

Anxiety Sensitivity, Experiential Avoidance, and Mindfulness Among Younger and Older Adults: Age Differences in Risk Factors for Anxiety Symptoms

The International Journal of Aging
and Human Development
2015, Vol. 81(4) 217–240

© The Author(s) 2015

Reprints and permissions:

sagepub.com/journalsPermissions.nav

DOI: 10.1177/0091415015621309

ahd.sagepub.com



Colin T. Mahoney¹, Daniel L. Segal¹, and
Frederick L. Coolidge¹

Abstract

In this cross-sectional study, we examined age-related differences in anxiety sensitivity (AS), experiential avoidance (EA), and mindfulness among younger adult students ($N = 426$; M age = 20.1 years) and community-dwelling older adults ($N = 85$; M age = 71.8 years). Participants anonymously completed the Anxiety Sensitivity Index-3, Acceptance and Action Questionnaire-II, Mindful Attention Awareness Scale, Kentucky Inventory of Mindfulness Skills, Beck Anxiety Inventory, Geriatric Anxiety Scale, and State-Trait Anxiety Inventory. Independent t tests indicated that younger adults reported significantly higher levels of AS and EA, whereas older adults reported significantly higher levels of trait mindfulness. Correlational analyses demonstrated that AS and EA were significantly associated with each other and with anxiety-related symptoms. However, trait mindfulness was significantly inversely related to AS, EA, and to trait and state anxiety. To date, these three factors have yet to be examined simultaneously within the context of age differences, and the present study illuminates these differences as well as their relationships. AS, EA, and low

¹University of Colorado at Colorado Springs, Colorado Springs, CO, USA

Corresponding Author:

Daniel L. Segal, Psychology Department, University of Colorado at Colorado Springs, 1420 Austin Bluffs Parkway, Colorado Springs, CO 80918, USA.

Email: dsegal@uccs.edu

mindfulness appear to be significant correlates for anxiety-related symptoms in younger and older adults.

Keywords

anxiety, anxiety sensitivity, experiential avoidance, mindfulness, aging

Anxiety is a pervasive problem that affects individuals across the lifespan. Anxiety may range in severity from mild, adaptive anxiety, wherein it enhances one's normal functioning and maintains one's sense of safety, to severe and debilitating symptoms that are characteristic of anxiety disorders. Although anxiety is often an expected response to a life stressor, it can also be incapacitating and cause serious emotional distress, especially if it arises without an objectively identifiable threat. Some people may seek help from a variety of mental health resources, and some may look to their social support system, while others still may suffer silently. Regardless of their reaction, some individuals are may not be fully cognizant of the internal characteristics that created their initial vulnerability to anxiety (i.e., risk factors). This self-awareness is critical for adaptive functioning as it allows individuals to enact positive coping strategies and to seek treatment to address these potential vulnerabilities before they evolve into highly distressing anxiety symptoms. This study focuses on three specific constructs, namely anxiety sensitivity (AS), experiential avoidance (EA), and low levels of mindfulness, to determine the extent to which they are associated with anxiety symptoms in younger and older adults. No study to date has examined these factors simultaneously, highlighting potential avenues for anxiety psychopathology to be exacerbated or fostered by these processes, which likely operate in a dynamic system rather than separately.

AS refers to "the tendency to fear body sensations associated with anxious arousal because of their perceived physical, psychological, or social consequences" (Wheaton, Mahaffey, Timpano, Berman, & Abramowitz, 2012, p. 891). Individuals with this disposition tend to misinterpret the implications of their physiological reactions to anxiety, thus exacerbating their symptoms in the process. This catastrophic thinking can lead to intense fear of these experiences, anxiety-related pathology, and severe subsequent impairment. The expectancy model of fear posits that the avoidance of feared stimuli arises from both expectation and sensitivity (Reiss, 1991). Expectation signifies what the individual anticipates will happen when he or she confronts the feared stimuli, whereas sensitivity denotes the underlying reasons for fearing the stimuli. AS is a product of both expectation and sensitivity in that the individual anticipates deleterious consequences of anxious arousal, which in turn functions as motivation to fear this emotionally charged physiological reaction.

Researchers have highlighted the connection between AS and various anxiety disorder symptoms among younger adults. Using the Anxiety Sensitivity Index-3

(ASI-3; Taylor et al., 2007), Wheaton, Mahaffey, et al. (2012) found several relationships between obsessive-compulsive symptom dimensions and AS dimensions in undergraduate students. Furthermore, Rector, Szacun-Shimizu, and Leybman (2007) found that the physical, social, and cognitive dimensions of AS of the ASI were highly correlated with panic disorder with or without agoraphobia, social phobia, and generalized anxiety disorder (GAD) among middle-aged adults. In addition, Deacon and Valentiner (2001) found that undergraduate students who had experienced a distressing panic attack in the prior year without being diagnosed with panic disorder tended to score significantly higher on the cognitive concerns and physical concerns subscales of the ASI compared with individuals with no history of panic attacks. In contrast, the literature concerning older adults and the role of AS is limited. In an early study, Deer and Calamari (1998) found that AS significantly predicted panic symptoms among older adults, but they did not look at anxiety symptoms more broadly. Mohlman and Zinbarg (2000) examined the factor structure of AS in older adults, finding a hierarchical structure comparable to younger adult samples. Finally, Bravo and Silverman (2001) found that AS was significantly correlated with trait anxiety in older adults and significantly predicted hypochondriacal concerns.

EA “is a process involving excessive negative evaluations of unwanted private thoughts, feelings, and sensations, an unwillingness to experience those private events, and deliberate efforts to control or escape from them” (Kashdan, Barrios, Forsyth, & Steger, 2006, p. 1301). EA is different from AS in that it does not involve fear of bodily sensations due to their biological, cognitive, and social implications. Rather, it is more evaluative and reactive in nature, focusing more on a multitude of unacceptable internal experiences and subsequent strategies to regulate or evade them. From a general cognitive-behavioral perspective, individuals appear to engage in EA due to the behaviorally reinforcing effects of immediate gratification. Thus, EA can be conceptualized as avoidance learning, whereby the feeling of temporary psychological relief is a conditioned reinforcer (Leslie & O’Reilly, 1999). Further, unpleasant feelings, cognitions, or sensations would be considered to be aversive stimuli and attempts to remove or control them would only increase or maintain the frequency of EA. Cognitively, this cyclical pattern of cognition can be time consuming and energy consuming and may not be helpful to alleviate distress over long periods of time because the origin of the distress is not addressed or confronted, but rather vehemently eschewed while refraining from using positive coping strategies.

Kashdan et al. (2006) used the original Acceptance and Action Questionnaire (AAQ) and found that EA was significantly positively correlated with pathological features of anxiety such as trait anxiety, social anxiety, body sensation fears, suffocation fears, and AS, which has been corroborated by a similar study (Berman, Wheaton, McGrath, & Abramowitz, 2010). Kashdan et al. (2006) posit that their findings may be a result of the inflexibility inherent to

EA, meaning individuals tend to rigidly adhere to avoiding unpleasant internal events whereby they further engage in poor coping skills and emotional dysregulation. In addition, EA has been found to predict a significant amount of variance in obsessive-compulsive symptoms and obsessive compulsive disorder-related maladaptive beliefs, as well as correlate positively with social anxiety in younger adults (Briggs & Price, 2009; Glick & Orsillo, 2011; Mahaffey, Wheaton, Fabricant, Berman, & Abramowitz, 2013). Thus, individuals who are highly socially anxious may be more likely to be fearful of negative evaluation of their experiences by others, and in turn take precautionary measures to avoid or regulate these experiences to alleviate distress. Moreover, patients with GAD have endorsed significantly higher levels of emotional distress and EA than nonclinical controls, and EA has been found to predict GAD status (Lee, Orsillo, Roemer, & Allen, 2010). Thus, it appears that the uncontrollable and excessive worry that defines GAD also plays an integral role with EA, with some evidence that this form of avoidance potentially plays a role in the etiology of this anxiety disorder.

Like AS, the literature concerning EA in older adults is sparse. In one study, Andrew and Dulin (2007) found that EA significantly predicted anxiety symptoms in older adults and moderated the relationship between anxiety symptoms and self-reported health problems. Therefore, engagement in EA may prevent some older adults from seeking help for their mental and physical health problems. Losada et al. (2015) also demonstrated a significant, positive relationship between anxiety symptomatology and EA in older adults. Moreover, Robertson and Hopko (2009) found that EA served as a moderator of the relationship between age and emotional expression in a study using positive and negative autobiographical narratives in younger adults and older adults, but they did not examine age differences for EA per se, reflecting an important gap in the literature.

According to Kiken and Shook (2012), mindfulness is defined as “a receptive attention to and awareness of internal and external experiences as they occur” (p. 329). Beyond the present-focused attention and awareness, mindfulness involves acceptance of one’s experiences without resistance or judgment. In this way, mindfulness is the opposite of EA. People high on trait mindfulness are likely to be fully cognizant of thoughts, emotions, and sensations without judgment or avoidance, thereby decreasing their distress levels. Moving toward accepting psychological distress may allow an individual to fully emotionally process unpleasant internal experiences, thereby becoming cognizant of their usually innocuous implications. In contrast, the absence of mindfulness likely contributes to anxiety-related distress and symptoms.

In a study of undergraduates, Kiken and Shook (2012) administered the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) and found significant inverse relationships between mindfulness and both negative thoughts and emotional distress. It appears as individuals become more mindful,

their anxiety and related distress are subsequently reduced. Indeed, if individuals tend to ruminate and worry about troublesome internal or external experiences, associating feelings and judgments with them, they may be more likely to experience symptoms of anxiety. According to Brown, Ryan, and Creswell (2007, p. 226), mindfulness can be useful for “discouraging automatic, habitual thought patterns, including rumination and obsession, and the rigid psychological states and behaviors that follow from them...encouraging a willingness to face and accept threatening thoughts and emotions.”

Mindfulness is also known to exert an effect on clinical populations. Utilizing hyperventilation and meditative relaxation tasks as stressors, Arch and Craske (2010) found an inverse relationship between trait mindfulness and emotional reactivity (i.e., anxiety) to laboratory stressors in nonanxious and clinically anxious participants between the ages of 18 and 60 years. Increased mindfulness is also associated with lower levels of social anxiety in both clinical and community samples (Rasmussen & Pidgeon, 2011; Schmertz, Masuda, & Anderson, 2012).

Despite some initial studies, the literature on the relationships between mindfulness and anxiety symptoms among older adults is limited. Splevins, Smith, and Simpson (2009) conducted a mindfulness-based cognitive therapy intervention with older adults and found that increases in mindfulness were significantly correlated with decreases in anxiety and stress. Similarly, Young and Baime (2010) investigated a mindfulness-based stress reduction intervention with older adults and found that mindfulness training was effective in reducing clinically significant symptoms of anxiety and depression. With older adults, higher levels of trait mindfulness have also been significantly associated with lower depressive symptoms, higher psychological well-being, lower perceived stress, and lower intrusive negative thoughts (Fiocco & Mallya, 2015). Prakash, Hussain, and Schirda (2015) found that the inverse relationship between trait mindfulness and perceived stress is fully mediated by emotion regulation skills in both younger and older adults. Moreover, trait mindfulness has been found to moderate the effects of stress on mental health outcomes (de Frias & Whyne, 2015).

However, an important question remains as to whether there are age-related differences in these potential risk or vulnerability factors for significant anxiety. As discussed earlier, various studies have demonstrated important findings concerning these risk factors, but samples have typically been confined to only one age-group. To limit the detrimental impact of these constructs on psychosocial functioning, it is imperative to investigate how AS, EA, and trait mindfulness evolve as a function of age, highlighting potentially important targets for clinical intervention. As there are no longitudinal studies examining these risk factors across the lifespan, cross-sectional analyses may uncover novel insights about the dynamics of these variables in different age-groups. Gould and Edelstein (2010) established that older adults tend to report lower levels of uncontrollable

worry than younger adults. Furthermore, compared with older adults, younger adults tend to report higher levels of AS along with greater levels of health anxiety (Gerolimatos & Edelstein, 2012). This difference has been hypothesized to be attributed to better emotional regulation strategies; older adults tend to be more focused on preserving emotional well-being instead of devoting cognitive resources to ambiguous body sensations (Gerolimatos & Edelstein, 2012). Moreover, older adults have also been shown to report significantly higher levels of trait mindfulness and lower levels of perceived stress than younger adults (Prakash et al., 2015). Another study found that age and trait mindfulness are positively associated across the life span, and that mindfulness partially mediates the relationship between age and negative affect (Raes, Bruyneel, Loeys, Moerkerke, & De Raedt, 2013). Regarding EA, we are unaware of any studies that directly compared age differences on these constructs. However, as younger adults are significantly more likely to have higher levels of anxiety-related pathology and AS than older adults, it would follow that there is likely to be age-related differences on other factors that are highly related to anxiety (i.e., EA).

Another notable gap in the literature is the lack of studies that evaluate relationships among these variables (AS, EA, and mindfulness) with diverse anxiety symptoms in younger and older adult populations. Indeed, it is likely that AS, EA, and mindfulness are not independent processes. Rather, the dynamics of their relationships are likely related, as AS involves fear of physiological signs of anxious arousal, EA entails deliberate efforts to escape or avoid these fears and other unpleasant experiences, and mindfulness consists of counteracting these maladaptive reactions by maintaining focused attention and awareness to every experience in the present moment. As such, the aims of the present study were (a) to examine age-related differences in AS, EA, and mindfulness and (b) to examine relationships between these three factors, as well as their link to anxiety-related symptoms and related distress within each age-group. To avoid effects of measurement error and to ensure valid assessment, two popular anxiety instruments, including the Beck Anxiety Inventory (BAI) and the Geriatric Anxiety Scale (GAS), and two mindfulness measures, the Kentucky Inventory of Mindfulness Skills (KIMS) and the MAAS, were included in the study. No other constructs had multiple measures available that were not simply an older format of the same self-report measure (e.g., the ASI). It was hypothesized that trait anxiety, state anxiety, AS, and EA would be significantly higher in younger adults, whereas mindfulness would be significantly higher in older adults. Further, for both age-groups, it was hypothesized that AS would be positively correlated with trait and state anxiety, positively correlated with EA, and negatively correlated with mindfulness. Moreover, EA would be positively correlated with trait and state anxiety and negatively correlated with mindfulness for both age-groups. Lastly, it was hypothesized that mindfulness would be negatively correlated with trait and state anxiety for both age-groups.

Method

Participants and Procedure

The full sample included a total of 511 participants (381 women and 130 men; 70.6% Caucasian). Younger adult and older adult samples were recruited separately. The younger adult sample consisted of undergraduate students, aged 18 to 29 years ($N=426$, 314 women and 112 men; M age = 20.1 years, $SD=2.5$ years; 66.6% Caucasian) who were recruited through psychology courses and compensated with extra credit for their participation. Community-dwelling older adult participants, aged 60 to 86 years, ($N=85$, 67 women and 18 men; M age = 71.8 years, $SD=7.3$ years; 90.6% Caucasian) were recruited through the use of an existing research database maintained by the University of Colorado at Colorado Springs Gerontology Center, composed of older adults who voluntarily opted to participate in research studies. We recruited all eligible participants through the registry and compensated them with \$5 for their participation. The inclusion criteria for the older adult sample consisted of being 60 years of age or older and willing to participate in the study. There were no exclusionary criteria. All participants anonymously completed the questionnaire packet through an online survey vendor. See Table 1 for full demographic information for the samples.

Measures

The Anxiety Sensitivity Index-3. The ASI-3 is an 18-item self-report measure used to assess fear of somatic sensations due to anxious arousal and their perceived negative consequences (Taylor et al., 2007). The ASI-3 includes three subscales (physical, cognitive, and social) evaluating fears of physical symptoms, fears of cognitive dysregulation, and fears of social distress. Items are measured on a 5-point Likert-type scale (0 = *very little* and 4 = *very much*). Total scores range from 0 to 72, whereas subscale scores range from 0 to 24, with higher scores reflecting higher levels of AS. The ASI-3 has demonstrated excellent psychometric properties (Taylor et al., 2007). Subscale internal consistency estimates range from good to excellent in a mixed sample of undergraduate students and adults diagnosed with anxiety disorders ($\alpha = .93$ for total score, $\alpha = .80$ for social concerns, $\alpha = .88$ for physical concerns, $\alpha = .90$ for cognitive concerns; Wheaton, Deacon, McGrath, Berman, & Abramowitz, 2012). Mohlman and Zinbarg (2000) demonstrated that the factor structure of the original ASI was comparable between younger and older adults. However, to date, no study has examined the psychometric properties of the ASI-3 with older adults.

The Acceptance and Action Questionnaire-II. The AAQ-II is a 7-item self-report measure used to assess willingness to accept unpleasant feelings, thoughts, and sensations, and their corresponding actions due to these experiences

Table 1. Participant Demographic Information for the Full Sample, Younger Adult Group, and Older Adult Group.

Demographic variable	Younger (<i>n</i>)	Adults (%)	Older (<i>n</i>)	Adults (%)	Total (<i>N</i>)	Sample (%)
Gender						
Male	112	26.3	18	21.2	130	25.4
Female	314	73.7	67	78.8	381	74.6
Ethnicity						
African American	19	4.5	0	0.0	19	3.7
Asian	12	2.8	0	0.0	12	2.4
Caucasian	283	66.6	77	90.6	360	70.6
Hispanic/Latino/Span	37	8.7	0	0.0	37	7.3
American Indian/Alaska Native	1	0.2	1	1.2	2	0.4
Native Hawaiian/Pacific Islander	1	0.2	1	1.2	2	0.4
Other	4	0.9	1	1.2	5	1.0
Mixed ethnicity	68	16.0	5	5.9	73	14.3
Marital status						
Never married	376	88.3	12	14.3	388	76.1
Domestic partnership	12	2.8	1	1.2	13	2.5
Married	29	6.8	32	38.1	61	12.0
Divorced	4	0.9	19	22.6	23	4.5
Widowed	2	0.5	20	23.8	22	4.3
Separated	3	0.7	0	0.0	3	0.6
Years of education						
	13.02 (<i>M</i>)	1.31 (<i>SD</i>)	15.30 (<i>M</i>)	2.66 (<i>SD</i>)	13.40 (<i>M</i>)	1.81 (<i>SD</i>)

(i.e., EA; Bond et al., 2011). Items are answered on a 7-point Likert-type scale (1 = *never true* and 7 = *always true*). Total scores range from 7 to 49, with higher scores reflecting higher levels of EA. The AAQ-II has demonstrated good psychometric properties, generally performing better than the AAQ-I, while simultaneously assessing the same concept ($r = .97$; Bond et al., 2011). The internal consistency estimate of AAQ-II scale scores was good ($\alpha = .84$) in samples of undergraduates, individuals seeking outpatient services, and middle-aged adults.

Mindful Attention Awareness Scale. The MAAS is a 15-item self-report measure used to assess receptive awareness of and attention to present external and internal experiences (i.e., mindfulness; Brown & Ryan, 2003). Items are measured on a 6-point Likert-type scale (1 = *almost always* and 6 = *almost never*). A single mean

score is derived from the sum of the 15 items, with higher scores indicating higher trait mindfulness. The MAAS has demonstrated good psychometric properties among undergraduate student populations and community samples of adults (Brown & Ryan, 2003).

The Kentucky Inventory of Mindfulness Skills. The KIMS is a 39-item self-report measure used to assess receptive awareness of, attention to, and acceptance of present external and internal experiences (Baer, Smith, & Allen, 2004). The KIMS includes four subscales (observing, describing, acting with awareness, and accepting without judgment) to evaluate observing various stimuli (e.g., “I pay attention to whether my muscles are tense or relaxed”), describing stimuli in a nonjudgmental way (e.g., “I can easily put my beliefs, opinions, and expectations into words”), being attentive and engaging fully in one’s present activity (e.g., “When I’m doing something, I’m only focused on what I’m doing, nothing else”), and to accept reality without avoidance (e.g., “I criticize myself for having irrational or inappropriate emotions”). Items are answered on a 5-point Likert-type scale (1 = *never or very rarely true* and 5 = *very often or always true*). Total scores range from 39 to 195, whereas subscale scores range from 8 to 60, with higher scores reflecting higher levels of trait mindfulness. Ample evidence supports the good psychometric properties of the KIMS in diverse samples (Baer et al., 2004).

Beck Anxiety Inventory. The BAI is a 21-item self-report measure used to assess trait anxiety symptoms occurring over the last month (Beck, Epstein, Brown, & Steer, 1988). Items are measured on a 4-point Likert-type scale (0 = *not at all* and 3 = *severely – it bothered me a lot*). Total scores range from 0 to 63, with higher scores reflecting higher trait anxiety. The BAI has demonstrated excellent psychometric properties, producing a high internal consistency estimate of scale scores ($\alpha = .94$) in a sample of outpatient individuals diagnosed with anxiety disorders. Kabacoff, Segal, Hersen, and Van Hasselt (1997) found that the BAI had high internal reliability of scale scores and good factorial validity in a large sample of older adult psychiatric outpatients.

Geriatric Anxiety Scale. The GAS is an increasingly popular and promising research instrument for older adults (Segal, June, Payne, Coolidge, & Yochim, 2010). It is a 30-item self-report measure used to assess state anxiety symptoms over the last week in older adults. The GAS includes three subscales evaluating somatic symptoms, cognitive symptoms, and affective symptoms. Items are answered on a 4-point Likert-type scale (0 = *not at all* and 3 = *all of the time*). Total scores range from 0 to 75 and are derived from the first 25 items. The remaining five items are for clinical use and measure specific content areas of anxiety. Subscale scores range from 0 to 24 for the cognitive and affective subscales (eight items each) and 0 to 27 for the somatic subscale (nine items). Higher

scores reflect higher anxiety symptoms in older adults. The GAS has demonstrated excellent psychometric properties, producing high internal consistency estimates of scale scores in diverse community-dwelling and clinical samples of older adults, and there is evidence showing strong discriminant and convergent validity of the total scale and all three subscales (Gould et al., 2014; Segal et al., 2010; Yochim, Mueller, June, & Segal, 2011; Yochim, Mueller, & Segal, 2013).

State-Trait Anxiety Inventory Form Y-1. The STAI-Y1 is a 20-item self-report measure used to assess state anxiety symptoms (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). The instrument prompts participants to rate their degree of agreement with a series of statements associated with how much they are experiencing anxiety symptomatology during the present moment. Items are measured on a 4-point Likert-type scale (1 = *not at all* and 4 = *very much so*). Total scores range from 20 to 60, with higher scores reflecting higher state anxiety. The STAI-Y1 has demonstrated good to excellent psychometric properties among diverse adult populations, although the evidence for validity was weak among older adult outpatients (Kabacoff et al., 1997). Nonetheless, it is one of the most popular current instruments for the measurement of state anxiety symptoms and thus was included in this study.

Results

Equivalency of Age-Groups

Chi-square tests of independence were conducted to examine for equivalency of the younger adult and older adult groups on categorical demographic variables. There was no significant difference on gender, $\chi^2(1, N = 511) = 0.98, p > .05$. However, the younger adult sample had a significantly higher proportion of mixed ethnicity, $\chi^2(7, N = 511) = 27.69, p < .001$, and they were more likely to be single, $\chi^2(5, N = 511) = 270.95, p < .001$. Independent *t* test was conducted to examine for equivalency of age-groups on mean years of education. Means and standard deviations are presented in Table 1. Older adults ($M = 15.30, SD = 2.66, 75.3\%$ attended at least 1 year of college) had higher levels of education than younger adults ($M = 13.02, SD = 1.31, t(89.93) = -7.62, p < .001, d = -1.09$).

Cross-Sectional Results

To examine the hypotheses regarding age-related differences in AS, EA, mindfulness, and state-trait anxiety between younger and older adults, a series of independent *t* tests were conducted. Means, standard deviations, and internal consistency for all measures are presented in Table 2. As can be seen in the table, internal consistency reliabilities (Cronbach's alpha) for the major measures were

Table 2. Means, Standard Deviations, and Internal Consistency Reliability Estimates for all Measures, by Age-Group.

Scale (no. of Items)	Age-group					
	N = 426			N = 85		
	Younger adults			Older adults		
	M	SD	Cronbach's α	M	SD	Cronbach's α
ASI-3 (18)	18.70	12.56	.90	11.57	10.28	.85
Physical (6)	4.57	4.81	.84	3.20	3.68	.84
Cognitive (6)	3.87	4.71	.88	2.86	4.56	.64
Social (6)	10.24	5.66	.82	5.51	4.16	.74
AAQ-II (7)	22.56	9.40	.92	16.80	9.39	.94
MAAS (15)	3.81	0.80	.87	4.47	0.84	.90
KIMS (39)	119.38	15.58	.85	134.34	17.69	.88
BAI (21)	16.42	10.41	.91	8.87	8.87	.92
GAS (25)	20.37	12.59	.94	12.97	11.77	.95
Somatic (9)	8.21	4.59	.80	5.60	4.33	.87
Cognitive (8)	5.79	4.71	.89	3.10	3.84	.90
Affective (8)	6.21	4.38	.85	3.73	4.15	.89
STAI (20)	39.23	11.28	.94	33.34	12.53	.95

ASI-3 = Anxiety Sensitivity Index-3; ASI-3 Physical = physical concerns subscale; Cognitive = ASI-3 cognitive concerns subscale; Social = ASI-3 social concerns subscale; AAQ-II = Acceptance and Action Questionnaire-II; MAAS = Mindful Attention Awareness Scale; KIMS = Kentucky Inventory of Mindfulness Skills; BAI = Beck Anxiety Inventory; GAS = Geriatric Anxiety Scale; Somatic = GAS somatic subscale; Cognitive = GAS cognitive subscale; Affective = GAS affective subscale; STAI = State-Trait Anxiety Inventory.

generally above .80 for both younger and older adults. However, among older adults, the cognitive concerns subscale of the ASI-3 had an alpha of .64, which is below the typical threshold for acceptability.

Regarding AS (measured by the ASI-3 total), as expected, younger adults had significantly higher scores than older adults, $t(119.25) = 5.31, p < .001$, with a medium effect size (Cohen's $d = 0.62$). Regarding ASI-3 subscales, younger adults also scored significantly higher than older adults on the social concerns subscale, $t(149.88) = 8.86, p < .001, d = 0.95$ and on the physical concerns subscale, $t(137.59) = 2.90, p < .01, d = 0.32$. The groups did not significantly differ on the cognitive concerns subscale, $t(500) = 1.76, p = .08, d = 0.22$, although the mean difference approached significance. It is possible that the relatively low reliability of the cognitive concerns subscale scores in the present older adult sample may have impacted these findings.

Regarding EA, and as hypothesized, younger adults were significantly elevated compared with older adults on the AAQ-II, $t(501) = 5.11$, $p < .001$, with a medium effect size ($d = 0.61$). For trait mindfulness (MAAS), and again as hypothesized, older adults scored significantly higher than younger adults, $t(485) = -6.61$, $p < .001$, with a large effect size ($d = 0.80$). Similarly, on the KIMS, older adults had significantly higher scores than younger adults, $t(444) = -7.22$, $p < .001$, representing a large effect size ($d = 0.90$).

Regarding trait anxiety (BAI total), younger adults scored significantly higher than older adults, $t(103.93) = 6.35$, $p < .001$, with a medium effect ($d = 0.78$). Scale scores ranged from 0 to 48 for younger adults, and from 0 to 46 for the older adult sample, with symptoms ranging from minimal to severe based on clinical cutoffs for both samples. Similarly, regarding state anxiety (GAS total), younger adults scored significantly higher than older adults, $t(449) = 4.45$, $p < .001$, with a medium effect ($d = 0.61$). Scale scores ranged from 0 to 59 for the younger adult group, and from 0 to 67 for the older adult group, with symptoms again ranging from minimal to severe based on clinical cutoffs for both age-groups. Regarding state anxiety (STAI total), younger adults had significantly higher scores than older adults, $t(468) = 4.09$, $p < .001$, $d = 0.49$. Scale scores ranged from 20 to 71 for the younger adult group, and from 20 to 73 for the older adult group, with state anxiety symptoms ranging from minimal to severe for both age-groups. Thus, as hypothesized, younger adults reported higher levels of state anxiety and trait anxiety than older adults on all of the anxiety measures.

Correlational Analyses

Younger adults. The interrelationships among AS, EA, trait mindfulness, trait anxiety, and state anxiety were investigated in the younger sample using bivariate Pearson correlations (see Table 3). As expected, there were large positive and significant relationships between AS and trait anxiety (BAI), $r = .57$, between AS and the GAS, $r = .64$, and between AS and the STAI, $r = .46$, suggesting that as individuals become more sensitive to physiological signs of anxious arousal, their state and trait anxiety also increases. In addition, there were large positive and significant relationships between EA and trait anxiety (BAI), $r = .59$, the GAS, $r = .70$, and state anxiety (STAI), $r = .58$. Thus, it appears as individuals engage in EA, their level of state and trait anxiety also increases. Furthermore, within the younger adult sample, there were large and significant relationships between trait mindfulness (MAAS and the KIMS) with trait anxiety (BAI, $r = -.53$, $r = -.33$, respectively and with state anxiety (GAS, $r = -.59$, $r = -.42$, respectively; STAI, $r = -.46$ for both groups).

Among the risk factors for anxiety-related pathology, the results revealed a large positive correlation between AS and EA, $r = .62$, and medium to large significant correlations between AS and trait mindfulness (MAAS, $r = -.52$;

Table 3. Correlation Matrix of all Measures for the Younger Adult and Older Adult Samples.

Variable	AAQ-II	MAAS	KIMS	BAI	GAS	STAI
Younger adults						
ASI-3	.62*	-.52*	-.37*	.57*	.64*	.46*
AAQ-II		-.55*	-.49*	.59*	.70*	.58*
MAAS			.55*	-.53*	-.59*	-.46*
KIMS				-.33*	-.42*	-.46*
BAI					.80*	.56*
GAS						.70*
Older adults						
ASI-3	.40*	-.52*	-.33*	.24	.37*	.38*
AAQ-II		-.57*	-.55*	.65*	.70*	.74*
MAAS			.68*	-.55*	-.69*	-.62*
KIMS				-.59*	-.54*	-.64*
BAI					.82*	.73*
GAS						.77*

ASI-3 = Anxiety Sensitivity Index-3; AAQ-II = Acceptance and Action Questionnaire-II; MAAS = Mindful Attention Awareness Scale; KIMS = Kentucky Inventory of Mindfulness Skills; BAI = Beck Anxiety Inventory; GAS = Geriatric Anxiety Scale; STAI = State-Trait Anxiety Inventory.

*p < .01.

and KIMS, $r = -.37$). Lastly, there were large and significant negative correlations between EA and trait mindfulness (MAAS, $r = -.55$; and the KIMS, $r = -.49$). Finally, the results indicated a strong and positive relationships ($r = .80$) between the major anxiety measures in this younger adult sample, namely the BAI and the GAS.

Older adults. Likewise, interrelationships among AS, EA, trait mindfulness, trait anxiety, and state anxiety were also investigated in the older sample using bivariate Pearson correlations (Table 3). There were small to medium and significant positive relationships between AS and trait anxiety (BAI, $r = .24$) and state anxiety (GAS, $r = .37$; STAI, $r = .38$). In addition, there was a large positive relationship between EA and anxiety (BAI, $r = .65$; and the GAS, $r = .70$). Therefore, as individuals engage in EA, their anxiety also increases in severity. Further, for the older adults, there were large significant negative relationships between both measures of trait mindfulness (MAAS and the KIMS) and all of the anxiety measures (BAI, $r = -.55$, $r = -.59$; GAS, $r = -.69$, $r = -.54$; and STAI, $r = -.62$, $r = -.64$).

Among the risk factors for anxiety-related pathology, the results revealed a medium positive correlation between AS and EA for older adults, $r = .40$, and medium to large negative relationships between AS and trait mindfulness

(MAAS, $r = -.52$; and the KIMS, $r = -.33$). Lastly, there were negative large correlations between EA and trait mindfulness (MAAS, $r = -.57$; and the KIMS, $r = -.55$). The results also provided some evidence of convergent validity of the major anxiety measures among older adults, with a strong, positive relationship between the BAI and the GAS, $r = .82$, as expected.

It should be noted that the correlation between trait mindfulness (KIMS) and trait anxiety (BAI), $Z = 2.36$, $p < .05$ was significantly higher for older adults. However, the correlation between AS and EA was significantly higher for younger adults than the same correlation in the older adult sample, $Z = 2.19$, $p < .05$. Furthermore, the correlations between AS and both measures of anxiety (BAI or GAS) are significantly higher for younger adults than older adults, $Z = 2.89$, $p < .05$; $Z = 2.57$, $p < .05$, respectively. In addition, with regard to the STAI, the correlation between EA and state anxiety was significantly higher for older adults, $Z = -2.23$, $p < .05$. No other significant correlational differences were found while examining the interrelationships of AS, EA, and mindfulness, and the relationships between these factors and state and trait anxiety.

Discussion

A primary purpose of the present study was to examine age-related differences in AS, EA, trait mindfulness, and trait or state anxiety. As predicted, younger adults had significantly higher scores than older adults on AS, EA, and state and trait anxiety. Older adults, conversely and as predicted, reported significantly higher scores on measures of trait mindfulness. Consistent with previous research (Gerolimatos & Edelstein, 2012), younger adults reported significantly higher levels of AS than older adults. These researchers posited that this difference is primarily due to older adults utilizing better emotional regulation skills, choosing to not devote anxious attention to somatic sensations that might exacerbate existing anxiety symptoms. Our finding that younger adults scored higher than older adults on the social concerns subscale of the ASI-3 adds to the literature by suggesting that younger individuals may be more concerned than older adults with the social implications of anxious distress. A significant age difference was also found on the physical concerns subscale of the ASI-3 with younger adults scoring higher than older adults, supporting the findings of Gerolimatos and Edelstein (2012) that younger adults reported higher levels of health anxiety and its associated consequences. It is possible that older adults are more self-aware of their physical functioning than younger adults as a result of life experience and a higher likelihood of consultations with medical professionals. Thus, older adults may not be as concerned with the physical implications of anxious arousal as they are realistic in their appraisal of symptoms, able to discern between anxiety and actual impairment in somatic functioning. In addition, declines in physical health are often anticipated and expected in late life, whereas similar declines would be unusual or unexpected in younger adulthood, possibly causing somatic symptoms to be more distressing.

The present study also found that younger adults scored higher than older adults on a measure of EA. To the extent EA can be considered a type of coping strategy, this finding is consistent with a wealth of data indicating that older adults typically use more adaptive coping strategies than younger adults, at least in group designs (Segal, Hook, & Coolidge, 2001). Although many older adults cope effectively with the vicissitudes of aging, not all do, and some older adults will similarly engage in EA with a higher intensity. The present finding regarding EA may also be explained by another finding in that older adults scored significantly higher on two different measures of trait mindfulness (the MAAS and the KIMS). Therefore, as older adults are more likely to accept their internal experiences without judgment or resistance, they may be less likely to engage in extreme negative assessments of unpleasant emotions, cognitions, and sensations followed by rejection of these experiences and efforts to control or avoid them. Older adults may be more likely to understand the importance of being receptive to experiences as opportunities to process and conceptualize negative thoughts and feelings. Younger adults may be more likely to be reinforced by the immediate gratification of avoidance, delaying the inevitable effects of unresolved distress.

Consistent with previous research findings that younger adults reported significantly higher uncontrollable worry than older adults (Gould & Edelstein, 2010), younger adults in our study endorsed significantly higher amounts of trait and state anxiety symptoms than older adults. These findings may be interpreted in the context of emotion regulation theories, for example socioemotional selectivity theory (Carstensen, Fung, & Charles, 2003), which suggests that older adults become better at regulating their emotions with advancing age. Indeed, whereas younger people tend to pursue goals that expand their horizons and provide new social networking opportunities, older adults tend to pursue goals that are more emotionally meaningful, leading to better emotional balance. Previous research has demonstrated that undergraduates have significantly more worries than older adults about social events and financial situations (Powers, Wisocki, & Whitbourne, 1992). Conversely, previous research has also shown that older adults tend to endorse significantly higher worry about world issues and familial concerns than younger adults (Hunt, Wisocki, & Yanko, 2003). Future research should continue to examine specific external factors that differentially create anxiety across the lifespan so that targeted interventions can be tested.

Anxiety sensitivity. Providing support for our hypothesis, results revealed that AS was positively correlated with trait or state anxiety and EA and negatively correlated with trait mindfulness for both age-groups. Thus, results from the present study further bolster the extant literature establishing that anxiety-related symptoms are highly associated with AS, indicating that as anxiety increases,

AS follows suit, and vice versa (Deer & Calamari, 1998; Rector et al., 2007; Wheaton et al., 2012b). Our results support the idea that someone who regularly experiences anxiety symptoms is likely to be sensitive to signs of anxious arousal, and that this relationship is generally similar for younger adults and older adults, with strong positive correlations.

AS was also found to be significantly positively associated with EA for both age-groups, supporting previous research (Berman et al., 2010; Kashdan et al., 2006). This was also to be expected as one facet of EA is “excessive negative evaluations of unwanted private thoughts, feelings, and sensations” (Kashdan et al., 2006, p. 1301), which encompasses AS, as it involves fear of somatic signs of anxious arousal due to their potential negative repercussions. Therefore, AS may be conceptualized as a precursor to EA as individuals have to first engage in unrealistic adverse appraisal of their somatic anxiety symptoms before attempting to control or avoid them. Nonetheless, the association between EA and AS was significantly higher in younger adults than in older adults. Accordingly, it appears that the relationship between EA and high sensitivity to anxious arousal is somewhat stronger in younger adults than older adults.

Lastly, AS was found to be significantly negatively correlated with trait mindfulness across two measures (the MAAS and the KIMS) for both age-groups. These findings suggest that AS and trait mindfulness are inversely related, whereby one’s fear of anxious arousal increases as one’s acceptance of every internal experience without judgment or resistance decreases. Fear inherently implies a negative and alarming perception of a certain event, whatever that might be, meaning that the individual is maladaptively labeling his or her previous experience. As AS is essentially the fear of anxiety, it seems that an individual high on this construct would have difficulty in consciously allowing him or herself to move toward nonjudgmental acceptance of anxious distress. It seems likely that if one makes an effort to fully attend to and emotionally process one’s anxiety symptoms, one may realize that their feared consequences are often negligible and one could subsequently engage in self-regulatory strategies to reduce arousal rather than continuing to perpetuate the internal cycle of fear.

This was one of the first studies to use the ASI-3 with older adults. We found that the measure has somewhat higher values for internal consistency of scale scores (Cronbach’s alpha) among younger adults than the older adults, although the older adult alphas were in acceptable range for all subscales with the exception of the cognitive concerns subscale. In contrast, the ASI-3 appeared to operate effectively in most of the cross-sectional and correlational results, which can be interpreted as providing some evidence for the psychometric utility of the ASI-3 with similar community-dwelling older adults.

Experiential avoidance. Providing support for our hypotheses, correlational analyses revealed that EA was positively correlated with trait or state anxiety and negatively related to trait mindfulness for both age-groups. Thus, the present

study confirms previous findings underlying the relationship between EA and anxiety-related pathology (Andrew & Dulin, 2007; Briggs & Price, 2009; Glick & Orsillo, 2011; Kashdan et al., 2006; Lee et al., 2010; Mahaffey et al., 2013). It appears that attempts to suppress or resist one's thoughts, feelings, and internal experiences may lead to higher amounts of anxiety, and alternatively, higher levels of anxiety may lead to more engagement in EA, highlighting a bidirectional relationship. The psychological inflexibility inherent to this process denies the sense of full emotional and cognitive expression for an individual, contributing to more distress despite the behaviorally reinforcing nature of avoidance. An inordinate amount of time and energy is spent trying to control, avoid, or struggle with unpleasant internal events rather than engage in adaptive coping strategies to regulate one's emotions or restructure his or her cognitions. Thus, these efforts to remain reluctant to experience and emotionally process negatively evaluated events seem to be counterproductive to healthy functioning as they can exacerbate the symptoms that one is trying to avoid, and create constant internal pressure to resist natural responses to life stressors.

In the present study, EA was found to be negatively correlated with trait mindfulness across two primary measures, the MAAS and the KIMS, for both age-groups. Similar to the relationship between AS and trait mindfulness, it appears that it would be difficult for individuals to score high on measures of mindfulness and EA. One cannot label, judge, resist, and avoid an experience while simultaneously accepting the experience unequivocally. However, it is possible that individuals engage in EA or maintain mindfulness in some situations but not others, depending on the content or context of the distressing experience. For example, an individual may avoid feeling social anxiety by not participating in social gatherings but may attend to and remain aware of when he or she feels depressed, fully accepting his or her experience without judgment or resistance. Thus, the perceived subjective threat to one's sense of self-worth or self-esteem may be the deciding factor in evaluating the necessity to avoid or accept one's experience. Kashdan et al. (2014) also found context to be important, as EA significantly predicted higher social anxiety in social situations where there was a greater chance of being vulnerable and negatively evaluated by others compared with social situations where personal self-disclosure was minimized. Therefore, even within the context of social situations, the assessed severity of the threat may cause one to maladaptively engage in EA, contributing to higher levels of social anxiety, instead of accepting and processing one's experience to dissipate distress.

Mindfulness. Providing additional support for our hypotheses, we found that trait mindfulness was negatively associated with trait and state anxiety for both age-groups. Trait mindfulness has been found to be significantly negatively associated with trait anxiety and social anxiety in clinical and community

samples of younger and middle age adults (Arch & Craske, 2010; Kiken & Shook, 2012; Rasmussen & Pidgeon, 2011; Schmertz et al., 2012). Among older adults, treatment outcome studies utilizing mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy have found significant decreases in anxiety symptoms (Splevins et al., 2009; Young & Baime, 2010). Thus, it appears that open-minded attention and awareness coupled with acceptance without judgment of subjective experiences allows an individual to fully immerse in his or her daily life, creating less anxious distress and subsequent impairment. Previous research has shown that the specific facets of mindfulness known as *nonreactivity*, allowing emotions and cognitions to pass without reacting to them, and *describing*, nonjudgmentally labeling experiences, are significantly negatively related to anxious distress and physiological anxious arousal, respectively (Desrosiers, Klemanski, & Nolen-Hoeksema, 2013). Therefore, it seems the ability to remain self-aware while refraining from reacting judgmentally to our experiences results in less internal and external signs of anxiety. Lack of control and predictability appear to be paramount to maintaining anxiety symptoms, which makes increasing one's sense of mindfulness more difficult for people high on trait anxiety as its basic foundation involves learning to relinquish control, bias, and judgments about potentially distressing experiences.

Furthermore, in the present study, the relationship between trait mindfulness (KIMS) and trait anxiety (BAI) was found to be significantly higher in older adults than in younger adults. However, this relationship was only significantly greater while examining trait mindfulness as assessed by the KIMS and trait anxiety as measured by the BAI but was not found for any other combination of primary measures of these constructs (i.e., KIMS or GAS; MAAS or BAI, MAAS or GAS). Therefore, this finding may suggest that the lack of trait mindfulness is a more powerful risk factor for trait anxiety for older adults than younger adults. One hypothesis is that the feeling of losing self-awareness, becoming easily distracted, or losing the ability to articulate thoughts and emotions creates more anxious distress for older adults as they may possibly view these experiences as indicative of a loss in cognitive functioning, or even dementia. Indeed, older adults are known to be afraid of becoming demented, likely due to the sharp increase in developing cognitive impairment with advancing age.

Anxiety measures. For both age-groups, correlational analyses found strong significant, positive associations between the GAS and the BAI, providing substantial support for the hypothesis surrounding convergent validity of the two major anxiety measures. This finding indicates that the GAS had reliable scale scores and evidence for validity for use as a measure of anxiety for younger adults, and vice versa for the BAI with older adults. Although the GAS was developed specifically to assess anxiety symptom among older adults (Segal et al., 2010),

the present findings suggest that the GAS is also an effective assessment measure of anxiety symptoms in younger populations. Relatedly, although the STAI has been found to have relatively poor psychometric properties with psychiatrically impaired older adults, the present results provide evidence of excellent internal scale reliability for STAI scale scores among younger and older adults and otherwise solid psychometric properties for community-dwelling older adults.

Strengths of the present study were the inclusion of multiple risk factors for anxiety symptoms and the assessment of age differences for them. Despite these strengths, several notable limitations warrant consideration. First, the age-groups significantly differed on ethnicity, current marital status, and level of education. Specifically, the older adult group comprises significantly more Caucasian participants than the younger adult group. The differences surrounding marital status and education were to be expected as older adults are more likely to have been married or widowed and have higher education, respectively, especially as the younger adult sample was comprised entirely of undergraduate students. Relatedly, there is a problem of lack of representativeness of college students as a comparison group to the older adult group, as well as the relatively high percentage of women in both age-groups. In future studies, samples of community-dwelling middle-aged and younger adults would be beneficial, especially those that mirror the gender distribution of the United States. Future studies could also benefit from recruiting a more ethnically diverse (or more ethnically representative) and less educated sample of older adults. Second, the measures included in the study were all self-report in nature. Future studies investigating the relationships between AS, EA, trait mindfulness, and anxiety-related symptoms would be strengthened with behavioral or structured interview assessments of these constructs. Third, as there was wide variability in the severity of symptoms (i.e., from minimal to severe) for trait and state anxiety for both age-groups, it is important to note that the observed results may only be generalizable to undergraduate students and community-dwelling older adults, and not necessarily to clinical populations. Indeed, future research may benefit from including younger and older adults with clinically significant anxiety symptoms or diagnosable anxiety disorders. Fourth, the study was limited by the use of the MAAS with older adults. Lenze et al. (2014) found that the MAAS does not account for increases in mindfulness due to the effects of MBSR, attributing this shortcoming to the possible difficulty some older adults may have in understanding items on this measure. This finding supports the use of the KIMS or other empirically supported measures for the assessment of assessing trait mindfulness in this population, although the MAAS appeared to be effective in the present study. Fifth, as the present study design was cross-sectional and nonexperimental, causality among the variables cannot be determined. Future research would likely benefit from using prospective and longitudinal designs so that the directionality of relationships can be determined. Lastly, due to the cross-sectional

design we cannot rule out the impact of possible cohort effects, such as the tendency for older adults to report lower levels of negativity and higher levels of positivity due to the positivity effect, wisdom associated with aging, and selective survival of more optimistic and healthy people into older age.

Despite limitations, the present study may inform clinical practice in a variety of ways. As AS and EA are positively related with state and trait anxiety, clinicians may target these maladaptive strategies to significantly reduce anxiety symptoms while simultaneously incorporating mindfulness training. As stated earlier, with older adult populations, mindfulness-based cognitive therapy and MBSR have both been found to significantly reduce anxiety-related pathology (Splevins et al., 2009; Young & Baime, 2010). MBSR has also been demonstrated to significantly reduce anxiety symptoms in younger and middle age adults (Hoge et al., 2013). Mindfulness principles teach clients to observe and describe thoughts and feelings without judgment, letting them pass without rumination or excessively negative evaluation, potentially preventing individuals from being overly sensitive to anxious arousal or from making attempts to resist, control, or avoid their internal experiences. Furthermore, mindfulness is an important element of acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 2012). As such, ACT may also be an effective form of intervention as it posits that thoughts and feelings should not be labeled as inherently negative, encourages willingness to experience unpleasant thoughts and emotions while fully emotionally processing and accepting them through guided meditation, and empowers clients to pursue value-driven goals. Thus, ACT teaches clients to engage in adaptive emotional regulation strategies to dissipate anxiety instead of perpetuating it through rumination, unrealistic appraisal of symptoms, and avoidance.

In conclusion, our findings suggest that AS, EA, and lowered trait mindfulness may play a role as vulnerability or risk factors for anxiety-related symptoms in nonclinical samples of younger and older adults. Although there may be a myriad of other psychosocial factors that contribute to anxiety symptoms, the present study highlights the dynamics of three important interrelated factors that likely cause significant distress and impairment in younger and older adults. Theoretical models that integrate all three of the constructs in a unified theory of etiology for anxiety symptoms and anxiety disorders will be valuable to move the field forward.

Author Note

The Geriatric Anxiety Scale is available from Dr. Segal for free for research purposes.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

References

- Andrew, D. H., & Dulin, P. L. (2007). The relationship between self-reported health and mental health problems among older adults in New Zealand: Experiential avoidance as a moderator. *Aging & Mental Health, 11*, 596–603. doi:10.1080/13607860601086587
- Arch, J. J., & Craske, M. G. (2010). Laboratory stressors in clinically anxious and non-anxious individuals: The moderating role of mindfulness. *Behaviour Research and Therapy, 48*, 495–505. doi:10.1016/j.brat.2010.02.005
- Baer, R. A., Smith, G. T., & Allen, K. A. (2004). Assessment of mindfulness by self-report: The Kentucky inventory of mindfulness skills. *Assessment, 11*, 191–206.
- Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory of measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56*, 893–897. doi:10.1037/0022-006X.56.6.893
- Berman, N. C., Wheaton, M. G., McGrath, P., & Abramowitz, J. S. (2010). Predicting anxiety: The role of experiential avoidance and anxiety sensitivity. *Journal of Anxiety Disorders, 24*, 109–113. doi:10.1016/j.janxdis.2009.09.005
- Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. C., Guenole, N., Orcutt, H. K., . . . Zettle, R. D. (2011). Preliminary psychometric properties of the acceptance and action questionnaire-II: A revised measure of psychological flexibility and acceptance. *Behavior Therapy, 42*, 676–688. doi:10.1016/j.beth.2011.03.007
- Bravo, I. M., & Silverman, W. K. (2001). Anxiety sensitivity, anxiety, and depression in older patients and their relation to hypochondriacal concerns and medical illnesses. *Aging & Mental Health, 5*, 349–357.
- Briggs, E. S., & Price, I. R. (2009). The relationship between adverse childhood experience and obsessive-compulsive symptoms and beliefs: The role of anxiety, depression, and experiential avoidance. *Journal of Anxiety Disorders, 23*, 1037–1046. doi:10.1016/j.janxdis.2009.07.004
- Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology, 84*, 822–848. doi:10.1037/0022-3514.84.4.822
- Brown, K. W., Ryan, R. M., & Creswell, J. D. (2007). Mindfulness: Theoretical foundations and evidence for its salutary effects. *Psychological Inquiry, 18*, 211–237. doi:10.1080/10478400701598298
- Carstensen, L. L., Fung, H., & Charles, S. (2003). Socioemotional selectivity theory and the regulation of emotion in the second half of life. *Motivation and Emotion, 27*, 103–123.
- Deacon, B. J., & Valentiner, D. P. (2001). Dimensions of anxiety sensitivity and their relationship to nonclinical panic. *Journal of Psychopathology and Behavioral Assessment, 23*, 25–33.
- de Frias, C. M., & Whyne, E. (2015). Stress on health-related quality of life in older adults: The protective nature of mindfulness. *Aging & Mental Health, 19*, 201–206.
- Deer, T. M., & Calamari, J. E. (1998). Panic symptomatology and anxiety sensitivity in older adults. *Journal of Behavior Therapy and Experimental Psychiatry, 29*, 303–316. doi:10.1016/S0005-7916(98)00024-X

- Desrosiers, A., Klemanski, D. H., & Nolen-Hoeksema, S. (2013). Mapping mindfulness facets onto dimensions of anxiety and depression. *Behavior Therapy, 44*, 373–384.
- Fiocco, A. J., & Mallya, S. (2015). The importance of cultivating mindfulness for cognitive and emotional well-being in late life. *Journal of Evidence-Based Complementary & Alternative Medicine, 20*, 35–40.
- Gerolimatos, L. A., & Edelman, B. A. (2012). Predictors of health anxiety among older and young adults. *International Psychogeriatrics, 24*, 1998–2008. doi:10.1017/S1041610212001329
- Glick, D. M., & Orsillo, S. M. (2011). Relationships among social anxiety, self-focused attention, and experiential distress and avoidance. *Journal of Cognitive and Behavioral Psychotherapies, 11*(1), 1–12.
- Gould, C. E., & Edelman, B. A. (2010). Worry, emotion control, and anxiety control in older and young adults. *Journal of Anxiety Disorders, 24*, 759–766.
- Gould, C. E., Segal, D. L., Yochim, B. P., Pachana, N. A., Byrne, G. J., & Beaudreau, S. A. (2014). Measuring anxiety in late life: A psychometric examination of the geriatric anxiety inventory and geriatric anxiety scale. *Journal of Anxiety Disorders, 28*, 804–811.
- Hayes, S. C., Strosahl, K. D., & Wilson, K. G. (2012). *Acceptance and commitment therapy: The process and practice of mindful change* (2nd ed.). New York, NY: Guilford Press.
- Hoge, E. A., Bui, E., Marques, L., Metcalf, C. A., Morris, L. K., Robinaugh, D. J., . . . Simon, N. M. (2013). Randomized controlled trial of mindfulness meditation for generalized anxiety disorder: Effects on anxiety and stress reactivity. *Journal of Clinical Psychiatry, 74*, 786–792. doi:10.4088/JCP.12m08083
- Hunt, S., Wisocki, P., & Yanko, J. (2003). Worry and use of coping strategies among older and younger adults. *Journal of Anxiety Disorders, 17*, 547–560.
- Kabacoff, R. I., Segal, D. L., Hersen, M., & Van Hasselt, V. B. (1997). Psychometric properties and diagnostic utility of the beck anxiety inventory and the state-trait anxiety inventory with older adult psychiatric outpatients. *Journal of Anxiety Disorders, 11*, 33–47.
- Kashdan, T. B., Barrios, V., Forsyth, J. P., & Steger, M. F. (2006). Experiential avoidance as a generalized psychological vulnerability: Comparisons with coping and emotion regulation strategies. *Behaviour Research and Therapy, 44*, 1301–1320. doi:10.1016/j.brat.2005.10.003
- Kashdan, T. B., Goodman, F. R., Machell, K. A., Kleiman, E. M., Monfort, S. S., Ciarrochi, J., . . . Nezlek, J. B. (2014). A contextual approach to experiential avoidance and social anxiety: Evidence from an experimental interaction and daily interactions of people with social anxiety disorder. *Emotion, 14*, 769–781.
- Kiken, L. G., & Shook, N. J. (2012). Mindfulness and emotional distress: The role of negatively biased cognition. *Personality and Individual Differences, 52*, 329–333. doi:10.1016/j.paid.2011.10.031
- Lee, J. K., Orsillo, S. M., Roemer, L., & Allen, L. B. (2010). Distress and avoidance in generalized anxiety disorder: Exploring the relationships with intolerance of uncertainty and worry. *Cognitive Behaviour Therapy, 39*, 126–136. doi:10.1080/16506070902966918
- Lenze, E. J., Hickman, S., Hershey, T., Wendleton, L., Ly, K., Dixon, D., . . . Wetherell, J. L. (2014). Mindfulness-based stress reduction for older adults with worry symptoms and co-occurring cognitive dysfunction. *International Journal of Geriatric Psychiatry, 29*, 991–1000.

- Leslie, J. C., & O'Reilly, M. F. (1999). *Behavior analysis: Foundations and applications to psychology*. Amsterdam, The Netherlands: Harwood Academic Publishers.
- Losada, A., Marquez-Gonzalez, M., Pachana, N. A., Wetherell, J. L., Fernandez-Fernandez, V., Nogales-Gonzalez, C., . . . Ruiz-Diaz, M. (2015). Behavioral correlates of anxiety in well-functioning older adults. *International Psychogeriatrics, 27*, 1135–1146.
- Mahaffey, B. L., Wheaton, M. G., Fabricant, L. E., Berman, N. C., & Abramowitz, J. S. (2013). The contribution of experiential avoidance and social cognitions in the prediction of social anxiety. *Behavioural and Cognitive Psychotherapy, 41*, 52–65. doi:10.1017/S1352465812000367
- Mohlman, J., & Zinbarg, R. E. (2000). The structure and correlates of anxiety sensitivity in older adults. *Psychological Assessment, 12*, 440–446. doi:10.1037/1040-3590.12.4.440
- Powers, C. B., Wisocki, P. A., & Whitbourne, S. K. (1992). Age difference and correlates of worrying in young and elderly adults. *The Gerontologist, 32*, 82–88.
- Prakash, R. S., Hussain, M. A., & Schirda, B. (2015). The role of emotion regulation and cognitive control in the association between mindfulness disposition and stress. *Psychology and Aging, 30*, 160–171.
- Rasmussen, M. K., & Pidgeon, A. M. (2011). The direct and indirect benefits of dispositional mindfulness on self-esteem and social anxiety. *Anxiety, Stress, & Coping, 24*, 227–233. doi:10.1080/10615806.2010.515681
- Raes, A. K., Bruyneel, L., Loeys, T., Moerkerke, B., & De Raedt, R. (2013). Mindful attention and awareness mediate the association between age and negative affect. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences, 70*, 179–188. doi:10.1093/geronb/gbt074
- Rector, N. A., Szacun-Shimizu, K., & Leybman, M. (2007). Anxiety sensitivity within the anxiety disorders: Disorder-specific sensitivities and depression comorbidity. *Behaviour Research and Therapy, 45*, 1967–1975. doi:10.1016/j.brat.2006.09.017
- Reiss, S. (1991). Expectancy model of fear, anxiety, and panic. *Clinical Psychology Review, 11*, 141–153.
- Robertson, S. M. C., & Hopko, D. R. (2009). Experiential avoidance: A moderator of the relationship between age and emotional expression. *Aging & Mental Health, 13*, 611–618. doi:10.1080/13607860902774477
- Schmertz, S. K., Masuda, A., & Anderson, P. L. (2012). Cognitive processes mediate the relation between mindfulness and social anxiety within a clinical sample. *Journal of Clinical Psychology, 68*, 362–371. doi:10.1002/jclp.20861
- Segal, D. L., Hook, J. N., & Coolidge, F. L. (2001). Personality dysfunction, coping styles, and clinical symptoms in younger and older adults. *Journal of Clinical Geropsychology, 7*, 201–212.
- Segal, D. L., June, A., Payne, M., Coolidge, F. L., & Yochim, B. (2010). Development and initial validation of a self-report assessment tool for anxiety among older adults: The geriatric anxiety scale. *Journal of Anxiety Disorders, 24*, 709–714. doi:10.1016/j.janxdis.2010.05.002
- Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). *Manual for the state-trait anxiety inventory*. Palo Alto, CA: Consulting Psychologists Press.

- Splevins, K., Smith, A., & Simpson, J. (2009). Do improvements in emotional distress correlate with becoming more mindful? A study of older adults. *Aging & Mental Health, 13*, 328–335. doi:10.1080/13607860802459807
- Taylor, S., Zvolensky, M. J., Cox, B. J., Deacon, B., Heimberg, R. G., Ledley, D. R., . . . Cardenas, S. J. (2007). Robust dimensions of anxiety sensitivity: Development and initial validation of the Anxiety Sensitivity Index-3. *Psychological Assessment, 19*, 176–188. doi:10.1037/1040-3590.19.2.176; 10.1037/1040-3590.19.2.176.supp
- Wheaton, M. G., Deacon, B. J., McGrath, P. B., Berman, N. C., & Abramowitz, J. S. (2012). Dimensions of anxiety sensitivity in the anxiety disorders: Evaluation of the ASI-3. *Journal of Anxiety Disorders, 26*, 401–408. doi:10.1016/j.janxdis.2012.01.002
- Wheaton, M. G., Mahaffey, B., Timpano, K. R., Berman, N. C., & Abramowitz, J. S. (2012). The relationship between anxiety sensitivity and obsessive-compulsive symptom dimensions. *Journal of Behavior Therapy and Experimental Psychiatry, 43*, 891–896. doi:10.1016/j.jbtep.2012.01.001
- Yochim, B. P., Mueller, A. E., June, A., & Segal, D. L. (2011). Psychometric properties of the geriatric anxiety scale: Comparison to the beck anxiety inventory and geriatric anxiety inventory. *Clinical Gerontologist, 34*, 21–33. doi:10.1080/07317115.2011.524600
- Yochim, B. P., Mueller, A., & Segal, D. L. (2013). Late life anxiety is associated with decreased memory and executive functioning in community dwelling older adults. *Journal of Anxiety Disorders, 27*, 567–575.
- Young, L. A., & Baime, M. J. (2010). Mindfulness-based stress reduction: Effect on emotional distress in older adults. *Complementary Health Practice Review, 15*, 59–64. doi:10.1177/1533210110387687

Author Biographies

Colin T. Mahoney is a Ph.D. student in the Clinical Psychology program at Idaho State University. His research interests include the etiology of psychopathology across the lifespan, sexual decision making and risk taking, sexual trauma, and the behavioral assessment of impulsive choice.

Daniel L. Segal is a Professor of Psychology at the University of Colorado at Colorado Springs. His research interests include the assessment of psychopathology among older adults, suicide resilience and aging, barriers to mental health services, and the expression and impact of personality disorders across the lifespan. Dr. Segal is a Fellow of the Gerontological Society of America and of the American Psychological Association (Division 20).

Frederick L. Coolidge is a Professor of Psychology at the University of Colorado at Colorado Springs. His research areas include the evolution of cognition, behavioral genetics, and personality assessment across the lifespan. Dr. Coolidge is a former Fulbright Fellow and he is a member of the European Society for Human Evolution and the Association of Psychological Science.