

Examination of Anxiety Sensitivity and Mindfulness in Adolescents

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By

Rachel Ledbetter

Topeka, Kansas

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Thesis Approval  
Department of Psychology  
Washburn University  
Topeka, Kansas

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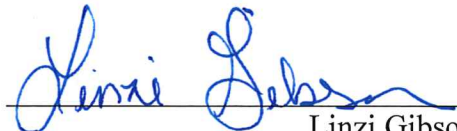
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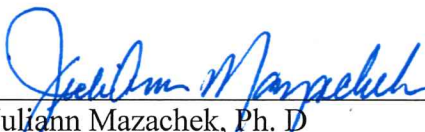
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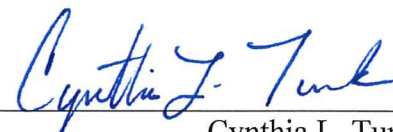
EXAMINATION OF ANXIETY SENSITIVITY AND MINDFULNESS IN  
ADOLESCENTS

be accepted in partial fulfillment for the

MASTER OF ARTS DEGREE

  
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Linzi Gibson, Ph. D  
Chair of the Thesis Committee

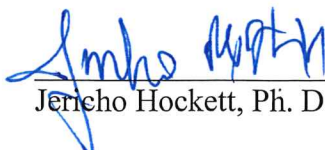
  
\_\_\_\_\_  
Juliann Mazachek, Ph. D  
Vice President for Academic Affairs

  
\_\_\_\_\_  
Cynthia L. Turk, Ph. D  
Head of the Department

Recommendation Concurred by

  
\_\_\_\_\_  
Angela Duncan, Ph. D

Committee for the Thesis

  
\_\_\_\_\_  
Jericho Hockett, Ph. D

### Abstract

Anxiety sensitivity increases the risk of developing anxiety disorders while mindfulness decreases such risk. The current study hypothesized adolescents with high anxiety sensitivity will score significantly lower than adolescents with low anxiety sensitivity on trait mindfulness, nonreactivity, nonjudging, describing, and acting with awareness, and adolescents with high anxiety sensitivity will score significantly higher than individuals with low anxiety sensitivity on observing. Participants received the Five Facet Mindfulness Questionnaire-Adolescents Short Form (FFMQ-A-SF) and Revised Childhood Anxiety Sensitivity Index (CASI-R). Significant differences consistent with hypotheses were found between anxiety sensitivity groups on overall mindfulness, describing, acting with awareness, nonjudging, and nonreactivity subscale scores. No significant differences were found for the observing subscale.

### Examination of Anxiety Sensitivity and Mindfulness in Adolescents

Anxiety disorders are currently the most common mental health disorder experienced by individuals. In the United States, approximately 31.1% of adults are diagnosed with an anxiety disorder in their lifetime (National Institute of Mental Health, 2017), with most developing in childhood (DSM-5; American Psychiatric Association [APA], 2013). Currently, about 32% of adolescents in the United States meet diagnostic criteria for an anxiety disorder and are typically diagnosed at approximately six years of age (Merikangas et al., 2010). Research has shown over 75% of adults diagnosed with mental health disorders were first diagnosed as an adolescent (Copeland et al., 2009). Adolescents, ages 12-18, are vulnerable to developing anxiety disorders partially due to physiological changes and high stress levels (Cortazar et al., 2019). Exposure to parental anxiety and other childhood learning experiences may leave individuals more susceptible to developing an anxiety disorder (Knapp et al., 2016; Muris et al., 2001). Moreover, previous studies found that anxiety disorders in children and adolescents are highly comorbid with other disorders and often contribute to severe distress later in life (Voltas et al., 2017).

#### **Anxiety Sensitivity in Adolescence**

One specific factor that may increase children and adolescents' development of anxiety disorders is anxiety sensitivity (Coppola et al., 2018; Knapp et al., 2016). Anxiety sensitivity is an enhanced awareness toward symptoms of anxiety (i.e., shortness of breath, heart palpitations, dizziness, muscle tension), and the belief that these symptoms are harmful (Waszczuk et al., 2015). Research suggests anxiety sensitivity may be utilized as a possible transdiagnostic factor that may predict the development of multiple mental disorders (Bowell et al., 2013; Knapp et al., 2016). Research is a critical component in developing empirically based treatments and reducing symptoms related to anxiety disorders (Boswell et al., 2013). Potential contributing factors to the

development of anxiety disorders include early learning experiences and observation of parental anxiety.

Barlow's (2000) theory of triple vulnerability conceptualizes risk factors for anxiety sensitivity in children and adolescents through specific psychological vulnerability, general biological vulnerability, and general psychological vulnerability. Specific psychological vulnerability is particularly relevant in understanding anxiety sensitivity. Specific psychological vulnerability is related to early learning based on individualized experiences throughout childhood. Barlow suggested a child can develop anxiety sensitivity simply by observing an anxious parent (i.e., a parent is overly concerned each time her child experiences shortness of breath), which can lead the child to learn that a specific experience (i.e., anxiety-related symptoms) or situation is dangerous. Muris et al. (2001) found parental levels of anxiety sensitivity were associated with levels of anxiety sensitivity in adolescents. Knapp et al. (2013) likewise examined the effects of childhood learning history on levels of anxiety sensitivity and panic symptomatology in children and adolescents. Consistent with Barlow's theory, results showed that repeated associations of certain bodily sensations (shortness of breath, sweating) with fear in childhood created a learned fear of bodily sensations.

### **Effects of Anxiety Sensitivity on Emotion and Behavior**

Anxiety sensitivity has also been conceptualized as the result of poor attentional processing skills due to the tendency to focus on anxiety-related sensations (Ho et al., 2018). Attentional processing skills (i.e., focusing attention on the task at hand) are a necessary component of self-regulation and can reduce internalizing symptoms (Waszczuk et al., 2015). Additionally, research has suggested that enhancing attentional skills also improves emotion regulation (Leyland et al., 2019). Moreover, increased attentional skills help individuals direct

their focus from internal to external factors (e.g., mindfulness meditation). As such, improving attentional skills may help an individual attend to positive information in their environment and decrease one's fear of anxiety-related sensations (Ho et al., 2018).

Experiential avoidance, a maladaptive emotional process, is associated with anxiety sensitivity. Experiential avoidance is defined as an unwillingness to experience unwanted private thoughts, feelings and sensations, and is an effort to control or escape them (Mahoney et al., 2015). This avoidance may provide temporary relief to the individual, but prevents one from learning to manage aversive thoughts, feelings, and sensations. Furthermore, avoidance is reinforced by the relief one temporarily experiences after engaging in avoidance. Research has suggested that individuals with high anxiety sensitivity are less likely to engage in positive coping strategies (Boswell et al., 2013) and are more likely to engage in avoidance (Coppola et al., 2018). The failure to utilize necessary coping strategies may leave young individuals susceptible to developing anxiety disorders.

### **Mindfulness**

Mindfulness-based techniques are becoming increasingly popular by laypeople and the psychological community for the treatment of anxiety disorders (Kallapiran et al., 2015; Mahoney et al., 2015). Mindfulness, a meditation technique and therapeutic tool, is defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience” (Kabat-Zinn, 2003; p. 145). Consistent with the definition of mindfulness, the act of accepting one's present experiences with awareness and without judgment may make an individual less likely to experience symptoms of anxiety (Mahoney et al., 2015). Mindfulness practice is comprised of three components: intention, attention, and attitude (Shapiro et al., 2006). The first component, intention, refers to the

understanding of why an individual practices mindfulness. The second component, attention, refers to the ability to self-regulate attention, purposefully shift one's focus, and inhibit thoughts, feelings, and sensations. The attitude component involves the quality one brings to his or her mindfulness practice, such as openness, kindness, and acceptance. Intentionally applying these components is likely to strengthen attentional abilities and self-regulation (Shapiro et al., 2006).

Certain neural mechanisms support the use of mindfulness as a therapeutic tool for anxiety disorders. The amygdala is an important brain structure in understanding the physiology behind anxiety as the structure is involved in threat detection (real or imagined) and activation of the sympathetic nervous system (arousal, fight or flight). The prefrontal cortex exerts top-down control over the amygdala, which aids in emotion regulation in healthy individuals. Prolonged stress or anxiety will decrease the coupling of the amygdala and prefrontal cortex, resulting in difficulty with emotion regulation (Arnsten et al., 2015). Hölzel et al. (2013) found significant changes in amygdala-prefrontal connectivity, including a shift from negative coupling to positive coupling in individuals with generalized anxiety disorder after engaging in mindfulness training. Mindfulness practice may change anxious individuals' fronto-limbic areas that aid in emotion regulation.

### **Trait Mindfulness**

Distinguishing the tendency for one to be mindful in their day-to-day activities (trait mindfulness) from an individual's current state affected by mindfulness meditation practice or interventions (state mindfulness) is important. A distinction between state and trait mindfulness is important because research suggests some individuals have a higher disposition toward trait mindfulness than do other individuals (Dickenson et al., 2013; Feldman et al., 2016). Research has established that increasing state mindfulness through mindfulness-based training techniques

can decrease anxiety symptoms (Burke, 2010). Moreover, individuals with higher trait mindfulness may also experience less psychological symptoms (i.e., anxiety sensitivity, emotional reactivity, attentional difficulties) compared to individuals with a lower disposition to mindfulness (Feldman et al., 2016; Tsai & Chou, 2016). Therefore, improving trait-based mindfulness could have clinical utility for the reduction of distressing anxiety symptoms. Past research has shown mindfulness training is effective in improving trait mindfulness (Brown & Ryan, 2003) and various forms of psychological distress (Burke, 2010; Feldman et al., 2016), suggesting mindfulness-based interventions may be useful in clinical populations (Klingbeil et al., 2017).

### **Benefits of Mindfulness for Anxiety Disorders**

Current literature supports mindfulness-based interventions as effective tools to combat anxiety and related disorders. Increasing evidence suggests mindfulness is inversely related to indices of psychological distress, such as depression and anxiety (Baer, 2006; Brown & Ryan, 2003; Ostafin et al., 2014). In addition, current literature supports mindfulness-based interventions as a treatment that significantly reduces anxiety symptoms in children and adolescents (Kallapiran et al., 2015). Furthermore, an individual who is intolerant of aversive sensations may be less able to observe their present cognitions, emotions, and sensations without judgment.

Popular mindfulness-based interventions that target mindfulness-related skills in clinical populations include mindfulness-based stress reduction (MBSR), mindfulness-based cognitive therapy (MBCT), acceptance and commitment therapy (ACT), and dialectical behavior therapy (DBT). Mindfulness-based clinical treatments and interventions have been found to induce a mindful state in an individual, which is strengthened through practice. In addition, mindfulness



inductions are brief, one-time experimental practices intended to elicit similar effects as mindfulness-based interventions without the thorough instruction or guidance. Recent studies suggest a single mindfulness induction can decrease emotional reactivity, improve executive attention, and successfully recover individuals from a negative mood (Leyland et al., 2018).

Little is known about the full potential mindfulness training can have in the therapeutic community. Given the high prevalence rate of anxiety disorders that emerge in late adolescence to early adulthood, an interest in the application of mindfulness-based approaches in children and adolescents has increased. Recent research examining mindfulness in children and adolescents found trait mindfulness is inversely related to internalizing and externalizing symptoms in children and adolescents (Calvete et al., 2017; Cortazar et al., 2019; Marks et al., 2010). Research further suggests mindfulness can enhance one's ability to regulate emotions (Dickenson et al., 2013).

### **Mindfulness as a Multi-Dimensional Construct**

Measures of trait mindfulness were initially conceptualized as unidimensional constructs, as in the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003). However, several researchers argued that mindfulness should be measured as a multifaceted construct. Baer et al., (2006) proposed five facets of mindfulness: observing (the awareness of internal and external experiences), describing (the tendency to apply words to internal experiences), acting with awareness (engaging awareness to one's activities), nonjudging of inner experience (an accepting, nonevaluative attitude toward thoughts and feelings involving a letting go of the desire to change one's experiences), and nonreactivity to inner experiences (the ability to let thoughts and feelings pass, rather than getting caught up in them). Mindfulness measures have since been modified and shortened for specific groups of individuals.

Mindfulness researchers began to examine the relationships between the facets of mindfulness and other psychological symptoms. Zhang et al. (2019) measured trait mindfulness in adolescents with the five facets of the Five Facet Mindfulness Questionnaire (i.e., observing, non-judging of inner experience, describing, acting with awareness, and non-reactivity to inner experience). Emotion regulation was measured by the Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) to assess cognitive reappraisal (i.e., reframing the meaning of emotional events, situations, and stimuli) and behavioral suppression (i.e., the effort to prevent expression of emotions) strategies. Results indicated cognitive reappraisal was significantly and positively correlated with observing, non-reactivity to inner experience, describing, and acting with awareness ( $r = 0.14-0.41$ ). This pattern of results suggests that one's ability to reframe the meaning of emotional experiences—a sharp contrast from the hyperarousal and over-focus on symptoms that occurs with anxiety sensitivity—facilitates one's ability to be mindful. McKee et al., (2007) found that lower levels of anxiety sensitivity were significantly associated with higher levels of awareness ( $r = -0.33$ ) and acceptance ( $r = -0.39$ ).

In studies investigating mindfulness, factor analysis has established five major facets of trait mindfulness which led to the development of the Five Facet Mindfulness Questionnaire (FFMQ), including acting with awareness, nonjudging of inner experience, describing, nonreactivity to inner experience, and observing. However, the observing facet varies in its relationship with the other four facets (Baer et al., 2008; Cortazar et al., 2019). Paying attention to the present moment (i.e., observing) may coincide with reactivity and judgment in regards to one's present experiences. Research suggests observing levels may change between judgmental, reactive observation, and mindful observation throughout the practice of mindfulness meditation. Additionally, differences exist between observing levels in meditators and non-meditators (Baer

et al., 2006; Baer et al., 2008), suggesting that mindfulness meditation practice leads to greater variation between observing and the other four facets of mindfulness. The four facets of mindfulness that show a negative correlation with maladaptive psychological functioning include nonjudging of inner experience, describing, acting with awareness, and nonreactivity to inner experience (Baer, 2016; Cortazar et al., 2019). Given the fact that anxiety sensitivity includes enhanced awareness of one's physical symptoms, individuals with enhanced anxiety sensitivity may find it more difficult to be mindful in their day-to-day activities.

### **The Current Study**

Given the high prevalence of anxiety disorders, research should aim to examine factors that influence developing an anxiety disorder in early stages of life. Specifically, understanding the relationship between anxiety sensitivity and trait mindfulness in children and adolescents is necessary to better inform early interventions. Knowledge that levels of trait mindfulness can be affected by mindfulness interventions may be applied to design interventions or treatments early in life. However, mindfulness training requires dedication and a lengthy learning process (Dickenson et al., 2013; Frewen et al., 2016), which should be considered when designing treatment interventions for young individuals.

### **Hypothesis**

The purpose of the present study is to examine the relationships between the five constructs of trait mindfulness and anxiety sensitivity in adolescents. Therefore, the present study tested the following hypotheses:

Hypothesis 1: On the basis of literature showing that individuals with less anxiety sensitivity exhibit higher trait mindfulness, hypothesis 1 is that adolescents with high anxiety sensitivity scores will have significantly lower trait mindfulness scores compared

to adolescents with low anxiety sensitivity.

Hypothesis 2: On the basis of literature showing the describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience subscales of the FFMQ-A-SF are positively associated with healthy psychological functioning, hypothesis 2 is that adolescents with high anxiety sensitivity will have significantly lower scores on the describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experience subscales of the FFMQ-A-SF compared to adolescents with low anxiety sensitivity.

Hypothesis 3: On the basis of literature exhibiting the variation between the observing subscale and the other four subscales of the FFMQ-A-SF, hypothesis 3 was that adolescents with high anxiety sensitivity will have significantly higher scores on the observing subscale of the FFMQ-A-SF compared to adolescents with low anxiety sensitivity.

Hypothesis 4: Participants' caregivers will exhibit a similar pattern of results detailed in hypotheses 1-3.

## **Method**

### **Participants**

Participants were recruited from the community by posting to social media and emailing faculty and staff at a local Midwestern University. Participants met eligibility criteria of reading at a sixth-grade reading level or above based on previous reading level assessments as per parent report.

### **Materials**

**Demographic Questionnaire.** A demographic questionnaire was created for the current

study (see Appendix D). The questionnaire collected information related to participants' age, gender, and grade.

**Five Facet Mindfulness Questionnaire-Adolescents Short Form.** The Five Facet Mindfulness Questionnaire-Adolescents Short Form (FFMQ-A-SF; Cortazar et al., 2019; see Appendix E) is a 25-item measure adapted from the original Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ measures an individual's overall trait mindfulness and five separate factors of mindfulness. Participants were requested to rate how often each statement applies to them on a 5-point scale ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). The questionnaire assessed participants on five dimensions of trait mindfulness: *observing, describing, acting with awareness, nonjudging of inner experience, and nonreactivity to inner experiences.*

Potential scores on the FFMQ-A-SF range from 25-125, with higher scores indicating greater levels of trait mindfulness. Several items were reverse scored, and participants' responses to all items were summed to achieve subscale and overall scores. The FFMQ-A-SF created by Cortazar et al. (2019) is exclusively available in Spanish. For the current study, researchers consulted with the Washburn University Spanish Department to translate it to English and minimally altered the wording of selected items to match a Microsoft Word reading level of grade 6.8 (e.g., the Spanish translation that read "I criticize myself when I have absurd ideas" was changed to "I'm hard on myself when I have silly ideas"). Baer et al. (2006) reported good internal consistency of the original 39-item FFMQ with Cronbach's alpha across the full set of items ranging from .75 to .91. Confirmatory factor analyses showed four of the five facets indicate an overall mindfulness construct along with a positive correlation with psychologically healthy characteristics. However, Baer et al. (2006) found the observing facet was positively

correlated with various maladaptive psychological characteristics. Cortazar et al. (2019) found high reliability and validity of the FFMQ-A-SF with children and adolescents, with correlations between the short and full version ranging from .93 to .96. Cronbach's alpha was computed for the current study as a measure of internal consistency for the adapted scale,  $\alpha = .82$ , indicating good reliability.

**Revised Childhood Anxiety Sensitivity Index.** The Revised Childhood Anxiety Sensitivity Index (CASI-R; Muris, 2002; see Appendix F) is a 31-item measure of anxiety sensitivity that asked participants to rate how often each statement applies to them on a three-point scale (1 = *none*, 2 = *some*, 3 = *a lot*). The questionnaire assessed participants' fear of anxiety sensations (e.g., "It scares me when my heart beats fast"). Participants' responses on the CASI-R were scored by summing responses across all 31 items. Total scores can range from 31-93, with higher scores indicating greater anxiety sensitivity. Confirmatory factor analysis of the measure indicates it has a hierarchical structure, with four lower-order factors (fear of cardiovascular symptoms, 10 items; fear of publicly observable anxiety reactions, 8 items; fear of cognitive dyscontrol, 6 items; fear of respiratory symptoms, 7 items) that load onto a single higher-order factor (anxiety sensitivity). Muris (2002) reported strong internal consistency with Cronbach's alpha across the full set of items ranging from .81 to .88. Cronbach's alpha was computed as a measure of internal consistency for the current study,  $\alpha = .93$ , indicating excellent reliability.

**Five Facet Mindfulness Questionnaire-Short Form.** The Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF; Bohlmeijer et al., 2011; see Appendix G) is a 24-item measure of trait mindfulness adapted from the original 39-item FFMQ (Baer et al., 2006). Adult participants were asked to rate how often each statement applied to them on a 5-point scale

ranging from 1 (*never or very rarely true*) to 5 (*very often or always true*). The questionnaire assessed participants on five dimensions of trait mindfulness: *observing, describing, acting with awareness, non-judging of inner experiences, and nonreactivity to inner experiences*. Several items were reverse scored, and participants' responses to all items were summed to achieve subscale and overall scores. Potential scores can range from 24-120, with higher scores indicating greater levels of trait mindfulness. Bohlmeijer et al. (2011) reported adequate internal consistency of the 39-item FFMQ-SF with Cronbach's alpha across the full set of items ranging from .73 to .91. Confirmatory factor analyses showed good model fit for a correlated five-factor structure and adequate reliability and validity. Cronbach's alpha was computed as a measure of internal consistency for the current study,  $\alpha = .93$ , indicating excellent reliability.

**Anxiety Sensitivity Index-Revised.** The Anxiety Sensitivity Index-Revised (ASI-R; Taylor & Cox, 1998; see Appendix H) is a 36-item measure of anxiety sensitivity that asked adult participants to rate how often each statement applied to them on a five-point scale ranging from 0 (*very little*) to 4 (*very much*). Participants' responses on the ASI-R were scored by summing responses across all 36 items. Total scores can range from 36 to 144, with higher scores indicating greater anxiety sensitivity. The questionnaire assessed participants' fear of anxiety sensations on four lower order factors (fear of respiratory symptoms, 12 items; fear of publicly observable anxiety reactions, 7 items; fear of cardiovascular symptoms, 11 items; and fear of cognitive dyscontrol, 6 items) that load onto a single higher-order factor (anxiety sensitivity). Arnau et al., (2009) found excellent internal consistency with Cronbach's alpha across the full set of items ranging from .81 to .93. Cronbach's alpha was computed as a measure of internal consistency for the current study,  $\alpha = .95$ , indicating excellent reliability.

## **Procedure**

Questionnaires were administered to adolescent participants through Qualtrics, an online survey format. Adult participants responded to an initial question (see Appendix A) to confirm that their adolescent reads at a sixth-grade reading level or above. Informed consent (see Appendix B) was provided to caregivers for their adolescent to participate in the study. Adolescents completed an informed consent (see Appendix C) for themselves to participate in the study. Initially, adolescent participants completed a demographic survey (see Appendix D). Adolescent participants completed the Five Facet Mindfulness Questionnaire-Adolescent-Short Form (FFMQ-A-SF; Cortazar et al., 2019; see Appendix E) and Revised Childhood Anxiety Sensitivity Index (CASI-R; Muris, 2002; see Appendix F). Participants' caregivers completed the Five Facet Mindfulness Questionnaire-Short Form (FFMQ-SF; Bohlmeijer et al., 2011; Appendix G) and Anxiety Sensitivity Index-Revised (ASI-R; Taylor & Cox, 1998; Appendix H). After completing all relevant questionnaires, participants were given a short debriefing statement (see Appendix I) explaining the purpose of the study.

### **Statistical Analysis**

The CASI-R scores were used to identify high, moderate, and low anxiety sensitivity groups. To test hypothesis one, that individuals with high anxiety sensitivity will score significantly lower on trait mindfulness compared to individuals with low anxiety sensitivity, a three-way split was calculated to distribute participants into a low, moderate, and high anxiety sensitivity group. A multivariate analysis of variance (MANOVA) was used to examine the relationship between overall trait mindfulness scores and anxiety sensitivity scores.

To test hypothesis two, that individuals with high anxiety sensitivity will have significantly lower scores on the describing, acting with awareness, nonjudging, and nonreactivity subscales compared to individuals with low anxiety sensitivity, a three-way split



was calculated to distribute participants into a low, moderate, and high anxiety sensitivity group. A MANOVA was used to examine the relationship between anxiety sensitivity scores and scores on the describing, acting with awareness, nonjudging, and nonreactivity subscales.

To test hypothesis three, that individuals with high anxiety sensitivity will have significantly higher scores on the observing subscale compared to individuals with low anxiety sensitivity, a three-way split was calculated to distribute participants into a low, moderate, and high anxiety sensitivity group. A MANOVA was used to examine the relationship between anxiety sensitivity scores and scores on the observing subscale.

### **Results**

A total of 95 adolescents consented to participate in this study; however, 11 participants were over 17 years of age and 21 participants did not complete the questionnaires. These data were excluded from the analysis. Of the 63 adolescents who participated, the mean age was 15.65 (SD = 1.23) and 47.62% were female. To test the hypotheses, participants were divided into three groups, high anxiety sensitivity, moderate anxiety sensitivity, and low anxiety sensitivity, using a three-way split. Caregiver participant scores were not included in the data analysis due to many participants straight-lining responses (providing the same answer to all items) in the last part of the surveys. The high anxiety sensitivity group included adolescents with CASI-R scores 61 and above, the moderate anxiety sensitivity group included adolescents with CASI-R scores ranging from 49 to 60, and the low anxiety sensitivity group included adolescents with CASI-R scores 48 and below. At a participant level, 33% were in the low anxiety sensitivity category, 32% were in the moderate anxiety sensitivity category, and 35% were in the high anxiety sensitivity category. Average FFMQ-A-SF scores for high anxiety

sensitivity ( $M = 64.27$ ,  $SD = 2.47$ ), moderate anxiety sensitivity ( $M = 72.40$ ,  $SD = 2.59$ ), and low anxiety sensitivity ( $M = 79.29$ ,  $SD = 2.53$ ) groups are presented in Table 1.

A MANOVA was conducted to compare high, moderate, and low anxiety sensitivity individuals on overall trait mindfulness scores and five sub-scores from the FFMQ-A-SF, including observing, describing, acting with awareness, nonjudging, and nonreactivity.

Hypothesis one was supported. See Figure 1 for statistical results. Adolescents with high anxiety sensitivity scored significantly lower on overall trait mindfulness compared to adolescents with low anxiety sensitivity,  $F(1,62) = 9.04$ ,  $p < .001$ ,  $R^2 = .23$ .

Hypothesis two was supported. See Figure 2 for statistical results. Adolescents with high anxiety sensitivity scored significantly lower on the describing subscale than adolescents with low anxiety sensitivity,  $F(1,62) = 5.01$ ,  $p = .010$ ,  $R^2 = .14$ . Adolescents with high anxiety sensitivity scored significantly lower on the acting with awareness subscale compared to adolescents with low anxiety sensitivity,  $F(1,62) = 5.28$ ,  $p = .008$ ,  $R^2 = .15$ . Adolescents with high anxiety sensitivity scored significantly lower on the nonjudging subscale than adolescents with low anxiety sensitivity,  $F(1,62) = 10.33$ ,  $p < .001$ ,  $R^2 = .26$ . Adolescents with high anxiety sensitivity scored significantly lower on the nonreactivity subscale compared to adolescents with low anxiety sensitivity,  $F(1,62) = 3.74$ ,  $p = .029$ ,  $R^2 = .11$ .

Hypothesis three was not supported. See Figure 2 for statistical results. Adolescents with high anxiety sensitivity did not score significantly higher on the observing subscale compared to adolescents with low anxiety sensitivity,  $F(1,62) = .837$ ,  $p = .438$ ,  $R^2 = .03$ .

### **Discussion**

Previous research on anxiety sensitivity indicates anxiety sensitivity begins to develop in childhood and adolescence and is predictive of developing anxiety disorders. Mindfulness-based

interventions may be used as a protective factor against various forms of psychological distress in youth (Kallapiran et al., 2015). The present study addressed a gap in literature by examining the relationship between anxiety sensitivity and trait mindfulness in adolescents. Analyses generated six main results.

Hypothesis one examined the differences between individuals with high and low anxiety sensitivity on overall trait mindfulness scores. Individuals with high anxiety sensitivity were significantly lower in overall trait mindfulness scores compared to individuals with low anxiety sensitivity. This finding is consistent with past research that anxiety sensitivity is negatively correlated with mindfulness among various ages (Mahoney et al., 2015). When an adolescent is more comfortable with their anxiety symptoms, they are more likely to be mindful in their day-to-day life.

Hypothesis two examined the differences between high and low anxiety sensitivity groups on the describing, acting with awareness, nonjudging, and nonreactivity subscales from the FFMQ-A-SF. Adolescents with high anxiety sensitivity scored significantly lower on the describing subscale compared to adolescents with low anxiety sensitivity. Individuals who have less fear of anxiety symptoms may be more able to label the symptoms as anxiety (e.g., my stomach hurts because I'm anxious) rather than resulting from being seriously ill (Taylor & Cox, 1998). Labeling symptoms of anxiety helps one differentiate feelings from thoughts and further attend to the emotion by utilizing emotion reappraisal (Zhang et al., 2019).

Adolescents with high anxiety sensitivity scored significantly lower on the acting with awareness subscale compared to adolescents with low anxiety sensitivity. Decreased fear of anxiety symptoms may make one more likely to notice one's own thoughts, emotions, and experiences, recognize that they are symptoms of anxiety, and choose to hold them in awareness.

Moreover, individuals high in acting with awareness may be more likely to engage in positive coping strategies and spend less time ruminating about their concerning anxiety symptoms (Frewen et al., 2016).

Adolescents with high anxiety sensitivity scored significantly lower on the nonjudging subscale than adolescents with low anxiety sensitivity. When anxiety symptoms are believed to be innocuous, one may bring a nonjudgmental attitude towards symptoms of anxiety and allow one to accept that they are anxious, rather than avoiding the unpleasant symptoms. Furthermore, judging anxiety symptoms as negative may further exacerbate these symptoms. These findings also suggest that the more an individual allows oneself to experience distressing symptoms in the absence of judging them as positive or negative, the less anxious distress they will experience (Mahoney et al., 2015).

Adolescents with high anxiety sensitivity also scored significantly lower on the nonreactivity subscale than adolescents with low anxiety sensitivity. These results suggest that a decreased fear of anxiety symptoms allows individuals to label symptoms of anxiety and develop the ability to be mindful before reacting to anxious thoughts and feelings. In other words, an individual is less likely to fear they will choke to death when they experience tightness in their throat because they will attribute the sensation to feeling anxious (Shapiro et al., 2006). Decreased identification with feelings of anxiety increases one's ability to take a step back and reduces automatic behavior patterns.

Anxiety sensitivity did not seem to influence participants' responses to the questions on the observing subscale. Interestingly, both low and high anxiety sensitivity groups were likely to report high scores on the observing subscale. The explanation may lie in a distinction between judgmental observing and mindful observing. Baer (2016) suggested there are two distinct types

of observing associated with mindfulness. Judgmental, reactive observation is associated with maladaptive psychological functioning, whereas mindful observation, which increases with mindfulness practice, is associated with positive psychological functioning. Those high in anxiety sensitivity may be more prone to judgmental observing, while those low in anxiety sensitivity may be more prone to mindful observing. The FFMQ and subsequent revised versions do not make the distinction between judgmental and mindful observing.

**Limitations.** The present study's findings are limited by several factors. The questionnaires administered to participants contained a total of 56 questions, creating potential for survey taking fatigue. Survey participants who become bored or fatigued may become focused on finishing the survey rather than giving quality answers (Galesic & Bosnjak, 2009). Future research may consider utilizing a shorter questionnaire measuring multidimensional constructs of mindfulness, such as the child and adolescent mindfulness measure (CAMM; Greco et al., 2011), and shorter measures of anxiety sensitivity to prevent participant fatigue. The present study is limited in that cause and effect cannot be determined due to the cross-sectional design. The findings were also limited regarding the recruitment of participants. The presence of snowball sampling and convenience sampling likely limit the generalizability of the study's findings. Recruiting caregiver matches for every adolescent participant proved challenging.

Despite limitations, the current study does add to the research of the development of anxiety disorders in adolescents. Results of this study address a call for research by Cortazar et al. (2019) by utilizing an adapted version of the FFMQ-A-SF in a small sample of English-speaking adolescents. Consistent with past research, the findings from this study establishes high anxiety sensitivity as a risk factor for low trait mindfulness and ultimately, anxiety disorders. Additionally, results support past research in that high scores on the describing, acting with

awareness, nonjudging, and nonreacting subscales of the FFMQ-A-SF are negatively associated with psychological distress. Results from the current study suggest adolescents and adults exhibit a similar relationship between anxiety sensitivity and components of mindfulness.

**Future Directions.** Additionally, examining the relationship between anxiety sensitivity and trait mindfulness in both adolescents and their caregivers is important, as research indicates parental anxiety sensitivity mediates psychopathology in adolescents (Muris et al., 2001; East et al., 2007; Francis & Noël, 2010). The relationship between parental anxiety sensitivity and their child's anxiety sensitivity has not been fully investigated (Francis & Noël, 2010); however, parents influence the amount of anxiety their child experiences (Coppola et al., 2018).

Regular meditation practice, such as mindfulness-based interventions, can increase trait mindfulness (Brown & Ryan, 2003). These findings may encourage clinicians to treat young individuals experiencing anxiety with mindfulness-based techniques. As adolescents have heightened brain plasticity, these techniques may be especially beneficial in preventing anxiety disorders in adolescents. Continual mindfulness practice may also shift an individual from judgmental observation to more mindful observation (Baer, 2016) and further strengthen one's ability to engage in positive coping strategies. Given that adolescents with high anxiety sensitivity may struggle to engage in mindfulness strategies, clinicians may wish to incorporate mindfulness skills into anxiety treatments that are practical for use with adolescent clients. Effective forms of mindfulness-based techniques include acceptance and commitment therapy (ACT), which can target negative experiences (i.e., anxiety symptoms) and focuses on accepting those experiences (Mahoney et al., 2015).

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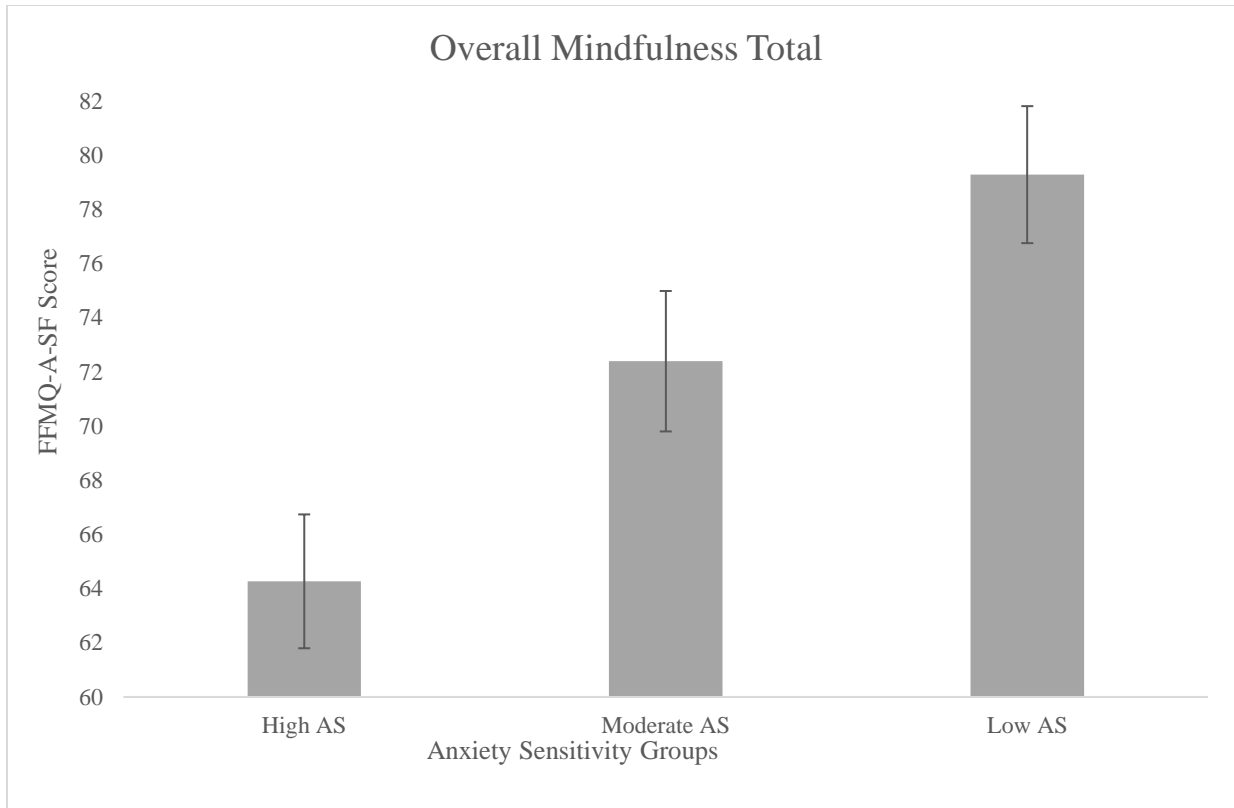
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Table 1.

*Means, standard deviations, and results of ANOVA with anxiety sensitivity groups, FFMQ-A-SF total and subscales.*

	High AS <i>n</i> =22	Moderate AS <i>n</i> =20	Low AS <i>n</i> =21	ANOVA	
	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>M</i> ( <i>SD</i> )	<i>F</i> (1,62)	<i>p</i>
FFMQ-A-SF Total	64.27 (2.47)	72.40 (2.59)	79.29 (2.53)	9.037	<.001
Observing	18.82 (.896)	18.85 (.939)	17.38 (.917)	.837	.438
Describing	9.91 (.794)	12.55 (.832)	13.33 (.812)	5.008	.010
Acting with Awareness	11.00 (.866)	10.90 (.908)	14.48 (.886)	5.276	.008
Nonjudging	11.27 (.930)	14.80 (.975)	17.29 (.952)	10.331	<.001
Nonreactivity	13.27 (.908)	15.30 (.952)	16.81 (.929)	3.740	.029

*Note.* FFMQ-A-SF=Five Facet Mindfulness Questionnaire-Adolescent-Short Form (Cortazar, Calvete, Fernández-González, & Orue, 2019); high AS=high anxiety sensitivity; low AS=low anxiety sensitivity.



*Figure 1.* Bar graph comparing mindfulness scores of adolescents with high anxiety sensitivity, moderate anxiety sensitivity, and low anxiety sensitivity with error bars for standard error.

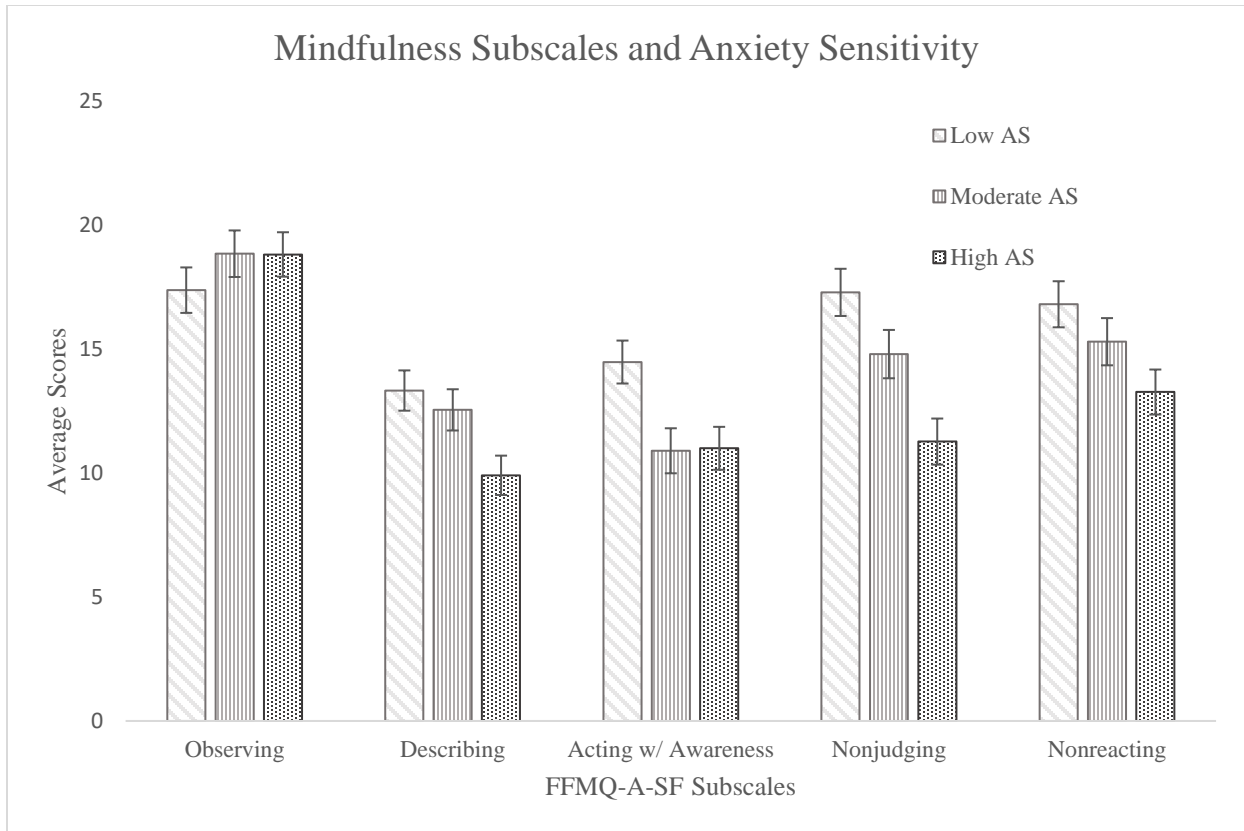


Figure 2. Bar graph for ANOVA comparing low- and high anxiety sensitivity adolescents on the FFMQ-A-SF subscales with error bars for standard error.



**Appendix A**

Does your adolescent read and understand material of a sixth grade level or higher?

YES – My adolescent reads and understands material of a sixth grade level or higher.

NO – My adolescent does not read and understand material of a sixth grade level or higher.

**ATTENTION:** If your child does not read and understand material of a sixth grade level or higher, please discontinue this survey. We thank you for your participation. If your child does read and understand material of a sixth grade level or higher, you may continue this survey.

**PARENT FOR ADOLESCENT FORM:****Appendix B****INFORMED CONSENT STATEMENT**

The Washburn University Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish for your child to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty.

**PURPOSE OF RESEARCH AND PROCEDURES TO BE USED:**

This study is concerned with examining the relationship between mindfulness and anxiety in adolescents and their caregivers. Mindfulness refers to the ability to notice what is happening around you and what you are doing in the current moment. Anxiety is worrying about what may happen in the future. In this study, your child will be asked to fill out a mindfulness questionnaire and an anxiety questionnaire describing what is typically true for them. They will be asked to provide demographic information about themselves (i.e., their gender, age, and grade). These questions require your adolescent to read and understand material of a sixth grade level or higher. You will also be asked to complete a mindfulness and anxiety questionnaire. Please answer the questions regarding what is true for yourself. Your responses and your child's responses on the questionnaires are anonymous.

**LENGTH OF STUDY:**

This study will take approximately 15-20 minutes for each participant.

**RISKS AND BENEFITS ANTICIPATED:**

There are minimal risks associated with this study beyond what would be encountered in your adolescent's daily life. If any of the questions regarding anxiety produce strong emotions, your adolescent may choose to not answer the question(s) or stop participating at any time without explanation or penalty. In the event that participation in the study results in discomfort, anxiety, etc., resources for help will be provided at the end. Your adolescent will learn about and contribute to psychological research.

**BENEFITS ANTICIPATED:**

You will learn about and contribute to psychological research. You will not be compensated for participating in this research study.

**EXTENT OF CONFIDENTIALITY:**

Your adolescent's responses are anonymous. Your adolescent's name will not be associated with their responses. No one other than the members of the research team will have access to the data for this research. The researcher and confidential assistants use the forms to analyze the data in collective form using a secure data analysis program. No personal data is accessible. No individual's responses will be traceable from the products of this work, such as journal articles and presentations.

IRB Address/Contact:

[irb@washburn.edu](mailto:irb@washburn.edu)

IRB Chair  
Washburn University  
Topeka, Kansas 66621

Principal Investigator & Contact Information:

Rachel Ledbetter  
[rachel.ledbetter@washburn.edu](mailto:rachel.ledbetter@washburn.edu)

Faculty Supervisor & Contact Information:

Linzi Gibson, Ph.D.  
[linzi.gibson@washburn.edu](mailto:linzi.gibson@washburn.edu)

Your adolescent's participation is solicited, but strictly voluntary. You may withdraw your consent at any time. If you agree to let your child take part in this study, you will sign this permission form before any study-related procedures are performed. Do not hesitate to ask questions about the study. Be assured that your child's or your name will not be associated in any way with the research finding. We appreciate your cooperation very much!

**TERMS OF PARTICIPATION:**

I understand that this project is research and that my adolescent's participation is being solicited but is completely voluntary. I also understand that if my adolescent decides to participate in this study, they may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits to which I may otherwise be entitled. By proceeding, I verify that I have read and understand this consent form, and willingly agree to allow my adolescent to participate in this study under the terms described.

Please retain a copy of this consent form for your records.

YES – I verify that I have read and understand this consent form, and willingly agree to allow my adolescent to participate in this study under the terms described.

NO – I verify that I have read and understand this consent form and do not agree to allow my adolescent to participate in this study under the terms described.

**ADOLESCENT FORM:****Appendix C****INFORMED CONSENT STATEMENT**

The Washburn University Department of Psychology supports the practice of protection for human subjects participating in research. The following information is provided so that you can decide whether you wish to participate in the present study. You should be aware that even if you agree to participate you are free to withdraw at any time, without penalty.

**PURPOSE OF RESEARCH AND PROCEDURES TO BE USED:**

This study is concerned with examining the relationship between mindfulness and anxiety in adolescents and their caregivers. Mindfulness is noticing what is happening around you and what you are doing. Anxiety is worrying about what may happen in the future. In this study, you will be asked to fill out a mindfulness questionnaire and an anxiety questionnaire describing what is typically true for you. You will be asked to provide demographic information about yourself, including your gender, age, and grade. Your responses on the questionnaires are anonymous.

**LENGTH OF STUDY:**

This study will take approximately 15-20 minutes for each participant.

**RISKS AND BENEFITS ANTICIPATED:**

There are minimal risks associated with this study beyond what would be encountered in your daily life. If any of the questions regarding anxiety produce strong emotions, you may choose to not answer the question(s) or stop participating at any time without explanation or penalty. In the event that participation in the study results in discomfort, anxiety, etc., resources for help will be provided at the end. You will learn about and contribute to psychological research.

**BENEFITS ANTICIPATED:**

You will learn about and contribute to psychological research. You will not be compensated for participating in this research study.

**EXTENT OF CONFIDENTIALITY:**

Your responses are anonymous. Your name will not be associated with your responses. No one other than the members of the research team will have access to the data for this research. The researcher and confidential assistants use the forms to analyze the data in collective form using a secure data analysis program. No personal data is accessible. No individual's responses will be traceable from the products of this work, such as journal articles and presentations.

**IRB Address/Contact:**

[irb@washburn.edu](mailto:irb@washburn.edu)

IRB Chair

Washburn University

Topeka, Kansas 66621

**Principal Investigator & Contact Information:**

Rachel Ledbetter

[rachel.ledbetter@washburn.edu](mailto:rachel.ledbetter@washburn.edu)

Faculty Supervisor & Contact Information:

Linzi Gibson, Ph.D.

[linzi.gibson@washburn.edu](mailto:linzi.gibson@washburn.edu)

Your participation is solicited but is strictly voluntary. You may withdraw your consent at any time. If you agree to take part in this study, you will sign this permission form before any study-related procedures are performed. Do not hesitate to ask questions about the study. Be assured that your name will not be associated in any way with the research finding. We appreciate your cooperation very much!

**TERMS OF PARTICIPATION:**

I understand that this project is research and that my participation is being solicited but is completely voluntary. I also understand that if I decide to participate in this study, I may withdraw my consent at any time, and stop participating at any time without explanation, penalty, or loss of benefits to which I may otherwise be entitled. By proceeding, I verify that I have read and understand this consent form, and willingly agree to participate in this study under the terms described.

Please retain a copy of this consent form for your records.

YES – I verify that I have read and understand this consent form, and willingly agree to participate in this study under the terms described.

NO – I verify that I have read and understand this consent form and do not agree to participate in this study under the terms described.

**Appendix D**

Demographic Questionnaire

1.) What is your gender?

Male

Female

Other, please specify: \_\_\_\_\_

I prefer not to answer

2.) How old are you? \_\_\_\_\_

3.) What grade are you in? \_\_\_\_\_

## Appendix E

### Five Facet Mindfulness Questionnaire – Adolescent – Short Form

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

- \_\_\_ 1. I am good at finding words to describe my feelings.
- \_\_\_ 2. I perceive my feelings and emotions without having to react to them.\*
- \_\_\_ 3. When I do something, my mind tends to wander and get distracted.
- \_\_\_ 4. When I take a bath or a shower, I am aware of the sensations of water on my body.
- \_\_\_ 5. I do not pay attention to what I am doing because I am daydreaming, worrying, or distracted.\*
- \_\_\_ 6. It is hard for me to find the words to describe what I am thinking.
- \_\_\_ 7. I am easily distracted.
- \_\_\_ 8. I think some of my thoughts are not normal or they are bad, and I should not think like that.
- \_\_\_ 9. I pay attention to my sensations, like the wind in my hair and the sun on my face.\*
- \_\_\_ 10. I have trouble finding the right words to express my feelings.
- \_\_\_ 11. I find it difficult to stay focused on what is happening in the present.\*
- \_\_\_ 12. When I have negative thoughts or mental images, I stop myself and make myself aware of them without letting them affect me.
- \_\_\_ 13. I pay attention to sounds, like a clock ticking, birds singing, or car noises.
- \_\_\_ 14. When I have negative thoughts or mental images, I can quickly calm down.
- \_\_\_ 15. I tell myself I should not be thinking the way I am thinking.\*
- \_\_\_ 16. I notice the smells and aroma of things.\*
- \_\_\_ 17. Even when I feel very upset and nervous, I am able to find a way to talk about it.\*
- \_\_\_ 18. When I have negative thoughts or mental images, I am able to observe them without reacting.\*
- \_\_\_ 19. I think some of my emotions are bad or inappropriate, and that I should not feel them.
- \_\_\_ 20. I pay attention to the visual elements in art or nature, like colors, shapes, textures, lights and shades.
- \_\_\_ 21. When I have negative thoughts or images, I just notice them and let them go.\*
- \_\_\_ 22. When negative thoughts and images come to mind, I judge myself as a bad person.
- \_\_\_ 23. Normally I can describe, in detail, how I feel in any given moment.
- \_\_\_ 24. I find myself doing things without paying attention to them.
- \_\_\_ 25. I criticize myself when I have silly ideas.\*

Cortazar, N., Calvete, E., Fernández-González, L., & Orue, I. (2019). Development of a short form of the Five Facet Mindfulness Questionnaire–Adolescents for children and adolescents. *Journal of Personality Assessment*, 1-12.  
doi: 10.1080/00223891.2019.1616206

## Appendix F

### Childhood Anxiety Sensitivity Index – Revised

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3
none	some	a lot

- \_\_\_ 1. When I feel like not getting enough air, I get scared that I might suffocate.
- \_\_\_ 2. It is important for me not to appear nervous.
- \_\_\_ 3. When I feel a strong pain in my stomach, I worry that it might be cancer.
- \_\_\_ 4. When I feel strange, I worry that I might go crazy.
- \_\_\_ 5. It scares me when I have a feeling of choking.
- \_\_\_ 6. I believe it would be awful if I had to vomit in public.
- \_\_\_ 7. When my head is pounding, I worry that I could have a stroke.
- \_\_\_ 8. When my heart beats fast, I worry that something is wrong.
- \_\_\_ 9. It scares me when I am short of breath.
- \_\_\_ 10. I think it would be horrible to faint in public.
- \_\_\_ 11. When my face feels numb, I worry I might be having a stroke.
- \_\_\_ 12. When my thoughts speed up, I worry that I might go crazy.
- \_\_\_ 13. When my chest feels tight, I get scared that I cannot breathe properly.
- \_\_\_ 14. I worry that other people will notice my anxiety.
- \_\_\_ 15. When I feel pain in my chest, I worry that I am going to have a heart attack.
- \_\_\_ 16. When I have trouble with thinking clearly, I worry that something is wrong with me.
- \_\_\_ 17. When my throat feels tight, I get scared that I could choke to death.
- \_\_\_ 18. It scares me when my heart beats fast.
- \_\_\_ 19. When I tremble in the presence of others, I fear what people think of me.
- \_\_\_ 20. When I feel dizzy, I worry that something is wrong with my brain.
- \_\_\_ 21. When my stomach is upset, I worry that I might be seriously ill.
- \_\_\_ 22. When my heart is skipping a beat, I worry that something serious is going to happen to me.
- \_\_\_ 23. When I cannot keep my mind on my schoolwork, I worry that I might go crazy.
- \_\_\_ 24. When my breathing is irregular, I fear that something bad will happen.
- \_\_\_ 25. When I have trouble swallowing, I worry that I could choke.
- \_\_\_ 26. When I start to sweat in the presence of others, I get scared that people will think negatively of me.
- \_\_\_ 27. It scares me when I blush in front of people.
- \_\_\_ 28. It scares me when I feel like I have to throw up.
- \_\_\_ 29. It scares me when I feel tingling or pickling sensations in my hands.
- \_\_\_ 30. It scares me when I cannot keep my mind on the task.
- \_\_\_ 31. When my mind goes blank, I worry that something is terribly wrong with me.

Muris, Peter. (2002). An expanded Childhood Anxiety Sensitivity Index: Its factor structure, reliability, and validity in a non-clinical adolescent sample. *Behaviour Research and Therapy*, 40(3), 299-311. doi: 10.1016/S0005-7967(00)00112-1



## Appendix G

### **Five Facet Mindfulness Questionnaire – Short Form**

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

1	2	3	4	5
never or very rarely true	rarely true	sometimes true	often true	very often or always true

- \_\_\_ 1. I'm good at finding the words to describe my feelings.
- \_\_\_ 2. I can easily put my beliefs, opinions, and expectations into words.
- \_\_\_ 3. I watch my feelings without getting carried away by them.
- \_\_\_ 4. I tell myself that I shouldn't be feeling the way I'm feeling.
- \_\_\_ 5. It's hard for me to find the words to describe what I'm thinking.
- \_\_\_ 6. I pay attention to physical experiences, such as the wind in my hair or sun on my face.
- \_\_\_ 7. I make judgments about whether my thoughts are good or bad.
- \_\_\_ 8. I find it difficult to stay focused on what's happening in the present moment.
- \_\_\_ 9. When I have distressing thoughts or images, I don't let myself be carried away by them.
- \_\_\_ 10. Generally, I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- \_\_\_ 11. When I feel something in my body, it's hard for me to find the right words to describe it.
- \_\_\_ 12. It seems I am "running on automatic" without much awareness of what I'm doing.
- \_\_\_ 13. When I have distressing thoughts or images, I feel calm soon after.
- \_\_\_ 14. I tell myself I shouldn't be thinking the way I'm thinking.
- \_\_\_ 15. I notice the smells and aromas of things.
- \_\_\_ 16. Even when I'm feeling terribly upset, I can find a way to put it into words.
- \_\_\_ 17. I rush through activities without being really attentive to them.
- \_\_\_ 18. Usually when I have distressing thoughts or images I can just notice them without reacting.
- \_\_\_ 19. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
- \_\_\_ 20. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadows.
- \_\_\_ 21. When I have distressing thoughts or images, I just notice them and let them go.
- \_\_\_ 22. I do jobs or tasks automatically without being aware of what I'm doing.
- \_\_\_ 23. I find myself doing things without paying attention.
- \_\_\_ 24. I disapprove of myself when I have illogical ideas.

Bohlmeijer, E., ten Klooster, P. M., Fledderus, M., Veehof, M., & Baer, R. (2011). Psychometric properties of the Five Facet Mindfulness Questionnaire in depressed adults and development of a short form. *Assessment, 18*(3), 308–320.  
doi: 10.1177/1073191111408231

## Appendix H

### Anxiety Sensitivity Index - Revised

Please rate each of the following statements using the scale provided. Write the number in the blank that best describes your own opinion of what is generally true for you.

0	1	2	3	4
agree very little	somewhat agree	agree	mostly agree	agree very much

- \_\_\_ 1. When I feel like not getting enough air, I get scared that I might suffocate.
- \_\_\_ 2. Smothering sensations scare me.
- \_\_\_ 3. It scares me when I become short of breath.
- \_\_\_ 4. When my chest feels tight, I get scared that I won't be able to breathe properly.
- \_\_\_ 5. It scares me when I feel faint.
- \_\_\_ 6. When my throat feels tight, I worry that I could choke to death.
- \_\_\_ 7. It scares me when my heart beats rapidly.
- \_\_\_ 8. When my breathing becomes irregular, I fear that something bad will happen.
- \_\_\_ 9. It scares me when I feel shaky.
- \_\_\_ 10. When I have trouble swallowing, I worry that I could choke.
- \_\_\_ 11. It frightens me when my surroundings seem strange or unreal.
- \_\_\_ 12. It scares me when my body feel strange or different in some way.
- \_\_\_ 13. It is important for me not to appear nervous.
- \_\_\_ 14. I believe it would be awful to vomit in public.
- \_\_\_ 15. I think it would be horrible for me to faint in public.
- \_\_\_ 16. I worry that other people will notice my anxiety.
- \_\_\_ 17. When I tremble in the presence of others I fear what people might think of me.
- \_\_\_ 18. When I begin to sweat in a social situation, I fear people will think negatively of me.
- \_\_\_ 19. It scares me when I blush in front of people.
- \_\_\_ 20. When I feel a strong pain in my stomach, I worry it could be cancer.
- \_\_\_ 21. When my head is pounding, I worry I could have a stroke.
- \_\_\_ 22. When my heart is beating rapidly, I worry that I might have a heart attack.
- \_\_\_ 23. When my face feels numb, I worry that I might be having a stroke.
- \_\_\_ 24. When I feel pain in my chest, I worry that I'm going to have a heart attack.
- \_\_\_ 25. When I feel dizzy, I worry there is something wrong with my brain.
- \_\_\_ 26. When my stomach is upset, I worry that I might be seriously ill.
- \_\_\_ 27. When I notice my heart skipping a beat, I worry there is something seriously wrong with me.
- \_\_\_ 28. When I get diarrhea, I worry that I might have something wrong with me.
- \_\_\_ 29. It scares me when I am nauseous.
- \_\_\_ 30. It scares me when I feel tingling or prickling sensations in my hands.
- \_\_\_ 31. When I feel "spacey" or spaced out I worry that I may be mentally ill.
- \_\_\_ 32. When my thoughts seem to speed up, I worry that I might be going crazy.

- \_\_\_ 33. When I have trouble thinking clearly, I worry there is something wrong with me.
- \_\_\_ 34. When I cannot keep my mind on a task, I worry that I might be going crazy.
- \_\_\_ 35. It scares me when I am unable to keep my mind on a task.
- \_\_\_ 36. When my mind goes blank I worry there is something terribly wrong with me.

Taylor, S., & Cox, B. J. (1998). An expanded anxiety sensitivity index: Evidence for a hierarchic structure in a clinical sample. *Journal of Anxiety Disorders*, *12*(5), 463-483. doi: 10.1016/s0887-6185(98)00028-0

**DEBRIEF:****Appendix I****Mindfulness and Anxiety Sensitivity in Adolescents and Caregivers**

Thank you for participating in this online study! This research would not be possible without your input. The primary goal of this study was to examine the relationship between mindfulness and anxiety sensitivity in adolescents. **Mindfulness is noticing what is happening around you and what you are doing in the current moment.** Anxiety sensitivity is being afraid of symptoms of anxiety, such as feeling dizzy or short of breath. Specifically, we aimed to determine if high levels of fear of anxiety symptoms influence an adolescent's tendency to notice what is happening around them and what they are doing in the current moment. We also examined the relationship between an adolescent's tendency to notice what is happening around them and what they are doing in the current moment and fear of anxiety symptoms and their caregiver's tendency to notice what is happening around them and what they are doing in the current moment and fear of anxiety symptoms. During the study, you answered a series of questions about symptoms of anxiety that cause distress. These questions were intended to measure fear of anxiety symptoms. In addition, you answered questions related to sensations, emotions, and thoughts you experience. These questions were intended to measure how likely you are to notice what is happening around you and what you are doing throughout your day.

The data collected from this study may further our understanding of anxiety disorders in adolescents and provide appropriate interventions.

If you wish to find out more about this study, including its results, or make a comment or complaint about the study, please contact Rachel Ledbetter, the study's primary investigator by email at [rachel.ledbetter@washburn.edu](mailto:rachel.ledbetter@washburn.edu).

Questions about your rights as a research participant should be directed to the principal investigator listed on the informed consent or the Institutional Review Board committee ([irb@washburn.edu](mailto:irb@washburn.edu))

If you feel you need assistance with a mental health concern as a result of this study, please see attached list of resources available for you.

**Resources**

If you have experienced any distress or discomfort as a result of considering or responding to any item or items included on any of the questionnaires in this study, you may contact:

**National Resources**

- **National Suicide Prevention Lifeline:** Skilled, trained counselors are available 24/7 to listen to your problems and help you connect with mental health services in your area. The Lifeline provides free and confidential support for people in distress, prevention and crisis resources for you or your loved ones, and best practices for professionals.
  - <http://www.suicidepreventionlifeline.org/>
  - 1.800.273.8255 or 1.800.784.2433
  - *For hearing and Speech Impaired with TTY equipment:* 1-800-799-4TTY (779-4889)

- **National Hopeline:** If you are in crisis and need to speak with someone right now, calls are connected to certified crisis center nearest to the caller's location. Staff and volunteers are trained and certified in crisis intervention.
  - <http://www.hopeline.com/> or <http://www.hopeline.com/gethelpnow.html>
  - 1.800.442.4673 or 1.800.442.HOPE.
- **Mental Health America:** For a referral to a specific mental health services or support program in your community.
  - 800.969.NMHA (6642)
- **National Alliance on Mental Illness:** Provides support, information, and referrals.
  - 800.950.NAMI (6264)

#### **Local Resources**

- **Family Services and Guidance Center crisis line**
  - Provides 24/7 crisis services for children and adolescents
  - 785-232-5005
- **Valeo Behavioral Health crisis line**
  - Provides 24/7 crisis services for adults
  - 785-234-3300