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Risk Factors for Military Sexual Trauma: Pre-Military Trauma, Psychological Adjustment, Combat Exposure, and Alcohol Use at the Time of the Trauma

Brittany Hollis
Old Dominion University, bholl019@odu.edu

RISK FACTORS FOR MILITARY SEXUAL TRAUMA: PRE-MILITARY TRAUMA, PSYCHOLOGICAL ADJUSTMENT, COMBAT EXPOSURE, AND ALCOHOL USE AT THE TIME OF THE TRAUMA

by

Brittany Hollis
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Approved by:

Michelle L. Kelley (Director)

Louis H. Janda (Member)

Donald D. Davis (Member)

ABSTRACT

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Brittany Hollis
Old Dominion University, 2015
Director: Michelle L. Kelley

Military sexual trauma (MST) is a serious and understudied problem in the military. It may be a particularly important problem for women who have experienced pre-military trauma (i.e., childhood physical or sexual abuse). This study examined the role that pre-military trauma plays in the development of poor psychological adjustment (i.e., depression, anxiety and somatic symptoms) and whether psychological adjustment mediates the relationship between pre-military trauma and MST in a sample of 169 military women recruited from the community. Combat exposure and alcohol use at the time of the trauma by the victim, were examined as potential moderators of the relationship between psychological adjustment and MST. Pre-military trauma was correlated with lower psychological adjustment, but pre-military trauma was not correlated with MST. Additionally, low psychological adjustment did not mediate the relationship between pre-military trauma and MST. Lastly, combat exposure and alcohol use at the time of the trauma did not moderate the relationship between lower psychological adjustment and MST. Although the hypotheses were not confirmed, however, in the present study, 27 percent of women reported MST, therefore, it is vital to study factors that may increase risk of MST, particularly among non-treatment seeking military women.

This thesis is dedicated to the three women in my life who have been affected by military sexual trauma.

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CHAPTER 1

INTRODUCTION

In January of 2013, Defense Secretary Leon R. Panetta lifted the military's ban on women in combat, opening thousands of front-line jobs to females (Bumiller & Shanker, 2013). Women are currently employed in most military occupations, including combat roles (Hassija, Jakupcak, Maguen, & Shipherd, 2012; LeardMann et al., 2013). Furthermore, in 2013 there were 200,000 women on active duty and this number is steadily increasing (Department of Veterans Affairs, 2014). In 2012, the American Community Survey estimated the number of women veterans in the United States and Puerto Rico to be 1.6 million (Smith, & Smith, 2013).

Despite the opportunities that military careers afford many women, one of the risks military women face is military sexual trauma (MST). MST is defined by the Department of Veterans Affairs (VA) as sexual assault or repeated, threatening sexual harassment that occurred while the victim was in the military, regardless of geographic location of the trauma, gender of the victim, or the relationship between the victim and the perpetrator (Katz, Cojucar, Beheshti, Nakamura, & Murray, 2012). It is estimated that 4.4% of military women (i.e., active duty and veteran) experience MST annually (Rock, Lipari, Cook, & Hale, 2010). Despite inroads to understanding MST, considerable work is needed on this topic. How trauma prior to entering the military, mental health symptoms, combat exposure, and alcohol use may be associated with MST experiences is not known. For these reasons, the present study examined whether pre-military abuse, mental health symptoms prior to military service, combat exposure, and alcohol use at the time of the incident were associated with experiences of MST among active duty,

National Guard/Reserve (NG/R), and veteran women. Given that much of our understanding of MST is based on veteran women seeking treatment at Veterans Affairs (VA) hospitals, the present research examined a community sample of active duty, veteran and NG/R women rather than a VA treatment-seeking population.

Prevalence and Significance of MST

Although MST is likely to go unreported (Kimerling et al., 2010), between 22 - 42% of women and 1- 12% of men are estimated to have experienced MST at some point in their military careers (Katz et al., 2012; Kimmerling, Street, Gima, & Smith, 2008). Furthermore, the number of active duty women and men who reported MST rose from 19,000 in 2010 to 26,000 in 2011 (French, 2014). Of note, MST has been found to be more detrimental than civilian sexual trauma because the victim and perpetrator often have close occupational roles, and because many victims lack social support, feel isolated, and do not report the incident due to fear of interrupting unit cohesion (Scott et al., 2013).

MST is significantly correlated with negative psychological outcomes including, high rates of depression, anxiety, and physical (somatic) pain (i.e., somatic symptoms; Frayne et al., 1999; Maguen, Luxton, Skopp, & Madden, 2012). In comparison to women who do not have pre-military trauma, women who have experienced pre-military trauma (as defined by any act of childhood sexual or physical abuse) are more likely to experience sexual trauma while in the military (Suris & Lind, 2008; Vogt et al., 2011).

Treatment for MST

In 1982, the U.S. General Accounting Office reviewed treatment being administered at VA treatment facilities and published a report stating that female veterans

needed equal access to VA benefits (Dean, 1997). A decade later, the VA was authorized to provide outreach and counseling for sexual assault to female veterans (Kimerling, Gima, Smith, Street, & Frayne, 2007). Although progress has been slow, and much more work is still needed, Congress and the Department of Veterans Affairs (VA) have worked to ensure that women who experience MST have access to treatment (Kimerling et al., 2008).

Factors that may Create Vulnerability for MST

One of the most well documented risk factors for MST is pre-military trauma. Exposure to childhood abuse nearly doubles a woman's likelihood of experiencing rape and/or physical assault in adulthood (Sadler, Booth, Mengeling, & Doebbeling, 2004). Sadler and colleagues (2004) studied 640 female veterans and over 54% reported either physical or sexual violence prior to entering the military, of those, 49% of women reported that their decision to enter the military was to escape poor home lives. In a review of the literature on trauma among female veterans, Zinzow et al. (2007) found 24 - 49% of women reported childhood sexual abuse, 35% reported childhood physical abuse, and 30 - 45% reported experiencing MST. Although rates of childhood sexual and physical abuse and MST are high among female veterans, limited research has examined whether childhood physical and sexual abuse are associated with an increased risk for MST among non-treatment-seeking military women.

In addition to sexual and physical abuse, poor mental health may increase risk for sexual assault (LeardMann et al., 2013). Individuals who suffer from depression, anxiety, and problematic alcohol use, are at risk for experiencing MST (Allard, Nunnink, Gregory, Klest, & Platt, 2011; Maguen, Cohen, Ren, Bosch, Kimerling, & Seal, 2012)

and childhood trauma has been shown to increase one's risk for these poor psychological outcomes (Frayne et al., 1999). In a representative sample of approximately 1,400 female military personnel, LeardMann and colleagues (2013) found women who screened positive for a mental health disorder prior to military enlistment were at increased risk for exposure to MST in the military compared to women with no previous mental health disorders.

Psychological Adjustment (Depression/Anxiety/Somatic Symptoms), Pre-military Trauma, and MST

Psychological adjustment is often considered a multifaceted construct (Derogatis & Melisaratos, 1983). For the purposes of the present study, psychological adjustment was operationalized as the combination of depressive symptoms, anxiety, and somatic complaints.

Depression. Women who experience childhood trauma are more likely to be at risk for depression than women who do not have exposure to childhood trauma (Lindert et al., 2014; Walsh et al., 2014). In addition, female veterans report more depression than male veterans (Kelley et al., 2013; Stein et al., 2005; Vogt et al., 2011). Research has established a clear connection between childhood trauma and women being at high risk for developing depression. Importantly, depression increases the danger of revictimization in adulthood (Hassija et al., 2012; Suris, Lind, Kashner, Borman, & Petty, 2004). Although it is unclear why there is a connection between depression and revictimization, Ullman and Najdowski (2011) speculate that women who are depressed may be targeted because they are viewed, by perpetrators, as vulnerable. It is also

possible that women with depression may be less able to detect risk and/or resist assault than women without depression (Ullman & Najdowski, 2011).

Anxiety. There is little research on anxiety and its relationship to sexual assault. In part this lack of attention may occur because anxiety is often clustered in the same category as depression or other mental health issues (Cougle, Timpano, Sachs-Ericcson, Keough, & Riccardi, 2010; Lindert et al., 2014). However, using data from the National Comorbidity Survey-Replication, Cougle et al. (2010) demonstrated that individuals with childhood trauma are more likely to experience lifetime symptoms of anxiety, as well as revictimization in adulthood. Additionally, MST has also been shown to correlate with anxiety symptoms (Allard et al., 2011).

Somatic symptoms. Exposure to violence and sexual assault can result in persistent somatic symptoms, which are often comorbid with other mental health illnesses (Halpern et al., 2013). Women who have been sexually assaulted report more somatic symptoms than women who have not been sexually assaulted (Frayne et al., 1999). Studies also reveal that childhood trauma increases an individual's likelihood of experiencing somatic symptoms (Park et al., 2014). Given that many people who experience trauma in childhood are more likely to be victimized in adulthood, the number and severity of somatic symptoms for those revictimized is higher than for those who have not been revictimized (Park et al., 2014). Of note, if somatic symptoms are left untreated, they can result in chronic pain and fatigue (Park et al., 2014).

Alcohol Use and Sexual Trauma

Alcohol use is often a factor in sexual assault cases, and military sexual assault cases are no exception (French, 2014). Alcohol is the number one drug involved in, and is

a risk factor for, sexual assault (Testa & Livingston, 2000; Walsh, Resnick, Danielson, McCauly, Saunders, & Kilpatrick, 2014). Alcohol is prevalent in approximately 50% of all MST cases (O'Brien & Sher, 2013). Research on civilian community samples shows that when alcohol is involved, victims are less likely to report sexual assault incidents due to fear of not being believed or being blamed for their victimization (e.g., Testa & Livingston, 2000). Alcohol use at the time of the incident by sexual assault victims has been studied extensively in the college population (e.g., Abbey, 2002), but far fewer investigators have examined the link between alcohol and MST. Given that alcohol use is a risk factor for sexual assault (e.g., Testa & Livingston, 2000), and that poor mental health (lower psychological adjustment) is correlated with alcohol use (Kelley et al., 2013; LeardMann et al., 2013), it is possible that using alcohol at the time of the MST event may moderate the relationship between lower psychological adjustment and military sexual trauma. That is, the link between lower psychological adjustment and MST may be strengthened by alcohol use at the time of the trauma by the victim.

Combat Exposure and MST

Women in wartime military samples are more likely to report experiencing physical and sexual violence compared to both male and female civilian, and military women surveyed during peacetime (Hassija et al., 2012; Zinzow et al., 2007). Likewise, studies have found that women who are exposed to combat are more likely to experience MST than women who are not exposed to combat (LeardMann et al., 2013). A study by Vogt et al. (2011) of veterans deployed to Iraq and Afghanistan found that on average women's combat exposure was only slightly less than men's combat exposure. However,

women were more likely to perceive an elevated amount of stress during combat, which the authors posit, may be due to their increased risk for assault during combat.

Other variables hypothesized to increase the likelihood of MST include working in male-dominated environment, power disparities between the victim and the perpetrator, and low unit cohesion (LeardMann et al., 2013; Mitchell, Gallaway, Millikan, & Bell, 2011; Street, Vogt, & Dutra, 2009). Compounding the issue of MST, Allard et al. (2011) found active duty women who reported greater closeness to the perpetrator were less likely to report MST. In addition, trauma occurring during combat has been found to have more negative mental health outcomes than trauma occurring during peacetime (Hassija et al., 2012). Additionally, officials may not have the ability to prioritize the prevention and identification of perpetrators during combat situations, further compounding the negative effects and increased likelihood of experiencing MST (LeardMann et al., 2013).

Theoretical Basis

By studying the impact of pre-military trauma, psychological adjustment (depression, anxiety, and somatic symptoms), alcohol use at the time of the incident by the victim, and combat exposure, it may be possible to increase the understanding of MST. Research indicates that there is a link between pre-military trauma (childhood trauma) and MST (LeardMann et al., 2013; Sadler et al., 2004). One theory highly regarded by trauma researchers is known as the Conservation of Resources theory (COR; Hobfoll, 1989). Resources are, “objects, personal characteristics, conditions, or energies that are valued by the individual or that serve as a means for attainment of these objects, personal characteristics, conditions, or energies” (Hobfoll, 1989, p. 516). Stress occurs

when these resources are threatened, depleted or when there is more loss than gain (Hobfoll, 1989). COR theory posits that when a trauma occurs, especially in childhood and adolescence, it depletes ones resources and results in the loss of protective factors (Schumm, Doane, & Hobfoll, 2012). The damaging effects of stress and the loss of coping resources is theorized to lead to poor mental health outcomes (i.e., depression & anxiety; Schumm, Doane, & Hobfoll, 2012). This depletion of protective factors and coping with the loss of resources creates an opportunity for the individual to be revictimized (Schumm et al., 2012). Meaning, individuals who experience childhood trauma are more likely to be revictimized or experience MST due to vulnerability from a depletion of resources. COR theory was used, in this study, as a heuristic to help guide the understanding of revictimization, psychological adjustment, and combat exposure; however, it was not specifically tested in this study.

Alcohol use at the time of the incident by the victim was examined as a moderating variable because previous research has indicated sexual violence is strongly linked to alcohol consumption (Davis, Kaysen, Gilmore, & Schraufnagel, 2013). Although alcohol use lowers women's ability to perceive risks and remove themselves from dangerous situations, the exact connection between alcohol use and MST has yet to be efficiently studied (French, 2014). Alcohol use by MST victims in relation to mental health and pre-military trauma warrants further research.

Problem Statement

The majority of research on MST has examined veteran women receiving treatment at Veteran Affairs hospitals. The lack of research on MST in non-treatment seeking women is alarming, as military women are more likely to experience sexual

trauma and victimization, compared to civilian women, and women are less likely to use VA services than military men (Allard et al., 2011; Kelly et al., 2008). Additionally, there is a dearth of information on the effect of combat exposure and alcohol use by the victim at the time of the trauma in relation to pre-military trauma, MST, and psychological adjustment. Including the role of combat exposure and alcohol use at the time of the trauma, in models of MST, is needed given that recent-era military women have greater levels of combat exposure (Department of Veterans Affairs, 2014) than in the past, as well as the noted association between alcohol use by the victim at the time of the trauma (Testa & Livingston, 2000; Walsh et al., 2014). Therefore, the aim of this study was to help elucidate our knowledge of revictimization on female military personnel.

Hypotheses

Pre-military Trauma and MST. Research shows that trauma experienced in childhood and adolescence is highly correlated with sexual assault in the military (i.e., Sadler et al., 2004). It was hypothesized that pre-military trauma (i.e., childhood physical or sexual violence) would correlate to military sexual trauma (Hypothesis 1; see Figure 1 for visual representation).

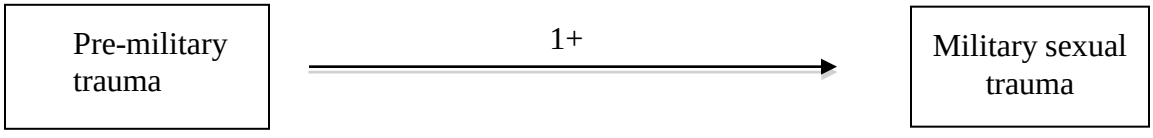

Figure 1. *Hypothesis 1*

Pre-military Trauma and Psychological Adjustment. It was hypothesized that pre-military trauma would be correlated with lower psychological adjustment (i.e., more depression, anxiety and somatic symptomology; Hypothesis 2; see Figure 2 for visual representation).

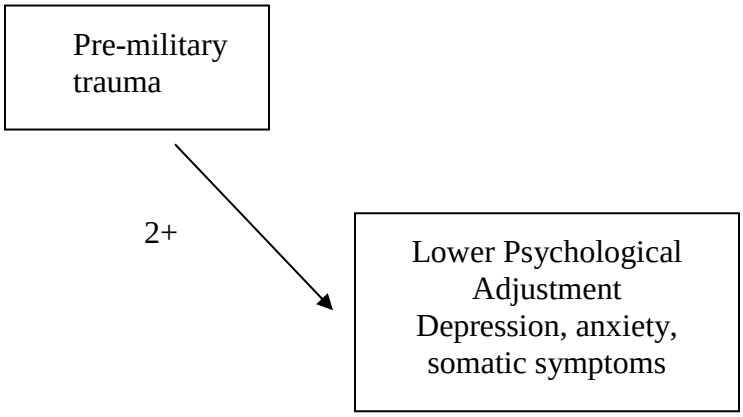

Figure 2. *Hypothesis 2*

Pre-military Trauma, Psychological Adjustment and MST. Hypothesis three states that psychological adjustment would mediate the association between pre-military trauma and MST (see Figure 3 for a visual description). Ullman and Najdowski (2011) argue that this connection may be because individuals with pre-military trauma and poorer psychological adjustment (i.e., more depression, anxiety, and somatic complaints) may be perceived by perpetrators as more vulnerable. Consequently, lower psychological adjustment was expected to mediate the relationship between pre-military trauma and MST.

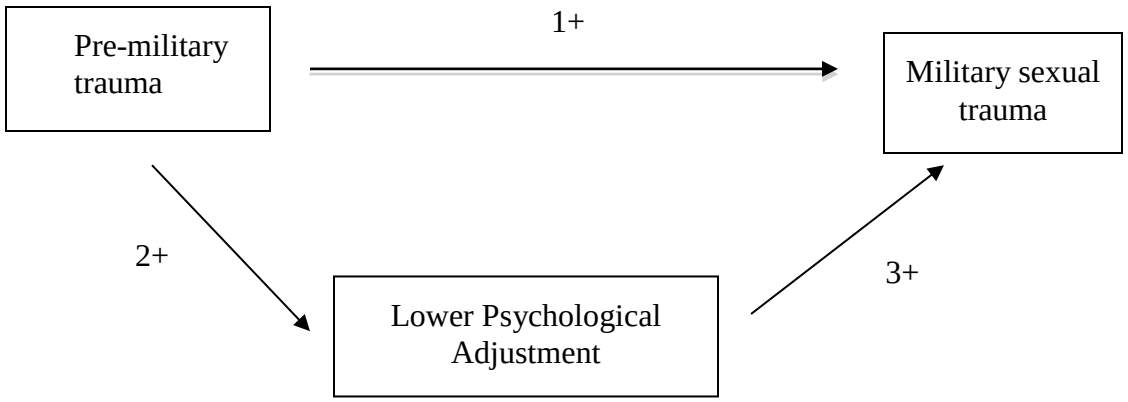

Figure 3. *Hypothesis 3*

Combat Exposure and MST. Combat exposure has been shown to correlate with MST (e.g., Cobb et al., 2013; Maguen et al., 2012). In the present study, it was expected that combat exposure would moderate the mediation between pre-military trauma and psychological adjustment on military sexual trauma (see Figure 4 for a visual representation). That is, higher levels of combat were expected to heighten the association between lower psychological adjustment and MST, whereas lower levels of combat exposure were expected to attenuate this association.

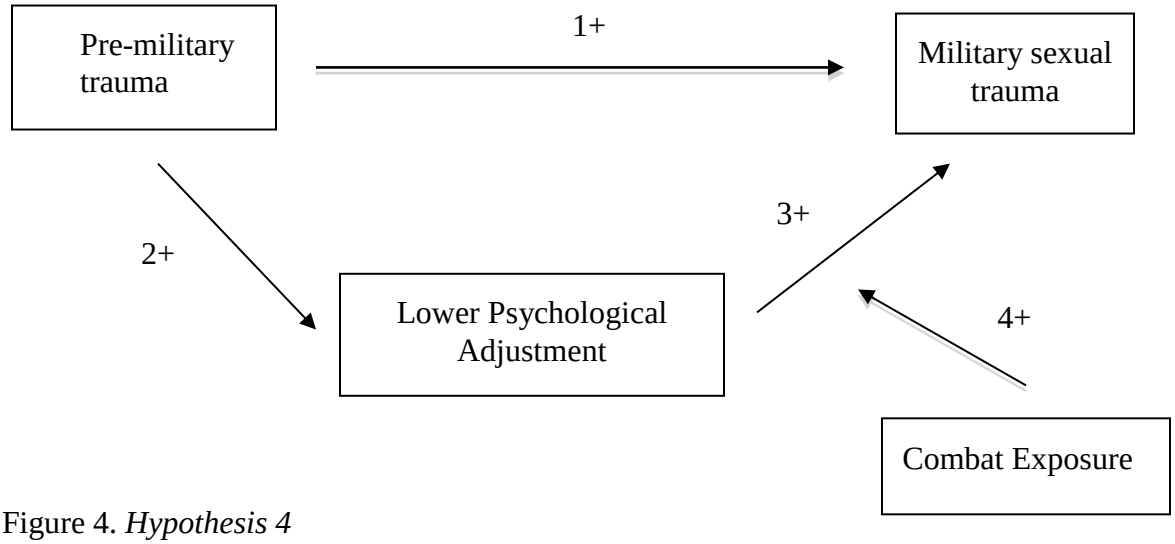

Figure 4. *Hypothesis 4*

Alcohol Use at the Time of the Trauma by the victim and MST. Alcohol use at the time of the event by the victim was also expected to moderate the association between pre-military trauma and MST. Research shows that alcohol use by the victim can predict risk for sexual assault among women (e.g., Testa & Livingston, 2000; Walsh et al., 2014); therefore, alcohol use at the time of event by the victim was expected to also moderate the relationship between lower psychological adjustment and MST. That is, alcohol use by the victim at the time of the trauma was expected to heighten the association between lower psychological adjustment and MST, whereas no alcohol use was expected to attenuate or reduce this association (see Figure 5 for a visual representation).

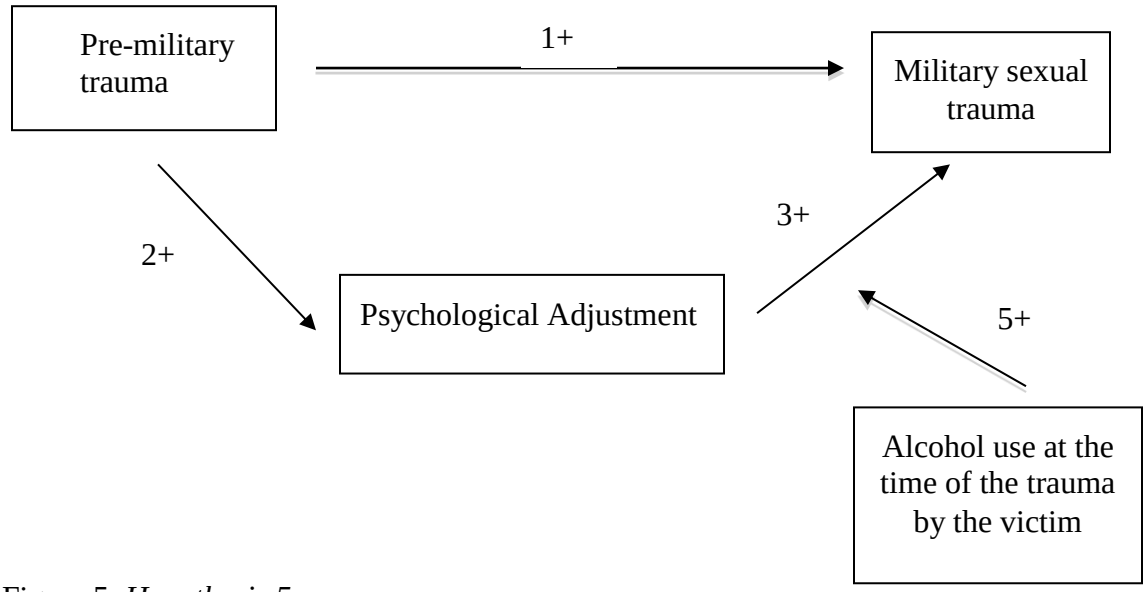

Figure 5. *Hypothesis 5*

CHAPTER II

METHOD

Participants

This study included 169 active duty, National Guard/Reserve (NG/R) and veteran women. Previous research has included these distinct categories of military personnel with no indication of significant differences in manner of psychological outcomes (Vogt, Samper, King, King, Martin, 2008). The majority of participants were veterans (65.1%), Navy affiliated (50.3%) and Caucasian (68%) or African American (19.5%). The mean age was 32.79 (*SD* = 9.57). Approval from the Institutional Review Board at the participating university was granted prior to data collection. All APA guidelines for the ethical treatment of subjects were followed.

Participants were recruited in several ways. The study recruited from the Department of Psychology research pool, advertised announcements, and via listsites for women veterans, active duty and NG/R. In addition, a study invitation was sent to all individuals at the participating university who are receiving G.I. Bill benefits. Participants could either receive research credit in a psychology course or be entered into a raffle for the chance to win one of twenty $20 gift cards. Data were collected online and the survey took approximately 15 minutes to complete. At the end of the semester all non-student participants and student participants who indicated that they would like to be placed in the raffle (and did not receive research credit) were randomly chosen by an algorithm in R (R Development Core Team, 2008) that was run by an individual not associated with the study. Therefore raffle winners were chosen completely at random

and sent $20 Amazon gift cards. For more descriptive information please see Tables 1 and 2.

Table 1. *Demographic and Study Variable Information*

Variable	Full sample (*N* = 169)	
	n (%)	Missing %
MST		0
Yes	45 (26.6)	
No	124 (73.4)	
Alcohol Use Among during MST		0
Yes	24 (53.3)	
No	21 (46.7)	
Childhood Physical Abuse		0
Stranger	17 (10.1)	
Childhood Physical Punishment	48 (28.4)	
Partner Violence	22 (13.0)	
Childhood Sexual Abuse		0
Perpetrator Someone Older	45 (26.6)	
Perpetrator Someone Close In Age	23 (13.6)	
Victim Between Age 13-18	34 (20.1)	
Sexual Orientation		
Heterosexual	146 (86.4)	
Mostly Heterosexual	12 (7.1)	
Bisexual	5 (3.0)	
Homosexual	6 (3.6)	
Education		0
High School	1 (.6)	
Some College	95 (56.2)	
College Degree	40 (23.7)	
Graduate Degree	33 (19.5)	
Race		0
African American	33 (19.5)	
Asian American	7 (4.1)	
Latino/a	19 (11.2)	
Native American	7 (4.1)	
Caucasian	115(68.0)	
Caribbean American	1(.6)	
Pacific Islander	1(.6)	
Other	7(4.1)	
		0
Marital Status		
Never married	43 (25.4)	
Married	90 (53.3)	
Divorced	20 (11.8)	
Separated	9 (5.3)	

Cohabitating	7 (4.1)	

Variable	Full sample (N = 169) *n* (%)	Missing %
Employment Status		.6
Unemployed	8 (4.7)	
Part-time	22 (13.0)	
Full-time	68 (40.2)	
Student	70 (41.4)	
Current Military Status		.6
Veteran	110 (65.1)	
NG/R	28 (16.6)	
Active Duty	30 (17.8)	
Reason for Joining the Military		0
Serve Country	96 (56.8)	
Education	106 (62.7)	
Leave Home	46 (27.2)	
Other	36 (21.3)	
Branch		1.2
Army	25 (14.8)	
Navy	85 (50.3)	
Air Force	28 (16.6)	
Marines	10 (5.9)	
National Guard	6 (3.6)	
Reserves	12 (7.1)	
Coast Guard	1 (.6)	
How they Heard About the Survey		1.2
Email	96 (56.8)	
Friend	28 (16.6)	
Family	3 (1.8)	
SONA	31 (18.3)	
Online	1 (.6)	
Other	8 (4.7)	

Table 2. *Descriptive Information about Deployments*

Variable	Yes		No			
Did you serve in a region that supported Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF)	82(48.5%)		87(51.5%)			
Variable	Response options	*n*	%	Mean	*SD*	Missing %
How many deployments (90 days or/more) have you had since you joined the military in support of Operation Iraqi Freedom (OIF)	0 – 5 or more	56	33.2	1.64	1.15	11.2
How many deployments (90 days or/more) have you had since you joined the military in support of Operation Enduring Freedom (OEF)	0 – 5 or more	63	37.2	1.26	.67	9.5
How many deployments (90 days or/more) have you had since you joined the military in support of humanitarian missions (non-OIF/OEF)	0 – 5 or more	24	14.2	1.58	.83	14.8
How many deployments (90 days or/more) have you had since you joined the military in support of Other (non-OIF/OEF)	0 – 5 or more	52	30.7	1.56	.89	10.1

Note. Percentage and *n* are given for people who answered yes to having been deployed.

Procedure

After opening the online survey, participants were given a notification statement informing them of their rights as participants (see Appendix A for the notification statement) and contact information of the researchers. As previously noted, participants could either receive research credit in a psychology class, or could opt to be placed in a raffle for one of twenty $20 gift cards. It should also be noted the participants were informed in the notification statement that they could skip questions with no penalties.

Measures

Overview of survey measures (see Appendices A, B, C, D, E, F). The survey assessed: instances of pre-military trauma (i.e., child physical and sexual abuse), victim's alcohol use at the time of the incident, psychological adjustment, combat exposure, and military sexual trauma. Additionally, participants completed a demographic questionnaire and an informational resource page for sexual trauma, mental health, substance use, and other resources for assistance. For descriptive information on the variables used in this study please see Table 3 and for bivariate correlations please see Table 4.

Depression, Anxiety and Somatic Symptoms. *Brief Symptom Inventory – 18 (BSI-18; Derogatis, 2001; see Appendix B).* Participants completed a shortened version of the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983), in which they were asked to answer questions about their depression, anxiety and somatic symptoms prior to entering the military. The rationale for asking respondents to recall psychological adjustment at the time before they entered the military is that psychological adjustment prior to MST may create vulnerability that could result in the greater potential for MST, therefore it must come before their military experience. Example questions for each scale

include: “feeling lonely” and “feeling blue” for the depression subscale; “spells of terror or panic” and “feeling tense or keyed up” in the anxiety subscale; “faintness or dizziness” and “pains in the heart or chest” for the somatic symptomology subscale. Items are scored on a 5-point response scale (1 = *not at all*, to 5 = *extremely*). Items assess three types of psychological adjustment (i.e., depression, anxiety and somatic symptomology [6 questions each]), which were summed to create an overall psychological adjustment score.

Sayer and colleagues (2014) reported an alpha of .92 for overall psychological adjustment/distress, indicating high internal consistency for the BSI-18 when used to assess symptomology in a large recent-era military population. Additionally, Cohen (2014) examined symptoms of depression, anxiety and somatization in older cancer patients using the BSI-18; internal consistency for the various subscales was $\alpha = .91$ for depression, $\alpha = .89$ for anxiety, and $\alpha = .87$ for somatic symptoms, respectively. Cronbach’s alphas in this study were similar to those reported by Cohen (2014). Specifically, internal consistency was $\alpha = .91$ for depression, $\alpha = .85$ for anxiety, and $\alpha = .81$ for somatic symptoms, respectively. The overall alpha for all three subscales was .93.

Combat Exposure. (*Combat Exposure Scale; CES; Keane et al., 1989; see Appendix C).* The CES is a seven-question measure specifically designed to assess the severity of wartime experiences of individuals in the military (i.e., “were you ever under military fire”) with answers on a five-point scale (1 = *no*, to 5 = *51 times or more*). The total score ranges from 0 to 41, calculated by summing scores (Keane et al., 1989). Moderate internal consistency has been found to be .88 for men and .80 for women in a sample of veterans with 60% seeking VA treatment (Kelley et al., 2013); an internal

consistency of .79 in a sample of female veterans from a community sample (Scott et al., 2013); an overall internal consistency of .85 (Keane et al., 1989); and test-retest reliability of .97 was found in a sample of 1,548 previously deployed veterans (Forbes et al., 2012). Additionally, scores on the CES were significantly correlated to those on the Mississippi Scale for Combat Related PTSD (Keane, Caddell, & Taylor, 1988), which is a highly reliable scale and valid scale (McFall et al., 1990), when comparing a sample of 30 Vietnam combat veterans with a PTSD diagnosis and 32 Vietnam veterans without a diagnosis. The Cronbach's alpha in this study was .76, which was similar to Scott et al. (2013).

Traumatic Life Events Questionnaire *(TLEQ; Kubany et al., 2000; see Appendix D).* The TLEQ is a 24-item questionnaire that assesses exposure to traumatic events. Responses are on a 7-point scale of occurrence (0 = *never*, to 6 = *more than 5 times*). A modified version of the TLEQ, designed for military members, has been developed (e.g., Clancy et al., 2006; Kelley et al., 2013) and was employed in the present study. The modified TLEQ asks whether these traumatic events happened before, during, or after military service (note that participants can check any or all of the time periods for which the event may have occurred); whether or not the respondent experienced fear/helplessness; and how old they were when the event first happened. Kubany et al. (2000) demonstrated good content validity and reliability of the TLEQ. In addition, moderate convergent validity with the DSM-IV criteria for PTSD at an interview one week later has been found to be 85% in a sample of 356 military veterans who served post September 11, 2001 and were using VA services (Dedert et al., 2009).

For the purposes of the present study only seven questions from the TLEQ were administered. Responses to three questions were used to determine pre-military physical trauma. Specifically, affirmative responses to TLEQ items; “Have you ever been hit or beaten up badly by a stranger or by someone you didn’t know very well?”, “While growing up, were you physically punished in a way that resulted in bruises, burns, cuts, or broken bones?”, and “Have you ever been slapped, punched, kicked, beaten up or otherwise physically hurt by your spouse [or former spouse] a boyfriend/girlfriend or some other intimate partner?”, were considered pre-military physical trauma. Each affirmative response that occurred prior to the military was issued one point. Therefore, similar to the procedure used by previous researchers (e.g., Clancy et al., 2006; Kelley et al., 2013), a score for pre-military physical trauma reflected the number of affirmative responses to these three questions. Total scores ranged from 0 to 3.

In measuring childhood sexual assault three questions were administered. Specifically, “Before your 13th birthday, did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?”; “Before your 13th birthday, did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?”; “After your 13th birthday and before your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?”, were counted as pre-military sexual trauma if the participant indicated that the event occurred prior to military service. Each affirmative response that the participant indicated occurred *prior* to the military was summed; total scores ranged from 0 to 3.

The rationale for scoring the TLEQ in this way is that previous studies using military samples have used a similar scoring system (Clancy et al., 2006). Furthermore, the TLEQ includes many different types of traumas that can be categorized separately. For instance, in their study of veterans with PTSD, Clancy et al. (2006) categorized TLEQ responses into six different categories; attack, childhood violence, childhood sexual abuse, sexual abuse as an adult, accident, or disaster. In the present study, childhood physical abuse and childhood sexual abuse were used to determine pre-military trauma as they are most pertinent in revictimization cases (Sadler et al., 2004). A total pre-military trauma score was derived by summing the number of affirmative responses on both the physical and sexual abuse scales to create one composite score of pre-military trauma. The over total score ranged from 0 to 6.

Military Sexual Trauma. The final question determined MST, "After your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent"; as long as the participant stated that this occurred while in the military. Kubany et al. (2000) found overall agreement for this item to be from 79 to 88% with kappa's ranging from .51 - .59, between the original and one-week follow-up administration. Additionally, the authors' compared this item to the same item on the Traumatic Life Events Interview (TLEI; Kubany, 1995) and found convergent validity of .83 on same day agreement and .56 for one-week delay, indicating that this item has strong convergent validity for same day agreement and moderate convergent validity with a one-week delay (Landis & Kock, 1977).

Alcohol Use at the Time of the Trauma. In order to determine if alcohol was used at the time of the incident, individuals who answer the MST question affirmatively

were asked if they had consumed alcohol during the incident. If respondents reply "yes" they were considered to be using alcohol at the time of the trauma. No reliability is available for the MST or the alcohol question as they are dichotomous variables. A total of 45 women (26.6%) reported experiencing MST. Of those who reported MST, 24 of 45 (53.3%) reported alcohol use at the time of the trauma.

Power analysis

As the estimation method used for this study was Maximum Likelihood (ML) the N:q rule was used as the best estimate as to the necessary power of this study (Kline, 2011). According to Kline (2011) the best estimate for power in path analysis is 20:1 that is a sample size of at least 20 for each parameter. In this study there are eight parameters, therefore, 20 X 8 would be a sample size of at least 160 women. Prevalence rates of MST have been found in the literature to be between 22 - 42% for women (Katz et al., 2012; Kimmerling et al., 2008); therefore, for this study it was expected that around 25 – 30% of women would report MST. A total final sample of 169 women completed the full survey, and of that, 45 women (26.6%) reported having experienced MST.

A power analysis after the fact was conducted for future research purposes. For the first correlation, a point biserial, with power of .8 (p=05) and an effect size of .1 a total of 614 people are needed and with an effect size of .2 approximately 150 people are needed. For the second correlation, a Pearson's r, with a .8 (p=05) and an effect size of .26 around 97 people are needed.

Table 3. *Descriptive Statistics for Study Variables*

Variable (Measure)	Mean	*SD*	Range	Cronbach's α	Skew	Kurtosis	Missing %
Depressive symptoms (BSI)	7.87	2.71	6 – 30	0.91	1.48	3.00	0.00
Anxiety symptoms (BSI)	7.37	2.55	6 – 30	0.85	2.21	6.84	0.00
Somatic symptoms (BSI)	6.80	1.96	6 – 30	.81	4.33(3.59)	22.82(15.87)	0.00
BSI total	22.04	5.12	18 - 90	.93	1.89	3.12	0.00
Combat exposure (CES)	7.35	2.22	6 - 23	.76	1.87	2.878	0.00
Alcohol Use	0.14	0.35	0 - 1		2.07	2.31	0.00
MST	0.27	0.44	0 - 1		1.07	-0.87	0.00
Childhood sexual abuse	0.60	0.60	0 - 3	.55	1.32	0.68	0.00
Childhood physical abuse	0.51	0.51	0 - 3	.30	1.42	1.90	0.00

Note. *N* = 169. BSI = Brief Symptom Inventory; CES = Combat Exposure Scale; MST, Alcohol Use, Childhood Physical and Sexual Abuse scores derived from responses to Traumatic Life Events Questionnaire items. Somatic Symptoms was transformed using the square root transformation, noted in the parenthesis. Alcohol use and MST were measured dichotomously.

Hypotheses and Analyses

Pre-military Trauma and MST. It was hypothesized that pre-military trauma (i.e., childhood physical or sexual violence) would correlate to military sexual trauma (Hypothesis 1; see Figure 6 for visual representation). A point biserial correlation was used to analyze this relationship due to the continuous nature of the pre-military trauma variable and the dichotomous variable of MST. The variable MST was dummy coded in that zero indicated no MST and one indicated affirmative MST.

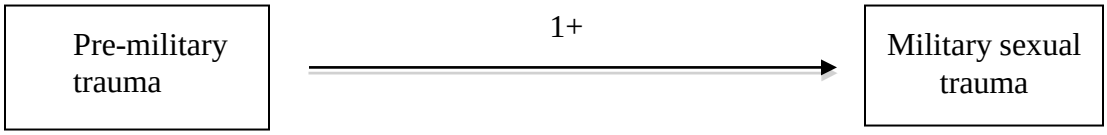

Figure 6. *Hypothesis 1*

Pre-military Trauma and Psychological Adjustment. It was hypothesized that pre-military trauma would be correlated with lower psychological adjustment (Hypothesis 2; see Figure 7 for visual representation). A Pearson's *r* correlation was run to test this relationship.

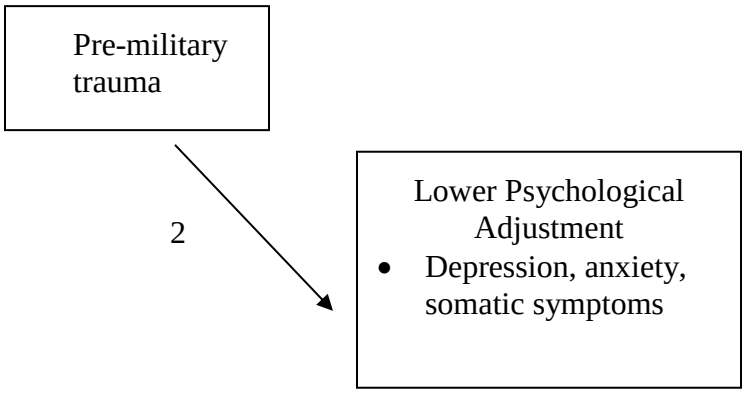

Figure 7. *Hypothesis 2*

Pre-military Trauma, Psychological Adjustment and MST. Hypothesis 3 states that psychological adjustment would mediate the association between pre-military trauma and MST. See Figure 8 for a visual description. A mediation analysis was conducted to test this hypothesis.

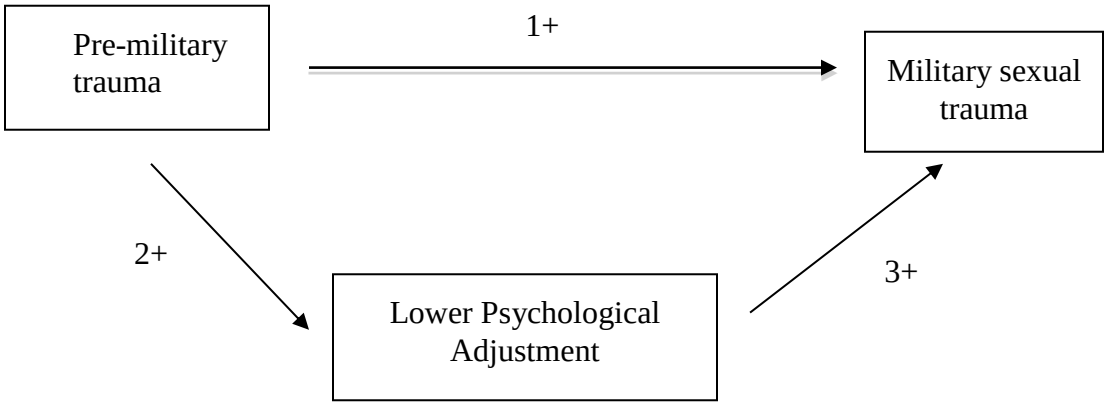

Figure 8. *Hypothesis 3*

Combat Exposure and MST. In the present study, it was expected that combat exposure would moderate the mediation between pre-military trauma and psychological adjustment on military sexual trauma (see Figure 9 for a visual representation). That is, higher levels of combat were expected to heighten the association between lower psychological adjustment and MST, whereas lower levels of combat exposure were expected to attenuate these associations. Path analyses were run using Mplus Version 7 (Muthén & Muthén, 2012).

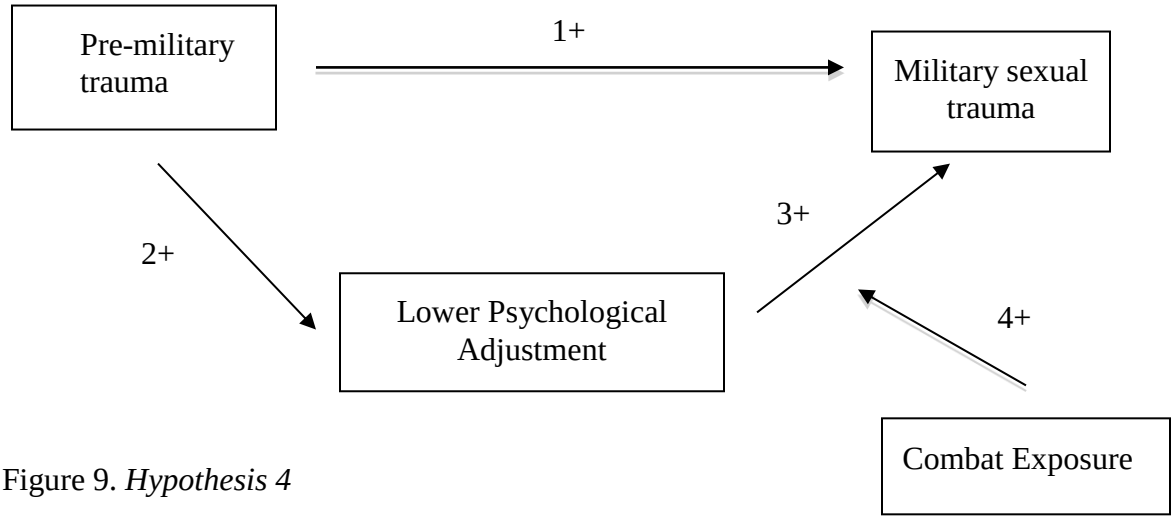

Figure 9. *Hypothesis 4*

Alcohol Use by the Victim at the Time of MST. Alcohol use at the time of the event by the victim was also expected to moderate the association between pre-military trauma and MST. That is, alcohol use by the victim was expected to increase the association between lower psychological adjustment and MST, whereas no alcohol use was expected to attenuate these associations (see Figure 10 for a visual representation). Path analyses were conducted to test this hypothesis.

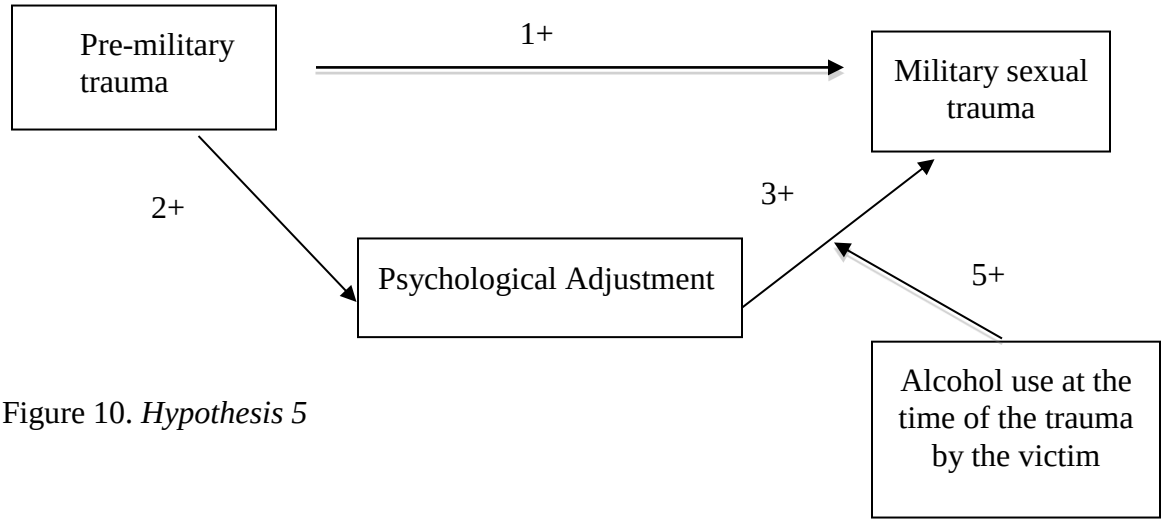

Figure 10. *Hypothesis 5*

CHAPTER III

RESULTS

Data Preparation

Before conducting any type of analyses data were checked for incomplete questionnaires, skewness and kurtosis, univariate outliers, and missingness. A total of 333 people took the survey, 3 reported being transgender, and 142 individuals did not report gender, which left data for 188 female participants. Although the study was advertised for military members who had been or were currently in the military, or NG/R there were 4 questions in the demographics to verify that individuals were or had been in the military. The first was "What is your current military status?" 16 endorsed the option, "Never been in the military". Data from these participants were deleted. In addition, when asked, "What is/was your job in the military?" 3 participants responded "N/A", that is, "not applicable". These same two participants also left blank, "How many years were you/have you been in the military?", and "In what year did you join the military", therefore, data from these two participants were removed as their responses indicate they were not nor had ever been in the military.

After discarding data from the participants noted above, composite scores were created for the BSI subscales (somatic symptoms, depression and anxiety) and a total scale score, along with a composite for combat exposure. All composite scores were created by summing the item scores. Next, for continuous variables univariate outliers were assessed via boxplots. On the somatic subscale there was one outlier that was more than three standard deviations above the mean. The score for this participant was Winsorized (Cox, 2006) to one number above the next highest score (i.e., 10). For the

depression subscale of the BSI, there were five outliers more than three standard deviations above the mean. These scores were Winsorized from 17, 17, 18, 20, and 26 to 15, which was one higher than the highest score (i.e., 14). On the anxiety subscale scores for three individuals were Winsorized from 18, 20, and 22 to 16, which was one number above the next highest number, which was 15. Lastly, the on the combat exposure scale there were four individuals who were over three standard deviations above the mean. These scores were changed to the one above the next highest was 14.

There was no missing data on the variables of interest. Conducting path analysis via structural equation modeling (SEM) is based on the assumption of normality. After assessing missingness, skewness and kurtosis were examined for all variables via the skewness and kurtosis option in the SPSS descriptive variable section (SPSS Inc., 2009). All variables were below 20.00 for kurtosis (Mardia, 1974) indicating they were not kurtotic. When checking for skewness all variables were below 3.0, except for somatic symptoms (4.33). A square root transformation was conducted for the somatic complaints symptoms subscale (Braitman, 2010; Yeo & Johnson, 2000). The transformed somatic variable was used in all further analyses.

The MST variable was created by developing a new variable based on affirmative responses to the following questions: “Did you experience sexual trauma over 18” and was it “during your time in the military”. Those who answered affirmatively to both questions were given a score of ‘1’; those who answered negatively to one or both questions were given a score of ‘0’. To generate scores for pre-military trauma, the following questions from the TLEQ were examined: “Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well?”, “Have you

ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend or some other intimate partner?", "While growing up, were you physically punished in a way that resulted in bruises, burns, cuts or broken bones?". Participants who answered affirmatively to these questions and (for the first two questions) answered that the event(s) occurred prior to the military were assigned a score of '1'; participants who answered negatively were assigned a score of '0'.

For individuals who had experienced MST, they were also asked a subsequent question. "Were you drinking at the time of the incident?" Responses were coded: 1 = yes; 0 = no. More information on coding is reported in Appendices B, C, and D.

Correlations

Bivariate correlations were then run to examine the relationship between the variables. Both Pearson product-moment and point biserial correlations were run in order to observe the relationships between the continuous and dichotomous variables of interest. Intercorrelations between study variables are presented in Table 3. As expected depressive symptoms, anxiety and somatic symptoms were all positively and significantly correlated with each other and the global psychological distress variable (i.e., a composite of the three BSI subscales of depressive symptoms, anxiety, and somatic symptoms). In addition, physical and sexual abuse were positively and significantly correlated with depressive symptoms, anxiety and somatic symptomology and global distress, as was overall childhood abuse. In contrast to hypotheses, MST was not correlated with any variables except for alcohol use at the time of the incident. Also, combat exposure was not significantly correlated with any other variables. Possible

explanations for the lack of expected correlations are addressed in the discussion section. Lastly, due to the volume of analyses, a Bonferroni correction was used (.05/number of tests) indicating that a p value of .01 is significant, as opposed to the common place .05.

Table 4. *Bivariate Correlations between Study Variables*

Variable	1	2	3	4	5	6	7	8	9	10
1. Somatic symptoms	-									
2. Depressive symptoms	.54**	-								
3. Anxiety symptoms	.59**	.75**	-							
4. Global distress	.64**	.93**	.93**	-						
5. Combat Exposure Scale	-.03	-.03	-.07	-.05	-					
6. MST	-.03	.02	-.10	-.04	.13	-				
7. Alcohol use	-.05	-.01	-.12	-.07	.05	.68**	-			
8. Abuse	.20*	.28*	.25**	.28**	.08	.02	-.01	-		
9. Physical abuse	.08	.24**	.21**	.24**	.03	-.06	-.08	.73**	-	
10. Sexual abuse	.22**	.20**	.19*	.21**	.08	.07	.05	.84**	.24**	-

Note. Pearson's product-moment correlations above axis. Alcohol use and MST were measured dichotomously. Somatic, depressive, and anxiety symptoms are subscales from the Brief Symptom Inventory. Combat exposure derived from the Combat Exposure Scale. Abuse included a combination of affirmative responses to physical and sexual abuse items from the Traumatic Life Events Questionnaire (range from 0 to 6).
* $p < .05$. ** $p < .01$.

Model Specification

Point biserial and Pearson's r correlations were conducted as appropriate (see Figures 11 and 12). Path analyses were conducted in Mplus Version 7 (Muthén & Muthén, 2012) to examine the effects of pre-military trauma and psychological adjustment on MST, whether psychological adjustment mediates the association between pre-military trauma and MST, and whether alcohol was used at the time of trauma, and combat exposure, moderated the associations between psychological adjustment and MST. For reference mediation occurs when a third variable that links a cause and an effect ("why" and "how" the independent variable [IV] predicts the dependent variable [DV]), and a moderator is when a third variable modifies a causal effect ("when" can the IV influence the DV) and a moderator can modify the direction and strength of effect. Lastly, moderated mediation occurs when treatment effects of an IV, occur on an outcome via a mediator that depends on the levels of the moderator variable.

Hypothesis 1. Hypothesis 1 examined whether a correlation was present between pre-military trauma and military sexual trauma?

The point biserial one tailed correlation between pre-military trauma (Abuse) and MST was nonsignificant correlation r_{pb} = .02 (*p*=.410). A one tailed correlation was used due to the directional nature of the hypotheses.

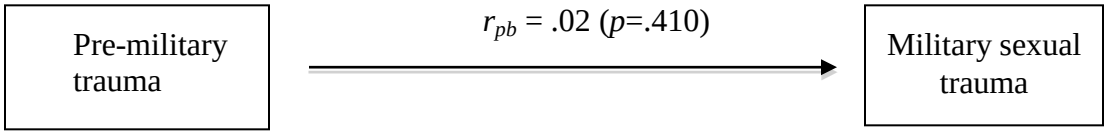

Figure 11. *Hypothesis 1 Results*

Hypothesis 2. Does pre-military trauma correlate to higher levels of depressive symptoms, anxiety, and somatic symptoms (lower psychological adjustment)?

MST was not significantly correlated with either pre-military physical trauma (r = -.03, p = .707) or pre-military sexual trauma (r = .11, p = .141). As expected, the Pearson's r correlation between pre-military trauma and the global psychological adjustment variable was significant (r = .26, p < .001). That is, higher scores on global psychological distress (as determined by the overall score on the BSI-18) was associated with greater likelihood of having experienced pre-military trauma.

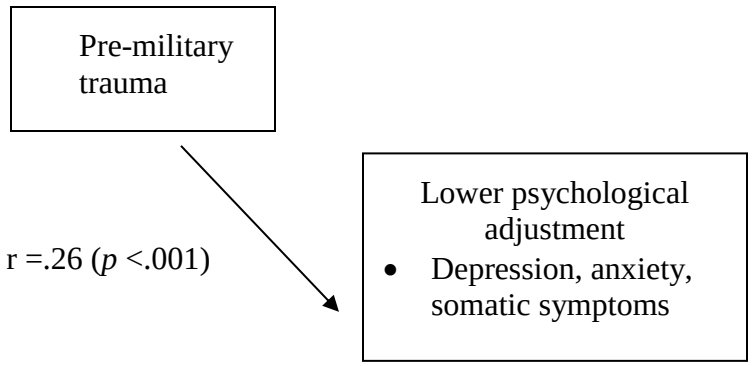

Figure 12. *Hypothesis 2 Results*

Follow-up correlations were conducted to more clearly understand the pattern of relationships between pre-military trauma and psychological distress. With one exception, reports of physical abuse during childhood were not associated with somatic

symptoms prior to military service, results showed that each of the items that assessed physical and sexual abuse prior to the military were significantly and positively correlated with all three psychological distress subscale scores (i.e., depression, anxiety and somatic symptoms. Both physical (r = .24, p = .002) and sexual abuse (r = .21, p = .006) prior to the military were significantly correlated with global psychological distress (i.e., depression, anxiety and somatic symptoms). Further, pre-military trauma (combined physical and sexual abuse reports) was highly correlated with depression (r = .28, p < .001), anxiety (r = .25, p < .001), and somatic symptoms (r = .20, p = .011) prior to military service. Physical abuse was significantly and positively correlated with depressive symptoms (r = .24, p < .001) and anxiety (r = .21, p = .006), but not somatic symptoms (r = .08, p = .303) prior to military service. Lastly, sexual abuse was correlated with depression (r = .20, p = .010), anxiety (r = .19, p = .014), and somatic symptoms (r = .22, p = .005) prior to military services.

Hypothesis 3. Hypothesis 3 examined whether psychological adjustment prior to military service mediated the association between pre-military trauma and MST?

First, a mediation analysis was conducted to examine whether the association between pre-military trauma and MST was mediated by psychological adjustment. According to Hayes (2009), even though there was no correlation between pre-military trauma and MST it is still appropriate to run a mediational model because this correlation is not a prerequisite for mediation. This process is known as a test of joint significance and it does carry less power than mediation with correlated variables, but it is appropriate for a thorough investigation (Hayes, 2009). Although lower psychological adjustment was expected to mediate the association between pre-military trauma and MST the test for mediation was not significant.

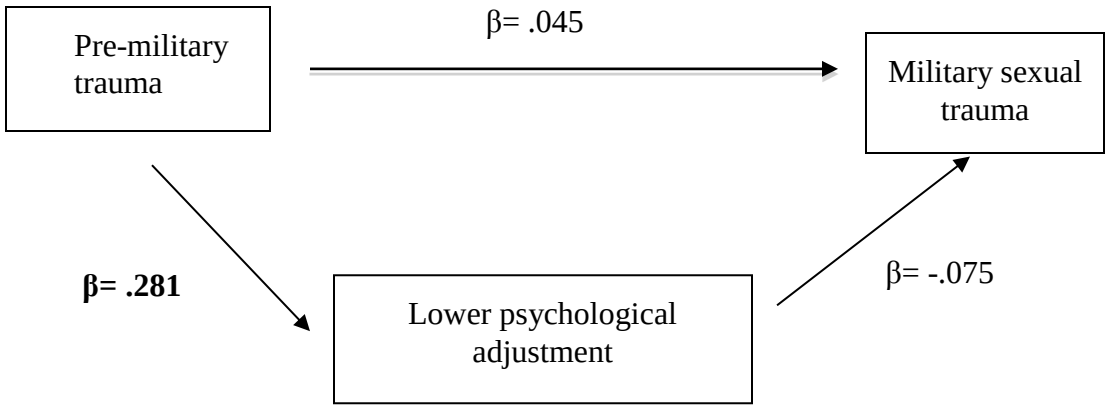

Figure 13. *Hypothesis 3 Results*

Due to the fact that MST was not evenly distributed (with approximately 75% of respondents not endorsing MST), a Poisson model was conducted. Although the *p* value between pre-military and MST was reduced slightly (from .702 to .669), the test for mediation was not significant ($p = .522$).

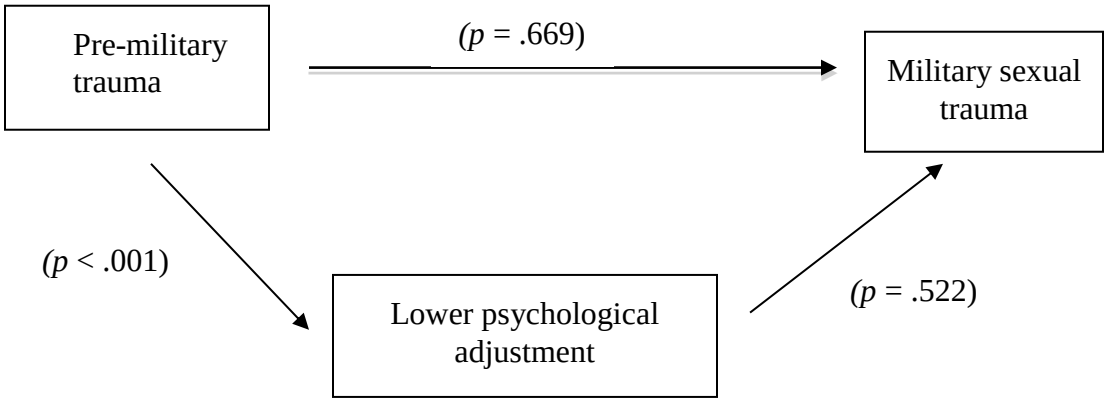

Figure 14. *Hypothesis 3 Poisson Analysis*

Hypothesis 4. Would combat exposure moderate the potential mediated effect of poor psychological adjustment, between pre-military trauma and military sexual trauma? That is, would combat exposure increase the risk of experiencing military sexual trauma above the mediated model?

Separate moderated mediation tests were examined to determine whether alcohol use at the time of the trauma and combat exposure would moderate the association between lower psychological adjustment and MST. As shown in Figure 15, combat exposure did not moderate the association between MST and psychological distress.

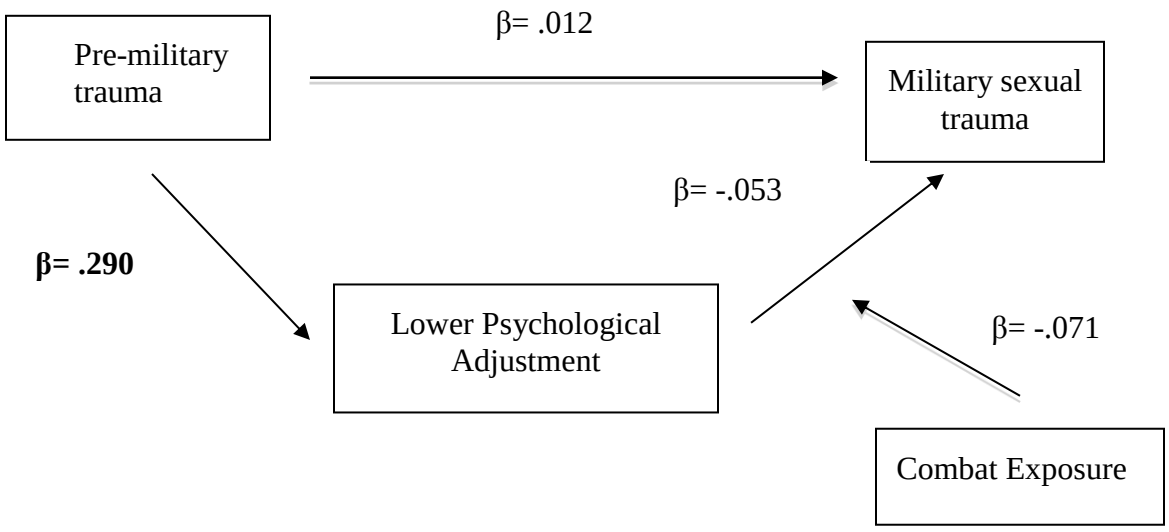

Figure 15. *Hypothesis 4 Results*

Hypothesis 5. Would alcohol use at the time of the trauma by the victim moderate the potential mediated effect of lower psychological adjustment and MST? That is, would alcohol use at the time of the trauma by the victim increase the risk of experiencing military sexual trauma above and beyond the mediated model?

To examine if alcohol use at the time of the incident mediated the relationship between psychological distress and MST, a moderated-mediation analysis was conducted. As shown in Figure 16, the analysis was nonsignificant.

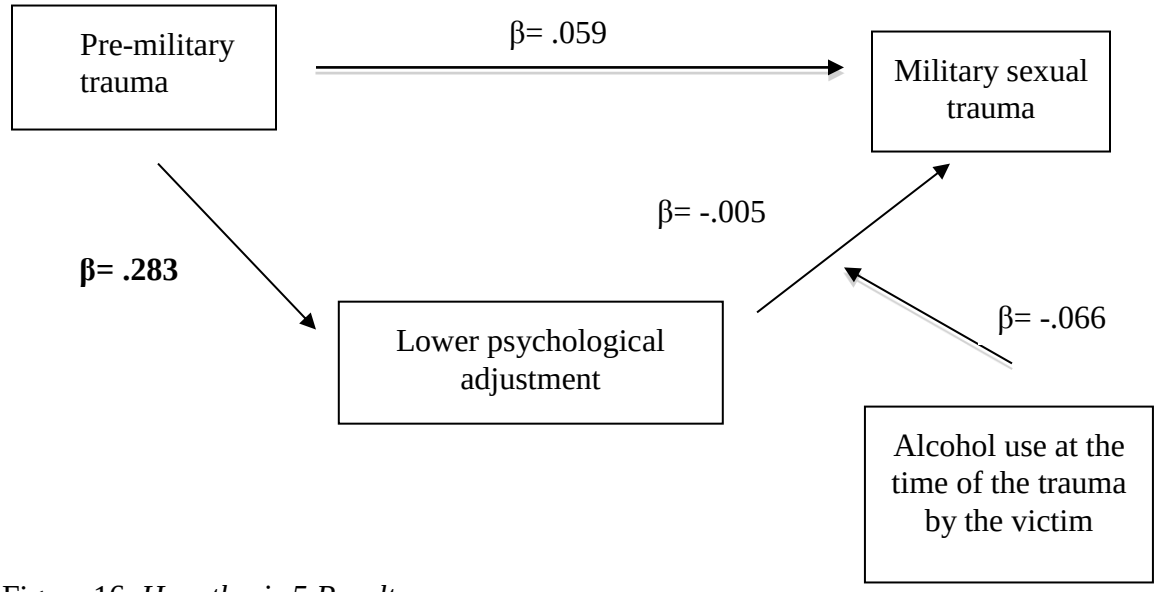

Figure 16. *Hypothesis 5 Results*

Exploratory Analyses

Although the initial hypotheses were not supported, a decision was made to conduct several exploratory analyses. These analyses were conducted based on further review of the literature. In particular, it is possible that especially serious forms of pre-military trauma (e.g., rape) may have an especially strong relationship to revictimization (Briere & Elliot, 2003; Mullen, Martin, Anderson, Romans, & Herbison, 1996). For this reason, further analyses of data from participants who indicated that they had experienced sexual assault prior to the military that involved oral/anal/vaginal penetration were examined in relation to MST. Specifically, responses to the following questions from the TLEQ were examined (4. "Before your 13th birthday, did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?" 5. "Before your 13th birthday, did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?"6. "After your 13th birthday and before your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?"), and responded affirmatively to a subsequent question (i.e., "Was oral, anal or vaginal penetration?") were examined. A significant positive correlation was found between MST and reported 'rape' prior to military service ($r = .162$, $p = .036$). This finding demonstrates that more serious forms of childhood sexual trauma that constitute rape is associated with later MST. A mediation model was conducted between MST and psychological adjustment, but instead of abuse as a whole variable, just the rape items were use as the mediator. However, the results for this mediation came out nonsignificant ($p = .481$).

Lastly, alcohol use at the time of the trauma and combat exposure were analyzed as possible moderators of the relationship between pre-military trauma and MST. This analysis was conducted in SPSS (IBM Corp. Version 20, 2011). First, all continuous variables were centered and then interaction terms were created then a linear regression was conducted. Alcohol use at the time of the trauma did not moderate the relationship between pre-military trauma and MST (p = .862). The same result was also found for combat exposure (p = .949). Additionally, combat exposure (p = .503) and alcohol use at the time of the trauma (p = .237) were measured as moderators of the relationship between childhood rape and MST. Neither combat exposure nor alcohol use at the time of the trauma moderated the association between rape and MST

Additionally, at the recommendation of the thesis committee MST was multiplied with continuous reports of MST severity to make a continuous variable (see table 7). One tailed point biserial correlations were then run and none were significant.

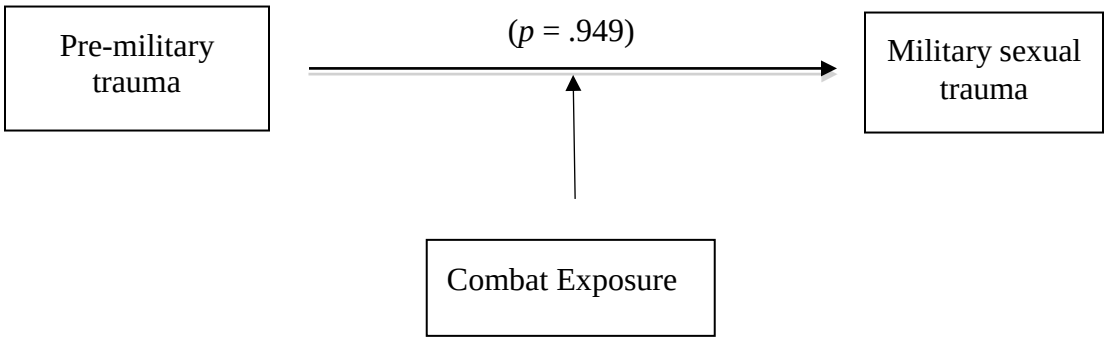

Figure 17. *Pre-military Trauma and MST Moderated by Combat Exposure*

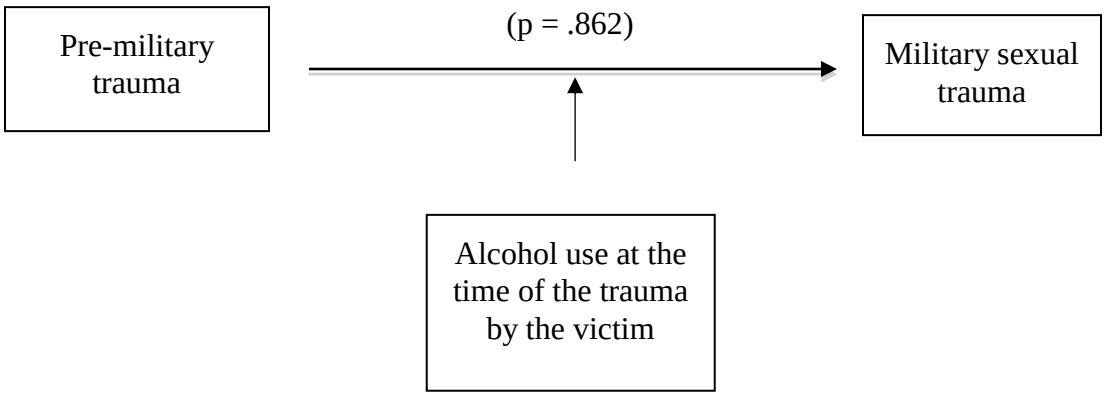

Figure 18. *Pre-military Trauma and MST Moderated by Alcohol Use at the Time of the Trauma*

Table 5. *Bivariate Correlations between MST and all Pre-Military Trauma (Abuse) Variables*

Variable	1	2	3	4	5	6	7
1. MST	-						
2. Physical 1	-.023	-					
3. Physical 2	-.023	.138	-				
4. Physical 3	-.074	.280**	.029	-			
5. Sexual 1	.001	.066	.244	.006	-		
6. Sexual 2	.073	.039	.171*	.001	.503**	-	
7. Sexual 3	.098	.176*	.273**	-.019	.366**	.188*	-

Note. Spearman's rank correlations. All scores reflect item scores from the Traumatic Life Events Questionnaire. *Physical 1:* Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well?
Physical 2: While growing up, were you physically punished in a way that resulted in bruises, burns, cuts or broken bones?; *Physical 3*: Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend or some other intimate partner?; *Sexual 1:* Before your 13th birthday, did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?; *Sexual 2*: Before your 13th birthday, did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?; *Sexual 3:* After your 13th birthday and before your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?
* $p < .05$. ** $p < .01$.

Table 6. *Bivariate Correlations between MST and Rape Variables*

Variable	1	2	3	4	5
1. MST	-				
2. Rape1	.139	-			
3. Rape 2	.181*	.555*	-		
4. Rape 3	.098	.335**	.254**	-	
5. Rape Total	.162*	.755**	.522**	.785**	-

Note. Spearman's rank correlations below axis. All variables from the Traumatic Life Events Questionnaire. Individuals who responded affirmatively to the following questions and endorsed oral, anal or vaginal penetration.; *Sexual 1:* Before your 13th birthday, did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?;
Sexual 2: Before your 13th birthday, did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?; *Sexual 3:* After your 13th birthday and before your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?
* $p < .05$. ** $p < .01$.

Table 7. *Bivariate Correlations with MST measured continuously*

Variable	1	2	3	4	5
1. MST	-				
2. Alcohol	.022	-			
3. Abuse	.218	-.011	-		
4. Combat exposure	-.060	.041	.065	-	
5. Psychological adjustment	-.078	-.069	.283**	-.061	-

Note. Point biserial correlations.
* $p < .05$. ** $p < .01$.

PART IV

DISSCUSSION

The present study sought to expand upon previous military sexual trauma research by incorporating new theory-based mediators and moderators into a model examining MST in a community sample of military women. Pre-military childhood physical and sexual trauma was not associated with MST. As expected childhood physical and sexual trauma were significantly and positively correlated with lower psychological adjustment (i.e., more symptoms of depression, anxiety and somatic symptoms) prior to military services, however, psychological adjustment was not correlated with MST as expected based on the Conservation of Resources theory (COR; Hobfoll, 1989). The final model also indicates that combat exposure and alcohol use at the time of the trauma did not act as moderators between lower psychological adjustment and MST.

It was hypothesized that pre-military trauma would be correlated positively with MST (Hypothesis 1). In contrast to what was expected, pre-military trauma was not significantly correlated with MST. This finding was unexpected given that much of the literature on military women has found that experiencing childhood trauma, especially sexual trauma, correlates with a higher likelihood of experiencing sexual trauma in adulthood (e.g., Sadler et al., 2004; Zinzow et al., 2007). Sadler and colleagues (2004) studied 640 female veterans and 54% reported either physical or sexual violence prior to entering the military. In a review of the literature on trauma among female veterans, Zinzow et al. (2007) found 24 - 49% of women reported childhood sexual abuse, 35% reported childhood physical abuse, and 30 - 45% reported experiencing MST.

Although the correlation between pre-military trauma and MST did not come out as expected, follow-up analysis revealed that childhood sexual abuse that involves rape (i.e., oral, anal or vaginal penetration) prior to military service was associated with MST. Sexual abuse that involves rape is considered more severe than others forms of sexual abuse (Beitchman et al., 1992; Classen, Palesh, & Aggrawal, 2005; Polusny & Follette, 1995). In a study of 221 women in the community with childhood sexual abuse, Arata (2000) found revictimization was more highly associated childhood sexual trauma that involved rape/forced penetration than childhood sexual abuse that involved did not involve rape/forced penetration (i.e., fondling). More specifically, individuals who experienced revictimization were nearly 50% more likely to report rape or forced penetration during childhood sexual abuse compared to individuals who were not revictimized in adulthood. In an extensive review of the literature on women and sexual revictimization, Classen and colleagues (2005) found that severe childhood sexual abuse is the most well documented predictor of sexual revictimization. The authors also note that sexual fondling during childhood doubled a woman's risk of rape, whereas rape during childhood tripled the risk of revictimization (Classen et al., 2005). In a study of 465 female U.S. Navy recruits, Stander et al. (2006) found that women who had experienced premilitary rape were 3.5 times more likely to experience rape during their first year of service.

The theory of Conservation of Resources (COR) states that individuals who experience trauma, especially in childhood, are more likely to lack the necessary resources and coping mechanisms and this can lead to further traumatization (e.g., Hobfoll, 1989). Because trauma, especially severe trauma (i.e., childhood rape) is highly

correlated with distress (Vogt et al., 2011), the finding that participants who had experienced rape were more likely to report MST is consistent with COR theory.

As expected, pre-military trauma and lower psychological adjustment were positively and significantly correlated (Hypothesis 2). This finding supports previous research, which has shown that childhood trauma, is correlated with negative psychological outcomes (e.g., Frayne et al., 1999; Lindert et al., 2014; Suris et al., 2004). Follow-up correlations were conducted to more clearly understand the pattern of relationships between pre-military trauma and specific forms psychological distress (i.e., depressive, anxiety, and somatic symptoms). With one exception, that is, reports of physical abuse during childhood were not associated with somatic symptoms prior to military service, results showed that each of the items that assessed physical and sexual abuse prior to the military were significantly and positively correlated to all three psychological distress subscale scores (i.e., depression, anxiety and somatic symptoms).

These results are consistent with previous research. Broadly speaking, childhood adversity has been found to correlate strongly with anxiety, depression and overall lower psychological health (Bonomi, Cannon, Anderson & Rivara, 2008; Cougle et al., 2010; Frayne, 1999; Lindert et al., 2014). More specifically, sexual abuse has been found to be highly correlated with depression (Browne & Finkelhor, 1986; Putnam, 2002), and anxiety (Browne & Finkelhor, 1986; Cougle et al., 2010). For instance, when controlling for other psychiatric symptoms, in a sample of 4,141 participants who took part in the National Comorbidity Survey Replication study, Cougle and colleagues (2010) found childhood sexual abuse was correlated with social anxiety disorder, panic disorder, generalized anxiety disorder, and PTSD. In a review of the literature between 1989 and

2001, Putnam (2002) found that lifetime prevalence rates for major depression were three to five times higher for women with histories of childhood sexual abuse compared to those without histories of childhood sexual abuse. Although considerable research has examined childhood sexual abuse (Classen et al., 2005), few investigations have examined how childhood sexual abuse is associated with somatic symptoms. However, in a study by Kugler and colleagues (2012), in children and adolescents who had experienced sexual abuse a much higher prevalence of somatic symptoms compared to those who experienced other forms of child abuse (i.e., neglect, emotional abuse, and so forth), in a sample of 161 youth living in foster care.

The fault with previous research is that most studies either examined sexual abuse only or physical and sexual abuse combined, however, there is some research that separates the two. In a study of 3,568 insured women between the ages of 18-64, individuals with physical abuse had high rates of depression (Bonomi et al., 2008). Additionally, in a sample of 198 youths and their families in New York state, adolescents were seven times more likely to develop depression when raised in a physically abusive environment compared to an environment with no physical abuse, even when controlling for other external factors (i.e., parental psychopathology, age, gender, etc.) (Kaplan et al., 1998). Physical abuse and harsh punishment has also been linked with anxiety (Afifi, Mota, Dasiewicz, MacMillan, & Sareen, 2012). In a sample of 34,653 participants who took part in the National Epidemiologic Survey on Alcohol and Related Conditions, Afifi and colleagues (2012) found that harsh physical punishment was associated with increased odds of anxiety disorder even after controlling for sociodemographic variables.

Prior studies have shown that relative to childhood physical abuse those who experience childhood sexual abuse are particularly vulnerable to sexual revictimization adulthood (e.g., Briere & Elliot, 2003; Mullen et al., 1996). Therefore, it is understandable that there is more research covering child sexual abuse and is, perhaps, the reason there is a dearth of information on child physical abuse and somatic symptomology. This may also explain the reason there was no relationship found between physical abuse and somatic symptoms in this study.

According to the COR theory, individuals who have experienced previous trauma are more likely to have depleted available coping resources which may make them vulnerable to future trauma (e.g., Hobfoll, 1989). For this reason it was hypothesized that lower psychological adjustment would mediate the relationship between pre-military trauma and MST (Hypothesis 3); however, this hypothesis was not supported. There are a number of possible explanations for this finding. First, the nature of the sample may in part explain this finding. That is, previous studies have typically examined associations between childhood trauma, later sexual revictimization and psychological adjustment in clinical and VA samples (e.g., Classen et al., 2005; Kimerling et al., 2008). The present study surveyed a community sample. Military women that are not recruited from VA hospitals or receiving treatment in other venues may be more resilient and/or be better able to adapt or have a stronger ability to cope with prior trauma experiences. Bonanno (2004), who is a leader in the study of resilience, states that research in the field of trauma is heavily focused on treatment-seeking individuals who may have greater difficulty coping with trauma and may have less resilience. For example, approximately 50-60% of the U.S. population is exposed to a traumatic and stressful event, however,

only 5-10% develop PTSD (Ozer, Best, Lipsey & Weiss, 2003). Therefore, our understanding of trauma is based largely on treatment-seeking populations receiving help coping with traumatic stress. Results from these studies may not generalize to those who do not receive mental health treatment.

Combat exposure was expected to moderate the relationship between lower psychological adjustment and MST, meaning that those with higher levels of combat exposure were expected to be more likely to experience MST above the mediated model (Hypothesis 4). The rationale for this hypothesis was that combat exposure has been shown to increase an individual's risk of experiencing MST (e.g., LeardMann et al., 2013), therefore it was expected to strengthen the association between psychological adjustment and MST in this sample. This hypothesis was not supported. It should be acknowledged that there was no significant mediation of psychological adjustment on pre-military trauma and MST, therefore, it is not surprising that combat exposure was not a significant moderator. In addition, the present sample included veterans, NG/Reservists, and active duty military women. Although many participants had experienced deployment, many had not. It is possible that stronger associations between pre-military trauma and MST are present among military women who are veterans and/or have been exposed to long or repeated deployments.

It was also hypothesized that alcohol use at the time of the trauma would moderate the relationship between lower psychological adjustment and MST, that is, participants who reported alcohol use at the time of the incident would be more likely to experience MST above the mediated model (Hypothesis 5). This hypothesis was not supported. Much of the alcohol literature points to alcohol use as a predictor of sexual

trauma (e.g., French, 2014; O'Brien & Sher, 2013; Testa & Livingston, 2000). However, much of the existing research has examined alcohol use and sexual trauma among college women (e.g., Abbey, 2002). Again, it should be mentioned that there was no significant mediation of psychological adjustment on pre-military trauma and MST; therefore, it is not surprising that alcohol use at the time of the trauma did not significantly moderate the relationship between lower psychological adjustment and MST.

Clinical Implications

Military sexual trauma has received increasing attention in recent years (e.g., Kimerling et al., 2008). In part this may reflect the growing number of military women who serve in combat and other overseas deployments (Hassija et al., 2012; LeardMann et al., 2013). MST can have significant long-term mental (Hassija et al., 2012; Suris et al., 2004) and physical health (Frayne et al., 1999) consequences. In the present study, military women who reported having experienced rape prior to military service were more likely to experience sexual revictimization during the military. Military and civilian mental health providers should be aware that serious sexual trauma prior to military service appears to create particular vulnerability to MST.

In addition, participants who reported childhood sexual or physical trauma or both reported lower psychological adjustment prior to military service. Psychological adjustment at the time of the survey was not assessed, but research shows that negative mental health can persist over time into adulthood and beyond (e.g., Arata, 2000; Suris & Lind, 2008; Vogt et al., 2011). Because pre-military trauma may increase depression and anxiety symptoms, depression and anxiety associated with such premilitary trauma should also be addressed. It may also be wise to create optional counseling, that is,

programs that target the prevention of sexual assault and specifically invites women who have had serious childhood sexual assault. Additionally, the VA should reach out to women in particular because they are more likely to have low perceptions of the VA and lack information on the services they provide (Washington, Yano, Simon, & Sun, 2006).

Limitations

Although there are a few limitations to this study it is important to emphasize the need to continue studying this population and understanding risk factors for MST. One limitation is that this sample was not specifically a VA sample, but individuals who reported MST also reported seeking mental health treatment at the VA. Although it is not known what mental health condition these participants were seeking or sought treatment for.

Additionally, this is a correlational study and cannot imply causation. All data were self-report so the researcher does not have interviews, etc. Also, all women retrospectively reported on psychological adjustment and alcohol use, as well as trauma, which may be subject to memory biases. In addition, it is possible that mood at the time of the survey or current psychological adjustment may have influenced reports of psychological adjustment prior to the military.

Future Directions

To the researcher's knowledge no studies have been conducted on MST in a non-treatment seeking population, therefore it is important to seek out individuals who have been affected by MST, but are not getting treatment specifically for the trauma. Additionally, little is known about the effectiveness of current treatments for MST and the difference, if any at all, in treatment at a non-VA institution compared to the VA.

More work should also be conducted with men in the military. A small number of men experience MST; many, however, are ashamed to report it (e.g., Katz et al., 2012; Kimmerling et al., 2008). Also, potential longitudinal studies that can look at pre and post deployment for any effects of combat stress on MST would be beneficial. Additionally, the variable of alcohol use at the time of the trauma has been shown to increase women's concerns of victim blaming (e.g., Testa & Livingston, 2000), therefore, in the future it would be helpful to see whether this may hinder women from reporting MST.

There is no well-validated survey or questionnaire pertaining to MST. The VA uses a brief screening method to identify those who have MST: "While you were in the military: (A) Did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks?; (B) Did someone ever use force or threat of force to have sexual contact with you against your will?" (Kimerling et al., 2007, p. 2161). This two-question screen has not been psychometrically validated, but has been used in previous research to label individuals with MST (e.g., Kimerling et al., 2007). Importantly, question A (i.e., "Did you receive uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or verbal remarks?"), is broad, and it could be argued that 'verbal remarks' may represent a form of sexual harassment and not sexual assault which that involves touching, etc. The current study only included women who answered affirmatively the question, "Has someone touch[ed] sexual parts of your body or made you touch sexual parts of their body against your or without your consent?" while in the military. Therefore, it is possible that this study did not find the same results as previous literature due to the more stringent definition of MST. This difference also points to a need to formulate a well-validated measure to

separate those who have experienced military sexual harassment from military sexual assault.

The relationship between the victim and the offender can have a large impact on victim's feelings of safety and distress post assault (Ullman & Siegel, 1993), and working in male-dominated environment, power disparities between the victim and the perpetrator, and low unit cohesion are all predictors of MST (LeardMann et al., 2013; Mitchell et al., 2011; Street et al., 2009). Compounding the issue of MST, Allard et al. (2011) found active duty women who reported greater closeness to the perpetrator were less likely to report MST. In addition, trauma occurring during combat has been found to have more negative mental health outcomes than trauma occurring during peacetime (Hassija et al., 2012), and officials may not have the ability to prioritize the prevention and identification of perpetrators during combat situations, further compounding the negative effects and increased likelihood of experiencing MST (LeardMann et al., 2013). All of these compounded effects indicate that more research should be done in order to better understand how MST affects women in the military, and specifically women in combat.

PART V

CONCLUSION

Previous research has indicated that pre-military trauma and lower psychological adjustment are highly correlated with MST (Frayne et al., 1999; Lindert et al., 2014; Maguen et al., 2012). COR theory posits that people who experience previous trauma have a depleted amount of resources and are, therefore, more likely to be victimized again and have poor psychological adjustment (Hobfoll, 1989). Additionally, the literature indicates that combat exposure and alcohol use at the time of the trauma are highly correlated with MST (e.g., LeardMann et al., 2013; Testa & Livingston, 2000). The aims of this study were to examine whether pre-military trauma and MST would be mediated by lower psychological adjustment as reported prior to military service and that alcohol use and combat exposure would moderate the relationship between lower psychological adjustment and MST. Unfortunately, the results of the study did not support these hypotheses. However, this is a unique study as it used a diverse community sample of military individuals, of all ranks, military status, and location, compared to typical studies that examine women in treatment at VA hospitals (e.g., Kimerling et al., 2008; Kelly et al., 2008), therefore, it is compelling to continue to study this population as future research is necessary to better understand the differences in military experiences and MST in non-treatment-seeking populations. .

Although several limitations have been noted, this study provides support for the hypothesis that more severe childhood trauma; specifically having experienced rape during childhood abuse is highly related to MST. Furthermore, findings suggest that sexual abuse may have a stronger contribution to MST than physical child abuse. Results

suggest the importance of adding explicit information to sexual assault prevention programs regarding how prior experiences of rape may put women at risk for later unwanted sexual trauma.

Author's Note:

The justification for looking at pre-military trauma and later victimization is the phenomenon of revictimization. It does not seek to blame the victim, but to understand why there is a connection between previous trauma and later victimization. My goal with this study was to try and find potential relationships between pre-military trauma and military sexual trauma because then steps can be taken to help flag potential victims and prevent future assault.

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APPENDIX A

NOTIFICATION STATEMENT

PROJECT TITLE: Investigation of Military Trauma and Effects of Combat on Veterans, Active Duty Members, and National Guard or Reservists
The purposes of this form are to give you information that may affect your decision whether to say YES or NO to participation in this research, and to record the consent of those who say YES.

RESEARCHERS
Brittany Hollis, B.S., Old Dominion University, Psychology Department
Principal Investigator, Michelle L. Kelley, Ph.D, Old Dominion University, Psychology Department
Allison Robbins, B.S., Old Dominion University, Psychology Department

DESCRIPTION OF RESEARCH STUDY
This study is interested in learning more about the experiences of military members before, during, and after military service. Some of the questions ask you about combat experiences and other trauma experiences that you may have had prior to, during, or after the military.

EXCLUSIONARY CRITERIA
To be eligible for this study you must be at least 18 years of age or older and be a Veteran//National Guard/Reservist or an active duty military member.

RISKS AND BENEFITS
RISKS: Some of the questions ask about sensitive experiences that you may have had prior to, doing, or after the military. These include questions about exposure to family violence, child abuse, or sexual assault. In addition, you were asked whether you experienced combat and beliefs about their combat experiences and your alcohol use. It is possible that you may become emotionally upset by some questions. Some people find that thinking about past experiences can cause negative feelings. You may be uncomfortable answering some of the sensitive questions. If you feel discomfort you may take a break and come back to the survey or choose not to answer any questions. The researchers keep your responses and results separate from your name, ensuring that all of your answers are confidential.

Additionally, in the unlikely event that you call a student investigator and appear upset, we ask you to discontinue the survey. We ask if it is okay to have Dr. Kelley call you. Dr. Kelley call you. If you appear more than mildly upset (defined as distressed, crying), Dr. Kelley ask if you would like to have someone to talk with. If you are a student veteran, with your permission, she contact the ODU student counseling center and ask that they contact you to set up an appointment. If you are a veteran in the Hampton Roads area, she ask if they would like to receive a phone call from one of three psychologists that she works closely with at the Hampton VAMC (Drs. Marinell Miller, Hilary Harding, and John Mason). In the event that you appear distressed and do not live in the area, she ask if it is okay to put you on hold and call a veteran's crisis line and ask them to call you. Again, if you contact Dr. Kelley or the doctoral students, we make every effort to talk with you and ask if you would like to receive a phone call from a mental health clinician who specializes in working with students and/or veterans. Safety is our primary concern. We follow-up with any referrals.

BENEFITS
There are no benefits to you directly, however, your participation may help increase our understanding of recent-era military members/veterans and potentially contribute to our understanding of military mental health. This study **IS NOT** being conducted as part of the Department of Defense (DoD) or the Department of Veteran's Affairs (VA). The information gathered from this study were reported in summarized form so no individual were identified.

COSTS AND PAYMENTS

There are no costs in participating in this study. Upon completion, if you are a Psychology student in the Psychology Research Pool, you receive SONA credit; all other participants are eligible to be entered into a lottery to win one of twenty $20 online gift certificates.

NEW INFORMATION
If the researchers find new information during this study that would reasonably change your decision about participating, then they give it to you.

CONFIDENTIALITY
All information obtained about you in this study is strictly confidential unless disclosure is required by law. The researchers take reasonable steps to keep your information confidential. The researcher remove identifiers from all responses. The results of this study may be used in reports, presentations and publications, but the researchers not identify you.

WITHDRAWAL PRIVILEGE
It is OK for you to say NO. Even if you say YES now, you are free to say NO later, and walk away or withdrawal from the study – at any time. Your decision not affect your relationship with Old Dominion University, or otherwise cause a loss of benefits to which you might otherwise be entitled.

VOLUNTARY PARTICIPATION
By participating in this research study, you are saying several things. You are saying that you have read this form or have had it read to you, that you are satisfied that you understand this form, the research study, and its risks and benefits. If you have any questions later on, then the researchers should be able to answer them:
Brittany Hollis at bholl019@odu.edu or 757-683-4209
Dr. Michelle L. Kelley at mkelley@odu.edu or 757-683-4459
Allison Robbins at arobb010@odu.edu or 757-683-4209

If you have any questions about your rights as a participant in this research project, you should contact (anonymously, if you wish) Old Dominion University Office of Research Protection at 757-683-3460

APPENDIX B

BRIEF SYMPTOM INVENTORY

BSI-18

The following is a list of problems that people sometimes have. For each one, indicate how much that problem has bothered or distressed you <u>PRIOR TO ENTERING THE MILITARY</u>

How much were you distressed by this PRIOR TO ENTERING THE MILITARY	1=Not at all	2=A little bit	3=Moderately	4=Quite a bit	5=Extremely
1. Faintness or dizziness					
2. Pains in heart or chest					
3. Nausea or upset stomach					
4. Trouble getting your breath					
5. Feeling weak in parts of your body					
6. Numbness or tingling in parts of your body					
7. Thoughts of ending your life					
8. Feeling lonely					
9. Feeling blue					
10. Feeling no interest in things					
11. Feeling hopeless about the future					
12. Feelings of worthlessness					
13. Nervousness or shakiness inside					
14. Suddenly feeling scared for no reason					
15. Feeling fearful					
16. Feeling tense or keyed up					
17. Spells of terror or panic					
18. Feeling so restless you couldn't sit still					

APPENDIX C

COMBAT EXPOSURE SCALE

CES

Please indicate the answer that best describes your experience?

		1 No	2 1-3 times	3 4-12 times	4 13-50 times	5 51+ times
1	Did you ever go on combat patrols or have other very dangerous duty?					
2	Were you ever under enemy fire?					
3	Were you ever surrounded by the enemy?					
4	How often did you fire rounds at the enemy?					
5	How often did you see someone hit by incoming or outgoing rounds?					
6	How often were you in danger of being injured or killed (e.g., pinned down, overrun, ambushed, near miss, etc.)?					

APPENDIX D

TRAUMATIC LIFE EVENTS QUESTIONNAIRE

TLEQ

The purpose of this questionnaire is to identify important life experiences that can affect a person's emotional well-being or later quality of life. The events listed below are far more common than many people realize. Please read each question carefully and mark the answers that best describe your experience.

1	Have you ever been hit or beaten up and badly hurt by a stranger or by someone you didn't know very well?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Did it happen?	Before military While in the military As a veteran
	How old were you when it first happened?	
2	While growing up, were you physically punished in a way that resulted in bruises, burns, cuts or broken bones?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	Did it happen?	Before military While in the military As a veteran
	How old were you when it first happened?	
3	Have you ever been slapped, punched, kicked, beaten up, or otherwise physically hurt by your spouse (or former spouse), a boyfriend/girlfriend or some other intimate partner?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Did it happen?	Before military While in the military As a veteran
	If yes to before the military ask How many intimate partners have physically hurt you before you were in the military?	0, 1, 2, 3, 4, 5, 6, more than 6

	If yes to while in the military, then ask How many intimate partners have physically hurt you while you were in the military?	0, 1, 2, 3, 4, 5, 6, more than 6
	If yes to as a veteran, then ask How many intimate partners have physically hurt you as a veteran?	0, 1, 2, 3, 4, 5, 6, more than 6
	How old were you when it first happened?	
4	Before your 13th birthday, did anyone who was at least 5 years older than you touch or fondle your body in a sexual way or make you touch or fondle their body in a sexual way?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	What was your relationship to this person: (check all that apply)	Stranger Friend Parent or caregiver Other relative
	Was threat or force used?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Was there oral, anal or vaginal penetration?	0 = No, 1 = Yes
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	How old were you when it first happened?	
5	Before your 13th birthday, did anyone close to your age touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	What was your relationship to this person: (check all that apply)	Stranger Friend or acquaintance Parent or caregiver Other Relative
	Was threat or force used?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Was there oral, anal or vaginal penetration?	0 = No, 1 = Yes
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	How old were you when it first happened?	
6	After your 13th birthday and before your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	What was your relationship to this person: (check all that apply)	Stranger

		Friend or acquaintance
		Relative
		Intimate Partner
	Was threat or force used?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Was there oral, anal or vaginal penetration?	0 = No, 1 = Yes
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	Did it happen?	Before military
		While in the military
		As a veteran
	How old were you when it first happened?	
7	After your 18th birthday, did anyone touch sexual parts of your body or make you touch sexual parts of their body against your or without your consent?	1 = Never, 2 = Once, 3 = Twice, 4 = 3 times, 5 = 4 times, 6 = 5 times, 7 = more than 5 times
	If this happened to you more than once, please think of the most distressing incident when answering the questions below.	
	What was your relationship to this person:	Stranger
		Friend or acquaintance
		Relative
		Dating partner/Boyfriend/Girlfriend
		Spouse
		Military co-worker
		Military supervisor
	Did this occur while you were in a combat zone?	0 = No, 1 = Yes
	Was threat or force used?	0 = No, 1 = Yes
	Were you seriously injured?	0 = No, 1 = Yes
	Was there oral, anal or vaginal penetration?	0 = No, 1 = Yes
	Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
	Did it happen?	Before military
		While in the military
		As a veteran
	How old were you when it first happened?	
	Were you using alcohol at the time of the incident?	0 = No, 1 = Yes

On a scale from 0 to 100, how drunk did you get with 0 meaning not drunk at all and 100 meaning extremely drunk?	0 - 100
On a scale from 0 to 100, how severe was this incident 0 meaning not severe at all and 100 meaning extremely severe?	0- 100
Did you experience intense fear, helplessness, or horror when it happened?	0 = No, 1 = Yes
Did it happen?	Before military
	While on active duty
	As a veteran
How old were you when it first happened?	

APPENDIX E

DEMOGRAPHIC QUESTIONNAIRE

Demographics

What is your gender?
1. Male
2. Female
3. Transgender

What is your age in years?

What is your sexual orientation?
1. Heterosexual
2. Mostly heterosexual but I am also attracted to those of the same sex
3. Bi-sexual
4. Mostly homosexual but I am also attracted to those of the opposite sex
5. Homosexual

What is your education level (pick one)?:
1. Some high school
2. High school
3. Some college
5. 4-year college degree (B.S./B.A.)
6. Graduate degree

What is your ethnicity (choose all that apply)
1. African American
2. Asian American
3. Caucasian
4. Caribbean American
5. Hispanic and/or Latino(a)
6. Pacific Islander
7. Native American
8. Other

What is your marital status?
1. Single, never been married
2. Married
3. Divorced
4. Widowed
5. Separated
6. Cohabitating

What is your employment status?
1. Unemployed
2. Part-time
3. Full-time
4. Student

How much are finances an issue for you or your immediate family?
1. Difficulty meeting my/my family's basic needs

2. Barely able to meet my/my family's needs
3. Once-in-a-while have difficulty covering my/my family's basic needs
4. No difficulty covering basic needs
5. Have extra money each month

Do you currently have health insurance?

What is your current military status?
1. Veteran
2. National Guard/Reserve
3. Active duty
4. Never been in the military

How many years were/have you been in the military?
In what year did you enter the military?
What was/is your job in the military-please be specific?

Did you serve in a region that supported Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn initiatives (OEF/OIF/OND)?
If yes, for how long?

How many deployments (90 days or more) since you joined the military in support of?

	0	1	2	3	4	5 or more
1. Operation Iraqi Freedom (OIF)						
2. Operation Enduring Freedom (OEF)						
3. Humanitarian mission (non-OIF/OEF)						
4. Other (non-OIF/OEF)						

What was your reason for entering the military?
1. Desire to serve my country
2. For educational benefits
3. To leave a bad home or neighborhood/community
4. Other

What branch of the military did you serve/are you serving in?
1. Army
2. Navy
3. Air Force
4. Marines
5. National Guard
6. Reserves (Army, Air Force, Navy, National Guard, Marines)

How did you hear about this survey?
1. Via email
2. From a Friend
3. From a family member
4. ODU SONA

5. Saw it online
6. Other:

What is your zip code?

If you would like to be contacted for future studies to help us understand your experiences and work toward improving military healthcare please leave your email address. Also, feel free to forward this survey to anyone you know who has served or is still serving our country.

Please let us know how you felt about this survey. If there was anything not mentioned or any comment you wanted to give us. Our goal is to better learn how to serve our nations' military and any feedback you provide help tremendously. Thank you for your service!

APPENDIX F

RESOURCES

To receive confidential help for a mental health issue go to:

http://www.veteranscrisisline.net/TextTermsOfService.aspx

Or dial:

Or text:
838255

Or visit the Veterans Crisis Line Website:

http://veteranscrisisline.net/?utm_source=adcenter&utm_medium=cpc&utm_term=veterans%2520crisis%2520line&utm_content=veteranscrisis&utm_campaign=veterancrisis

For women veterans help go to:

http://www.womenshealth.va.gov/

To see if you qualify for VA Healthcare visit:

http://www.va.gov/explore/?gclid=CL7atqCf974CFeUDOgod3jEAWg

For information and help with military sexual trauma visit:

http://maketheconnection.net/conditions/military-sexual-trauma?gclid=CK3a0uGf974CFYMSOgodQyAA6A

To find help for alcohol use, go to: http://findtreatment.samhsa.gov/
or call the Substance Abuse and Mental Health Services Administration's National Helpline

1-800-662-HELP (4357)

Or

1-866-643-6144

For help with depression go to:

http://maketheconnection.net/conditions/depression?gclid=CK2Zwc2f974CFQGPOgodnwcAeg

For help with anxiety please go to:

http://maketheconnection.net/conditions/anxiety-disorder?gclid=COit5YSg974CFc9lOgodiVQAXg

To receive support for Domestic Violence call:
National Domestic Violence Hotline: 800-799-SAFE /800-799-7233

For more information please contact the investigator:
Brittany Hollis, bholl019@odu.edu

Thank you for participating in this survey.

VITA

Brittany Hollis
Department of Psychology, Mills Godwin Building #232, Old Dominion University, Norfolk, VA 23529

Contact Information Phone: (703) 473-7147
E-mail: bholl019@odu.edu

Education

Old Dominion University, Norfolk, VA
Major: Psychology
Double Minor: Criminal Justice & Women's Studies
GPA overall 4.0/4.0
Graduated May 2013

M.S. **Old Dominion University**, Norfolk, VA
Applied Experimental Psychology
Advisor: Dr. Michelle Kelley
(Expected December, 2015)

Ph.D. **Old Dominion University**, Norfolk, VA
Applied Experimental Psychology
Advisor: Dr. Michelle Kelley
(Expected May, 2018)

Publications

Linden, A. N., Lau-Barraco, C., & **Hollis, B. F.** (2013). Associations between psychological distress and alcohol outcomes as mediated by time perspective orientation among college students. *Mental Health and Substance Use, 7*(2), 134-143.

Kelley, M. L., Lawrence, H.R., Milletich, R.J., **Hollis, B.F.,** & Henson, J. M. (2015). Modeling risk for child abuse and harsh parenting in families with depressed and substance-abusing parents. *Child Abuse and Neglect, 43,* 42-52.

Kelley, M.L., **Hollis, B.F.,** Milletich, R.J., Henson, J.M., Cooke, C.G., & Kurtz, E.D. (in press). Childcare Involvement, Satisfaction with One's Partner as a Parent, and Dyadic Satisfaction among Fathers with Substance Use Disorders and their Nonsubstance-abusing Partners. *Fathering: A Journal of Research, Theory, and Practice about Men as Fathers 13*(2).

Manuscripts under Review

Kelley, M.L., Veprinsky, A., Milletich, R.M., **Hollis, B.F.,** Robbins, A.T., & Snell, A.K. (under review). Stress, depression, and alcohol use among U.S. Navy members: Social support and relationship satisfaction as moderators of the stress-mood-alcohol link.

Kelley, M.L., Milletich, R.J., **Hollis, B.F.,** White, T.D., Green, R.E., Davis, C.A., Haislip, B.N., & Henson, J.M. (under review). Acceptability of peer aggression among children who reside with substance-abusing parents.

Kelley, M.L., White, T.D., Milletich, R.J., **Hollis, B.F.,** Haislip, B.N., Heidt, E.J., Davis, C., DeWitt, A., & Henson, J.M. (under review). Modeling risk for anxiety in children with substance-abusing parents: Emotional reactivity as an explanatory mechanism.

Kelley, M.L., **Hollis, B.F.,** Milletich, R.J., Price, R.A., White, T.D., Lawless, A.K. (under review). Parenting, depressive symptoms, and alcohol and marijuana use among youth living with substance-abusing parents.