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Experiential Avoidance, Emotional Expression, and Psychopathology in Early and Late Adulthood

Sarah Marie Robertson
University of Tennessee - Knoxville

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To the Graduate Council:

I am submitting herewith a dissertation written by Sarah Marie Robertson entitled "Experiential Avoidance, Emotional Expression, and Psychopathology in Early and Late Adulthood." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Derek R. Hopko, Major Professor

We have read this dissertation and recommend its acceptance:

Diane Klein, Jenny Macfie, Todd Moore

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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EXPERIENTIAL AVOIDANCE, EMOTIONAL EXPRESSION, AND PSYCHOPATHOLOGY
IN EARLY AND LATE ADULTHOOD

A Dissertation
Presented for the
Doctor of Philosophy
Degree
The University of Tennessee, Knoxville

Sarah Marie Robertson
August 2009

DEDICATION

This dissertation is dedicated to:

my brothers, who teach me every day to chase my dreams.

my parents, for instilling in me a belief that “i can”.

drew, for sacrificing in a way that no human should.

ACKNOWLEDGEMENT

Special thanks are in order for Dr. Derek Hopko, the mentor that has supported and encouraged me in academic endeavors. I'm privileged to have worked with Derek for the past three years, and am honored to call him not only my mentor, but also my friend.

ABSTRACT

Experiential avoidance (EA) is an unwillingness to remain in contact with private and overt experiences, with higher EA associated with increased psychopathology. This study investigated relationships among EA, age, and the use of emotion words in positive and negative autobiographical narratives, as well as whether EA was associated with depression, anxiety, quality of life, and social support. Participants included younger (n=60) and older adults (n=60), who completed a positive and negative emotion narrative task along with measures of psychopathology. Results indicated that relative to younger adults, older adults spoke for longer time intervals in both narrative conditions. EA did not significantly affect narrative duration in either age cohort. However, despite longer narrative durations, older adults high in EA used fewer negative emotion words in the negative emotion narrative task compared to young adults high in EA. EA was positively associated with anxiety and depression and inversely related to quality of life and social support. Results are explained in the developmental context of the Socioemotional Selectivity Theory (Carstensen, 1991), which posits that young adults are more prone to communicate in situations that involve information attainment, whereas older adults verbal behaviors may be more a function of emotion regulation. Clinical implications are discussed.

TABLE OF CONTENTS

Introduction.....	1
Method.....	11
Results.....	16
Discussion.....	20
References.....	26
Vita.....	41

Introduction

Experiential avoidance (EA) occurs when “a person is unwilling to remain in contact with private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them, even when these forms of avoidance cause behavioral harm” (Hayes et al., 2004, p. 554). Central to the theory around EA is the idea that human suffering is an innate part of living. Data indicate that nearly 30,000 people will take their own lives every year, mental disorders occur at a prevalence rate of nearly 30%, and millions of people suffer from alcoholism and substance use disorders (Hayes, Strosahl, & Wilson, 1999). Still many others exist who might not necessarily meet criteria for a formal psychological diagnosis, but are psychologically impaired. For example, consider the student that is so shy that he is unable to interact with his classmates. Or consider a woman whose best friend has recently severed their relationship. Human suffering is pervasive, regardless of how severe that suffering may be. According to Hayes and colleagues, it is important to resist conceptualizing others from a stance of healthy normality (in which the homeostatic state is normality), and rather view things from the perspective of destructive normality, in which suffering is central to the idea of being human (Hayes et al., 1999). From this perspective, it is not “abnormal” to battle symptoms of psychopathology, but rather the normal experience.

Why is human suffering so pervasive? One quality that distinguishes humans from non-humans and relates to human suffering is the concept of *stimulus equivalence* (Hayes et al., 1999). When humans and non-humans are placed in front of a computer screen with a triangle at the top, and a square, octagon, and pentagon at the bottom, both groups can be trained to associate the triangle with any of the shapes at the bottom of the screen. When humans and non-humans are in front of a screen with the same triangle at the top and the numbers 1, 2, and 3 at the bottom of the screen, both humans and non-humans can learn to associate the triangle with any of

the aforementioned numbers. However, humans are also able to associate the target shape presented at the bottom of the first screen with the target number located at the bottom of the second screen. This is stimulus equivalence in action.

This concept plays an important role in the etiology and persistence of psychopathology. For example, consider a woman who has Generalized Anxiety Disorder. She is initially anxious because she is unhappy at work and fears her boss. Then, the anxiety becomes more pervasive, because she associates her boss with many of her co-workers. Suddenly, she feels anxious around everyone at work. And then, because one of her co-workers also volunteers with her at the local domestic violence shelter, she becomes anxious about helping other people. Because humans are able to associate apparently un-related stimuli, they become prone to developing increasingly intense symptoms of psychopathology.

The concept of bidirectionality also plays an important role in stimulus equivalence and describes how language processes contribute to the development and maintenance of pathology (Hayes, Pankey, Gifford, Batten, & Quinones, 2002). For example, when a woman has been assaulted, she subsequently associates the assault with certain cognitive, physiological, and behavioral responses, given the concept of stimulus equivalence. In part, this emotional experience is associated with language-based representations (or a narrative) that is fused with the event through classical conditioning, such that latter narrative description increases the likelihood of eliciting emotions actually experienced during the event (Eifert, Beach, & Wilson, 1998; Hayes et al., 2002). In terms of the bidirectionality of human experience, when these responses and language representations are later elicited in some context, the assault experience becomes more salient and fear and anxiety may concomitantly increase. Accordingly, to eliminate these unwanted experiences, efforts often are directed toward experientially avoiding circumstances and communications that may elicit fear, anxiety, and memories of the assault.

Unfortunately, research demonstrates that by avoiding unwanted experiences, the relationship between the stimulus and response paradoxically becomes strengthened rather than weakened (Hayes et al., 1999). For example, the thought suppression literature demonstrates that when one attempts to avoid thinking a certain thought, the frequency of that thought may increase rather than decrease (Koster, Rassin, Crombez, & Naring, 2003; Purdon, 1999). Similarly, when individuals are encouraged to control symptoms of anxiety rather than mindfully observe them, they demonstrate increased levels of fear and associated catastrophic thoughts (Eifert & Heffner, 2003). Further, it has become quite clear that avoiding exposure to phobic stimuli inhibits the extinction process and actually increases rather than decreases fear of the stimuli (Barlow, 2002; Hayes et al., 2002). These data all suggest the process of avoidance is largely counterproductive. Despite its ineffectiveness, however, people often engage in avoidant behaviors primarily due to short-term gains associated with avoiding aversive stimuli (i.e., alleviation of discomfort). Quite problematically, a large body of research demonstrates that such behavioral avoidance is strongly related to the etiology and persistence of anxiety and depressive disorders (Hayes et al., 1999; Orsillo, Roemer, Block, LeJeune, & Herbert, 2005; Tull, Gratz, Salters, & Roemer, 2004).

Along with utilization of various defense mechanisms (Cramer, 1998), EA represents a counter-productive emotion regulation strategy utilized to minimize the negative impact of potentially aversive environmental stimuli and situations. There are other more productive emotion regulation strategies that researchers and clinicians have identified to assist individuals toward confronting rather than avoiding difficult and aversive experiences. For example, cognitive reappraisal is an effective technique that enables individuals to confront feared stimuli by assessing the rationality of cognitions and modifying irrational cognitions with more adaptive thoughts (Barlow, Allen, & Choate, 2004). Linehan has suggested other methods of tolerating distress, including self-soothing, improving-the-moment strategies, and radical acceptance (Linehan, 1993). Hayes and colleagues have further elaborated on the process of acceptance as an

emotion regulation strategy, highlighting the importance of abandoning dysfunctional change agendas and focusing on active awareness and processing of feelings, thoughts, and memories, without concerted efforts to persistently manipulate these experiences (Hayes et al., 1999).

There has been much research demonstrating EA as an emotion regulation strategy. In general, research has demonstrated that higher levels of EA have been associated with increased levels of psychopathology. For example, higher EA scores have been associated with increased severity of trichotillomania (Begotka, Woods, & Wetterneck, 2004), increased self-harm in borderline personality disorder (Chapman, Specht, & Cellucci, 2005), increased dissociation in trauma victims (Marx & Sloan, 2005), increased depression in a substance dependent sample (Forsyth, Parker, & Finlay, 2003) and increased anxiety and panic symptoms (Eifert & Heffner, 2003; Tull et al., 2004). Data clearly indicate that increased levels of EA are significantly associated with increased levels of psychopathology across several domains.

Non-clinical samples also have been utilized in EA research. For example, Sloan reported that individuals high in EA experienced less self-reported emotion while watching emotionally evocative film clips compared with low EA participants (Sloan, 2004). However, relative to their low EA counterparts, high EA participants exhibited greater physiological arousal while viewing these videos, suggestive of desynchrony between what high EA participants reported experiencing and how they physiologically responded (Lang, 1968). When engaged in a cold suppression task, college students with high EA submerged their hands in cold water for a shorter time duration and reported a decreased ability to endure pain relative to individuals with low EA (Zettle et al., 2005). Higher EA also has been associated with increased general distress (Plumb, Orsillo, & Luterek, 2004). Finally, Feldner and colleagues demonstrated that when participants were subjected to inhalations of 20% carbon dioxide-enriched air, those high in EA responded with greater levels of anxiety and affective distress, but did not demonstrate differences in physiological arousal (Feldner et al., 2006), again suggestive of the counter-productive nature of

EA as a coping strategy as well as supportive of the concept of desynchrony across physiological and verbal responses among individuals high in EA.

To build on these research programs and further understand the impact of EA on human behavior, it would be useful to extend research methodologies to more directly evaluate the “real-world” implications of EA. Specifically, one potential consequence of EA is a decreased ability to express emotions, which has been associated with poorer mental health outcomes (Gross & John, 1997). One area in which decreased emotional expression might be most evident is in the verbal communication of emotions, with individuals high in EA potentially not as capable or willing to use emotion-laden language. In line with this hypothesis and in reference to the predicted inhibitory verbal patterns of highly EA individuals (Hayes et al., 1999), it is critical to more systematically assess the potential communicative consequences of EA, including whether EA manifests in a decreased ability to express emotions (Hayes & Gregg, 2001; Hayes et al., 1999), and whether higher levels of EA are associated with differential narrative processes.

In line with this objective, a novel research methodology was used to assess emotional expression. Rather than use a self-report measure of emotional expression, which has limitations associated with demand characteristics and elicits comprehension difficulties for some older adults (Hopko et al., 2003; Stanley, Beck, & Zebb, 1996), autobiographical narratives of positive and negative life events may represent a more valid method of assessing emotional expression. Although there is not a clear definition of an autobiographical narrative in the literature, it is widely accepted that narratives “place events in the larger context of one’s life, they relate events in a meaningful order, and most importantly, they provide evaluations of events that express their importance and personal significance” (Bohanek, Fivush, & Walker, 2005, p. 51). By utilizing autobiographical narratives, it is possible to quantify the frequency of emotional words expressed in everyday language, a method that might allow for a purer assessment of emotional expression or lack thereof.

Prior narrative research has involved description of retrospective events. For example, Alea and colleagues gathered narratives related to participants' experiences of the OJ Simpson trial verdict in younger and older adult samples (Alea, Bluck, & Semegon, 2004). Compared with younger adults, older adults demonstrated increased sadness in their personal narratives (e.g., "I cried when I heard the verdict"), but did not differ on the positive emotion dimension. While it is important to understand differences in how younger and older adults recall specific historical events, it is also meaningful to understand more about how aging might impact the communication of more personal emotional events. To address this issue, albeit not as a function of aging, a recent study required women to write about a moderately positive, intensely positive, moderately negative and intensely negative life event (Bohanek et al., 2005). Intensely negative narratives were the longest and least complex (as measured by the Microsoft Word Flesch-Kincaid Grade Level score), and intensely positive narratives were the most coherent (as judged by independent raters on a scale from 1 to 4, with a score of one indicating a very disorganized/unclear narrative and a score of 4 indicating a narrative that followed a clear chronological order with a complete account of the event). When another group of women were given surveys about unpleasant life experiences, the narrative dimensions best discriminating rape from other unpleasant experiences were decreased clarity of the event, which was measured by nine items assessing how well the event was remembered, how much the event was thought and talked about and how vivid the memories were (Tromp, Koss, Figueredo, & Tharan, 1995). Indeed, the manner in which one describes a life event seems to be strongly related to emotions associated with that event.

Research utilizing narratives in clinical populations has indicated that retelling a traumatic story often results in increased cohesion and clarity of the story, which has been associated with decreased symptom severity (i.e., behavioral exposure interventions). When rape victims were asked to retell traumatic stories, the number of phrases that contained emotional

words was greater in the last narrative description when compared to the first narrative description, and levels of depression were also significantly lower post-treatment (Foa, Molnar, & Cashman, 1995). Narratives also have been used among undergraduate students experiencing symptoms of posttraumatic stress disorder and students free of posttraumatic stress disorder symptoms (Gray & Lombardo, 2001). Surprisingly, written narratives did not produce any differences in complexity between the two groups. It was hypothesized that one reason that differences were not found was related to the fact that the narratives were written, rather than spoken, the latter of which could potentially be more anxiety provoking for participants.

In addition to aspects of the narrative that may impact how it is produced (e.g., intensity of event being described, personal relevance), it is conceivable that emotional expression in autobiographical narratives may differ as a function of gender. For example, females may express negative emotions such as anxiety, depression, and overall distress more frequently (Kring & Gordon, 1998; Simon & Nath, 2004; Thomsen, Mehlsen, Viidik, Sommerlund, & Zachariae, 2005). Across a wide variety of dependent measures, including electromyography (EMG), self-report ratings, nonverbal behaviors, and ratings of communication accuracy, women may generally be more emotionally expressive than men (Greenwald, Cook, & Lang, 1989; Halberstadt, Hayes, & Pike, 1988). However, there is some debate about whether gender differences in negative emotional expression generalize to differences in positive emotional expression. Some data suggest men and women express positive emotions with comparable skill (Fujita, Diener, & Sandvik, 1991), while other data indicate women are more expressive of positive emotions (Barr & Kleck, 1995). It should be noted that emotional expression does seem to be affected by contextual cues, and one's level of emotional expression can change as a function of social setting, as when expression of a positive feeling increases when surrounded by familiar people, and expression of a negative feeling decreases around unfamiliar people (Buck, Losow, Murphy, & Costanzo, 1992).

In addition, EA and emotional expression may differ as a function of age, a research question not previously addressed. Indeed, there is reason to speculate that older adults may be less emotionally expressive than younger adults. The Socioemotional Selectivity Theory (SST; Carstensen, 1991) states that social (and communication) behaviors are motivated by either the acquisition of knowledge or the regulation of emotion. According to SST, in early adulthood communicative behaviors are primarily motivated by the acquisition of knowledge, while in late adulthood, communication is characterized more by increased tendencies to regulate emotion. Thus, older adults may be less inclined to communicate emotional experiences. Empirical support for this theory includes studies that demonstrate older adults may experience less negative emotion, may be more capable of controlling emotional responses, and may endorse fewer symptoms of pathology than younger adults (Gross et al., 1997; Lawton, Kleban, Rajagopal, & Dean, 1992). Given that older adults may demonstrate increased emotional control, it is reasonable to speculate that older adults might be less emotionally expressive in the context of an autobiographical narrative task.

In response to the paucity of research examining how EA is associated with emotional expression in “real-world” tasks and the absence of work investigating EA and its impact on older adults, this study was critical toward elucidating how EA might relate to maladaptive communication patterns (i.e., verbal avoidance) that might affect self-reported pathology and potentially differ as a function of age cohort. The study was designed with the following objectives. The first objective was to extend our understanding of EA in early and late adulthood by examining whether differences in EA occurred between a sample of young adults and a sample of older adults. As the second objective, data was collected to elucidate whether age, gender, and EA might significantly affect the duration of the autobiographical narratives. Duration is important to consider, because based on the definition of EA, participants higher in EA could be unwilling to remain in contact with an uncomfortable private experience. It is

possible, however, that duration might not be as closely related to EA as the frequency of emotional words utilized might be, given that someone high in EA could speak about a personal narrative for a long time, yet they might not utilize emotional words. With this consideration in mind, as a third objective, it was assessed whether age, gender, and EA might significantly affect the frequency of emotional words. As a fourth objective, two participant samples (young and older adults) were included to more comprehensively explore the relationship between EA and psychopathology by assessing associations among EA, age, depression, anxiety. This study was notably the first to explore the relation of EA and psychopathology in older adults. Related to this objective, research was extended to assess relations among EA, social support, and quality of life, relationships not yet examined within any age cohort. It is theorized that individuals high in EA are often unsuccessful in experientially avoiding unwanted emotions (Hayes et al., 1999), and that efforts toward avoiding aversive stimuli often maintain and even increase psychopathology (Barlow, 2002; Koster et al., 2003; Purdon, 1999). These attempts to experientially avoid may not only be an ineffective emotion regulation strategy but ultimately lead to the restriction of social interactions and simultaneously decrease quality of life (Coyne & Downey, 1991; Frisch, 1999; Masthoff, Trompenaars, Van Heck, Hodiament, & De Vries, 2006). Also, given the concept of stimulus equivalence, someone who has an unpleasant experience with one person could generalize their experience to include many people, which would ultimately lead to one feeling less socially supported. Research has indicated strong associations between quality of life and social support in both young and older adults, thus bolstering the argument that one high in EA who has minimal social support could also have a decreased quality of life (Helgeson, 2003; Newsom & Schulz, 1996).

Finally, using the narrative methodology, this study was designed to adopt a more naturalistic strategy of assessing emotional expression as it related to EA, age, and psychopathology. Narrative research has been documented to be useful in discriminating among

individuals on various demographic and clinical characteristics (i.e., assessment), and has been useful as a form of psychotherapy (Freedman & Combs, 1996; Neuner, Schauer, Klaschik, Karunakara, & Elbert, 2004). Accordingly, this method may be useful toward addressing present research questions and conceptualizing emotional expression and EA in adults, but also have important practical applications that may be further informed by study findings.

The following hypotheses were tested:

(a) Older adults would have higher EA scores than young adults.

(b) Age, gender, and EA would significantly affect the duration (total seconds) of autobiographical narratives, such that decreased age, female gender, and low levels of EA would be associated with increased duration.

(c) Age, gender, and EA would significantly affect the number of affect-laden words utilized in autobiographical narratives, such that decreased age, female gender, and low levels of EA would be associated with increased use of affect-laden words.

(d) Higher levels of EA would be associated with increased depression and anxiety, as well as decreased quality of life and social support.

Method

Participants

Young adults (age 18-25) were recruited from the University of Tennessee introductory psychology courses ($n = 60$) and registered for the study through the departmental research website. Older adults (age 60+) were recruited from the John T. O'Connor Senior Citizen's Center ($n = 60$). Recruitment flyers were placed in the Senior Center, and interested persons contacted the researcher to schedule an appointment. Demographic characteristics of the study samples are found in Table 1.

Chi-square tests were utilized to assess differences on categorical demographic data as a function of age group. There were no significant differences related to gender and ethnicity as a function of age. There were significant differences in occupational status [$\chi^2(4) = 60.06, p < .05$] and marital status [$\chi^2(4) = 101.29, p < .05$] as a function of age. Regarding occupational status (based on Fisher's exact tests), relative to older adults, significantly more young adults were employed part-time and unemployed, and fewer younger adults were retired ($p < .05$). Regarding marital status, a significantly greater proportion of young adults were single and significantly more older adults had been married, divorced, and widowed.

Measures

Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004). The AAQ is a 9-item scale designed to assess levels of EA. Sample items from the scale include "Anxiety is bad", "If I could magically remove all the painful experiences I've had in my life, I would do so", and "I'm not afraid of my feelings." Responses range from 1 (never true) to 7 (always true). This measure has been shown to have adequate reliability (Hayes et al., 2004), although the study included only a small number of geriatric participants. Internal consistency ($\alpha = .70$) has been demonstrated in clinical and non-clinical samples, as well as adequate 4-month test-retest reliability in an undergraduate population ($r = .64$). In the current study, internal consistency was comparable (α

= .60), with AAQ internal consistency somewhat higher among younger ($\alpha = .67$) relative to older adults ($\alpha = .56$).

State Trait Anxiety Inventory-Trait (STAI; Spielberger, 1984). The STAI-Trait is a 20-item scale used to measure trait anxiety. Good to excellent internal consistency has been reported for this scale (α 's between .86 and .95) across adult, college, high school, and military recruit samples (Spielberger, 1984). Adequate 30-day test-retest reliability with high school students ($r = .75$) and 20-day test-retest reliability with college students has been reported ($r = .86$; Spielberger, 1984). Convergent validity of the STAI-T and other trait measures of anxiety are evident among both normal and anxiety disorder samples (Beiling, Antony, & Swinson, 1998; Creamer, Foran, & Bell, 1995). The STAI also has strong psychometric properties in samples of older adults (Himmelfarb & Murrell, 1983). In the current study, internal consistency was very strong ($\alpha = .94$).

Beck Anxiety Inventory (BAI; Beck & Steer, 1993a). This 21-item likert-type measure is designed to assess cognitive and somatic symptoms of anxiety. This measure has been shown to have strong internal consistency ($\alpha = .92$) in a clinical sample of young adults and a diverse sample of older adults (Hewitt & Norton, 1993). In an older adult sample, adequate convergent validity was demonstrated with the Hamilton Anxiety Rating Scale ($r = .47$; Morin et al., 1999). In the current study, internal consistency was very strong ($\alpha = .90$).

Beck Depression Inventory-II (BDI-II; Beck & Steer, 1993b). This 21-item self-report measure is designed to assess different symptoms of depression, including depressed mood, guilt, punishment, suicidal ideation, insomnia, and changes in appetite. The BDI-II has strong psychometric properties in samples of younger and older adults (Beck & Steer, 1993b). Within an older adult community-dwelling population, strong internal reliability ($\alpha = .86$) and construct validity ($r = .69$ when correlated with the Center for Epidemiologic Studies Depression Scale) have been demonstrated (Segal, Coolidge, Cahill, & Riley, 2008). Among young adults, strong

internal reliability ($\alpha = .92$) and construct validity ($r = .69$ when correlated with the Center for Epidemiologic Studies Depression Scale) have also been demonstrated (Segal et al., 2008). In the current study, internal consistency was very strong ($\alpha = .91$). Although there is some debate regarding the appropriateness of the BDI-II in the older adult population, given that symptoms of depression can be confounded with symptoms of the normal aging process, adequate construct validity and reliability have been demonstrated in older adult populations. By using the BDI-II with older adults, it is possible to make a relatively pure comparison between the depressive symptoms of young and older adults. For these reasons, the BDI-II was selected as the primary measure of depression.

The Quality of Life Inventory (QOLI; Frisch, 1999). This 32-item self-report measure assesses levels of life satisfaction. The instrument provides a global score based on average satisfaction ratings across a range of life domains (i.e., health, finances, social support). The scale has been demonstrated to have strong internal consistency (α 's range from .77 to .89) and test-retest reliability (coefficients range from .80 to .91) in clinical and non-clinical samples of younger and older adults (Frisch, Cornell, Villanueva, & Retzlaff, 1992). In the current study, internal consistency was strong ($\alpha = .80$).

The Multidimensional Scale of Perceived Social Support (MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988) is a 12-item scale that assesses adequacy of social support from family, friends, and significant others. The instrument has adequate internal consistency ($\alpha = .88$), test-retest reliability ($r = .85$), and construct validity in young adults (Zimet et al., 1988). The instrument also has strong psychometric properties in clinical and non-clinical samples of older adults, including strong internal consistency (α 's between .87 and .94) and test-retest reliability ($r = .73$; Stanley, Beck, & Zebb, 1998). In the current study, internal consistency was strong ($\alpha = .80$).

Mini-Mental Status Examination (MMSE; Folstein, Folstein, & McHugh, 1975). This

measure was designed to assess cognitive impairment in adults, which was based on an MMSE score of 23 or lower (Tombaugh & McIntyre, 1992). This measure has been demonstrated to have strong construct validity ($r = .78$) and test-retest reliability ($r = .89$) in older adults samples (Folstein, Folstein, & McHugh, 1975).

Linguistic Inquiry and Word Count Program (LIWC; Pennebaker & Francis, 1996). This computer program analyzes the linguistic content of narratives. All narratives were transcribed and entered into the LIWC. The LIWC categorized words into two primary categories: *negative emotion* and *positive emotion*. The duration of narratives and frequency of emotional words utilized were the dependent measures. This program has been demonstrated to have adequate external validity ($\alpha = .31$ and $.41$ for negative and positive emotion words, respectively) and internal reliability ($\alpha = .97$ for both negative and positive emotion words) and has been utilized by several narrative researchers (Fivush, Edwards, & Mennuti-Washburn, 2003; Pennebaker, Booth, & Francis, 2001; Smith, Anderson-Hanley, Langrock, & Compas, 2005; Wechsler, 1997).

Procedures

Inclusion criteria were as follows: Participants were all within the appropriate age range, fluent in English, and capable of producing speech. Participants were excluded for the study if they were cognitively impaired based on an MMSE score of 23 or lower (Tombaugh & McIntyre, 1992), and one older adult participant was excluded for this reason. All participants initially completed informed consent procedures followed by administration of the Mini Mental Status Examination (Folstein et al., 1975). Next, participants filled out a brief demographic form that included age, gender, level of education, and marital status (see Table 1). Questionnaires were then administered that included the Acceptance and Action Questionnaire (AAQ), State Trait Anxiety Inventory (STAI), Beck Anxiety Inventory (BAI), Beck Depression Inventory (BDI-II), Quality of Life Inventory (QOLI), and the Multidimensional Scale of Perceived Social Support (MSPSS). Participants then moved to the narrative phase of the study.

During this phase, participants were asked to speak about a positive and negative life experience. In line with other narrative research (Alea et al., 2004), they were asked to recall as much about these experiences as possible. All narratives were recorded on audiotape. The specific instructions were as follows: “Today I am interested in hearing about the different experiences that people have in life. Please describe a positive emotional experience that you went through. Try to imagine the event in your mind and talk continuously about your thoughts and feelings related to the event you are describing. Please try to do this with as much detail as possible and please begin now.” After describing this positive emotional experience, participants were asked to describe a negative emotional experience. Narrative order was counterbalanced. Participants had up to twenty minutes to describe each emotional experience. All participants were prompted with the question, “What else can you remember about that event?” if they stopped talking before ten minutes had elapsed. Young adults completed study procedures at the University of Tennessee, while older adults completed study procedures at the Senior Center.

Results

Experiential Avoidance as a Function of Age.

An independent samples t-test demonstrated no significant difference between the AAQ scores of young ($M = 30.38$, $SD = 6.03$) and older ($M = 30.63$, $SD = 7.22$) adults [$t(116) = -.21$, $p > .05$] (see Table 2 for self-report measure descriptive statistics and Table 3 for narrative descriptive statistics).

Autobiographical Narratives

For all analyses in this section, criterion variables initially were regressed on age and gender (both effects coded), EA, age X gender, age X EA, and gender X EA. EA was centered prior to forming the product terms of the interaction to reduce multicollinearity among the predictors (Aiken & West, 1992). For all analyses, participants scoring 2.5 standard deviations above or below the mean were excluded from data analyses (Hair, Anderson, Tatham, & Black, 1995) in order to reduce the likelihood that analyses would be impacted by outliers and thus non-representative of the larger sample. Because differing numbers of participants fell outside the ± 2.5 SD range relative to each dependent variable, the “N” values will be different for each of the following analyses.

Duration (in seconds) of Positive Autobiographical Narratives. Initial results ($N = 114$; 2 older females and 4 older males excluded) indicated that gender, age X gender, and EA X gender were all non-significant and were therefore removed from the model (Trochim, 2001). The final regression equation included age, EA, and age X EA. There was a significant effect for age [$B = -.23$, $t(113) = -2.68$, $p < .05$], such that older adults spoke longer than younger adults. The effect of EA was non-significant. However, there was a significant interaction between age and EA [$B = .29$, $t(113) = 3.37$, $p < .05$]. The interaction was decomposed by testing dummy coded predictors and generating predicted means at high and low levels of EA (i.e., 1 sd above and below the mean of centered EA). At low levels of EA, there was a significant age effect [$B = -.53$, $t(113) = -4.25$,

$p < .05$]. At high levels of EA, there was no significant age effect [$B = -.06$, $t(113) = .50$, $p > .05$].

Duration (in seconds) of Negative Autobiographical Narratives. Initial results ($N = 117$; 1 older female and 2 older males excluded) indicated that gender, age X gender, and EA X gender were all non-significant and were therefore removed from the model. The final regression equation included age, EA, and age X EA. There was a significant effect for age [$B = -0.23$, $t(116) = -2.56$, $p < .05$], such that older adults spoke longer than younger adults. There was not a significant effect for EA [$B = -0.11$, $t(116) = -1.32$, $p > .05$]. There was a significant interaction between age and EA [$B = 0.21$, $t(116) = 2.45$, $p < .05$]. The interaction was decomposed by testing dummy coded predictors and generating predicted means at high and low levels of EA (as above). At low levels of EA, there was a significant effect of age [$B = 0.45$, $t(116) = 3.53$, $p < .05$]. At high levels of EA, there was no significant effect of age [$B = -0.01$, $t(116) = -0.05$, $p > .05$]. To determine if increased narrative duration was associated with increased frequency of emotional-laden words, additional regression analyses were conducted using the number of affect-laden words as the criterion variable.

Frequency of Affect-Laden Words

Frequency of Positive Affect Words in Positive Narratives. Initial results ($N = 117$; 2 young females and 1 older male excluded) indicated that gender, age X gender, and EA X gender were all non-significant and were therefore removed from the model (Trochim, 2001). The final regression equation included age, EA, and age X EA. The effects of age and EA were not significant. However, there was a significant interaction between age and EA [$B = .20$, $t(117) = 2.17$, $p < .05$]. The interaction was decomposed by testing dummy coded predictors and generating predicted means at high and low levels of EA (i.e., 1 sd above and below the mean of centered EA). At low levels of EA, there was a trend whereby older adults used a greater number

of positive affect words [$B = .25$, $t(117) = 1.94$, $p = .05$]. At high levels of EA, there was not a significant effect of age [$B = -.15$, $t(117) = -1.13$, $p > .05$].

Frequency of Negative Affect Words in Negative Narratives. Initial results ($N = 118$; one young female and one older male excluded) indicated that gender, age X gender, and EA X gender were all non-significant and were therefore removed from the model. The final regression equation included age, EA, and age X EA. The effect of EA was non-significant [$B = -0.02$, $t(118) = -0.18$, $p > .05$]. The effect of age was significant [$B = .20$, $t(118) = 2.26$, $p < .05$], such that older adults used fewer negative affect words than younger adults. There also was a significant age x EA interaction [$B = 0.19$, $t(118) = 2.10$, $p < .05$]. The interaction was decomposed by testing dummy coded predictors and generating predicted means at high and low levels of EA. At low levels of EA, there was not a significant effect of age [$B = -0.02$, $t(118) = -0.12$, $p > .05$]. At high levels of EA, there was a significant effect of age whereby older adults used fewer negative affect words than younger adults [$B = -0.39$, $t(118) = -3.05$, $p < .05$].

Relation of Experiential Avoidance and Mental Health Variables.

Bivariate Analyses. Pearson Product Moment correlations were computed between primary study variables (AAQ, STAI-Trait, BAI, BDI, MSPSS and QOLI). There were significant correlations between all study measures with the exception of the association between the BAI and the MSPSS (see Table 4).

Multivariate Analyses. All dependent measure scores (STAI, BAI, BDI, MSPSS and QOLI) were regressed on age and gender (both effects coded), EA, age X gender, age X EA, and gender X EA. For all analyses, participants with scores 2.5 standard deviations above or below the mean were excluded from data analyses (Hair et al., 1995). Also, for all analyses in this section (Relation of Experiential Avoidance and Mental Health Variables), initial results indicated that gender, age X gender, and EA X gender were all non-significant and were therefore removed from the model. The final regression equation for all analyses in this section included

age, EA, and age X EA. There were significant effects of EA on all variables, and there were no significant age X EA interactions. Regarding the BAI only, there was a significant effect for age [$B = 0.20$, $t(107) = 2.51$, $p < .05$], such that young adults ($M = 9.28$, $SD = 1.04$) were more anxious than older adults ($M = 6.67$, $SD = .94$).

Conclusion

The first study hypothesis predicted that older adults would have higher EA scores than young adults. This hypothesis was not supported by the data in that there were no differences in EA scores as a function of age group. One possible explanation for this finding relates to sample characteristics. The older adult participants in this study were all actively involved with a local senior center. The sample therefore did not include older adults who were in short-term or long-term care facilities, people who simply lacked the motivation to be involved with a local senior center, or any other more representative community sample. Hypothetically, by virtue of their willingness to attend a local senior center, this cohort of older adults could represent individuals who are more inclined to exhibit approach behaviors. In other words, heightened EA might inhibit older adults from exploring these community opportunities, and thus result in a sample that was over-represented by less experientially avoidant older adults. Accordingly, it is quite possible that including a broader community sample of older adults might result in the expected differences in EA related to age.

The second hypothesis of this study predicted that age, gender, and EA would affect the duration of both positive and negative autobiographical memories. This hypothesis was partially supported in that EA was predictive of the duration of narratives in the expected direction, but only for older adults. Older adults with higher levels of EA spoke for significantly less time than older adults with lower levels of EA. It is possible that narratives of younger adults were not significantly affected by EA given that communicative behaviors of younger adults may be functionally related to a different stage of emotional development. In particular, as per the Socioemotional Selectivity Theory (SST), if younger adults are in fact less concerned about governing emotional experiences as a product of developmental stage, it would be logical that (emotional) narrative duration would be less dependent upon EA. In other words, younger adults may be less sensitive to the effects of EA on narrative emotional expression because their verbal

behavior is more controlled by whether they obtain information rather than efforts to avoid certain emotions, thoughts, and memories. Conversely, for older adults, SST postulates that verbal behavior will be more controlled by regulation and inhibition of emotional responses. Therefore, given this pre-existing (developmental) emphasis on modulating emotional expression, older adults who were also experientially avoidant would be particularly affected.

Another way of interpreting these data is to state that although the duration of emotional narratives is lengthier for older adults, this effect is eliminated when EA is considered. At high levels of EA, the tendency for older adults to communicate emotional information is lost. The question then becomes one of whether equivalent narrative duration between younger and older adults high in EA translates into similar usage of emotionally laden words? In examining negative emotion word-frequency data, it becomes clear that despite equivalent communication length, older adults with higher levels of EA use fewer negative emotion words. Accordingly, high EA in older adults has the effect of not only reducing duration of narratives, but also inhibiting their use of emotionally expressive words. So interestingly, although the hypothesis that narrative duration would be longer in younger adults (i.e., they would be more expressive emotionally) was not supported, this finding is probably most attributable to the notion that duration itself was not a valid index of emotional expression.

The third hypothesis predicted that age, gender, and EA would affect the frequency of affect-laden words utilized in both positive and negative autobiographical narratives. This hypothesis was partially supported in that there were significant effects for age (negative narrative only), and age X EA interactions occurred. Quantifying the number of affect-laden words utilized is perhaps a more direct assessment of emotional expression, and in the context of this hypothesis, Socioemotional Selectivity Theory was supported. Older adults utilized less affect-laden words in the negative narrative. In other words, the longer narrative durations of older adults seemed less reflective of increased emotional expression, and more a tendency to

communicate expansively in the context of an open-ended inquiry. Another interpretation could be that for older adults, extended communication functioned as anxious avoidant behavior.

It is important to distinguish between the expression of emotion and the intensity of emotion. Data from this study indicated that young adults were more expressive of negative emotions than older adults, but it would be inappropriate to conclude that younger adults also experience emotion more intensely than older adults. Indeed, although research suggests older adults may express emotions less regularly, older and younger adults appear to experience the same level of emotional intensity when these emotions are elicited (Charles & Carstensen, 2007). Accordingly, and consistent with the SST, it is possible that older adults experience emotions in a form similar to young adults, but generally may be more cautious insofar as expressing these emotions. Several studies support this notion. For example, one study found that older adults were more likely than younger and middle-aged participants to agree with the following statements: “I try hard to stay in a neutral state and to avoid emotional situations” and “I try to avoid reacting emotionally, whether the emotion is positive or negative” (Lawton et al., 1992). Across different samples, older adults also reported having more emotional control relative to younger adults (Gross et al., 1997). Therefore, while older adults demonstrated less (negative) emotional expression than young adults in this study, it is important to acknowledge that this does not mean that older adults necessarily experience emotion in a manner that is structurally differently than young adults.

The fourth study hypothesis predicted that higher levels of EA would be associated with increased endorsement of symptoms on a range of mental health indices including increased depression and anxiety (BDI-II, BAI, STAI), decreased quality of life (QOLI), and poorer social interactions (MSPSS). Data from the study provided full support for this hypothesis, given that higher AAQ scores were significantly correlated with higher STAI-Trait, BAI, BDI, and lower MSPSS and QOLI scores. Data also indicated an important difference as a function of age,

in that younger adults had higher BAI scores than older adults. This finding is congruent with other data that indicate high functioning older adults often report decreased anxiety, worry, and depression relative to college student samples (Crittendon & Hopko, 2006; Gillis, Haaga, & Ford, 1995; Hunt, Wisocki, & Yanko, 2003), a trend that may largely be a function of increased stress and anxiety in college students in recent years (Blanchard et al., 2004; Rosslyn, 2004) or possibly a tendency of older adults to under report symptoms of anxiety (Levy, Conway, Brommelhoff, & Merikengas, 2003) – this latter hypothesis consistent with the theory that older adults may be more inclined toward emotional inhibition.

One limitation of this study is related to the idea that the LIWC program did not allow for analysis of emotional intensity. Rather, the LIWC program placed words into different emotional categories. So, the words “bad” and “terrible” were both categorized as negative emotion words, but there was no distinction between the relative intensity of these words. Another limitation of this study includes the age range of older adult participants. The youngest participant was 60 years old while the oldest participant was 99 years old. It is possible that the developmental status of the young-old is substantially different than someone who is considered old-old. Restricting the upper limit of age participation, or categorizing older adult participants as young-old or old-old could be appropriate for future analyses. As mentioned previously, another limitation includes the recruitment of older adults that are active in a senior center, as opposed to a more general sampling of older adults in a wide variety of settings. Also, in future studies related to autobiographical narratives, it could be important to offer participants a “warm-up” narrative in which rapport with the researcher is further established in order to enhance a participant’s willingness to provide a personal story about their lives. It is also seems important to measure the amount of time that has passed since the event that the participant is speaking about has occurred, as differences could be seen related to whether the event occurred recently or in the distant past.

It is important to address, from a clinical perspective, how this data can apply to the work done in the context of psychotherapy. It seems important to recognize that one's willingness to share intimate emotional stories about their life could be affected by age. Older adults might provide lengthier stories about their past, but they might use fewer emotion words when doing so, especially in the context of an unpleasant story. This effect will be particularly evident among older adults high in EA. According to the literature on the treatment of phobias, helping someone encounter a feared stimulus ultimately helps them become less afraid and more willing to approach the feared stimulus. Similarly, helping one to share uncomfortable stories about their life can help them to consolidate and ultimately heal from painful life experiences.

In summary, age and EA play important roles in communication patterns as assessed in the context of an autobiographical narrative. Young adults utilized more negative emotion-laden words than older adults when discussing events that occurred in the past, while older adults appeared to regulate their emotional expression. As discussed earlier, however, it has been strongly speculated that emotional suppression is related to increased pathology. Given the absence of any EA x age interactions on mental health variables, it appears that although older adults may be less expressive of negative emotions in the context of a narrative methodology, this does not necessarily predispose them toward increased mental health problems. Given the paucity of research on EA and older adults, one obvious interpretation is that emotional suppression may impact the mental health of younger adults to a greater degree than older adults. Perhaps the developmental inclination to be more controlled and regulated emotionally is adaptive for older adults, and somehow serves as a protective mechanism insofar as reducing the likelihood of having (negative or aversive) life experiences that might result in stress, anxiety, depression, and so forth. Future research aimed at replicating these findings and more carefully examining the role of EA across the lifespan could illuminate when the potentially deleterious effects of EA

begin to emerge, as well as whether EA may serve different functions for older and younger adult cohorts.

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Appendix

Table 1
Demographic Descriptive Statistics

	Young (n=60)	Old (n=60)	Total Sample (N=120)
Age	19.63 (SD=.23)	72.03 (SD=1.15)	45.83 (SD=27.07)
Education	13.27 (SD=.15)	14.07 (SD=.37)	13.67 (SD=2.21)
Gender (Women)	36 (60.00%)	43 (71.67%)	79 (65.83%)
Ethnicity			
Caucasian	50 (83.33%)	56 (93.33%)	106 (88.33%)
African-American	6 (10.00%)	3 (5.00%)	9 (7.50%)
Latino	2 (3.33%)	0 (0.00%)	2 (1.67%)
Asian or Pacific Islander	2 (3.33%)	0 (0.00%)	2 (1.67%)
American Indian	0 (0.00%)	1 (1.67%)	1 (.83%)
Marital Status			
Single (Never Married)	59 (98.33%)	4 (6.67%)	63 (52.30%)
Married	1 (1.67%)	14 (23.33%)	15 (12.50%)
Separated	0 (0.00%)	2 (3.33%)	2 (1.67%)
Divorced	0 (0.00%)	18 (30.00%)	18 (15.00%)
Widowed	0 (0.00%)	22 (36.67%)	22 (18.33%)
Occupational Status			
Employed Full-Time	2 (3.33%)	1 (1.67%)	3 (2.50%)
Employed Part-Time	28 (46.67%)	14 (23.33%)	42 (35.00%)
Unemployed-SE	8 (13.33%)	2 (3.33%)	10 (8.33%)
Unemployed-NSE	22 (36.67%)	4 (6.67%)	26 (21.67%)
Retired	0 (0%)	39 (65.00%)	39 (32.50%)

Table 2

Descriptive Statistics for Dependent Variables

	Young (mean, SD)	Old (mean, SD)	Total Sample (mean, SD)
AAQ	30.38 (6.03)	30.63 (7.22)	30.51 (6.63)
STAI-Trait	35.96 (9.70)	34.36 (8.26)	35.21 (9.00)
BAI	9.28 (7.65)	6.67 (6.93)	7.97 (7.38)
BDI	9.91 (7.28)	8.72 (7.40)	9.31 (7.34)
MSPSS	2.28 (1.22)	2.72 (1.76)	2.39 (1.38)
QOLI	2.38 (1.39)	2.64 (1.37)	2.51 (1.38)

Table 3

Descriptive Statistics for Autobiographical Narrative Data

	Young (n=60)	Old (n=60)	Total Sample (N=120)
Duration (in seconds)			
Positive Narrative	127.60 (107.54)	185.44 (137.43)	155.00 (125.46)
Negative Narrative	166.35 (133.47)	233.07 (153.44)	198.86 (146.80)
Number of emotion words			
Positive Narrative	16.93 (10.91)	18.05 (10.52)	17.50 (10.68)
Negative Narrative	12.64 (7.63)	9.75 (6.69)	11.19 (7.29)

Table 4

Bivariate Correlations Among Primary Study Variables

Measures

	AAQ	STAI-Trait	BAI	BDI	MSPSS	QOLI
—						
AAQ	-----					
STAI-Trait	.69**	-----				
BAI	.57**	.60**	-----			
BDI	.64**	.82**	.65**	-----		
MSPSS	.25**	.19*	.09	.28**	-----	
QOLI	-.55**	-.68**	-.46**	-.63**	-.36**	-----

** Correlation is significant at the .01 level.

*Correlation is significant at the .05 level.

VITA

Sarah Marie Robertson was born in Terre Haute, Indiana on March 12, 1979. She was raised in Terre Haute and Orlando, Florida. She graduated from Furman University in Greenville, South Carolina in 2001 with a BS in Psychology. She later attended the University of Colorado where she received an MA in Clinical Psychology in 2003. Sarah is currently pursuing her doctorate in Clinical Psychology at the University of Tennessee, Knoxville.