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The Impact of Experiential Avoidance on the Relationships Among Military Sexual Trauma,
Excessive Behaviors, and Health-Related Outcomes in Female Veterans

by

Natalie Kate Nugent

Dissertation

Submitted to the Department of Psychology

Eastern Michigan University

in partial fulfillment of the requirements

for the degree of

DOCTOR OF PHILOSOPHY

in

Clinical Psychology

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April 28, 2014

Ypsilanti, Michigan

Dedication

This work is dedicated to the female veterans who made this study possible by so generously and bravely sharing their experiences. It is also dedicated to the many other veterans who have served our country even in the face of sexual violence. I am humbled by your courage.

Abstract

Military Sexual Trauma (MST) as defined in United States Public Law, refers to inappropriate sexual conduct, assault, or harassment experienced by a military servicemember during his or her course of active duty or active duty for training (38 U.S.C. § 1720D). MST has emerged as a distinct form of trauma, resulting in different and often more severe sequelae than other forms of civilian sexual assault and/or non-sexual trauma. This study sought to explore the potential moderating and mediating roles of experiential avoidance on the relationship between MST and health outcomes in an attempt to identify a unifying mechanism through which poor outcomes were more likely to emerge or become amplified. Participants included 65 female veterans seeking treatment through the women's health clinic located within the VA Ann Arbor Healthcare System (VAAHS). Eligible participants completed a series of questionnaires assessing for the presence of trauma exposure, including MST, experiential avoidance, and potential outcomes such as depression, anxiety, PTSD, physical health concerns, and engagement in excessive/problem behaviors. Within this sample, 29.2% of respondents endorsed exposure to MST. Subsequent mediation and moderation analyses were computed and it was determined that experiential avoidance partially mediated the relationship between MST exposure and PTSD symptomatology. Furthermore, levels of experiential avoidance, PTSD, anxiety, and physical health concerns varied as a result of trauma exposure type (i.e., MST, civilian sexual assault/childhood sexual abuse, or non-sexual trauma). These findings support the hypothesis that MST exposure is associated with poorer post-trauma functioning across a variety of symptoms measures. Furthermore, the findings suggest that the presence of experiential avoidance may impact post-trauma functionality. Implications for the treatment of MST are discussed.

Acknowledgments

First, I would like to thank my committee chair, Dr. Tamara Loverich, for her consistent and insightful guidance. I have grown as a clinician, researcher, and person through her mentorship and I am confident that my graduate training would have proven incomplete without the opportunity to work with someone I hold in such high esteem.

Next, I would like to thank each of my committee members: Drs. Michelle Byrd, Natalie Dove, Ellen Koch, and Katherine Porter. This project would not have come to fruition without the support offered by each of these psychologists. I am grateful for the unique role that each played in shaping my dissertation, as well as my graduate education.

Importantly, the data collection portion of this study was made possible by my research assistant, Meaghan Lewis and funding by the Student Award Program grant from the Blue Cross and Blue Shield of Michigan Foundation. I am very appreciative of the time and energy dedicated by Meaghan and the monetary support that allowed me to compensate my study participants who generously offered their time and personal experiences.

Finally, to my parents and husband – words cannot express how thankful I am for your unending love and support. I am blessed to have people in my life who have so thoroughly and expansively supported my goals and aspirations even when I could not remember why I had begun this journey. I know beyond a shadow of a doubt that I could not have done this without you. It is true...I am very lucky.

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The Impact of Experiential Avoidance on the Relationships among Military Sexual Trauma, Excessive Behaviors, and Health-Related Outcomes in Female Veterans

Literature Review

In 1992, Army Reserve Specialist Jacqueline Ortiz became one of the first military servicemembers to testify before the House Armed Services Committee on the topic of sexual assault in the military. She elaborated on the sexual assault she experienced by her sergeant while stationed overseas on active duty, as well as the lack of response she received from both her commanding officers, to whom she reported the assault, and the Department of Veterans Affairs (DVA) from which she sought assistance for symptoms of PTSD. Such testimony combined with several high-profile sexual assault scandals (e.g., the Navy Tailhook Scandal) prompted increased attention and research into the occurrence of military sexual abuse and ultimately resulted in the passage of laws designed to define and address the problem. Military Sexual Trauma (MST) exists as a legal term that refers to sexual assault and/or harassment experienced by U.S. military personnel (U.S.C 38 §1720D). To date, research regarding the impact of MST on post-trauma functioning is limited, but has yielded important findings, including data that suggest that MST is perceived as more distressing than civilian sexual assault and results in higher levels of PTSD than do other forms of trauma (Himmelfarb, Yaeger, & Mintz, 2006; Suris, Lind, Kashner, Borman, & Petter, 2004; Yaeger, Himmelfarb, Cammack, & Mintz, 2006). Furthermore, preliminary evidence suggests that MST may be linked to a variety of disruptive and costly health-related outcomes including increased chronic health problems (Sadler, Booth, Mengeling, & Doebbeling, 2004), excessive behaviors such as smoking and binge eating (Frayne, Skinner, Sullivan, & Freund, 2003; Rowe, Gradus, Pineles, Batten, & Daison, 2009), and increased rates of depression and alcohol abuse (Skinner, 2000). The following sections of this document will provide a comprehensive literature review pertaining to

MST and will review a study designed to test the potential mediating/moderating effects of experiential avoidance on the relationships among MST, excessive behaviors and health-related outcomes.

Historical Overview of Military Sexual Trauma

In 1988, the Office of the Secretary of Defense conducted a Department of Defense-wide investigation of sexual harassment across all active-duty military service members, offering initial baseline data of sexual harassment within the military (Martindale, 1990). Twenty-two percent of all active-duty personnel (64% female; 17% male) reported experiencing unwanted sexual behavior while on the job during the 24-months prior to the administration of the survey (Martindale, 1990). While impactful, it was the occurrence of several seminal incidents following the release of this Department of Defense (DoD) report, that resulted in increased attention to the ongoing and severe nature of sexual misconduct within the military.

In 1991, reports of widespread sexual assault and harassment of female military personnel by U.S. Air Force and Marine Corps officers at an annual aviation conference (the Tailhook Association Symposium), resulted in the eventual punishment of a number of officers and the resignation of Secretary of the Navy, H. Lawrence Garrett, for his inappropriate handling of what would be named the “Tailhook Incident.” In response, the House Armed Services Committee conducted a 1992 hearing on gender discrimination, at which female veterans testified to their experiences with sexual harassment and assault while in the military and of the lack of response by their commanding officers. This was followed by the passage of Public Law 102-585, commonly referred to as the Veterans Health Care Act of 1992, which authorized the establishment of an initial program to provide female veterans with sexual trauma counseling, mandated improved coordination of assessment and treatment planning efforts by personnel

serving female veterans, and required increased research on women's healthcare (Pub. L. 102-585, 1992).

Subsequent laws were passed in the years that followed, further outlining the treatment responsibilities of the Department of Veterans Affairs (DVA). Specifically, Public Law 103-452 was passed in 1994, specifying that both male and female veterans were eligible to receive MST counseling and repealing limits on the duration of counseling. In 1999, MST assessment and treatment mandates were extended through December of 2004, and MST treatment outreach efforts were clarified through the passage of Public Law 106-117. This law also required the DVA to submit a series of reports to the Committees on Veterans' Affairs of the State and Senate and House of Representatives, detailing the following: (1) the implementation of outreach efforts, (2) a study of the extent and nature of MST and treatment seeking behavior in exposed veterans, (3) a review of the ways in which veterans have been made aware of MST treatment options following discharge from the military, and (4) a report outlining the number of veterans receiving counseling for MST through Veterans Health Administration (VHA) facilities as well as the number of veterans referred to non-VHA providers for MST related problems (Pub. L. 106-117). In 2004, Public Law 108-422 was passed amending the time-limited nature of MST counseling programs (i.e., only through December 2004) and granting "permanent authority" for MST counseling programs through VA hospitals. Furthermore, this law extended MST counseling programs to include military personnel currently involved in active duty training (Pub. L. 108-422, 2004). Finally, in 2010, the U.S. government reaffirmed its continued support of MST counseling programs by requiring that mental health trainees within the DVA system be trained in evidence-based practices including care for sexual trauma and PTSD (Pub. L. 111-163, 2010). United States Code 38 Section 1720D outlines the current laws governing the counseling

and treatment for sexual trauma among U.S. military personnel (see Appendix A). As noted above, MST is unique for health professionals in that it exists not as part of the Diagnostic and Statistical Manual of Mental Disorders – Fifth Edition (DSM-5; 2013) nomenclature, but instead as a legal term used within the VA healthcare system in order to identify those exposed to sexual assault and/or harassment which occurred as a result of participation within the military. The passage of the aforementioned public laws has resulted in increased public awareness of MST, and also inspired a burgeoning body of empirical research examining the correlates and consequences of MST, in part to assist practitioners in meeting the demands placed forth by public law. The following sections of this literature review will outline existing MST research with particular emphasis on evidence suggesting that MST is unique among forms of trauma exposure.

Definition and Prevalence of MST

At the present time, MST is defined by public law as “psychological trauma, which in the judgment of a mental health professional employed by the Department, resulted from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the veteran was serving on active duty or active duty for training” (38 U.S.C. § 1720D). It is critical to note that MST is not synonymous with a diagnosis of posttraumatic stress disorder (PTSD), nor is mere exposure to MST sufficient to warrant such a diagnosis.

Instead, MST must be viewed as one of many potentially traumatic events which, depending on the nature of the “psychological trauma” and the victim’s response, may or may not meet DSM-V trauma criterion A¹. Furthermore, MST, although often associated with the

¹ DSM-V Criterion A – Stressor: “The person was exposed to: death, threatened death, actual or threatened serious injury, or actual or threatened sexual violence, as follows: (one required) (1) Direct exposure; (2) Witnessing, in person; (3) Indirectly, by learning that a close relative or close friend was exposed to trauma. If the event involved actual or threatened death, it must have been violent or accidental; (4) Repeated or extreme indirect exposure to

development of PTSD, is also correlated with a number of additional problems and disorders including but not limited to the following: depression and alcohol abuse (Skinner, 2000), problematic health behaviors (Rowe, et al., 2009), somatization (Luterek, Bittinger, & Simpson, 2011), and poor readjustment to non-military life (Katz, Bloor, Cojucar, & Draper, 2007).

Therefore, a comprehensive understanding of MST must go beyond its role as a potential catalyst for PTSD, to also examine its position as an environmental stressor with far-reaching behavioral and psychological consequences. A thorough review of such consequences will be provided in later sections of this document; however, it is first necessary to examine the ubiquitous presence of MST within today's military culture.

As noted above, initial prevalence rates of inappropriate sexual behavior within the military came from a 1988 DoD report which found rates of sexual harassment of 64% and 17% for women and men, respectively (Martindale, 1990). Since this initial report, approximately 30 additional studies have emerged each reporting prevalence rates of various types of MST in female veterans (see Suris & Lind, 2008 for a detailed review). Interpreting such studies can be problematic given the large variability in definitions of MST, inconsistencies in study methodology (e.g. self-report data, face to face interviews, etc.), and sample differences. For example, several early studies either used ambiguous definitions of MST or failed to define rape and/or sexual assault (Fontana & Rosenheck, 1998; Fontana, Schwartz, & Rosenheck, 1997; Frayne et al., 1999; Hankin et al., 1999). Similarly, a number of studies grouped all forms of sexual assault into one category, failing to differentiate among prevalence rates of completed rape, attempted rape, and/or other forms of unwanted sexual behavior (e.g. fondling, touching,

aversive details of the event(s), usually in the course of professional duties (e.g., first responders, collecting body parts; professionals repeatedly exposed to details of child abuse). This does not include indirect non-professional exposure through electronic media, television, movies, or pictures” (APA, 2013).

verbal harassment; Kang, Dalager, Mahan, & Ishii, 2005; Kimerling, Gima, Smith, Street, & Frayne, 2007; Murdoch, Polusny, Hodges, & O'Brien, 2004; Sadler, Booth, Nielson, & Doebbeling, 2000; Suris, Lind, Kashner, Borman, & Petty, 2004; Yaeger, Himmelfarb, Cammack, & Mintz, 2006). Finally, differences in sample characteristics have impacted reported prevalence rates of MST. For example women applying for VA PTSD disability benefits (Murdoch, Polusny, Hodges, & O'Brien, 2004) and female Vietnam-era veterans who are likely less familiar with the construct of MST (Fontana, Schwartz, & Rosenheck, 1997) have been found to report extremely disparate rates of MST exposure (71% and 0.4%, respectively). While these studies provided important data, studies utilizing more stringent methodology have emerged to provide more clearly defined prevalence rates.

With regard to the prevalence of completed rapes experienced by female veterans, documented rates have ranged between 8% and 33% in studies which utilize definitions of rape that specify that the victim experienced completed sexual intercourse and/or penetration of the vagina, mouth, or rectum (Butterfield, McIntyre, Stechuchak, Nanda, & Bastian, 1998; Coyle, Wolan, & Van Horn, 1996; DeRoma, Root, & Smith, 2003; Martin, Rosen, Durand, Stretch, & Knudson, 1998; Martin, Rosen, Knudson, & Stretch, 2000; Sadler, Booth, Cook, & Doebbeling, 2003; Sadler, Booth, Cook, Torner, & Doebbeling, 2001; Sadler, Booth, Mengeling, & Doebelling, 2004; Stern et al., 2000). Rates of attempted rape are often more difficult to determine, as many researchers have grouped both completed and attempted rape into one category. When measuring "completed and/or attempted rape," prevalence rates for female veterans have ranged between 23 and 43% (Chang, Skinner, & Boehmer, 2001; Fontana & Rosenheck, 1998; Hanken et al., 1999). However, Sadler et al., 2004 found that approximately 10% of female veterans had experienced an attempted rape in a study measuring completed and

attempted rapes separately. Finally, rates of sexual assault, more broadly defined, have ranged from 23% to 30.7% (Coyle, Wolan, & Van Horn, 1996; Skinner et al., 2000), and sexual harassment rates have been found to range between 15% and 90% (DeRoma, et al., 2003; Murdoch & Nichol, 1995; Skinner et al., 2000; Wolfe et al., 1993). Taken together, these data suggest that inappropriate sexual behavior, harassment, and assault are significant problems within the context of military duty, particularly for female servicemembers. In the past, such experiences have been interpreted and addressed within a civilian sexual assault framework; however, emerging data suggests that MST may be experienced differently than civilian sexual assault, making it necessary to treat MST as a potentially unique traumatic event.

Differences between Civilian Sexual Assault and MST

In a nationally representative sample, the estimated lifetime prevalence of civilian sexual assault/rape was found to be approximately 9.2% for females. Among those females who reported civilian sexual assault/rape as their most distressing trauma, 45.9% went on to develop PTSD (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995). Similarly, prevalence rates of PTSD following civilian sexual assaults *other than rape* have been found to also result in PTSD, with approximately 31% of women reporting such events indicating the presence of lifetime PTSD and 12% indicating current PTSD (Resnick, Kilpatrick, Dansky, Saunders, & Best, 1993). Based on the aforementioned prevalence rates of MST (i.e., 8 to 33% for rape; 23 to 30.7% for sexual assault), it is evident that women face an increased likelihood of experiencing sexual assault/rape while serving in the military. Himmelfarb, Yaeger, and Mintz (2006) measured rates of MST² and pre- and post-military civilian sexual assault in female veterans to determine

² MST was defined as “any type of sexual trauma that occurred during a woman’s military service, including forced intercourse, anal or oral sex, insertion of objects, threats to elicit forced sex, or fondling” and verbal harassment was not included (Himmelfarb et al., 2006, p. 838)

the conditional probability of developing PTSD after such trauma exposure. The authors found that approximately 41% of participants endorsed experiencing MST, while only 19% and 24% endorsed pre- and post-military civilian sexual assault, respectively. Of the female veterans who had experienced MST, 60% also met criteria for a diagnosis of PTSD, suggesting that female veterans exposed to MST are more likely to develop PTSD than are women exposed to civilian sexual assault. More specifically, Himmelfarb, et al. (2006) found that the relative risk of developing PTSD after experiencing MST was approximately 2.5 times greater than that of participants exposed to pre- and/or post-military civilian sexual assault. Suris, Lind, Kashner, Borman, and Petter (2004) also found high rates of PTSD (i.e. 42%) in women exposed to MST and demonstrated that such women were more than 5 times more likely to develop PTSD than women reporting civilian sexual assault. Finally, Yaeger, Himmelfarb, Cammack, and Mintz (2006) found that levels of PTSD were higher for individuals with MST than those with any other type of trauma including civilian and military traumas. Such evidence indicates that MST is experienced differently than other forms of sexual assault and trauma.

MST researchers posited that critical differences in military life including the following: limited access to outside support services, pervasive and realistic fears of negative career consequences for reporting inappropriate sexual behavior, and the potential for female victims to continue to work and live with their perpetrators may contribute to increased distress following MST (Yaeger et al., 2006). With regard to the last point, it has been determined that the context in which the victim/perpetrator relationship exists within the military is particularly conducive to increased victim distress. For example, existing research regarding sexual assault has found that victims who have closer relationships with their perpetrators or who feel dependent upon the perpetrator are more likely to experience elevated psychological distress and are less likely to

report sexual abuse (Allard, 2009; Foynes, Freyd, & DePrince, 2009; Freyd, 1996; Freyd, Klest, & Allard, 2005). Within the context of the military, victims are most likely to be assaulted by fellow service members and are dependent on such individuals for safety and protection during deployments (Sadler, et al., 2003). Furthermore, although the U.S. military is a volunteer force, servicemembers are required to serve for specified periods of time and are subject to court-martial and other disciplinary action should they fail to complete their requisite assignments. As a result, researchers have suggested that victims may be forced to remain in close proximity to their perpetrators under penalty of legal action, thereby forcing the victim to remain in a potentially dangerous and highly distressing environment (Suris & Lind, 2008).

Additionally, the military rank system creates a hierarchical power structure in which many victims may feel unable to report and/or seek assistance for sexual assault or rape, thereby increasing a sense of helplessness and distress (Suris & Lind, 2008). Furthermore, researchers have hypothesized that unit cohesion, referring to the bond and commitment that servicemembers often have with one another, is often destroyed for individuals who have experienced and/or reported instances of sexual assault or rape (Norwood, Ursano, & Gabbay, 1997). Unit cohesion has been found to be a psychologically protective factor for servicemembers; therefore, the lack of such an important variable may also contribute to the increased level of psychological distress reported by female veterans who have experienced MST (Frayne et al., 1999; Norwood, Ursano, & Gabbay, 1997).

The aforementioned factors have been posited to explain some of the differences found between the psychological and physical distress reported by victims of MST in comparison to individuals reporting civilian sexual assault. Such data suggests an increased need to understand the unique experience of MST, including its sequelae, as it is evident that MST is not

synonymous with other forms of sexual assault and victimization. Furthermore, the aforementioned factors may create a context in which avoidance behaviors are more highly reinforced and valued. Thus, one's level of experiential avoidance may vary as a function of the type of trauma experienced and the environment in which it occurs. This hypothesis was explored as part of this study and will be discussed later in the document.

Correlates and Consequences of MST

To date, a growing body of literature has begun to parse the unique correlates and consequences of MST. This research has stemmed from a preexisting civilian sexual assault and childhood sexual abuse framework, which has previously identified a number of frequently occurring concomitant conditions. Researchers have therefore, explored both general mental and physical health outcomes in MST victims³ as well as military-specific consequences such as VHA treatment utilization and readjustment to civilian life. The following sections will review the existing literature across those domains.

Mental Health. General sexual assault research has yielded robust findings suggesting that victims of civilian sexual assault and childhood sexual abuse are at an increased risk of developing significant mental health problems including PTSD, anxiety disorders, depression, substance use disorders (SUDs), and sexual dysfunctions (e.g. Foa & Riggs, 1993; Resick, 1993). Importantly, this body of literature has been extended to explore the relationship between MST and psychological consequences. As noted above, preliminary findings on the impact of MST suggest that female veterans exposed to sexual trauma while enlisted in the military are more likely to experience psychological distress than are women who have experienced civilian sexual assault, childhood sexual abuse (CSA), and/or other forms of trauma (Himmelfarb,

³ Please see Allard, Nunnink, Gregory, Klest, & Platt (2011) and Suris & Lind (2008) for detailed reviews of existing literature on the physical and mental health consequences of MST.

Yaeger, & Mintz, 2006; Suris, Lind, Kashner, & Borman, 2007; Suris, Lind, Kashner, Borman, & Petty, 2004; Yaeger, Himmelfarb, Cammack, & Mintz, 2006). Thus, recognition of MST as a distinct form of trauma exposure has led to several studies which have sought to identify the mental health consequences of such victimization.

First, with regard to trauma symptomatology, Suris et al. (2004) investigated the development of PTSD in female veterans who had been exposed to military sexual assault, civilian sexual assault as an adult, or childhood sexual abuse. The authors found that women with MST exposure were nine times more likely to meet criteria for a PTSD diagnosis, than were female veterans exposed to other forms of sexual abuse/assault (Suris et al., 2004). A subsequent study by Himmelfarb and colleagues (2006) supported this finding, noting that women who were exposed to sexual assault during their military service were more likely to report symptoms of PTSD than were servicewomen exposed to either pre- or post-military sexual assault.

Similar research has compared rates of PTSD in MST victims and servicewomen subjected to other traumatic events. In these studies, MST has been found to significantly predict PTSD symptomatology above and beyond other forms of trauma. Specifically, Fontana and Rosenheck (1998) found that women who had experienced MST were more than 4 times more likely to develop PTSD than were female veterans who had experienced other forms of service-related trauma (e.g. combat exposure, witnessing of casualties, exposure to enemy fire, etc.). Likewise, Yaeger et al. (2006) found rates of PTSD in women who had experienced MST were approximately 40% higher than rates of PTSD in female veterans exposed to other forms of trauma including physical assault, natural disaster, combat trauma, and other forms of DSM-5 defined traumatic events.

Finally, Luterek, Bittinger, and Simpson (2011) found that in addition to PTSD, female veterans exposed to MST were also more likely to report symptoms associated with trauma exposure, including the following: difficulties with interpersonal relationships, decreased emotion regulation, dissociation, somatization, and poor self-perception. These symptoms, often referred to as disorders of extreme stress not otherwise specified (DESNOS), were impacted by MST exposure, such that MST contributed to the unique variance in DESNOS symptoms, even after controlling for other childhood and adulthood forms of interpersonal trauma (Luterek, et al., 2011).

History of MST has also been found to be strongly associated with other forms of psychological distress including depression, substance abuse problems, and sexual disorders. In fact, Kimerling, Gima, Smith, Street, and Frayne (2007) found that service women with a history of MST were 2 to 3 times more likely to receive a mental health diagnosis than their non-victimized counterparts. One of the most common co-occurring forms of distress is major depression. Hankin et al. (1999) found that female veterans exposed to MST were more than 3 times more likely to report subsequent depressive symptoms than were servicewomen without an MST history, and additional research has supported these findings (Chang, Skinner, & Boehmer, 2001; Skinner et al., 2000).

Similarly, high rates of alcohol and substance abuse have been found in victims of MST. More specifically, Hankin et al. (1999) found that victims of MST were more than twice as likely to meet criteria for a current alcohol abuse disorder than were non-MST exposed women. Likewise, Skinner et al. (2000) found that female veterans who had experienced MST more frequently endorsed alcohol and substance abuse problems upon being discharged from the military. Such findings are consistent with existing research that suggests that alcohol and

substance abuse are frequent correlates of trauma exposure (Brady 2001; Mueller, 1999). Importantly, existing data also suggests that substance abuse following trauma exposure may serve a self-medicating function, allowing for the avoidance of aversive stimuli and emotional states (Tull, Gratz, Aklin, & Lejuez, 2010). This is particularly relevant, as this study seeks to explore the function of experiential avoidance in the relationship between MST exposure and potential aversive outcomes. Subsequent sections of this document, explicitly address the perceived distress-alleviating function of avoidance behaviors.

Finally, a number of additional concomitant symptoms have been found to result from MST exposure. These include sleep disturbances, nightmares, poor body image, feelings of decreased self-worth, problems with sexual functioning (e.g., decreased sexual satisfaction, perception of oneself as unattractive, a reluctance to have children), dissociative symptoms, and eating disorders (Kimerling et al., 2007; Skinner et al., 2000). Taken together, data regarding the mental health consequences of MST suggest that this form of trauma exposure is likely to result in a myriad of psychological difficulties which cross diagnostic categories.

Physical Health. One of the first studies to explore physical health concerns in female veteran exposed to MST was conducted by Frayne and colleagues (1999) using a large sample of servicewomen ($n = 3,632$), 23% of whom had experienced MST. The authors found that MST-exposed female veterans were more likely to endorse physical health problems including pelvic pain, menstrual pain, chronic fatigue, back pain, headache, menopausal symptoms, hearing and vision problems, and gastrointestinal problems. Furthermore, several important health conditions were also endorsed with greater frequency in women exposed to MST. These conditions included obesity, peptic ulcer disease, asthma/emphysema/bronchitis, heart problems, hypertension, arthritis, and endometriosis (Frayne et al., 1999). Finally, the authors were the first

to identify an increased risk of myocardial infarction (i.e. heart attack) in female veterans exposed to MST. In fact, even after controlling for age, hypertension, diabetes, and smoking status, MST remained associated with risk of heart attack (Frayne et al., 1999). A follow-up study conducted by Frayne, Skinner, Sullivan, and Freund (2003) helped to elucidate potential reasons for this increased risk, identifying that women with a history of MST were more likely to be obese and sedentary, were more likely to smoke and engage in problematic alcohol use, and were more likely to have had hysterectomies before the age of 40. Each of these variables has been found to be associated with cardiac risk; therefore, the authors were able to suggest a potential connection between behavioral consequences of MST and an increased risk of myocardial infarction (Frayne et al., 2003).

Additional studies utilizing the Short Form Health Survey (SF-36), one of the most commonly used measures of health functioning, found that female veterans exposed to MST were more likely to report poorer health across all physical health subscales (i.e., physical functioning, bodily pain, general physical health, and role limitations due to physical problems; Sadler, Booth, Nielson, & Doebbeling, 2000; Sadler et al., 2004; Skinner et al., 2000). More specifically, Smith et al. (2011) found that women exposed to military sexual assault were more likely to experience negative symptoms within the gastrointestinal, genitourinary, musculoskeletal, and neurological domains. Importantly, these authors also found that posttraumatic stress symptomatology mediated the relationship between sexual assault and poor health outcomes, suggesting that posttraumatic stress may play a key role in health outcomes. Finally, with regard to more specific diagnoses, Kimerling, Gima, Smith, Street, and Frayne (2007) found that female MST victims were more likely to be diagnosed with liver disease, chronic pulmonary disease, and hypothyroidism. Importantly, these conditions may be

associated with problematic behaviors such as alcohol abuse, and/or the cardiac risk factors discussed above. Therefore, in understanding the physical health consequences of MST, it is critical that the field of research begin to explore underlying mechanisms by which such poor health outcomes are more likely to develop.

Excessive and Problem Behaviors. Finally, several independent research studies have found that female veterans who have experienced MST are more likely to engage in problematic behaviors such as binge eating (Rowe et al., 2009), risky sexual behavior (Strauss et al., 2011), nicotine use (Frayne et al., 2003), and as cited above, alcohol and substance abuse (Hankin et al., 1999; Skinner et al., 2000; Suris et al., 2007). Although these behaviors have previously been described as unique correlates of MST, they may be better understood as a functional class of responses whose underlying purpose is to assist individuals in the escape from or avoidance of unwanted psychological distress. These behavioral responses are often referred to as excessive or problem behaviors and will be discussed thoroughly in the next section.

Excessive and/or Problem Behaviors

Over time, certain classes of behavior (e.g., substance abuse, deliberate self-harm, binge eating) have been deemed problematic or excessive throughout different fields of study and have been found to co-occur with specific psychological disorders. For example, deliberate self-harm often occurs in the presence of Borderline Personality Disorder (e.g., Linehan, 1993) and substance abuse is a well-defined correlate of trauma exposure (e.g., Brady, 2001). However, understanding problem behaviors as independent responses to discreet psychological phenomena is not particularly parsimonious, nor does it address the frequency with which such behaviors co-occur.

In attempting to identify specific behaviors which fall into the problem/excessive behavior category and that are used to manage unwanted emotion and cognition, Kingston, Clarke, Ritchie, and Remington (2011) developed the Composite Measure of Problematic Behavior (CMPB) and included the following behaviors: deliberate self-harm, restrictive eating, binge eating, alcohol misuse, drug misuse, smoking, sexual promiscuity, internet addiction, excessive exercise, and aggression. Importantly, these behaviors were chosen because they represent risky, maladaptive patterns of behavior which are often found to elicit a “social control response” (Jessor & Jessor, 1977, p. 33). Furthermore, as mentioned above, such behaviors are also often highly correlated. For example, deliberate self-harm is frequently correlated with excessive alcohol use and drug misuse (Haw & Hawton 2011; Haw, Hawton, Casey, Bale, & Shepherd, 2005), excessive exercise often co-occurs with disordered eating (e.g. Ackard, Brehm, & Steffen, 2002), and risky sexual behavior is often associated with drug and alcohol abuse (e.g. Heath, Lanoye, & Maisto, 2012; Hipwell, Stepp, Chung, Durand, & Keenan, 2012). Therefore, despite the apparent dissimilarities of such behaviors, existing research suggests that they may share a similar function (e.g., Gifford & Lillis, 2009). In fact, several studies have indeed found that a higher order factor can explain the variance shared by identified problem/excessive behaviors (Cooper, Wood, Orcutt, & Albino, 2003; Donovan & Jessor, 1985; Kingston et al., 2011).

Ultimately, one of the strongest theoretical accounts of problem behavior, designed to address the potential underlying mechanism of such maladaptive responses, has been developed within an Acceptance and Commitment Therapy framework. Specifically, Hayes and colleagues have suggested that problem and excessive behaviors may represent behavioral responses which serve to alleviate psychological distress (e.g., intrusive feelings, thoughts, memories) by

providing an escape or avoidance mechanism (1996; Hayes, Wilson, & Strosahl, 1999). Thus such problematic behaviors are believed to co-occur because they share a common function referred to as “experiential avoidance” (Hayes et al., 1996; Kashdan, Barrios, Forsyth, & Stegel, 2006).

As mentioned above, within the field of MST, psychological, physical health, and behavioral problems have largely been understood as independent outcomes which may or may not arise following MST exposure. However, a functional approach to pathology suggests that underlying individual difference mechanisms (e.g., experiential avoidance) may contribute to an increased likelihood of developing specific symptoms or behavioral responses, across psychological, physical, and behavioral domains. This study seeks to explore the underlying mechanism, by which female veterans are more likely to develop frequent concomitant conditions (e.g., psychological distress, physical health problems, engagement in problem/excessive behaviors), following traumatization. To this end, the proposed moderating and/or mediating variable of experiential avoidance has been identified. The following sections of this document will elaborate on the construct of experiential avoidance and will review existing literature that has implicated this variable in problematic post-trauma functioning as well as in the development of problem/excessive behaviors.

Experiential Avoidance

First formally identified within the context of contextual behavioral therapies, the construct of experiential avoidance (EA) can best be defined as an unwillingness to remain in contact with private experiences (e.g., thoughts, memories, emotions), as well as cognitive and behavioral steps taken to alter the form or frequency of such experiences, or the contexts in which they occur (Hayes, Strosahl, & Wilson, 1997; Hayes, Wilson, Gifford, Follette, &

Strosahl, 1996;). A significant body of research has demonstrated that such behavioral patterns are ubiquitous in human behavior, albeit largely unsuccessful in the long-term reduction of distress. In fact, Hayes and Gifford (1997) argue that avoidance behaviors may actually serve to increase distress by creating a self-amplifying loop in which avoided aversive experiences return with greater frequency and intensity, following attempts to avoid. Furthermore, Kashdan et al. (2006) identified experiential avoidance as a generalized psychological vulnerability factor, finding that that EA was associated with greater negative affective experiences, as well as fewer positive event and life appraisals. Within the context of trauma research, the construct of experiential avoidance is particularly useful because it explores the central role of avoidance in the development of psychopathology, and also because it provides a more detailed framework with which to explore avoidance behaviors.

First, experiential avoidance is critical in the field of trauma because it provides an elaboration on the existing definition of avoidance within a trauma/PTSD framework. Specifically, Kashdan and Kane (2011) suggest that the construct of experiential avoidance more aptly addresses the broad spectrum of avoidance behavior by including within the definition: (1) avoidance of internal experiences such as memories, images, emotions, and bodily sensations, (2) efforts to alter the context in which distressing experiences occur, and (3) avoidance of positive and neutral experiences as well as more traditionally acknowledged negative events. Furthermore, the authors suggest that experiential avoidance more accurately captures avoidant behaviors engaged in by trauma survivors (such as problem/excessive behaviors), by addressing repetitive patterns of behavior that serve to alter the context in which unwanted internal events occur (Kashdan & Kane, 2011). Finally, within the broader conceptualization of experiential avoidance, additional behaviors such as thought suppression, avoidant coping, and alexithymia (a

form of emotional constriction), are identified as related behaviors designed to alter the form and frequency of aversive internal and external experiences, as well as the contexts in which they occur (Thompson & Waltz, 2010). Such behaviors have been implicated in the development of PTSD. For example, Cameron, Palm, and Follette (2010) found that the tendency to engage in thought suppression following trauma exposure was linked with an eventual diagnosis of PTSD. Such studies lend credibility to the notion that a more detailed understanding of the broad spectrum of avoidance behaviors, addressed within the construct of experiential avoidance, may better assist in the understanding of the etiology and maintenance of post-trauma distress.

Experiential Avoidance and Trauma. At the present time, a small but growing body of literature has begun to address connections between experiential avoidance and trauma exposure. Early efforts focused on the impact of experiential avoidance on the relationship between CSA and subsequent psychological distress. Initial correlational data found that CSA survivors were more likely to report experiential avoidance than those who had not experienced such trauma, and that experiential avoidance and extent of CSA predicted increased psychological distress⁴ (Batten, Follette, & Aban, 2001). Furthermore, experiential avoidance was found to partially (Polusny, Rosenthal, Aban, & Follette, 2004) and perhaps fully (Marx & Sloan, 2002; Rosenthal et al. 2005) mediate the relationship between CSA and psychological distress, and to increase PTSD symptomatology for rape-victims attempting to avoid trauma-related thoughts (Boesch, Koss, Figueredo, & Coan, 2001).

More recent research has expanded upon the aforementioned findings, demonstrating that experiential avoidance may play a role in PTSD symptom presentation in those exposed to a variety of traumatic events including natural disaster exposure (Polusny et al., 2011),

⁴ Please see Leonard and Follette (2002) for a theoretical account of the ways in which experiential avoidance impacts functioning following CSA.

interpersonal violence among women (Palm & Follette, 2011), exposure to physical and sexual assault among men (Tull, Jakupcak, Paulson, & Gratz, 2007), school-shootings (Kumpula, Orcutt, Bardeen, & Varkovitzky (2011), and war-related trauma (Kashdan, Morina, & Priebe, 2009; Morina, 2007; Morina, Stangier, & Risch, 2008). More specifically, Plumb, Orsillo, and Luterek (2004) found that experiential avoidance predicted both increased psychological distress and PTSD symptom severity following trauma exposure, above and beyond measures of general distress and trauma severity, in samples of combat veterans and undergraduate students.

Importantly, experiential avoidance has not yet been studied in victims of MST. As noted above, the data suggest that there are critical differences between MST and other forms of trauma including civilian sexual assault and war-related trauma and MST. Thus, existing research cannot yet be generalized to the field of MST; however, preliminary data indicate that experiential avoidance may play a mediating role in the relationship between MST exposure and post-trauma functioning, thus making it an important variable of study.

Experiential Avoidance and Excessive/Problem Behaviors. Relatedly, a small body of literature has emerged to elaborate on the theoretical assertion that experiential avoidance may contribute to the development of problem behaviors. Although most studies of experiential avoidance and excessive/problem behavior have not explored the role of trauma, several non-trauma related studies have yielded important findings to suggest that there is indeed a connection between avoidance and problematic behavioral responses. For example, Hulbert and Thomas (2010) found that the motivation to avoid negative emotions (a component of experiential avoidance) contributed to a higher frequency of non-suicidal self-injurious behavior in a sample of females diagnosed with Borderline Personality Disorder (BPD). Experiential avoidance has been implicated in additional studies of self-injurious behavior, with authors

finding that one component of the construct (i.e., thought suppression) fully and partially mediated the relationship between negative affect intensity and self-harm in two separate studies (Najmi, Wegner, & Nock, 2007; Rosenthal, Cheavens, Lejuez, & Lynch, 2005). Finally, experiential avoidance was also found to mediate the relationship between anxiety sensitivity and coping-motivated alcohol use in a sample of university students, suggesting that this relationship may occur in both clinical and non-clinical samples (Stewart, Zvolensky, & Eifert, 2002).

To date, only one trauma-related study has explored relationships among trauma, experiential avoidance, and problem behaviors. Kingston, Clarke, and Remington (2010) measured dispositional (i.e., negative affect intensity) and historical (i.e., childhood trauma) risk factors and tested the mediating role of experiential avoidance on the relationship between said risk factors and problem/excessive behaviors. Importantly, the authors found that experiential avoidance fully mediated this relationship, suggesting that this construct may be particularly important in the field of trauma. Taken together, the results of the aforementioned studies suggest that experiential avoidance should be considered as a mechanism through which problematic and excessive behaviors develop following trauma exposure.

The Current Study

The purpose of this study was to explore the role that experiential avoidance plays in the development of psychological, physical, and behavioral problems following MST exposure. To date, research has suggested that MST is associated with myriad negative health outcomes; however, such variables have been studied independently of one another, without reference to a potentially unifying mechanism through which they may be more likely to develop or be amplified. The construct of experiential avoidance has emerged as an intriguing potential moderating and/or mediating variable, given its existing relationship with both trauma exposure

and problematic behavioral responses. Additionally, studies have found that MST is experienced differently than other forms of trauma, including other types of sexual victimization. Therefore, it was predicted that exposure to unique forms of trauma would yield differential physical and psychological outcomes. Ultimately, this study was designed to test the potential mediating and/or moderating impact of experiential avoidance and to explore the impact of MST in relation to other forms of trauma.

Hypotheses

The following hypotheses were tested:

1. Experiential avoidance has been demonstrated to mediate the relationship between specific types of trauma exposure and psychological sequelae; however, this relationship has not been tested in cases of MST. To test this relationship, a series of mediation analyses were conducted. The following were predicted:
 - a. The presence of MST exposure will predict higher scores on the proposed dependent variables (i.e., PTSD, depression, anxiety, stress, physical health, and excessive/problem behaviors).
 - b. Experiential avoidance will be positively correlated with the proposed dependent variables.
 - c. Experiential avoidance will partially-mediate the relationship between MST exposure and each of the proposed dependent variables.
2. Experiential avoidance is an important variable of study, given that it has been found to interact with trauma exposure to produce differential levels of psychological distress. However, this has not been tested in cases of MST. Thus, a series of moderation analyses were conducted to explore the potential interaction effect of experiential avoidance and

MST exposure on the subsequent development of the previously cited dependent variables (i.e., PTSD, depression, anxiety, stress, physical health, and excessive/problem behaviors). The following were predicted:

- a. A significant main effect will exist for the independent variable - trauma exposure (i.e., the dependent variable scores will vary as a function of whether or not the participant was exposed to MST).
 - b. A significant main effect will exist for the moderator variable - experiential avoidance (i.e., the dependent variable scores will vary as a function of level of experiential avoidance).
 - c. A significant interaction effect will exist (i.e., the influence of MST exposure on the dependent variables will depend on level of experiential avoidance).
3. Finally, existing data suggest that MST is experienced differently than other forms of trauma including CSA or non-military sexual assault. A series of one-way, between-groups ANOVAs were conducted to determine whether or not significant differences between mean scores on experiential avoidance and/or the dependent variables (i.e., PTSD, depression, anxiety, stress, physical health, and excessive/problem behaviors) emerge across three groups of trauma exposure (i.e., MST, civilian sexual assault/CSA, other non-sexual trauma). The following were predicted:
- a. A statistically significant difference in experiential avoidance scores will emerge across the three levels of trauma exposure, with greater experiential avoidance predicted in the MST group compared with the other two groups.

- b. A statistically significant difference in all dependent variable scores will emerge across the three levels of trauma exposure, with significantly greater health difficulties expected in the MST group compared with the other two groups.

Method

Participants

This project was reviewed and approved by the Human Subjects Review Committees at both Eastern Michigan University and the VA Ann Arbor Healthcare System (VAAAHS; see Appendices B & C). Eligible participants included any female veteran enrolled in the VAAAHS and currently seeking treatment within the women's healthcare clinic. A mail-based recruitment strategy was initially proposed and designed to target all female veterans enrolled in the VAAAHS. However, due to information security concerns related to accessing patient addresses, consultation among the VAAAHS IRB, this researcher, and staff psychologists at the VAAAHS took place. It was ultimately agreed that in person recruitment through the Women's Healthcare Clinic would be the most effective method given the high number of female veterans accessing care through this clinic and the ability to collect all data anonymously (please see the *Procedure* section of this document for the specific protocol for participant recruitment).

Approximately 6,000 female veterans are currently enrolled within the VAAAHS facility, which services a fifteen county area in Michigan and northwest Ohio. The Women's Primary Healthcare Clinic is held weekly and is open to any female veteran enrolled in the VAAAHS through a referral process. Because the clinic is time-limited, approximately 12-15 female veterans are scheduled each day. It was determined that approximately 64 participants were needed to ensure adequate sample size and statistical power. This number was based on Cohen's

Power Tables (1988), which indicates that a sample size of 64 is satisfactory to detect a medium to large effect size at a recommended power level of .80.

It is important to note that a control group (i.e., female veterans who have never experienced a trauma) was not included for several specific reasons. First, epidemiological data garnered from the general population revealed that approximately 51.2% of all women have experienced at least one traumatic event during their lifetime (Kessler, et al., 1995). For female veterans, rates of trauma exposure are significantly higher. Specifically, Zinzow, Grubaugh, Monnier, Suffoletta-Maierle, and Frueh (2007) conducted a review of the literature measuring rates of trauma in female veterans. These authors found that between 81% and 93% of female veterans report experiencing at least one traumatic event. Thus, this limits the number of potential participants available for a control group, as almost the entire subject pool would likely have experienced a traumatic event. Next, this is a dissertation study that involved only one data collection site and was subject to limited time and funding. Therefore, data collection would have been severely impeded by a requirement of finding at least 65 participants who had never experienced a traumatic event. Ultimately, it is hoped that in the future, this methodology will be expanded with adequate grant funding and decreased time constraints, to include a control group.

Measures

The test battery in this study was comprised of 11 questionnaires designed to assess and measure demographic variables, exposure to trauma (non-combat trauma, combat trauma, and military sexual trauma), experiential avoidance, problem/excessive behaviors, and health-outcomes (PTSD, depression, anxiety, stress, and physical health problems). Each of these measures is described briefly in this section.

Demographic Questionnaire. This questionnaire was created by the principal investigator and assessed the following variables: age, branch of military service, period of service, duration of service, number of deployments (deployments can be to combat and/or non-combat zones), active duty status, service connection status, race/ethnicity, education level, marital status, marital status at time of military service, number of children, income, and employment status (Appendix D).

Life Events Checklist (LEC). The LEC is a self-report measure developed at the National Center for PTSD, which assesses exposure to 17 potentially traumatic events (PTEs) (Blake, Weathers, Nagy, Kaloupek, Charney, & Keane, 1995; Appendix E). Respondents are asked to rate their exposure to each of the 17 PTEs using a 5-point nominal scale (i.e., 1 = *happened to me*, 2 = *witnessed it*, 3 = *learned about it*, 4 = *not sure*, and 5 = *doesn't apply*). This format provides advantages not offered by other psychometrically sound measures of trauma exposure [e.g. the Stressful Life Events Screening Questionnaire (SLESQ; Goodman, Corcoran, Turner, Yuan, & Green, 1998) or the Traumatic Life Events Questionnaire (TLEQ; Kubany et al., 2000), etc.] as respondents are provided with an opportunity to indicate whether or not they have witnessed or learned about specific PTEs.

A thorough psychometric evaluation of the LEC yielded several positive findings. First, appropriate temporal reliability was found for all items with a correlation of .82 across a 7-day interval (Gray et al., 2004). Next, the LEC was compared to one of the most rigorously validated measures of trauma exposure, the TLEQ (Kubany et al., 2000). Appropriate convergent validity was found between the two measures [($r = -.55$); Lower scores on the LEC indicate more exposure; whereas, the opposite is true for the TLEQ], suggesting that the LEC is an appropriate alternative measure for assessing PTEs (Gray et al., 2004). Finally, the LEC was compared with

other measures of psychopathology theoretically linked to exposure to PTEs. These measures included the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbauch, 1961)), the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the Mississippi Scale for Combat-Related PTSD (The Mississippi Scale; Keane, Caddell, & Taylor, 1998), the PTSD Checklist – Military Version (PCL-M; Weathers, Litz, Herman, Huska, & Keane, 1993), and the Clinician Administered PTSD Scale (CAPS; Blake et al., 1995). Results indicated that the LEC demonstrated appropriate convergent validity with measures of PTSD symptomatology [i.e., the CAPS ($r = -.39$), the PCL-M ($r = -.43$), and the Mississippi Scale ($r = -.33$)] and with measures of anxiety [the BAI ($r = -.27$)] and depression [the BDI ($r = -.32$)] (Grey, et al., 2004).

Posttraumatic Stress Disorder Checklist-Civilian Version (PCL-C). The PCL-C is a 17-item, self-report measure that corresponds to the DSM-IV diagnostic criteria for PTSD (Weathers, Litz, Herman, Huska, & Keane, 1993; Appendix F). Respondents indicate the extent to which they have been bothered by each potential symptom, using a 5-point Likert-scale ranging from 1 (*not at all*) to 5 (*extremely*). There are no reverse scored items and scores can range from 17 to 85, with higher scores indicating a greater degree of symptomatology (Weathers et al., 1993). The degree of symptomatology is one way in which the PCL-C can be scored. However, the PCL-C is composed of three sub-scales assessing symptoms of reexperiencing, avoidance, and arousal, and this allows for a second way of scoring the PCL-C. In this second manner, individuals who endorse at least one item from the reexperiencing category, at least three items from the avoidance category, and at least two items from the arousal category can be assigned a presumptive diagnosis of PTSD (Ruggiero, Del Ben, Scotti, & Rabalais, 2003).

The PCL-C shows excellent internal consistency with Cronbach's alpha scores of .94, .85, .85, and .87 for the measure total, reexperiencing, avoidance, and arousal subscales respectively (Ruggiero et al., 2003). A high correlation between the PCL-C and two other measures of PTSD, the Impact of Event Scale and the Mississippi Scale for Combat Related PTSD ($r > .75$), indicates substantial convergent validity (Ruggiero et al., 2003). Furthermore, test-retest correlation coefficients were good with correlations of .88 and .68 for 1- and 2-week test-retest intervals (Ruggiero et al., 2003).

Combat Exposure Scale (CES). The CES is a 7-item, self-report measure of wartime stressors for veterans (Keane, Fairbank, Caddell, Zimering, Taylor, & Mora, 1989; Appendix G). Five items require respondents to indicate the *frequency* with which they experienced a particular event (e.g., enemy fire, combat patrol, etc.), whereas the remaining two items require respondents to indicate the *duration* of which a particular event happened and the degree of loss to their unit, respectively. All responses are given using a 5-point Likert scale, tailored to the individual question. Total scores range from 0 to 41 and are calculated by using the sum of weighted scores (Keane et al., 1989). Scores are then translated into 1 of 5 categories of combat exposure ranging from *light* to *heavy* (Keane et al., 1989).

A psychometric analysis has shown the CES to have excellent internal consistency (Cronbach's alpha = .85), excellent test-retest reliability across a 1-week interval ($r = .97$), and appropriate convergent validity ($r = .43$) with a measure of PTSD symptomatology (i.e. the Mississippi Scale; Keane, Caddell, & Taylor, 1998) (Keane et al., 1989). Taken together, these results suggest that the CES is a psychometrically sound measure of exposure to potentially traumatic wartime stressors.

Sexual Experiences Questionnaire – Department of Defense Version (SEQ-DoD).

The SEQ-DoD is a 16-item, self-report measure which assesses veterans' experiences with inappropriate sexual behavior while in the military (Fitzgerald, Gelfand, & Drasgow, 1995; Appendix H). The measure was modified from the original Sexual Experiences Questionnaire (SEQ; Fitzgerald et al., 1988), which has been described as the most psychometrically sound measure of sexual harassment (Arvey & Cavaunaugh, 1995). The DoD version was developed to explicitly measure sexual harassment within a sample of veterans. Respondents are asked to indicate the frequency with which they have experienced a variety of inappropriate sexual experiences while serving in the military. Responses are provided using a five point Likert-scale ranging from 0 (*Never*) to 4 (*Very Often*). Four subscale scores (i.e. Sexist Hostility, Sexual Hostility, Unwanted Sexual Attention, and Sexual Coercion) may be computed by summing the appropriate items, with higher scores indicating increased exposure to specific forms of sexual harassment. Additionally, a total score may be computed by summing all items. In this case, higher scores are indicative of increased exposure to the overarching dimension of sexual harassment (Stark, Chernyshenko, Lancaster, Drasgow, & Fitzgerald, 2002).

The SEQ-DoD has been found to be a psychometrically sound measure of sexual harassment within the military. Reliability coefficients for each of the subscales are as follows: Sexist Hostility (.78-.83), Sexual Hostility (.81-.87), Unwanted Sexual Attention (.86-.90), and Sexual Coercion (.92-.94) (Stark et al., 2002). Additionally, the reliability coefficients for the Total score have ranged between .91-.92, suggesting appropriate levels of internal consistency (Stark et al., 2002).

Sexual Experiences Survey (SES). The SES is a 13-item, self-report questionnaire designed to measure experiences with sexual aggression and victimization (Koss & Oros, 1982;

Appendix I). Parallel versions of the measure were developed to be given to both men and women, respectively. For the purpose of this study, the female version of the measure was used. Participants are asked to circle one of two responses, *yes* or *no*, to indicate whether or not they experienced a particular sexual experience (e.g. “did you ever have a man or woman misinterpret the level of sexual intimacy you desired?”). The measure yields categorical data regarding a number of unwanted/inappropriate sexual experiences ranging from sexual coercion to rape. Importantly, because the definition of rape has varied widely in studies of MST and because this measure does not specify a definition of rape, the legal definition will be provided to respondents⁵, before they are asked to complete this questionnaire. This is to ensure that a uniform definition will be available to and utilized by all study participants. Additionally, the SES allows for the reporting of instances of inappropriate sexual contact across the lifespan. For the purpose of this study, participants were provided with a preemptive statement which specified that they should only indicate experiencing a particular event if it occurred during the course of their military service.

The SES has adequate psychometric properties. First, internal consistency was found to be acceptable with a Cronbach’s alpha of .74 for women completing the measure (Koss & Gidycz, 1985). Next, test-retest reliability was strong for female participants completing the measure at a one-week interval. Specifically, the Koss and Gidycz (1985) found a mean item-agreement of 93% across the two testing sessions. Finally, the reliability coefficient between SES self-report responses and responses provided to an interviewer was .73, suggesting a high level of agreement between self-report and interview-based responses (Koss & Gidycz, 1985).

⁵ The U.S. legal definition of rape is: “penetration, no matter how slight, of the vagina or anus with any body part or object, or oral penetration by a sex of another person, without the consent of the victim” (2012).

Acceptance and Action Questionnaire- II (AAQ-II). The AAQ-II is a 7-item, self-report measure designed to assess specific aspects of experiential avoidance (e.g. need to control/avoid private events, negative appraisals of emotion, etc.; Bond et al., 2011; Appendix J). Responses are provided using a 7-point Likert scale which ranges from 1 (*Never True*) to 7 (*Always True*) and the question scores are summed to provide a total score. Higher values reflect increased levels of psychological avoidance (Bond et al., 2011).

The AAQ-II was designed to improve upon the existing Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) which was found to have some limitations, including insufficient levels of reliability in certain populations (e.g. individuals with less education, individuals who speak English as a second language, etc.). Thus far the AAQ-II has demonstrated superior psychometric properties. Specifically, internal consistency of the measure has ranged between .78 and .88 and excellent test-retest reliability has been found across three-month (.81) and twelve-month (.79) follow-up periods (Bond et al., 2011). Importantly, scores on the AAQ-II were found to predict outcomes in psychological functioning more reliably than established measures of neuroticism, depressive symptoms, and anxiety sensitivity, suggesting that such a measure may help to reflect patient well-being following trauma (Gloster, Klotsche, Chaker, Hummel, & Hoyer, 2011). More specifically, Gloster and colleagues (2011) found that anxiety patients involved in active exposure treatments showed improvements in experiential avoidance, as measured by the AAQ-II, suggesting that this measure is sensitive to treatment gains.

Multidimensional Experiential Avoidance Questionnaire (MEAQ). The MEAQ is a 62-item, self-report measure which assesses experiential avoidance across six dimensions including procrastination, distraction/suppression, behavioral avoidance, distress endurance,

repression/denial, and distress aversion (Gamez, Chmielewski, Kotov, Ruggero, and Watson, 2011; Appendix K). Respondents are asked to reply to each question on a 6-point Likert scale ranging from 1 (*Strongly Disagree*) to 6 (*Strongly Agree*). Specific items are then summed together to determine sub-scale scores on the aforementioned dimensions (e.g., procrastination, distraction/suppression, etc.). Furthermore, a total score can be computed by summing the following five domains: behavioral avoidance, distress aversion, procrastination, distraction/suppression, and repression/denial, and adding this sub-score to a value of 77 minus the distress endurance subscale score. Higher subscale and total scores indicate increased levels of experiential avoidance.

This measure offers specific advantages over the AAQ-II including increased content coverage, improved internal consistency (.91-.92), and excellent convergent and discriminative validity (Gamez et al., 2011). Furthermore, while the AAQ-II measures experiential avoidance as a component of psychological flexibility, the MEAQ specifically focuses on behavioral and cognitive avoidance, offering significant data regarding respondents' patterns of avoidance across clinically relevant domains. Both measures of experiential avoidance (i.e., the AAQ-II and the MEAQ) are included because the AAQ-II has been utilized in many more studies and will allow for ease of comparison with the extant literature and because experiential avoidance is a key variable in the study.

Composite Measure of Problem Behaviors (CMPB). The CMPB is a 46-item, self-report measure designed to assess respondents' engagement in problematic behaviors which include the following: self-harm, restrictive eating, binge eating, alcohol misuse, drug misuse, smoking, sexual promiscuity, internet addiction, excessive exercise, and aggression (Kingston, Clarke, Ritchie, & Remington, 2011; Appendix L). Respondents are asked to rate how much it is

“like them” to engage in specific behaviors using a 6-point Likert scale with values ranging from 1 (*Very Unlike Me*) to 6 (*Very Like Me*). Individual subscales for each of the aforementioned behaviors and a total score can be computed by summing the appropriate items.

Evaluation of the psychometric properties of this measure yielded positive results with excellent internal reliability (alphas ranging between .73 and .91) and appropriate test-retest reliability at 2-weeks ($r = .73$ to $r = .98$), 2- to 4-months ($r = .69$ to $r = .91$), and 8- to 14-months ($r = .69$ to $r = .91$) (Kingston et al., 2011). Furthermore, the measure subscales were found to have excellent convergent validity with other validated measures of each specified problem-behavior. For example, the aggression subscale is well-correlated with the Aggression Questionnaire (Buss & Perry, 1992; $r = .75$) and the excessive alcohol use subscale is highly correlated with the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001; $r = .76$).

Short Form 12 Health Survey® (SF-12) - Modified Version. The SF-12 is a 12-item, self-report measure designed to assess perceptions of physical and mental health across the following domains: physical functioning (PF), role-physical (RP), bodily pain (BP), general physical health (GH), social functioning (SF), role-emotional (RE), vitality (VT), and general mental health perceptions (MH) (Ware, Snow, Kosinski, & Gandek, 1993)⁶. In addition to these eight subscales, the measure yields two global scales: the Physical Component Summary (PCS) and the Mental Component Summary (MCS). Importantly, psychometric data has suggested that utilizing the component summary scores has several advantages, including improved validity in distinguishing between mental and physical health outcomes and a reduction in the number of statistical comparisons needed to assess health outcomes (Ware & Kosinski, 2001). Component

⁶ Please Note: The Short Form 12 Health Survey® is copyrighted and therefore, the items are not listed in the appendices section of this document.

summary scores are translated into standard scores that range from 0 to 100 ($M = 50$; $SD \pm 10$) with higher scores indicating the presence of better health functioning (Ware, Kosinski, & Keller, 1994).

Validation studies of the measure have yielded positive results. Specifically, internal consistency coefficients for each of the eight subscales have been found to range between .77 and .93 (Ware & Gandek, 1998). Similarly, internal consistency coefficients for the PCS and MCS global scales were .92 and .88, respectively (Ware & Gandek, 1998). Furthermore, appropriate construct validity was found, with researchers identifying that the measure is successful at differentiating between those who have existing markers of poor health and those who do not (Lyons, Perry, & Littlepage, 1994).

It should be noted that a modified version of the Short Form 12 Health Survey® was utilized. Importantly, modifications were made only to the visual lay-out of the measure and not to any item or scale content.

Depression Anxiety Stress Scale - 21 (DASS-21). The DASS-21, the short-form of the DASS, is a 21-item, self-report measure that assesses levels of depression, anxiety, and stress/tension (Lovibond & Lovibond, 1995; Appendix M). Respondents are asked to rate the frequency/intensity with which they have experienced each item over the past week using a 4-point Likert scale with values ranging from 0 (*Did Not Apply To Me At All*) to 3 (*Applied To Me Very Much, Or Most Of The Time*). Three subscales can be computed by summing specified items to yield composite scores for levels of depression, anxiety, and stress/tension.

Respondents' levels of each of the three variables are then categorized as normal, moderate, or severe (Lovibond & Lovibond, 1995)

The original DASS depression, anxiety, and stress subscales have demonstrated excellent internal consistency (.91, .84, and .90, respectively) and the measure has demonstrated appropriate convergent and discriminant validity (Lovibond & Lovibond, 1995). More specifically, the depression and anxiety subscales of the DASS were found to be highly correlated with the Beck Depression Inventory (BDI; Beck, Ward, Mendelsohn, Mock, & Erbaugh, 1961; $r = .74$) and the Beck Anxiety Inventory (BAI; Beck et al., 1988; $r = .81$), respectively (Lovibond & Lovibond, 1995). Importantly, although the DASS-21 has fewer psychometric studies, the results have been largely consistent with psychometric findings from the original DASS. Specifically, Lovibond and Lovibond (1995) found that the DASS-21 is highly correlated with DASS scores. Furthermore, the DASS-21 has been shown to have good internal consistency across two independent psychiatric samples (Anthony et al., 1998), and strong convergent and discriminant validity findings were found when the DASS-21 was compared to existing measures of anxiety and depression, as well as a measure of positive affect (Henry & Crawford, 2005).

Procedures

Participant Recruitment. Participant recruitment took place within the Women's Health Clinic at the VAAHS. The Women's Health Clinic is a weekly, specialty clinic responsible for providing physical healthcare for female veterans enrolled at the VAAHS. Female veterans were approached in the waiting room by a trained research assistant and asked if they would like to participate in a research study designed to assess for the presence of MST and potential correlates. If female veterans expressed an interest in participating, they were provided with an informed consent handout (see Appendix N) and verbal instructions regarding how to complete the survey packet. Importantly, study protocol approved by the VAAHS necessitated

that an informed consent “handout” instead of signed document was provided to each participant. This was to ensure that no personally identifiable information (i.e., a signature) was collected by the research team. Thus, by accepting the handout and completing the study, each participant offered her consent to participate. Each participant was provided space within the waiting room in which they could complete the study measures while they waited to be seen for their healthcare appointment. Following the completion of the study packet, respondents were provided compensation for their participation.

Compensation. A \$10 Target gift card was provided as compensation for each participant who completed the study packet. Because the measures were completed in-person, the research assistant immediately provided the gift card to each respondent after she had submitted the study materials. Gift cards were paid for with a Student Award Program grant from the Blue Cross and Blue Shield of Michigan Foundation.

Research Design

Independent Variables*

Trauma Exposure. Trauma exposure was measured in a number of ways. First, participants’ responses on the LEC were tallied to determine the number and type of potentially traumatic events experienced by each respondent. Participants were also asked to identify their *worst* traumatic event. This refers to the event that each participant defined as having caused her the most distress. Participants’ *worst* responses were then divided into three categories representing, (1) exposure to MST, (2) exposure to civilian sexual assault/CSA, or, (3) exposure to a non-sexual traumatic event. In subsequent statistical analyses, each participant was coded as having experienced one of these three categories of events based on LEC responses. Importantly, if a participant indicated that she experienced an event from more than one

category, the event that they defined as the *worst* was used to separate them into the most appropriate grouping. It should also be noted that although the definition of MST includes instances of sexual harassment, participants were coded as having experienced MST only if they indicated experiencing a sexual assault while in the military or inappropriate/unwanted sexual behavior while in the military. This is because DSM-5 trauma criteria requires there to be actual or threatened sexual violence in order to meet the definition of a stressor (2013).

MST Exposure. Exposure to MST, as noted above, includes both inappropriate sexual behavior as well as sexual harassment. To provide more detailed descriptive statistics regarding MST exposure in this sample, both the SES and SEQ-DoD were administered. Participants' responses on these measures represented experiences with both overt and covert sexual harassment (SEQ-DoD), as well as physically assaultive experiences (SES). Qualitative data was also gleaned from these measures and is presented in the Results.

Proposed Moderating/Mediating Variable

Experiential Avoidance. Experiential avoidance was measured by both the AAQ-II and the MEAQ. On both of these measures, a total score may be computed. For the purpose of this study, participants' total scores on each measure were converted into z-scores. These z-scores were then summed to form a composite score representing level of engagement in experiential avoidance. These composite scores were used in all subsequent analyses. Importantly, when conducting moderation analyses, respondents' experiential avoidance scores were divided into high, medium, and low groups. Z-scores that were one or more standard deviations below the mean were considered *low* and scores that were one or more standard deviations above the mean were considered *high*. All others were assigned to the *medium* category.

Dependent Variables

Posttraumatic Stress Symptomatology. PTSD symptomatology was measured by computing participants' total PCL-C scores, with higher scores indicating greater severity of symptoms consistent with a DSM-IV-TR diagnosis of PTSD. It should be noted that at the time of this study, no measure with which to assess DSM-5 PTSD symptoms was validated or published.

Problem/Excessive Behaviors. Engagement in problem and/or excessive behaviors was measured by computing participants' total CMPB scores. On this measure, scores can range between 46 and 276, and higher scores reflect increased engagement in problem and/or excessive behaviors.

Physical Health Functioning. Physical health functioning was measured through the use of the SF-12®. As noted above, this measure yields eight subscale scores, as well as two summary scores representing overall physical and mental health perceptions. For the purpose of this study, participants' composite physical health summary score was used in all analyses.

Depression. The DASS-21 was used to assess for the presence of depression, anxiety, and stress-related symptoms. Depression was measured by computing total DASS depression subscale scores. On this measure, depression subscale scores can range from 0 to 21 with higher scores reflecting increased severity of symptoms.

Anxiety. Anxiety-related symptoms were measured by computing total DASS anxiety subscale scores. Anxiety subscale scores can range from 0 to 21 with higher scores reflecting increased severity of symptoms.

Stress. Stress-related symptoms were measured by computing total DASS stress subscale scores. Stress subscale scores can range from 0 to 21 with higher scores indicating increased severity of symptoms.

Data Analyses

Analyses consisted of descriptive statistics, bivariate correlations, a series of regression analyses, a series of two-way between groups ANOVAs, and a series of one-way between groups ANOVAs. Before conducting inferential analyses, the data were screened for missing and out-of-range values. Statistical assumptions required for the computation of the formal analyses were reviewed. This process is detailed in the following paragraphs.

First, several steps were taken to minimize the presence of data-entry errors. Preliminary descriptive and frequency statistics were computed for each of the study's continuous and categorical values to identify out-of-range values. Next, the data were screened for missing values. Missing data were found in the PCL-C, CES, SES, AAQ, MEAQ, CMPB and DASS. More specifically, 2 individual participants skipped a total of 19 questions on the PCL-C, 1 individual skipped 1 item on the CES, 2 individuals skipped a total of 2 items on the SES, 1 individual skipped 7 items on the AAQ-II, 17 individuals skipped a total of 32 items on the MEAQ, 6 individuals skipped a total of 54 items on the CMPB, and 2 individuals skipped a total of 2 items on the DASS. Furthermore, item 19 of the DASS was accidentally omitted during the printing of the study packets. As a result, all 65 participants did not answer item 19. Because the missing values on the CES and SES were not needed for future analyses, for ease of presentation, only the missing values for the PCL-C, AAQ-II, MEAQ, CMPB, and DASS were recorded and screened for patterns (Table 1). Data derived from the other measures (i.e., the demographic questionnaire, LEC, SEQ, and SF-12®) included no missing values.

Missing values are categorized into one of three groups that describe the general process through which missingness emerges. These processes are referred to as missing completely at random (MCAR), missing at random (MAR), and missing not at random (MNAR) (Rubin,

1976). Data that are MCAR are believed to be missing through unpredictable, completely random mechanisms, unrelated to any measured or unmeasured characteristic of the subject (e.g., a test-proctor forgetting to copy the final page of a measure). Therefore, missingness is unrelated to any other measured or unmeasured study variables, and estimates of population parameters remain unbiased by the missing values (West, 2001). Data that are MAR differs from data that are MCAR in the sense that MAR values are believed to be related to other observed values, but not to the dependent variable (West, 2001). For example, if younger study participants were found to be less likely to answer questions regarding PTSD symptomatology, the subsequent missing values would be labeled as MAR because the missing value is related to another observed value (age), but not the dependent variable (PCL-C score). Data that are MAR can provide biased estimates of population parameters if analyses are conducted using only the cases with complete data (West, 2001). Finally, data are labeled as MNAR when missingness is directly related to one's score on the variable in question. For example, if study participants who experienced MST consistently chose not to respond to items assessing exposure to this form of trauma, these missing values would be considered MNAR, and analyses conducted without these values can bias parameter estimates in future analyses.

Previous methods for handling missing data have included complete case analysis (i.e., list-wise deletion), in which only participants who have provided responses to all measured variables are used in subsequent analyses, or available case analysis (i.e., pair-wise deletion), in which only the available data, on each variable, is used in subsequent analyses (West, 2001). Traditionally, these methods have been considered lacking, as they decrease statistical power and limit the ability to detect true effects (West, 2001). Therefore, modern statistical imputation techniques such as maximum-likelihood estimation (ML) and Bayesian multiple imputation (MI)

have become the recommended strategies for analyzing data sets which include MAR or MNAR values (Schafer & Graham, 2002).

The expectation-maximization algorithm (EM), which is a two-step, iterative process, has been described as one of the most straightforward methods for computing maximum-likelihood estimates (Enders, 2004). Using this algorithm, a series of regression equations are first computed and used to impute a missing value (step one). To correct for random variability, which occurs during the imputation process, a residual term is added to each value during this step. Next, an estimate of the covariance matrix and mean vector is constructed using the imputed values (step-two). This two-step process is then repeated with step one using regression analyses based upon the updated covariance matrix and mean vector. The process continues until minimal differences exist between adjacent covariance matrices (Enders, 2004).

The SPSS missing values module was used to identify patterns of missingness in the data set and to impute missing values. The SPSS missing values module indicated that all missing values were found to be MAR, save for item 19 on the DASS which was omitted from the participant paper-and-pencil measure and was therefore considered MCAR. As such it was determined that a maximum-likelihood estimation imputation technique would be appropriate for all MAR values. All MAR missing values were imputed using the expectation-maximization algorithm described above. With regard to the MCAR values (i.e. number 19 on the DASS), this researcher deferred to the publishers of the measure as to the best way to address missing items. Specifically, Lovibond and Lovibond (1995) determined that each of the three, 7-item subscales of the DASS may have one missing item and still be considered valid. Furthermore, the researchers suggest that in cases where a subscale is missing one value, the missing value can be replaced with the average of the remaining six subscale items (Lovibond & Lovibond, 1995).

In this case, the missing item (i.e., number 19) was a part of the anxiety subscale. In order to address the missing values, each participant's remaining six, anxiety subscale items were averaged and the missing item was replaced with this value; thus, ensuring that the DASS anxiety subscale total was based on the full seven items.

Table 1

Treatment of Missing Data

Variable	# of Subjects	Description	Category
PCL 1	2	Participant Skipped Items	MAR
PCL 2	2	Participant Skipped Items	MAR
PCL 3-17	1	Participant Skipped Items	MAR
AAQ 1-7	1	Participant Skipped Items	MAR
MEAQ 1	1	Participant Skipped Item	MAR
MEAQ 3	1	Participant Skipped Item	MAR
MEAQ 8	2	Participant Skipped Items	MAR
MEAQ 9-13	1	Participant Skipped Item	MAR
MEAQ 15-16	1	Participant Skipped Item	MAR
MEAQ 19	1	Participant Skipped Item	MAR
MEAQ 20	2	Participant Skipped Items	MAR
MEAQ 24	1	Participant Skipped Item	MAR
MEAQ 26	1	Participant Skipped Item	MAR
MEAQ 27	2	Participant Skipped Items	MAR
MEAQ 32	2	Participant Skipped Items	MAR
MEAQ 34-35	1	Participant Skipped Item	MAR
MEAQ 37	1	Participant Skipped Item	MAR

MEAQ 44-45	2	Participant Skipped Items	MAR
MEAQ 54	1	Participant Skipped Item	MAR
MEAQ 57-62	1	Participant Skipped Items	MAR
CMPB 1-13	1	Participant Skipped Items	MAR
CMPB 14	2	Participant Skipped Item	MAR
CMPB 15-18	1	Participant Skipped Items	MAR
CMPB 19	4	Participant Skipped Item	MAR
CMPB 20-25	1	Participant Skipped Items	MAR
CMPB 26	2	Participant Skipped Item	MAR
CMPB 27-29	1	Participant Skipped Items	MAR
CMPB 30-31	2	Participant Skipped Items	MAR
CMPB 32	1	Participant Skipped Item	MAR
CMPB 33	2	Participant Skipped Item	MAR
CMPB 34 - 46	1	Participant Skipped Item	MAR
DASS 3	1	Participant Skipped Item	MAR
DASS 15	1	Participant Skipped Items	MAR
DASS 19	65	Researcher Omitted Item	MCAR

Finally, all data were screened for violations of the statistical assumptions required for the computation of all formal analyses (i.e., descriptive statistics, bivariate correlations, a series of regression analyses, a series of two-way between groups ANOVAs, and a series of one-way between groups ANOVAs). Specifically data were screened for statistical outliers, normality, and linearity. Individual scatterplots were constructed, graphing all dependent variables individually to screen for statistical outliers, and normality. All assumptions were met for each of the dependent variables; however, the Kolmogorov-Smirnov test indicated that both DASS

depression subscale scores and CMPB total scores appeared to be mildly, positively skewed. Pallant (2007) discusses departures from normality in social science research and reports that techniques such as regression analyses are tolerant of deviations from normality in dependent variables so long as sample sizes are adequate (i.e., greater than 30). Therefore, it was expected that this mild deviation from normality would not pose problems in subsequent analyses.

After screening the data, a series of formal analyses corresponding to the study hypotheses were conducted. First, in order to test hypotheses 1a – 1c, a series of mediation analyses were conducted. In this case, the independent variable, MST exposure, was defined categorically and the proposed mediating variable (experiential avoidance) and all dependent variables (i.e., PTSD, depression, anxiety, stress, physical health, and excessive/problem behaviors) were defined continuously. According to Iacobucci (2012), the traditional mediation analyses defined by Baron and Kenny (1986) can be used when an independent variable is defined categorically, so long as the mediator and dependent variable are continuous. This is because the independent variable functions only as a predictor variable in the regression equations. To conduct the analyses, MST exposure was coded as having occurred (1) or having not occurred (0).

To test for mediation per Baron and Kenny's (1986) technique, the following three analyses were conducted a total of six times (once for each dependent variable). First, the potential mediator (experiential avoidance) was regressed on the independent variable (MST exposure). Next, each dependent variable was regressed on the independent variable (MST exposure). Third, each dependent variable was regressed on both the independent and mediating variable. Partial-mediation was said to have occurred if the following conditions were met: (1) the MST exposure predicted experiential avoidance, (2) MST exposure predicted higher scores

on the dependent outcome variables, (3) experiential avoidance impacted the dependent outcomes variables, and (4) the effect of MST exposure on the dependent variables was less when EA was entered into the equation.

Next, to test hypotheses 2a – 2c, a series of two-way between groups ANOVAs were conducted to test the interaction effects of experiential avoidance and MST exposure on the subsequent development of the previously cited dependent variables (i.e., PTSD, depression, anxiety, stress, physical health, and excessive/problem behaviors). It is important to note that two-way ANOVAs are used to test for moderation when one or both of the independent variables are measured categorically. For the purposes of these analyses, both independent variables were coded in this way. Specifically, as noted above, MST exposure was coded as having occurred (1) or having not occurred (0). Experiential avoidance was also measured categorically, with respondents divided into three groups representing low (1), medium (2), and high (3) levels of avoidance. As noted above, these scores were composite z-scores derived from participants' responses on the AAQ-II and MEAQ.

Importantly, all potential interaction effects were tested independently; therefore, the following process was completed six times, once for each of the dependent variables. First, main effects, which refer to changes in levels of the dependent variable based on levels of an independent variable, were computed for each of the independent variables (i.e., trauma exposure and experiential avoidance). Next, interaction effects, which refer to changes in the simple main effects at different levels of a second independent variable (i.e., experiential avoidance) were computed. An interaction effect was determined to be present when the relationship between trauma exposure and the dependent variables varied as a function of different levels of the moderator variable (i.e., experiential avoidance).

Finally, to test hypotheses 3a – 3b, a series of one-way between groups ANOVAs were computed to test for significant differences among mean scores on experiential avoidance and/or the dependent variables, based on type of trauma exposure. In this instance, the independent variable, trauma exposure, was measured categorically. Specifically, participants were asked to complete the LEC and to then indicate the trauma that they found to be “most distressing” of the events endorsed. Trauma exposure was then divided into three categories: (1) exposure to MST, (2) exposure to civilian sexual assault/CSA, and (3) exposure to a non-sexual traumatic event. If women endorsed the presence of multiple traumatic events on the LEC, they were placed in the category which corresponded to their stated “most distressing event.” For example, if a woman endorsed experiencing MST and combat exposure, but indicated that combat exposure was her “most distressing event,” she was placed in the category which corresponded to that form of exposure (i.e., “3 – exposure to a non-sexual traumatic event”). All dependent variables were measured continuously.

Results

Sample Characteristics

The study sample was comprised of 65 female veterans currently enrolled in the VAAHS and seeking treatment through the Women’s Healthcare Clinic. It should be noted that the appointments sought through the Women’s Healthcare Clinic were routinely scheduled, physical health visits. All participants were recruited between October 2013 and February 2014. Because study methodology necessitated that each participant have a history of trauma exposure, as measured by the PCL-C, in order to interpret scores on subsequent measures, participants who denied experiencing a potentially traumatic event were excluded from subsequent analyses ($n = 4$). Furthermore, four participants failed to complete the study, all citing a lack of time to fill out

the measures. Thus, while 73 participants began the study, only 65 were included in the final analyses and write-up. It is important to reiterate that participation was voluntary and participants were offered the opportunity to earn compensation in the form of a ten dollar Target gift card.

Study respondents ranged in age from 22 to 66 years ($M = 38.5$; $SD = 11.3$). A majority of participants identified as Caucasian (65%; $n = 42$) or African American (23%; $n = 15$), with a smaller fraction indicating Hispanic (1.5%; $n = 1$), Asian (1.5%, $n = 1$), or multi-racial ethnicities (7.6%; $n = 5$). One participant declined to report her race. With regard to current employment status, participants were largely divided among the categories of full time employment (30.8%, $n = 20$), part-time employment (18.8%, $n = 12$), and unemployment with the receipt of disability (24.5%, $n = 16$). Additional demographic data were divided into two categories: (1) person-related information and (2) service-related information. Table 2 provides additional personal demographic features of this sample including education, marital status at time of enlistment in the military and currently, number of children, and income level. Table 3 provides service-related demographic features including branch of the military, service-period, duration of service, number of deployments (can be deployment to combat or non-combat zones), active-duty status, and service-connection status.

Table 2

Person-Related Descriptive Statistics for Sample

	Percent	<i>n</i>
Education Level		
GED	3.1	2
High School Diploma	35.4	23
Associate's Degree	32.3	21
Bachelor's Degree	21.5	14
Master's Degree	6.2	4
Did Not Indicate	1.5	1
Marital Status (Enlistment)		
Married	43.1	28
Divorced	13.8	9
Single	40.0	26
Living with Partner	1.5	1
Did Not Indicate	1.5	1
Marital Status (Current)		
Married	29.2	19
Divorced	38.5	25
Single	20.0	13
Remarried	1.5	1

Widowed	4.6	3
Living with Partner	4.6	3
Did Not Indicate	1.5	1
Number of Children		
<hr/> None	33.8	22
One	23.1	15
Two	26.2	17
Three	12.3	8
Four +	3.0	2
Did Not Indicate	1.5	1
Income Level (US Dollars)		
<hr/> > 150,000	3.1	2
100,000 – 149,999	1.5	1
75,000 – 99,999	4.6	3
50,000 – 74,999	16.9	11
25,000 – 49,999	30.8	20
10,000 – 24,999	27.7	18
≤ 9,999	7.7	5
Don't Know	3.1	2
Prefer Not to Say	3.1	2
<hr/>		

Table 3

Service-Related Descriptive Statistics for Sample

	Percent	<i>n</i>
Branch of Service		
Army	36.9	24
Army National Guard	3.1	2
Navy	21.5	14
Air Force	20.0	13
Marine Corps	6.2	4
Marine Corps Reserve	1.5	1
Coast Guard	1.5	1
Army Nat. Guard & Navy	1.5	1
Navy & Navy Reserve	3.1	2
Army & Army Reserve	1.5	1
Army Res. & Air Force	1.5	1
Army Reserve & Navy	1.5	1
Service Period		
Vietnam	3.1	2
Post-Vietnam	13.8	9
Persian Gulf	13.8	9
OIF/OEF/OND	50.8	33
Persian Gulf & OIF/OEF/OND	4.6	3
Did Not Indicate	13.8	9

Duration		
< 1 Year	3.1	2
1-2 Years	13.8	9
3-4 Years	38.5	25
5-6 Years	18.5	12
7-8 Years	6.2	4
9-10 Years	4.6	3
11+ Years	15.4	10
Number of Deployments		
None	58.5	38
One	16.9	11
Two	13.8	9
Three	3.1	2
Four or More	6.2	4
Did Not Indicate	1.5	1
Active Duty Status		
No – Not Active	98.5	64
Yes – Currently Active	1.5	1
Service-Connection Status		
Not Connected	29.2	19
Yes – Physical	35.4	23
Yes – Mental Health	4.6	3
Yes – Physical & Mental	30.8	20

Independent Variable – Trauma Exposure

Exposure to Potentially Traumatic Events. As noted above, 100% of the study sample ($n = 65$) reported experiencing at least one traumatic event as defined by the LEC. The LEC provides data regarding exposure to potentially traumatic experiences (e.g., exposure to physical violence, exposure to severe human suffering, etc.), but not frequency. The number of categorically unique potentially traumatic events that participants reported experiencing and/or witnessing ranged from 1 to 16 out of a possible 17 ($M = 7.2$; $SD = 3.3$). In order to determine the number of events each participant had experienced, each stressor was dichotomized to indicate the presence or absence of that particular trauma type. Note that participants were coded as having experienced an event if they reported that the event “happened to them” or they “witnessed it.” This is to ensure trauma exposure was defined in a manner consistent with the DSM-5 (2013). These variables were then summed to compute a composite of the number of types of events experienced. To reiterate, frequency data are not available via the LEC; therefore, it is possible that two respondents could receive identical trauma category scores, but differ in terms of trauma frequency.

Frequently Experienced Events. The most frequently endorsed potentially traumatic events included experiencing or witnessing a car accident (80%, $n = 52$), physical assault (66.2%, $n = 43$), unwanted or uncomfortable sexual experience (66.2%, $n = 43$), and the sudden or unexpected death of someone close to you (66.2%, $n = 43$). Table 4 lists, in descending order, the percentage of the sample reporting each potentially traumatic event as defined by the LEC.

Table 4

Percentage of Sample Reporting Exposure to Each Possible Event

LEC Event	Percent	<i>n</i>
Transportation Accident	80.0	52
Physical Assault	66.2	43
Unwanted/Uncomfortable Sexual Experience	66.2	43
Sudden/Unexpected Death of Someone Close	66.2	43
Other Stressful Event/Experience	58.5	38
Sexual Assault	55.4	36
Natural Disaster	49.2	32
Life-Threatening Illness/Injury	49.2	32
Serious Accident at Work, Home, etc.	41.5	27
Fire or Explosion	40.0	26
Combat or Exposure to War-Zone	30.8	20
Exposure to Toxic Substance	29.2	19
Assault with a Weapon	29.2	19
Severe Human Suffering	21.5	14
Sudden, Violent Death	21.5	14
Serious Injury, Harm, or Death You Caused	9.2	6
Captivity (e.g., kidnapping, POW)	7.7	5

Worst/Most Distressing Event. Because participants were allowed to endorse multiple events, it was important to identify the subjectively *worst* event experienced. Overwhelmingly, sexual assault (e.g., rape, attempted rape, or being made to perform any type of sexual act through force of threat or harm) was reported as the *worst* event (41.5%, $n = 27$). Other frequently endorsed *worst* events included, any other very stressful event/experience not listed on the PCL-C (13.8%, $n = 9$), transportation accident (7.7%, $n = 5$), other unwanted/uncomfortable sexual experience (7.7%, $n = 5$), and the sudden unexpected death of someone close to you (6.2%, $n = 4$).

Exposure to Sexual Assault. For the purposes of this study, it was important to determine the presence of MST and civilian sexual assault (CSA). Participants were first asked to indicate whether or not they had experienced a sexual assault and/or unwanted sexual experience in any context. Importantly, 78.5% of the total sample ($n = 51$) reported having experienced as least one instance of inappropriate sexual behavior or assault, with 53.8% ($n = 35$) of the total sample reporting that this was their “worst” experienced trauma. Next, if participants identified sexual assault/inappropriate sexual contact as a *worst* event, they were then asked to report whether or not the assault had occurred while they were serving in the military. Approximately 54.3% of those reporting sexual assault reported that it had occurred in the military ($n = 19$), with the remaining 16 individuals reporting a civilian assault (45.7%).

Finally, as noted in the above methodology section, participants were divided into one of three groups of trauma exposure based on the event they reported as the *worst*: (1) exposure to MST, (2) exposure to civilian sexual assault/CSA, or, (3) exposure to a non-sexual traumatic event. This was to allow for comparisons on the dependent variables to be made across groups.

Table 5 reports the percentage of individuals placed into each category, based on the event reported as the *worst*.

Table 5

Percentage of Sample Placed Within Each Category Based on “Worst” Event

Category	Percent	<i>n</i>
Military Sexual Assault	29.2	19
Civilian Sexual Assault/CSA	24.6	16
Non-Sexual Traumatic Event	46.2	30

Qualitative MST Data. As noted above, the SES was administered as a way of qualitatively assessing for experiences with inappropriate sexual behavior while in the military. Table 6 depicts the responses to the SES. For each item, participants were asked to answer *yes* or *no* regarding whether they had experienced this while serving in the military. Importantly, the most commonly endorsed inappropriate sexual behaviors included the following: having someone misinterpret your desire for sexual intimacy (58.5%), having someone say something that you later learned they did not mean in order to obtain sexual intercourse (46.2%), and being threatened with physical force and made to engage in sexual behavior such as fondling, kissing, or touching (44.6%). Importantly, approximately 29% of female respondents reported experiencing a completed rape while in the military. This number is consistent with the number of MST experiences reported as the *worst* experienced event on the LEC (29.2%), suggesting that participants who reported experiencing a sexual assault while in the military reported this consistently across measures.

Table 6

Percentage of Sample Reporting Exposure to Each SES Event While in the Military

SES Event	Percent	<i>n</i>
Consensual sexual intercourse	87.7	57
Someone misinterpreted your desire for sexual intimacy	58.5	38
You felt that it was useless to stop someone from pursuing sexual intercourse with you	26.2	17
You had sexual intercourse out of fear that your partner would end your relationship otherwise	15.4	10
You had sexual intercourse out of pressure from continual arguments	32.3	21
Someone said things they didn't mean to obtain sexual intercourse from you	46.2	30
Someone threatened physical force in an attempt to make you engage in kissing or petting when you didn't want to	44.6	29
Someone tried to get sexual intercourse when you didn't want to by threatening to use physical force	15.4	10

(but intercourse did not occur)		
Someone used physical force to attempt to make you have sexual intercourse but for some reason it did not occur	10.8	7
You had sexual intercourse when you didn't want to due to the threat of physical force	13.8	9
You had sexual intercourse when you didn't want to because someone was using physical force	27.7	18
Someone obtained anal or oral intercourse with you when you didn't want to by using threat or physical force	21.5	14
You were raped in the military	29.2	19

Potential Mediating/Moderating Variable Characteristics

Experiential Avoidance. Experiential avoidance was measured by both the AAQ-II and the MEAQ. As noted above, participants' total scores on each measure were translated into z-scores and summed to create a composite score of avoidance. With regard to the AAQ-II, participants' scores ranged from 7 to 49, with a mean score of 23.8 ($SD = 12.5$). AAQ-II norms are sample specific; however, higher scores are reflective of increased levels of experiential avoidance. The MEAQ was also administered. This measure yields scores on six factors as well as a total experiential avoidance score. On the MEAQ total score participants' responses ranged from 132 to 306, with a mean of 214.7 ($SD = 45.9$). Normative data for the MEAQ exists for college students ($M = 195.1$; $SD = 34.5$), community adults ($M = 185.3$, $SD = 40.0$), and

psychiatric patients ($M = 219.8$, $SD = 39.5$). As is evident, the mean scores for this sample were consistent with what would be expected from a sample of psychiatric patients. Subscale scores are presented in Table 7. These scores are also consistent with those found in a psychiatric population.

Table 7

Means and Standard Deviations for Each MEAQ Subscale

Subscale	Mean	SD
Behavioral Avoidance	41.0	11.7
Distress Aversion	48.2	12.3
Procrastination	25.4	8.2
Distraction & Suppression	30.1	6.5
Repression & Denial	37.4	12.7
Distress Endurance	44.4	9.0

Dependent Variable Characteristics

Posttraumatic Stress Symptomatology. The Posttraumatic Stress Disorder Checklist – Civilian Version (PCL-C) was utilized to assess the severity of posttraumatic stress disorder symptomatology. Participants' scores ranged from 17 to 84, with a mean of 47.0 ($SD = 18.1$). According to Weathers et al. (1993), a score of 50 is the recommended cut-off on the PCL-C, used to determine the probability of PTSD. Using this cut-score, 44.6 % ($n = 29$) of respondents' scores fell within the PTSD-probable range.

Excessive/Problem Behaviors. The CMPB was utilized to assess engagement in problem and/or excessive behaviors such as binge eating and self-harm. Participants' scores on

this measure ranged from 72 to 168, with a mean of 103.8 ($SD = 21.7$). Cut-off scores reflecting mild, moderate, and severe levels of engagement in problem behaviors have not been developed; however, the scale ranges from 46 to 276 with higher scores reflecting increased excessive behavior.

Physical Health Composite. The composite physical health summary score (PCS) of the SF-12® was used to measure participants' perceptions of their physical health and limitations in physical functioning. Approved scoring software was used to compute T-scores for each participant's PCS score. T-scores have a mean of 50 and a standard deviation of 10. In this sample, participants' scores ranged from 23.0 to 63.0 with a mean of 43.4 ($SD = 11.4$). On the PCS, T-scores above the mean reflect better health functioning and scores below the mean represent poorer functioning.

Depression. The depression subscale of the DASS was used to assess for the presence and severity of depressive symptoms. Participants' scores ranged from 0 to 19 with a mean of 5.4 ($SD = 5.1$). On this subscale, scores ranging from 5-6 are considered mild, scores 7-10 are considered moderate, scores 11 -13 are considered severe, and scores above 14 are considered extremely severe. Using this scoring criteria, approximately 12% of the sample reported mild symptoms, 15% reported moderate symptoms, 8% reported severe symptoms, and 11% reported extremely severe depressive symptoms. The remainder of the sample scored within the normal range (54%).

Anxiety. The anxiety subscale of the DASS was used to assess for the presence and severity of anxiety-related symptoms. Participants' scores ranged from 0 to 13, with a mean of 4.8 ($SD = 3.7$). On this subscale, scores ranging from 4-5 are considered mild, scores between 6-7 are considered moderate, scores between 8-9 are considered severe, and scores above 10 are

considered extremely severe. Using these scoring criteria, approximately 22% of the sample reported mild symptoms, 12% reported moderate symptoms, 11% reported severe symptoms, and 14% reported extremely severe anxiety symptoms. The remainder of the sample scored within the normal range (41%).

Stress. The stress subscale of the DASS was used to assess for the presence and severity of stress-related symptoms. Participants' scores ranged from 0 to 19 with a mean of 7.7 ($SD = 5.1$). On this subscale, scores ranging from 8-9 are considered mild, scores between 10-12 are considered moderate, scores between 13-16 are considered severe, and scores above 17 are considered extremely severe. Using these scoring criteria, approximately 17% of the sample reported mild symptoms, 8% reported moderate symptoms, 18% reported severe symptoms, and 3% reported extremely severe stress symptoms. The remainder of the sample scored within the normal range (54%).

Hypotheses 1a – 1c

Mediation analyses were used to test the impact of experiential avoidance on the relationships between MST exposure and all dependent variables. A series of multiple regressions were conducted to examine whether experiential avoidance mediated the relationship between MST exposure and PTSD symptomatology, as measured by the PCL-C. Baron and Kenny's (1986) three-step model of mediation was followed; first, the proposed mediator (experiential avoidance) was regressed on MST exposure ($\beta = .73, p < .004$). Second, the dependent variable (PTSD symptomatology) was regressed on MST exposure ($\beta = 14.61, p < .002$), and third, the dependent variable (PTSD symptomatology) was regressed on both the independent (MST exposure) and mediating variable (experiential avoidance). Importantly, in this third equation, the relationship between the mediator and dependent variable remained

significant ($\beta = 13.94, p < .001$); whereas, the effect of trauma exposure on the dependent variable no longer reached statistical significance ($\beta = 4.51, p = .20$). According to Baron and Kenny (1986), when the effect of the independent variable in the third equation of the statistical series is less than in the second equation, partial-mediation is said to have occurred. To further verify this, Sobel's (1982) approximate significance test was calculated and revealed that indeed the difference in β -values for MST exposure in the second and third equations were statistically significant ($z = 2.91, p < .002$), confirming the presence of partial-mediation.

Next, the same series of analyses was repeated to test the mediating impact of experiential avoidance on the relationship between MST exposure and depressive symptoms, as measured by the DASS. In this case, the same independent and potential mediating variables were used; thus, in the first equation, the significance of the effect of MST exposure on experiential avoidance remained the same ($\beta = .73, p < .004$). In the second equation, the effect of MST exposure on depressive symptoms was also significant ($\beta = 2.96, p < .03$). Finally, in the third equation, the effect of experiential avoidance on depressive symptoms was significant ($\beta = .11, p < .001$); however, the effect of MST exposure on depressive symptoms also reached statistical significance ($\beta = .40, p = .05$). Again, Sobel's (1982) approximate significance test was calculated and confirmed that difference in β -values for MST exposure in the second and third equations was not statistically significant ($z = .36, p = .72$), suggesting that partial-mediation had not occurred.

A third series of mediation analyses were conducted to test the mediating impact of experiential avoidance on the relationship between MST exposure and anxiety symptoms, as measured by the DASS. In the first equation, the statistical significance of the effect of MST exposure on experiential avoidance remained the same ($\beta = .73, p < .004$). In the second

equation, the effect MST exposure on anxiety symptoms was also significant ($\beta = 2.45, p < .01$). In the third equation, the effect of experiential avoidance on anxiety symptoms was statistically significant ($\beta = 2.66, p = .38$); whereas the effect of MST exposure did not reach statistical significance in the combined equation ($\beta = .52, p = .77$). However, Sobel's (1982) approximate significance test determined that difference in β -values for MST exposure in the second and third equations was not statistically significant ($z = .66, p = .51$), suggesting that partial-mediation did not occur.

Finally, a fourth series of mediation analyses were conducted to test the mediating impact of experiential avoidance on the relationship between MST exposure and stress-related symptoms, as measured by the DASS. In the first equation, the statistical significance of the effect of MST exposure on experiential avoidance remained the same ($\beta = .73, p < .004$). In the second equation, the effect MST exposure on stress-related symptoms was also significant ($\beta = 3.03, p = .03$). In the third equation, the effect of experiential avoidance on stress-related symptoms was statistically significant ($\beta = 3.05, p < .001$); whereas the effect of MST exposure did not reach statistical significance in the combined equation ($\beta = .82, p = .50$). However, again Sobel's (1982) approximate significance test determined that difference in β -values for MST exposure in the second and third equations was not statistically significant ($z = .66, p = .51$), suggesting that partial-mediation had not occurred.

A series of mediation analyses were planned to test the impact of experiential avoidance on the relationship between MST exposure and engagement in problem/excessive behaviors (as measured by the CMPB) and between MST exposure and physical health symptoms (as measured by the SF-12® PCS scores); however, MST exposure was not found to predict CMPB or SF-12® PCS scores.

Hypotheses 2a – 2c

A series of two-way between-groups ANOVAs were conducted to explore the impact of MST trauma exposure and experiential avoidance on levels of each dependent variable.

Participants were divided into three groups according to their composite experiential avoidance z-score, and were then assigned to one of three categories corresponding to the mean score, plus and minus one standard deviation. With regard to MST exposure, participants were assigned to either condition 1 (presence of MST exposure; $n = 19$) or condition 0 (absence of MST exposure; $n = 46$).

First, the impact of MST exposure and experiential avoidance on levels of PTSD symptomatology, as measured by the PCL-C was explored. There was a statistically significant main effect for level of experiential avoidance, $F(2, 59) = 16.70, p = .00$, resulting in a large effect size (partial eta squared = .36). Post-hoc comparisons using the Tukey HSD indicated that significant mean differences existed between Group 1 ($M = 32.04, SD = 12.89$) and Group 2 ($M = 45.28, SD = 14.79$), Group 2 ($M = 45.28, SD = 14.79$) and Group 3 ($M = 69.92, SD = 9.41$), and Group 1 ($M = 32.04, SD = 12.89$) and Group 3 ($M = 69.92, SD = 9.41$). The main effect for MST exposure, $F(1, 59) = 2.56, p = .12$, did not reach statistical significance. The interaction effect between MST exposure and level of experiential avoidance was not statistically significant, $F(2, 59) = .18, p = .84$.

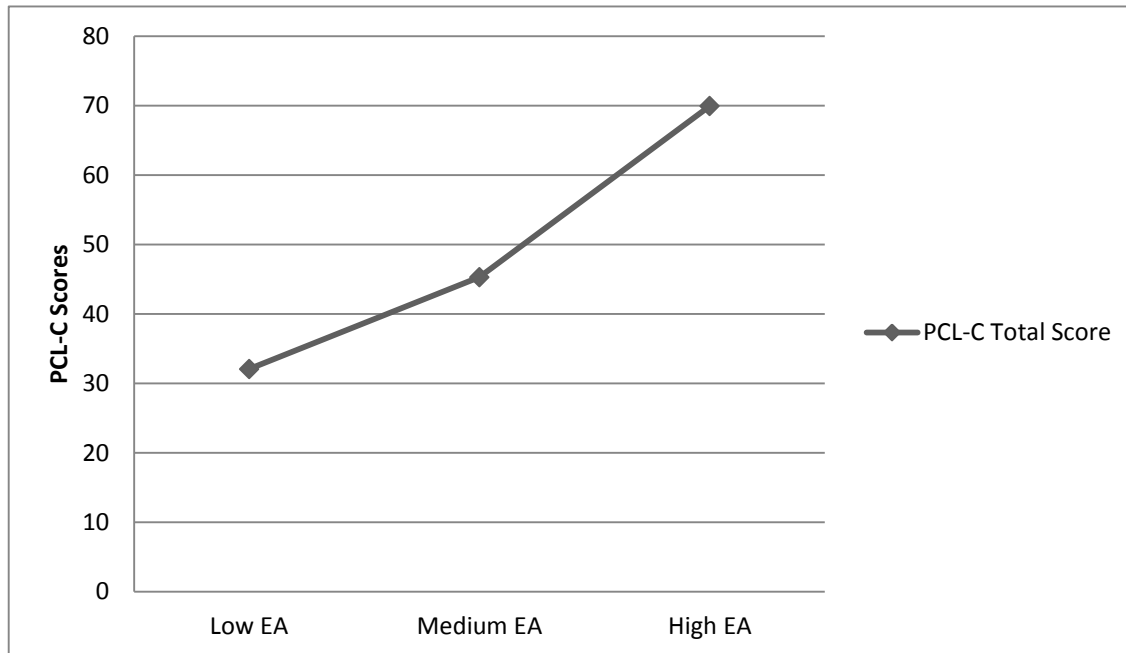


Figure 1. Relationship between level of EA and PCL-C total scores

Next, the impact of the proposed interaction effect on levels of depressive symptoms, as measured by the DASS was explored. There was a statistically significant main effect for level of experiential avoidance, $F(2, 59) = 7.64, p = .00$, resulting in a large effect size (partial eta squared = .21). Post-hoc comparisons using Tukey's HSD indicated that significant mean differences existed between Group 1 ($M = 1.71, SD = 1.49$) and Group 2 ($M = 5.38, SD = 4.72$), Group 2 ($M = 5.38, SD = 4.72$) and Group 3 ($M = 9.68, SD = 5.90$), and Group 1 ($M = 5.38, SD = 4.72$) and Group 3 ($M = 9.68, SD = 5.90$). The main effect for MST exposure, $F(1, 59) = .42, p = .52$, did not reach statistical significance nor did the interaction between MST exposure and level of experiential avoidance, $F(2, 59) = .35, p = .71$.

The impact of the proposed interaction effect on levels of anxiety symptoms, as measured by the DASS, was also explored. Again, there was a statistically significant main effect for level of experiential avoidance, $F(2, 59) = 8.85, p = .00$, resulting in a large effect size (partial eta squared = .23). Post-hoc comparisons using the Tukey HSD indicated that significant mean

differences existed between Group 1 ($M = 1.86, SD = 2.32$) and Group 2 ($M = 4.74, SD = 3.34$), Group 2 ($M = 4.74, SD = 3.34$) and Group 3 ($M = 8.31, SD = 2.94$), and Group 1 ($M = 1.86, SD = 2.32$) and Group 3 ($M = 8.31, SD = 2.94$). The main effect for MST exposure, $F(1, 59) = 1.46, p = .23$, did not reach statistical significance, nor did the interaction between MST exposure and level of experiential avoidance, $F(2, 59) = .32, p = .73$.

Next, the proposed interaction effect on levels of stress symptoms, as measured by the DASS, was also explored. There was a statistically significant main effect for level of experiential avoidance, $F(2, 59) = 4.22, p = .02$, resulting in a large effect size (partial eta squared = .13). Post-hoc comparisons using the Tukey HSD indicated that significant mean differences existed between Group 1 ($M = 4.57, SD = 4.26$) and Group 3 ($M = 11.67, SD = 5.12$), and Group 2 ($M = 7.51, SD = 4.55$) and Group 3 ($M = 11.67, SD = 5.12$). The main effect for MST exposure, $F(1, 59) = 1.70, p = .20$, did not reach statistical significance. The interaction effect between MST exposure and level of experiential avoidance was also nonsignificant, $F(2, 59) = .16, p = .85$.

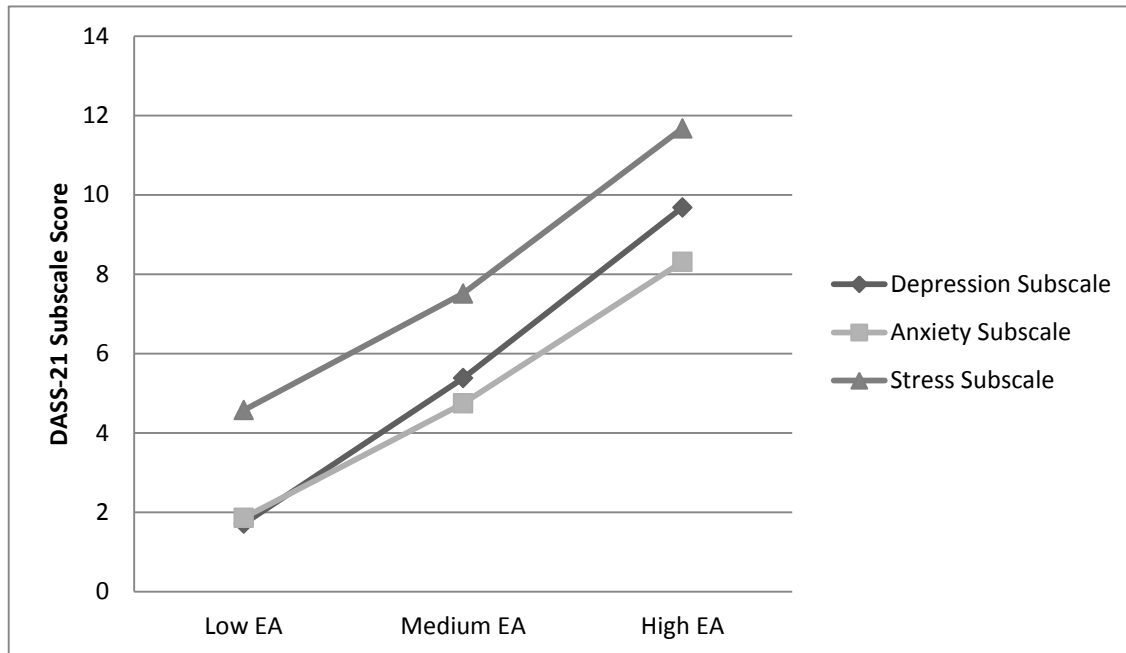


Figure 2. Relationship between level of EA and DASS-21 subscales

Next, the proposed interaction effect on physical health symptoms, as measured by the PCS composite of the SF-12® was tested. In this case, the main effect for level of experiential avoidance, $F(2, 59) = .60, p = .55$, did not reach statistical significance, nor did the main effect for MST exposure, $F(1, 59) = .99, p = .32$, or the interaction effect between MST exposure and level of experiential avoidance, $F(2, 59) = 2.23, p = .12$.

Finally, the proposed interaction effect on engagement in problem behaviors, as measured by the CMPB was tested. In this case, the main effect for level of experiential avoidance, $F(2, 59) = 2.96, p = .06$, also did not reach statistical significance, nor did the main effect for MST exposure, $F(1, 59) = .20, p = .66$, or the interaction effect between MST exposure and level of experiential avoidance, $F(2, 59) = .19, p = .83$.

Hypotheses 3a – 3b

First, a one-way between groups analysis of variance was conducted to explore the impact of trauma exposure type on levels of experiential avoidance, as measured by the AAQ-II and MEAQ composite z-score (Hypothesis 3a). In this series of analyses, participants were divided into three groups according to their type of trauma exposure (Group 1: MST exposure, Group 2: exposure to civilian sexual assault, Group 3: exposure to a non-sexual trauma). There was a statistically significant difference at the $p < .05$ level in Experiential Avoidance z- scores for the three groups: $F(2, 62) = 5.6, p = .01$. Eta squared was calculated and a large effect size was found (.15). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = .513, SD = 1.05$) was significantly different from Group 3 ($M = -.343, SD = .74$). Group 2 ($M = .034, SD = .87$) did not differ significantly from either Group 1 or 3.

Next, a series of one-way between groups ANOVAs were conducted to explore the impact of trauma exposure type on levels of each dependent variable (i.e., PTSD symptomatology as measured by the PCL-C, depressive, anxiety, and stress symptoms as measured by the DASS, engagement in problem behaviors as measured by the CMPB, and physical health functioning as measured by the SF-12® physical health summary score). Again, participants were divided into the aforementioned trauma exposure groups. There was a statistically significant difference at the $p < .05$ level in PCL-C scores for the three groups: $F(2, 62) = 5.6, p = .01$. The effect size was calculated using eta squared and was determined to be large (.15). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = 57.32, SD = 18.77$) was significantly different from Group 3 ($M = 40.75, SD = 16.27$). Group 2 ($M = 46.38, SD = 15.85$) did not differ significantly from either Group 1 or 3.

A statistically significant difference at the $p < .05$ level in DASS anxiety symptom scores was also found across the three groups: $F(2, 62) = 4.1, p = .02$. A large effect size was determined to exist (eta squared = .12). Post-hoc comparisons using the Tukey HSD test revealed that, again, the mean score for Group 1 ($M = 6.51, SD = 3.33$) was significantly different from Group 3 ($M = 3.60, SD = 3.47$). Group 2 ($M = 4.94, SD = 3.73$) did not differ significantly from either Group 1 or 3.

A statistically significant difference at the $p < .05$ level in SF-12® PCS composite scores was also found across the three groups: $F(2, 62) = 4.11, p = .02$. A large effect size was also determined to exist (eta squared = .12). Post-hoc comparisons using the Tukey HSD test revealed that the mean score for Group 2 ($M = 48.7, SD = 10.14$) was significantly different than Group 3 ($M = 39.42, SD = 11.42$). Group 1 did not differ significantly from either Group 2 or 3.

Statistically significant differences ($p < .05$) in DASS depression scores [$F(2, 62) = 2.5, p = .09$], DASS stress scores [$F(2, 62) = 2.9, p = .06$], and CMPB scores [$F(2, 62) = 1.1, p = .3$] across the three groups were not found.

Discussion

Over the past twenty years, MST has emerged as a national crisis. With increasing numbers of women entering the United States Armed Forces and data suggesting that a substantial percentage may experience some form of MST ranging from sexual harassment to completed rape, it is incumbent upon both the DoD and psychological community to appropriately understand and treat the sequelae associated with this form of trauma exposure. Existing data have revealed that MST exposure is associated with myriad psychological and physical health risks including PTSD, depression, anxiety, substance use disorders (SUDs), engagement in problem and excessive behaviors, and poor health outcomes (Frayne et al., 1999;

Hankin et al., 1999; Kimerling, Gima, Smith, Street, & Frayne, 2007; Rowe et al., 2009; Strauss et al., 2011; Suris et al., 2004). However, despite exploring these outcomes as independent variables, little attention has been directed toward understanding a potential unifying mechanism through which such negative outcomes are more likely to emerge or become amplified after MST exposure. Currently, the existing general trauma literature provides a framework from which to consider potential mechanisms of action. The construct of experiential avoidance has emerged as an intriguing potential moderating and/or mediating variable, given its existing relationship with both trauma exposure and problematic behavioral responses. However, this variable had not been studied within the context of MST exposure. Importantly, because it has been determined that MST exposure is often experienced differently than other forms of trauma exposure (Yaeger et al., 2006), including civilian sexual assault (Suris et al., 2004), findings regarding the relationship between experiential avoidance and non-MST trauma may not be generalizable.

Given the current limitations within the MST literature, this study was designed to test the potential mediating and/or moderating role of experiential avoidance in a sample of female veterans exposed to different categories of trauma (i.e., MST exposure, civilian sexual assault/CSA, and non-sexual trauma). The overarching goal was to generate increased insight into the ways in which poor psychological and physical health outcomes may be more likely to develop following MST exposure. Specifically, three sets of hypotheses were tested. First, the potential mediating role of experiential avoidance was tested and the following were hypothesized: (a) MST exposure would predict increased physical and psychological distress as measured by the PCL-C, DASS, SF-12®, and CMPB, (b) experiential avoidance would be positively correlated with each of the dependent variables, and (c) experiential avoidance would

partially mediate the relationships among MST exposure and all proposed dependent variables. Next, a second set of hypotheses were designed to test the potential moderating role of experiential avoidance. The following predictions were made: (a) the dependent variable scores will vary as a function of whether or not the participant was exposed to MST, (b) the dependent variable scores will vary as a function of level of experiential avoidance, and (c) the influence of MST on the dependent variables will depend on level of experiential avoidance. Finally, because existing literature has suggested that MST often produces unique and more severe sequelae, the third set of hypotheses were designed to explore differences in the dependent variable scores across three groups of trauma exposure (i.e., MST exposure, civilian sexual assault/CSA exposure, and non-sexual trauma exposure). It was hypothesized that statistical differences in experiential avoidance and all dependent variable scores would emerge across the three categories of trauma exposure.

Mediation

With regard to the proposed mediating role of experiential avoidance, the aforementioned hypotheses were found to be partially supported. First, it was revealed that both MST exposure and increased experiential avoidance predicted greater psychological distress across measures of PTSD, depression, anxiety, and stress. However, neither MST exposure, nor experiential avoidance were associated with poorer physical health functioning or engagement in excessive/problem behaviors as measured by the SF-12[®] PCS score and CMPB. Importantly, with regard to the mediating role of experiential avoidance, this variable was found to partially mediate the relationship among MST exposure and PTSD symptomatology, but not among MST exposure and any of the other proposed outcome variables. This finding suggests that the development of PTSD symptoms following MST exposure can be partially accounted for by

one's engagement in experiential avoidance. Such a finding is consistent with the existing trauma literature, which has reliably found that avoidance behaviors are predictive of PTSD severity, functional impairment after trauma exposure, and maintenance of symptomatology (Nemeroff, et al., 2006; Marx & Sloan, 2005). However, this study is the first to identify the mediating role of experiential avoidance within the context of MST exposure.

This finding is particularly important given the emphasis placed on treating veterans who have experienced MST and report subsequent PTSD symptoms. Specifically, treatment interventions such as Prolonged Exposure (PE) and Cognitive Processing Therapy (CPT) that target avoidance behaviors, both behaviorally and cognitively, may be most beneficial to those who endorse higher levels of experiential avoidance. Individuals who endorse greater symptoms within the reexperiencing, negative cognitions/mood, and/or arousal domains may respond to exposure-based treatments differently than those who endorse prototypical avoidance behaviors. Additionally, the results of the mediation analyses, suggest that while experiential avoidance partially-mediates the relationship between MST exposure and PTSD, EA may not be the mechanism through which other forms of psychological or physical distress are more likely to emerge. Thus, future research will need to identify additional causal mechanisms.

Moderation

Next, the potential moderating role of experiential avoidance was also tested. As noted above, it was predicted that level of experiential avoidance and MST exposure would interact to impact scores on the proposed outcome variables (e.g., PTSD, depression, anxiety, stress, physical health functioning, and engagement in excessive/problem behaviors). Unfortunately, significant results were not found, as the interaction effect was not significant in any of the tested models. It is hypothesized that this study's statistical power may not have been high enough to

detect interaction effects. Although the total sample was sixty-five, this study's moderation analyses were conducted using data from the women who endorsed MST as their "most distressing" or "worst" event ($n = 19$); therefore, an initial adequate sample size was reduced to one-third of the total to compute these analyses. Research has found that the sample size needed to detect interaction effects often needs to be as many as four-times greater than the sample size needed to detect main effects (Fleiss, 1986). Therefore, while main effects were detected, and will be discussed next, future research may require a larger sample to fully assess for the potential moderating role of EA.

As noted, a main effect for experiential avoidance was found in four of the tested models. More specifically, one's level of experiential avoidance predicted statistically significant outcome scores on the PCL-C and each of the three DASS subscales (i.e., depression, anxiety, and stress). As described in the method section of this document, experiential avoidance scores were divided into three categories, representing low, medium, and high levels of avoidance. Post-hoc analyses revealed that statistically significant group differences emerged with regard to PCL-C scores. Specifically, each of the three experiential avoidance groups was significantly different from one another, with the high experiential avoidance group experiencing the greatest severity of PTSD symptoms. Importantly, while the low and medium experiential avoidance groups had mean PCL-C scores below the probable PTSD-diagnosis threshold ($M = 32.0$ and $M = 45.3$, respectively), those in the high experiential avoidance group had a mean PCL-C score within the PTSD-probable range ($M = 69.9$). Again, these results are consistent with the general trauma literature base that has found a clear association between avoidance and PTSD symptom severity (Nemeroff, et al., 2006). Furthermore, it should be noted that in this model, the MST exposure itself was not enough to singularly predict PTSD scores. Instead, these scores were

significantly impacted by level of EA suggesting that it may not be the trauma type or severity that influences subsequent psychological functioning, but instead the degree to which avoidance behaviors are employed post-trauma exposure.

Next, post-hoc analyses also revealed group differences on measures of depression, anxiety, and stress. First, several significant group differences in depression were found. Specifically, individuals within the low experiential avoidance group received a mean depression subscale score of 1.7, placing them in the “normal” category for depressive symptoms, those in the medium group had a mean score within the “mild” depressive symptom category ($M = 5.4$) and those in the high group had a mean score within the “moderate” depressive symptom category ($M = 9.7$). Results were similar for group differences in mean anxiety subscale scores. The low experiential avoidance group had a mean anxiety subscale score within the “normal” range ($M = 1.9$), the medium group had a mean score within the “mild” range ($M = 4.7$), and the high group had a mean score within the “severe” range ($M = 8.3$). Again, each group was significantly different than the others. Finally, the low ($M = 4.6$, “normal”) and medium ($M = 7.5$, “mild”) experiential avoidance groups were significantly different on mean stress subscale scores than the high group which had a mean stress score within the “moderate” range ($M = 11.7$).

These findings indicate that as one’s level of experiential avoidance increases, so too does one’s level of psychological distress across the domains of depression, stress, and anxiety. Importantly, these findings are consistent with Kashdan and colleague’s (2006) supposition that EA serves as a generalized vulnerability factor, making one more susceptible to increased negative affect. As the authors note, brief and/or less severe experiential avoidance is likely to serve a protective function (i.e., suppressing anxiety while in a meeting with one’s boss);

however, long-term patterns of avoidance that are more frequent and intense in nature are likely to cause disruptions in functioning including difficulty engaging in pleasant or spontaneous events, diminished contact with the present moment, and subsequent increased levels of psychological distress (Kashdan et al., 2006). The hypothesis that the detrimental effects of EA are compounded as the frequency and intensity of the behavior increases is supported by this study. Specifically, the aforementioned results suggest that those engaging in mild levels of experiential avoidance remained within the “normal” categories of depression, anxiety, and stress; however, those who reported moderate and severe levels of EA reported incrementally higher levels of distress across the measured domains.

Next, it should be noted that contrary to the proposed hypotheses, physical health functioning and engagement in excessive/problem behaviors were not influenced by level of experiential avoidance or exposure to MST. Taken together, these results suggest that while experiential avoidance is related to differences in psychological distress, it is not necessarily associated with physical health or the behavioral manifestations often associated with attempts to avoid distress, as measured by the CMPB (e.g., binge-drinking, over-exercising, cutting-behavior, etc.). This finding was somewhat surprising given existing literature that has found a direct correlation between experiential avoidance and excessive behaviors. It is possible that this sample may not be completely reflective of women exposed to MST. Specifically, the women in this sample were currently seeking treatment for physical health matters through their local VA. This would appear to reflect both insight into current functioning and a willingness to engage in self-care behaviors on the part of the participant. Thus, while the women in this sample may be reporting engagement in experiential avoidance, they are currently actively managing their health in an effective and non-avoidant manner. It is hypothesized that had data collection included

non-treatment seeking veterans, increased levels of problem or excessive behaviors may have been found.

Conversely, because data were collected within a healthcare setting, respondents may have been primed to underreport problematic health-related behaviors which may be perceived as undesirable within a healthcare context. Ultimately, regardless of the reason, this finding does suggest that treatment interventions that target experiential avoidance may be useful in reducing psychological distress (e.g., depression, anxiety, PTSD) but may have less impact on one's physical health or behavioral repertoire.

Group Differences

The final set of hypotheses was concerned with differential psychological and behavioral outcomes across trauma-exposure categories/groups. As referenced above, trauma exposure was divided into three categories (i.e., MST exposure, civilian sexual assault/CSA exposure, and non-sexual trauma exposure), and participants were placed into the category corresponding to the event they cited as the "worst" event they had experienced. Importantly, group differences emerged in this set of analyses. First, those exposed to MST versus non-sexual trauma reported significantly different levels of experiential avoidance, with those reporting MST scoring higher on the AAQ-II/MEAQ composite score. These findings lend support to the idea that individuals who have experienced MST often report greater levels of avoidance, even when compared to individuals experiencing other forms of trauma. However, there remains a difficulty in understanding the temporal sequencing of this relationship. Specifically, it is impossible to determine the direction of the relationship without using a longitudinal study, and it is equally plausible that individuals who experience greater baseline levels of experiential avoidance are more likely to experience subsequent MST. For example, individuals who endorse greater

experiential avoidance may be less observant of their environments or may engage in avoidance behaviors such as drinking or substance use that could decrease threat awareness or responsiveness, thereby increasing vulnerability to MST exposure. It should be noted that individuals exposed to civilian sexual assault/CSA did not differ significantly on scores of experiential avoidance from those exposed to the other forms of trauma.

Next, group differences across the dependent variables were assessed. First, differences in PCL-C scores emerged, with individuals endorsing MST exposure as their “worst” trauma reporting significantly higher PCL-C scores than those endorsed by individuals within the non-sexual trauma exposure category. Importantly, the average PCL-C score within the MST category was above the PTSD-probable threshold, whereas the average scores for the civilian sexual assault/CSA and non-sexual trauma categories were below. Similarly, group differences in anxiety scores revealed that individuals exposed to MST reported a mean anxiety-subscale score within the clinical range; whereas, the mean subscale scores for individuals within the civilian sexual assault/CSA and non-sexual trauma categories were within the “normal” range. In this instance, a significant group difference emerged between the MST exposure group and the non-sexual trauma group. Finally, a surprising finding emerged with regard to physical health functioning. A significant difference between the civilian sexual assault/CSA and non-sexual trauma exposure groups emerged on SF-12® PCS scores, such that individuals within the non-sexual trauma group reported poorer health functioning. A statistical difference between MST exposure and the two other trauma groups was not found. No group differences were found across depression, stress, or excessive/problem behavior scale scores.

These results support the existence of group differences across psychological and physical health outcomes. More specifically, MST exposure was associated with clinically

significant PTSD and anxiety symptoms, whereas, mean PTSD and anxiety scores for individuals exposed to civilian sexual assault/CSA and non-sexual trauma remained sub-threshold. This supports the idea that MST exposure is often experienced as more severe and/or distressing, and is more likely to lead to increased psychological distress than is exposure to other forms of trauma (Himmelfarb et al., 2006; Suris et al., 2004). Interestingly, findings revealed that physical health functioning was poorer for individuals exposed to non-sexual trauma. Given existing literature that has suggested a strong correlation between negative physical health outcomes and sexual assault/victimization, this finding was somewhat surprising. However, individuals endorsing a non-sexual trauma as their “worst” trauma were likely to report experiences such as physical assaults, serious accidents, illnesses, and injuries, all of which include a threat to physical health functioning. Therefore, it is hypothesized that this exposure to physical harm may have influenced subsequent reporting on the SF-12®.

Conclusion

Ultimately, the results of this study offer insight into both the frequency and nature of MST exposure, as well as the role of experiential avoidance within the context of MST. As noted above, this study found that nearly 78.5% of this sample of female veterans had experienced at least one instance of inappropriate/unwanted sexual behavior or a sexual assault within their lifetimes, with nearly 30% indicating that they had been raped while in the military. These findings are commensurate with existing data and suggest that rates of MST are higher than those of sexual assault within the civilian sector. Importantly, within this sample, exposure to MST was associated with increased PTSD symptomatology, depression, anxiety, and stress-related symptoms, as well as experiential avoidance at the level found in psychiatric populations. Furthermore, it was determined that experiential avoidance partially-mediated the relationship

between MST exposure and PTSD symptomatology, and that level of experiential avoidance was directly related to one's level of psychological distress across the domains of PTSD, depression, anxiety, and stress. Therefore, while the hypotheses of this study were partially supported, the results suggest that experiential avoidance plays an important role in psychological functioning post-trauma.

Furthermore, the findings regarding the role of experiential avoidance are particularly important with regard to identifying appropriate treatment interventions for MST survivors. Currently, the most commonly used treatment interventions for PTSD in female veterans exposed to MST include Cognitive Processing Therapy (CPT) and Prolonged Exposure Therapy (PE). Importantly, both of these interventions include a meaning-making/emotional processing element as well as direct exposure components; however, PE therapy offers significantly more opportunity to target avoidance behavior through both imaginal and in vivo exposure exercises. Because this study revealed that experiential avoidance partially mediated the relationship between MST exposure and PTSD symptomatology, an emphasis on targeting avoidance behaviors may serve to reduce psychological distress, even in the absence of thorough meaning-making or cognitive restructuring. Therefore, treatments that emphasize a reduction in avoidance, even if they are not traditionally conceptualized as "trauma-focused" may still prove effective (e.g., Acceptance and Commitment Therapy). Furthermore, because differential levels of experiential avoidance were found to impact the severity of post-trauma psychological functioning, a clear assessment of the frequency and severity of avoidance behaviors may serve to further direct treatment interventions. Finally, it may be the case that exposure to MST increases one's level of experiential avoidance. If this is the direction of the relationship, than attempts to resolve the trauma and to target meaning-making while also reducing avoidance

behaviors may subsequently lead to a decrease in overall EA. More specifically, if individuals are assisted with addressing and coping with their trauma, then experiential avoidance may be less relied upon as a coping mechanism.

Limitations

There are several specific limitations of this study. First, the study sample is comprised of healthcare seeking veterans at the VAAHS and did not include non-treatment seeking female veterans. This is particularly important because of the nature of the outcome variables measured within this study. Specifically, rates of physical and psychological distress are often higher within a treatment-seeking sample and therefore, the results of this study may be negatively skewed. Because non-treatment seeking and/or private sector treatment seeking female veterans were not included in this sample, it is difficult to assess the generalizability of the findings.

Additionally, this study was conducted with a small sample size ($n = 65$). While the sample size was adequate to ensure that a majority of analyses could be computed, several analyses relied solely on a subset of this sample (i.e., women exposed to MST and rating this trauma exposure as the “worst” and/or “most distressing” event). Specifically, nineteen of the total sixty-five women, endorsed MST as their most distressing event. This reduced sample was used in both the mediation and moderation analyses. It is likely, that the reduction in sample impacted the statistical power necessary for the moderation analyses. Future studies would benefit from a larger sample size, preferably collected across VA clinics and outside of the hospital, and should also include a control group, if possible.

Finally, both trauma exposure and the dependent variables were measured by self-report instruments as opposed to a formal clinical interview (i.e., the Clinician Administered PTSD

Scale), or other records review. Therefore, it is difficult to identify under- and over-reporting, and as such, the results of trauma exposure and trauma symptom severity may be less reliable. However, it is important to note that rates of trauma exposure and symptom severity were consistent with other studies considering female veterans exposed to MST (Hanken et al., 1999; Chang, Skinner, & Boehmer, 2001; Himmelfarb, Yaeger, & Mintz, 2006).

Future Directions

Despite the aforementioned limitations, the results of this study provide information that may be used to assist in the development of future research. Additional research should begin with attempts to understand the temporal sequence of the development of experiential avoidance within the context of MST exposure. Importantly, experiential avoidance may be both an inherent trait and a learned behavior (Hayes et al., 2004); therefore, longitudinal attempts to elucidate the development and manifestation of avoidance behaviors both pre- and post-trauma will be critical in understanding the full role of this mediating variable. Because of the cross-sectional nature of this study's design, information regarding the temporal manifestation of experiential avoidance is not readily available. However, because level of experiential avoidance can be altered through intervention, whether this variable is inherent or learned is less important than helping individuals to address problematic patterns of avoidance through appropriate treatment [e.g. Acceptance and Commitment Therapy; (ACT)]. Therefore, while future longitudinal research will be important, this study provides an initial exploration of the role of EA within the context of post-MST functioning.

Next, future researchers and clinicians may wish to consider ways in which newer treatment approaches can help address experiential avoidance in the context of trauma exposure. Unfortunately, many individuals find it difficult to engage in trauma-focused treatment,

particularly individuals with elevated avoidance of trauma-related cues and material. Therefore, despite the presence of excellent trauma-focused treatment options including PE and CPT, additional interventions designed to address experiential avoidance should also be explored. For example, ACT has emerged as a treatment modality that offers a reduction in avoidance behaviors through engagement in value-driven behavior. Within this treatment context, in vivo exposure exercises created to confront trauma-related cues, may be designed around previously established values and goals. This may offer increased behavioral engagement and decreased avoidance through a different channel. Furthermore, to date, several research institutions have begun to explore the efficacy of ACT as a treatment for trauma exposure and subsequent PTSD, given that ACT was originally designed to treat experiential avoidance (Osher et al., 2010). Early outcome data are promising with one study finding that ACT delivered in a group format decreased PTSD and depression in a sample of 30 veterans exposed to MST (Varra, in preparation).

In conclusion, the findings of this study suggest that MST and its negative sequelae are a critical problem faced by the nation's veterans, their families, the DoD, and healthcare systems. Given the frequency with which MST occurs and the psychological distress that results, it is incumbent upon current researchers and clinicians to help identify the mechanisms through which poorer psychological and physical post-trauma outcomes are more likely to emerge. This study is the first to identify the mediating role that experiential avoidance plays in the relationship between MST and PTSD. This finding may be used to inform both preventative and post-trauma mental healthcare options, but is only a first step in understanding the myriad outcomes faced by survivors of MST.

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Appendix A**38 U.S.C. § 1720D – Counseling and Treatment for Sexual Trauma**

- (a)
- (1) The Secretary shall operate a program under which the Secretary provides counseling and appropriate care and services to veterans who the Secretary determines require such counseling and care and services to overcome psychological trauma, which in the judgment of a mental health professional employed by the Department, resulted from a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the veteran was serving on active duty or active duty for training.
 - (2) In furnishing counseling to a veteran under this subsection, the Secretary may provide such counseling pursuant to a contract with a qualified mental health professional if
 - (A) in the judgment of a mental health professional employed by the Department, the receipt of counseling by that veteran in facilities of the Department would be clinically inadvisable, or
 - (B) Department facilities are not capable of furnishing such counseling to that veteran economically because of geographical inaccessibility.
- (b)
- (1) The Secretary shall give priority to the establishment and operation of the program to provide counseling and care and services under subsection (a). In the case of a veteran eligible for counseling and care and services under subsection (a), the Secretary shall ensure that the veteran is furnished counseling and care and services under this section in a way that is coordinated with the furnishing of such care and services under this chapter.
 - (2) In establishing a program to provide counseling under subsection (a), the Secretary shall—
 - (A) provide for appropriate training of mental health professionals and such other health care personnel as the Secretary determines necessary to carry out the program effectively;
 - (B) seek to ensure that such counseling is furnished in a setting that is therapeutically appropriate, taking into account the circumstances that resulted in the need for such counseling; and
 - (C) provide referral services to assist veterans who are not eligible for services under this chapter to obtain those from sources outside the Department.
- (c) The Secretary shall provide information on the counseling and treatment available to veterans under this section. Efforts by the Secretary to provide such information—

- (1) shall include availability of a toll-free telephone number (commonly referred to as an 800 number);
 - (2) shall ensure that information about the counseling and treatment available to veterans under this section—
 - (A) is revised and updated as appropriate;
 - (B) is made available and visibly posted at appropriate facilities of the Department; and
 - (C) is made available through appropriate public information services; and
 - (3) shall include coordination with the Secretary of Defense seeking to ensure that individuals who are being separated from active military, naval, or air service are provided appropriate information about programs, requirements, and procedures for applying for counseling and treatment under this section.
- (d)
- (1) The Secretary shall carry out a program to provide graduate medical education, training, certification, and continuing medical education for mental health professionals who provide counseling, care, and services under subsection (a).
 - (2) In carrying out the program required by paragraph (1), the Secretary shall ensure that—
 - (A) all mental health professionals described in such paragraph have been trained in a consistent manner; and
 - (B) training described in such paragraph includes principles of evidence-based treatment and care for sexual trauma and post-traumatic stress disorder.
- (e) Each year, the Secretary shall submit to Congress an annual report on the counseling, care, and services provided to veterans pursuant to this section. Each report shall include data for the year covered by the report with respect to each of the following:
- (1) The number of mental health professionals, graduate medical education trainees, and primary care providers who have been certified under the program required by subsection (d) and the amount and nature of continuing medical education provided under such program to such professionals, trainees, and providers who are so certified.
 - (2) The number of women veterans who received counseling and care and services under subsection (a) from professionals and providers who received training under subsection (d).

- (3) The number of graduate medical education, training, certification, and continuing medical education courses provided by reason of subsection (d).
 - (4) The number of trained full-time equivalent employees required in each facility of the Department to meet the needs of veterans requiring treatment and care for sexual trauma and post-traumatic stress disorder.
 - (5) Such recommendations for improvements in the treatment of women veterans with sexual trauma and post-traumatic stress disorder as the Secretary considers appropriate.
 - (6) Such other information as the Secretary considers appropriate.
- (f) In this section, the term “sexual harassment” means repeated, unsolicited verbal or physical contact of a sexual nature which is threatening in character.

Appendix B

Human Subjects Review Committee Approval (EMU)

EASTERN MICHIGAN UNIVERSITY

Education First

September 16, 2013

UHSRC Initial Application Determination: EXPEDITED APPROVAL

To: Ms. Natalie Nugent
Psychology

Re: UHSRC #130808
Approval Date:

Category: Approved Expedited Research Project
September 06, 2013

Title: The Impact of Experiential Avoidance on the Relationships among Military Sexual Trauma, Excessive Behaviors, and Health-Related Outcomes in Female Veterans

The Eastern Michigan University Human Subjects Review Committee (UHSRC) has completed their review of your project. I am pleased to advise you that **your expedited research has been approved** in accordance with federal regulations.

Renewals: Expedited protocols need to be renewed annually. If the project is continuing, please submit the **Human Subjects Continuation Form** prior to the approval expiration. If the project is completed, please submit the **Human Subjects Study Completion Form** (both forms are found on the UHSRC website).

Revisions: Expedited protocols do require revisions. If changes are made to a protocol, please submit a **Human Subjects Minor Modification Form** or new **Human Subjects Approval Request Form** (if major changes) for review (see UHSRC website for forms).

Problems: If issues should arise during the conduct of the research, such as unanticipated problems, adverse events, or any problem that may increase the risk to human subjects and change the category of review, notify the UHSRC office within 24 hours. Any complaints from participants regarding the risk and benefits of the project must be reported to the UHSRC.

Follow-up: If your expedited research project is not completed and closed after three years, the UHSRC office will require a new **Human Subjects Approval Request Form** prior to approving a continuation beyond three years.

Please use the UHSRC number listed above on any forms submitted that relate to this project, or on any correspondence with the UHSRC office.

Good luck in your research. If we can be of further assistance, please contact us at 734-487-0042 or via e-mail at gs_human_subjects@emich.edu. Thank you for your cooperation.

Sincerely,



Dr. Jennifer Kellman Fritz
Faculty Chair
University Human Subjects Review Committee

University Human Subjects Review Committee · Eastern Michigan University · 200 Boone Hall
Ypsilanti, Michigan 48197
Phone: 734.487.0042 Fax: 734.487.0050
E-mail: human.subjects@emich.edu
www.ord.emich.edu (see Federal Compliance)

The EMU UHSRC complies with the Title 45 Code of Federal Regulations part 46 (45 CFR 46) under FWA00000050.

Appendix C

Human Subjects Review Committee Approval Forms (VAAAHS)

Department of
Veterans Affairs

Memorandum

Date: July 24, 2013

From: Chair, Ann Arbor VA Research and Development Committee

Subj: Research Proposal Final Approval - 2012-120780

To: Katherine E. Porter, PhD

1. On June 5, 2013, the Ann Arbor VA Research and Development Committee approved your study, entitled *Impact of Experiential Avoidance on the Relationships Among Military Sexual Trauma, Excessive Behaviors, & Health Outcomes in Female Veterans*.

The Human Subject risk level is **minimal risk**. The Human Studies approval period is for **one-year**. The Human Studies approval period expires on **May 8, 2014**. Renewal notices for continued approval will be emailed to you approximately 12 weeks prior to the expiration date. In order to avoid any interruptions in your study, continued approvals must be submitted to the IRB Coordinator at least six weeks before the expiration date.

YOU MUST CONTACT THE VA IRB COORDINATOR TO OBTAIN COPIES OF IRB APPROVAL LETTERS AND VA CONSENT FORMS BEFORE YOU OBTAIN CONSENT FROM RESEARCH SUBJECTS

2. Approval carries with it the understanding that:
 - a. You will make no modification to this study without prior approval by the Ann Arbor VA Human Studies Committee and the R&D Committee, and all advertisements and supplemental materials will be submitted for approval prior to their use.
 - b. You will inform the Ann Arbor VA Human Studies Committee of any unanticipated problems that occur to subjects or others.
 - c. You will submit documents for continuation approval at least once annually or more often if requested.
 - d. **If a VA Consent Form is required, you must use only versions that display the VA IRB logo date stamp on each page.** If a research consent form is required, you must create a progress note in the patient's hospital medical chart (CPRS). The progress note must state that the patient was entered in the research study *Impact of Experiential Avoidance on the Relationships Among Military Sexual Trauma, Excessive Behaviors, & Health Outcomes in Female Veterans*. You must include the name and phone number of the investigator to contact for further information. You must also scan the complete signed consent form into the progress note.
3. Thank you for your cooperation in helping us adhere to the rules and regulations of the Research and Development Office of the Department of Veterans Affairs in protecting the rights and welfare of human subjects involved in medical research.



William Weitzel, MD
Chairperson, Ann Arbor Research and
Development Committee

**Department of
Veterans Affairs**

Memorandum

Date: July 24, 2013

From: ACOS, Research Service (11R)

Subj: Approval of New Project Submission

To: Katherine E. Porter, PhD

Re: RO#: 2012-120780 VA#: Pend RCMS#: 2341
*Impact of Experiential Avoidance on the Relationships Among Military Sexual Trauma,
Excessive Behaviors, & Health Outcomes in Female Veterans*
SAS Approval: N/A
HSC Approval: May 9, 2013
SRS Approval: January 17, 2013, with exemption from SRS continuation review
R&D Start Date: July 24, 2013

1. The above referenced New Project submission was fully approved by all required committees on the dates indicated above. **You are now authorized to begin work on this project.**

YOU MUST CONTACT THE VA IRB COORDINATOR TO OBTAIN COPIES OF IRB APPROVAL LETTERS AND VA CONSENT FORMS BEFORE YOU OBTAIN CONSENT FROM RESEARCH SUBJECTS

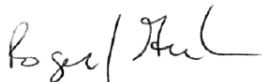
2. Please refer to the committee approval memos for details regarding approval expiration dates. The maximum duration of approval is one year. Continuation of this study beyond a stated expiration date will require committee review and approval prior to that date.

3. All material from this study that is submitted for presentation or publication must also be submitted to the R&D Committee for review. In addition, the VA must be acknowledged on all published materials. Failure to do so may result in the withdrawal of VA funds. The policy is available at: http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=1766.

4. You are reminded that no changes or modifications may be made to this study until you have requested and received full approval from all applicable committees.

5. You are also reminded that all study personnel must remain current with all applicable training and compliance requirements. Non-compliant employees may not work on any project. Non-compliance by the principal investigator may result in study termination.

6. According to VHA Handbook 1200.05 (Sect 26, item h), all research records, including the investigator's research records and the IRB records, must be retained until disposition instructions are approved by the National Archives and Records Administration and are published in VHA's Records Control Schedule (RCS 10-1). Contact the R&D Records Liaison for more information.



Roger J. Grekin, MD

Appendix D

Demographic Questionnaire

Age: _____

Branch of Military Service:

Please place an “x” next to the category that describes the branch of the military you served in.

Army	_____	Army Reserve	_____	Army National Guard	_____
Navy	_____	Navy Reserve	_____		
Air Force	_____	Air Force Reserve	_____	Air Force National Guard	_____
Marine Corps	_____	Marine Corps Reserve	_____		
Coast Guard	_____	Coast Guard Reserve	_____		

Service Period:

WWII _____
 Korea _____
 Vietnam _____
 Post-Vietnam _____
 Persian Gulf _____
 OIF/OEF/OND _____

Duration of Military Service:

Please place an “x” next to the number of years that you were in the military:

< 1 Year _____
 1 to 2 Years _____
 3 to 4 Years _____
 5 to 6 Years _____
 7 to 8 Years _____
 9 to 10 Years _____
 11+ Years _____

Number of Deployments:

0 _____
 1 _____
 2 _____
 3 _____
 4+ _____

Are You Currently Considered Active Duty? Yes No

Are You Currently Service Connected?

Place an "x" next to 1 answer; If you respond "Yes", please write your service connection %

____ Yes; Physical Condition - _____% ____ Yes; Mental Health Condition - _____%

____ Yes; Physical and Mental Health Condition - _____% ____ No

Race/Ethnicity:

Please place an "x" next to group(s) you belong to:

White or Caucasian _____

Black or African American _____

Hispanic or Latino _____

Native American _____

Alaskan Native _____

Asian _____

Pacific Islander _____

Do you consider yourself to be of any other race or ethnic group? Yes _____ No _____

If yes, please indicate the group here? _____

Education Level:

Please place an "x" next to the category that best describes your highest level of education:

Did Not Complete High School _____

High School Diploma _____

GED _____

Associate's Degree _____

Bachelor's Degree _____

Master's Degree _____

Doctorate _____

Marital Status at Time of Military Service:

Please place an "x" next to the category that best describes your current marital status:

Married _____

Divorced _____

Single _____

Remarried _____

Widowed _____

Separated _____

Living with Partner _____

Current Marital Status:

Please place an “x” next to the category that best describes your current marital status:

- Married _____
- Divorced _____
- Single _____
- Remarried _____
- Widowed _____
- Separated _____
- Living with Partner _____

Children:

Please write the number of children you have: _____

Income:

Please place an “x” next to the category that most accurately describes the annual income of your family of origin:

- ≥ \$150,000 _____
- \$100,000 to \$149,999 _____
- \$75,000 to \$99,999 _____
- \$50,000 to \$74,999 _____
- \$25,000 to \$49,999 _____
- \$10,000 to \$24,999 _____
- ≤ \$9,999 _____
- Don’t Know _____
- Prefer Not to Say _____

Employment Status:

Please place an “x” next to the category that most accurately describes your current employment status:

- Unemployed – Not Seeking Work _____
- Unemployed – Disabled & Receiving Disability _____
- Unemployed – Disabled & Not Receiving Disability _____
- Unemployed – Seeking Work _____
- Part-Time Employment (< 35 hrs per week) _____
- Full-Time Employment (35+ hrs per week) _____

Appendix E

Life Events Checklist (LEC)

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) *it happened to you* personally, (b) *you witnessed it* happen to someone else, (c) you *learned about it* happening to someone close to you, (d) you're *not sure* if it fits, or (e) it *doesn't apply* to you.

Be sure to consider your *entire life* (growing up as well as adulthood) as you go through the list of events.

Event	Happened to me	Witnessed it	Learned about it	Not Sure	Doesn't apply
1. Natural disaster (for example, flood, hurricane, tornado, earthquake)					
2. Fire or explosion					
3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)					
4. Serious accident at work, home, or during recreational activity					
5. Exposure to toxic substance (for example, dangerous chemicals, radiation)					
6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)					
7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)					
8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)					
9. Other unwanted or uncomfortable sexual experience					

10. Combat or exposure to a war-zone (in the military or as a civilian)					
11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)					
12. Life-threatening illness or injury					
13. Severe Human Suffering					
14. Sudden, violent death (for example, homicide, suicide)					
15. Sudden, unexpected death of someone close to you					
16. Serious injury, harm, or death you caused to someone					
17. Any other very stressful event or experience					

“WORST” EVENT –

CONSIDER YOUR RESPONSES ABOVE - PLEASE WRITE DOWN THE EVENT THAT BOTHERS OR UPSETS YOU THE MOST:

(you do not have to provide a detailed description – please just label the general category, for example: car accident, sexual assault, combat exposure, natural disaster, etc.)

DID THIS EVENT HAPPEN WHILE YOU WERE SERVING IN THE MILITARY

_____ **YES** _____ **NO**

Appendix F

Posttraumatic Stress Disorder Checklist – Civilian Version (PCL-C)

INSTRUCTIONS TO STUDENT: Below is a list of problems and complaints that people sometimes have in response to stressful experiences. Please read each one carefully, and blacken the circle to indicate how much you have been bothered by that problem *in the last month*.

	Not at all	A little bit	Moderately	Quite a bit	Extremely
1. Repeated, disturbing <i>memories, thoughts, or images</i> of a stressful experience?	1	2	3	4	5
2. Repeated, disturbing <i>dreams</i> of a stressful experience?	1	2	3	4	5
3. Suddenly <i>acting or feeling</i> as if a stressful experience <i>were happening again</i> (as if you were reliving it)?	1	2	3	4	5
4. Feeling <i>very upset</i> when <i>something reminded you</i> of a stressful experience?	1	2	3	4	5
5. Having <i>physical reactions</i> (e.g., heart pounding, trouble breathing, sweating) when <i>something reminded you</i> of a stressful experience?	1	2	3	4	5
6. Avoiding <i>thinking about</i> or <i>talking about</i> a stressful experience or avoiding <i>having feelings</i> related to it?	1	2	3	4	5
7. Avoiding <i>activities</i> or <i>situations</i> because <i>they reminded you</i> of a stressful experience?	1	2	3	4	5
8. Trouble <i>remembering important parts</i> of a stressful experience?	1	2	3	4	5
9. <i>Loss of interest</i> in activities that you used to enjoy?	1	2	3	4	5
10. Feeling <i>distant</i> or <i>cut off</i> from other people?	1	2	3	4	5
11. Feeling <i>emotionally numb</i> or being unable to have loving feelings for those close to you?	1	2	3	4	5
12. Feeling as if your <i>future</i> will somehow be <i>cut short</i> ?	1	2	3	4	5
13. Trouble <i>falling</i> or <i>staying asleep</i> ?	1	2	3	4	5
14. Feeling <i>irritable</i> or having <i>angry outbursts</i> ?	1	2	3	4	5
15. Having <i>difficulty concentrating</i> ?	1	2	3	4	5

- | | | | | | |
|---|---|---|---|---|---|
| 16. Being “ <i>super-alert</i> ” or watchful or on guard? | 1 | 2 | 3 | 4 | 5 |
| 17. Feeling <i>jumpy</i> or easily startled? | 1 | 2 | 3 | 4 | 5 |

Appendix G

Combat Exposure Scale (CES)

Please circle the number above the answer that best describes your experience.

1) Did you ever go on combat patrols or have other dangerous duty?

1	2	3	4	5
No	1-3x	4-12x	13-50x	51+x

2) Were you ever under enemy fire?

1	2	3	4	5
Never	<1 month	1-3 months	4-6 months	7 mos or more

3) Were you ever surrounded by the enemy?

1	2	3	4	5
No	1-2x	3-12x	13-25x	26+ times

4) What percentage of the soldiers in your unit were killed (KIA), wounded, or missing in action (MIA)?

1	2	3	4	5
None	1-25%	26-50%	51-75%	76% or more

5) How often did you fire rounds at the enemy?

1	2	3	4	5
Never	1-2x	3-12x	13-50x	51 or more

6) How often did you see someone hit by incoming or outgoing rounds?

1	2	3	4	5
Never	1-2x	3-12x	13-50x	51 or more

7) How often were you in danger of being injured or killed (i.e., being pinned down, overrun, ambushed, near miss, etc.)?

1	2	3	4	5
Never	1-2x	3-12x	13-50x	51 or more

____ 16. Someone implied faster promotions or better treatment if you were sexually cooperative.

Appendix I

Sexual Experiences Survey – (SES) – Modified Version

While in the **MILITARY** did you ever:

- | | | |
|---|-----|----|
| 1. Have sexual intercourse with a man (or woman) when you wanted to? | Yes | No |
| 2. Have a man (or woman) misinterpret the level of sexual intimacy you desired? | Yes | No |
| 3. Have a situation where a man (or woman) became so sexually aroused that you felt it was useless to stop him or her even though you did not want to have sexual intercourse? | Yes | No |
| 4. Have sexual intercourse with a man (or woman) even though you didn't really want to because he or she threatened to end your relationship otherwise? | Yes | No |
| 5. Have sexual intercourse with a man (or woman) when you didn't really want to because you felt pressured by his or her continual arguments? | Yes | No |
| 6. Find out that a man (or woman) had obtained sexual intercourse with you by saying things he didn't really mean? | Yes | No |
| 7. Find yourself in a situation where a man (or woman) used some degree of physical force (twisting your arm, holding you down, etc.) to try to make you engage in kissing or petting when you didn't want to? | Yes | No |
| 8. Find yourself in a situation where a man (or woman) tried to get sexual intercourse with you when you didn't want to by threatening to use physical force (twisting your arm, holding you down, etc.) if you didn't cooperate, but for various reasons sexual intercourse did not occur? | Yes | No |
| 9. Find yourself in a situation where a man (or woman) used some degree of physical force (twisting your arm, holding you down, etc.) to try to get you to have sexual intercourse with him or her when you didn't want to, but for various reasons sexual intercourse did not occur? | Yes | No |
| 10. Have sexual intercourse with a man (or woman) when you didn't want to because he or she threatened to use physical force (twisting your arm, holding you down, etc.) if you didn't cooperate? | Yes | No |
| 11. Have sexual intercourse with a man (or woman) when you didn't want to because he or she used some degree of physical force (twisting your arm, holding you down, etc.)? | Yes | No |

12. Find yourself in a situation where a man (or woman) obtained sexual acts with you such as anal or oral intercourse when you didn't want to by using threats or physical force (twisting your arm, holding you down, etc.)? Yes No

13. While in the military were you ever raped? Yes No

Appendix J

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

Appendix K

Multidimensional Experiential Avoidance Questionnaire (MEAQ)

Please indicate the extent to which you agree or disagree with each of the following statements

- | 1----- | 2----- | 3----- | 4----- | 5----- | 6----- |
|---|--------------------------------|------------------------------|---------------------------|-----------------------------|---------------------------|
| strongly
disagree | moderately
disagree | slightly
disagree | slightly
agree | moderately
agree | strongly
agree |
| 1. I won't do something if I think it will make me uncomfortable 1 2 3 4 5 6 | | | | | |
| 2. If I could magically remove all of my painful memories, I would 1 2 3 4 5 6 | | | | | |
| 3. When something upsetting comes up, I try very hard to stop thinking about it 1 2 3 4 5 6 | | | | | |
| 4. I sometimes have difficulty identifying how I feel 1 2 3 4 5 6 | | | | | |
| 5. I tend to put off unpleasant things that need to get done 1 2 3 4 5 6 | | | | | |
| 6. People should face their fears 1 2 3 4 5 6 | | | | | |
| 7. Happiness means never feeling any pain or disappointment 1 2 3 4 5 6 | | | | | |
| 8. I avoid activities if there is even a small possibility of getting hurt 1 2 3 4 5 6 | | | | | |
| 9. When negative thoughts come up, I try to fill my head with something else 1 2 3 4 5 6 | | | | | |
| 10. At times, people have told me I'm in denial 1 2 3 4 5 6 | | | | | |
| 11. I sometimes procrastinate to avoid facing challenges 1 2 3 4 5 6 | | | | | |
| 12. Even when I feel uncomfortable, I don't give up working toward things I value.....1 2 3 4 5 6 | | | | | |
| 13. When I am hurting, I would do anything to feel better1 2 3 4 5 6 | | | | | |
| 14. I rarely do something if there is a chance that it will upset me1 2 3 4 5 6 | | | | | |
| 15. I usually try to distract myself when I feel something painful1 2 3 4 5 6 | | | | | |
| 16. I am able to "turn off" my emotions when I don't want to feel 1 2 3 4 5 6 | | | | | |
| 17. When I have something important to do I find myself doing a lot of other things instead..... 1 2 3 4 5 6 | | | | | |
| 18. I am willing to put up with pain and discomfort to get what I want 1 2 3 4 5 6 | | | | | |
| 19. Happiness involves getting rid of negative thoughts 1 2 3 4 5 6 | | | | | |
| 20. I work hard to avoid situations that might bring up unpleasant thoughts and feelings in me..... 1 2 3 4 5 6 | | | | | |
| 21. I don't realize I'm anxious until other people tell me 1 2 3 4 5 6 | | | | | |
| 22. When upsetting memories come up, I try to focus on other things 1 2 3 4 5 6 | | | | | |
| 23. I am in touch with my emotions 1 2 3 4 5 6 | | | | | |
| 24. I am willing to suffer for the things that matter to me 1 2 3 4 5 6 | | | | | |
| 25. One of my big goals is to be free from painful emotions 1 2 3 4 5 6 | | | | | |
| 26. I prefer to stick to what I am comfortable with, rather than try new activities 1 2 3 4 5 6 | | | | | |
| 27. I work hard to keep out upsetting feelings 1 2 3 4 5 6 | | | | | |
| 28. People have said that I don't own up to my problems 1 2 3 4 5 6 | | | | | |
| 29. Fear or anxiety won't stop me from doing something important 1 2 3 4 5 6 | | | | | |
| 30. I try to deal with problems right away 1 2 3 4 5 6 | | | | | |
| 31. I'd do anything to feel less stressed1 2 3 4 5 6 | | | | | |
| 32. If I have any doubts about doing something, I just won't do it1 2 3 4 5 6 | | | | | |

33. When unpleasant memories come to me, I try to put them out of my mi..... 1 2 3 4 5 6
34. In this day and age people should not have to suffer 1 2 3 4 5 6
35. Others have told me that I suppress my feelings 1 2 3 4 5 6
36. I try to put off unpleasant tasks for as long as possible 1 2 3 4 5 6
37. When I am hurting, I still do what needs to be done 1 2 3 4 5 6
38. My life would be great if I never felt anxious 1 2 3 4 5 6
39. If I am starting to feel trapped, I leave the situation immediately 1 2 3 4 5 6
40. When a negative thought comes up, I immediately try to think of something else. 1 2 3 4 5 6
41. It's hard for me to know what I'm feeling 1 2 3 4 5 6
42. I won't do something until I absolutely have to 1 2 3 4 5 6
43. I don't let pain and discomfort stop me from getting what I want 1 2 3 4 5 6
44. I would give up a lot not to feel bad 1 2 3 4 5 6
45. I go out of my way to avoid uncomfortable situations 1 2 3 4 5 6
46. I can numb my feelings when they are too intense 1 2 3 4 5 6
47. Why do today what you can put off until tomorrow 1 2 3 4 5 6
48. I am willing to put up with sadness to get what I want 1 2 3 4 5 6
49. Some people have told me that I "hide my head in the sand" 1 2 3 4 5 6
50. Pain always leads to suffering 1 2 3 4 5 6
51. If I am in a slightly uncomfortable situation, I try to leave right away 1 2 3 4 5 6
52. It takes me awhile to realize when I'm feeling bad 1 2 3 4 5 6
53. I continue working toward my goals even if I have doubts 1 2 3 4 5 6
54. I wish I could get rid of all of my negative emotions 1 2 3 4 5 6
55. I avoid situations if there is a chance that I'll feel nervous..... 1 2 3 4 5 6
56. I feel disconnected from my emotions 1 2 3 4 5 6
57. I don't let gloomy thoughts stop me from doing what I want 1 2 3 4 5 6
58. The key to a good life is never feeling any pain 1 2 3 4 5 6
59. I'm quick to leave any situation that makes me feel uneasy 1 2 3 4 5 6
60. People have told me that I'm not aware of my problems 1 2 3 4 5 6
61. I hope to live without any sadness and disappointment 1 2 3 4 5 6
62. When working on something important, I won't quit even if things get difficult... 1 2 3 4 5 6

Appendix L

Composite Measure of Problem Behavior (CMPB)

This questionnaire is designed to ask you about a range of behaviors that you may, or may not, engage in. It includes 46 statements and you are required to rate the extent to which each statement characterizes you, using the scale below

1 - - - - - 2 - - - - - 3 - - - - - 4 - - - - - 5 - - - - - 6
 Very unlike Quite unlike A little A little Quite like Very Like
 me me unlike me like me me me

For example, if you read a statement and think “it’s very unlike me to do X” you would write a “1” next to the statement. If you think “that’s only very slightly like me” write ‘4’, or if you think “it’s very like me to do that”, write ‘6’.

Before completing the questionnaire, please take note of the following points:

Where questions refer to internet use, this means non-work related use such as chat rooms, surfing the net etc. Where questions refer to sexual behaviors, this includes both foreplay and all forms of sexual intercourse. Where questions refer to drugs, this means the use of illegal drugs. This would include, for example, Cannabis, Cocaine, Ecstasy, etc. Where questions refer to smoking, this means tobacco.

Please read each statement carefully and answer as honestly as possible. All answers are anonymous. Please do not leave any answers blank.

It's like me to

- | | |
|---|-------------|
| 1 say no to drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 2 be pre-occupied by thoughts about smoking when smoking is prohibited | 1 2 3 4 5 6 |
| 3 sometimes consume more than 6 alcoholic drinks in one evening | 1 2 3 4 5 6 |
| 4 ignore dietary details (e.g., calorie content) when choosing something to eat | 1 2 3 4 5 6 |
| 5 exercise even when I am feeling tired and/or unwell | 1 2 3 4 5 6 |
| 6 sometimes intentionally prevent scars or wounds from healing | 1 2 3 4 5 6 |
| 7 smoke tobacco | 1 2 3 4 5 6 |
| 8 surf the net/play computer games before doing something else that needs doing | 1 2 3 4 5 6 |
| 9 generally have no interest in taking drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 10 sometimes engage in sexual activities with someone I have only just met. | 1 2 3 4 5 6 |
| 11 find that my work performance or productivity suffers because of my internet/video game use. | 1 2 3 4 5 6 |

- | | |
|--|-------------|
| 12 never resort to violence. | 1 2 3 4 5 6 |
| 13 sometimes actively seek out drugs for personal use (this includes cannabis). | 1 2 3 4 5 6 |
| 14 feel irritation/frustration if I am in a non-smoking environment. | 1 2 3 4 5 6 |
| 15 sometimes scratch or bite myself to the point of scarring or bleeding. | 1 2 3 4 5 6 |
| 16 sometimes feel pre-occupied with the internet/computer games. | 1 2 3 4 5 6 |
| 17 skip doing exercise for no good reason. | 1 2 3 4 5 6 |
| 18 drink a lot more alcohol than I initially intended. | 1 2 3 4 5 6 |
| 19 have a long list of things that I dare not eat. | 1 2 3 4 5 6 |
| 20 feel excitement and/or tension in anticipation of getting drunk. | 1 2 3 4 5 6 |
| 21 be content if I am prevented from exercising for a week. | 1 2 3 4 5 6 |
| 22 always stop eating when I feel full. | 1 2 3 4 5 6 |
| 23 prefer being in places where smoking is prohibited. | 1 2 3 4 5 6 |
| 24 control my temper. | 1 2 3 4 5 6 |
| 25 deliberately take small helpings as a means of controlling my weight. | 1 2 3 4 5 6 |
| 26 exercise more than three times a week. | 1 2 3 4 5 6 |
| 27 sometimes eat to the point of physical discomfort. | 1 2 3 4 5 6 |
| 28 sometimes feel tension and/or excitement in anticipation of doing exercise. | 1 2 3 4 5 6 |
| 29 sometimes cause myself direct bodily harm by, for example, cutting or burning myself. | 1 2 3 4 5 6 |
| 30 only eat when I am hungry. | 1 2 3 4 5 6 |
| 31 unsuccessfully try to cut back my use of the internet/computer games | 1 2 3 4 5 6 |
| 32 be excited by the opportunity of taking drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 33 sometimes get so angry that I break something | 1 2 3 4 5 6 |
| 34 sometimes have more than one sexual partner. | 1 2 3 4 5 6 |
| 35 sometimes engage in sexual activities with someone when really I shouldn't | 1 2 3 4 5 6 |
| 36 easily limit my use of the internet or video games | 1 2 3 4 5 6 |
| 37 feel the urge to have a cigarette. | 1 2 3 4 5 6 |
| 38 sometimes feel that I need to take drugs (this includes cannabis) | 1 2 3 4 5 6 |
| 39 go out with friends who are drinking, but opt to stay sober | 1 2 3 4 5 6 |
| 40 sometimes think that I might have a drugs problem (this includes cannabis). | 1 2 3 4 5 6 |
| 41 avoid eating when I am hungry | 1 2 3 4 5 6 |
| 42 find it difficult to stop eating after certain foods | 1 2 3 4 5 6 |
| 43 be aggressive when sufficiently provoked | 1 2 3 4 5 6 |
| 44 feel the urge to intentionally harm myself | 1 2 3 4 5 6 |
| 45 sometimes feel that I need an alcoholic drink | 1 2 3 4 5 6 |
| 46 sometimes claim I have already eaten when this is not true | 1 2 3 4 5 6 |

Appendix M

Depression Anxiety Stress Scale (DASS)

DASS₂₁

Name:

Date:

Please read each statement and circle a number 0, 1, 2 or 3 that indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

- 0 Did not apply to me at all
- 1 Applied to me to some degree, or some of the time
- 2 Applied to me to a considerable degree, or a good part of time
- 3 Applied to me very much, or most of the time

1	I found it hard to wind down	0	1	2	3
2	I was aware of dryness of my mouth	0	1	2	3
3	I couldn't seem to experience any positive feeling at all	0	1	2	3
4	I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5	I found it difficult to work up the initiative to do things	0	1	2	3
6	I tended to over-react to situations	0	1	2	3
7	I experienced trembling (eg, in the hands)	0	1	2	3
8	I felt that I was using a lot of nervous energy	0	1	2	3
9	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10	I felt that I had nothing to look forward to	0	1	2	3
11	I found myself getting agitated	0	1	2	3
12	I found it difficult to relax	0	1	2	3
13	I felt down-hearted and blue	0	1	2	3
14	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15	I felt I was close to panic	0	1	2	3

16	I was unable to become enthusiastic about anything	0	1	2	3
17	I felt I wasn't worth much as a person	0	1	2	3
18	I felt that I was rather touchy	0	1	2	3
19	I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)	0	1	2	3
20	I felt scared without any good reason	0	1	2	3
21	I felt that life was meaningless	0	1	2	3

Appendix N

Informed Consent Handout

INFORMED CONSENT FOR PARTICIPATION IN RESEARCH

TITLE: Military Sexual Trauma, Experiential Avoidance, and Psychological/Physical Outcomes

PRINCIPLE INVESTIGATORS: Natalie Nugent, M.S.; Katherine Porter, Ph.D.

AGENCY: Ann Arbor VA Healthcare System – Department of Psychiatry in conjunction with:
Eastern Michigan University – Department of Psychology

This document contains information about the scope and purpose of this research as well as your rights as a research participant.

PURPOSE OF RESEARCH STUDY: To identify a potential variable, experiential avoidance, that may influence health-outcomes following exposure to Military Sexual Trauma or other distressing events.

DESCRIPTION OF PARTICIPATION: Eligible participants include any female veteran, who is currently registered with the Ann Arbor VA Healthcare System. You are being approached about this research based on your registration with the VAAAHS. If you choose to participate in this study, you will be asked to complete twelve questionnaires. These questionnaires will inquire into your experiences with upsetting events that sometimes occur during life and/or military service – including sexual assault. You will also be asked to answer questions regarding your psychological and physical well-being. It is expected to take approximately 30-45 minutes to complete these questionnaires.

CONFIDENTIALITY: Your responses to the survey are COMPLETELY ANONYMOUS (cannot be connected to your identity) and confidential. Any information gathered during the survey WILL NOT be included in your medical records and your responses will not be available to your care providers.

WITHDRAWAL OR REFUSAL TO PARTICIPATE: Your participation in the study is COMPLETELY VOLUNTARY and you may choose to withdraw from the study at any point during the survey with no penalty or loss of benefits. Choosing not to participate will have no effect on any services you receive through the VAAAHS.

EXPECTED RISKS: There are no expected risks associated with this study; however, should you become distressed by answering questions about your mental or physical health, you may contact the principal investigator, Dr. Katherine Porter, during daytime hours, at 734.845.5533. You may also contact 911 or the Veterans Suicide Hotline Number at 1-800-273-8255 in case of an emergency.

BENEFITS: You are not expected to directly benefit from participating in this study. However, responding to the various questionnaires may provide you with insight into difficulties you may be having. In addition, you will be part of a research study that could result in improved care for female veterans.

ALTERNATE COURSES OF ACTION: If you choose not to participate, no action is necessary. You can simply tell the research assistant who has approached you that you are uninterested.

STATEMENT OF RESEARCH RESULTS: You will **not** be asked to provide any personally identifying information for the purpose of this study (e.g., your name, address, phone number, SSN, birthdate, etc.). The research data obtained from this survey will be stored in a locked office on a password protected computer at the VAAAHHS. No information gathered during this survey will be included in your medical records. Results of the research will be disseminated in aggregate form in this investigator's dissertation. In addition, it will be disseminated to the psychological community in the form of poster- and paper presentations at conferences and publications in journals. Your identity will not be disclosed and no personally identifiable data will be reported to ensure confidentiality of your information.

COMPENSATION: You are asked to spend approximately 30-45 minutes of your time to complete this survey. Participants who complete the survey will be offered a \$10 Target Gift Card.

CONTACT: You may contact Dr. Katherine Porter, one of the principal investigators for the study, if you have additional questions about the conduct of the study at (734) 845-5335.

This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from 09/09/2013 to 09/09/2014. If you have questions about the approval process, please contact the UHSRC at human.subjects@emich.edu or 734-487-0042.

Additionally, you may direct questions about the consent process and the rights of research subjects to the Institutional Review Board Coordinator, Douglas Feldman, at (734) 845-3440.

RESEARCH PARTICIPANTS' RIGHTS: I have read or have had read to me all of the above. Any questions I have regarding this study have been answered by Natalie Nugent or one of her research assistants. I have been told of the risks or discomforts and possible benefits of the study. I understand that my participation is voluntary and that some of the questions asked will be in reference to a traumatic experience I have had in my life. I understand that I do not have to take part in this study and that my refusal will involve no penalty or loss of rights to which I am entitled. I may withdraw at any time. I also understand that the results of this study may be published, but my individual records will not be revealed unless required by law. I understand that steps have been taken to assure confidentiality of my responses.

In the event that I experience emotional reactions that are difficult for me to manage, I understand that the investigator or her assistants may contact Dr. Katherine Porter for consultation and that a mental health referral may be made. I also understand that I should notify

the investigator or her assistants if I am having significant emotional distress in response to participation in the study. I understand that I can also receive psychological care through the VAAHS, if needed.

I also understand that I have a right to request a summary of the results of this study. To do so, you may contact Natalie Nugent by email at nnugent@emich.edu.

I understand my rights as a research participant and I understand that by completing these surveys I am voluntarily consenting to participate in this study. I understand what the study is about and how and why it is being done.