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Exploring the Association Between Mindfulness, Sustained Attention, Experiential Avoidance, and Posttraumatic Stress Symptom Severity Among Females Who Have Been Sexually Victimized

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UNIVERSITY OF MIAMI

EXPLORING THE ASSOCIATION BETWEEN MINDFULNESS, SUSTAINED
ATTENTION, EXPERIENTIAL AVOIDANCE, AND POSTTRAUMATIC STRESS
SYMPTOM SEVERITY AMONG FEMALES WHO HAVE BEEN SEXUALLY
VICTIMIZED

By

Judelysse Gomez

A DISSERTATION

Submitted to the Faculty
of the University of Miami
in partial fulfillment of the requirements for
the degree of Doctor of Philosophy

Coral Gables, Florida

August 2013

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Exploring the Association between Mindfulness,
Sustained Attention, Experiential Avoidance, and Posttraumatic
Stress Symptom Severity Among Females Who Have
Been Sexually Victimized

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Nationally, more males than females endorse experiencing a traumatic event, however, females are more likely to experience sexual trauma, and are more likely to meet criteria for PTSD subsequent to such traumatic event (Kessler, Sonnega, Bromer, & Hughes, 1995; Kessler et al., 2005). Although there has been a wealth of information regarding the theoretical underpinnings of posttraumatic stress symptoms after a trauma (Ehlers & Clark, 2000; Foa & Kozak, 1986; Foa, 1997; Foa & Riggs, 1995), little is still known about the association between victims' relationship with their current experience, and their ability to remain attentive to such experience on a moment to moment basis. As such this dissertation study was an attempt to link together well-established theoretical frameworks of sexual trauma with newer mindfulness-based, and attention-related, understandings of psychological suffering. In particular, this study sought to understand the association between self-reported mindfulness to inner experience, sustained attention, experiential avoidance and posttraumatic symptom severity among females with a history of sexual trauma.

One hundred and eleven (n=111) English-speaking female participants over the age of 18 completed the study. The majority of the participants were U.S.-born, middle class, non-Hispanic/Latina White females. A little over two-thirds of the sample reported a history of both forced sex and molestation. Most of the sample experienced sexual

victimization before the age of 18 (childhood sexual abuse), and a third experienced victimization in both childhood and adulthood (over 18). Overall, participants reported subclinical levels of posttraumatic symptom severity, and high levels of depressive symptomatology. Bivariate analyses suggest nuanced significant associations between the five facets of self-reported mindfulness (Non-React, Non-Judge, Act-Aware, Observe, and Describe) and posttraumatic symptom severity. Similarly, sustained attention as measured by self-reported errors in sustained attention, and experiential avoidance were significantly and positively associated with posttraumatic stress symptom severity. Regression analyses suggested that experiential avoidance was independently related to posttraumatic stress symptom severity, over and above depression and errors of sustained attention. There were differential relationships between three mindfulness facets (Observe, Describe, Act-Aware) and posttraumatic symptom severity, above and beyond depressive symptoms. Finally, only one mindfulness facet (Act-Aware) was related to errors of sustained attention, over and above depressive symptoms.

Study findings suggest differential patterns of associations between mindfulness facets and posttraumatic symptom severity, as well as with sustained attention. These relationships held while controlling for psychological distress, which tends to be commonly comorbid with posttraumatic stress reactions among females with a sexual trauma history. Interestingly, experiential avoidance was a stronger predictor of posttraumatic stress symptom severity than was sustained attention. These findings are a significant addition to the literature as they reflect the importance of understanding the complicated relationships between mindfulness facets, sustained attention and trauma symptomatology. Similarly, they reflect the importance of taking into consideration

experiential avoidance when studying the relationship between sustained attention and trauma symptoms. Implications for treatment and research are discussed.

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CHAPTER ONE: INTRODUCTION

Interpersonal trauma such as sexual assault and abuse is a national problem that affects individuals across racial, ethnic, age, and gender lines (Kessler, Sonnega, Bromer, & Hughes, 1995). Sexual abuse/assault/trauma is defined as an unwanted, forced, threatened, and/or nonconsensual sexual experience of any kind (Briere, 2004), and is associated with higher rates of PTSD among women (Kessler, Sonnega, Bromer, & Hughes, 1995; Kessler et al., 2005). Recent studies indicate that females and males suffer negative mental health consequences when they experience sexual abuse/assault, however, females are both more likely to experience these events in their lifetime, and are more likely to develop long lasting psychological effects as a consequence (Black et al., 2011; Kessler, et al., 1995). Efforts to understand factors associated with the development of posttraumatic symptomatology resulting from sexual trauma have increased in recent years. Many of these efforts have arisen out of the cognitive and cognitive-behavioral fields (Foa & Kozak, 1986; Foa & Riggs, 1995; Foa, Rothbaum, & Steketee, 1993), and have added significantly to the theoretical understanding of the cognitive appraisals and behavioral consequences associated with posttraumatic symptoms after a traumatic event. However, little is still known about the role of attention. Attention can affect a victim's tendency or capacity to either: a) be in the present moment in order to attend to relevant opportunities that promote well-being; b) become fixated on the past (e.g., threat is still experienced as current); and/or c) continuously worry about the future (e.g., it will happen again). Additionally, everyday errors associated with lapses in attention have been linked to worry, psychological distress, and impaired day-to-day functioning (Broadbent, Cooper, Fitzgerald, & Parks,

1982; Carriere, Cheyne, & Smilek, 2008; Smilek, Carriere, & Cheyne, 2010; Mc Vay, Kane & Kwapli, 2009). Although the literature studying attention is vast, very little is still known about the links between attention and psychological symptoms among females who have been sexually victimized. Studies that look at the association between attention and sexual trauma are few (Jenkins, Langlais, Delis, & Cohen, 2000; Mathiesen, 2000), those that do exist have found some evidence to suggest attention impairment in females with a sexual trauma history. However, these studies have mostly focused on veterans. Thus, understanding the role of attention among other females who have experienced sexual victimization is important as this might have implications for treatment interventions aiming to ameliorate symptoms.

Recently mindfulness-based interventions targeting depression, stress, and physical pain have started gaining popularity in the psychological field (Baer, 2003; Kabat-Zinn 2003). Mindfulness is defined as, "...the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment-to-moment" (Kabat-Zinn, 2003; p.145). Little is known, however, about how the concept of mindfulness might be implicated in posttraumatic stress reactions following sexual trauma (e.g., cognitive appraisals, emotions, and behaviors). Additionally, not much has been done to investigate the links between self-reported mindfulness and attention among victims of sexual trauma, especially as it relates to how a person who has been sexually victimized relates to her inner and outer experience and her propensity to be attentive to her everyday experience. As such, understanding how the tendency to be attuned to current experience or not, and how this might be related to her tendency to be attentive to said experience holds

implications for understanding why a woman might go on to experience posttraumatic symptomatology, or lack thereof, following sexual victimization.

Overview of Traumatic Event and Post-Traumatic Stress Symptomatology Prevalence

According to the fourth edition of the Diagnostic Statistical Manual Text-Revised (DSM-IV-TR; American Psychiatric Association, 2000), post-traumatic stress disorder (PTSD) results from exposure (e.g., actual or witnessed) to a traumatic event—by self, other, or loved one—that: A) threatens a person’s life or physical integrity; coupled with B) reactions of intense fear, terror, or helplessness. Symptoms associated with PTSD involve continuously re-experiencing the event, avoiding thoughts and reminders of the event, and experiencing hyperarousal as a result of the event, all lasting more than a month and interfering with functioning and causing significant clinical distress (DSM-IV-TR; APA, 2000). Findings from the 1995 National Comorbidity Study (NCS) suggest that 61% of male respondents and 52% female respondents endorsed experiencing a traumatic event in their lifetime (Kessler, Sonnega, Brome, & Hughes, 1995). Of these, 7.6% were found to meet criteria for Post-Traumatic Stress Disorder (PTSD). Moreover, recent prevalence data yielded from the 2001 to 2003 National Comorbidity Replication Study (NCS-R; Kessler et al., 2005) suggest that lifetime prevalence of PTSD dropped by close to one percent to 6.8%. Interestingly, lifetime prevalence of PTSD among females was found to be disproportionately higher than the overall national rate, and nearly three times the male respondent rate (9.7% female vs. 3.6% male respondents). Similarly, twelve-month prevalence rates indicate that women were more likely to meet criteria for PTSD (5.2%) than were men (1.8%) (Kessler, et al., 2005).

PTSD results in only a subset of trauma exposed individuals (7%) (Kessler, Sonnega, Bromer, & Hughes, 1995; Kessler et al., 2005), some researchers (e.g., Finkelhor, 1990) argue that the DSM conceptualization of posttraumatic stress disorder does not accurately capture the posttraumatic reactions all individuals who have been sexually victimized (i.e., those who do not meet DSM based diagnostic criteria). When rape was identified as the most upsetting traumatic event experienced, 65% of male and 46% of females went on to develop PTSD. However, females were more likely to endorse rape (9%) and molestation (12%) than males (1% and 3%, respectively), and were more likely to name rape and molestation as the most upsetting traumatic event experienced (Kessler, et al., 1995). Although, the 1995 NCS data suggest (Kessler, et al., 1995) that over half of the respondents (61% male; 52% female) endorsed experiencing a traumatic event that met DSM-IV-TR criteria, only a subset (7%) of these went on to meet all DSM-IV-TR prescribed criteria for PTSD (Kessler, et al., 1995). Breslau, Lucia, and Davis's (2004) results suggest that more commonly a large number of individuals who experience a traumatic event experience sub-clinical symptomatology than full PTSD criteria (28% vs. 9%, respectively). Recent national findings from the National Intimate Partner and Sexual Violence Survey (NISVS; Black et al., 2011) suggest that of the females (18%) who endorsed interpersonal violence, including sexual victimization, 63% endorsed some posttraumatic stress symptomatology (vs 16% of males with the same experiences).

Breslau, Lucia, and Davis (2004) define sub-threshold or subclinical PTSD symptomatology as having at least one symptom in each cluster (e.g., re-experiencing, avoidance, hyperarousal) for the duration of at least one month. These researchers

compared the potential for impairment between full or partial PTSD among a large representative sample of residents from metropolitan Detroit, Michigan aged 18 to 45. Impairment was defined as work-related and personal disability days taken in the span of 30 days when participants were most upset by their identified trauma. Findings suggest that like those with a full diagnosis of PTSD, respondents who experienced sub-clinical symptomatology lost a significant number of work days when compared to those exposed to a traumatic event but who did not meet either partial, or full, posttraumatic symptomatology criteria (Breslau, Lucia, & Davis, 2004). More specifically, those with partial posttraumatic symptoms lost an average of 3.3 more days than those with neither partial nor full symptomatology. Similarly, those with partial symptomatology reported an average of 4.4 to 4.7 more days in which they spent less time, experienced more tension, and had more disagreements, with others as compared to those without sub-clinical or full symptomatology. In both of these cases females were more likely to experience worse outcomes. Finally, duration of posttraumatic symptomatology was found to be the same across respondents who met full PTSD criteria and those who met sub-threshold criteria; however, those with full PTSD were more likely to have symptoms for more than 2 years at the time of the study (Breslau, Lucia, & Davis, 2004).

Taken together these findings indicate that although most individuals who experience a traumatic event fail to meet DSM-IV-TR diagnostic criteria for PTSD, many experience sub-threshold symptoms. Moreover, having even one symptom in each of the clusters is enough to lead to long-term clinically significant distress and impairment (Blanchard et al., 1997; Breslau, Lucia, & Davis, 2004). Furthermore, females are

significantly more likely than their male counterparts to experience said impairment when they experienced highly distressing events, such as sexual victimization.

Interpersonal Violence/Sexual Trauma

Events that fall within the umbrella of interpersonal violence that are potentially traumatic include, but are not limited to: Sexual abuse/assault and rape, molestation, physical abuse (e.g., childhood, intimate partner violence, or physical assault), stalking, torture, prostitution, and sex trafficking (Briere, 2004). Although a definition of each is beyond the scope of this overview, overall these experiences have the potential to lead to posttraumatic stress reactions in that they may pose a threat to a person's sense of safety and security, their physical integrity, and/or may lead to perceived, or actual, threat of death (Briere, 2004). Briere and Elliott (2004) suggest that interpersonal violence accounts for more posttraumatic stress reactions and symptomatology than do natural disasters, and as cited by Briere (2004), unintended traumatic events like mass-, and motor-vehicle accidents.

Recently, the National Intimate Partner and Sexual Violence Survey (NISVS) found that 81% of victims who had experienced interpersonal violence (i.e., being stalked and/or physically and sexually assaulted) at hands of an intimate partner endorsed enduring mental and physical health problems (Black et al., 2011). Black and colleagues (2011) report that nationally about 63% of females endorsing an incidence of lifetime interpersonal violence, including sexual abuse/assault, endorsed at least one PTSD symptom in the year preceding the study vs. 16% of their male counterparts.

Rape. Sexual abuse/assault may include successful and unsuccessful attempts to rape a victim. Tjaden and Thoennes (2000) define rape as, "...forced vaginal, oral, or

anal sex” (p. 13). In a study among a community sample of adult women, Resnick and colleagues (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) findings suggest that approximately 27% had experienced either a completed rape or other sexual assault. Findings in the NVAWS suggest that more women (18%) than men (3%) report experiencing both completed and attempted rape, with about 50% percent of females reporting experiencing attempted or completed rape in their childhood (Tjaden & Thoennes, 2000). Recent national figures suggest that females are almost 18 times more likely to endorse a lifetime rape history than males (18% of females vs. 1% of males) (Black, et al., 2011). NCS (Kessler, et al., 1995) prevalence data indicate that rape among females was 9.2% vs. 0.7% among males, and that this event is associated with high levels of psychological problems among those affected (Kessler et al., 1995; Herman, 1992). The NCS (Kessler, et al., 1995) data suggests that those who reported rape and sexual assault as the most traumatic event they had experienced in their lifetime had the highest probability of having posttraumatic stress symptomatology leading to a diagnosis of PTSD. Resnick et al. (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993) report that close to a third of the sample endorsing sexual abuse/assault met criteria for PTSD post assault. NCS (Kessler, et al., 1995) findings suggest that men were more likely to report exposure to trauma (61% vs. 51%, males and females, respectively), reporting combat exposure as the most traumatic event in their life. However, when rape was chosen as the most traumatic event they had experienced, the probability that respondents (either male or female) met DSM prescribed criteria for PTSD was 65% higher than for other traumas. Moreover, not only were female respondents 2 times more likely to meet criteria for PTSD, they were the most likely to report rape, sexual

molestation, and childhood neglect as the most traumatic events in their lifetime (Kessler, et al., 1995).

These findings lay out posttraumatic stress symptomatology experienced following interpersonal trauma. However, what is still missing is an understanding of what intrapersonal characteristics, or tendencies place some victims of sexual trauma at risk for experiencing posttraumatic symptomatology. This is particularly poignant for sexual trauma research as this type of event is associated with higher levels of subsequent pathology, especially among females as suggested by the literature (Black et al., 2011; Kessler et al., 1995; Tjaden & Thoennes, 2000). This understanding is necessary in order to address the consequent deleterious effects of sexual traumatization, in addition to helping the research community learn more about those individuals who do not go on to develop symptomatology or those who recover post-trauma. Moreover, the consequent outcomes associated with sexual abuse/assault make elucidating the factors associated with sexual abuse/posttraumatic stress symptoms extremely important (Resnick, 1993).

The Present Study

Recently, researchers call for more sophisticated analyses (i.e., understanding of potential predictors, mediators, etc.) of relevant factors that explicate the relationships between sexual abuse/assault and posttraumatic symptomatology (Acierno, et al., 1999; Briere & Elliott, 1997; Hayes, et al., 2004). For example, recent studies have started to look at the link between subjective reports of mindfulness-informed personal attributes (e.g., being present, being non-judgmental to present experience, acting with awareness), the role of attention and the tendency to commit attention related errors, and psychological well-being (Carriere, Cheyne, & Smilek, 2008; Smilek, Carriere, &

Cheyne, 2010; Vujanovic, Youngwirth, Johnson, & Zvolensky, 2009). However, a need still exists to understand these relationships among those who have been sexually traumatized; this level of understanding is important if we are to effectively inform intervention and prevention efforts targeting females who have been sexually victimized.

CHAPTER TWO: LITERATURE REVIEW

Findings from the National Comorbidity Study (NCS) suggest that sexual trauma (i.e., rape) is the event most likely to be associated with PTSD among both males and females (Kessler, et al., 1995). Females, however, are both more likely to experience traumatic events, like sexual trauma, that place them at greater risk of developing PTSD, and significantly more likely to develop PTSD after exposure to a traumatic event compared to their male counterparts (Breslau et al., 1998; Kessler, et al., 1995; Tjaden & Thoennes, 2000). This chapter will review the literature on the effects of sexual trauma for women. This literature review will start with an overview of the intrapersonal effects of sexual victimization, followed by a review of theories relevant to this dissertation study. It will close with what this researcher believes are significant gaps in the literature as it pertains to the importance of mindfulness-informed understandings of psychological distress, and the importance of attention in the conceptualization of posttraumatic stress reactions resulting from sexual trauma.

Sexual Abuse/Assault and its Consequences

Intrapersonal Effects of Sexual Abuse/Assault

Research findings (Kessler et al., 1995; 2005; Resnick et al., 1993) indicate that women who are sexually victimized are at risk for developing clinically significant psychological distress that may lead to long-term impairment. Additionally, Breslau, Davis, Andreski, & Peterson (1991) suggest that about 80% of female study participants who endorsed a history of rape also met criteria for PTSD. Studies (Black et al., 2011; Tjaden & Thoennes, 2000) suggest that sexual victimization usually happens within the context of an intimate romantic relationship, especially in adulthood (Black et al., 2011;

Tjaden & Thoennes, 2000). More specifically, 51% of a nationally representative sample of females (NISVS; Black et al., 2011) endorsing a rape history reported being assaulted by an intimate partner. Females who are victimized within the context of an intimate relationship may not be aware that such an event constitutes rape, sexual assault, or abuse and as a result may never come forward placing them at risk for detrimental psychological outcomes (Calhoun & Atkeson, 1991). Additionally, women with a history of sexual abuse are at higher risk of revictimization (Acierno et al., 1997; Black et al., 2011; Martzolf & Draucker, 2008; Tjaden & Thoennes, 2000). Women who have been sexually victimized are at as much as 7 times higher risk of those who have not been sexually victimized to experience revictimization (Acierno, et al., 1999). Thus, in addition to being at increased risk for developing a host of negative psychological outcomes like posttraumatic stress reactions (Acierno, et al., 1999; Breslau et al., 1991; Foa, 1997; Kessler et al., 1995; 2005), psychosis, and drug addiction serious enough to warrant hospitalization (Briere & Elliott, 1997), victims are also at higher risk of repeated sexual abuse. Interestingly, females with a history of sexual abuse who also report a history of major depression are 8 times more likely to develop posttraumatic symptoms that warrant a PTSD diagnosis than those without such a history (Acierno, et al., 1997).

The psychological/intrapersonal effects of sexual trauma are often functionally impairing and have a pervasive impact upon the victims' life. As such, it behooves the research community to understand what might make females who have been sexually victimized more vulnerable to developing these detrimental effects. For example, it could be that because of the extreme nature of sexual abuse/assault, the victims' worldview changes such that everything that occurs from the time of the event is

experienced through a *posttraumatic filter* (Foa & Kozak, 1986). This point, however, only says what can happen after the event, it says nothing about the female's approach to her experience and reality that might make her vulnerable to, or resilient against, these changes once the event occurs. Thus, it is imperative to understand *how* sexual trauma is associated with intrapersonal effects such as posttraumatic symptomatology by examining possible factors associated with these symptoms, which is the aim of this study.

Experiential avoidance and the consequent behavioral, cognitive, and emotional impact. Sexual traumatization has a pervasive impact on the intrapersonal and interpersonal lives of those affected. Although the sexual trauma experience of the victim affects others in her social network and her relationship with these individuals, given the greater deleterious effects on the victims' experience this study will focus on the impact of sexual abuse/assault in three different intrapersonal experiential domains: a) behavioral; b) cognitive; and c) emotional.

Impact on behaviors. Behavioral avoidance attempts usually take the form of isolation, withdrawal, drug use/abuse, and/or avoidance of external and internal cues of the event, which are the central feature of posttraumatic stress disorder (Acierno, et al., 1999). As a whole, these behaviors comprise what is known as *Experiential Avoidance*. Experiential avoidance is defined as exerted attempts to suppress and/or ignore negative recollections, emotions, self-referent evaluations and judgments, and behavioral tendencies (Hayes et al., 2004). Additionally, experiential avoidance involves disengaging from things or avoiding exposure to trauma cues that are linked with internal mental representations associated with the sexual trauma (Hayes, et al., 2004). Batten,

Orsillo, & Walser (2005) posit that posttraumatic symptoms are exacerbated by experiential avoidance, as this behavior serves the purpose of dealing with the negative feelings associated with an abuse in the short term, however, leading to deleterious negative long-term consequences. More specifically, the paradox of experiential avoidance manifests when the person becomes accustomed to using this as a primary means to cope with the psychological consequences of the abuse, which exacerbates symptoms long term, as the trauma remains unprocessed. Additionally, a victim's attempts to continually avoid trauma cues such as, engaging in behaviors that trigger internal (memories), or external cues like people, places, things, situations, and/or conversations that remind her of the trauma, keeps her perceiving the traumatic threat as current (Ehlers & Clark, 2000). Experiential avoidance precludes exposure to experiences that might lead to learning opportunities that run counter to that which she fears. For example, the woman who fears that all men are dangerous, and as a consequence avoids them altogether, does not learn that most men are not in fact dangerous and will not harm her. Thus, experiential avoidance disallows the individual from challenging erroneous beliefs about men, in essence, keeping her from fully processing the event and integrating it into new meaning structures (Foa & Riggs, 1995; Foa, Rothbaum, & Steketee, 1993).

Impact on cognitions. Accommodating experiences to meaning structures created after the traumatic event, that is interpreting experience through the posttraumatic filter (i.e., “avoid all men as they are dangerous”), might lead the sexual trauma sufferer to experience the remembered event as a current threat (Calhoun & Atkeson, 1991; Ehlers & Clark, 2000). Moreover, because the threat is continually experienced as

current, when encountering a new male who might resemble her attacker, or any males for that matter assuming that the attacker was male, a traumatized female might misinterpret ambiguous situations as threatening making her hypervigilant to cues of danger—in this case males (Foa, Steketee, & Rothbaum, 1989). Re-experiencing the event either through nightmares, unwanted thoughts, and/or experiencing flashbacks, form part of the Re-experiencing cluster (Cluster B) of the DSM-IV-TR (1994) diagnostic criteria of the PTSD; Hypervigilance symptoms form the Hyperarousal cluster (Cluster D). Research findings suggest that the re-experiencing cluster is the most experienced set of symptoms among females with a history of sexual trauma (Foa, Riggs, & Gershuny, 1995). Furthermore, it accounted for the most variance—approximately 43%—in posttraumatic symptom severity 3 months after said trauma. Additionally, Foa, Riggs, and Gershuny (1995) found that about 97% of female rape victims diagnosed with PTSD reported symptoms of hypervigilance (Cluster D).

Paradoxical attempts like engaging in experiential avoidance (“Avoidance” Cluster C, DSM-IV-TR, 2000) through cognitive means, like suppressing all thoughts that are related to the event, is posited to lead to an increase in the same symptoms (Cluster B and D symptoms) that they are meant to eliminate (Breslau, Lucia, & Davis, 1997; Foa, 1997; Plumb, Orsillo, and Luterek, 2004; Tull & Roemer, 2003). Additionally, engaging in experiential avoidance via cognitive means, as in attempts to avoid all thoughts relevant to the abuse, makes it more likely for a sexual trauma victim to overlook real and familiar warning signs when real danger is present (i.e., involved with another abusing male). Thus, cognitive experiential avoidance might interfere with the traumatized female’s ability to recognize real threat potentially putting her at

increased risk for future victimization (Acierno, et al., 1999; Tjaden & Thoennes, 2000). Finally, cognitive experiential avoidance in addition to, and perhaps resulting from, posttraumatic thought intrusion predicts emotional numbing among female college students who experienced sexual abuse/assault (Tull & Roemer, 2003).

Impact on emotions. Researchers (see Foa & Riggs, 1995; Foa, Riggs, & Gershuny, 1995) suggest that experiencing persistent numbing symptoms, believed to be dissociative in nature, impacts the chronicity of posttraumatic symptomatology. Findings suggest that severity of emotional numbing symptoms following a trauma is associated with greater experiential avoidance (Tull & Roemer, 2003). Emotional numbness symptoms can be seen as an avoidant response employed in order to deal with the sequelae of trauma, therefore falling within the realm of experiential avoidance. Foa and colleagues' (Foa, Riggs, & Gershuny, 1995) study results support this claim. More specifically, sexual assault victims with either severe self-reported avoidance or hyperarousal symptoms were about 5 times more likely to also experience severe numbing. Finally, when *both* avoidance and arousal symptoms were present the odds of experiencing numbing was almost eleven-fold (O.R. 10.7) when compared to their absence. That is, severe avoidance and arousal symptoms independently predicted the link between numbing and posttraumatic stress symptom severity (Foa, Riggs, & Gershuny, 1995).

Nationally females with a lifetime diagnosis of PTSD had 4 times the odds of also endorsing a lifetime prevalence of affective disorders such as Major Depression and Dysthymia (Kessler et al., 1995). Breslau and colleagues' findings (1991) suggest that major depression was the second most prevalent comorbid disorder among those with

PTSD (37% vs. 11% for those without PTSD). Moreover, sexual abuse, especially childhood sexual abuse (CSA), has been linked to high rates of major depression and dysthymia among females (Putnam, 2003). More specifically, a review of the CSA literature (Putnam, 2003) suggests that females with a history of CSA were about 3-5 times more likely than those without such a history to report a lifetime prevalence of Major Depression. Finally, females with a history of sexual victimization in childhood tended to be younger at depression onset, exhibited longer duration of initial depressive episodes, had greater functional impairment, and had more hospitalizations than those without such a history (Zlotnick, Mattia, & Zimmerman, 2001). Given these findings, it is important that studies examining posttraumatic stress outcomes among females with a sexual abuse/assault history also examine the role of depression.

Experiential avoidance and the role of attention. What seems central to these different levels of intrapersonal effects as it pertains to experiential avoidance is the role of attention and a person's relationship with their inner experience. Specifically, if a person is engaging in experiential avoidance then they might be less likely to pay attention to their present experience and as such might frequently commit cognitive errors that might significantly impact day-to-day functioning. Additionally, the active pushing away of inner experience as in experiential avoidance might be related to a lower tendency to be open to present experience, non-judgmentally, and on a moment-to-moment basis (Kabat-Zinn, 2003), which holds implications for mental health (Baer et al., 2006). Particularly, Hayes and colleagues (Hayes, et al., 2004) examined the relationship between experiential avoidance and posttraumatic distress among an undergraduate sample of females who experienced childhood sexual abuse. These

researchers found moderate to high correlations between experiential avoidance, thought suppression, and posttraumatic symptomatology such as traumatic stress beliefs, intrusive re-experiencing, and hyperarousal symptoms among these females. In light of these results researchers call for future studies examining the role of experiential avoidance on posttraumatic symptomatology, exacerbation, and maintenance among those with a history of sexual abuse/assault (Hayes, et al., 2004; Thompson, Arnkoff, & Glass, 2010). Research suggests that posttraumatic stress symptoms persist over time (Foa & Riggs, 1995), are highly comorbid with depression (Breslau et al., 1991; Putnam, 2003; Zlotnick, Mattia, & Zimmerman, 2001), and lead to functional impairment (Blanchard et al., 1997) making research in this area all the more important.

Theoretical Framework: Linking Theory to Symptomatology

The increased attention given to the psychological impact of sexual trauma has been accompanied by an increase in theoretical explanations for these effects. However, the multifaceted nature of the impact on psychological well-being calls for an equally multifaceted theoretical understanding. As such this review includes an overview of the theories that have been more commonly employed to explain posttraumatic reactions following a traumatic event. In particular, it will highlight how these theories have been used to explain posttraumatic effects related to sexual trauma. Additionally, it will highlight how older mindfulness-based Buddhist psychological principles might further add to these theoretical explanations. Furthermore, this dissertation will attempt to bridge together the more commonly known theoretical explanations with those based on mindfulness-based principles by studying the relationship between mindfulness-informed

personal attributes (Baer, et al., 2006), sustained attention, and posttraumatic symptom severity among females who have experienced sexual trauma.

Cognitive Theory

There have been numerous theoretical explanations from the beginning of the eighties and nineties that have tried to elucidate the factors that underlie why some females who have been sexually victimized go on to develop long-standing posttraumatic symptomatology. Ehlers and Clark's Cognitive Model for PTSD (2000) explicates that a person's interpretations about herself, the sexual abuse and the state and dangerousness of the world and the people in it, post-sexual victimization, inform maladaptive behaviors (e.g., experiential avoidance) that maintain and exacerbate posttraumatic stress symptomatology. More specifically, the model posits that chronic PTSD (lasting > 3 months) results from maladaptive cognitions and negative appraisals about the self, the affecting traumatic event, and about the "dangerous nature" of the world. It also implicates the role of ineffective coping strategies. Furthermore, as a result of these cognitions and ineffective coping strategies, the trauma is relived and perceived as a current threat that has global negative consequences. Thus, people with PTSD are thought to automatically rely on experiential avoidance to reduce, at least temporarily, the distress caused by internal and external cues that remind the person of the traumatic event. However, as stated earlier in the paper, experiential avoidance—paradoxically—increases negative psychological outcomes and further perpetuates the automatic maladaptive cycle that keeps people with PTSD "stuck" in experiential suffering (Batten, Orsillo, & Walser, 2005; Ehlers & Clark, 2000; Plumb, Orsillo, & Luterek, 2004).

Emotional Processing and Attribution Theory

Much like the cognitive model, Foa and Kozak (1986) posit that a woman's interpretation of the event and her reaction to it, in addition to how she views herself and the event post trauma, form a fear structure that remains unelaborated. The unelaborated structure then is thought to lead to the experience of posttraumatic symptomatology. Here too, the victim of sexual abuse/assault engages in certain maladaptive avoidance behaviors in order to curtail the anxiety inherent in confronting the feared event via memories or reminders (i.e., people, places, things, and/or conversations). The paradox being that although this offers immediate relief, the person will maintain symptoms. The maintenance of symptoms occurs as a consequence of the fear structure remaining unmodified, because the person does not allow herself to activate it in order to modify it through emotional processing (Foa & Kozak, 1986).

Foa and colleagues (Foa, Steketee, & Rothbaum, 1995) argue that posttraumatic symptomatology severity and maintenance could be understood from attribution theory's perspective as put forth by Abramson, Teasdale, and Seligman (1978). The proposed attribution-theory informed model by Foa and colleagues (1986; 1993; 1995)—The Emotional Processing Model—posits that internal, stable, and global attributions lead to the maintenance and severity of posttraumatic symptoms following a traumatic event. Particularly, the sexually victimized female might blame herself for the abuse/assault by telling herself that it was her fault or that she could have prevented it (internal). Additionally, the victim believes that she will always be defective after the event (stable), and that this defectiveness will manifest in all domains (global). Similarly, she makes global attributions about the dangerousness of all men regardless of the context (stable),

and her inability to prevent something similar from happening again (internal). The tendency to generalize fear reactions to stimuli other than the one (s) temporally related to the event itself, and re-experiencing the event through thoughts and nightmares, according to Foa and colleagues (1995) are unique and central posttraumatic reactions that can be distinguished from other anxiety disorder symptoms.

Emotional processing model and the fear structure. Emotional processing is implicated as a hypothesized mechanism via which posttraumatic symptomatology is believed to persist over time (Foa & Riggs, 1995). Foa and Riggs (1995) suggest that a fear structure develops in response to a traumatic event where the victim perceives a threat to her life during or following the event. These include information about her actual responses to the event, as well as her interpretation about the event itself and her responses to it. Emotional processing, as per Foa and Kozak (1986), is the alteration of the memory associated with the emotion that is linked with the fear structure in the case of trauma. Through emotional processing, a person is able to work through a trauma via such mechanisms as meaning making, and as stated by Foa and Riggs (1995), "...modification of the fear structure" (p. 64). This could be the reason why cognitive-behavioral and exposure therapies have been found to be efficacious in reducing trauma symptomatology (Vickerman & Margolin, 2009). Thus, emotional processing is compromised when engaging in repeated efforts to deal with the trauma via experientially avoidant strategies. For as already mentioned, this disallows the person from working through the trauma, keeping the threat of the event current in the mind of the female who has been sexually traumatized. Thus, the fear structure remaining unmodified inhibits full recuperation (Foa & Riggs, 1995; Foa, Steketee, & Rothbaum, 1995).

How does emotional processing occur exactly? The definition of emotional processing and the interpretations that create and maintain the fear structure inherently implicate cognitions and attention as central to this process, in addition to behaviors. Thus, cognitions and attention not only play a central role in working through trauma, but also in the maintenance and exacerbation of posttraumatic symptomatology. Like behavioral avoidance of external cues that remind the person of the event, cognitive avoidance of internal reminders serve the purpose of maintaining the fear structure because it is not activated, and thus, is not amenable to change in the face of incongruent and corrective information (Foa, Steketee, & Rothbaum, 1995). If the person is continually avoiding thoughts related to the event, is constantly judging herself negatively for her reactions to the event, acts without being aware, and has difficulty sustaining attention to her current experience, she might keep herself from attending to things that might lead to activation of the fear structure. Activation that according to Foa and Kozak (1986), is necessary for corrective modification to lead to emotional processing and ultimately achieving well-being.

These theoretical formulations inform treatments that have been found to be the most effective in treating post-traumatic stress symptomatology. However, these models offer explanations of cognitive and behavioral reactions once the trauma has occurred. They say little about what might fundamentally underlie a person's propensity to interpret things one way or the other once the event occurs. In other words, what is it about the traumatized individual's tendency to interpret information that might make her more or less vulnerable to interpret a traumatic event in such a way that leads her to develop long-standing posttraumatic stress reactions? One way to elucidate this might be to examine

how women who have been sexually victimized deal with, and experience, the present moment. Do they embrace it and all that comes along with it, or do they avoid it and actively try to push it away? By studying how these individuals tend to view experiences that occur to them, their tendency to act deliberately and with awareness, how observant they tend to be of their present moment experience, how judgmental they tend to be of said experience, and finally how emotionally reactive they tend to be, researchers will begin to get a clearer understanding of the posttraumatic symptoms that result post victimization. Particularly, these all hold important implications for understanding how the victim might regulate emotions, cognitions and behaviors after the trauma has occurred.

Furthermore, if the assumptions made by the cognitive model hold true and cognitions are central to the development, maintenance, and severity of the post traumatic fear structure, it would be interesting to see if a tendency to deal with personal experience informed by mindfulness-based constructs would be associated to sustained attention related cognitive errors, and posttraumatic symptomatology severity. Thus, in order to further understand what self-reported personal mindfulness-informed characteristics are associated with attention and posttraumatic stress symptoms, a framework that increases the understanding of a sexually traumatized individual's relationship with her cognitions, her attunement to current experience, as well as the avoidant strategies that maintain or are associated with severity of symptomatology is needed. This is important to understand from an intervention, prevention, and strengths-based perspective, and is something that still eludes the research community. These findings reviewed herein beg the question: who develops PTSD symptoms after experiencing a traumatic event, and

who remains symptomatic long-term? Who does not develop symptomatology and why? Thus, can treatment be informed based on these factors?

Mindfulness and Attention

Mindfulness. Mindfulness is defined as, "...the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment-to-moment" (Kabat-Zinn, 2003; p. 145). Recently, studies have tried to understand the mechanisms by which the construct of mindfulness is associated with psychological wellbeing (Baer, Smith, & Allen, 2004; Sears & Kraus, 2009). Although mindfulness has over a 2,300-year history (Grossman, 2010), there has been a recent interest in utilizing mindfulness and Buddhist psychology concepts to understand psychological phenomena and suffering (Baer, Smith & Allen, 2004; Shapiro & Carlson, 2009; Grossman, 2011). Responding to a call by researchers in the field (e.g., Shapiro, Carlson, Astin, & Friedman, 2006) to better operationalize and measure the construct of mindfulness, Baer and colleagues (Baer, et al., 2006) defined and examined 5 empirically derived facets of mindfulness including: 1) Describe—the ability to describe emotional experiences and thoughts; 2) Non-judging of experience (Non-Judge)—the tendency keep from judging oneself negatively based on ones thoughts, experiences, and perceptions; 3) Acting with Awareness (Act-aware)—the tendency to act on automatic pilot; 4) Non-reactivity (Non-React)—reactions to inner experience; and 5) Observe—the ability to attend to and notice bodily sensations, and how emotions affect said sensations. Mindfulness facets are related to psychological phenomena (i.e., thought suppression, emotional intelligence, experiential avoidance, alexithymia,) and distress (i.e., psychological symptoms, and dissociation) (Baer et al., 2006). Baer and

colleagues' (2006) findings suggest that most mindfulness facets are related in predicted ways to other psychological variables. Particularly, mindfulness facets (e.g., non-react, non-judge, describe, act with awareness, and observe) are differentially associated with psychological and dispositional factors. For example, as predicted in the study, the Observe facet was more strongly positively associated than other facets with being open to experience. Contrary to expectations, the Observe facet was also positively related to thought suppression; however, the relationship was found to be dependent on meditation experience. Additionally, the Describe facet was positively associated with emotional intelligence and negatively with alexithymia. Moreover, as would be expected, reporting higher levels of dissociation and absent-mindedness was negatively related to Acting with Awareness. A disposition to be reactive to one's emotions and cognitions (Non-React) was negatively associated with self-compassion. Finally, the facet that seems most closely tied to cognitive, cognitive behavioral, and attribution theories of psychopathology—Non-judge—was found to be the facet with a good number of associations to variables mainly reflective of psychopathology. That is, the propensity to be non-judgmental to inner and external personal experience was found to be negatively associated with psychological symptoms, thought suppression, neuroticism, emotion regulation, and experiential avoidance.

Finally, regression analyses in the study (Baer, et al., 2006) found that the Act with Awareness, Non-Judge, and Non-React factors were independent predictors of psychological symptom severity. The largest beta weights were those for the Act with Awareness and Non-Judge mindfulness predictors. Because of the unexpected findings in relation to the Observe facet, it was not entered to the regression analysis. Aside from

its expected relationship with openness to awareness, it was positively associated with dissociation, thought suppression, absent-mindedness, and psychological symptoms. These findings could suggest a curvilinear relationship where being observant is associated with good outcomes up to a point. However, when it gets to either extreme (high or low) among some individuals, for example those with a history of sexual trauma, having a propensity to be observant might be indicative of hypervigilance and other negative outcomes. This last point still remains to be tested, however, as most of these associations have been examined among college student samples without a focus on the role of sexual abuse/assault history.

Mindfulness and trauma symptomatology. Although there has been increased attention paid to the construct of mindfulness in the psychological literature, little is known about the mechanisms by which mindfulness—or lack thereof—influences PTSD severity (Thompson & Waltz, 2010). Brown and Ryan (2003) posit that, “...mindfulness is compromised when individuals behave compulsively, or automatically, without awareness of or attention to one’s behavior” (p.823). Given that mindfulness, or lack thereof, is proposed as being related with the ability to deal with stressors, it seems reasonable to believe that automaticity of behavior and lack of present-moment conscious awareness (e.g., inattention and unawareness, and/or active suppression of current experience) would keep persons suffering from PTSD in a persistent maladaptive cycle. Consequently, by keeping attention on the past continually perceiving the threat as current, and by fantasizing or worrying about the future, this maladaptive cycle is maintained. Furthermore, as already stated, engaging in experiential avoidance precludes a person’s ability to confront problems and deal with them efficiently in the present

moment in order to modify the fear structure. According to Brown and Ryan (2003), this state of non-mindfulness, or as stated by Langer (1989) “mindlessness” (p.43), interferes with a person’s ability to engage in behaviors that meet present needs to promote well being (e.g., emotional processing and activation of the fear structure).

Vujanovic and colleagues’ (Vujanovic, Youngwirth, Johnson, & Zvolensky, 2009) study suggests that mindfulness significantly predicted PTSD symptomatology and severity among a group of individuals exposed to a traumatic event. More specifically, they found that “Acting with Awareness” (see Baer, et al., 2006), that is the tendency to pay attention to the present moment, was negatively associated with re-experiencing symptoms, so that greater ability to pay attention in the present moment was related to less symptom severity. Similarly, Thompson & Waltz (2010) report that both the Act-Aware and Non-Judge facets of self-reported mindfulness predicted concurrent avoidance symptomatology among trauma-exposed individuals. Although these study findings hold strong implications for understanding the role of mindfulness in the presentation of posttraumatic symptomatology, there remains work to be done in understanding these relationships between mindfulness and PTSD symptomatology among females with a sexual abuse/assault history (Hayes, et al., 2004). More specifically, are the act with awareness and non-judge facets of mindfulness also related in the same way with posttraumatic symptoms reflective of re-experiencing and avoidance among females with a history of sexual trauma?

Hill and colleagues (Hill, Vernig, Lee, Brown, & Orsillo, 2011) conducted one of the few studies to date that examined a mindfulness-based intervention among a sample of female victims of sexual trauma. Their findings suggest that females with a history of

childhood sexual abuse had lower self-reported mindfulness scores, pre-treatment, that reflected being accepting of their experience without judgment (e.g., non-judge facet) than those without childhood sexual abuse. Interestingly, they found that the observe mindfulness facet significantly increased among the intervention group compared to controls. Given these findings it could be that different facets of mindfulness have nuanced relationships with posttraumatic symptomatology among victims of sexual abuse/assault. More specifically, it could be that some facets of self-reported mindfulness like those reflective of acting with awareness (act-aware), being non-judging of experience (non-judge), and being observant of inner and outer experience (observe), are more strongly or differentially related to posttraumatic symptomatology among sexually abused females than others (i.e., non-react).

More recently, a study (Kimbrough, Magyari, Langenberg, Chesney, & Berman 2012) conducted among a community-based sample of females with a history of childhood sexual abuse to investigate the efficacy of a Mindfulness Based Stress Reduction (MBSR) intervention. Females who participated in the study were in psychotherapy at the same time that they received the intervention, and despite this reported low state mindfulness levels and clinically significant levels of PTSD symptomatology at baseline. However, post-treatment and 24-week follow-up findings suggest that PTSD symptoms were significantly reduced, specifically among Avoidance/numbness hyperarousal symptoms and re-experiencing symptom clusters. The avoidance/numbness cluster showed the largest effect size ($d=1.4$) at post-treatment. These findings might be indicative of participants' increase tolerance (habituation) of distressing internal experiences after having undergone a mindfulness-based intervention,

as there was a large effect size for mindfulness change scores ($d=1$ at 24 weeks). These results notwithstanding, more work is needed in this area as the study just described did not have a control group and participants were in concurrent psychotherapy. Although concurrent psychotherapy might have confounded the results, large effect sizes in both PCL and mindfulness scores might indicate the additional salutary effects of improving mindfulness among females with a history of sexual trauma, especially as it pertains to experiential posttraumatic avoidance ($d=1.4$ at post-treatment).

Mindfulness, attention, and attention control. Attention is not only a central component of mindfulness, but also an important component for emotional regulation and ultimately psychological well being (Brown & Ryan, 2003; Shapiro et al., 2006).

Shapiro et al., (2006) mention that attention to experience itself serves the purpose of observing and suspending judgment while focusing on the here and now of said experience. When referring to attention stripped down to its simplest form, as cited by Shapiro and Carlson (2009), “What bare attention refers to is attention without one’s conditioned ‘emotional reactions, evaluations, judgments, and conceptual overlays’.” (p.7). Thus, experiential suffering is believed to arise from additions and elaborations to this bare state of attending, as it were, by grasping for things desired and fighting against those not desired or wanted (Shapiro & Carlson, 2009) as in the case of experiential avoidance.

Accordingly, recent cognitive neuroscience study findings have demonstrated the effects of attention, attentional control, and emotional interference on cognitive tasks and well-being. More specifically, Ortner, Kilner, and Zelazo’s (2007) randomized study compared participants in a relaxation meditation intervention, a mindfulness meditation

intervention, and a wait-list control group, in order to examine the role of increased mindfulness and emotional interference on tone discrimination. All participants experienced negative effects on task performance when discriminating between tones of shorter duration (e.g., 1 second) as a result of emotional interference induced by an unpleasant picture. However, participants in the mindfulness meditation group demonstrated better performance (i.e., less emotional interference) when discriminating among tones of longer duration (4 seconds). This, the researchers conclude, might indicate an ability of the mindfulness meditation group to redirect attention faster than those with lower levels of self-reported state mindfulness when emotionally distracted, in order to engage in task-relevant behavior. Interestingly, researchers found that an increase in self-reported trait mindfulness was inversely related with emotional interference only among participants with longer meditation experience. An increase in state-mindfulness was associated with emotional interference regardless of length of meditation experience. Finally, increased levels of self-reported state and trait-like mindfulness and measures of well-being were positively related post-intervention. More specifically, increased mindfulness led to positive subjective reports of overall and psychological well-being, self-compassion, positive affect, and life satisfaction, as well as lower neuroticism and negative affect post-intervention (Ortner, Kilner, & Zelazo, 2007).

Jha and colleagues (Jha, Krompinger, & Baime, 2007) examined the role of mindfulness training on subsystems of attention among nursing and medical students, experienced meditators, and a control group. Particularly, they wanted to understand the effect of mindfulness training on 3 subsystems of attention as measured by an attention task. The 3 subsystems of attention examined by the researchers are implicated in three

overlapping, and at the same time unique, cognitive functions. These subsystems are defined as: a) a voluntary *orienting* system, whereby the person can purposefully orient/direct attention to focal external or internal stimuli; b) an *alerting* system whereby the persons' attention is abruptly redirected involuntarily to relevant internal/external stimuli, which also influences vigilance; and c) a *conflict monitoring* system that consists of prioritizing among contending stimuli which one is to focus attention on.

Findings from this study (Jha, Krompinger, & Baime, 2007) suggest that experienced meditators performed better at conflict monitoring than other participants after a month-long mindfulness meditation retreat. More specifically, these participants showed better performance than others (e.g., novices and controls) on attention tasks when an interference cue was introduced. Additionally, after receiving an MBSR course, novice participants were faster at orienting attention than those who did not receive such training (i.e., controls). Interestingly, experienced meditators showed reduced alerting performance—that is were less vigilant—but were shown to be significantly better at conflict monitoring post-retreat. This might indicate that being more mindful as a result of longer meditation practice can make a person more open to experience, and at the same time might help them become more flexible in attending to stimuli that is relevant to salient tasks (e.g., task of well-being). Therefore, these findings lend support to the idea that mindfulness' influence on attention is particularly relevant for sexual abuse/assault victims. That is, greater attentional control could be associated with better psychological well-being in this population of individuals as indicated in Kimbrough et al.'s (2012) findings. That is, better attentional control as a function of increased mindfulness can manifest as a reduction in the amount of time females who have been

sexually victimized engage in behaviors that lead to distress, like identifying with, or engaging in, negative evaluations about the self, others, and/or the trauma. Moreover, increased attentional control by virtue of increased mindfulness can also manifest as significantly reduced attempts to avoid internal/external trauma cues and reactivity to such cues, as Kimbrough and colleagues' (2012) findings suggest. These results might also indicate that higher levels of mindfulness might be associated with greater emotional processing (Foa & Kozak, 1986) of the trauma as indicated by significantly lower posttraumatic stress scores. Additionally, attention-related errors, which are strongly related to impaired attentional control (i.e., performance-based sustained attention) and lapses in mindful-attention (Smilek, Carriere, & Cheyne, 2010) might hold implications for symptom severity and functioning among females who have been sexually victimized.

Jha et al's (2007) findings highlight the importance of attention and emotion regulation on task performance. Others like Langer (1989) have noted that the ability to remain mindful, oriented, and attentive to present moment experience aids us in continually creating new categories of experience that might lead to emotional well-being. Langer's point of continual modification of our existing cognitive structures is in accordance with Foa and Kozak's (1986) Emotional Processing model. Therefore inattentiveness, or *mindlessness*, according to Langer (1989), keeps a person's attention stuck on the past or in the future precluding accommodating faulty cognitive structures to corrective experiences encountered in the present moment; thereby maintaining the fear structure intact.

Sustained attention, cognitive errors, and trauma. A corollary to mindlessness can be an inability to sustain attention to the present moment (i.e., mind wandering).

Sustained attention is defined as a person's ability to remain attentive in order to complete a given task, thus keeping from engaging in non-task relevant thoughts or behaviors (Smallwood & Schooler, 2006). The implication in mindlessness being that the mind is wandering from the present moment and attending to things that preclude mental health. Wandering from the present moment by engaging either in the past or the future keeps the person from attending to, and in effect dealing with, their current experience, often leading to cognitive based errors that interfere with the task of well-being (Broadbent et al., 1982). Consequently, being unable to sustain attention might make the sexually traumatized female less mindful of her current experience by virtue of engaging in experiential avoidance (e.g., cognitive avoidance). Impaired sustained attention then makes attention related errors more likely to occur interfering with her day-to-day functioning.

Studies examining sustained attention have been mainly focused on the relationship between this construct and psychological distress among non-clinical college students, or victims of traumatic brain injury (TBI). For example, Mc Vay, Kane, and Kwapli (2009) findings yielded from a sample of undergraduate students suggest positive associations between self-reported cognitive errors and objective tasks of sustained attention with worry, and negatively to reported daily-life performance. In another study, TBI participants differed significantly from controls in tasks of sustained attention (Robertson, Manly, Andrade, Baddeley, & Yiend, 1997). Furthermore, findings suggest a positive relationship between sustained attention and self- and other-reported instances of attentional lapses and cognitive failures among TBI patients and controls (Robertson et al., 1997).

Vasterling et al., (2002) in addition to others (Jenkins, Langlais, Delis, & Cohen, 2000), conducted one of the few studies that *has* started to deconstruct the relationship between sustained attention, as measured by a continued performance task (CPT), and PTSD severity among a clinical sample of trauma survivors. These researchers (Vasterling et al., 2002) compared the performance of Vietnam veterans diagnosed with PTSD and those without PTSD on a number of cognitive tasks. Findings suggest lower levels of sustained attention among veterans diagnosed with PTSD as compared to their counterparts without PTSD. More specifically, veterans with PTSD were found to perform worse on continuous processing tasks that measure sustained attention, and working memory tasks that measure information encoding. They did equally well, however, as those veterans not diagnosed with PTSD on tasks that measure attentional focus or shift (Vasterling, et al., 2002), which according to Jha and colleagues (2007) are different components of attention. Moreover, posttraumatic symptom severity independently predicted lower sustained attention among veterans diagnosed with PTSD. These latter findings lend support to the idea that the ability to sustain attention might also be related to posttraumatic symptom severity among other trauma-exposed individuals like sexual abuse/assault victims.

Few studies have focused on studying the association between posttraumatic symptomatology, *per se*, and sustained attention among sexual trauma victims. The studies that do exist mainly examine these associations comparing those diagnosed with PTSD to sexual trauma victims without such a diagnosis, and/or controls. For example, a study conducted by Jenkins et al., (2000) has started to shed light on the association between sexual trauma and sustained attention among rape victims. More specifically,

this study compared a group of mostly females with a rape history both with and without a diagnosis of PTSD, to controls on various measures of attention. Their findings showed that rape victims diagnosed with PTSD performed worse than the other two groups on visual and auditory measures that reflected impairment in sustained attention (i.e., made more sustained attention related errors). In particular, rape victims with PTSD performed worse on measures that challenged them to pay attention to a set of numbers in order to recall them, and made more errors on a continuous performance task that challenged them to detect two letters presented in sequential order (Jenkins, et al., 2000). Interestingly, in accordance with Jha and colleagues' (2007) conclusion that attention is made up of different components, the PTSD group did not differ in the ability to shift selective attention from those without PTSD, or a rape history. Moreover, PTSD diagnosis was not only associated with impaired sustained attention, it was also associated with greater impairment in self-reported functioning. Interestingly, this was the case even 8 years, on average, post-rape.

Jenkins et al's., (2000) findings are interesting in that they point to the importance of examining sustained attention among those who been sexually victimized. As they suggest, rape victims with PTSD may have a propensity to spend an inordinate amount of time avoiding unwanted thoughts of, as well as other cues that remind them about, the trauma. Moreover, dissociation, a common feature in rape victims with PTSD, also impacts the person's ability to sustain attention, which may lead to more errors that affect functioning. Mathiesen's (2000) research among female veterans with a history of childhood sexual abuse, with and without PTSD, showed an association between impaired sustained attention as measured by a continuous performance task and

symptoms. Although these findings suggest a link between PTSD and impaired sustained attention, it is still not known whether having posttraumatic symptomatology that does not meet PTSD criteria is associated with similar impairment of attention, the evidence that does exist is correlational in nature based on a small sample. Thus, it is important to take these studies a step further by examining the predictive role of sustained attention, mindfulness-informed subjective reports, and experiential avoidance on posttraumatic symptomatology.

As noted above, there are no known studies to date that have looked at the association between measures of sustained attention, self-reported subjective measures of mindfulness, and posttraumatic stress symptom severity among females who have been sexually victimized. Therefore, it is important to understand what the relationship is between subjectively rated facets of mindfulness, sustained attention related- and general cognitive errors, as well as the extent to which these predict concurrent symptom severity independently of each other. Moreover, given the findings by Hayes et al., (2004) and Baer et al., (2006) demonstrating a relationship between self-reported mindfulness-informed measures and experiential avoidance, it is also necessary to understand the relationship between these variables and posttraumatic symptomatology. By elucidating these relationships, the research community will be able to better understand the link between sexual trauma and posttraumatic symptomatology. Finally, this information would help inform prevention and intervention efforts targeting females who have been sexually victimized and who experience chronic or severe symptoms.

Current Perspectives in the Mindfulness Field

The field of mindfulness in psychology is still in development and there exists debate on the ways that mindfulness is conceptualized and measured in the field (Grossman, 2011). Firstly, Grossman (2011) contends that the concept of mindfulness as defined by Buddhist scholars is too complex a construct to accurately capture with currently available self-reported psychological measures. Grossman (2011) acknowledges that although Baer et al., (2006) have tried to address this complexity by positing different facets of mindfulness, this still falls short of capturing the true essence of the concept of mindfulness. Grossman recommends that researchers in this area acknowledge these shortcomings instead of assuming that higher or lower scores on these measures reflect true mindfulness. Taking this recommendation into account, the present study acknowledges that there is great complexity in measuring the construct of mindfulness, and as a response does not assume that the measure employed as a proxy for mindfulness reflects mindfulness as put forth by Buddhism and Buddhist scholars. What it might be more reflective of is a way of relating, and an ability to be attuned, to present outer and inner experience (Grossman, 2011) rather than Buddhist-defined mindfulness per se.

Secondly, there also exists confusion on whether self-reported mindfulness is considered a state or a trait. Most of the work that has been done in this field has looked at comparative studies examining changes in self-reported mindfulness following an intervention (Hill, Vernig, Lee, Brown, & Orsillo, 2011; Kimbrough et al., (2012); Ortner, Kilner, & Zelazo, 2007), the findings of which are reflective of mindfulness as both a state- and a trait-like characteristic that has implications for well-being (Hill et al.,

2011; Kimbrough et al., (2012), Ortner, Kilner, & Zelazo, 2007; Way, Creswell, Eisenberger, & Lieberman, 2010). Baer (2004) and Baer et al's., (2006) work on the measurement of mindfulness implies an innate tendency or skills to pay attention to, or be aware of, the present moment and current external/internal experience in an observant, non-judgmental, non-reactive, and non-evaluative way. This tendency can be seen as being either state dependent, or reflective of a more stable characteristic of the individual. Moreover, Brown and Ryan (2003) define self-reported mindfulness as a personal disposition that is related to other personality attributes such as openness to experience. Self-reported mindfulness according to these authors and others (Hayes et al., 2004) is believed to be reflective of a person's tendency to be behaviorally and cognitively flexible, seek and create novelty in their experience, their perception of inner experience, and their level of engagement in such experience.

Thus, the current study is not an attempt to put to rest the conflict and debate regarding how the field of psychology is currently conceptualizing mindfulness. Rather, it is an attempt to examine how females who have been sexually victimized tend to approach and perceive their current internal and external experience, and how this self-reported tendency might be associated to attention, and posttraumatic stress symptoms or lack thereof. It is not the implication herein that having higher or lower scores on the selected proxy measure of mindfulness completely reflects the concept of mindfulness per se. It is proposed as an examination of the relationship between this self-reported tendency, sustained attention, and other known contributors to psychopathology like experiential avoidance (Baer et al, 2006; Hayes, et al., 2004; Tull & Roemer, 2003; Wegner & Zanakos, 1997). Additionally, this dissertation study's unique contribution to

the literature is that it is an attempt to examine the association between self-reported mindfulness-based tendencies and sustained attention among females who have been sexually victimized, something that has yet to be done in the field of sexual trauma. As per Grossman (2010), sustained attention is reflective of the capacity to remain aware of current experience as described above, which might allow a person to engage in relevant tasks that increase well-being and a sense of personal control (Brown & Ryan, 2003; Bond et al, 2011; Grossman, 2010).

Purpose of the Study

The focus of the present study is to address the dearth in the literature as it pertains to understanding the links between self-reported mindfulness, sustained attention, experiential avoidance and posttraumatic stress symptom severity among females who have been sexually victimized. In a response to the call by some researchers (e.g., Blanchard, et al., 1997; Briere & Elliott, 2000; Hayes, et al., 2004) the present study aimed to understand the individual factors that are associated with posttraumatic symptomatology among those who have been sexually victimized. Specifically, the study examined the relationships between sustained attention, mindfulness, experiential avoidance, and posttraumatic symptom severity. Past research suggests that partial posttraumatic symptomatology is associated with impaired functioning, and as such this study examined how well self-reported mindfulness facets, sustained attention, and experiential avoidance independently explained posttraumatic stress symptom *severity*. Additionally, due to the high comorbidity rates with depression found among females with a sexual trauma history these relationships were examined while controlling for depression symptomatology.

Rationale

Findings by Hayes and colleagues (1994) suggest that females who have been sexually abused report greater experiential avoidance, which is associated with higher psychological distress (Bond et al., 2011). Additionally, Jenkins et al. (2000) suggest that females diagnosed with PTSD show impaired sustained attention as compared to those without this diagnosis. However, what this does not address is whether females who have posttraumatic stress symptomatology also show impairment in sustained attention. Moreover, given the centrality of attention in the ability to be mindful, findings suggest that lapses in mindfulness attention predict attention-related cognitive errors (Smilek, Carriere, & Cheyne, 2010). As such, the association between both attention-related and general cognitive errors, and mindfulness was examined, as well as their association with experiential avoidance and posttraumatic stress symptoms. These variables were tested as statistical predictors of concurrent posttraumatic stress symptom severity above and beyond depression symptomatology. Although limited in scope (Hill et al., 2011; Thompson & Waltz, 2009; Vujanovic et al., 2009), some studies suggest that mindfulness facets, especially the Act-Aware, Non-Judge, and Observe facets, have nuanced relationships with posttraumatic symptomatology. More specifically, the act with awareness and non-judge facets were found to predict avoidance and re-experiencing symptomatology among trauma-exposed individuals, whereas the Observe facet was found to increase after a mindfulness intervention among females with a sexual trauma history. Using these findings as a starting point, the present study aimed to understand the relationship between the different facets of self-reported mindfulness and

posttraumatic symptoms among females who with a sexual trauma history. This study's research aims and specific hypothesis included the following:

Aim 1: To understand the relationship between Sustained Attention (ESA), Experiential Avoidance (EA) and posttraumatic symptom severity (PSSS).

Hypothesis 1: ESA as measured by the Attention-Related Cognitive Errors Scale and the Cognitive Failures Questionnaire (ARCES and CFQ), and EA as measured by the Action and Acceptance Questionnaire (AAQ-II) will be related to concurrent PSSS as measured by the Stressor specific Posttraumatic Symptom Checklist (PCL-S).

Hypothesis 2: ESA and EA will statistically predict concurrent PSSS as measured by the Stressor specific Posttraumatic Symptom Checklist (PCL-S), over and above depressive symptomatology as measured by the Center for Epidemiological Studies Depression Scale (CES-D).

Aim 2: To understand the relationship between mindfulness facets (FFMQ) and PSSS.

Hypothesis 1: Mindfulness as measured by the Five-facet mindfulness questionnaire (FFMQ) will be related to concurrent PSSS. More specifically, Act-aware, Non-judge, Non-React, and Describe mindfulness facets will be negatively related to PSSS, and the Observe facet will be positively related to PSSS.

Hypothesis 2: Individual mindfulness facets will predict concurrent PSSS. More specifically, individual facets will predict PSSS over and above each other: Act-aware, Non-judge, Non-React, and Describe will individually predict lower posttraumatic stress symptom severity, and Observe will predict greater severity. Mindfulness facets will predict PSSS above and beyond depressive symptomatology.

Aim 3: To understand the relationship between mindfulness facets (FFMQ) and Sustained Attention (ESA).

Hypothesis 1: Mindfulness facets will statistically predict sustained attention. More specifically, lower reported mindfulness facet scores will be related to, and will individually predict, more attention-related cognitive errors and general cognitive errors (ESA), above and beyond depressive symptomatology.

The aims of the present study hold implications for understanding how individual factors that might place some sexual trauma victims at greater, or lower, risk are associated with posttraumatic symptomatology. It also holds implications for informing both treatment and prevention efforts alike from a strengths-based perspective. It is believed that everyone has the fundamental capacity to be mindful (Shapiro & Carlson, 2009) and as such, this capacity can be capitalized whether one is intervening in the immediate aftermath, months, or even years after a trauma has occurred.

CHAPTER THREE: METHODS

Participants

The current study was conducted among an internet-based convenience sample of females ($n=111$) over the age of 18 ($M_{age}= 30.91$, $SD= 11.30$, $R=18-64$) with a history of sexual abuse/assault either in childhood, adulthood, or both. The race composition of the sample was as follows: Asian or Asian American (1%); Black or African American (1%); American Indian/Native American (3%); Pacific Islander (3%); Other (3%); Latino (6%); and White/Caucasian non-Latino/Hispanic (83%) (see Table 2). Participants were recruited from popular social media sites (e.g., Facebook, LinkedIn, Craigslist) and APA listservs. Additionally, recruitment efforts were conducted via email blasts sent to agencies offering services to females with a history of sexual trauma, and via recruitment flyers placed in community bulletin boards located in businesses in a college town in the New England area of the U.S. Data was collected from October 2012-March, 2013.

Inclusionary Criteria. Inclusionary criteria for the current study consisted of identified female gender/sex, who were English-speaking aged 18 years or older, and self-identification of having a lifetime history of sexual abuse/assault. Lifetime history was defined as at least one instance of sexual abuse/assault (Kessler et al., 2005). For the present study, sexual abuse/assault was defined as: at least one instance in which the participant experienced unwanted, coerced, or forced sexual penetration (oral, vaginal or anal), rape, attempted rape, molestation or both occurring in adulthood or childhood, or both (Tjaden & Thoennes, 2000). Seventy-nine percent of the current sample endorsed forced oral, anal, or vaginal sex, 93% endorsed molestation, and 69 % endorsed both. Furthermore, 60% reported that this occurred in adulthood, 76% reported experiencing

the abuse in childhood, and 36% reported that sexual abuse occurred in both childhood and adulthood (Tjaden & Thoennes, 2000). The majority (85%) of participants were U.S.-Born, with 15% identifying as being born abroad. The majority (99%) of participants identified English as preferred primary language, with 1 (1%) person identifying Gaelic as preferred language (see table 1).

Exclusionary Criteria. Females who endorsed a sexual assault that occurred less than a month prior to taking the study and/or who are experiencing ongoing sexual abuse (i.e., past month) were excluded from current data analysis, but were allowed to opt into the compensation raffle (See compensation below). A total of 58 individuals who gave informed consent opted to be included in the raffle. All participants who endorsed current (past month) and ongoing sexual abuse, or experienced a current sexual assault were redirected to the end of the survey, were thanked for their time, and were given a referral list. On said referral list a disclaimer informing them of their ineligibility for the study was included, and they were encouraged to contact their local authorities and/or the National Sexual Assault Hotline (1800-656-HOPE). Due to the web-based nature of the study, those without access to a computer were excluded from the study, as this was necessary for successful completion of the web-based survey. Participants were informed of this requirement via recruitment materials.

Measures

Demographic information questionnaire (Appendix B). A brief demographic questionnaire assessed age, sex, racial and ethnic group affiliation, country of birth, number of years in the U.S., preferred language use, and socio-economic status (e.g., current income). The measure was created for the present study. Age was assessed by an

open-format question. Similarly, open-format questions assessed participants' identified race and ethnicity, and current income. Additionally, participants were asked whether or not they were born in the United States. Those who were not born in the United States were prompted to report country of birth, years living in the United States, and preferred language use.

Post traumatic stress symptomatology (Appendix C). Posttraumatic stress symptom severity was assessed utilizing the Post Traumatic Stress Disorder Symptom Checklist stressor specific version (PCL-S; Weathers et al., 1993), and was adapted with the specific stressors relevant for this specific study. The PCL-S is a 17-item self-report questionnaire that measures posttraumatic stress symptom severity associated with a particular traumatic event; it takes about 5 to 10 minutes to complete (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) (See Table 1 for psychometric properties for this and all other measures). For purposes of this study, participants were asked for the traumatic event in question in Y/N format. The traumatic event in question was specified as: At least one instance in which the participant experienced unwanted, coerced, or forced sexual penetration (oral, vaginal or anal), rape, attempted rape, and/or molestation. When sexual abuse/assault was endorsed, follow-up prompts asked participants whether this occurred in adulthood, childhood, or both. The follow-up prompts asked, "*Did this occur to you before the age of 18? If so have you also had this type of experience in your adulthood?*" and "*Did this happen to you in childhood and adulthood?*". They were then instructed to answer questions that assessed for DSM-IV-TR based posttraumatic stress symptoms in the last month associated with the sexual abuse/assault. For example, a sample item asked whether the person has been bothered by: "*Repeated, disturbing*

memories, thoughts, or images of the stressful experience". Items are rated on a likert scale ranging from 1= "Not at All" to 5= "Extremely".

A total symptom severity score was derived by summing all items (1-17) in the measure, in addition to adding symptom cluster scores (Cluster B, C, and D). Total scores for the entire measure range from 17-74. The PCL-S total score mean for the present sample was (M= 43.48, SD= 14.92). The Cronbach's alpha, for the PCL-S yielded for the present sample was $\alpha=.93$, indicating that the measure was reliable among this sample.

The PCL-S is a psychometrically valid and reliable measure of posttraumatic symptom severity (Weathers, et al., 1993, Blanchard, et al., 1996). Weathers et al., (1993) and Blanchard and colleagues (1996) indicate that scores of 3 (moderately) or more are reflective of symptom presence. The PCL has three versions: for military personnel (PCL-M), civilians (PCL-C), and a stressor specific version (PCL-S). All versions have been widely used and have good test-retest reliability ($\alpha=.96$, PCL-S) (Weathers et al., 1993). Weathers et al., (1993) report mean scores of 64 among a sample of Vietnam veterans with a PTSD diagnosis, and a score of 34 for veterans without a PTSD diagnosis. Internal consistency ranged from ($\alpha=.92-.93$) for B, C, and D clusters, and ($\alpha=.97$) for all 17 items among veterans (Weathers et al., 1993). Internal consistency alphas range from $\alpha=.83$ to $.94$ for clusters B, C, and D among a sample of motor vehicle accident survivors and females with a history of sexual victimization (Blanchard et al., 1996). The PCL-S correlates strongly ($r_s=.85-.93$) with other measures of PTSD (Blanchard, et al., 1996; Weathers, et al., 1993). Blanchard and colleagues (1996) reported mean PCL scores of 55 among females with a history of sexual victimization

diagnosed with PTSD, 44 for those with subclinical PTSD symptoms (i.e., at least 1 B cluster symptom, and at least 1 symptom in either C or D, but not both), and 23 for those without PTSD. Finally, these researchers found that a score of 44 or more effectively predicted PTSD diagnosis among the full study sample (i.e., motor vehicle accident survivors and those who had been sexually victimized). Mean scores for the present sample (M=43) indicate that participants were below the clinical threshold (M=55) of females with a trauma history diagnosed with PTSD (Blanchard et al., 1996), placing them nearer the subclinical range. In a recent study (Kimbrough, Magyari, Langenberg, Chesney, & Berman 2012) investigating the efficacy of a mindfulness stress based reduction intervention conducted among a community sample of females with a history of childhood sexual abuse and concurrent psychotherapy, clinically significant PCL scores were reported. More specifically, the average total PCL score was 47, average Cluster B score was 13.1, average Cluster C score was 19, and average Cluster D score was 14. For the present sample separate cluster average scores were as follows: Cluster B (M=12.25, SD=14.92); Cluster C (M=17.34, SD= 5.27); and Cluster D (M=13.89, SD=5.69). These scores are similar to those reported by Kimbrough and colleagues (2012).

Mindfulness (Appendix D). Self-reported mindfulness was assessed utilizing the Five Factor Mindfulness Questionnaire (FFMQ; Baer et al., 2006). The FFMQ is a 39-item multi-dimensional questionnaire that measures five different but interrelated facets of mindfulness. All items are measured on a likert-type scale ranging from 1= *“Rarely or very rarely true”* to 5= *“Very often or always true”*. Total scores range from 39 to 195 for the total measure, higher scores indicating more mindfulness, and for each

subscale more of the facet. The FFMQ total scale score mean for the present sample was (M=117.91, SD= 20.13). The reliability score, Cronbach's alpha, for the FFMQ total scale for the present sample was $\alpha=.91$; the FFMQ was a reliable among this sample. At the subscale level, the FFMQ yielded adequate alphas: FFMQ-Observe ($\alpha=.77$); FFMQ-Non-Judge ($\alpha=.95$); FFMQ-Act-Aware ($\alpha=.90$); FFMQ-Non-React ($\alpha=.85$); FFMQ-Describe ($\alpha=.91$). The means and standard deviations were as follows: FFMQ-Observe (M=26.00, SD=5.32); FFMQ-Non-Judge (M=23.40, SD=8.42); FFMQ-Act-Aware (M=22.91, SD=6.28); FFMQ-Non-React (M=19.76, SD=4.81); FFMQ-Describe (M=26.10, SD=6.54).

The FFMQ has good to excellent reliability at the subscale level ($\alpha= .75- .91$), and is reported to be a valid measure of mindfulness. One of the subscales comprising the measure is the Non-React subscale. This subscale measures a person's propensity to be reactive in the face of internal and external events. An example item of the Non-react subscale includes: "*Whenever I have distressing thoughts and images I am able just to notice them without reacting.*" The subscale has adequate internal consistency ($\alpha=. 75$) among a sample of college students with meditating and non-meditating experiences (Baer, et al., 2006). For the present sample, the subscale yielded adequate reliability ($\alpha=. 85$)

The Non-judge subscale item measures a person's propensity to judge themselves as a reaction to internal cognitive experience. An example item of the Non-judge subscale includes, "*I make judgments about whether my thoughts are good or bad*". This subscale has good internal consistency ($\alpha= .86$). Another subscale comprising the FFMQ is the Act-Aware subscale. This subscale measures the individual's propensity to be

aware of the present moment, act on automatic pilot, distractibility, and ability to concentrate. An example item in this subscale includes, *“I find it difficult to stay focused to what is happening in the present”*. This subscale has high internal consistency ($\alpha = .87$). The reliability score on this subscale for the present sample was ($\alpha = .95$).

The Describe subscale of the FFMQ measures an individual’s ability to describe their thoughts, emotions, beliefs, opinions, etc. An example item composing this measure includes, *“My natural tendency is to put my experiences into words”*. The items comprising this subscale have excellent internal consistency ($\alpha = .91$). The reliability score on this subscale for the present sample was ($\alpha = .91$).

Finally, the Observe subscale measures an individual’s tendency to be observant of, and attend to, internal sensations, thoughts or feelings. An example item comprising this subscale includes, *“I pay attention to how my emotions affect my thoughts and behaviors”*. This subscale has good internal consistency ($\alpha = .83$). The subscale yielded adequate reliability for the present sample ($\alpha = .77$).

Baer and colleagues (2006) suggest that each facet on the FFMQ independently predicted psychological well-being. All facets except the Observe facet loaded onto the latent mindfulness variable and thus yielded a four-factor solution among non-meditating college students; a five-factor solution was found among a subsample of students with meditation experience. Using this solution (e.g., excluding Observe as a predictor), researchers found that all facets except the Describe facet independently predicted concurrent psychological symptoms. The Observe facet was only found to be an independent predictor among those who had meditation experience. Moreover, the different facets were associated with different outcomes. For example: a) The Observe

was associated with openness to experience, and in non-meditators, positively with thought suppression and psychological symptoms b) The Describe facet was positively associated with emotional intelligence and inversely with alexithymia; c) Act-aware was more strongly associated with dissociation; d) Non-judge was more strongly and inversely related with psychological symptoms, experiential avoidance, and emotional regulation; and e) Non-react was found to be more strongly associated with self-compassion. Furthermore, as per Baer et al., (2006), although a total mindfulness score can be yielded, scoring at the subscale level yielded a clearer picture of relationships among the different facets of mindfulness and psychological constructs.

Experiential avoidance (Appendix E). Experiential avoidance is defined as exerted attempts to suppress and/or ignore negative recollections, emotions, self-referent evaluations and judgments, and behavioral tendencies (Hayes et al., 2004). The Action and Acceptance Questionnaire-II (AAQ-I; Hayes et al., 2004; AAQ-II; Bond et al., 2011) is 7-item measure of experiential avoidance and has been found to be reliable and valid among college-, clinical-, sexual abuse victim, and workplace samples. A sample item includes, “*My painful memories prevent me from having a fulfilling life*”. The measure is rated on a likert-type scale that ranges from 1= “*Never true*” to 7= “*Always true*”. The mean for the present sample was (M=29.29, SD=9.79). The reliability score, Cronbach’s alpha for the AAQ-II for the present sample was $\alpha=.94$, thus the AAQ-II was a reliable measure among this sample.

The AAQ-II is the latest version of the measure and yields a one-factor solution, with an average Cronbach’s alpha of .84 found across 6 validation samples (Bond, et al., 2011); three to twelve month test re-test reliabilities between $\alpha= .81$ to .79 were yielded.

Scores range from 7 to 49, higher scores indicating more experiential avoidance. The AAQ-II is positively related to general mental health distress, depression, anxiety, and stress (Hayes et al., 2004). Moreover, the AAQ is associated with higher distress among females with a history of sexual abuse as compared to those without such a history (Hayes, et al., 2004), and predicts long-term (i.e., one year) psychological distress and work absenteeism (Bond, et al., 2011). Finally, the AAQ is inversely related to all mindfulness facets except Observe (Baer et al., 2006), and is an independent predictor of trauma symptoms and beliefs (Hayes et al., 2004). Hayes and colleagues (2004) report that scores equal to or greater than 42 were indicative of clinical elevations in experiential avoidance. However, they call for caution when utilizing these norms. Average AAQ-II scores ($M=29$) for the present sample fall below this cutoff.

Sustained attention related and general cognitive errors. Sustained attention cognitive errors are defined as the day-to-day errors that occur as a cause of lapses in attention (Broadbent, Cooper, Fitzgerald, & Parks, 1982; Carriere, Cheyne, & Smilek, 2008; Smilek, Carriere, & Cheyne, 2010). These day-to-day cognitive errors hold implications not only for personal safety (Broadbent, et al., 1982) but also hold implications for psychological well-being (Broadbent et al., 1982; Carriere, Cheyne, & Smilek, 2008).

Cognitive failures questionnaire (Appendix F). The Cognitive Failures Questionnaire (CFQ; Broadbent, et al., 1982) is a 25-item measure of perceptual, memory, and action errors of automatized behaviors and information. The CFQ is purported to measure more specifically general cognitive failures resulting from lapses in sustained attention and memory failures (Robertson, et al., 1997; Smilek, Carriere, &

Cheyne, 2010). According to a recent metaanalytic review (Smilek, Carriere, & Cheyne, 2010) of three popular measures of sustained attention and sustained attention related cognitive errors, greater general cognitive errors as measured by the CFQ are positively associated with depressive symptomatology among depressed and non-depressed soldiers, sustained attention errors as indexed by both self report and performance measures (Robertson et al., 1997; Smilek, Carriere, & Cheyne, 2010), and other-informant ratings of attention failures among traumatic brain injury patients (Robertson et al., 1997). Moreover, the CFQ was moderately correlated with absent-mindedness, trait anxiety, stress, depression, and somatic complaints (Broadbent et al., 1982).

The reported mean for the CFQ is 1.94 among a recent international web-based sample (Smilek, Carriere, & Cheyne, 2010). Additionally, the CFQ is reported to have high test-retest reliability ranging from $r = .82$ to $r = .80$ over 3 to 65 weeks, respectively, indicating a stable individual characteristic (Broadbent et al., 1982). A sample item includes, “*Do you start doing one thing at home and get distracted into doing something else (unintentionally)?*” The measure is rated on a likert-type scale that ranges from 0= “*Never*” to 4= “*Very often*”; scores range from 0 to 100 higher scores reflecting a greater number of cognitive failures. The CFQ mean for the present sample was ($M = 2.11$, $SD = .65$), which is higher than the mean ($M = 1.94$) recently found among an international sample (Smilek, Carriere, & Cheyne, 2010). The reliability score, Cronbach’s alpha, for the CFQ scale for the present sample was $\alpha = .93$, indicating that the measure was reliable among this sample. Due to the CFQ being a more general measure of cognitive failures with seemingly multiple causes, total scores for the CFQ might not fully explain the association between posttraumatic symptoms and mindfulness facets. Thus, another

measure of sustained attention related errors would yield clearer information about these associations.

Attention related cognitive errors (Appendix G). In response to reported limitations of the CFQ, Smilek and colleagues (Carriere, Smilek, & Cheyne, 2008; Cheyne, Carriere, & Smilek, 2006) created and revised the 12-item attention related cognitive errors scale (ARCES). The ARCES mean for the present sample was ($M=2.77$, $SD=.50$). The reliability score, Cronbach's alpha, for the ARCES scale for the present sample was $\alpha=.90$, indicating that the measure was reliable among this sample.

Study findings suggest that the ARCES is a more proximal measure of errors related to lapses of sustained attention (Cheyne, Carriere, & Smilek, 2006). More specifically, the ARCES mediated the link between a self-reported mindfulness measure and performance-based measures of errors of sustained attention. The ACRES is reported as an adequately reliable measure ($\alpha=.88$) among a number of different samples (Carriere, 2008; Cheyne, Carriere, & Smilek, 2006; Smilek et al., 2010). Smilek and colleagues (2010) report a mean of 3.08, which is higher than the present sample mean ($M=2.77$). A sample item includes, "*When reading I find that I have read several paragraphs without being able to recall what I read*". The measure is rated on a likert-type scale that ranges from 1= "*Never*" to 5= "*Very often*"; scores range from 12 to 60, higher scores indicating more attention related cognitive errors. Researchers who have used the measure (Carriere, 2008; Cheyne, Carriere, & Smilek, 2006; Smilek et al., 2010) report means, however, sum totals can also be yielded (Cheyne et al., 2006).

The ARCES showed moderate positive correlations with depressive symptomatology as measured by the Beck Depression Inventory (Carriere, 2008) and was

highly inversely related to mindfulness (Cheyne, Carriere, & Smilek, 2006). Similarly, Smilek et al., (2010) found high correlations with self-reported mindfulness-related lapses of attention and the CFQ ($r = .68$ and $r = .82$, respectively) among an international web-based sample. Given the high intercorrelation between the ARCES and the CFQ due to a high degree of overlap between some items, this study paid special attention to multicollinearity tolerance indices for these two measures in order to address problematic correlations. This notwithstanding, due to the CFQ being a more general measure of cognitive failures, multicollinearity might have been attenuated due to this (Carriere, personal communication). Multicollinearity indices for the two sustained attention measures for this sample were significant (i.e., VIF < 10 and Tolerance $> .10$). Specifically, the VIF for the CFQ and ARCES were: VIF= 22 and 19, respectively. Due to the high intercorrelation between these two indicators of sustained attention, they were combined to create an “*errors of sustained attention*” composite variable, which was employed as the measure of the sustained attention construct.

Center for Epidemiological Studies Depression Scale (CES-D; Appendix H).

The Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977) is a 20-item self-report measure created to assess depressive symptomatology in the general population. Depressive symptoms are assessed for the past week, example items include, “*I felt that I could not shake off the blues even with help from my family or friends*” and “*I felt depressed*”. The measure is rated on a likert scale ranging from 0=“*Rarely or none of the time (less than 1 day)*” to 3=“*Most or all of the time (5-7 days)*”. Scores range from 0 to 60, with higher scores reflective of more symptomatology. The CES-D mean for the present sample was (M=25.33, SD=14.91), which was above the cutoff

score of 16 as reported by Radloff (1977). The reliability score, Cronbach's alpha, for the CES-D scale for the present sample was $\alpha=.94$, indicating high reliability among this sample.

The CES-D is highly reliable measure of depression in the general population ($\alpha=.85$), clinical populations (.90), and among race groups (i.e., Black and Whites) $\alpha=.80$. The CES-D successfully distinguishes between clinical (average score of 25-39 among a clinical sample) versus general populations (average scores 7-9), and is strongly related to the Hamilton Rating Scale and the Symptom Checklist (SCL-90) (Radloff, 1977). Recent studies have been conducted utilizing the CES-D among people of color (Rivera-Medina, Caraballo, Rodriguez-Cordero, Bernal & Dávila-Marrero, 2010), and with low-income middle-aged chronically ill female patients (Thomas, Jones, Scarinci, Mehan, & Brantley, 2001). Thomas et al's., (2001) data suggests that the CES-D is a valid screener for depression with a reported overall mean of 14.28, participants diagnosed with Major Depressive Disorder (MDD) in the month prior to the study yielded a mean of 29.05, and those without such a diagnosis yielded a mean of 12.42. Finally, the CES-D is inversely related to measures of positive affect (Radloff, 1977). Overall participants in the present sample reported mean CES-D scores ($M=25.53$) closer to the clinical cutoff score ($M=29.05$) that was indicative of an MDD diagnosis in Thomas and colleagues' study (2001), but higher than the cutoff of 16 reported by Radloff (1977). These scores are suggestive of high depression related symptoms among the present sample. See table 3 for measure psychometric properties among the current sample.

Procedures

Recruitment. The Institutional Review Board (IRB) at the University of Miami approved the present study. Additionally, approval and permission to distribute study materials in participating community agencies were sought after UM IRB approval, however, none of these agencies responded to repeated recruitment requests. These agencies included a South Miami Dade mental health agency offering services to families and individuals who have been sexually victimized, a South Miami Dade non-for-profit community agency that provides free integrated services to survivors of domestic violence, and a New England mental health agency offering services to individuals who have been sexually traumatized and involved in human sex trafficking. The study was a web-based survey created via Survey Monkey and contained: Screening questions, informed consent form, referral sheet, demographics, PCL-S, FFMQ, CES-D, AAQ-II, CFQ, and ARCES.

Recruitment flyers announcing the study inclusionary criteria (i.e., lifetime history of sexual abuse/assault, basic computer literacy, and access to a computer) and exclusionary criteria indicating the survey web link were placed in community business in a college town in New England, and an integrated health/mental health agency in the Washington Heights area of New York City. Additionally, the study was advertised via popular social media sites (e.g., Facebook, LinkedIn, Craigslist) as well as via email blasts (see appendix B) (Schlenger & Silver, 2006) sent to national organizations that have a sexual abuse/assault focus or are focused on imparting information about sexual trauma. The email contained clear information of the purpose of the study, study inclusion and exclusion criteria, and the web link to the survey. When contacting

organization listservs (e.g., APA) the recruitment email was sent with a request to have it sent out to listserv members. Interested participants were instructed to follow the web-link in order to access study materials (Zhang, 1999). Snowball effect sampling was also employed (Patton, 2002), where those who received the study materials, and those who accessed the study and gave informed consent were asked to inform friends, family members, or colleagues whom they thought might meet criteria of the study in the event that they would like to participate.

Upon accessing the study link, potential participants encountered the informed consent page, which provided information on study purpose and design, a brief description of how to complete web-based survey, information on risk and benefits, voluntary nature of the study, compensation information, and investigator contact information as well as contact information for the IRB and office of human subjects at the University of Miami. Participants were asked to click a check box on the consent form attesting that they read, understood the nature of the study, and agreed to participate. Once informed consent was given participants were directed to the resource referral sheet (see Appendix I), and subsequent to this to the raffle option page. Thereafter, participants were screened for inclusionary and exclusionary criteria. Those who did not meet inclusionary criteria, as well as those who met exclusionary criteria, encountered the referral list included in a page thanking them for their time after being given the opportunity to opt into the compensation raffle. Those who wanted to be entered in the compensation raffle (see compensation) were asked to give their name, contact information, and address where compensation could be mailed should they win the raffle. This information was not be linked with their responses in the criteria

assessment page or subsequent pages with the study measures and their responses; participants were informed of this in the consent the form. Participants were thanked for their participation upon completion of the survey and were asked to inform anyone who they thought might be interested in the study. All survey data remained confidential and protected, only this researcher had access to study data and participant information.

Adverse effects. Due to the personal nature of the study and the potential for accessing suppressed traumatic memories, it was likely that participants could have experienced an increase in trauma symptoms and/or psychological distress. In order to address this, each participant who accessed the study web site and completed the informed consent form was given a list of referrals before presentation of any of the study measures. The referral list contained information on national resources, including a 24-hour 1800-number hotline, for victims of sexual abuse/assault (e.g., Rape, Abuse & Incest National Network; RAINN.org). Additionally, participants were informed in the consent form that they are free to stop the study at any given point if they experienced a surge in traumatic memories that caused them significant psychological distress, and were encouraged to make use of these contacts. The informed consent form provided participants with the researcher contact information in the event they wanted more information regarding national services available to them. No participants contacted this researcher regarding any adverse effects experienced. In contrast, three participants contacted this researcher via email thanking her for the study, stating that this was an important topic to investigate. Moreover, participants who met current (past month) abuse/assault were encouraged in the informed consent form, and in the disqualifying thank you page, to contact their local authorities and/or the National Sexual Assault

Hotline (1800-656-HOPE). This information was provided in the referral sheet given to participants at the beginning of the survey after having consented for participation. The safety precautions put in place for this study fell within recommended safety parameters for assessing web-based trauma-related information (Schlenger, Jordan, Caddell, Ebert, & Fairbank, 2004; Schlenger & Silver, 2006).

The Internet has become a popular medium for collecting study information making nationally based study samples more accessible (Schlenger & Silver, 2006). The personal and sensitive nature of this study notwithstanding, recent literature on the study of sensitive issues suggests that participants are more likely to divulge sensitive personal information via self-report that offers anonymity, including interactive computerized surveys, than via face to face interviews (Lau, Thomas, & Liu, 2000). Particularly, Lau and colleagues' (2000) study suggest that men in Mainland China were more likely to endorse risky sexual behaviors, and were less likely to omit responses, via an interactive computerized survey on a mobile Smartphone, than were those interviewed face to face. Additionally, their findings suggest that mail-in options yielded sensitive response frequencies similar to the web-based method, however, the response rate was substantially lower (Lau, Thomas, & Liu, 2000). Although this study was different both in terms of the nature of the subject matter and characteristics of the sample, despite asking highly sensitive questions, study participants who accessed the web-link were expected to be more willing to divulge information asked leading to lower response bias (Schlenger & Silver, 2006). As such, response completion rates for those who met all study inclusionary criteria and answered questions past the demographics information

page (started study measures), fell within expected on-line survey completion parameters as suggested by Zhang (1999).

Compensation. Participants were entered in 1 of 4 drawings to win a \$25 American Express gift card. After giving informed consent participants were asked for their contact information and a mailing address where they would like the researcher to send them the gift card if they should win the raffle. A confidential, password-protected excel spread sheet was created where participant name, contact info and address was entered. This information along with data from online surveys, and other relevant sensitive electronic study materials, was stored in a password protect external hard drive that was stored in a locked file box. No study information was stored on researcher's personal computer.

Compensation raffle occurred once the participant target number was reached (e.g., N=91). At this time all non-identifying code numbers were assigned and entered into a computerized a random numbers generator (<http://www.random.org>). Four random numbers that corresponded to these codes were generated. The participants associated to the selected code numbers were contacted via preferred mode of contact informing them that they had won the raffle, and were asked to confirm preferred mailing address once their identity was confirmed. Gift cards were sent to the winning participant via certified United States Postal Service (USPS) at the address they identified.

Statistical Power

An apriori power analysis was performed in order to determine the minimum sample size (n_{\min}) required to determine a medium effect size ($f^2 = .15$) for the regression analyses needed for the study (Faul, Erdfelder, Buchner, & Lang, 2009). Preliminary

power analysis for multiple regression was performed using a free online statistics calculator (GPower 3.1; Faul et al., 2009) that required information about anticipated effect size, power desired ($1-\beta$), number of predictors, and alpha level ($\alpha = .05$). For purposes of this dissertation, an ability to detect a small to moderate effect size for incremental variance explained by each predictor is desired and considered conservative. The power analysis was set to have a minimum of 80% power ($1-\beta$) (Faul et al., 2009; Kimbrough, Magyari, Langenberg, Chesney, & Berman 2012) to detect the desired effect size, with 10 predictors (e.g., Demographics, FFMQ five facets, CFQ, ARCES, and AAQ-II) and generated an $n_{\min}=75$. In order to account for survey non-completers, and to account for at least 78% response rate (Zhang, 1999), this study aimed to recruit a minimum of 91 study-completing participants, in order to ensure enough power to run proposed analyses. A total of 111 participants started the survey past the demographics page (starting study measures), and of these 105 completed the study (94% response rate).

Statistical Assumptions and Missing Data

The current version of the Statistical Package for the Social Sciences (SPSS) was utilized to manage the data and examine the aims of the study. Prior to data transfer to SPSS, all data were checked to ensure that they were entered correctly. This researcher transferred all data to an excel sheet and examined all cases for missing data. All participants who did not meet study criteria were deleted from the dataset, as were participants who did not make it past the demographics section (those who did not start the frank study measures). Data were then transferred to SPSS, and the process of making sure all data were entered properly was then repeated. Total scores were created

for the PCL-S full scale and subscale, FFMQ full-scale and subscales, and AAQ-II; mean scores were created for CFQ and ARCES as suggested by the literature. All missing variables were labeled as “99”. Descriptive data were run for all variables to ensure that all ranges and means are within the bounds of the anchors on each of the measures’ ascribed likert-scales.

Missing data were analyzed and handled utilizing multiple imputation (MI) (Baraldi & Enders, 2009; Enders, 2011). First a missing data analysis was conducted using a conservative cut off of 0.01% missing data (Baraldi & Enders, 2009) in order to decrease the likelihood of bias, in this way all variables of interest that had at least 1 missing value were submitted to missing data analysis using MI. According to this analysis, 58.5% (n=65) of the sample had complete data, the remaining 41.4% (n=46) had at least one missing value. Results yielded from the MI missing data analysis suggested that all study measures had at least 1 missing value. More specifically out of the total sample (n=111): 23% had at least one missing value on the depressive symptomatology measure (CES-D); 13% had missing data on the Observe mindfulness facet; 12% on the attention related cognitive errors scale (ARCES) and 11% on the cognitive failures measure (CFQ); 11% on the Non-React and Describe mindfulness facets, and 10% on the Non-Judge and Act-Aware facets; 10% on the study outcome measure (posttraumatic stress symptoms; PCL-S); and finally 7% on the experiential avoidance measure (AAQ-II).

Missing data patterns yielded subsequent to the missing data analysis indicated that data were not missing at random (MNAR). According to Baraldi and Enders (2009), missing data that is related to the outcome variable under study is considered data that is

“Missing Not at Random (MNAR)” (p.8). That is, the missing values result as a characteristic of the population under study, and the propensity of omitting a value point for a specific question or statement is directly influenced by the outcome variable. For example, female victims of sexual abuse/assault may be more likely to avoid answering questions that remind them of the abuse as a function of having more severe posttraumatic stress symptoms. MI employs a log likelihood equation to estimate possible population parameters that would best fit the sample under study. This procedure takes completed information to estimate possible population parameters to include in the log likelihood equation in order estimate a less biased missing value (see Baraldi & Enders, 2009 for a detailed explanation of this procedure). Regression models are then run with the estimated values in order to yield a model with parameters (e.g., means, standard deviations, correlations, and regression coefficients) that introduce less bias than would traditional methods of missing data handling, this is done over multiple imputations, and then yields pooled sample data statistics that are then used to run major study analyses. Independent computer programs exist that automate this process (Enders, 2011). However, SPSS 19, the statistical package used to analyze the current data, includes the multiple imputation features and therefore was utilized for the current sample’s missing data analysis and imputation. The MI technique, although not perfect for MNAR data, takes non-random missingness into account and offers an alternative to removing cases from analysis, increasing power and yielding a more complete picture of the constructs under study.

Thus, the SPSS multiple imputation feature was used to impute missing data for all variables of interest in the current study (i.e., PCL-S, FFMQ, CFQ, ARCES, AAQ-II,

and CES-D). The statistical program was set to run 20 data sets where values were imputed for those missing, based on the response pattern in the entire sample. After all 20 datasets were run and missing values imputed, a pooled data set was created where all values were aggregated. This pooled dataset was used to test proposed hypotheses. Traditional methods of deletion were avoided (e.g., list wise/pairwise/case wise deletion), as they assume unsystematic missingness and introduce bias to data analysis reducing power (Baraldi & Enders, 2009; Enders, 2011). MI assumes that missingness is systematic; however, it is not a perfect answer to systematically missing data.

All assumptions of normality were detected via histograms, examination of skewness statistics, error distributions, and examination of scatter plots to detect outliers. More specifically, assumptions of multiple regression such as normal distribution, independence of observations, multicollinearity, residual linearity, and measurement reliability were examined prior to undertaking any analysis. The skewness and kurtosis for variables of interest were examined utilizing the Shapiro-Wilk test. The Shapiro-Wilk test examines the null that the variables of interest are normally distributed for the present sample. Therefore a significant Shapiro-Wilk test is indicative of potentially problematic skewness and kurtosis. According to the Shapiro-Wilk test, the FFMQ-NonReact showed a pattern that was potentially non-normally distributed $p=.008$. However, visual inspection of the Q-Q plot for the FFMQ-NonReact showed values close to the fit line, which indicates non-problematic spread of the data (see figure 1). VIF and tolerance diagnostic statistics were examined to detect problematic multicollinearity between predictors of interest. Data diagnostics yielded problematic multicollinearity (VIF>10, Tolerance <.10) for the two measures of sustained attention CFQ and ARCES

(VIF= 22 and 19, respectively). Thus, because these measures have been shown to measure a similar construct (Smilek et al., 2010) these were combined to create one sustained attention variable. Resulting statistics for the combined variable are interpreted as *errors of sustained attention* (ESA) as both of the scales used to create it are proxy measures of sustained attention (i.e., measured errors in sustained attention). Reliability estimates were also calculated for the proposed sample in order to ensure that variables of interest are measured without error, and to ensure that they were reliable measures of the constructs for this particular sample (see Table 3). Finally, examination of residual plots were undertaken to ensure linear relationship between continuous independent and dependent variables (Osborne & Waters, 2002) and even distribution of errors (i.e., homoscedasticity); these assumptions held for the present sample.

CHAPTER FOUR: RESULTS

This section highlights information regarding data analysis and how the aims and hypotheses delineated at the end of Chapter 2 were examined and tested. Because this study aimed to understand the relationships among variables of interest, and their incremental variance on the outcome variable, Pearson correlations and Multiple Regression analyses were employed. The variables of interest were: Predictors a) Five Mindfulness Facets (FFMQ), b) Attention related cognitive errors (ARCES), and c) General cognitive failures (CFQ); d) Experiential avoidance (AAQ-II); and Dependent variable e) Posttraumatic stress symptom severity (PSSS). Variables of interest were examined utilizing correlation and regression analysis in the Statistical Package for the Social Sciences 19 (SPSS 19). As mentioned in chapter 3, statistics yielded from the pooled MI dataset were used to run major analyses. Because statistical predictor variables of interest were measured on different scales, standardized betas (*b*) were used to interpret regression results.

Statistical analysis. Descriptive information was examined for each variable including frequencies, means, skew, and kurtosis. Additionally, means for the PCL-S, ACRES, CFQ, and CES-D were compared to means reported in other studies, and reliabilities for each variable were computed to ensure that all measures were appropriate for the present sample (See Chapter 3, and table 3 for psychometric properties). CES-D scores were controlled for in all regression analyses (Aims 1-3) as the sample showed high depression related symptoms scores ($M=25.53$). Finally, prior to interpretation of regression analyses, error plots were examined to ensure that assumptions (i.e., homoscedasticity and independence of error residuals) for multiple regression were met.

Aim 1

Aim 1 sought to understand the relationship between errors of sustained attention (ESA), experiential avoidance (EA) and posttraumatic stress symptom severity (PSSS). In order to examine Aim 1, Hypothesis 1 (ESA, EA, and PSSS will be related) the Pearson correlation matrix (see Table 4) was examined to understand the correlation between study variables. Particularly, the relationship between errors of sustained attention (ESA), experiential avoidance (EA) and posttraumatic stress symptomatology (PSSS) was examined. Findings showed that ESA predictors and EA were significantly positively related to the PSSS: ESA ($r = .46, p < .01$), and EA ($r = .70, p < .01$), as were depressive symptoms (CES-D) ($r = .60, p < .01$). That is, higher reported errors of sustained attention, and higher levels of experiential avoidance and depressive symptoms were related to higher levels of posttraumatic stress symptomatology. Higher levels of reported depressive symptoms were also significantly related to higher errors in sustained attention, ESA ($r = .39, p < .01$) and experiential avoidance, EA ($r = .49, p < .01$).

In order to examine Aim 1, Hypothesis 2, a multiple regression analysis was conducted to determine the incremental variance of study variables (ESA and EA) on PSSS over and above depressive symptoms. To detect multicollinearity among predictors (e.g., ARCES and CFQ) of interest, the Variance Inflation Factor (VIF) and Tolerance diagnostic statistics were run and examined within the regression analysis (before analysis). As indicated in Chapter 3, ESA predictors (CFQ and ARCES) showed high multicollinearity (VIF > 10, Tolerance < .10) and were combined as the literature (Smilek et al., 2010) suggests that these variables measure a similar construct (sustained

attention; Smilek, Carriere & Cheyne, 2010); subsequent to this combination VIF decreased significantly ($VIF < 2$).

In order to test, Aim 1, hypothesis 2, whether ESA and EA will concurrently predict PSSS, a regression model was created where demographic variables (Race, age, income, number of years in the U.S.) were entered in the first step of the model in order to determine whether these significantly predicted the PSSS. Findings indicate that demographics did not significantly predict PSSS in the first step of the model, $F_{(4, 3)} = 3.32, p > .05$, thus, demographics were removed from the rest of the regression analyses for parsimony and new trimmed models for aims (1-3) were created. Firstly, in order to determine whether the relationships between predictor and outcome variables held above and beyond other psychological symptoms, depressive symptomatology was entered before predictors of interest to test their incremental variance over and above depressive symptoms. Secondly, ESA was entered in the next step, and EA in the third and final step. The overall trimmed regression model predicting PSSS was significant, $F_{(1, 107)} = 34.64, p < .001$, and accounted for 52% ($R^2 = .52$) of the variance in PSSS.

Findings for step one of the trimmed regression model indicate that depression symptoms significantly predicted posttraumatic stress symptoms, $F_{(1, 109)} = 53.10, p < .001$. More specifically, for every unit increase in depressive symptoms, posttraumatic stress symptoms increased by .57 standard deviation units, $b = .57, t = 7.29, p < .001$. When entered alone in the model depressive symptoms accounted for 33% ($R^2 = .33$) of the variance in posttraumatic stress symptoms. Next, ESA was entered in the second step of the model and accounted for an additional 4% ($R^2 = .04, F_{\Delta} = 5.88, p < .01$) of the variance in PSSS. More specifically, for every unit increase in ESA, there was an

increase of .19 standard deviation units in PSSS above and beyond depressive symptoms, $b = 0.19$, $t = 2.43$, $p = .01$. Next, EA was entered in the last step of the model and accounted for an extra 16% ($R^2 = .16$, $F_{\Delta} = 34.64$, $p < .001$) of the variance in PSSS. More specifically, for every unit increase in EA, there was an increase of .52 standard deviation units in PSSS above and beyond depressive symptoms and ESA, $b = 0.52$, $t = 5.89$, $p < .001$. Finally, upon entering experiential avoidance in the last step of the model, ESA was no longer a significant statistical predictor of concurrent PSSS ($b = 0.08$, $t = 1.16$, $p > .05$), and depression lost predictive strength but remained significant ($b = .22$, $t = 2.57$, $p = .01$) (see Table 5).

Aim 2

Aim 2 sought to understand the relationship between mindfulness facets (FFMQ) and PSSS. To test Aim 2, Hypothesis 1, the Pearson correlation matrix (see Table 4) was examined in order to understand the correlation between the five facets of mindfulness and PSSS. Particularly, for study aim 2 hypothesis 1, it was predicted that Act-aware, Non-judge, Non-React, and Describe mindfulness facets would be negatively related to PSSS, and the Observe facet would be positively related to PSSS.

As expected, findings showed that four of the five mindfulness predictors were significantly and inversely related to the PSSS: FFMQ_Nonreact ($r = -.27$, $p < .05$), FFMQ_Actaware ($r = -.49$, $p < .01$), FFMQ_Nonjudge ($r = -.31$, $p < .01$), and FFMQ_Describe ($r = -.38$, $p < .05$). The findings in the current sample were similar to Baer et al's (2006) findings regarding the FFMQ_Observe facet of mindfulness. More specifically, all facets were related to PSSS in expected directions (inversely) with posttraumatic symptoms, with the exception of the FFMQ_Observe facet, which was

positively related to PSSS ($r=.31, p < .01$). That is, higher FFMQ_Observe scores were related to higher levels of concurrent posttraumatic stress symptomatology. Depressive symptoms scores were similarly related to mindfulness facets, (CES-D):

FFMQ_Nonreact ($r=-.31, p < .01$), FFMQ_Actaware ($r=-.47, p < .01$), FFMQ_Nonjudge ($r=-.39, p < .01$), and FFMQ_Describe ($r=-.39, p < .01$). Findings indicate that FFMQ_Observe was not significantly related to CES-D scores, ($r=.18, p > .05$). As with Aim 1, CES-D was controlled for in the regression analysis.

In summary, four mindfulness facets (Non-React, Act-Aware, Non-Judge and Describe) were related to PSSS. That is higher non-reactivity to internal and external stimuli, higher non-judgment of inner cognitive and emotional experience, greater ability to describe internal and external experiences, and acting with greater awareness (paying attention in the present moment) is related to lower posttraumatic stress symptoms and depression symptoms. On the other hand, being more attuned to internal (emotional, cognitive) and external sensations, and perceptions of the immediate environment, are related to higher levels of posttraumatic stress symptoms.

In order to test Aim 2, Hypothesis 2, whether individual mindfulness facets would predict PSSS (Act-aware, Non-judge, Non-React, and Describe will predict lower posttraumatic stress symptom severity, and Observe will predict greater severity), above and beyond depression, a regression model was built where depressive symptoms and mindfulness facets predicted PSSS. Before the regression analysis was interpreted, VIF and Tolerance indices were examined as four of the five mindfulness facets were moderately correlated to each other. For the analyses that will follow VIF and Tolerance scores were within expected parameters (VIF <10). Firstly, in order to determine

whether the relationships between predictor and outcome variables for this aim held above and beyond other psychological symptoms, depressive symptomatology was entered before predictors of interest were entered to test their incremental variance on PSSS. Secondly, the five facets of mindfulness were entered in the next and final step. The overall regression model predicting PSSS regressed on the five facets of mindfulness was significant ($F_{6, 104} = 16.62, p < .001$) and accounted for 49% ($R^2 = .49$) of the variance in PSSS.

Findings for step one of the regression model indicate that depression symptoms significantly predicted posttraumatic stress symptoms, $F_{(1, 109)} = 53.10, p < .001$. More specifically, for every unit increase in depressive symptoms, posttraumatic stress symptoms increased by .57 standard deviation units, $b = .57, t = 7.29, p < .001$. When entered alone in the model depressive symptoms accounted for 33% ($R^2 = .33$) of the variance in posttraumatic stress symptoms. Next, FFMQ predictors were entered in the second step of the model and accounted for an additional 16% ($R^2 = .16, F_{\Delta} = 6.59, p < .001$) of the variance in PSSS. More specifically, the only mindfulness facets that were significant were: FFMQ_Observe ($b = .27, t = 3.55, p = .001$), FFMQ_Actaware ($b = -.20, t = -2.52, p = .013$), and FFMQ_Describe ($b = -.18, t = -2.26, p = .026$). Findings suggest that for every unit increase in the Observe mindfulness facet, there was an increase of .27 standard deviation units in PSSS. Next, for every unit increase in the Actaware mindfulness facet, there was a .20 standard deviation unit decrease in PSSS. Finally, for every unit increase in the Describe mindfulness facet, there was a .18 standard deviation unit decrease in PSSS. That is, higher levels of the Observe mindfulness facet statistically predicted higher levels of concurrent posttraumatic symptomatology, and

higher levels of the Actaware and Describe mindfulness facets statistically predicted lower levels of concurrent posttraumatic stress symptomatology; all above and beyond depressive symptoms. Significant mindfulness facets (Observe, Actaware, and Describe) accounted for an extra 16% ($R^2 = .16$, $F_{\Delta} = 6.59$, $p < .001$) of the variance in PSSS (see Table 6).

In summary, the overall model including depressive symptoms and mindfulness facets accounted for 49% of the variance in PSSS. Three mindfulness facets were significant predictors of PSSS, over and above the effects of depressive symptomatology (depression remained significant in the last step), these were: Observe, Act-Aware, and Describe. More specifically and interestingly, higher scores in the Observe mindfulness facet (being attuned to bodily sensations, external environment, and the effects of these on emotions, thoughts and behaviors) predicted greater concurrent posttraumatic stress symptomatology. Conversely, the acting with awareness and describe facets (i.e., paying attention in the present moment, and being able to put inner experiences into words, respectively) statistically predicted lower levels of posttraumatic stress symptomatology. Results suggest that the Observe facet was the strongest of the significant concurrent statistical predictors of PSSS; all other facets (non-react and non-judge) were not significant predictors (see Table 6).

Aim 3

Aim 3 sought to understand the relationship between mindfulness facets (FFMQ) and errors of sustained attention (ESA). It was hypothesized that lower reported mindfulness facet scores would predict more errors of sustained attention. Before examining Aim 3, hypothesis 1 the Pearson correlation matrix (see Table 4) was

examined in order to understand the correlation between study variables. Particularly, the relationship between mindfulness predictors (FFMQ) and errors in sustained attention (ESA) was examined. Findings showed that some mindfulness facets were significantly inversely related to ESA: FFMQ_Nonreact ($r = -.15, p > .05$), FFMQ_Observe ($r = .21, p > .05$), FFMQ_Actaware ($r = -.67, p < .01$), FFMQ_Nonjudge ($r = -.33, p < .01$), and FFMQ_Describe ($r = -.38, p < .01$). All significant facets of mindfulness were related to ESA in expected directions. That is, higher Actaware, Nonjudge, and Describe mindfulness scores were, moderately to strongly, related to lower reported errors of sustained attention. Depressive symptom scores were also positively related to ESA so that higher depressive symptom scores were moderately related to more reported errors of sustained attention ($r = .39, p < .01$).

In order to determine whether facets of mindfulness were statistical predictors of concurrent ESA, a regression analysis was built controlling for depressive symptomatology. Additionally, in order to build a parsimonious regression model, the FFMQ_Observe mindfulness facet was not entered in the regression as it was not related to ESA, depressive symptoms, or the other mindfulness facets. Although Non-react was not significantly correlated to ESA, it was still included in the model as it was related to other predictors being entered in the model.

Before regression analyses were interpreted, VIF and Tolerance indices were examined as the four mindfulness facets entered in the model were moderately correlated to each other. For the analyses that will follow multicollinearity indices were within expected parameters ($VIF < 10$). Firstly, in order to determine whether the relationships between predictor and outcome variables for this aim held above and beyond other

psychological symptoms, depression was entered before predictors of interest were entered to test the predictors of interest's incremental variance on ESA. Secondly, the four significant facets of mindfulness were entered in the next and final step. The overall regression model predicting ESA regressed on the four correlated facets of mindfulness, controlling for depressive symptoms, was significant ($F_{5, 105} = 13.29, p < .001$) and accounted for 39% ($R^2 = .39$) of the variance in ESA.

Findings for step one of the trimmed regression model indicate that depression symptoms significantly predicted errors of sustained attention, $F_{(1, 109)} = 9.54, p = .003$. More specifically, for every standard deviation unit increase in depressive symptoms, errors of sustained attention increased by .28 standard deviation units, $b = .28, t = 3.10, p = .003$. That is, higher depressive symptoms concurrently predicted more reported errors of sustained attention. When entered alone in the model depressive symptoms accounted for 8% ($R^2 = .08$) of the variance in ESA. Next, significantly correlated FFMQ predictors were entered in the second step of the model and accounted for an additional 31% ($R^2 = .31, F_{\Delta} = 13.17, p < .001$) of the variance in ESA. More specifically, the only mindfulness facet that significantly predicted errors of sustained attention above and beyond depression was the FFMQ_Actaware facet ($b = -.56, t = -6.62, p < .001$). Findings suggest that for every unit increase in the Act-Aware mindfulness facet, there was a decrease of .56 standard deviation units in errors of sustained attention, above and beyond the effects of depressive symptoms. Results from this final regression analysis suggest that higher reported Act-Aware mindfulness scores statistically predicted lower reported concurrent errors of sustained attention. Additionally, once this predictor was entered in the regression model, the depressive symptomatology predictor lost its

predictive power over ESA ($b=.09$, $t= .96$, $p> .05$). The Act-Aware mindfulness facet alone accounted for an additional 31% ($R^2=.31$, $F_{\Delta} = 13.17$, $p<.001$) of the variance in errors of sustained attention, and was the only statistical predictor in the overall regression model of concurrent errors of sustained attention (see Table 7).

In summary, the overall model including depressive symptomatology and mindfulness facets accounted for 39% of the variance in errors of sustained attention. More specifically, when entered alone depression symptoms statistically predicted concurrent ESA so that higher reported depression symptoms predicted higher levels of concurrent errors of sustained attention. Interestingly, when mindfulness facets were entered in the model, depression lost its predictive validity over concurrent ESA, and the only significant predictor that emerged was Act-Aware (i.e., acting with awareness and paying attention in the present moment). Specifically, higher levels of acting with awareness statistically predicted lower levels of errors of sustained attention (see table 7).

CHAPTER FIVE: DISCUSSION

This dissertation studied the association between self-reported mindfulness, sustained attention, experiential avoidance and posttraumatic stress symptoms among females with a history of sexual abuse/assault. Overall, the majority of females making up the present sample were U.S.-born, White, and middle-class. Two thirds of the sample experienced forced vaginal, oral, or anal sex occurring both in childhood and adulthood. Three quarters of the sample reported experiencing sexual victimization in childhood, and a little under two thirds experienced victimization in both adulthood and childhood. These findings serve as evidence of the high rates of sexual revictimization among females as reported in the literature (Acierno et al., 1997; Black et al., 2011; Martzolf & Draucker, 2008; Tjaden & Thoennes, 2000). Findings also indicate that overall participants reported posttraumatic symptoms below the clinical threshold associated with a PTSD diagnosis (Blanchard et al., 1996), but reported high clinical levels of depression related symptoms as compared to cutoff scores reported in the literature (Radloff, 1977). Additionally, they were close to, or below, reported means for errors of sustained attention as measured by reported everyday cognitive failures and attention-related cognitive errors compared to student-, hospital-staff, and TBI patient samples (Smilek, Carriere, & Cheyne, 2010).

Results for study aim 1 relationship between study variables, suggested significant correlations between independent variables (Mindfulness facets, Errors of sustained attention, experiential avoidance, depression related symptoms) and the dependent measure (posttraumatic stress symptom severity). More specifically, as expected there was a positive relationship between errors of sustained attention,

experiential avoidance and posttraumatic stress symptom severity. That is, higher reported errors of sustained attention (i.e., less sustained attention) were related to greater posttraumatic symptom severity. Similarly, higher experiential avoidance was related to greater posttraumatic symptom severity, as were higher depression related symptom scores. Given high rates of comorbidity between depression and posttraumatic stress symptoms among females who have been sexually victimized, study findings were consistent with the findings in the literature (Jenkins et al., 2000; Putnam, 2003; Zlotnick, Mattias, & Zimmerman, 2001). Depression related symptoms were also positively related to errors of sustained attention and experiential avoidance. These findings are in accordance with the literature as Hayes and colleagues (2004) found a positive relationship between depression scores on the Beck Depression Inventory and experiential avoidance. Regression results suggested that depression related symptoms, errors of sustained attention and experiential avoidance accounted for 52% of the variance in posttraumatic stress symptom severity. Specifically, depression and experiential avoidance predicted greater concurrent posttraumatic symptom severity. Errors of sustained attention were not significantly associated with posttraumatic symptoms severity once experiential avoidance was accounted for; however, depression related symptoms lost strength but remained significant.

Results related to study aim 2 regarding the relationships between facets of mindfulness and posttraumatic stress symptom severity yielded nuanced results. First, all facets of mindfulness were related to posttraumatic stress symptoms: Four facets (Non-Judge, Describe, Act-Aware, Non-React) were negatively related with the outcome variable. That is, more mindfulness in these facets was related with *lower* posttraumatic

stress symptom severity. However, the Observe mindfulness facet was *positively* related to posttraumatic stress symptom severity (scoring higher in this mindfulness facet was related to greater posttraumatic symptom severity). Regression analysis results suggest that three mindfulness facets (Describe, Act-Aware, and Observe) were differentially related to trauma symptom severity after controlling for depression related symptoms; the total model accounted for 49% of the variance in trauma symptom severity. Specifically, scoring higher in the Observe mindfulness facet statistically predicted more posttraumatic stress symptoms, and higher mindfulness scores in the Act-aware and Describe facet predicted lower trauma symptoms. These relationships were true controlling for depression related symptoms; Depression lost strength but remained significant when mindfulness facets were entered in the model. Baer and colleagues' (2006) findings suggest that greater levels of reported mindfulness were related to higher levels of psychological distress among a college sample. However, this is the first study to find similar results among a sample with a sexual victimization history, and also the first to examine the incremental predictability of self-reported mindfulness while controlling for depression related symptoms.

Lastly, results for aim 3, regarding the relationships between facets of mindfulness and errors of sustained attention suggested nuanced relationships. Specifically, Observe was not related to either errors of sustained attention, other mindfulness facets, nor was it related to depression related symptoms. Moreover, only three mindfulness facets were significantly related to errors of sustained attention, these were: Act-Aware, Non-judge, and Describe. These facets were significantly negatively related to errors of sustained attention. That is, higher mindfulness scores in these facets

were related to lower reported errors of sustained attention. As already mentioned, higher levels of depression related symptoms were positively related to more reported errors of sustained attention, in accordance with findings reported by Jenkins et al., (2000). Regression analysis suggested that depressive symptomatology and significantly related mindfulness facets, accounted for 39% of the variance in errors of sustained attention. More specifically, the only significant statistical predictor of concurrent errors of sustained attention over and above depression was the Act-aware mindfulness facet. Once entered, this facet alone accounted for 31% of the variance in errors of sustained attention, and depression lost strength as a predictor once this facet was accounted for. Similarly, Jenkins and colleagues (2000) found that when entered in the same regression model as other variables (PTSD), depression symptoms did not statistically predict sustained attention.

Relationship between Trauma Symptomatology, Sustained Attention, and Experiential Avoidance

Results from the present study suggest that overall the sample reported subclinical levels of posttraumatic symptom severity ($M=43$). Blanchard and colleagues' (1996) findings among a group of females with a sexual abuse history and PTSD diagnosis report that the mean PCL-S score was 55. Females with a sexual trauma history without a diagnosis of PTSD, but with subclinical symptoms, showed a mean score of 44, and those with out PTSD scored 23. Participants in the present study scored in the same range as those in the Blanchard et al. (1996) study who exhibited subclinical PTSD symptoms. Given that a third (36%) of the present sample experienced sexual victimization in both childhood and adulthood, and over two thirds (79%) experienced forced sex, it is surprising, but not unexpected, that this sample exhibited subclinical

levels of symptoms. Firstly, it could be that those who are more apt to participate in web-based studies assessing trauma symptomatology tend to have less severe symptoms than those who do not participate in such studies. Secondly, it could be that females who participated in this study have had mental health treatment, and as such exhibited lower severity scores. Although this is plausible, this study did not take into account treatment history, and as such this explanation is speculative at best.

Researchers (Hayes, et al., 2004) have called for clearer understandings of how experiential avoidance (avoidance of internal events) (Hayes et al., 2004) and sustained attention (the tendency to make mistakes, or cognitive failures, on a day to day basis) might be related to posttraumatic stress symptoms. This understanding is needed in order to elucidate the interrelationships between these constructs among a trauma population as there have been limited studies in this area. Individuals who have undergone a traumatic event who exhibit chronic (> one month) posttraumatic symptomatology, tend to exhibit maladaptive experiential avoidance behavior (Batten, Orsillo, & Walser, 2005, Ehlers and Clark, 2000; Foa & Kozak, 1986; Foa & Riggs, 1995) employed to deal with aversive re-experiencing and hyperarousal symptoms. However, behavioral and cognitive experiential avoidance of internal experience is associated with exacerbation and maintenance of psychological symptoms like posttraumatic symptomatology (Ehlers & Clark, 2000; Foa & Kozak, 1986), rather than the amelioration of these symptoms, as is the belief among individuals who suffer from them. Additionally, female veterans with a sexual trauma history with and without PTSD, exhibited impairment in sustained attention (Jenkins, et al., 2000; Mathiesen, 2000). Thus, this study aimed to understand

the independent relationship of experiential avoidance and posttraumatic symptoms over and above sustained attention (i.e., errors of sustained attention).

Although there are no agreed upon cutoff scores for the measure employed in this study to assess experiential avoidance (AAQ-II), Hayes and colleagues (2004) suggest that scores above 42 might be indicative of clinical elevations in experiential avoidance, although they suggest that caution be heeded when utilizing these norms. In either case, if this score is to be used as any indication of symptomatology then this sample exhibited experiential avoidance scores well below the clinical cutoff ($M=29$). Additionally, findings suggest that there was a strong to moderate relationship between sustained attention, experiential avoidance and posttraumatic stress symptoms, and that sustained attention and experiential avoidance statistically predicted concurrent posttraumatic symptomatology, over and above, psychological symptoms associated with depression. More specifically, sustained attention and experiential avoidance both predicted posttraumatic stress symptoms over and above depression among the current sample of females with a history of sexual victimization. Interestingly, when experiential avoidance was accounted for it was a significantly stronger predictor of concurrent posttraumatic stress symptoms than other psychological symptoms (depression related) and sustained attention; sustained attention lost predictive validity once experiential avoidance was controlled for.

It is noteworthy, however, that even given low levels of experiential avoidance found among this sample, experiential avoidance was a stronger predictor of posttraumatic stress symptom severity than errors of sustained attention, and was associated with trauma symptom severity over and above depression symptoms. This

latter finding in itself is interesting as the sample reported levels of depression symptomatology that surpassed the clinical cutoff suggested by Radloff (1977). Hayes and colleagues (2004) found a moderate positive relationship between experiential avoidance and depression but did not test these in regression analyses. Thus, these findings might point to factors that could possibly be more salient to posttraumatic stress reactions associated with sexual trauma symptomatology. As already suggested, findings regarding lower levels of experiential avoidance might be some indication that females who participated in this sample have lower levels of trauma symptoms and experiential avoidance perhaps due to having participated in mental health treatment, as Hayes and colleagues (2004) found that females with a sexual trauma history exhibited high levels of experiential avoidance.

Implications for Research. These findings are an important addition to the literature as they are the first of its kind to the knowledge of this researcher, to examine the association between experiential avoidance and trauma symptomatology, while controlling for depressive symptomatology and sustained attention among a group of females with a sexual trauma history. Additionally, it is the first of its kind to examine these relationships among a web-based group of females as opposed to being solely recruited from a convenient pool of college students, or a solely veteran population. Given the potential heterogeneity of trauma experiences among an Internet based sample, these findings are all the more important, especially as it pertains to gaining clearer understandings of how trauma symptoms, mindfulness, experiential avoidance, and sustained attention are related. More specifically, these findings are interesting in that sustained attention when examined alone has been related to (Mathiensen, 2000), and

statistically predicted (Jenkins, et al. 2000), trauma symptoms. However, current findings indicate that the statistical predictive relationship of sustained attention on traumatic symptomatology might be a spurious relationship driven entirely by experiential avoidance. This finding alone is important as it points out the importance of identifying relevant factors that impact outcome.

Without such fine-tuned investigations, we risk making mistakes in identifying the true associations between variables of interest. Thus, this is a significant addition to the literature as it points out a possible mechanism that might drive the sustained attention and trauma symptomatology link. This finding notwithstanding, more research is needed utilizing behavioral measures of sustained attention, like a continuous performance task, in order to gain a clearer understanding of the relationship between sustained attention, experiential avoidance and posttraumatic stress symptoms. These studies should also incorporate longitudinal designs in order to determine the temporal relationship between these variables, as the findings reported herein are cross-sectional in nature, thus claims of causality cannot be made. Most importantly this study's findings cannot be generalized to other populations other than the one studied. These relationships must be examined among a larger sample in order to test the generalizability of these results.

Implications for Treatment. These results lend further support to the work of pioneers like Foa and colleagues (Foa & Kozak, 1986; Foa & Riggs, 1995) who posited the emotional processing model, which attempted to elucidate the relationship between avoidance and persistent traumatic symptoms. According to these results, it could be that females who experience posttraumatic symptoms exert active attempts to avoid internal

experiences in order to deal with psychological distress, and that this behavior alone might impact both the ability to pay attention (errors in sustained attention), and posttraumatic symptom severity. Indicators of sustained attention employed in this study measured attention related, and everyday, cognitive failures that were seemingly outside of the awareness of the participants, thus, these results might suggest that the active avoidance, as in experiential avoidance, of unwanted internal experience is what is important in predicting related concurrent symptomatology (Batten, Orsillo, & Walser, 2005; Ehlers & Clark, 2000; Hayes, et al., 2004). Hayes and colleagues (2004) found similar results. Particularly, these researchers found that active experiential avoidance and thought suppression (Wegner & Zanakos, 1994) among females with a history of sexual trauma were related to increased psychological distress. This study takes these findings a step further as experiential avoidance was found to predict posttraumatic stress symptomatology among a sample of females with a sexual trauma history, over and above symptoms related to depression and errors in sustained attention. As such, these findings can be used to inform treatments for females with a sexual trauma history who not only exhibit behavioral avoidance, but those who also exhibit attempts to avoid cognitive and emotional experiences.

Behavioral Interventions. Behavioral interventions are based on social learning theory, which implicates classical conditioning as a mechanism underlying fear responses after sexual abuse/assault (Atkeson & Calhoun, 1991). Present study findings might inform further development of behavioral interventions that specifically target experiential avoidance, as this seems to be the central component in maintaining trauma symptom severity. More specifically, these findings might lend support to the fear

structure that remains unmodified and maintains symptoms, as alluded to by Foa and Kozak (1986). Thus, interventions designed to lead to habituation via techniques such as exposure, overrides the experiential avoidance system activating the fear structure; ultimately leading to accommodation of the fear structure, fear extinction, and less severe posttraumatic symptoms. Third wave behavioral interventions like Acceptance Commitment Therapy (ACT; Hayes, 2004) have shown promising results in this area as they specifically target experiential avoidance, via techniques that can be likened to exposure techniques (Thompson, Luomo, & LeJuene, 2013). These techniques are presented via metaphors targeting experiential avoidance by evoking imaginal and in-vivo exposures, increasing acceptance of the anxiety this might create, increasing willingness to live a life driven by values, and engaging in committed action to actually *live* a values-driven life in spite of these unpleasant experiences (Hayes, 2004). It is thought that this approach might lead to habituation by function of increasing commitment to living a life driven by values helping individuals approach, rather than avoid, aversive internal and external experiences. Some evidence (Öst, 2008) suggests that third wave psychotherapies, including ACT, are efficacious in reducing psychological distress, showing moderate effects when compared to other well-established treatments (Cognitive Therapy). Given the high levels of depression related symptoms exhibited in this sample, it could be that females who participated in this study had undergone at least some treatment, or enough time had elapsed between the time of the study and traumatic event exposure, leading to a reduction in trauma symptoms and experiential avoidance, but not depression. Thus, these findings might inform treatment protocols that incorporate behavioral components that are employed not only to

ameliorate PTSD symptoms via targeting of experiential avoidance, but also that target PTSD symptoms via depression related symptoms such as behavioral activation. Studies (Dimidjian, et al., 2006), suggest that behavioral activation alone might suffice in reducing depressive symptomatology.

Cognitive-Behavioral Interventions. The current findings also indicate the worth in employing traditional cognitive behavioral therapies in order to ameliorate trauma symptoms. Fear conditioning as mentioned in the preceding section is believed to lead to cognitive changes in response to a feared event (Atkeson & Calhoun, 1991). The fear structure mentioned by Foa and Kozak (1986) not only implicates female's behavioral responses to the event, but also her interpretation of the event and interpretations of her responses to the event. Therefore the aim of cognitive-behavioral interventions is targeting and restructuring, in the face of incongruent evidence, faulty or distorted cognitions that the sexual abuse/assault victim has created, which maintains and exacerbates symptoms. As in Foa, Rothbaum, and Steketee's (1993) review, Vickerman and Margolin's (2009) recent systematic review of the outcome literature on treatment for females who had been sexually victimized, suggests that Cognitive-Behavioral, including Cognitive Processing Therapy (CBT and CPT, respectively), significantly reduced posttraumatic symptomatology in addition to related symptoms of depression, guilt, and overall anxiety.

Thus, given the high levels of depression related symptoms exhibited in this sample, these therapies when employed are beneficial, and cost effective, and can be used to deal with experiential avoidance *and* depression in tandem. However, these treatments might not be palatable to all females who have been sexually victimized. Vickerman and

Margolin's (2009) review indicates that although CBT, CPT, and Exposure-Based (PE) treatment lead to a significant reduction of posttraumatic symptomatology, as much as over a third of female rape victims either treated or who dropped out of treatment studies, continued to demonstrate residual symptoms that impaired functioning (Vickerman & Margolin, 2009). In particular, although a significant amount of female rape victims treated with CPT (55%) and PE therapy (60%) met good levels of functioning post-treatment as compared to a control group, about 32% (PE) and 36% (CPT) continued to experience symptoms. Both sets of investigators (Foa, Rothbaum, & Steketee, 1993; Vickerman & Margolin, 2009) make the conclusion that there exists a high degree of common characteristics between behavioral and cognitive behavioral therapies (SIT, CPT, CBT, and PE). Third-wave treatments like ACT interventions, might lead to similar results and be more acceptable, with its values driven approach, to those who might otherwise avoid treatments that espouse exposure or cognitive restructuring as the *sine qua non* mechanism of change.

Mindfulness and Trauma Symptomatology

Studies investigating the relationship between mindfulness and psychological symptomatology have increased exponentially in the last decade (Thompson, Arnkoff, & Glass, 2010); however, there is still little understanding of the relationship between mindfulness and posttraumatic symptomatology among females with a history of sexual abuse/assault. As such, researchers in the field have called for more studies examining the associations between this construct and symptomatology, especially among individuals who have experienced a traumatic event like sexual trauma (Baer, Smith, & Allen, 2004; Hayes et al., 2004; Sears & Kraus, 2009; see Thompson, Arnkoff, & Glass,

2010, for a review). Given the multi-faceted definition of mindfulness put forth by Kabat-Zinn (2003), a multi-faceted explanation of the relationship between mindfulness facets and posttraumatic stress symptomatology is sorely needed. In order to start unpacking these complicated relationships, the current study made an attempt to understand the relationships between the different facets of mindfulness (Baer et al., 2006) and posttraumatic stress symptomatology. Aim 2 of this study looked at the associations between mindfulness facets and posttraumatic stress symptomatology, over and above depression related symptoms.

First, findings suggest that similar to findings reported by Baer and colleagues (2006), facets showed differential relationships with trauma symptoms: Non-react had a small negative correlation, and Act-Aware, Non-judge, and Describe had small to moderate negative correlations with posttraumatic symptoms. That is, participants reporting higher levels of non-reactivity to inner experience (“I perceive my feelings and emotions without having to react to them”), higher non-judgment of experience (“I believe some of my thoughts are abnormal or bad and I shouldn’t think that way”), higher levels of acting with awareness or paying attention in the present moment (“I find myself doing things without paying attention”), and higher ability to describe internal experiences (“Even when I’m feeling terribly upset, I can find a way to put it into words.”), also reported lower levels of posttraumatic symptoms. On the other hand, the Observe facet was positively related to higher levels of posttraumatic symptom severity. That is, reporting higher observation of changes in internal physical sensations, external stimuli like elements of the immediate environment, and the effect of emotions on thoughts and behaviors (“When I’m walking, I deliberately notice the sensations of my

body moving “), were related to *higher* posttraumatic stress symptoms. This is similar to Baer and colleagues’ findings (2006), which reflected the same pattern of results between mindfulness facets and psychological distress among a college student sample. Of note, Observe scores were not related to depressive symptomatology nor were these scores related to other mindfulness facets (Table 4). This latter finding was incongruent with Baer et al.’s (2006) results as Observe positively related to other mindfulness facets. It could be that because this is a sample with posttraumatic symptoms, albeit subclinical, that the Observe facet might be tapping into a construct related to traumatic stress rather than a mindfulness related construct, as it was related to higher traumatic stress symptom severity. The overall model including just depressive symptoms and mindfulness facets accounted for 49% of the variance in posttraumatic symptoms.

Regression analysis results suggested that increases in the Observe mindfulness facet score statistically predicted higher concurrent trauma symptomatology, whereas higher Describe and Act-Aware mindfulness scores predicted lower posttraumatic stress symptoms. Interestingly, the Observe facet was the strongest statistical predictor of posttraumatic symptom severity. Baer and colleagues (2006) found similar associations between Observe and psychological distress.

Implications for Research. These findings are informative in that they lend some support to Baer and colleagues’ (2006) findings regarding the Observe facet. These researchers suggest that among a college sample, in addition to being inversely related to openness, emotional intelligence, and self-compassion, higher Observe facet mindfulness scores were related to higher dissociation, thought suppression, and other psychological symptomatology. Given that this study’s sample was made up of females with a history

of sexual abuse/assault it might be that the Observe facet measures something unique to this trauma sample as this mindfulness facet has been found to be positively related to dissociation and thought suppression, factors associated with more severe trauma symptomatology (Baer et al., 2006; Foa, Riggs, & Gershuny, 1995; Hayes, et al., 2004). Items that make up the Observe facet measure being attuned to physical sensations, external environmental experiences, and the effect of these on internal experiences (thoughts, emotions) and behaviors. Thus, it could be that in a trauma sample such as the one making up this study, the items making up the Observe facet might be tapping into something similar to hyperarousal posttraumatic symptoms. These experiences might be perceived as negative in a sample suffering from post-traumatic anxiety, as hallmark features of PTSD are: re-experiencing (intrusive recollections of the traumatic event), avoidance (avoiding cues that remind one of the event, emotional numbing, and suppression of trauma related cognitions and emotions), being hypervigilant, that is being hyperaware of the immediate environment and experiencing hyperarousal of bodily sensations. Therefore, in this sample it might make sense that scoring higher on the Observe facet is associated with more severe symptomatology (Foa, Riggs, & Gershuny, 1995; Tull & Roemer, 2003), meaning perhaps that scoring higher, that is reporting higher mindfulness scores on this facet might not be a positive thing.

Baer and colleagues (2006) suggest that once meditation was taken into account in their study, the positive association between the Observe facet, dissociation, thought suppression, and other psychological symptoms disappeared. Thus, it could be that if meditation experience were to have been taken into account in the present study a different pattern of results might have emerged. Additionally, if this would have been the

case, future studies could test the mechanisms by which this differential pattern of results comes to bear. For instance, meditation could change the way a female perceives, or relates to, her experience in a way that increases acceptance to aversive internal events, changing sensations in her body, and the interconnection between all of these and the immediate external environment. Thus, by changing the way a female relates to these experiences she might be less likely to have ongoing traumatic symptoms, or at least rate them as less aversive than she would have had she not had meditation experience. By investigating these associations among a female sample with a history of sexual traumatization, controlling for meditation experience, we could get a clearer picture of this effect. Furthermore, if future studies find that meditation serves as a significant moderator of posttraumatic stress outcome, then meditation experience might increase a sense of acceptance among this population. Thus, when thinking about translating findings into treatment studies, increasing acceptance might be the key in moderating the relationship between being more observant of internal and external experience and trauma symptomatology. However, this remains speculative until more research is conducted examining the role of mindfulness and meditation experience on posttraumatic stress symptoms.

Moreover, in addition to the Observe facet, higher mindfulness scores in the Act with Awareness and Describe facets were both related to lower levels of posttraumatic symptoms among this sample. Interestingly Baer et al. (2006) found that lower mindfulness scores in the describe facet was related to alexithymia, which was also associated to psychological distress. The results from this study suggest that greater reported ability to describe internal experience was related to less severe trauma

symptoms, above and beyond depression and other mindfulness facets (Observe, Non-Judge and Non-React). These findings lend support to the importance of understanding the nuanced relationships between mindfulness facets and trauma symptoms, as this might inform studies that aim to examine the mechanisms driving the relationship between mindfulness and posttraumatic stress symptomatology. Additionally, these findings could also inform the development of cost-effective and targeted mindfulness based treatments for posttraumatic stress symptomatology among females with a sexual victimization history.

Implications for Treatment. Newer mindfulness-based interventions for psychological distress and disorders have received increased attention in recent years (Baer, 2004; Kabat-Zinn, 2003). For example, Sears and Kraus (2009) found that mindful attention and Metta (increasing loving compassion) interventions emphasized acceptance and non-judgment of inner and outer experience. Acceptance and non-judgment are believed to influence self-compassion (Hofmann, Grossman, & Hinton, 2011) and a person's relationship with inner experience (Lutz, Slagter, Dunne, & Davidson, 2008). As such findings from Sears and Kraus' (2009) study suggest that developing mindfulness via meditation yielded differences among the group participants in cognitive distortions, reduced anxiety and negative affect, and increased hope. Large effect sizes existed for: anxiety, negative affect, irrational beliefs, and hope scores post-intervention. Conversely, an increase in avoidance coping was associated with higher reported levels of negative affect. However, when cognitive distortions were accounted for, these explicated all of the variance between avoidance coping and negative affect even above and beyond the effects of the intervention. This latter finding suggests that

change in cognitive distortions as a result of the mindfulness-based intervention could be the key contributing factor to positive outcomes in mindfulness interventions. The above-mentioned findings are interesting in that active cognitive change is not a prescribed component inherent in meditation—mindfulness or other—practice (Sears & Kraus, 2009). This finding indicates that simply by adopting a more aware stance—or “Reperceiving” experience as defined by Shapiro, Carlson, Astin, and Friedman (2006, p. 374)—may be enough to lead to cognitive change and a reduction/amelioration of symptoms.

Mindfulness-based interventions. Findings from the present study are important in that they might shed light on what might be some areas of mindfulness (acting with awareness, describe, and observing experience), that could be targeted by mindfulness based interventions. More specifically, if future studies indicate that the observe facet of mindfulness has a positive relationship with posttraumatic symptom severity among this population as found in this study, more efforts can be made to tailor these kinds of interventions in beneficial and cost-effective ways. For example, if the strongest predictors of outcome among a sexual trauma sample are the Observe, Act with Awareness, and Describe facets over other mindfulness facets (Non-judge and Non-react) then interventionists could allocate most resources in developing mindfulness-based treatments that teach clients to develop a more accepting stance (as in Acceptance Commitment Therapy; Hayes et al., 2004) in spite of having and being more observant (hyperaware) of aversive experiences, in addition to training attention and staying in touch with, and being able to label and define, aversive internal experiences.

Hill and colleagues (Hill, Vernig, Lee, Brown, & Orsillo, 2011) conducted one of the few studies to date that examined a mindfulness-based intervention among a sample of female victims of sexual trauma. Particularly, the study investigated the role of a short-term mindfulness-based group intervention on sexual revictimization experiences at 2-month post-intervention among a mostly White, female college student sample with a history of sexual abuse, including childhood sexual abuse (CSA). At pre-treatment, females with a history of CSA had lower self-reported mindfulness scores that reflected being accepting of their experience without judgment. Surprisingly, they did not differ on reported experiential avoidance from non-CSA female victims. At post-intervention, moderate effect sizes indicated that about a third more women with a history of CSA experienced revictimization in the 2 months following the study. Additionally, a little over half of females with a history of CSA in the control group experienced revictimization 2 months post-treatment compared to their counterparts in the intervention group. It should be noted that although the effect sizes were moderate they were not significant. This notwithstanding, self-reported mindfulness was found to increase for those receiving the intervention. More specifically, the Observe facet significantly increased between study time points among intervention participants with and without CSA compared to controls. This might lend support to the moderating role of meditation, or mindfulness training, on the impact that mindfulness scores in the Observe facet have on posttraumatic symptoms. Importantly, high levels of revictimization are reported in the literature and national studies (Acierno et al., 1997; Black et al., 2011; Martzolf & Draucker, 2008; Tjaden & Thoennes, 2000), and were found in this study (i.e., a third experienced childhood and adulthood sexual abuse, over

two thirds were both molested and forcibly raped). Therefore, further development and investigation of mindfulness interventions that might lower the chances for sexual revictimization are of great importance.

Errors of Sustained Attention as Predictors of Mindfulness

Attention is a central part of the definition of mindfulness (Kabat-Zinn, 2003), and as such, it was important to understand the relationship between measures of attention and mindfulness facets. Researchers (Baer, Smith & Allen, 2004; Baer et al., 2006; Grossman, 2011; Shapiro, Carlson, Astin, & Friedman, 2006; Thompson, Arnkoff & Glass, 2010) have called for a clearer definition and understanding of mindfulness, and its relationship with psychological outcomes. More specifically, given the debate in the literature regarding whether mindfulness is a trait or a state (Grossman, 2011) and whether it is a one-dimensional or a multi-faceted construct, this research sought out to understand the predictive validity of each facet individually on sustained attention over and above depressive symptomatology. The premise being that mindfulness and errors of sustained attention (non-mindfulness) if related as has been found by Smilek and colleagues (2010), mindfulness facets should independently predict sustained attention as measured by proxy measures of errors of sustained attention. Studies (Smilek, Carriere & Cheyne, 2010) suggest an inverse relationship between these two constructs (Smilek, Carriere & Cheyne, 2010) among a college sample. Although some studies (Jenkins et al., 2000; Mathiesen, 2000) indicate that there are impairments of sustained attention among females with a sexual trauma history with and without PTSD, the relationships between sustained attention and mindfulness facets have not been examined among a non-veteran sexual trauma population. Therefore, elucidating these relationships,

especially clarifying what components of self-reported mindfulness predict errors of sustained attention, would inform treatment targets for this population. For example, if certain aspects of mindfulness are predictive of sustained attention over others, we would be better able to inform targeted mindfulness-based interventions.

Current study bivariate analyses suggest that four of five mindfulness facets (Non-React, Describe, Non-Judge, and Act-Aware) were negatively related to errors of sustained attention. That is more self-reported mindfulness scores in these facets were related to less errors of sustained attention. Regression analyses examining the predictive role of each of these four factors, above and beyond depressive symptomatology, showed that only Act-Aware (i.e., acting with awareness and paying attention in the present moment) was a significant predictor of sustained attention; this facet alone explained 31% of the variance in posttraumatic stress symptomatology.

Implications for Research. These findings are in accordance with Smilek, Carriere, and Cheyne's (2010) findings that increased mindfulness, that is paying attention to the present moment, is related to less cognitive failures and attention related cognitive errors. It is interesting in that this is the first study of its kind, to the knowledge of this researcher, which extends these findings to a sexual trauma population. Additionally, another interesting finding is that once Act-aware was entered into the model, the effects of depression became non-significant. These findings suggest that the predictive relationship between depression and sustained attention might be driven entirely by the relationship between depressive symptoms and the acting with awareness mindfulness facet. However, given the low power to test mediation among the present sample this is something that remains speculative. This notwithstanding, this is an

important finding as the new DSM-V diagnostic criteria for PTSD includes a negative mood cluster in addition to the re-experiencing, avoidance, and hyperarousal clusters that made up the old DSM-IV criteria (APA, 2013). Thus, understanding the mediating role of the mindfulness facet acting with awareness, between sustained attention and depression might help us better understand the relationship between depression and posttraumatic stress symptoms among females who have been sexually traumatized.

Implications for Treatment. The present study findings regarding the predictive relationship of experiential avoidance on concurrent trauma symptom severity, and acting with awareness on errors of sustained attention are important in that they reinforce the importance of behavioral and cognitive-behavioral interventions in ameliorating trauma symptomatology. However, some in the field (Thompson, Arnkoff, & Glass, 2010) argue that those with a long-standing history of traumatic symptoms, especially chronic subclinical symptoms, who also cope with their symptoms by avoiding might be less likely to seek out treatments where the central mechanism of change is exposure be it behavioral or cognitive, as in treatment protocols like CPT, Trauma-focused CBT, or PE. Thus, recent mindfulness-based and values-driven (ACT) interventions (Batten, Orsillo, and Walser, 2005; Hayes, 2004, Thompson, Luomo, & Lejeune, 2013) might increase tolerance to aversive internal events (re-experiencing, hyperarousal), thereby, increasing exposure to relinquished life experiences in the service of leading a more present-focused and fulfilling values-driven life, in spite of, experiencing distress. Mindfulness-based and values-driven approaches are not driven by a *change* agenda per se, but rather the guiding philosophical view is that the person is re-learning to experience life in such a way that (Shapiro et al., 2006), as a function, might lead to habituation of aversive experiences,

ultimately leading to less experiential avoidance, and greater awareness of present experience. These types of approaches might lead to similar outcomes as exposure-based behavioral and cognitive-behavioral interventions, but might be more accepted by those who would otherwise avoid these types of exposure-based interventions (Thompson, Arnkoff, & Glass, 2010).

Strengths of the Study

Findings from the current study have implications for the treatment and research of posttraumatic stress symptoms among females with a history of sexual trauma. More specifically findings regarding the role of mindfulness concepts such as, being present-focused and attentive of experience, and the potentially influencing role of experiential avoidance on posttraumatic symptom severity can be informative for the development of interventions for individuals who are either treatment resistant, are non-responding to, or prematurely terminate treatment. Moreover, the current findings are the first of its kind to the knowledge of this researcher to examine these relationships among a web-based group of females with a history of sexual trauma.

Behavioral and cognitive-behavioral interventions for sexual trauma have the most empirical support in the outcomes literature (Foa, Rothbaum, & Steketee, 1993; Vickerman & Margolin, 2009). However, despite the increased attention paid to mindfulness-based approaches in other areas (e.g., depression, social phobia), research is still lagging behind as it pertains to mindfulness-based interventions for sexual abuse/assault. Studies coming mostly from the cognitive neuroscience field have started to uncover how mindfulness and attention bear their effect on psychological well-being (Jha, Krompinger, & Baime, 2007). Furthermore the studies coming out of the cognitive

neuroscience field, especially those examining the role of attention and mindfulness, hold implications for examining the impact of mindfulness on posttraumatic symptomatology, and ultimately how it can aid in its treatment; these studies, however, are still in their infancy. As such, the findings of this study show that there are nuanced relationships between certain mindfulness facets and posttraumatic stress symptoms. They also showed that experiential avoidance was a stronger predictor of trauma symptoms than sustained attention, and is the first to show that mindfulness when broken down to its components, only acting with awareness is associated with sustained attention among this sexual trauma population. Additionally, most studies looking at the relationships between mindfulness and psychological outcomes have looked at depression in isolation of other distress like posttraumatic stress symptoms. Due to high comorbidity rates between depression and other disorders like PTSD and its symptomatology (Kessler et al., 2005; Putnam, 2003; Zlotnick, Mattias, & Zimmerman, 2001), it was imperative to understand the unique role of depression over other variables when looking at psychological distress among females with a sexual abuse history; this is a strength of the current study. Studies informing this dissertation project have mostly focused on convenient samples like college students, TBI patients and veterans, whereas this study is the first to recruit a web-based general population sample of females with a history of sexual trauma. Furthermore, this study is informed by others' findings, combined variables that have been found to be related to mindfulness, and examined the relationships while controlling for relevant factors (i.e., sustained attention, experiential avoidance, and trauma) among this sample of females; something that was called for in the literature but had yet to be done. Finally, the study identified potential mediators that

might drive the relationship between the study variables and posttraumatic stress symptoms, potentially informing mechanisms responsible for change in newer third-wave psychotherapies, again something that has not been done the knowledge of this researcher.

Limitations and Future Directions

Just as there are strengths of the current study, there are substantive limitations that cannot be ignored. Firstly, as important and interesting as the findings just described are, given the cross-sectional nature of the study causal claims cannot be made. Thus, the directionality of these effects is not known. It could be that having more severe posttraumatic stress symptoms predicts mindfulness, experiential avoidance, and sustained attention scores rather than vice versa. Thus, future studies should adopt prospective designs (Thompson, Arnkoff, & Glass, 2010) in order to tease apart these relationships. Additionally, the self-reported nature of the study also might have led to biased results, thus future studies should also incorporate behavioral measures of variables of interest, as well as quality of life measures to assess impairment in different areas of life. This is important as diagnostic classifications often change (APA, 2013), therefore, adding measures that go beyond symptomatology would give us a better understanding of how these constructs influence other areas of functioning (Values), and quality of life. Furthermore, important third variables were not taken into consideration and controlled for such as the length of time elapsed since the last sexual abuse/assault incident, treatment history, meditation experience, etc. Future studies should control for these important variables in order to have a clearer understanding of the relationships reported in this study, as well as looking at these relationships prospectively.

Another limitation of this study is the racial and economic make up of the sample (predominantly White and middle class U.S.-born participants). It is important to note that people of color (16%) were underrepresented in this study, and thus the lack of race-based findings could have been due to lack of power to detect these differences. Underrepresentation of people of color in research in the social sciences has been a widespread concern, however, despite concerted efforts by researchers in the field to increase adequate recruitment of people of color (Shiekh, 2006; Wendler et al., 2006), our efforts still lag behind in this regard. Wendler and colleagues (2006) posit that underrepresentation of people of color in research studies is more an artifact of inadequate recruitment, than an unwillingness to participate or lack of motivation. Rather, these individuals do not participate in research studies simply because they are not asked. Given that more and more studies are now web-based, greater efforts should be made to target these individuals in order to get a clearer and fuller picture of the “understandings” we are looking to reach. Only then will we be able to fully understand in order to offer competent and ethical treatment.

Terminology. In accordance with Calhoun and Atkeson (1991) earlier parts of this paper employ the term “victim” as opposed to “survivor” when referring to females who have been sexually assaulted/abused. Although the term “survivor” implies empowerment, which is usually indicative of having worked through and dealt with the abuse and its sequelae successfully (Calhoun & Atkeson, 1991), it is the belief of this researcher that the persistence of posttraumatic symptomatology that has a negative impact on the female’s quality of life and psychological well-being, is some evidence that she is still dealing with the consequences of the event, and thus has not having fully

recovered from, or “survived”, the abuse. Hence, the use of the term “victim” or “victimization” does not imply anything negative about the female’s character, empowerment, or her ability to deal with and work through the event and its subsequent effects. Rather, the use of *victim*, *victimization*, or *sexually victimized*, recognizes as stated by Calhoun & Atkeson (1991) that, “... women who are raped have been victimized through no fault of their own. While this does not mean that they are doomed to continue their lives as victims, many do unless they receive help from some source” (p.7).

Conclusions

The findings of this study are an important addition to the literature and third-wave understandings and theories of psychological suffering, especially as it pertains to posttraumatic stress symptom severity among females with a sexual trauma history. More specifically, this is the first study of its kind to look at the associations between experiential avoidance, mindfulness, sustained attention, and posttraumatic stress symptom severity concurrently among this population. Findings suggest that: experiential avoidance predicted concurrent posttraumatic stress symptoms, over sustained attention; Observe, Act-aware and Describe mindfulness facets differentially predicted concurrent posttraumatic symptom severity; and that only the Act-aware mindfulness facet predicted sustained attention. These results reinforce the importance of understanding the nuanced relationships between posttraumatic psychological symptomatology, mindfulness, attention and experiential avoidance.

Newly formed conceptualizations of the construct of mindfulness implicate a multi-dimensional definition of the word, and as such necessitates a multi-dimensional

understanding of how it relates to psychological outcomes. The importance rests in clearly understanding the very things that we seek to intervene on in order to influence psychological well-being. Thus, the current study's findings suggesting the complicated relationships between sustained attention, experiential avoidance and posttraumatic stress symptomatology is an addition to the identified gaps in the literature. As such, they are the first to identify relevant potential meditators for future research investigating the role of mindfulness and sustained attention on posttraumatic stress symptoms. Furthermore, they point at possible important mechanisms of change that might be capitalized on when developing targeted mindfulness-based interventions to ameliorate trauma symptomatology among females with a sexual trauma history.

These results hold promise in improving our efforts to fine tune mindfulness-based interventions and make them more salient to the experiences of specific trauma populations. Currently, psychology is moving toward creating individualized treatment approaches, and with this increase in the personalization of mental healthcare, more studies like the present one would make it easier for the clinical treatment research field to create cost-effective targeted interventions for individuals with a sexual trauma history. Thus, findings like these have great potential to improve psychological outcomes on a large scale, and more importantly, improve the quality of life of individuals with a trauma history living in a constant, seemingly never-ending, cycle of suffering.

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Table 1—Description of Measures

Questionnaire /Assessment Acronym	Questionnaire/Assessment Name	Description of Questionnaire/Assessment	α
DIQ	Demographic Identification Questionnaire	A brief demographic questionnaire created for the present study assessed age, sex, racial/ethnic group affiliation, country of birth, number of years in the U.S., preferred language use, and socio-economic status (e.g., highest educational level attained, current income)	n/a
PCL-S	Post Traumatic Stress Disorder Symptom Checklist-stressor specific version	17-item self-report measure of Post Traumatic Stress symptoms associated with a specific event (i.e., sexual trauma in childhood, adulthood, or both) in the past month. Total scores range from 17-74. Mean= 55 for females with sexual trauma diagnosed with PTSD. Mean PCL-C scores= 47 for females with a history of childhood sexual with and without PTSD. Among this same sample, Cluster B Mean=13, Cluster C= 19, Cluster D=14; Mean=44 subclinical PTSD; Mean=23 no PTSD.	.83-.94
FFMQ	Five Facet Mindfulness Questionnaire	39-item self-report multi-dimensional questionnaire that measures five different but interrelated facets of mindfulness (i.e., Describe, Non-Judge, Non-React, Act-Aware, Observe). Total scores range from 39-195.	.75-.91
AAQ-II	The Action and Acceptance Questionnaire	7-item measure of experiential avoidance. Total scores range from 7-49.	.84

CFQ	The Cognitive Failures Questionnaire	25-item self-report measure that assesses general cognitive failures. Total scores range from 0 to 100. Reported mean of 1.94 (Smilek, Carriere, & Cheyne, 2010).	Test-retest: $r = .82-.80$ from 3 to 65 weeks, respectively.
ARCES	Attention Related Cognitive Errors Scale	12-item self-report measure of cognitive errors resulting from lapses in sustained attention. Total scores range from 12 to 60. Reported mean of 3.08 (Smilek et al., 2010)	.88
CES-D	Center for Epidemiological Studies Depression Scale	20-item self-report measure created to assess depressive symptomatology in the past week in the general population. Total scores range from 0-60. Radloff (1977) suggests a clinical cutoff of 16; Thomas et al., 2001) reported an overall mean of 14.28; Scores indicative of MDD= 29.05; non-MDD mean=12.42	.85 (clinical); .90 (general)

Table 2. Descriptive statistics for the sample (N = 111).

	<i>n</i>	%
Gender		
Female	111	100
U.S.-Born	94	84.7
Non-U.S.-Born	17	15.3
Preferred Primary Language		
English	110	99
Gaelic	1	1
Country of Birth		
Australia	1	.9
Canada	4	3.6
England	1	.9
Former Soviet Union	1	.9
France	1	.9
Germany	1	.9
India	1	.9
Ireland	2	1.8
Mexico	1	.9
New Zealand	1	.9
Russia	1	.9
UK	1	.9
	Mean	Median
Income (SES)	(SD)	
	\$59,175.65	\$45,000.00
	(\$48, 585.51)	
Race Composition	<i>n</i>	%
Asian or Asian-American	1	.9
American Indian or Native American	3	2.7
Black or African American	1	.9
Latina	7	6.3
Pacific Islander	3	2.7
White or Caucasian Non-Hispanic/Latino	93	83.8
Other	3	2.7

Table 2. Descriptive statistics for the sample (N = 111).

	<i>n</i>	%
Sexual Abuse/Assault		
Forced Vaginal, Oral, Anal Sex	88	79.3
Molested	103	92.8
Both	77	69.4
Childhood Sexual Abuse/Assault	85	76.6
Adulthood Sexual Abuse/Assault	67	60.4
Both	40	36

Table 3. *Psychometric Properties of Major Study Variables.*

Aim	Variable	n	M	SD	α
1-3	Posttraumatic Stress Checklist-S	100	43.48	14.92	.93
1-3	Five Facet Mindfulness (FFMQ_Total)	84	117.91	20.12	.91
1-3	Five Facet Mindfulness (FFMQ_Observe)	97	26.00	5.32	.77
1-3	Five Facet Mindfulness (FFMQ_Non- Judge)	100	23.40	8.42	.95
1-3	Five Facet Mindfulness (FFMQ_Act- Aware)	100	22.91	6.28	.90
1-3	Five Facet Mindfulness (FFMQ_Non- React)	99	19.76	4.81	.85
1-3	Five Facet Mindfulness (Describe)	99	26.10	6.53	.91
1-3	Cognitive Failures Questionnaire	90	2.11	.65	.93
1-3	Center for Epidemiological Studies Depression Scale	87	25.53	14.91	.94
1-3	Attention Related Cognitive Errors Scale	91	2.77	.50	.90
1-3	The Action and Acceptance Questionnaire	102	29.29	9.79	.94

Table. 4 Bivariate Pearson Correlations

Correlations	1	2	3	4	5
PCL_Total	--				
FFMQ_nonreact	-0.27*	--			
FFMQ_observe	0.31**	0.18	--		
FFMQ_actaware	-0.49**	0.29**	-0.19	--	
FFMQ_nonjudge	-0.31**	0.32**	-0.07	0.34**	--
FFMQ_describe	-0.38*	0.20	-0.07	0.33**	0.40**
CESD_Total	0.60**	-0.31**	0.18	-0.47**	-0.39**
CFQ_mean	0.43**	-0.16	0.22	-0.63**	-0.30*
AAQ2_Total	0.70**	-0.52**	0.15	-0.60**	-0.57**
ARCES_Mean	0.41**	-0.08	0.12	-0.60**	-0.33**
ESA	0.46**	-0.15	0.21	-0.67**	-0.33**

* $p < .05$, ** $p < .01$

Correlations	6	7	8	9	10	11
PCL_Total						
FFMQ_nonreact						
FFMQ_observe						
FFMQ_actaware						
FFMQ_nonjudge						
FFMQ_describe	--					
CESD_Total	-0.39**	--				
CFQ_mean	-0.37**	0.37**	--			
AAQ2_Total	-0.52**	0.62**	0.49**	--		
ARCES_Mean	-0.29**	0.34**	0.62**	0.40**	--	
ESA	-0.38**	0.39**	0.98**	0.50**	0.78**	--

* $p < .05$, ** $p < .01$

Table 5. Linear regression analyses predicting Posttraumatic Stress Symptoms regressed on Errors of Sustained Attention and Experiential Avoidance controlling for Depressive Symptoms.

Predictor	ΔR^2	<i>b</i>
Step 1	.33***	
Depression Symptoms		.57 ***
Step 2	.04*	
Depression		.52***
Errors of Sustained Attention		.19*
Step3	.16***	
Depression		.22*
Errors of Sustained Attention		.08
Experiential Avoidance		.52***
Total R^2	.52*	
<i>n</i>	111	

* $p < .05$ level. ** $p < .01$ level. *** $p < .001$ level

Table 6. Linear regression analyses predicting Posttraumatic Stress Symptoms regressed on Five Facets of Mindfulness controlling for Depressive Symptoms.

Predictor	ΔR^2	<i>b</i>
Step 1	.33***	
Depression Symptoms		.57***
Step 2	.16***	
Depression Symptoms		.39***
FFMQ_Nonreact		-.12
FFMQ_Observe		.27**
FFMQ_ActAware		-.20*
FFMQ_NonJudge		-.06
FFMQ_Describe		-.18*
Total R^2	.49*	
<i>n</i>	111	

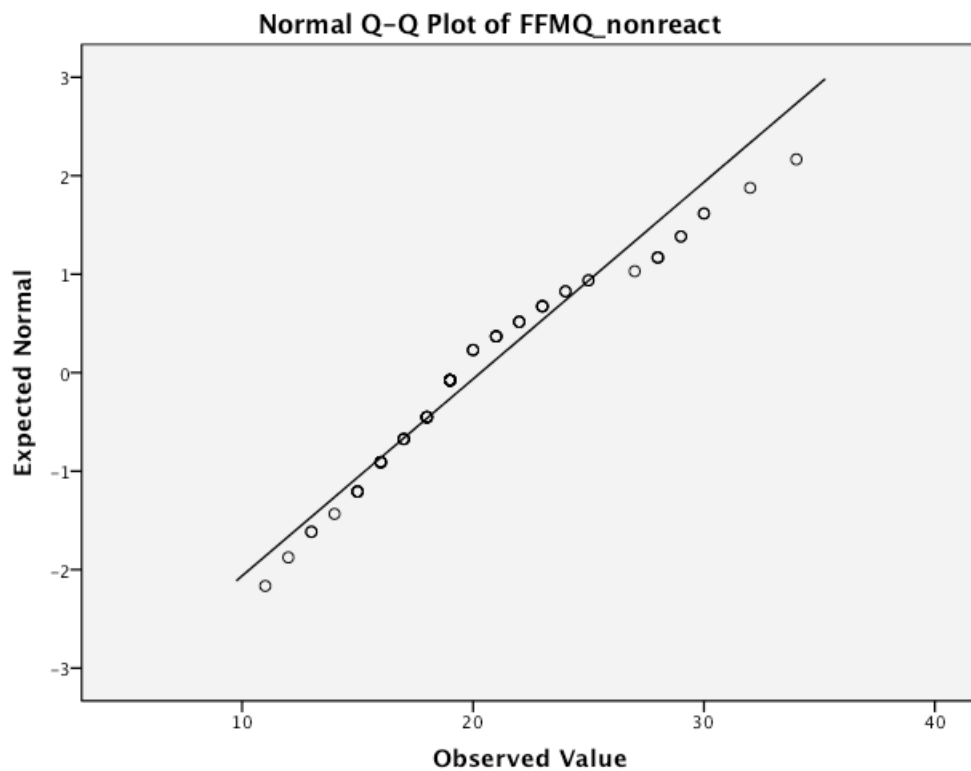
* $p < .05$ level. ** $p < .01$ level. *** $p < .001$ level.

Table 7. Linear regression analyses predicting Errors of Sustained Attention regressed on Four Facets of Mindfulness controlling for Depressive Symptoms.

Predictor	ΔR^2	<i>b</i>
Step 1	.08**	
Depression Symptoms		.28 **
Step 2	.31***	
Depression Symptoms		.09
FFMQ_Nonreact		.14
FFMQ_ActAware		-.56***
FFMQ_NonJudge		-.03
FFMQ_Describe		-.13
Total R^2	.39***	
<i>n</i>	111	

* $p < .05$ level. ** $p < .01$ level. *** $p < .001$ level.

Figure 1. Q-Q plot for FFMQ-NonReact



Appendix A

Recruitment email to trauma-focused national organizations and community

agencies

eProst ID: 20120557

Version:

Approved

Approval Date: 7/26/2012

Exp. Date: 7/25/2013

To Whom It May Concern:

My name is Judelysse Gomez, I am currently a doctoral candidate at the University of Miami's counseling psychology Ph.D. program in the school of Education and Human Development. You are being contacted because of your organization's focus on sexual trauma/abuse/assault. I have developed a dissertation study that is attempting to look at the relationship between mindfulness related constructs, that is the ability to be attentive to the present moment, and symptoms of post traumatic stress among females with a lifetime history of childhood sexual abuse, adult sexual abuse, or both.

In order to meet study inclusion criteria participants must have access to a computer, as the study will be conducted via online survey. After being informed of the study procedures, risks, benefits, compensation, and voluntary nature of the study, those who provide informed consent will be directed to the study web-survey. The web-survey is expected to take no longer than 30 to 40 minutes to complete. The web-survey will include measures that assess: a) sexual trauma history, b) posttraumatic symptoms experienced in the past month related to such history, and depression symptoms in the week prior to taking the survey, c) self-reported mindfulness, d) experiential avoidance, and e) day to day errors that occur to people.

If you wish to learn more about the study, and/or are willing to allow recruitment either via your agency, website, or listserv please contact Judelysse Gomez, M.A. at j.gomez23@umiami.edu or call at 917-439-1130.

Thank you in advance for your cooperation and willingness to help.

Respectfully,

Judelysse Gomez, M.A.
Doctoral Candidate

Appendix B

Informed Consent

eProst ID: 20120557

Version:

Approved

Approval Date: 7/26/2012

Exp. Date: 7/25/2013

Title of Study: Exploring The Association Between Mindfulness, Sustained Attention, Experiential Avoidance, And Posttraumatic Stress Symptom Severity Among Females Who Have Been Sexually Victimized.

Principal Investigator(s):

Dissertation Chair: GuerdaMarie Nicolas. Ph.D.

Doctoral Student Investigator: Judelysse Gomez, M.A., Doctoral candidate in counseling psychology at the University of Miami School of Education and Human Development.

Department: Department of Educational and Psychological Studies.

ABOUT INFORMED CONSENT

You are being asked to participate in a University of Miami Dissertation research project sponsored the School of Education and Human Development and the John C. Mitchell fellowship for the study of psychological trauma. This document will describe in detail the purpose of the project, the procedures to be used and the potential benefits and possible risks of your participation. You may contact the Doctoral Student Investigator, Judelysse Gomez, at j.gomez23@umiami.edu or the Dissertation Chair: GuerdaMarie Nicolas. Ph.D. at nguerda@miami.edu if you have any questions that may clarify any aspect of the project.

If you decide to participate in the research project, please mark the check box at the end of this form indicating that you have understood the purpose of the project and what your participation entails. You may print a copy of this form for your records.

PURPOSE OF THE PROJECT

The purpose of the study is to investigate the relationship between attention, how a person deals with her everyday experiences, and posttraumatic stress symptoms. Posttraumatic stress symptoms may develop among individuals who have personally experienced a traumatic event such as being sexually assaulted, abused, molested, or who has been forced to perform or participate in any unwanted and unconsented sexual activity either in adulthood or childhood. More specifically, we want to learn whether there is a relationship between how an individual who has been sexually victimized pays attention to their day-to-day experiences and the psychological symptoms that may develop after such an experience.

PROCEDURES:**Study Design**

If you decide to participate, after checking the box at the end of this document acknowledging that you have read and understood the contents of this form, you will be forwarded to a survey that will take about 30 to 40 minutes to complete. In this survey you will be asked about emotional problems you have had or you still have after having been sexually abused/assaulted. You will also be asked questions about day-to-day experiences, how you cope or deal with those experiences, and your mood in the last two weeks.

Inclusion and Exclusionary Criteria

You may not participate in the study if you are less than 18 years of age. Study participants must be female, English-speaking, 18 years or older, and have undergone an unwanted sexual experience either in adulthood (18 or older) or childhood (17 or younger). An unwanted sexual experience includes: forced, unwanted, or coerced sexual assault/abuse (rape/repeated or one-time sexual abuse), molestation, anal, vaginal, or oral penetration, or other unwanted involvement in sexual activity of any kind.

If you have experienced sexual assault or abuse of any kind within the past month you may not participate in the present study. However, you are urged to contact your local police department's sexual crime unit, and or the call the National Sexual Assault hotline at: (800) 656-HOPE (4673). You may also visit: <http://www.nsvrc.org> for more resources available nationally to victims of sexual assault/abuse.

RISKS:

Risks in this study are considered minimal. Participating in a survey that asks about symptoms associated with sexual abuse may lead you to experience additional distress. Because the information assessed in parts of the survey are by nature personal and emotional, the discussion of your personal difficulties may induce anxiety, anger or other negative reactions. However, it is expected that such distress will subside in a short amount of time. If this distress does not subside within 24-hours you are urged to contact the national sexual assault help-line: (800) 656-HOPE (4673), for information on local treatment options available to you. You may also contact the doctoral student investigator, Judelysse Gomez, at j.gomez23@umiami.edu to receive additional information about psychological services locally available to you.

The researcher has tried to reduce any and all risk such as removing all linking identifiers that may cause your responses to the become available on the internet. As with any research, especially online surveys, there is some possibility that you may be subject to risks that have not yet been identified such as having your responses visible to third parties over the Internet. However, as already mentioned, the current investigator has taken all the necessary precautions to ensure the confidentiality of your responses and

any identifiers. As such, breach in on-line confidentiality is considered minimal.

BENEFITS:

No direct benefit may be promised to you for your participation in this study. The information you provide will help researchers understand how day-to-day experiences are associated with possible traumatic stress symptoms after having experienced sexual assault/abuse. This information has the potential to inform future intervention efforts that seek to reduce these symptoms among individuals who have been sexually assaulted/abused.

COMPENSATION:

Upon completion of this informed consent form, and before starting the survey, you will have the option of participating in a raffle where you will have a chance of winning one of four \$25 dollar gift cards. No purchase necessary. Your chances of winning are 4 out of approximately 250. You will be prompted to enter your contact information after you have completed the informed consent process and acknowledge that you understand what your participation entails. This contact information will not be linked to any of your responses to the survey questions. The winners of the raffle will be contacted at the end of data collection when the raffles will be held, approximately at the end of December of 2012. Participants who win the raffle will be contacted at their preferred mode of contact identified. The funds for the raffle are provided by Judelysse Gomez, the doctoral student investigator.

VOLUNTARY PARTICIPATION:

Your participation in this survey is voluntary and you have the right to stop at any time without penalty or loss of benefits.

CONFIDENTIALITY:Confidentiality while taking an online survey:

Any information obtained in connection with this study that can identify you as a participant will remain confidential to extent possible. Personal information you share in this survey will be kept in the investigator's password-protected research file and identified only by a code number. Only the dissertation chair and doctoral student investigator will have access to survey responses. Only the doctoral student investigator will have access to the contact information provided for the raffle. Once the raffle has taken place and the gift cards have been mailed out, all contact information will be destroyed by the doctoral student investigator.

Authorized University or other agents who will be bound by the same provisions of confidentiality may review the information provided in the survey for audit purposes.

All information collected as part of the study will be available only to principal investigators. The information gathered may be presented during seminars, conferences, written reports, and during the doctoral student's dissertation defense. However, participants' names will not be used in presenting data in lectures, seminars, and/or papers as all information will be presented in aggregate form.

If you are interested in learning the results of the study, you can always contact the doctoral student investigator for a copy of the paper when available.

CONTACT INFORMATION:

If you have any questions about this project, please contact Judelysse Gomez, M.A., Doctoral candidate at the University of Miami School of Education and Human Development at: j.gomez23@umiami.edu. If you have any questions regarding your rights as a study participant, you may contact the Human Subjects Research Office at the University of Miami at (305)-243-3195 or eprost@med.miami.edu.

By checking the box below you acknowledge that you have read the information provided, have emailed any questions you have about the project, understand the potential risks involved in your participation, know that you may withdraw at any time without penalty or loss of benefits, and agree to participate in the survey.

I have read the information provided, understand what participation entails, and agree to participate

Date: _____

Appendix C

Demographic Identification Questionnaire

Age: _____

Gender/Sex: _____

Race and Ethnicity (Check all that apply and specify ethnicity for the category you check):

Black or African-American

Specify Ethnicity (ex. Caribbean, Haitian, African and or others): _____

White/Caucasian non-Hispanic/Latino

Specify Ethnicity (ex. White American, European, Russian, or others): _____

Hispanic/Latino

Specify Ethnicity (ex. Dominican, Puerto Rican, Cuban, or others): _____

Asian or Asian American

Specify Ethnicity (ex. Indian, Korean, Chinese, or others): _____

American Indian /Native American

Specify (ex. Sioux, Navajo, Apache, Inuit, or others): _____

Pacific Islander

Specify Ethnicity: (Ex: Tongan, Samoan, or others): _____

Mixed, parents are from two different groups: _____

Other (please specify): _____

I don't know

U.S.-Born: Yes No

If no specify:

Country of Birth: _____

Years in the U.S.: _____

Preferred primary language: _____

Annual Household Income: _____

Appendix D

THE PCL-S

The event you experienced was: forced, non-consensual, sex, molestation, or both. Occurring in childhood (under 18), adult hood (18 or older), or both childhood and adulthood. On (last occurrence): _____

INSTRUCTIONS: Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, then select one of the numbers above to indicate how much you have been bothered by that problem in the past month due to your experience with sexual abuse/assault.

During the Past Month

1	2	3	4	5
Not at all	A little bit	Moderately	Quite a bit	Extremely

- _____ 1. Repeated, disturbing, *memories, thoughts, or images* of the stressful experience?
- _____ 2. Repeated, disturbing *dreams* of the stressful experience?
- _____ 3. Suddenly *acting or feeling* as if the stressful experience *were happening again* (as if you were reliving it)?
- _____ 4. Feeling *very upset* when *something reminded you* of the stressful experience?
- _____ 5. Having *physical reactions* (e.g., heart pounding, trouble breathing, sweating) when *something reminded you* of the stressful experience?
- _____ 6. Avoiding *thinking about* or *talking about* the stressful experience or avoiding *having feelings* related to it?
- _____ 7. Avoiding *activities* or *situations* because *they reminded you* of the stressful experience?
- _____ 8. Trouble *remembering important parts* of the stressful experience?
- _____ 9. *Loss of interest* in activities that you used to enjoy?
- _____ 10. Feeling *distant* or *cut off* from other people?
- _____ 11. Feeling *emotionally numb* or being unable to have loving feelings for those close to you?
- _____ 12. Feeling as if your *future* will somehow be *cut short*?
- _____ 13. Trouble *falling* or *staying asleep*?

- _____ 14. Feeling *irritable* or having *angry outbursts*?
- _____ 15. Having *difficulty concentrating*?
- _____ 16. Being “*super-alert*” or watchful or on guard?
- _____ 17. Feeling *jumpy* or easily startle

Appendix E

5-FACTOR MINDFULNESS QUESTIONNAIRE (FFMQ)

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. When I'm walking, I deliberately notice the sensations of my body moving.
- _____ 2. I'm good at finding words to describe my feelings.
- _____ 3. I criticize myself for having irrational or inappropriate emotions.
- _____ 4. I perceive my feelings and emotions without having to react to them.
- _____ 5. When I do things, my mind wanders off and I'm easily distracted.
- _____ 6. When I take a shower or bath, I stay alert to the sensations of water on my body.
- _____ 7. I can easily put my beliefs, opinions, and expectations into words.
- _____ 8. I don't pay attention to what I'm doing because I'm daydreaming, worrying, or otherwise distracted.
- _____ 9. I watch my feelings without getting lost in them.
- _____ 10. I tell myself I shouldn't be feeling the way I'm feeling.
- _____ 11. I notice how foods and drinks affect my thoughts, bodily sensations, and emotions.
- _____ 12. It's hard for me to find the words to describe what I'm thinking.
- _____ 13. I am easily distracted.
- _____ 14. I believe some of my thoughts are abnormal or bad and I shouldn't think that way.
- _____ 15. I pay attention to sensations, such as the wind in my hair or sun on my face.
- _____ 16. I have trouble thinking of the right words to express how I feel about things
- _____ 17. I make judgments about whether my thoughts are good or bad.
- _____ 18. I find it difficult to stay focused on what's happening in the present.
- _____ 19. When I have distressing thoughts or images, I "step back" and am aware of the thought or image without getting taken over by it.

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

- _____ 20. I pay attention to sounds, such as clocks ticking, birds chirping, or cars passing.
- _____ 21. In difficult situations, I can pause without immediately reacting.
- _____ 22. When I have a sensation in my body, it's difficult for me to describe it because I can't find the right words.
- _____ 23. It seems I am "running on automatic" without much awareness of what I'm doing.
- _____ 24. When I have distressing thoughts or images, I feel calm soon after.
- _____ 25. I tell myself that I shouldn't be thinking the way I'm thinking.
- _____ 26. I notice the smells and aromas of things.
- _____ 27. Even when I'm feeling terribly upset, I can find a way to put it into words.
- _____ 28. I rush through activities without being really attentive to them.
- _____ 29. When I have distressing thoughts or images I am able just to notice them without reacting.
- _____ 30. I think some of my emotions are bad or inappropriate and I shouldn't feel them.
- _____ 31. I notice visual elements in art or nature, such as colors, shapes, textures, or patterns of light and shadow.
- _____ 32. My natural tendency is to put my experiences into words.
- _____ 33. When I have distressing thoughts or images, I just notice them and let them go.
- _____ 34. I do jobs or tasks automatically without being aware of what I'm doing.
- _____ 35. When I have distressing thoughts or images, I judge myself as good or bad, depending what the thought/image is about.
- _____ 36. I pay attention to how my emotions affect my thoughts and behavior.
- _____ 37. I can usually describe how I feel at the moment in considerable detail.
- _____ 38. I find myself doing things without paying attention.
- _____ 39. I disapprove of myself when I have irrational ideas.

Appendix F

The Action and Acceptance Questionnaire (AAQ-II)

Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

1	2	3	4	5	6	7
never true	very seldom true	seldom true	sometimes true	frequently true	almost always true	always true

- _____ 1. My painful experiences and memories make it difficult for me to live a life that I would value.
- _____ 2. I'm afraid of my feelings.
- _____ 3. I worry about not being able to control my worries and feelings.
- _____ 4. My painful memories prevent me from having a fulfilling life.
- _____ 5. Emotions cause problems in my life.
- _____ 6. It seems like most people are handling their lives better than I am.
- _____ 7. Worries get in the way of my success.

Appendix G

THE COGNITIVE FAILURES QUESTIONNAIRE (CFQ)

The following questions are about minor mistakes which everyone makes from time to time, but some of which happen more often than others. We want to know how often these things have happened to you in the past 6 months. Please circle the appropriate number.

4	3	2	1	0
Very Often	Quite Often	Occasionally	Very rarely	Never

- _____ 1. Do you read something and find that you haven't been thinking about it and must read it again?
- _____ 2. Do you find you forget why you went from one part of the house to the other?
- _____ 3. Do you fail to notice signposts on the road?
- _____ 4. Do you find you confuse right and left when giving directions?
- _____ 5. Do you bump into people?
- _____ 6. Do you find you forget whether you've turned off a light or a fire or locked the door?
- _____ 7. Do you fail to listen to people's names when you are meeting them?
- _____ 8. Do you say something and realize afterwards that it might be taken as insulting?
- _____ 9. Do you fail to hear people speaking to you when you are doing something else?
- _____ 10. Do you lose your temper and regret it?
- _____ 11. Do you leave important letters unanswered for days?
- _____ 12. Do you find you forget which way to turn on a road you know well but rarely use?
- _____ 13. Do you fail to see what you want in a supermarket (although it's right there)?
- _____ 14. Do you find yourself suddenly wondering whether you've used a word correctly?
- _____ 15. Do you have trouble making up your mind?
- _____ 16. Do you find you forget appointments?
- _____ 17. Do you forget where you put something like a newspaper or a book?
- _____ 18. Do you find you accidentally throw away the thing you want and keep what you

meant to throw away—as in the example of throwing away the matchbox and putting the used match in your pocket?

4	3	2	1	0
Very Often	Quite Often	Occasionally	Very rarely	Never

- _____ 19. Do you daydream when you ought to be listening to something?
- _____ 20. Do you find you forget people's names?
- _____ 21. Do you start doing one thing at home and get distracted in doing something else (unintentionally)?
- _____ 22. Do you find you can't quite remember something although it's "on the tip of your tongue"?
- _____ 23. Do you find you forget what came to the shops to buy?
- _____ 24. Do you drop things?
- _____ 25. Do you find you can't think of anything to say?

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References

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Appendix H
ATTENTION RELATED COGNITIVE ERRORS SCALE (ARCES)

The following statements are about minor mistakes and absent-mindedness everyone notices from time to time, but we have very little information about just how common they are. The great majority of the time these little foibles are harmless, though they do have serious safety implications in industry and everyday life. We want to know how frequently these sorts of things have happened to you.

There are 12 questions. Please answer by circling the number on the scale provided below each question.

1. I have gone to the fridge to get one thing (e.g., milk) and taken something else (e.g., juice).

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

2. I go into a room to do one thing (e.g., brush my teeth) and end up doing something else (e.g., brush my hair).

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

3. I have lost track of a conversation because I zoned out when someone else was talking.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

4. I have absent-mindedly placed things in unintended locations (e.g., putting milk in the pantry or sugar in the fridge).

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

5. I have gone into a room to get something, got distracted, and wondered what I went there for.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

6. I begin one task and get distracted into doing something else.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

7. When reading I find that I have read several paragraphs without being able to recall what I read.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

8. I make mistakes because I am doing one thing and thinking about another.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

9. I absent-mindedly mixed up targets of my action (e.g., pouring or putting something into the wrong container).

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

10. I have to go back and check whether I have done something or not (e.g., turning out the lights, locking doors).

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

11. I have absent-mindedly misplaced frequently used objects, such as keys, pens, glasses, etc.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

12. I fail to see what I am looking for even though I am looking right at it.

Never	Rarely	Sometimes	Often	Very Often
1	2	3	4	5

Appendix I
THE CENTER FOR EPIDEMIOLOGICAL STUDIES DEPRESSION SCALE (CES-D) NIMH

Below is a list of the ways you might have felt or behaved. Please tell me how often you have felt this way during the past week.

During the Past Week

0	1	2	3
Rarely or none of the time (less than 1 day)	Some or a little of the time (1-2 days)	Occasionally or a moderate amount of the time (3-4 days)	Most or all of the time (5-7 days)

- _____ 1. I was bothered by things that usually don't bother me.
- _____ 2. I did not feel like eating; my appetite was poor.
- _____ 3. I felt that I could not shake the off the blues even with help from my family or friends.
- _____ 4. I felt I was just as good as other people.
- _____ 5. I had trouble keeping my mind on what I was doing.
- _____ 6. I felt depressed.
- _____ 7. I felt that everything I did was an effort.
- _____ 8. I felt hopeful about the future.
- _____ 9. I thought my life had been a failure.
- _____ 10. I felt fearful.
- _____ 11. My sleep was restless.
- _____ 12. I was happy.
- _____ 13. I talked less than usual.
- _____ 14. I felt lonely.
- _____ 15. People were unfriendly.
- _____ 16. I enjoyed life.
- _____ 17. I had crying spells.
- _____ 18. I felt sad.
- _____ 19. I felt that people dislike me.
- _____ 20. I could not get "going"

Appendix J

Referral INFORMATION

Resources:

National Sexual Assault hotline at: (800) 656-HOPE (4673).

National Sexual Violence Resource Center-- <http://www.nsvrc.org>

The Rape abuse and incest national network--<http://www.rainn.org>

For additional resources please contact Judelysse Gomez, M.A. at j.gomez23@umiami.edu