06	0.44
EDE - Sad	8.56	2.54	10.03	2.59	10.02	2.45
EDE - Anger	10.05	3.31	9.97	2.73	9.02	3.03
Facil. Thought	0.47	0.07	0.45	0.09	0.44	0.10

Note. EDE – Sad = Expressivity of Discrete Emotions, Subscale for Sadness; EDE – Anger = Expressivity of Discrete Emotions, Subscale for Anger; Facil. Thought = Facilitating Thought Subscale of the Mayer-Salovey-Caruso Emotional Intelligence Test. Poignancy is the correlation between positive and negative emotion ratings across all 8 vignettes. EDE scores are sums of expressivity ratings over 4 emotion words. Maximum possible EDE score is 16. Maximum possible Facil. Thought score is 1.0, which would indicate complete agreement with experts for all items.

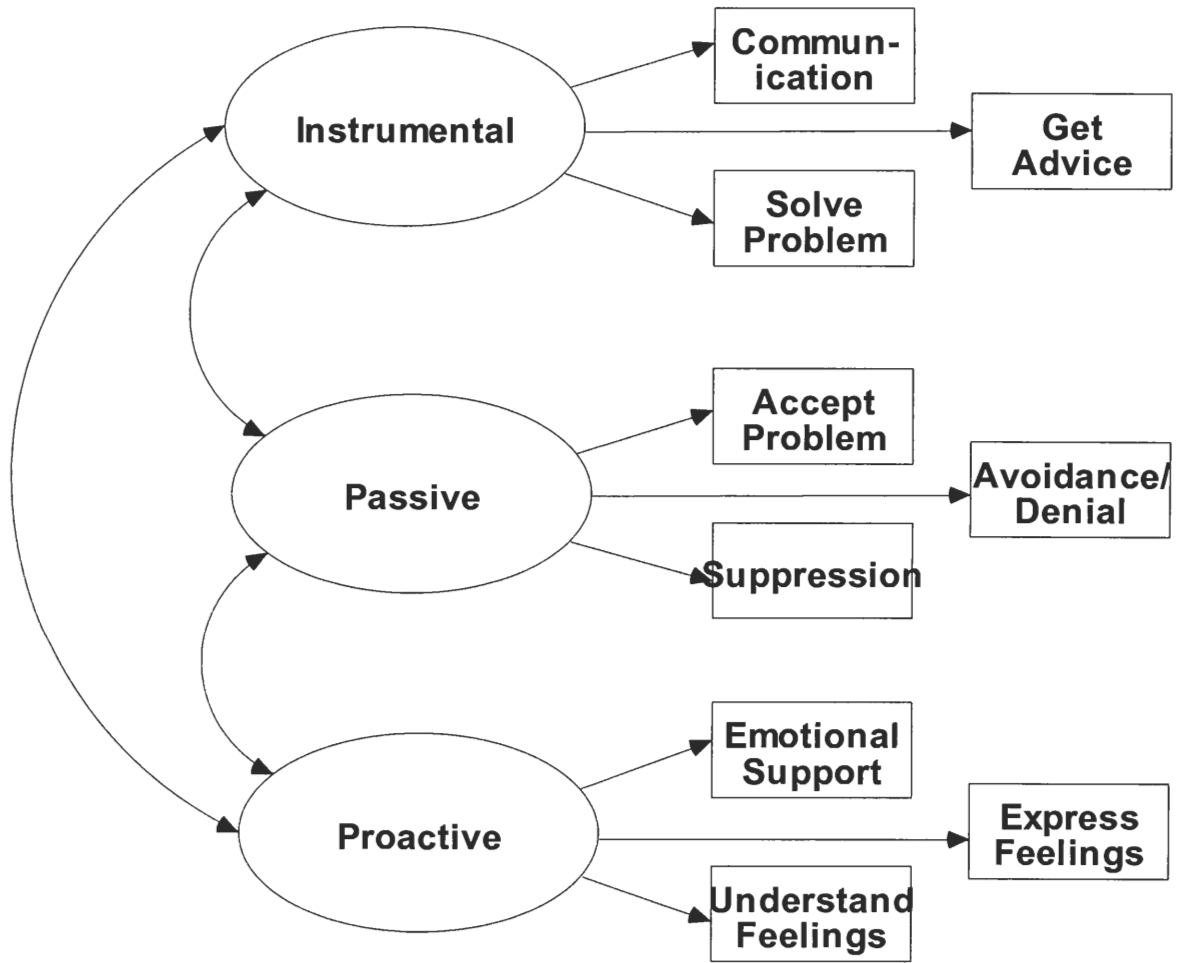


Figure 1. Hypothesized Measurement Model.

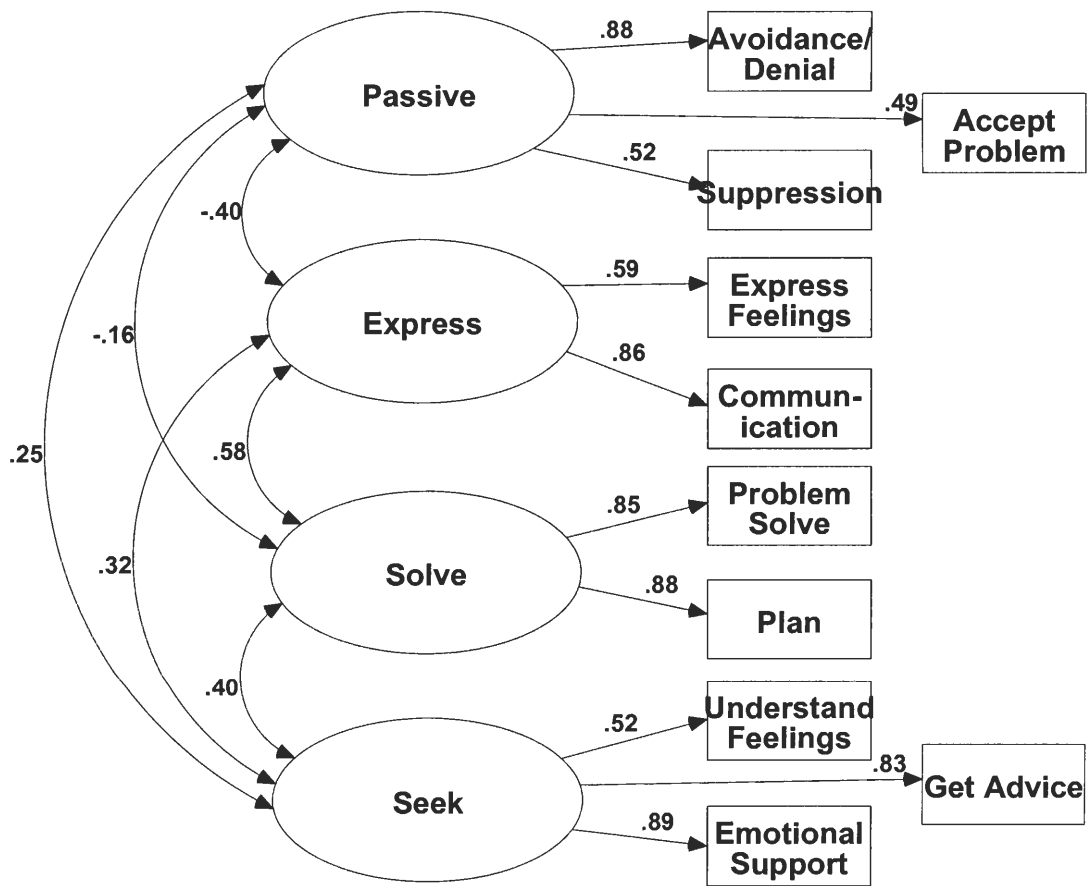


Figure 2. Final Measurement Model, $\chi^2 (28, N = 188) = 57.20$, RMSEA = .075, CFI = .95. The data for the high anger vignettes is shown.

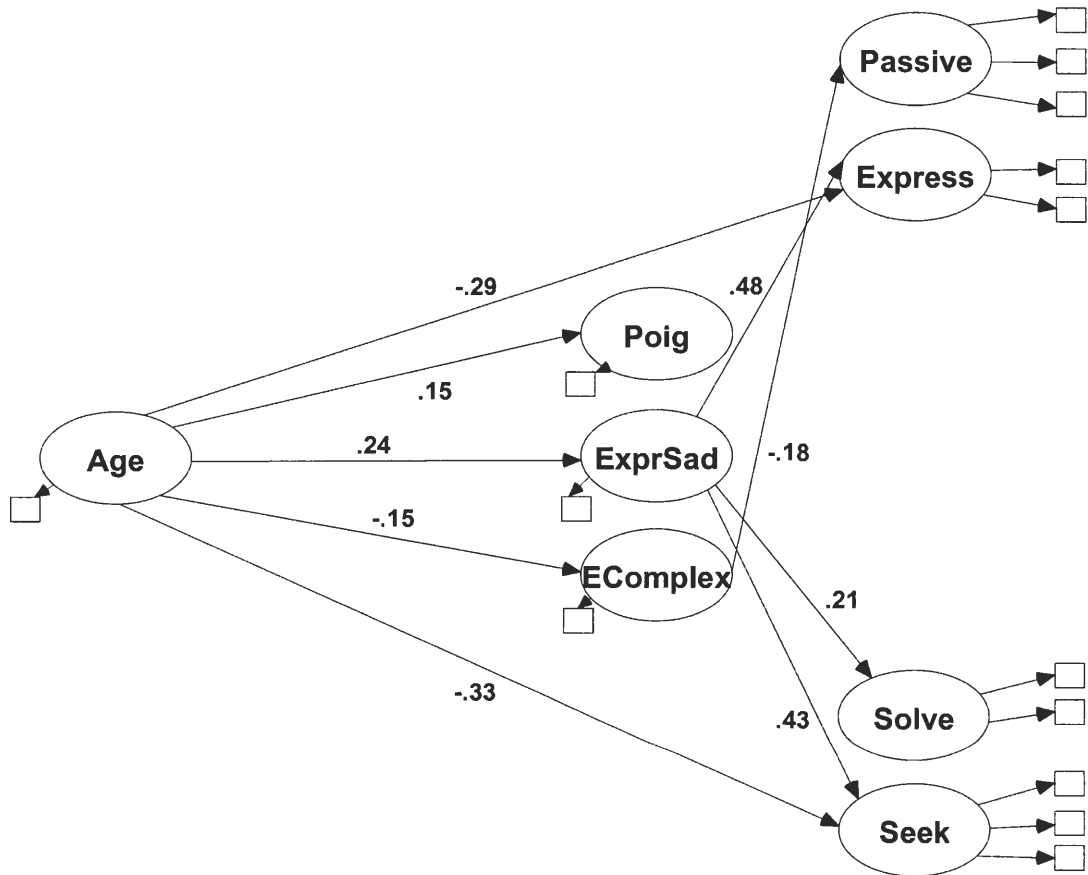


Figure 3. Structural Equation Model for High Sad Vignettes, $\chi^2 (67, N = 188) = 143.2$, RMSEA = .078. Poig = Poignancy; ExprSad = Expressivity of Sadness; EComplex = Cognitive-Emotional Complexity

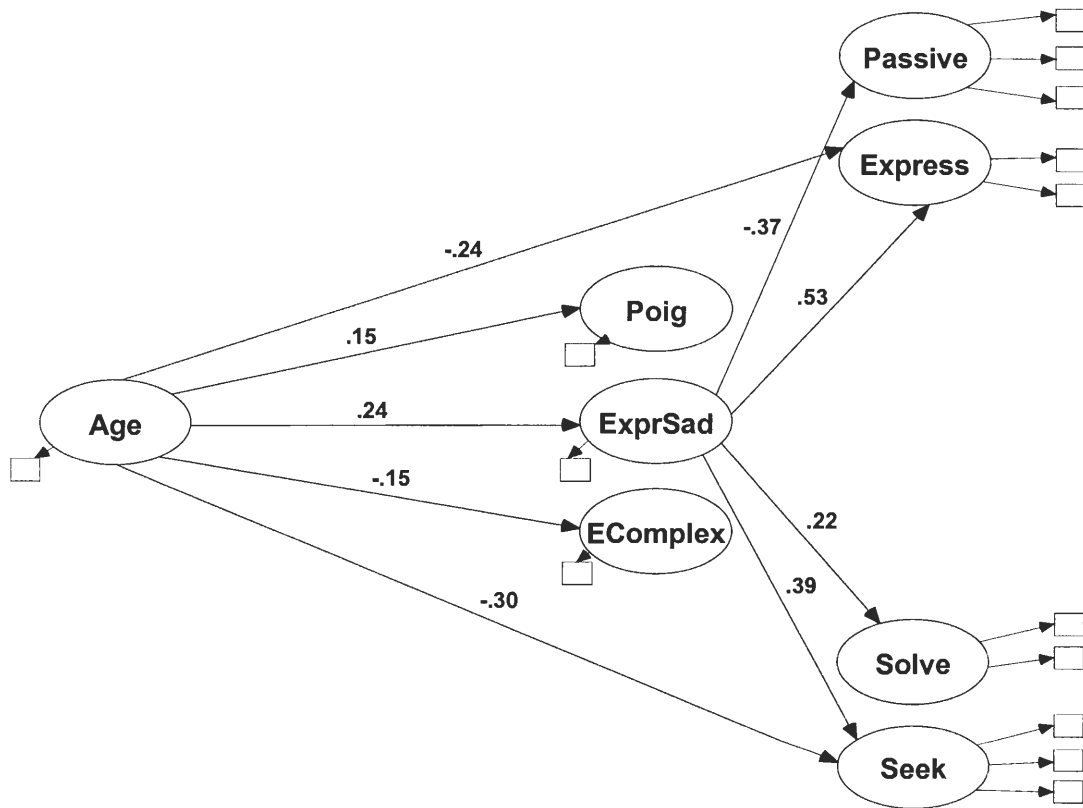


Figure 4. Structural Equation Model for Low Sad Vignettes, $\chi^2 (67, N = 188) = 157.69$, RMSEA = .085. Poig = Poignancy; ExprSad = Expressivity of Sadness; EComplex = Cognitive-Emotional Complexity

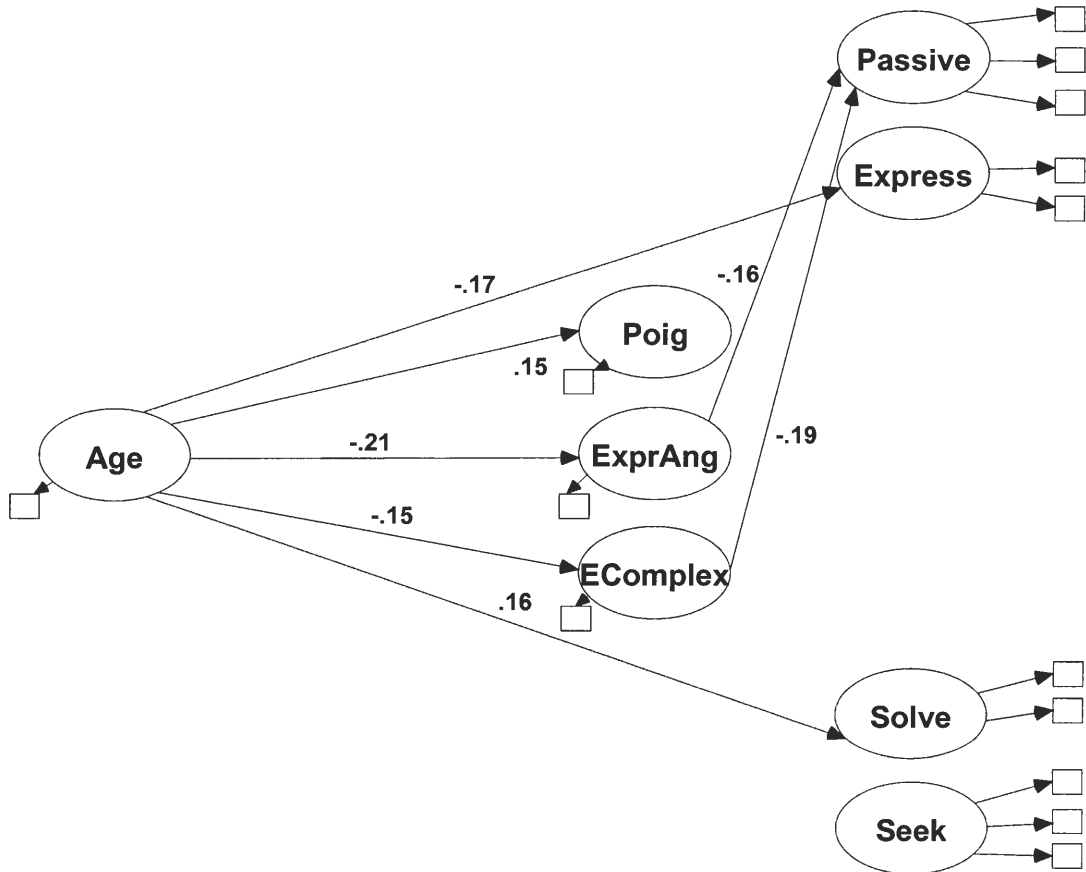


Figure 5. Structural Equation Model for High Anger Vignettes, χ^2 (69, N = 188) = 148.55, RMSEA = .079. Poig = Poignancy; ExprAng = Expressivity of Anger; EComplex = Cognitive-Emotional Complexity

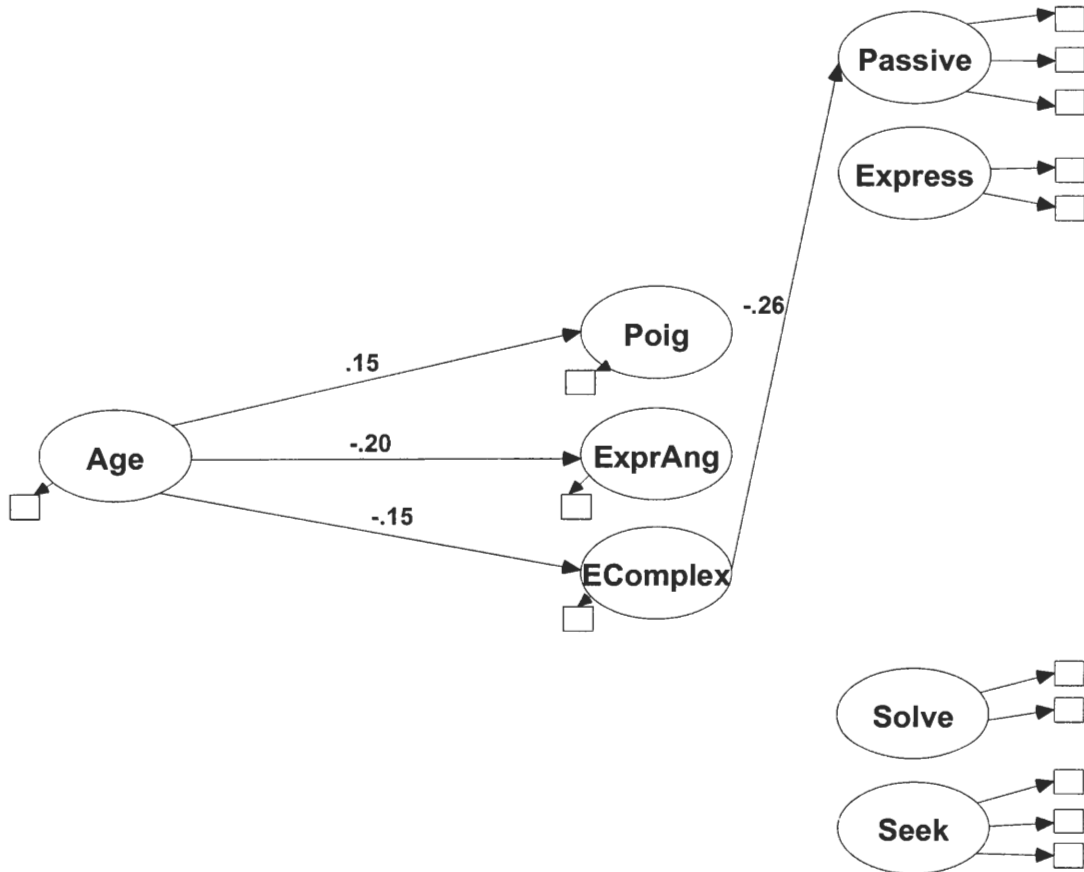


Figure 6. Structural Equation Model for Low Anger Vignettes, χ^2 (72, N = 188) = 127.05, RMSEA = .064. Poig = Poignancy; ExprAng = Expressivity of Anger; EComplex = Cognitive-Emotional Complexity

REFERENCES

- Allaire, J. C. & Marsiske, M. (1999). Everyday cognition: Age and intellectual ability correlates. Psychology and Aging, *14*, 627-644.
- Baltes, P. B. (1987). Theoretical propositions of life-span developmental psychology: On the dynamics between growth and decline. Developmental Psychology, *23*, 611-626.
- Berg, C. A., Strough, J., Calderone, K. S., Sansone, C., & Weir, C. (1998). The role of problem definitions in understanding age and context effects on strategies for solving everyday problems. Psychology and Aging, *13*, 29-44.
- Blanchard-Fields, F. (1998). The role of emotion in social cognition across the adult life span. In K. W. Schaie & M. P. Lawton (Eds.), Annual review of gerontology and geriatrics: Volume 17 (pp. 206-237). New York: Springer Publishing Company.
- Blanchard-Fields, F., Chen, Y., & Norris, L. (1997). Everyday problem solving across the adult life span: Influence of domain specificity and cognitive appraisal. Psychology and Aging, *12*, 684-693.
- Blanchard-Fields, F. & Irion, J. C. (1988). Coping strategies from the perspective of two developmental markers: Age and social reasoning. Journal of Genetic Psychology, *149*, 141-151.
- Blanchard-Fields, F., Jahnke, H. C., & Camp, C. (1995). Age differences in problem solving style: The role of emotional salience. Psychology and Aging, *10*, 173-180.

- Blanchard-Fields, F. & Norris, L. (1994). Causal attributions from adolescence through adulthood: Age differences, ego level, and generalized response style. *Aging and Cognition*, *1*, 67-86.
- Browne, M. W. & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. A. Bollen & J. S. Long (Eds.), *Testing structural equation models*. Newbury Park: Sage Publications.
- Carstensen, L. L., Gross, J. J., & Fung, H. H. (1998). The social context of emotional experience. In K. W. Schaie & M. P. Lawton (Eds.), *Annual review of gerontology and geriatrics: Volume 17* (pp. 325-352). New York: Springer Publishing Company.
- 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., Scheier, M. F., & Weintraub, J. K. (1989). Assessing coping strategies: A theoretically based approach. *Journal of Personality and Social Psychology*, *56*, 267-283.
- Charles, S. T., 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.
- Cornelius, S., & Caspi, A. (1987). Everyday problem solving in adulthood and old age. *Psychology and Aging*, *2*, 144-153.

- Coupland, N., Coupland, J., Giles, H., & Henwood, K. (1988). Elderly self-disclosure: Interactional and intergroup issues. Language and Communication, 8, 109-133.
- Diehl, M., Willis, S. L., & Schaie, K. W. (1995). Everyday problem solving in older adults: Observational assessment and cognitive correlates. Psychology and Aging, 10, 478-491.
- Fabrigar, L. R., Wegener, D. T., MacCullum, R. C., & Strahan, E. J. (1999). Evaluating the use of exploratory factor analysis in psychological research. Psychological Methods, 4, 272-299.
- Feldman Barrett, L., Gross, J., Christensen, T. C., & Benvenuto, M. (2001). Knowing what you're feeling and knowing what to do about it: Mapping the relation between emotion differentiation and emotion regulation. Cognition and Emotion, 15, 713-724.
- Fredrickson, B. L. & Carstensen, L. L. (1990). Choosing social partners: How old age and anticipated endings make people more selective. Psychology and Aging, 5, 335-347.
- Fung, H. H., Carstensen, L. L., & Lutz, A. M. (1999). Influence of time on social preferences: Implications for life-span development. Psychology and Aging, 14, 595-604.
- Gross, J. J., Carstensen, L. L., Pasupathi, M., 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. & Schulz, R. (1995). A life-span theory of control. Psychological Review, 102, 284-304.

- Hy, L. X. & Loevinger, J. (1996). Measuring ego development. Mahwah, NJ: Lawrence Erlbaum.
- Izard, C. E. (1977). Human emotions. New York: Plenum Press.
- Izard, C. E. (1993). Organizational and motivational functions of discrete emotions. In M. Lewis (Ed.), Handbook of emotions. New York: Guilford Press.
- Kennedy, Q., Carstensen, L. L., & Pasupathi, M. (November, 1999). Aging and emotional response to negative situations. Paper presented at the Annual Meeting of the Gerontological Society of America, San Francisco.
- Kennedy, Q., Fung, H. H., & Carstensen, L. L. (2001). Aging, time estimation, and emotion. In S. H. McFadden & R. C. Atchley (Eds.), Aging and the meaning of time: A multidisciplinary exploration. New York: Springer Publishing Company.
- Labouvie-Vief, G. (1985). Intelligence and cognition. In J. E. Birren. & K. W. Schaie (Eds.), Handbook of the psychology of aging. (pp. 500-530). New York: Van Nostrand Reinhold Company.
- Labouvie-Vief, G. (1992). A neo-Piagetian perspective on adult cognitive development. In R. J. Sternberg & C. A. Berg (Eds.), Intellectual development (pp.197-228). Cambridge: Cambridge University Press.
- Labouvie-Vief, G. (1998). Cognitive-emotional integration in adulthood. In K. W. Schaie & M. P. Lawton (Eds.), Annual review of gerontology and geriatrics: Volume 17 (pp. 206-237). New York: Springer Publishing Company, Inc.
- Labouvie-Vief, G., Chiodo, L. M., Goguen, L. A., Diehl, M., & Orwoll, L. (1995). Representations of self across the life span. Psychology and Aging, 10, 404-415.

- Labouvie-Vief, G., DeVoe, M., & Bulka, D. (1989). Speaking about feelings: Conceptions of emotion across the life span. Psychology and Aging, 4, 425-437.
- Labouvie-Vief, G. & Diehl, M. (2000). Cognitive complexity and cognitive-affective integration: Related or separate domains of adult development? Psychology and Aging, 15, 490-504.
- Labouvie-Vief, G., Hakim-Larson, J., & Hobart, C. J. (1987). Age, ego level, and the life-span development of coping and defense processes. Psychology and Aging, 2, 286-293.
- Labouvie-Vief, G. & Medler, M. (2002). Affect optimization and affect complexity: Modes and styles of regulation in adulthood. Psychology and Aging, 17, 571-588.
- Lang, F. R. & Baltes, M. M. (1997). Being with people and being alone in late life: Costs and benefits for everyday functioning. International Journal of Behavioral Development, 21, 729-746.
- Lawton, M. P., Kleban, M. H., & Dean, J. (1993). Affect and age: Cross-sectional comparisons of structure and prevalence. Psychology and Aging, 8, 165-175.
- Lawton, M. P., Kleban, M. H., Rajagopal, D., & Dean, J. (1992). Dimensions of affective experience in three age groups. Psychology and Aging, 7, 171-184.
- Lemerise, E. A. & Dodge, K. A. (1993). The development of anger and hostile interactions. In M. Lewis (Ed.), Handbook of emotions. New York: Guilford Press.

- Little, T. D., Cunningham, W. A., Shahar, G., & Widaman, K. F. (2002). To parcel or not to parcel: Exploring the question, weighing the merits. Structural Equation Modeling, 9, 151-173.
- Marsiske, M. & Willis, S. L. (1995). Dimensionality of everyday problem solving in older adults. Psychology and Aging, 10, 269-283.
- Mayer, J. D., Salovey, P., & Caruso, D. R. (2002). Mayer-Salovey-Caruso Emotional Intelligence Test user's manual. North Tonawanda, NY: MHS Publishing.
- Ong, A. D. & Bergeman, C. S. (2003, November). The complexity of emotions in later life. Poster presented at the annual meeting of the Gerontological Society of America, San Diego, California.
- Sherman, A.M. (1997). Friendship and mental health across the life span. Unpublished doctoral dissertation, The University of Michigan.
- Sherman, A.M., De Vries, B., & Lansford, J. E. (2000). Friendship in childhood and adulthood: Lessons across the life span. International Journal of Aging and Human Development, 51, 31-51.
- Siebert, D. C., Mutran, E. J., & Reitzes, D. C. (1999). Friendship and social support: The importance of role identity to aging adults. Social Work, 44, 522-533.
- Smith, C. A. & Lazarus, R. S. (1993). Appraisal components, core relational themes, and the emotions. Cognition and Emotion, 7, 233-269.
- Stanton, A. L., Kirk, S. B., Cameron, C. L., & Danoff-Burg, S. (2000). Coping through emotional approach: Scale construction and validation. Journal of Personality and Social Psychology, 78, 1150-1169.

- Stearns, C. Z. (1993). Sadness. In M. Lewis (Ed.), Handbook of emotions. New York: Guilford Press.
- Tiedens, L. Z. (2001). Anger and advancement versus sadness and subjugation: The effect of negative emotion expressions on social status conferral. Journal of Personality and Social Psychology, *80*, 86-94.
- Timmers, M., Fischer, A. H., & Manstead, A. S. R. (1998). Gender differences in motives for regulating emotions. Personality and Social Psychology Bulletin, *24*, 974-985.
- Trierweiler, L. I., Eid, M., & Lischetzke, T. (2002). The structure of emotional expressivity: Each emotion counts. Journal of Personality and Social Psychology, *82*, 1023-1040.
- Watson, T. L. (1997). The effects of emotion, strategy focus, and personal orientation on everyday problem solving effectiveness. Unpublished master's thesis, Georgia Institute of Technology, Atlanta.
- Watson, T. L. & Blanchard-Fields, F. (1998). Thinking with your head and your heart: Age differences in everyday problem-solving strategy preferences. Aging, Neuropsychology, & Cognition, *5*, 225-240.
- Zeman, J. & Garber, J. (1996). Display rules for anger, sadness, and pain: It depends on who is watching. Child Development, *67*, 957-973.