POSITIVE AND NEGATIVE EMOTIONAL AVOIDANCE AS MODERATORS
BETWEEN ANXIETY SENSITIVITY AND POSTTRAUMATIC STRESS DISORDER
SYMPTOM SEVERITY

A thesis presented to the faculty of the Graduate School of
Western Carolina University in partial fulfilment of the
requirements for the degree of Master of Arts in Clinical Psychology.

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April 2023

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LIST OF ABBREVIATIONS

AAQ…………………Acceptance and Action Questionnaire
ACT…………………Acceptance and Commitment Therapy
APA…………………American Psychiatric Association
AS……………………Anxiety Sensitivity
ASI-3………...………Anxiety Sensitivity Index-3
CAPS………………...Clinician-Administered PTSD Scale
DSM-5……...………..Diagnostic and Statistical Manual of Mental Disorders, 5th edition
EA……………………Emotional Avoidance
EAQ…………………Emotional Avoidance Questionnaire
IRB…………………...Institutional Review Board
LEC-5………………...Life Events Checklist-5
MCAR………………..Missing completely at random
PCL-5………………..PTSD Checklist for DSM-5
PTE…………………..Potentially traumatic event
PTSD………………...Posttraumatic stress disorder
SPSS…………………Statistical Package for the Social Sciences
VIF…………………..Variance inflation factors

ABSTRACT

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Anxiety sensitivity (AS) is a set of trait-like dysfunctional beliefs about negative and harmful consequences of anxious arousal (Reiss & McNally, 1985). Research has consistently shown a strong positive association between posttraumatic stress disorder (PTSD) and AS (Naragon-Gainey, 2010; Taylor et al., 1992). Though this correlation is well established, it is largely unknown what moderates this strong association between AS and PTSD. Emotional avoidance (EA) has been suggested to be an emotional regulation process that is common to anxiety disorders and PTSD (Hayes et al., 1999). Naifeh et al. (2012) and Tull et al. (2011) have demonstrated that anxiety-related disorders are associated with both negative emotional avoidance (e.g., avoidance of unpleasant thoughts and feelings) and positive emotional avoidance (e.g., feeling scared/ashamed in response to positive emotions). Several lines of research suggest that the key mechanism behind AS predicting PTSD symptom severity might be the extent to which an individual takes part in the effort to avoid the frequency of unwanted internal experiences, or emotional avoidance (Bardeen et al., 2013; Kashdan et al., 2008). The present study examined the role of positive EA and negative EA as potential moderators of the association between AS and PTSD symptom severity. A total of 434 college students enrolled in a psychology course at a regional public university in the

southeastern United States were recruited for participation. Of these, 216 participants with a history of trauma exposure, based on the *DSM-5* Criterion A, were retained for subsequent analyses. The PROCESS Macro was used to examine the possible moderating effect of positive and negative emotional avoidance on the relationship between the three subscales of AS and PTSD symptom severity. Although emotional avoidance, anxiety sensitivity, and PTSD symptom severity were all positively correlated and initial regression results were consistent with the hypothesized effects, there were no significant moderating effects. The present study potentially informs the role and measurement of emotional avoidance in the context of posttraumatic stress symptoms and aid in the conceptualization of the trauma-affected populations.

CHAPTER ONE: LITERATURE REVIEW

Introduction

Among all the mental disorders in the *Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition* (DSM-5), posttraumatic stress disorder (PTSD) distinguishes itself from other disorders in that it is one of the few disorders to include an etiology, i.e., trauma (American Psychiatric Association [APA], 2013). In fact, Criterion A for a traumatic stressor is a part of PTSD's diagnostic criteria in *DSM-5*. Additionally, PTSD is characterized by recurrent distressing memories and dreams, dissociative reactions like flashbacks, avoidance of distressing memories and thoughts, negative alterations in cognitions and mood, and hyperarousal symptoms among a few (APA, 2013). It should be noted that not everyone who gets exposed to a potentially traumatic event develops the symptoms of PTSD. In fact, it has been regularly shown that exposure to a traumatic event is quite common in the general population, with about 90% of the population reporting exposure to several types of traumatic events, as per *DSM-5* Criterion A (Kilpatrick et al., 2013). However, PTSD rates54 are consistently found to be within the 6-9% range for civilians (Kessler et al., 2005). In a meta-analysis of 32 studies among U.S. veterans, Xue et al. (2014) found the incidence of PTSD among U.S. veterans to be 12.9%. Therefore, most of the population that meets PTSD criteria after exposure to a traumatic event will remit these symptoms without any kind of treatment (Galea et al., 2002). Furthermore, once diagnosed with PTSD, individuals are at three times greater risk of meeting the PTSD criteria if they are exposed to a traumatic event again (Breslau et al., 2008).

In the absence of standard measurements of a high-level threat for PTSD (such as interpersonal violence, natural disasters, and other potentially traumatic stressors), the research on PTSD has largely been devoted towards identifying specific risk and

vulnerability factors that aid the development and maintenance of PTSD symptoms. In a comprehensive summary of 38 studies, Shalev (1996) identified numerous risk factors for PTSD, including pre-trauma vulnerability, the magnitude of the stressor, immediate reactions to the trauma, and post-trauma factors. Among all the risk factors, trauma severity, lack of social support, and subsequent life stress are considered to be the strongest predictors of PTSD (Brewin et al., 2000). To discern factors that are causally related to symptom development, and hence account for stronger predictors than risk factors alone, Ingram and Price (2010) applied the diathesis-stress models to psychological disorders. The diathesis-stress model was first used in the medical field to explain an underlying pathological mechanism that generally remains hidden until activated by sufficient stress (Ingram et al., 1998). Hence, psychological diatheses are considered stable and latent cognitive styles or personality traits that increase one's susceptibility to stress, and consequently aid the development of psychological disorders (Ingram & Price, 2010).

Unlike risk factors, vulnerability factors are suggested to be more strongly causally related to the development of psychological disorders (Zubin & Spring, 1977). According to this theory, these vulnerabilities, once activated, potentially also serve the function of maintenance of the psychological symptoms. In the diathesis-stress model of PTSD, the traumatic event serves as the primary stressor, thus activating the pathological mechanism and eventually leading to PTSD symptoms. Bowman and Yehuda (2004) proposed that pre-trauma individual differences are primary contributors to the potential development of PTSD and that individuals with a higher level of vulnerability factors before the traumatic stress possess a greater risk for the development of PTSD than those with lower levels of these vulnerabilities.

Cognitive model of PTSD

Furthermore, Barlow et al. (2016) identified biological, general, and specific levels of vulnerability to explain the etiology of emotional disorders, each increasing in its level of disorder specificity. For instance, negative affect is a common general cognitive vulnerability among emotional disorders, but low positive affect might be specific to depressive disorders. A similar approach can be applied to anxiety-related disorders, including PTSD. Because external vulnerability factors are hard to measure, research in the past couple of decades has given considerable attention to cognitive vulnerability (Ingram & Price, 2010; Riskind et al., 2000). Cognitive models of PTSD and other psychological disorders propose that an individual's mental processes such as attention, memory, and interpretation of events mediate the relationship between external events (i.e., trauma) and emotional responses, i.e., PTSD symptoms (Riskind & Alloy, 2006). Thus, cognitive vulnerabilities are the possession of maladaptive cognitive patterns and biased beliefs that puts oneself in a higher risk of psychopathology. PTSD-specific cognitive biases increase one's subjective sense of threat, such as perceived ongoing threat and avoidance of trauma-related stimuli, and thus resulting in dysfunctional thoughts and behaviours (Beck & Clark, 1997).

As mentioned above, of all the conceptual frameworks for understanding anxiety disorders (including PTSD), one of them is the cognitive-behavioural approach which states that emotional disorders arise from dysfunctional beliefs (Clark, 1986). In proposing a cognitive model of posttraumatic stress disorder, Elhers and Clark (2000) suggested that PTSD becomes persistent only when individuals who have been exposed to a trauma process the trauma in a way that leads to a sense of real, serious, and current threat. According to this model, this sense of real threat arises as a consequence of two reasons: a) individual differences in the negative appraisal of the trauma and/or its sequelae, and b) individual differences in the disturbance of autobiographical memory of trauma marked by poor elaboration and contextualization, strong associative memory, and strong perceptual priming.

While the excessive negative appraisal of the trauma explains how individuals with long-term PTSD symptoms are unable to view trauma as a time-limited event that does not have any negative implication for the future, the disturbance of autobiographical memory explains the problematic intentional recall in PTSD and the easy triggering by physically and emotionally similar cues.

Anxiety Sensitivity and its relationship with PTSD

Within this cognitive framework, anxiety sensitivity (AS) is a set of stable trait-like dysfunctional beliefs about negative and harmful consequences of anxious arousal (Reiss & McNally, 1985). According to Reiss and McNally (1985), anxiety sensitivity is primarily the fear of anxiety-related sensations due to the false belief that such sensations will have psychological, social, and physical outcomes. Hence, AS has been associated with a wide variety of negative outcomes and seems especially crucial for the understanding of anxiety disorders. Anxiety sensitivity is distinct from trait anxiety, which is the tendency to experience a fearful response to a wide variety of stressors and describes a more specific tendency to respond to one's own anxiety symptoms fearfully (Olatunji & Wolitzky-Taylor, 2009). AS is generally conceptualized as a dimensional trait. Peterson et al. (1999) suggested that there are at least three basic dimensions of anxiety sensitivity: a) fear of cognitive dyscontrol (e.g., fear of concentration difficulties stemming from beliefs that such difficulties are the signs of insanity), b) fear of somatic sensations (e.g., fear of palpitations and increased heartbeat stemming from the beliefs that these sensations lead to heart attack), and c) fear of observable (social) anxiety reactions (e.g., fear of trembling stemming from the belief that trembling will attract ridicule). However, some exploratory factor analyses in clinical samples have found an additional factor of fear of respiratory symptoms (Deacon et al., 2003). Research has consistently established positive associations between anxiety sensitivity and anxiety-related disorders such as panic disorder, social anxiety disorder, generalized

anxiety disorder, social phobia, obsessive-compulsive disorder, PTSD, as well as other maladaptive outcomes (Naragon-Gainey, 2010). Apart from panic disorder, anxiety sensitivity tends to be especially higher in individuals with PTSD in comparison with other individuals with other anxiety disorders (Naragon-Gainey, 2010; Taylor et al., 1992).

Amidst this overwhelming evidence, anxiety sensitivity has been proposed both as a vulnerability and maintenance factor for PTSD (Elwood et al., 2009; Fedroff et al., 2000; Taylor, 2003). Both cross-sectional and prospective studies have consistently demonstrated the positive association between anxiety sensitivity and the severity of PTSD symptoms (Fedroff et al., 2000; Taylor et al., 1992). In a study of a large non-clinical sample of young adults, baseline AS predicted posttraumatic stress symptoms at 12–24-month follow-up (Feldner et al., 2008). Furthermore, the relation between AS and PTSD remained robust even after using trait anxiety as a covariate (Taylor et al., 1992). These results suggest that there seem to be at least two ways that elevated anxiety sensitivity and PTSD are related (Taylor, 2003). First, elevated anxiety sensitivity in individuals might be a predisposing factor for the development of PTSD in case they experience any traumatic stressor. This would mean that people with high anxiety sensitivity, in comparison with people with low levels of anxiety sensitivity, tend to have more intense reactions to traumatic events. The way this might work is that the individual, in addition to becoming alarmed by the stress, is also alarmed by their own anxiety sensations, thereby amplifying the emotional response and hence, increasing the risk of developing PTSD (Taylor, 2003).

The second possibility that describes the relationship between elevated AS and PTSD is that both could be the result of having experienced trauma. This traumatic stress does both things at once, i.e., it triggers PTSD and also leads the person to become fearful of all the sensations (physical or emotional) associated with the stressor. This increase in anxiety sensitivity could be the result of associative learning (Bouton et al., 2001). For instance, the

individual may become alarmed by hyperarousal symptoms like rapid heartbeat and sweating, believing that these symptoms could be signs of a cardiac arrest. These results have also been replicated in treatment studies; reductions in AS have been linked with reductions in PTSD symptoms (Fedoroff et al., 2000). Hence, several lines of research in PTSD treatment suggest that treatment outcome is enhanced by combining trauma-related exposure therapy with interventions that reduce anxiety sensitivity (Taylor, 2003).

Even though anxiety sensitivity predicts anxiety-related pathologies strongly, it should be noted that the construct of AS does not completely explain the variability in anxiety symptoms (Schmidt et al., 1997). Among all the anxiety-related psychopathology, this is more so a problem in PTSD diagnosis, given that PTSD is largely heterogeneous. Hence, there is a need to consider other theoretical viewpoints that offer an explanation regarding unique factors that predict PTSD severity. One of them is emotional avoidance.

Emotional Avoidance and its relationship with PTSD

It was Breuer and Freud (1966) who first suggested that the avoidance of internal experiences hinders the individual's ability to process a threatening or emotional event and eventually to recover from it. The avoidance of traumatic experiences could be in various forms: thoughts, emotions, physical sensations, memories, behavioural tendencies and impulses, people, or situations (Hayes et al., 1996). All these various forms of avoidance are represented under the umbrella term experiential avoidance, which is used to represent this natural human tendency to avoid threatening and uncomfortable experiences. While the behavioural model of anxiety focuses on the role of active behavioural avoidance (e.g., avoidance walking in the park where one witnessed a murder) of anxiety-producing stimuli (Mowrer, 1960), avoidance of internal anxiety cues such as thoughts and emotions are also implicated in sustaining the anxiety response through impeded extinction learning (Foa & Kozak, 1986). The emotional processing theory of fear suggests that fear is evoked by

information that activates an existing fear structure which contains propositions about stimuli, responses, and their meaning (Foa & Kazak, 1986). Because the traumatic content triggers fear, one can easily fall into the tendency to avoid the cues of internal anxiety and thus negatively reinforce the PTSD symptoms. Hence, according to this model, changes in this internal fear structure necessitate the integration of information (i.e., trauma) that is incompatible with some elements of the fear structure.

Research has established that even though the avoidance of these emotional materials can reduce distress in the short-term, experiential avoidance has a paradoxical long-term effect where it in fact intensifies distress (Hayes et al., 1996). As a result, experiential avoidance has been implicated to underlie many detrimental outcomes such as depression, phobia, and anxiety-related disorders including PTSD (Angelakis & Pseftogianni, 2021; Hayes et al., 2004). In fact, the *DSM-5* (APA, 2013) recognizes avoidance as one of the main symptom clusters (Criterion C) for PTSD diagnosis. A study by Roemer et al., (2001) showed that combat veterans with PTSD had more frequent and extreme withholding of emotions than non-PTSD controls. The findings from Marx and Sloan (2005) also suggested that higher experiential avoidance among trauma-exposed college students uniquely predicted PTSD severity both 4 and 8 weeks later. In spite of these meaningful findings, the understanding of the role of general emotional avoidance is convoluted by its overlap with PTSD-specific avoidance (Naifeh et al., 2012). This implies that in most of the studies, emotional avoidance is both an independent and dependent variable (Naifeh et al., 2012).

Although most of the research has been focused on the assessment of experiential avoidance in general, Hayes et al. (1999) pointed out that experiential avoidance most commonly applies to the avoidance of emotional experiences, i.e., emotional avoidance (EA). Within the framework of emotional avoidance, studies have shown that anxiety-related disorders are associated with both negative emotional avoidance and positive emotional

avoidance (Naifeh et al., 2012; Tull et al., 2011; Weiss et al., 2021). While virtually all the research in this area has focused solely on negative emotional avoidance (e.g., avoidance of unpleasant traumatic feelings), not much is known about positive emotional avoidance (e.g., feeling scared/ashamed in response to positive emotions) and its relationship with other relevant constructs. The *DSM-5* (APA, 2013) mentions that physiological arousal associated with positive emotions (e.g., joy, happiness, excitement, etc.) may be perceived as threatening given its relation to trauma-related symptoms. Moreover, individuals with PTSD symptoms have been found to negatively evaluate positive emotions and consequently engage in avoiding them (Schick et al., 2020; Weiss et al., 2021). It has been reported that people may be more likely to engage in efforts to avoid intense positive emotions when they experience greater PTSD symptom severity (Weiss et al., 2021).

As explained above, the emotional avoidance framework of PTSD departs from the cognitive-behavioural model (i.e., AS) in that emotional avoidance is about how a person tolerates anxious affect in the actual presence of fear cues, and not how they interpret the event or surrounding (Berman et al., 2010). That is why emotional avoidance is a key component in acceptance and commitment therapy (ACT). ACT helps patients diagnosed with PTSD and other psychological disorders to accept and endure the negative experiences and decrease the tendency to avoid or escape the emotions (Eifert & Forsyth, 2005). The efficacy of ACT in the treatment of anxiety-related disorders has been well established, giving support to the validity of experiential avoidance as a framework for conceptualizing anxiety-related psychopathology (Powers et al., 2009).

Relationship between AS, EA, and PTSD

Despite considerable heterogeneity in the clinical picture of PTSD symptoms, at its core, PTSD is considered to be a disorder of emotion (Frewen & Lanius, 2006). As described above, within the PTSD symptomatology, anxiety sensitivity (AS) and emotional avoidance

(EA) are both related to emotional difficulties and yet there are significant differences between the two constructs. While EA is associated with general negative private experiences, AS, on the other hand, is concerned with arousal-related sensations. EA is conceptualized as a psychological process (Taylor, 1999) and AS is also conceptualized as trait-like dysfunctional beliefs (Berman et al., 2010; Hayes et al., 1996). In the aftermath of a traumatic event, a pre-existing tendency to believe that anxiety symptoms will be detrimental to oneself and one's health most likely contributes to the development of a conditioned fear response to anxious arousal stemming from that exposure. Bardeen et al. (2015) proposed a pathway on how this conditioned fear response might interact with emotional avoidance. If this conditioned fear response interacts with the tendency to avoid emotional private experiences, then it might prevent a functional exposure to anxiety-related cues resulting in a greater probability of PTSD symptoms (Bardeen et al., 2015). This is also consistent with Mowrer's (1960) two-factor theory of fear acquisition and maintenance, which posits that the maintenance of an acquired fear needs negative reinforcement properties of avoidance.

There has been ample evidence that has established a strong positive association between AS and emotional avoidance (Berman et al., 2010; Tull & Gratz, 2008). Also, as mentioned above, anxiety sensitivity and emotional avoidance both predict PTSD symptom severity. There have been various attempts to explain the role EA plays between AS and PTSD symptom severity (Bardeen et al., 2013; Naifeh et al., 2010). Several lines of research suggest that the key mechanism behind AS predicting PTSD symptom severity might be the extent to which an individual takes part in the effort to avoid the frequency of unwanted internal experiences, or emotional avoidance (Bardeen et al., 2013; Kashdan et al., 2008). What this means is that the relationship between AS and PTSD severity grows stronger as the tendency of emotional avoidance increases. With this view in mind, it is to be expected that emotional avoidance moderates the relations between AS and PTSD.

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Present Study Aims and Hypothesis

Bardeen et al. (2015) pointed out the need to build upon existing research focused on the relation between AS and PTSD by the moderating role of emotional avoidance. Given previous findings, the aim of the current study is to examine AS and EA as cognitive and emotion-related factors associated with PTSD symptom severity. It was hypothesized that AS (Cognitive, Somatic, and Social) and EA (both positive and negative) would be associated with PTSD symptom severity. In order to tease apart the moderating role of EA between AS and PTSD symptom severity, this study also aims to categorize EA into positive EA and negative EA and analyse separately the moderating role of positive EA and negative EA. Hence, it was also hypothesized that both positive EA and negative EA would play a moderating role between AS (Cognitive, Somatic, and Social, individually) and PTSD symptom severity. While experiential avoidance in general has been shown to moderate the relation between AS and PTSD severity (Bardeen et al., 2013, 2015; Kashdan et al., 2008), to the author's knowledge, there has been no study that has explored the moderating role of positive emotional avoidance between AS and PTSD symptom severity. This is also the first study to the author's knowledge that seeks to explore the moderating role of positive and negative emotional avoidance between three facets of anxiety sensitivity individually with PTSD symptom severity separately. Hence, it was expected that higher AS would predict greater PTSD symptom severity, but primarily among those with higher emotional avoidance. Since emotional avoidance is more pertinent to emotion-related content, it was expected that the moderating role of EA (both positive and negative) would be highest between fear of cognitive dyscontrol and PTSD severity in compared to the other two facets of AS (i.e., somatic and social). The understanding of the relevance of EA and AS in PTSD symptomatology may potentially highlight useful targets of intervention.

CHAPTER TWO: PRESENT STUDY

Procedure

Subject Recruitment

Participants were asked to sign up for the study by registering in SONA, which is an electronic platform for managing study participation. Participants were undergraduate students enrolled in General Psychology courses who completed the survey to receive course credit. When they signed up for the study, participants were provided with an electronic consent form. After reading the consent form, which included basic information about the study's purpose and the nature of the questions, as well as the risks and benefits of participation, students were asked to provide their consent for participation by clicking "yes" or to simply close the browser. Upon providing consent, participants were asked a series of survey in Qualtrics. At the end of the survey, participants were provided with contact information for the Counseling and Psychological Services and other mental health resources, in the event that they experienced any negative effect. However, previous research (e.g., Jaffe et al., 2015) has found asking individuals about prior traumatic experiences does not elicit strong negative psychological reactions.

Data Collection

After the Institutional Review Board (IRB; Western Carolina University) approved the study, the survey was posted in SONA. The study took less than 30 minutes per person to complete. The computer servers were password protected, encrypted, and secured to ensure participants' privacy. Participation was anonymous, and all downloaded data were de-identified and stored securely.

Participants

Participants were recruited from the psychology undergraduate research pool at a regional public university in the southeastern United States. Only individuals 18 years or older who endorsed experiencing a potentially traumatic event were used for the primary analyses. Previous research has shown that about 200 participants represent an adequate number of subjects for running a moderation analysis (Tull et al., 2011). G*Power software analysis (latest ver. 3.1.9.7; Faul et al., 2009) showed that 107-158 participants would suffice for a small to medium effect.

A total of 434 submissions were accepted, and previous data collection at this institution have indicated 40-60% of those endorse trauma exposure. Of those 434, 39 entries were duplicates. For individuals with duplicate entries, only their primary or first entry was retained. Data were then screened for reliability and missingness, and 25 participants were excluded because they failed to meet the *a priori* attention check criteria (i.e., answering two out of the three attention check questions correctly). Six participants were removed as they were missing the entire PCL-5 (the primary outcome variable), so the initial sample size of the study was $n = 364$.

Next, participants were screened for exposure to a potentially traumatic event, as indicated in the LEC-5. Individuals who did not qualify as trauma-exposed according to *DSM-5* criteria were excluded, as well as individuals who did not endorse a most distressing trauma. LEC-5 responses were screened by three undergraduate research assistants and one graduate student to identify if each participant reported a Criterion A trauma, and responses were compared for consensus of the rating of trauma-exposed or non-trauma-exposed. Of the 364 cases screened, only 19 (5.2%) did not have a consensus among the screeners, so these cases were discussed until a consensus was reached. The final coding indicated that 216 participants (59.3%) reported a Criterion A traumatic event. These 216 participants were retained for the primary analyses and are described as the trauma-exposed sample below.

Measures

Demographic Survey

Information regarding participants' gender, age, race, ethnicity, education, employment status and relationship status were collected.

Life Events Checklist-5 (LEC-5)

To establish trauma exposure based on *DSM-5* criteria, all participants completed the Life Events Checklist for DSM-5 (LEC-5; Weathers et al., 2013). The LEC-5 provides a list of 17 potentially traumatic events (PTEs) consistent with *DSM-5* PTSD Criterion A of a traumatic event and instructs participants to indicate whether: (a) the PTEs happened to them, (b) they witnessed the PTEs, (c) they learned about the PTEs, (d) they experienced PTEs as a part of their job, orI) the PTEs does not apply to them. The list of PTEs includes unexpected death of loved ones, physical or sexual assault, and natural disasters, among others. Gray et al. (2004) demonstrated that the LEC (based on *DSM-IV*) has adequate one-week test-retest reliability (mean kappa = .61, *r* = .82), with lower estimates for the full range of responses, mean kappa = .47. Similarly, the convergent validity with another established measure of trauma exposure (e.g., Traumatic Life Events Questionnaire; Kubany et al., 2000) was found to be adequate (mean kappa = .55, *r* = .55; Gray et al., 2004). Upon the completion of the LEC-5, participants were asked to indicate which event was the most stressful or distressing to them, i.e., the index trauma. The participants were then instructed to keep this event in mind when rating their PTSD symptoms.

PTSD Checklist for DSM-5 (PCL-5)

The PCL-5 (Weathers et al., 2013) is a self-report measure that examines PTSD symptom severity. The PCL-5 consists of 20 items, each assessing a symptom of PTSD based on the *DSM-5* diagnostic criteria. Each question in the PCL-5 asks the subject to indicate the amount of their distress, over the last month, on a five-point Likert-type scale (0 = "Not at

all" to 4 = "Extremely"). Item ratings were anchored to the participant's index trauma identified on the LEC-5. Possible scores for the PCL-5 range from 0 to 80, with higher values indicating increased severity of PTSD symptoms. The PCL-5 has excellent psychometric properties (Blevins et al., 2015; Bovin et al., 2016). In a large veteran sample demonstrated good internal consistency ($\alpha = .96$), test-retest reliability, $r = .84$, and convergent and discriminant validity (Bovin et al., 2016). Research has found that a PCL-5 cut-off score of 33 or more indicates probable PTSD diagnosis (Bovin et al., 2016). In the present study, the PCL-5 had good internal consistency, Cronbach's $\alpha = .94$.

Emotional Avoidance Questionnaire (EAQ)

The EAQ (Taylor et al., 2004) is a 10-item self-report measure assessing avoidance of negative (EAQ-Negative) and positive (EAQ-Positive) emotions. For example, some sample items read, "When I feel anxious or worried about something, I try to ignore it as much as I can" (EAQ-Negative), "If I start feeling strong positive emotions, I prefer to leave the situation" (EAQ-Positive). There are 5 items in each subscale. The 10 items are rated on a 5-point Likert-type scale that ranges from 1 (*not true of me)* to 5 (*very true of me*). Hence, the total possible subscore ranges from 10 to 50, with higher points indicating greater level of emotional avoidance. The EAQ subscales have demonstrated fair to good internal consistency (*r* ranging from .66 to .84) across both treatment-seeking and college samples (Taylor et al., 2004; Tull et al., 2011). The construct validity of the EAQ has primarily been established from its association with avoidant personality disorder traits as well as behavioural and cognitive non-social avoidance (Taylor et al., 2004). The overall EAQ had adequate reliability in the present sample, Cronbach's $\alpha = .80$. Cronbach's α for negative EAQ and positive EAQ were .77 and .83, respectively.

Anxiety Sensitivity Index-3 (ASI-3)

The ASI-3 (Taylor et al., 2007) is an 18-item self-report measure of fear of arousal-related sensations due to physical, cognitive, and social concerns. Participants score their agreement with each item from "very little" (scored as 0) to "very much" (scored as 4). Higher scores on ASI-3 indicate higher levels of anxiety sensitivity. Taylor et al. (2007) originally conducted a comprehensive psychometric analysis of the ASI-3, which has also been replicated in nonclinical populations (e.g., Osman et al., 2010). All the internal reliability estimates were found to be equal or greater than .80 (Osman et al., 2010). The findings from Rifkin et al. (2015) demonstrated the ASI-3's convergent validity with general anxiety symptoms and depression. The authors also found robust internal consistency for all the subscales, physical Cronbach's α = .87, cognitive Cronbach's α = .90, and social Cronbach's α = .83 (Rifkin et al., 2015). The overall ASI-3 had adequate reliability in the present sample, Cronbach's α = .92. Similarly, Cronbach's α for the physical, social, and cognitive subscales were .85, .83, and .90, respectively.

Data Analysis

Data were downloaded from the secure Qualtrics application, and all the analyses were done with the Statistical Package for the Social Sciences (SPSS) software. Prior to estimating missing data, data were tested to determine if they were missing completely at random (MCAR). Using SPSS Missing Values Analysis, it was found that Little's MCAR was χ^2 = 742.93, df = 728, p = .342. Hence, the missing data were missing completely at random (i.e., failed to reject the null), and the expectation maximization technique was used to estimate missing item-level data. There were very few missing items on the three main variables of interest. For the PCL-5, three individuals had one missing item that had to be estimated. On the EAQ, there were no item-level missing data. Finally, on the ASI-3 three subjects were missing only one item while one individual was missing two items.

The means and standard deviations were calculated for primary variables of interest. Variables were examined for the assumptions of normality. Prior to the primary analyses, the impact of demographic factors on EA and AS were explored to identify potential covariates for later analyses. After this, correlation analyses among the three facets of anxiety sensitivity (cognitive, somatic, and social), emotional avoidance (positive and negative), and PTSD symptom severity were conducted to examine interrelations among the primary variables of interest (Hypothesis 1). To test positive and negative emotional avoidance as moderators (Hypotheses 2 and 3), the Process Macro (Hayes, 2017) was used to examine the relationship between the three facets of AS, as predictors, and PTSD symptom severity, as the outcome. A total of six moderation analyses (three for positive EA and three for negative EA) were conducted between the three facets of AS and PTSD symptom severity.

Sample Characteristics

First, the overall sample characteristics were considered ($n = 364$). The sample was 62.6% female ($n = 228$) and mostly Caucasian/White ($n = 299$, 82.1%). Participants ranged from 18 to 52 years old ($M = 19.46$, $SD = 4.35$). About two-thirds reported being freshmen in college ($n = 267$, 73.4%) and more than half were single, never married ($n = 240$, 65.9%). Full demographic information is provided in Table 2.

With respect to the portion of the sample who endorsed Criterion A trauma ($n = 216$), 64.8% identified as female ($n = 140$) and 29.2% ($n = 63$) identified as male. Similar to the overall sample, the Criterion A trauma-exposed participants were mostly Caucasian/White ($n = 178$, 82.4%), two-thirds reported being freshmen ($n = 159$, 73.6%), and more than half were single, never married ($n = 136$, 63%).

The most commonly reported index trauma was sexual assault (24%). Frequencies of index traumas are provided in Table 1. T-tests showed that no significant differences were found in EAQ scores (both positive and negative), ASI total scores, three ASI subscales, endorsement of Criterion A trauma, and PCL-5 total scores according to race/ethnicity. For gender-related analyses (see below), given the sample size of individuals identifying as male, female, and non-binary, statistical differences were examined between males and females only.

Preliminary Data Analyses

EAQ

For the overall sample ($n = 364$), the mean total score for EAQ was 24.67 ($SD = 7.26$), skew = 0.27 ($SE = 0.13$), kurtosis = -0.33 ($SE = 0.26$). The mean total score for positive EAQ was 9.23 ($SD = 4.45$), skew = 0.93 ($SE = 0.13$), kurtosis = -0.12 ($SE = 0.26$).

The mean negative EAQ score was 15.45 (*SD* = 4.63), skew = -0.18 (*SE* = 0.13), kurtosis = -0.43 (*SE* = 0.26). For the trauma exposed sample (*n* = 216), the mean total score for EAQ was 26.19 (*SD* = 7.30). Participants who endorsed Criterion A trauma reported significantly higher positive emotional avoidance (*M* = 10.02, *SD* = 4.69) compared to participants who did not endorse Criterion A trauma (*M* = 8.07, *SD* = 3.81), *t*(362) = 4.20, *p* < .001. The value of Cohen's *d* was .45, which indicated a small to medium effect size (Cohen, 1988). There were no significant mean differences in negative emotional avoidance scores for participants with Criterion A trauma exposure (*M* = 16.17, *SD* = 4.53), compared to participants without a Criterion A trauma (*M* = 14.39, *SD* = 4.59), *t*(362) = 3.65, *p* = .957. Women (*M* = 9.54, *SD* = 4.71) reported significantly higher positive EAQ scores than men (*M* = 8.41, *SD* = 4.01), *t*(337) = -2.17, *p* = .027, Cohen's *d* = -.25, which was a small effect size. There were no significant gender differences in the mean negative EAQ scores, (women *M* = 15.81, *SD* = 4.63 and men *M* = 14.49, *SD* = 4.45), *t*(337) = -2.50, *p* = .48.

ASI

For the overall sample (*n* = 364), the mean total score for ASI-3 was 41.43 (*SD* = 15.92), skew = 0.58 (*SE* = 0.13), kurtosis = -0.33 (*SE* = .0.26). The mean total physical concerns subscale was 12.25 (*SD* = 5.71), skew = 0.90 (*SE* = 0.13), kurtosis = 0.12 (*SE* = 0.26). The mean social concerns subscale score was 16.17 (*SD* = 6.00), skew = 0.87 (*SE* = 0.13), kurtosis = -0.18 (*SE* = 0.26). The mean cognitive concerns subscale was 12.45 (*SD* = 6.23), skew = 0.18 (*SE* = 0.13), kurtosis = -0.89 (*SE* = 0.26). For the trauma exposed sample (*n* = 216), the mean total score for ASI-3 was 44.33 (*SD* = 15.99), physical concerns subscale was 12.82 (*SD* = 5.74), the social concerns subscale was 17.96 (*SD* = 6.21), and the cognitive concerns subscale was 13.55 (*SD* = 6.41). Participants who endorsed a Criterion A trauma reported significantly higher fear of cognitive dyscontrol (*M* = 13.55, *SD* = 6.41 for Criterion A trauma exposure and *M* = 10.85, *SD* = 5.59 for non-trauma exposure), *t*(362) = 4.15, *p* =

0.07, Cohen's d = .44, but not physical (M = 12.82, SD = 5.74 for Criterion A trauma exposure and M = 11.43, SD = 5.58 for non-trauma exposure) t(362) = 2.29, p = .469, or social concerns (M = 17.96, SD = 6.21 for Criterion A trauma exposure and M = 14.93, SD = 5.97 for non-trauma exposure), t(362) = 4.65, p = 0.435. Women reported higher ASI Physical (M = 13.03, SD = 6.01), and ASI Cognitive (M = 13.06, SD = 6.50) scores in compared to men (M = 10.19, SD = 4.64 for ASI Physical and M = 10.62, SD = 5.06 for ASI Cognitive), t(337) = -4.38, p < .001, Cohen's d = -.51 for ASI Physical, and t(337) = -3.38, p < .001, Cohen's d = -.40. There were no significant gender differences in the ASI Social (women M = 17.35, SD = 6.09 and men M = 14.99, SD = 6.50) scores, t(337) = -3.28, p = .241.

PCL-5

PCL-5 scores were only examined in the trauma-exposed sample (n = 216), given the theoretical relationship between PTSD symptom severity ratings within the context of trauma exposure. The mean PCL-5 score was 23.83 (SD = 16.83), skew = 0.54 (SE = 0.17), kurtosis = -0.40 (SE = .33). Of those, 97 participants (26.6%) scored greater than or equal to 33, which indicates probable PTSD diagnosis. Next, potential differences in PCL-5 scores based on gender were examined. There was a significant difference PCL-5 total scores between women (M = 27.18, SD = 17.29) and men (M = 15.23, SD = 13.18), t(201) = -4.88, p = .007, Cohen's d = -.74, indicating a medium to large effect size. Participants from 18-21 years of age (M = 24.46, SD = 16.99) reported higher PCL-5 total scores in comparison with participants who were 22 years or older (M = 15.23, SD = 12.25), t(214) = 2.21, p = .051. The value of Cohen's d was .56, which indicated medium effect size.

PCL-5 total score, EAQ total score, positive EAQ total score, negative EAQ total score, ASI total score, ASI cognitive total score, ASI physical concerns total score, and ASI

social concerns total score were examined for correlations. These correlations are presented in Table 3.

Regression Analyses

Before conducting moderation analyses, regressions were conducted to see if the predictor variable (AS and its subscales) significantly predicted the outcome variable (PCL-5 total score); then another set of regressions to see if the moderator variable (positive and negative EA) significantly predicted the outcome (PCL-5 total score). ASI Physical scores significantly predicted PTSD symptom severity, $R^2 = .22$, $F(1, 214) = 61.77$, $p < .001$. The R^2 estimate indicated a medium effect (Ferguson, 2009). ASI Cognitive scores also significantly predicted PTSD symptom severity, $R^2 = .53$, $F(1, 214) = 239.07$, $p < .001$, with a medium effect size. ASI Social scores significantly predicted PTSD symptom severity, $R^2 = .15$, $F(1, 214) = 91.44$, $p < .001$, which represented a small effect. Both moderators – positive EA, $R^2 = .32$, $F(1, 214) = 98.40$, $p < .001$, and negative EA, $R^2 = .05$, $F(1, 214) = 10.84$, $p < .001$, also significantly predicted PTSD symptom severity. Based on the proportion of variance accounted for, positive EA predicted PTSD symptom severity with a moderate effect, but negative EA was only a small effect when predicting PTSD symptom severity.

Moderation Analyses

The PROCESS macro was used for the moderator analyses. First, positive EA was tested as a moderator for the relationship between ASI Physical scores and PCL-5 total scores. The direct effect for ASI physical was near to significance, $t = 1.87$, $SE = .37$, $B = .70$, $p = .063$, and the direct effect for positive EA was significant, $t = 2.78$, $SE = .47$, $B = 1.31$, $p = .0059$. The interaction term was not significant, $F(1, 212) = 0.59$, $R^2\Delta = .002$, $t = .77$, $SE = .03$, $B = .02$, $p = .44$.

Positive EA was tested as a moderator for the relationship between ASI Social and PCL-5 total scores. The direct effect for ASI social was not significant, $t = 1.67$, $SE = .33$, B

= .55, p = .097, and the direct effect for positive EA was also not significant, t = .83, SE = .62, B = .52, p = .406. The interaction term was not significant, $F(1, 212)$ = 2.40, $R^2\Delta$ = .006, t = 1.55, SE = .03, B = .05, p = .123.

Positive EA was tested as a moderator for the relationship between ASI Cognitive and PCL-5 total scores. The direct effect for ASI cognitive was significant, t = 4.86, SE = .28, B = 1.37, p < .001, and the direct effect for positive EA was significant, t = 2.19, SE = .37, B = .81, p = .03. The interaction term was not significant, $F(1, 212)$ = 0.65, $R^2\Delta$ = .001, t = .74, SE = .02, B = .02, p = .46.

Next, negative EA was tested as a moderator for the relationship between ASI Physical and PCL-5 total scores. The direct effect for negative EA was not significant, t = 1.15, SE = .54, B = .62, p = .25, and the direct effect for ASI physical was significant, t = 2.08, SE = .66, B = 1.38, p = .04. The interaction term was not significant, $F(1, 212)$ = 0.008, $R^2\Delta$ = .00, t = -.09, SE = .04, B = -.004, p = .93.

Negative EA was tested as a moderator for the relationship between ASI Social and PCL-5 total scores. The direct effect for negative EA was not significant, t = -0.16, SE = .03, B = 0.26, p = .79, and the direct effect for ASI social was nearly significant, t = 1.92, SE = .60, B = 1.04, p = .06. The interaction term was not significant, $F(1, 212)$ = 0.55, $R^2\Delta$ = .002, t = 0.74, SE = .03, B = .02, p = .46.

Negative EA was tested as a moderator for the relationship between ASI Cognitive and PCL-5 total scores. The direct effect for negative EA was not significant, t = 0.72, SE = .41, B = .29, p = .47, and the direct effect for AS cognitive was significant, t = 3.70, SE = .48, B = 1.78, p < .001. The interaction term was not significant, $F(1, 212)$ = 0.03, $R^2\Delta$ = .0001, t = 0.18, SE = .03, B = .005, p = .86.

Exploratory Analyses

To avoid double count of avoidance symptoms in PCL-5 total scores and EA total scores, PTSD total scores were re-calculated without avoidance symptoms (items 6 and 7) in PCL-5. Hence, negative and positive EA were also tested as moderators for the relationship between PCL-5 total scores without avoidance symptoms and ASI subscales. Again, similar to the results above, none of the six interactions were found to be statistically significant.

Because both positive and negative EA failed to show significant moderation between the three subscales of AS and PTSD symptom severity, EAQ total score was tested as a moderator for the relationship between PCL-5 total scores and ASI total score. The direct effect for EAQ total score was not significant, $t = 0.09$, $SE = 0.32$, $B = .03$, $p = .92$, and the direct effect for ASI total score was not significant, $t = 1.58$, $SE = 0.18$, $B = .28$, $p = .12$ The interaction term was near to significance, $F(1, 212) = 3.41$, $R^2\Delta = .008$, $t = 1.85$, $SE = .006$, $B = .01$, $p = .066$ (see Figure 1).

EAQ total score was tested as a moderator for the relationship between PCL-5 total scores without avoidance and ASI total score. The direct effect for EAQ total score was not significant, $t = 0.02$, $SE = 0.28$, $B = .006$, $p = .98$, and the direct effect for ASI total score was not significant, $t = 1.47$, $SE = 0.28$, $B = .23$, $p = .143$. The interaction term was near to significance, $F(1, 212) = 3.82$, $R^2\Delta = .009$, $t = 1.95$, $SE = .006$, $B = .01$, $p = .052$ (see Figure 2).

CHAPTER THREE: DISCUSSION

Summary of Research and Hypotheses

The aim of the present study was to examine the role of negative emotional avoidance and positive emotional avoidance as moderators for the relationship between anxiety sensitivity and PTSD symptom severity. As predicted, the study variables were all positively correlated. EA, more specifically positive EA compared to negative EA, evidenced a stronger positive association with PTSD symptom severity, suggesting that individuals with high positive EA also tend to have high PTSD symptom severity if they have undergone a traumatic experience. However, only one of the three hypotheses was supported. Hypothesis 1 was supported, as both positive EA and negative EA were found to be significantly correlated with AS (and its three subscales) and PTSD symptom severity. Moreover, all the predictors (AS and three subscales and EA and its two subscales) significantly predicted PTSD symptom severity. These findings are consistent with previous studies examining AS and EA in other populations exposed to potentially traumatic events (Elwood et al., 2009; Naifeh et al., 2012). In general, anxiety sensitivity and its subscales had higher correlations than emotional avoidance and its subscales with PTSD symptom severity in the present study.

Although all the individual primary variables in the moderations analyses i.e., positive EA, negative EA, ASI Physical, ASI Social, and ASI Cognitive significantly predicted PTSD symptom severity, none of the interaction terms were significant in the moderation analyses. Hypothesis 2 and hypothesis 3 were not supported and hence, neither negative EA nor positive EA moderated the relationship between the subscales of AS and PTSD severity. Because of these insignificant interactions, collinearity was examined between the predictor variables (three ASI subscales, negative EA, and positive EA), since multicollinearity can influence regression results. All the variance inflation factors (VIF) were found to be less

than three and did not indicate multicollinearity. Similarly, based on their correlations, no substantial collinearity was found between the PCL-5 and EAQ and the PCL-5 and ASI scores. In the present study, the hypothesized moderation was not significant even when the trauma-specific avoidance symptoms of PTSD were excluded from the PCL-5.

The lack of moderating effect of EA might also speak to the directional ambiguity of cross-sectional data and hence raises the question about reciprocal relationship between PTSD symptoms and EA (Badour et al., 2012; Naifeh et al., 2012). What this means is that among trauma exposed college students, emotional avoidance may possibly be a way through which fear of anxious arousal and PTSD symptoms interact; however, the presence of PTSD symptomatology may also be simultaneously leading to greater emotional avoidance. Hence, both EA and the PCL-5 could be tapping onto either general emotional avoidance pattern or trauma-related avoidance pattern but not independently. This reciprocal dynamic between PTSD and EA would not be unexpected by any means, given what is known about trauma-specific EA and its role in the development, maintenance, and worsening of anxiety-related symptomatology (Badour et al., 2012). Although EA might act as a risk or vulnerability factor for the onset of PTSD, it also prevents the emotional processing of traumatic memories as there is habituation to avoid aversive emotions related to trauma memories and thus does not allow the extinction of trauma-related responses (Foa & Kozak, 1986).

Because of relatively asymptomatic sample, it is also possible that the PCL-5 was less reliable in measuring PTSD symptoms and picked up more general distress among the students (Byllesby et al., 2016). General distress saturation could have impacted the results by making PTSD-specific effects smaller and more difficult to identify in the moderation analyses. Similarly, as this general distress could vary tremendously in a cross-sectional data, some overlap between the constructs is to be expected.

These moderation results also corroborate the findings from Kashdan et al. (2008) who also found no interactive effect between anxiety sensitivity and an unwillingness to accept negative emotions, a construct similar to emotional avoidance. However, Kashdan et al. (2008) looked at symptoms of depression instead of PTSD symptom severity as the outcome variable. Kashdan et al. (2008) suggest that the interaction term did not predict depressive symptomatology but only predicted anxiety symptoms. This interpretation might fit with this study's findings given that the fear of arousal-related sensitivity may only be relevant to individuals with higher levels of anxiety and that AS & EA may be related but are distinct negative affective states (Bardeen et al., 2013). Although PTSD diagnosis is largely dependent on anxiety symptomatology, the relatively asymptomatic sample in the present study might be attributed to insignificant interaction. This would align with the existent literature (Bardeen et al, 2013; Kashdan et al., 2008; Naragon-Gainey, 2010) in that the tendency to avoid aversive anxious sensations is likely to increase only certain kind of distress-based symptomatology, like anxiety.

Implications for Research and Theory

The present findings are congruent with previous research that has found a strong relationship between anxiety sensitivity, emotional avoidance, and PTSD symptoms. PTSD symptom severity was related with all the subscales of ASI and EAQ, supporting findings by past research (Bardeen et al., 2015; Bardeen et al., 2013; Naifeh et al., 2012). Hence, in general, the model supports the preliminary assumptions, but the interaction between ASI subscales and EAQ subscales was not confirmed. This is in contrast with the finding from Bardeen et al. (2015) who found moderating role of negative EA in the relation between AS and PTSD severity, although they used the Clinician-Administered PTSD Scale (CAPS) to measure PTSD symptom severity in a substance use disorder inpatient treatment facility.

Although the moderation effects of positive EA and negative EA were not significant, the results indicated near to significant moderation effect of EAQ total scores between ASI total scores and PCL-5 total scores. This aligns with the previous research literature (Naifeh et al., 2012), which also used ASI total scores and EAQ total scores instead of looking at the subscales. This begs the question why the subscales of EAQ did not have a moderating effect. Given the nature of the sample, a few things can be conjectured. First, present study's non-clinical sample did not exhibit a full range of EAQ (moderator) and PCL-5 (outcome) scores. Specifically, there was a floor effect for positive emotional avoidance, in that most participants reported very low levels of positive emotional avoidance. Bardeen et al. (2015) found the moderating role of negative emotional between AS and PTSD symptom severity, but in a clinical sample with substance use disorder diagnosis. This could mean that EA plays a more important role only in higher severity samples. Because the range of both the moderator and the outcome variable was somewhat restricted, this might have affected the power to find the interaction effect. Hence, future studies need to test the hypotheses with a community sample that has a wide range of PCL-5 and EAQ scores. Second, while AS is an anxiety-specific risk and vulnerability factor, EA is not specific to anxious responding. Hence, while EA, in theory, captures avoidance of a wide range of emotional experiences including anxiety, an anxiety-specific avoidance measure could possibly have a more substantial relationship with AS (Naifeh et al., 2012).

The present study also reinforced the validity of the construct of positive EA. As research in this area is exclusively on the avoidance of negative emotions, future research should focus resources in testing the differential role of positive EA and negative EA. In the present study, positive EA was strongly correlated with PTSD symptom severity and strongly predicted PTSD symptom severity. These results are congruent with previous findings (Schick et al., 2020; Weiss et al., 2019). As a decrease in positive EA has also been shown to

predict response to PTSD treatment (Boden et al., 2012), future research should tease apart the influence of positive EA and negative EA in relation to PTSD treatment and intervention. For example, positive EA is more likely in the context of intense positive emotions (Beblo et al., 2012; Weiss et al., 2021), where repeated avoidance serves to regulate the experience of intense emotions (Linehan, 1993).

Clinical Implications

Although the moderating effect of EA was not supported, EA and AS still significantly predicted PTSD symptom severity. Hence, interventions that help individuals high in AS and high in EA to change the ways in which they respond to their thoughts and emotions may be particularly important (Bardeen et al., 2015). Moreover, regardless of the bidirectionality of EA and PTSD symptomatology, the tendency to engage in EA may have important implications for the treatment of individuals with PTSD. Previous research has shown that emotional avoidance can impede treatment efficacy (Eifert & Forsyth, 2005). Historically, reduced trauma-related avoidance has been one of the primary targets of CBT treatment of PTSD (Foa et al., 2010). The results of present study would suggest that avoidance may extend to a fuller range of experiential avoidance rather than just emotional avoidance.

Strengths and Limitations

The present study had some limitations that could possibly limit the generalizability of the findings. First, these results were obtained from a college sample characterized by low PCL-5 scores. The self-report data also means that there is a possibility of inaccurate and/or inattentive responding that could have affected the results. As the PCL-5 is a self-report measure of symptoms of PTSD, the estimated rate of diagnosis is a conjecture at best and is not based on a clinical interview or assessment. Similarly, cross-sectional design of the study also means that there might be overlap between the constructs. For example, fear of anxious

arousal (measured in ASI-3) and its symptoms can be closely tied to the fear of traumatic memories and subsequent activation while general emotional avoidance pattern (measured in EAQ) can also extend to trauma-related emotional avoidance. Moreover, the nature of the results also precludes the direction of the associations between the variables in concern.

Despite these limitations this study has some notable strengths. This was the first study to the author's knowledge to examine the role of positive EA between subscales of AS and PTSD symptom severity. All the primary variables had significant correlations with each other and the subscales of AS and EA significantly predicted PTSD symptom severity separately, which indicates that AS and EA are important constructs with respect to PTSD symptomatology. Very little of the data were found to be missing, and the data that were missing were found to be missing completely at random. Data screening techniques were used to ensure that participants were adequately attending to response items. The results indicate that although positive EA and negative EA do not moderate the relationship between subscales of AS and PTSD symptom severity, the overall EA total score has a near to significant moderation between AS and PTSD symptom severity. However, these interactions had small effect sizes and could limit the ability to generalize or replicate these results in other samples.

Future Directions

There are several avenues of research that can be expanded in light of the present findings. As the construct of positive emotional avoidance is a relatively new construct in the PTSD research literature, it would be helpful to tease apart the role of positive emotional avoidance as it pertains to PTSD treatment in a longitudinal study. In a clinical sample, it might be beneficial to use a diagnostic interview for PTSD symptom severity, such as the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5; Weathers et al., 2013) instead of relying on self-report of symptoms. In order to better understand how these variables interact,

future research could test other ways to subsequently illuminate the mechanism of the relationship in the cognitive framework.

The measurement of emotional avoidance is another area that should be studied meticulously. While the present study used the EAQ, the findings should be replicated with other measure of emotional avoidance and experiential avoidance. Although the use of the EAQ has been increasing as a measure of emotional avoidance, most of the studies in the past have used the AAQ-II (Acceptance and Action Questionnaire-II; Bond et al., 2011) to measure emotional avoidance (Bardeen et al., 2013). Although the concepts of experiential and emotional avoidance are very closely related, there are enough differences to warrant separate measures. Hence, future research should test the potential moderating role of experiential avoidance between AS and PTSD symptom severity to find similarities and differences between the role of experiential avoidance and emotional avoidance. Further, the self-report measurement of internal and external avoidance in PTSD presentations is an area of further growth in the field, and a more precise trauma-specific measure of avoidance may be beneficial to explore in the context of AS.

Prospective and longitudinal data should be examined to better understand the relationships between PTSD symptom severity, anxiety sensitivity and its subscales, and emotional avoidance and its subscales across time or over the course of treatment. Specifically, changes in EA and AS scores should be tracked to examine the score differences over time when using evidence-based treatments for PTSD such as cognitive processing therapy and prolonged exposure. For instance, treatment responders compared to non-responders may employ emotional avoidance to various degrees to regulate distressing traumatic emotions and memories. Moreover, the way people respond to anxious thoughts is also bound to be different as the treatment progresses. As emotion regulation is so intrinsically related to the construct of emotional avoidance and anxiety sensitivity, more

theoretical framework and consequent research is necessary to tease apart the role of each of

them in the literature as to how they relate to PTSD diagnosis and treatment thereafter.

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Table 1

Frequencies of most distressing traumatic events reported within trauma-exposed sample

Traumatic Event	*n*	%
Sexual Assault (rape, attempted rape, made to perform any type of sexual act through force or threaten of harm)	52	24.1
Transportation accident (for example, car accident, boat accident, train wreck, plane crash)	49	22.7
Sudden accidental death due to accident, homicide, or suicide	27	12.5
Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)	18	8.3
Natural disaster (for example, flood, hurricane, tornado, earthquake)	16	6.4
Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)	16	7.4
Other unwanted or uncomfortable sexual experience	6	2.8
Fire or explosion	6	2.8
Life-threatening illness or injury	6	2.8

Table 2

Sample Demographics

Demographics	n	%
Gender		
Man	111	30.5
Woman	228	62.6
Non-binary	18	5
Sexual Orientation		
Heterosexual	257	70.6
Gay/Lesbian	19	5.2
Bisexual	68	18.7
Other	19	5.2
Race/Ethnicity		
Caucasian / White	299	82.1
African American / Black	42	11.5
Hispanic	36	9.9
Asian American	10	2.7
American Indian or Alaskan Native	9	2.5
Native Hawaiian or Pacific Islander	3	0.8
Other	3	0.8
Relationship Status		
Single, never married	240	65.9
In a committed relationship, never married	110	30.2
Married	10	2.7

Note. For race/ethnicity, participants were able to select as many identities as were appropriate, and thus the endorsed frequencies are greater than 100%.

Table 3.

Correlations between predictor, moderator, and outcome variables

	PCL	ASI Tot	ASI Phy	ASI Cog	ASI Soc	EA Tot	EA Po	EA Ng
PCL	-							
ASI Tot	.67**	-						
ASI Phy	.47**	.86**	-					
ASI Cog	.73**	.89**	.67**	-				
ASI Soc	.60**	.90**	.64**	.73**	-			
EA Tot	.50**	.44**	.30**	.40**	.48**	-		
EA Po	.56**	.46**	.32**	.45**	.47**	.80**	-	
EA Ng	.22**	.23	.14*	.17*	.29**	.78**	.25**	-

Note. $N = 216$. *$p < .05$. **$p < .01$. PCL = PTSD Checklist for DSM-5 total score; ASI Tot = Anxiety Sensitivity total score; ASI Cog = Anxiety Sensitivity Cognitive subscale score; ASI Phy = Anxiety Sensitivity Physical subscale score; ASI Soc = Anxiety Sensitivity Social subscale score; EA Tot = Emotional Avoidance Questionnaire Total Score; EA Po = Positive Emotional Avoidance subscale score; EA Ng = Emotional Avoidance subscale score.

Figure 1

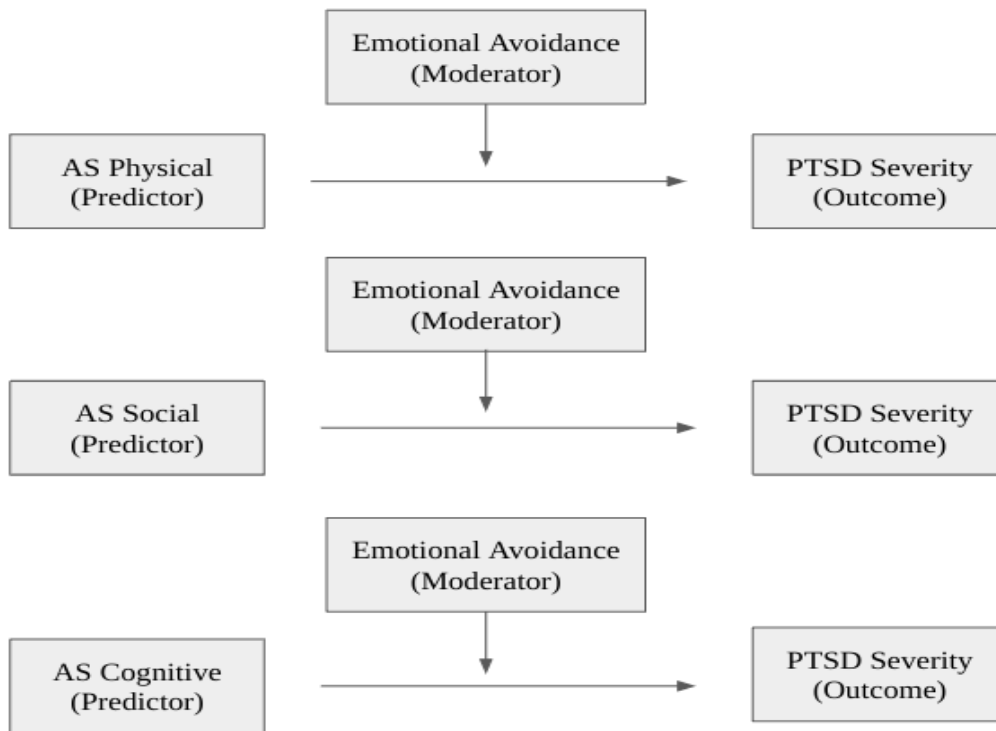*Proposed moderations in the present study*

Figure 2

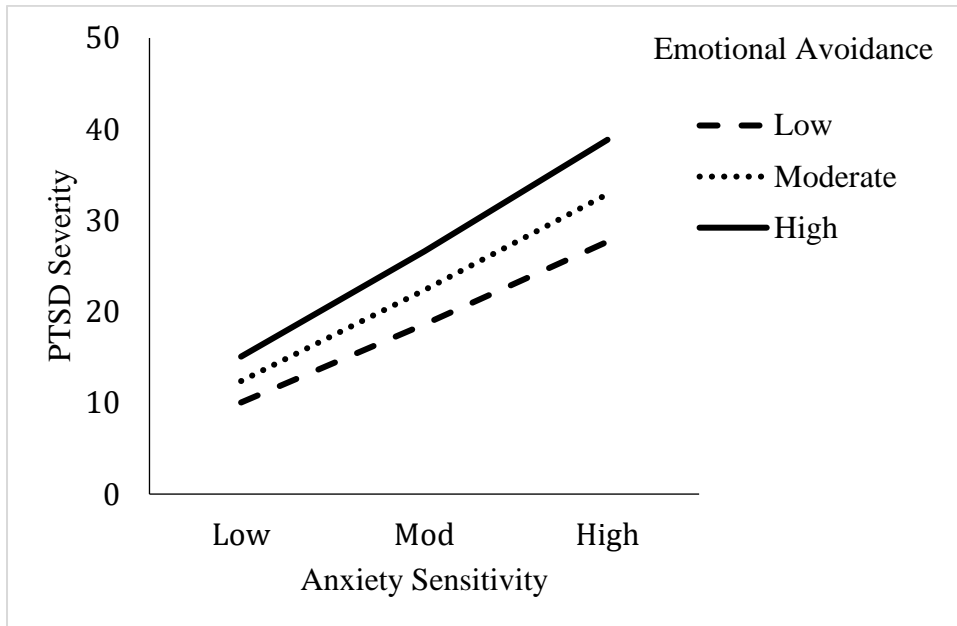*Interaction of Anxiety Sensitivity and Emotional Avoidance on PTSD Severity*

Figure 3

Interaction of Anxiety Sensitivity and Emotional Avoidance on PTSD Severity without

avoidance symptoms