Institutional Betrayal Related to Sexual Trauma in Military Service Members and Veterans: An Examination of Posttraumatic Sequelae

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INSTITUTIONAL BETRAYAL RELATED TO SEXUAL TRAUMA IN MILITARY SERVICE MEMBERS AND VETERANS: AN EXAMINATION OF POSTTRAUMATIC SEQUELAE

by

Felicia Andresen

A dissertation submitted in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSOPHY in Psychology

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ABSTRACT

Institutional Betrayal Related to Sexual Trauma in Military Service Members and Veterans: An Examination of Posttraumatic Sequelae

by

Felicia Andresen, Doctor of Philosophy
Utah State University, 2022

Major Professor: Scott DeBerard, Ph.D.
Department: Psychology

Three decades of empirical research indicates military sexual harassment and/or assault (MSH/A) is pervasive and damaging. MSH/A survivors who believe the institution played a role in the traumatic experience by failing to respond in a supportive manner or for failing to keep them safe may feel betrayed by the military itself, a concept referred to as institutional betrayal. A growing body of research suggests it is more damaging to be abused within the context of a trusted, or relied upon, relationship due to the violation of trust. This two-study dissertation explored experiences of MSH/A-related institutional betrayal in an effort to identify those at-risk for heightened posttraumatic outcomes.

Study #1 determined whether PTSD mediated the association between MSH/A type and somatic symptom severity, and whether institutional betrayal strengthened this relationship. Study #2 explored whether specific combat experiences strengthened the
association between MSH/A-related institutional betrayal and suicide. Results indicated MSH/A perpetrators were typically male, a fellow servicemember, unit member, battle buddy, or first-line leader. The most common experiences of MSH/A-related institutional betrayal included responding inadequately once MSH/A was reported, creating an environment in which MSH/A seemed normal or common, making it difficult to report MSH/A, not taking proactive steps to prevent MSH/A, and mishandling the case once reported. Compared to MSA, MSH was statistically significantly related to worse somatic symptom severity and suicide risk after accounting for covariates ($p$’s < .01). Contrary to hypotheses, institutional betrayal did not moderate the direct and indirect mediation effects in Study #1. However, PTSD mediated the relationship between somatic symptom severity and MSH/A and explained 21% of the variance ($p$’s < .05). Exposure to killing and/or death did not moderate the direct and indirect mediation effects, but an array of predictors were identified that accounted for 40% of variation in suicidal behaviors in Study #2.

This dissertation highlights the negative health effects that MSH/A has on survivors. Each experience is preventable, and thus, effective and timely prevention efforts are warranted. It is imperative that the Department of Defense increases accountability for perpetrators and ensures leadership does not tolerate sexual violence or retaliate upon disclosure of MSH/A.
PUBLIC ABSTRACT

Institutional Betrayal Related to Sexual Trauma in Military Service Members and Veterans: An Examination of Posttraumatic Sequelae

Felicia Andresen

Military sexual harassment and/or assault (MSH/A) is pervasive and destructive. MSH/A survivors who believe the institution played a role in the traumatic experience by failing to respond in a supportive manner or for failing to keep them safe may feel betrayed by the military itself, a concept referred to as institutional betrayal. Previous research suggests it is more harmful to be abused by trusted others or institutions due to the violation of trust. This two-study dissertation explored experiences of MSH/A-related institutional betrayal to identify survivors at-risk for worse posttraumatic outcomes.

Study #1 evaluated whether PTSD explained the relationship between MSH/A type and somatic symptom severity, and whether this relationship depended on experiences of institutional betrayal. Study #2 examined whether exposure to killing and/or death during combat strengthened the link between institutional betrayal and risk for suicidal behaviors. Findings revealed MSH/A perpetrators were typically male, a fellow servicemember, unit member, battle buddy, or first-line leader. The most common experiences of MSH/A-related institutional betrayal included responding inadequately once MSH/A was reported, creating an environment in which MSH/A seemed normal or common, making it difficult to report MSH/A, not taking proactive steps to prevent MSH/A, and mishandling the case once reported. PTSD explained the link between MSH
and somatic symptom severity, but contrary to hypotheses in Study #1 and #2, institutional betrayal was unrelated to somatic symptom severity and suicide risk. Alternatively, MSH was an independent risk factor for severe posttraumatic distress, including suicide risk, somatic symptom severity, PTSD, depression, and alcohol abuse when compared to MSA. MSH is often the precursor to MSA, but the experience goes unreported or is not taken seriously by leadership, which likely contributes to the cycle of violence and maintains the abuse.

This dissertation illustrates that any type of sexual violence is demeaning and has the potential to cause harm. Prevention strategies are needed to thwart MSH, thereby decreasing risk for MSA, suicidal behavior, somatic symptom severity, PTSD, depression, and alcohol abuse. It is imperative that the Department of Defense increases accountability for perpetrators and ensures leadership does not tolerate sexual violence or retaliate upon disclosure.
I could not have accomplished this feat alone, and I am deeply indebted to all who made this possible.

Words cannot express my gratitude to my research advisor and clinical supervisor, Dr. Scott DeBerard, for his unwavering support and encouragement during this journey. Dr. DeBerard is a kind soul and dedicated scholar who readily mentored me and fostered growth throughout this process. I also could not have undertaken this project without my defense committee, who generously provided knowledge and expertise. Dr. JoAnn Tschanz shared a wealth of information and helped guide me through the program. I am incredibly grateful to Dr. Tyson Barrett for his patience and problem-solving as I worked to build upon my statistical skillset. Dr. Michael Twohig trained me in Acceptance and Commitment Therapy and challenged me in the best ways possible, both as a human and future psychologist. Dr. Jason Goodson was an incredible asset on my committee and his thoughtful feedback undoubtedly improved the quality of my work. Additionally, this endeavor would not have been possible without the generous support from the APA Division 19 Student Research Grant and the Anthony LaPray Scholarship, who helped finance this research.

A profound thanks and appreciation must also be extended to my husband, Jodiah, who was my rock and a true partner. He has helped me grow in ways that I had never dreamed of, and he never let me lose sight of my aspirations. He has seen the highs and lows of this entire process and he was cheering me on every step of the way. I would have been lost without his boundless love and encouragement. He filled my days with
adventure, humor, wonder, and belonging. My life is infinitely better because of you, and Jodiah—I absolutely could not have done this without you.

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Felicia Andresen
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CHAPTER I
INTRODUCTION

Organizational Overview

The primary purpose of this review was to explore (a) sexually traumatic experiences in the military and posttraumatic sequelae through individual-level (e.g., sociodemographic) and macro-level factors (e.g., unit climate) and (b) to identify survivors of military sexual trauma who are at risk for heightened posttraumatic outcomes. To begin, Chapter I introduces the overarching topic area that was examined in this dissertation. First, the scope of military sexual trauma and posttraumatic sequelae are introduced. Next, the concept of institutional betrayal is described, as well its theoretical underpinnings. The final section of Chapter I reviews research studies with civilian samples that examined institutional betrayal and posttraumatic sequelae. Chapter II reviews the small, but growing body of literature that explored institutional betrayal following military sexual trauma and its relationship with posttraumatic sequelae. Chapters III and IV of this review are described next, which detail two separate research studies that were conducted for this dissertation in which posttraumatic outcomes were examined in a sample of MSH/A survivors. Chapter III studied somatic symptom severity, whereas Chapter IV studied clinical suicide risk. Each chapter begins with a literature review of the primary outcome variable, theoretical support for hypotheses, a description of study objectives, methods, results, and a discussion of findings. Finally, the overarching findings and conclusions of this dissertation are described in Chapter V.
Chapter V highlights which service members and veterans are at greatest risk for developing severe posttraumatic sequelae. The articles included in this review were located using PsychINFO, PsychArticles, PubMed, and Google Scholar internet databases.

**Military Sexual Trauma**

This chapter introduces the scope of military sexual trauma, as well as individual-level and macro-level factors related to sexual violence that contribute to posttraumatic sequelae. Sexual trauma that occurs during military service is a persistent and destructive experience for both men and women service members (Breslin et al., 2019; Kimerling et al., 2007; Kimerling et al., 2010; Klingensmith et al., 2014; Lofgreen et al., 2017; Meadows et al., 2018; Morral et al., 2015; Thomsen et al., 2018; Turchik & Wilson, 2010). According to the Department of Defense (DoD; U.S. Congress, 2021), military sexual harassment (MSH) is defined as unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature. On the other hand, MSA is defined as attempted or completed sexual contact without consent during active-duty service or inactive duty training, which includes penetrative rape, aggravated or abusive sexual contact, and forcible oral or anal sodomy.

Before January 2022, MSH and MSA were recognized as separate experiences that fell under the purview of different military systems in the DoD (U.S. Congress, 2021). Unlike MSA, MSH was historically considered noncriminal and was encouraged to be resolved at the lowest level possible. As such, MSH often went unreported (DoD,
When MSH was a noncriminal offense, service members could file MSH reports with Equal Employment Opportunity (EEO; DoD, 2015a). However, MSH can now be prosecuted under Article 134 of the Uniform Code of Military Justice ([UCMJ]; U.S. Congress, 1958; U.S. Congress, 2021). MSA is also criminalized in the UCMJ and subject to specific reporting requirements (DoD, 2015b). For example, MSA survivors can file an unrestricted or restricted report. Both reports will provide the service member with support and resources, but an unrestricted report will initiate an official investigation whereas a restricted report will not.

At the request of DoD, the 2014 RAND Military Workplace Study ([RMWS]; Morral et al., 2015) was launched to establish past year prevalence of MSH and MSA in men and women service members on full-time active duty and in the part-time reserve component, which includes Reserve and National Guard. The 2014 RMWS also examines characteristics of these incidents, identifies barriers to reporting sexual trauma, and barriers that prevent supportive services. Based on a sample of 491,680 active-duty service members (men: \( n = 288,337 \), women: \( n = 203,343 \)), RMWS findings revealed 8.8% experienced MSH (6.6% of men, 21.4% of women) whereas 1.54% experienced MSA (0.9% of men, 4.9% of women) in the past year. Approximately one-third of active-duty MSA survivors reported being sexually harassed before or after the assault took place. Alternatively, a smaller sample of 60,007 reserve service members (men: \( n = 33,003 \), women: \( n = 27,004 \)) revealed 7.4% experienced MSH (6% of men, 12.6% of women) whereas 0.9% experienced MSA (0.4% of men, 3.1% of women) in the past year. In both active-duty and reserve service members, MSH and MSA most often occurs
in a military setting and is typically perpetrated by a fellow service member. For example, 85% of MSA survivors on active duty were assaulted by another service member and 65% indicated the assault took place at a military installation or ship (Morral et al., 2015). A meta-analysis of 69 research studies that examined the prevalence of military sexual trauma revealed that 38.4% of women and 3.9% men reported at least one experience of MSH/A during their military career (Wilson, 2018). Extant literature suggests MSH/A are grossly underreported and accurate prevalence rates have not been fully captured (Acosta et al., 2021; Andresen & Blais, 2019; Blais et al., 2017, 2019; Breslin et al., 2019; DoD, 2019c; DoD, 2021b; Morral et al., 2015; Wilson, 2018).

Individual-Level Correlates

Considering MSH and MSA are underreported (Davis et al., 2020; DoD, 2021c), it is important to identify MSH/A survivors who may be at risk for worse mental and physical health outcomes. Most research examining risk factors for MSH/A and posttraumatic outcomes have focused on individual-level influences, such as sociodemographic characteristics, mental health conditions (e.g., posttraumatic stress disorder [PTSD]), unhealthy or risky behaviors (e.g., alcohol and drug abuse, sexual-risk taking), and prior sexual victimization (e.g., childhood sexual trauma; see reviews, Bell et al., 2018; Surís & Lind, 2008). Compared to no history of sexual trauma, exposure to MSH/A is associated with 50% increased healthcare utilization and costs (Brignone et al., 2017) and a multitude of mental and physical health conditions and symptoms (c.f. Allard et al., 2011; Surís & Lind, 2008), including increased risk for developing PTSD, anxiety disorders, depressive disorders, substance use disorders, alcohol abuse (Kimerling et al.,
2010; Surís et al., 2004), sleep disorders (Kimerling et al., 2007), eating disorders (Blais et al., 2017), worse somatic symptom severity (Frayne et al., 1999; Godfrey et al., 2015; Murray-Swank et al., 2018; Street et al., 2008), and suicidal behaviors (Bryan et al., 2015; Kimerling et al., 2016; Monteith et al., 2015).

Furthermore, data from the National Health and Resilience in Veterans Study (n = 1,484) revealed that men and women exposed to MSH/A were two to three times more likely to report a history of childhood sexual trauma and to screen positive for current mental health diagnoses of PTSD, major depressive disorder, generalized anxiety disorder, suicidal ideation, past history of suicide attempt, as well as worse cognitive functioning (e.g., memory, concentration, reasoning), somatic symptoms, and quality of life, enjoyment, and satisfaction after controlling for sociodemographic and military characteristics (Klingensmith et al., 2014). Another study of 270 women veterans found that MSA survivors were nine times more likely to receive a diagnosis of PTSD compared to women with no history of MSA (adjusted odds ratio [AOR] = 9.27, 95% Confidence Interval [CI] = 3.75 – 22.95], p < .0001). The association remained significant even after controlling for demographic differences and histories of childhood and civilian adulthood sexual trauma (AOR = 3.87, 95% CI = 2.09 – 7.17, p < .0001; Surís et al., 2004).

Sexual violence occurs on a continuum of harm, and yet, most research collapses MSH and MSA into one construct (i.e., MSH/A). Of the research studies that distinguished between MSH and MSA, exposure to MSA, rather than MSH alone, was associated with greater risk for suicidal ideation and attempt (Blais, et al., 2019; Blais &
Geiser, 2019; Monteith, et al., 2016; Monteith, Holliday, et al., 2019), as well as worse somatic symptoms (Street et al., 2008), PTSD, and depression (Andresen & Blais, 2019; Andresen et al., 2019; Schry et al., 2015). These findings indicate that sexually traumatic experiences that include assault, in particular, may confer worse posttraumatic sequelae than sexual harassment alone.

**Macro-Level Correlates**

Several literature reviews suggest there may be macro-level factors specific to the military environment and culture that more broadly contributes to increased posttraumatic distress. Before and after the sexual violence takes place, leadership behavior and aspects of the reporting process have been identified as detrimental to MSH/A survivors (Castro et al., 2015; Sadler et al., 2018; Turchik & Wilson, 2010). Both senior and junior leadership plays a central role in shaping the organizational climate and workplace culture within their military unit (Davis et al., 2020). Previous research suggests unit climates that are tolerant of sexual misconduct diminishes trust, morale, camaraderie, and may double the risk of experiencing MSA (Cleveland & Kerst, 1993; DoD, 2019a; Hulin et al., 1996; Sadler et al., 2017; Turchik & Wilson, 2010). One study examined 1,337 women veterans who served during Operation Enduring Freedom and Operation Iraqi Freedom (OEF/OIF) and identified several leadership behaviors that were associated with the highest risk of MSA, which included: not taking reports of sexual assault seriously, not demonstrating zero tolerance for MSH within the unit, not exhibiting support for service members seeking mental health care, and making sexually demeaning comments (Sadler et al., 2017). Leadership that allows any type of sexual misconduct (e.g., lewd
comments, jokes) creates an unhealthy environment for unit members and lowers the standards for appropriate and respectful behavior (Davis et al., 2020). Consequently, perpetrators who engage in sexual misconduct are not deterred when military leadership maintains a system that neither detects nor holds them accountable. According to recent phenomenological examinations of MSH/A experiences in men and women veterans (Brownstone et al., 2018; Monteith, Gerber, et al., 2019), women did not feel supported in predominantly male environments that were tolerant of sexual misconduct. Similarly, men described feelings of disillusionment towards the military for its role in perpetuating MSH/A through hazing practices, a hypersexualized environment, and by suggesting MSA does not happen, especially to men (Monteith, Gerber, et al., 2019). Men also felt betrayed by the military due to unsupportive reactions upon disclosure of MSH/A, as well as obstruction of career advancement (Monteith, Gerber, et al., 2019).

Despite active efforts by DoD to enforce a zero-tolerance policy on MSH/A, there appears to be dissonance between current DoD policy (e.g., DoD, 2015a, 2015b) and translating the policy into action (Davis et al., 2020; DoD, 2021c). Unsupportive reactions and retaliatory behavior by military leaders following reports of MSH/A may explain DoD’s ineffective attempts to curtail sexual violence in the military. The most recent DoD Annual Report on Sexual Assault in the Military indicated that women service members, as compared to men, expressed significantly lower levels of trust in the military to protect their privacy, ensure their safety, and treat them with dignity and respect should they report experiences of MSH/A (DoD, 2019a). DoD policy encourages leadership to respond to disclosures of MSH/A in a supportive and appropriate manner.
provide ample resources for support and treatment, and hold perpetrators appropriately accountable (DoD, 2015a, 2015b). For those who experience MSH/A, trust in the military system and reporting process is critical in order to report their experience (Breslin et al., 2019; DoD, 2019a).

Service members should have the confidence to report the incident without fear of retaliation or reprisal (DoD, 2015a, 2015b). However, more than 20% of women who experienced MSA in 2018 encountered retaliation upon disclosure, and only 38% of women found their leadership to be supportive upon disclosure of MSH/A (Breslin et al., 2019). In 2019 alone, there were 72 alleged retaliators investigated by DoD as a result of 47 retaliation reports (DoD, 2019a). Most reports were filed by women (66%). The majority of alleged retaliators were men (74%), as well as a superior in their chain of command (73%; DoD, 2019a). Incidents of retaliation related to MSH/A have been documented in previous research, including a lack of emotional support (e.g., blame, judgment), minimal resources provided, ostracism, no disciplinary action taken against the perpetrator, punishment or threats of discipline for alcohol use or fraternization (i.e., criminal offenses under UCMJ; U.S. Congress, 1958), receiving additional work duties, and negative performance reviews (Breslin et al., 2019; Brownstone et al., 2018; Campbell & Raja, 2005; Castro et al., 2015; Dardis et al., 2018; Dichter & True, 2015; Mengeling et al., 2014; Monteith et al., 2016; Monteith, Gerber, et al., 2019; Morral et al., 2015). According to the 2014 RMWS, 35% of MSA survivors indicated that the event made them want to discharge from the military (Morral et al., 2015). Previous research studies have also documented the positive relationship between MSH/A exposure and
premature discharge from the military (Dichter & True, 2015; DoD, 2019a; Millegan et al., 2016). Taken together, these results are alarming and directly conflict with DoD’s mission to maintain retention rates with a healthy and mission-ready force (DoD, 2019a).

Institutional Betrayal

The military is an organization built upon trust, loyalty, and camaraderie (Smith & Freyd, 2013; Monteith et al., 2016; Monteith, Gerber, et al., 2019), and yet, most service members are sexually victimized in a military setting or at the hands of a fellow service member (Breslin et al., 2019; DoD, 2019a; Morral et al., 2015). As such, MSH/A inherently qualifies as a betrayal trauma, which occurs when an individual or institution that is depended upon for survival significantly violates that person’s trust or well-being (Freyd, 2008). Beyond the sexually traumatic event itself, betrayal traumas can be damaging to the survivor’s well-being, social relationships, self-concept, and beliefs about others and the world (Freyd et al., 2005).

One type of betrayal trauma includes institutional betrayal (Smith & Freyd, 2013, 2014). Institutional betrayal occurs when MSH/A survivors feel betrayed by the military itself and believe the institution played a role in the traumatic experience by failing to respond in a supportive manner or for failing to keep them safe (Andresen et al., 2019; Monteith, Bahraini, et al., 2016; Smith & Freyd, 2013, 2014). Institutional betrayal illustrates social networks that systemically perpetuate victim-blaming and the protection of perpetrators, which reinforces the cycle of abusive behavior through macro-level factors (Gentile, 2018).

Institutional betrayal (Smith & Freyd, 2013) extends from Betrayal Trauma
Theory (Freyd, 1994, 1996), which suggests it is more damaging to be abused within the context of a trusted, or relied upon, relationship due to the violation of trust that does not occur from trauma perpetrated by a stranger (Freyd, 1994, 1996). According to Freyd (2001), traumatic events are two-dimensional that differ in degrees of fear and betrayal, and both dimensions can be impacted by the context and characteristics of the event. For example, surviving a hurricane may be fear-inducing, but the event includes relatively low, or non-existent, elements of betrayal. Alternatively, sexual abuse by a caregiver may be fear-inducing and contain greater levels of betrayal depending on the level of trust that was violated within the relationship (i.e., interpersonal betrayal). Considering betrayal and fear are two distinct constructs in trauma exposure (Freyd et al., 2005), it is possible that the presence of both fear and betrayal confers additional harm relative to traumatic events comprised only of fear (Freyd & Birrell, 2013; Smith & Freyd, 2017).

The majority of research examining trauma-related institutional betrayal has been conducted with civilian college students (e.g., Freyd, 1994, 1996; Freyd et al., 2005, 2007; Gentile, 2018; Platt & Freyd, 2015; Platt et al., 2017; Smith et al., 2016; Smith & Freyd, 2013; Wright et al., 2017). Results of these studies illustrated the adverse mental and physical health impacts in those who experienced institutional betrayal following sexual assault. For example, Smith and Freyd’s (2013) seminal study using a sample of 233 college women revealed women who perceived institutional betrayal, compared to those who did not, reported worse anxiety ($r = .13$), dissociation ($r = .14$), and sexual trauma ($r = .17$). Furthermore, institutional betrayal was examined in 29 college men and women who identified as sexual minorities and results indicated institutional betrayal
partially explained the positive relationship between sexual minorities and worse PTSD ($\beta = .18, p < .01$) and depression severity ($\beta = .15, p < .01$; Smith et al., 2016). After accounting for interpersonal betrayal (Smith & Freyd, 2017) and lifetime trauma history (Wright et al., 2017), institutional betrayal following a traumatic event (e.g., domestic abuse, sexual assault) was also related to worse posttraumatic sequelae, such as more severe somatic symptoms (Partial $\eta^2 = .02, p = .01$) and dissociation (Partial $\eta^2 = .05, p < .001$) in 302 college men and women (Smith & Freyd, 2017). These findings suggest institutional betrayal exacerbates posttraumatic sequelae in civilian sexual trauma survivors. However, MSH and MSA occurs under circumstances that directly conflict with deep-seated values ingrained in military service members, including respect, integrity, trust, and adherence to a strict hierarchical structure (Castro et al., 2015; Elliot, 2015; Turchik & Wilson, 2010). As such, the impact of institutional betrayal following sexual trauma may be more salient in military versus college settings. Subsequent chapters of the present review refer to the experience of institutional betrayal following MSH/A as “MSH/A-related institutional betrayal.”
CHAPTER II
LITERATURE REVIEW OF MILITARY SEXUAL TRAUMA AND INSTITUTIONAL BETRAYAL

Introduction

This chapter reviews the growing body of literature that explored the experience of institutional betrayal following military sexual trauma and its relationship with posttraumatic sequelae. A handful of studies have examined the relationship between MSH/A-related institutional betrayal and posttraumatic sequelae (Brownstone et al., 2018; Monteith, Gerber, et al., 2019). For instance, experiences of MSH/A-related institutional betrayal were first examined in a sample of 49 men and women veterans who screened positive for MSH/A at the Department of Veterans Affairs (VA). Monteith, Bahraini, et al. (2016) examined whether MSH/A-related institutional betrayal was associated with PTSD and depression symptom severity, as well as post-MSH/A suicidal ideation and suicide attempts. While preliminary, findings revealed a positive association between MSH/A-related institutional betrayal and more severe PTSD (β = .31, p < .05) and depression (β = .34, p < .01), as well as increased risk for post-MSH/A suicide attempt (adjusted odds ratio [AOR] = 1.34, 95% confidence interval [CI] = 1.06 – 1.69, p < .01). In contrast, the relationship between MSH/A-related institutional betrayal with post-MSH/A suicidal ideation only approached significance (β = .12, p = .08). A different study used a VA-enrolled convenience sample of 108 men and women veterans to examine the relationship between MSH/A-related institutional betrayal and MSH/A-
related suicide risk after controlling for age and gender (Monteith, Holliday, et al., 2019). However, the associations between MSH/A-related institutional betrayal and post-MSH/A suicidal ideation (AOR = 1.12, 95% CI = 1.00, 1.26, \( p = .06 \)) and suicide attempt (AOR = 1.11, 95% CI = 0.99, 1.25, \( p = .07 \)) only approached statistical significance. Finally, Andresen et al. (2019) sought to replicate and extend Monteith et al.’s (2016) findings in a mixed-methods study using a sample of 679 women service members and veterans who were not necessarily enrolled in VA care. After accounting for several covariates including type of sexual trauma experienced (i.e., MSH vs MSA), age, race, military branch, education level, and discharge status, MSH/A-related institutional betrayal was related to worse depression severity (\( b = 3.38, SE = 1.18, \( p = .004 \)) and PTSD severity (\( b = 10.29, SE = 3.62, \( p = .005 \)). Furthermore, MSH/A-related institutional betrayal was differentially associated with worse PTSD symptom clusters of avoidance (\( b = 1.82, SE = .45, \( p \leq .001 \)), negative alterations in cognitions and mood (\( b = 2.21, SE = .80, \( p = .02 \)), re-experiencing (\( b = 2.53, SE = .94, \( p = .02 \)), and dysphoric arousal (\( b = 1.94, SE = .75, \( p = .02 \)). After accounting for covariates, a nonsignificant relationship was observed between MSH/A-related institutional betrayal and suicidal ideation (AOR = 0.81, 95% CI = 0.35, 1.88). Andresen et al.’s (2019) findings are consistent with the results of previous research (e.g., Monteith et al., 2016; Monteith, Holliday, et al., 2019) and suggest there may be specific symptoms of PTSD that are more closely related to MSH/A-related institutional betrayal.
Limitations of Previous Literature

A small body of literature suggests MSH/A survivors who experience institutional betrayal may be at greater risk for worse mental health outcomes than survivors who felt supported and protected by the military institution. Mental and physical health is not mutually exclusive, and thus, it was reasonable to explore MSH/A-related institutional betrayal as a risk factor for worse physical health. Furthermore, notable limitations in previous research studies may explain the preponderance of nonsignificant findings for MSH/A-related institutional betrayal as a risk factor for increased suicidal behavior.

One major limitation that may have obscured the nature of the relationship between MSH/A-related institutional betrayal and suicide risk was the small sample size used in Monteith et al. (2016), which also prevented the inclusion of study covariates. In addition, most of the MSH/A survivors examined in previous studies were VA-enrolled treatment-seeking veterans (e.g., Monteith et al., 2016; Monteith, Holliday, et al., 2019) and/or already discharged from the military at the time of study completion (e.g., Andresen et al., 2019; Monteith et al., 2016). For instance, the veterans in Monteith et al. (2016) had been discharged from military service for an average of 18.98 (SD = 15.15) years. The length of time since discharging from the military is an important limitation in these studies because participants are expected to recall events from several years ago. Furthermore, their research findings cannot reflect recent DoD initiatives set to improve the prevention and institutional response to MSH/A, such as the seven new anti-MSH/A initiatives announced by the DoD’s defense secretary in 2013 (Torreon & Davis-Castro, 2019). It is also possible that the perception of MSH/A-related institutional betrayal is
less detrimental among veterans already detached from the military institution, especially those that served long ago. Unlike veterans who no longer serve in the military, current service members exposed to MSH/A may experience distinct challenges as they must continue to navigate an environment where sexual misconduct is normalized. They may also encounter professional and social retaliation, as well as continued contact with their perpetrator(s). Therefore, Study #1 and Study #2 examined MSH/A-related institutional betrayal in current service members of the U.S. military or veterans who recently separated or discharged from service (< 5 years).

Another important limitation within previous literature that examined MSH/A-related institutional betrayal was the measurement of sexual trauma and institutional betrayal. For example, Monteith et al. (2016), Monteith, Holliday, et al. (2019), and Andresen et al. (2019) measured MSH/A experiences with the 2-item VA Military Sexual Trauma (MST) screen (Kimerling et al., 2007), which has been found to underrepresent rates of MSH/A (Wilson, 2018). As such, it is possible that the true impact of MSH/A and related experiences of institutional betrayal were not fully captured. Furthermore, the 2-item VA MST screen (Kimerling et al., 2007) is a single item construct that uses non-behaviorally specific language to identify survivors of sexual trauma. Instead of using broad terms such as “rape” or “sexual assault” to assess for unwanted sexual experiences, behaviorally specific language uses descriptive words and phrases, such as unwanted “oral sex” and “penetration,” which aids in the identification and recollection of unwanted sexual experiences (Craner et al., 2015; B. S. Fisher, 2004; Koss et al., 2007). Therefore, Study #1 and Study #2 assessed for sexual trauma using the Sexual
Experiences Survey- Long Form Victimization ([SES-LFV]; Koss et al., 2007) rather than the 2-item VA MST Screen. The SES-LFV (Koss et al., 2007) is a measure designed to detect various forms of sexual trauma through the inclusion of behaviorally specific language.

Finally, Andresen et al. (2019) did not utilize a validated measure to assess for instances of institutional betrayal, and instead measured MSH/A-related institutional betrayal using open-ended responses from self-reported index traumas that were reported on the PTSD Checklist for DSM-5 ([PCL-5]; Weathers et al., 2013). For instance, two independent reviewers dummy coded each index trauma as positive (1) or negative (0) for experiences of institutional betrayal. Considering participants in Andresen et al. (2019) were not directly asked about experiences of institutional betrayal, it is likely that some MSH/A survivors experienced institutional betrayal, but these experiences were not disclosed when describing their index trauma on the PCL-5. Therefore, Study #1 and Study #2 assessed for experiences of MSH/A-related institutional betrayal using the Institutional Betrayal Questionnaire, Version 2 ([IBQ.2]; Smith & Freyd, 2013, 2017).

In conclusion, previous research suggests institutional betrayal is an added, but preventable layer of harm experienced by MSH/A survivors. Additional research was warranted to examine whether MSH/A-related institutional is an added risk factor for worse physical health outcomes, and to clarify the relationship between institutional betrayal and suicide risk in MSH and MSA survivors. These research questions were examined in this dissertation, as described in Chapters III and IV.
CHAPTER III
STUDY #1 SOMATIC SYMPTOMS

Somatic symptoms are recurring physical symptoms and pain that may or may not be associated with a diagnosable medical or mental health disorder (Lipowski, 1987). Somatic symptoms can include gastrointestinal (GI) issues (e.g., diarrhea), joint/muscle pain, chronic fatigue, trouble sleeping, headaches, dizziness, chest pain, and shortness of breath (Kroenke, 2003a; Kroenke et al., 1994; Lipowski, 1988). The most recent Department of Defense Health Related Behaviors Survey (HRBS) from 2015 (Meadows et al., 2018) observed that somatic symptoms are common in military service members. For instance, 35.7% of service members (n = 16,699) reported they were “bothered a lot” by at least one symptom in the past 30 days and 21.1% reported high somatic symptom severity scores (Meadows et al., 2018). Consistent with previous research (Cyr et al., 2014), the most common somatic symptoms from the 2015 HRBS included trouble sleeping (25%), fatigue (23.2%), back pain (22.5%), and joint/extremity pain (22%; Meadows et al., 2018). Increased somatic symptom severity is associated with worse mental and physical health-related quality of life (Cyr et al., 2014), anxiety, depression (Ferguson et al., 2006), and increased suicide risk (Barr et al., 2019). Not only do severe somatic symptoms have the potential to undermine military force readiness (Meadows et al., 2018), but they also increase healthcare utilization, expenses, and missed workdays (Hoge et al., 2007). The prevalence and substantial impact of somatic symptoms on service members’ health and well-being, and their ability to perform military duties, suggests it is critical to identify service members who are at greatest risk for developing
severe somatic symptoms.

MSH/A is one risk factor found to be associated with worse somatic symptoms. For example, MSH/A survivors are two times more likely to be diagnosed with a somatoform disorder (Kimerling et al., 2007) or endorse severe chronic fatigue, headaches, back pain, and GI symptoms (Frayne et al., 1999) compared to service members who did not experience MSH/A. Compared to those who did not experience MSH/A, two separate studies found that the presence of MSH/A was associated with worse somatic symptoms in 101 VA-enrolled women veterans (Murray-Swank et al., 2018) and 1,294 veterans seeking VA care, even after controlling for age, sex, and combat (Godfrey et al., 2015). Furthermore, a study using a random sample of 3,945 former Reservists found a positive relationship between MSH/A and worse somatic symptoms (Street et al., 2008). Additionally, findings revealed that MSH survivors were 2.27 and 1.77 times more likely to report somatic symptoms, respectively, but 6.33 and 3.65 times more likely when they experienced MSA, even when accounting for age, race, and Reserve component. Overall, these findings indicate sexual trauma experienced during military service increases the risk for developing worse somatic symptoms, particularly for MSA survivors as compared to MSH survivors.

Previous research has also documented a positive association between PTSD and more frequent medical conditions, lower health-related quality of life, and increased somatic symptom severity compared to service members and veterans without PTSD (D. H. Barrett et al., 2002; Beckham et al., 2003; Hoge et al., 2007; Moeller-Bertram et al., 2014; Runnals et al., 2013). For instance, Bourn et al. (2016) examined the link between
PTSD severity and somatic symptoms in a sample of OEF/OIF and Vietnam veterans and found a positive association between several somatic symptoms and higher PTSD severity, including back pain, pain during sexual intercourse, chest pain, dizziness, heart palpitations, sleep difficulty, and lack of energy (Bourn et al., 2016). In a sample of 117 male Vietnam veterans, PTSD was associated with higher blood pressure and heart rate, and increased cardiovascular activity was positively associated with physical health symptoms (e.g., diarrhea, muscle aches; Beckham et al., 2003). Another study with 381 OEF/OIF veterans found that those with PTSD were two to three times more likely to report abdominal pain, muscle aches or cramps, and joint pain (Moeller-Bertram et al., 2014). These findings remained significant even after accounting for age, gender, combat injury, and depression. PTSD was also found to be the best predictor of increased somatic symptom severity in 264 women veterans above and beyond depression, generalized anxiety disorder, panic disorder, veteran status, age, and ethnicity (Escalona et al., 2004). Finally, previous research has also demonstrated that specific PTSD symptoms of hyperarousal ($r = 0.525, p < .01$), avoidance ($r = 0.498, p < .01$), and reexperiencing ($r = 0.454, p < .01$) are associated with higher somatic symptom severity (Hoge et al., 2007). Taken together, these results indicate that trauma survivors with PTSD are at greater risk for worse somatic symptoms compared to those without PTSD. These findings suggest that symptoms of PTSD may, at least in part, perpetuate increased somatic symptoms in military service members.
Cognitive Behavioral Therapy Model

The etiology of somatic symptoms is believed to be multifactorial in nature (De Gucht & Maes, 2006; Kellner, 1990; Lipowski, 1986) and there have been several theories suggested to understand the development and maintenance of somatic symptoms. One of the most common theories is the Cognitive Behavioral Therapy Model ([CBT Model]; Hutton, 2005; Richardson & Engel, 2004; Sharpe, 1995; Surawy et al., 1995), which proposes a self-perpetuating multifactorial cycle where cognitive and behavioral factors interact with physiological factors to produce and maintain somatic symptoms (Deary et al., 2007; P. Lang et al., 1970). According to the CBT Model, predisposing and precipitating factors like early experience of adversity, exaggerated pain sensitivity, and neuroticism increase the number of somatic symptoms while also lowering an individual’s threshold for symptom detection (Deary et al., 2007; Rief & Broadbent, 2007; Tingstedt et al., 2016). Exposure to additional stressful life events can further compound and continue to lower the threshold for the detection of somatic symptoms by increasing an individual’s physiological sensitization and distress intolerance.

The CBT Model also describes a variety of factors that may perpetuate somatic symptoms: (1) cognitive processes, such as attention, attribution, and rumination, (2) physiological factors, such as activation of the autonomic nervous system, and (3) behaviors, such as avoidance and illness response (Tingstedt et al., 2016). Take, for example, chronically negative, fearful, or mistrusting thoughts that can create hyperactivity in the sympathetic nervous system, which continuously increases muscle tension, heart rate, breathing, and sweat gland activity (Hoehn-Saric & McLeod, 2000).
Each of the physiological reactions associated with negative thoughts are also associated with the development of somatic symptoms (Sharpe & Bass, 1992; Kellner, 1985; 1987), which suggests at least some level of interaction between elements of the CBT Model in the perpetuation of somatic symptoms. Furthermore, the negative perception of an event contributes to the release of the stress hormone cortisol (Lovallo, 1997), which may also contribute to somatic symptoms through inhibited immune system functioning (Hannibal & Bishop, 2014; Morey et al., 2015), and slower wound healing (Ebrecht et al., 2004). There is support for the CBT Model in the treatment of adult patients with somatic symptoms (Kroenke 2007), and it may be a helpful framework in understanding macro-level factors specific to the military that potentially contribute to the maintenance of somatic symptoms.

**Conclusions from the Literature Review**

After accounting for the impact of interpersonal betrayal (Smith & Freyd, 2017), civilian research revealed a positive relationship between institutional betrayal and severe somatic symptoms (Partial $\eta^2 = .02$, $p = .01$), though this association has yet to be examined in a military population. Compared to institutional betrayal in civilians, it is possible that MSH/A survivors who experience institutional betrayal are at risk for worse somatic symptoms because MSH/A survivors must continue to function within the institution, often in proximity to their perpetrators (Bell & Reardon, 2011). Such frequent encounters with traumatic stressors may cause chronic hyperarousal and decreased habituation to aversive stimuli (McCurry et al., 2020; Hoehn-Saric & McLeod, 2000).
For example, service members who experience MSH/A may have no route by which to escape the situation or environment considering absence without leave (i.e., desertion) is a violation of UCMJ, Article 87 (U.S. Congress, 1958). As a result, survivors may remain vulnerable to repeated instances of MSH and MSA (Bell et al., 2018), or encounter other detrimental consequences, such as social or professional retaliation (Breslin et al., 2019; Dardis et al., 2018; Morral et al., 2015).

In addition to increased PTSD symptoms of avoidance, reexperiencing, and dysphoric arousal, MSH/A survivors who experience institutional betrayal also reported increased negative alterations in cognitions and mood (Andresen et al., 2019). Considering the cognitive processes described in the CBT Model of somatic symptoms, it is possible that somatic symptoms may also be maintained in MSH/A survivors if negative interpretations are ascribed to the traumatic event, as well as negative beliefs about the motives and actions of the perpetrator(s) or others involved. For instance, MSH/A survivors may infer that they are not a valued member of the team should they encounter retaliatory behavior upon reporting sexual trauma, and such internalized and negative thoughts may perpetuate somatic symptoms. In conclusion, MSH/A and PTSD are risk factors for severe somatic symptoms, though additional research is needed to disentangle the associations between mental and physical health distress in MSH/A survivors. The present study addressed the gap in this area by examining whether the positive association between MSH/A and somatic symptoms was explained through PTSD severity, and whether this relationship was strengthened by experiencing MSH/A-related institutional betrayal.
Study #1 Research Objectives and Questions

Study #1 evaluated whether PTSD severity mediated the association between MSH/A type and somatic symptom severity, and whether the direct and indirect effects were further conditional on experiencing institutional betrayal. The purpose of this study was realized through three main objectives. The first objective assessed demographic and military characteristics, institutional betrayal, somatic symptom severity, and covariates of age, sex, race/ethnicity, post-secondary education, discharge status, total years of service, component, and rank stratified by biological sex and MSH/A type. The second objective examined whether PTSD severity mediated the association between MSH/A type and somatic symptom severity. Objective #3 examined whether the direct and indirect mediation effects were moderated based on the number of institutional betrayal experiences.

The first objective was accomplished through the following steps.

1. Determine sociodemographic and military characteristics of the total sample.

2. Examine group differences in institutional betrayal, somatic symptom severity, PTSD severity, and covariates of age, sex, race/ethnicity, post-secondary education, discharge status, total years of service, component, and rank stratified by biological sex and MSH/A type.

The second objective was accomplished through the following steps (see Figure 1, item 1).

1. Examine the relationship between MSH/A type with PTSD severity (path a).

2. Examine the relationship between PTSD severity with somatic symptom severity (path b). Combined, path a and b form the indirect effect between MSH/A and somatic symptom severity.

3. Examine the relationship between MSH/A type with somatic symptom severity (direct effect c).
The third objective was accomplished through the following step (see Figure 1, item 2).

1. Determine whether PTSD severity mediates the relationship between MSH/A type and somatic symptom severity, and whether the direct and indirect effects are further conditional on experiencing institutional betrayal.

**Figure 1**

*Conceptual Models for (1) Mediation and (2) Moderated Mediation*

![Conceptual Models Diagram](image)

*Note.* Indirect path = a, b; Direct path = c; MSH/A = military sexual harassment or assault; PTSD = Posttraumatic stress disorder; IB = institutional betrayal; # = number of experiences.

**Methods**

**Participant Recruitment**

An anonymous, online survey was used to collect data through Qualtrics’ panels, a copy of which is provided in Appendix A. Qualtrics’ panels recruit diverse samples with high quality respondents (Ibarra et al., 2018). A recent meta-analysis compared online panel samples, such as Qualtrics’ panels, to conventionally sourced data and found that the internal reliability estimates for scales and the effect size estimates were similar (Walter et al., 2018). The comparable psychometric findings between the two sample sources offers support in the validity for this method of data collection.
Respondents were compensated by their Qualtrics’ panel provider, which prevented respondent’s personal identifiers from being linked to study data. Incentives were based on the length of the survey, respondent’s specific panelist profile, and target acquisition difficulty, amongst other factors. The specific rewards varied and may have included cash, airline miles, gift cards, redeemable points, charitable donations, sweepstakes entrance, and vouchers. There was no research-based penalty for not completing or withdrawing from the survey. However, Qualtrics’ panels provider’s policy requires participants to complete the entire survey in order to be compensated. Partial completions were not partially compensated. As such, participants were provided with a prefer not to answer option on each item of the survey, which allowed them to skip any question and still have it marked as “complete” in the survey, thus allowing for full compensation by Qualtrics’ panels.

The survey used conditional branching, which is a questionnaire design technique that helps the respondent navigate through the survey efficiently by utilizing skip patterns to ensure that respondents are only asked questions that apply to them (Lavrakas, 2008; Norman & Pleskac, 2002). This technique allows the survey to be tailored to each respondent due to their individual characteristics and experiences, which has been found to significantly reduce the time that it takes to complete the survey (Norman & Pleskack, 2002). Conditional branching may also reduce some aspects of respondent burden, including the length of the survey, ease of responding, and comprehension of the questions. Response burden can impact data quality and increase non-responses (Bradburn, 1978; Briz-Redón, 2021; Chapin, 1920; Fricker et al., 2012, 2014; Kost & de
Two instructional manipulation checks were incorporated into the survey to measure attentiveness and to screen out respondents who chose the same response option without distinguishing the question items (i.e., non-differentiation or straight-lining; see Oppenheimer et al., 2009). The first instructional manipulation check was included in the first half of the survey while assessing sexual trauma with the SES-LFV (Koss et al., 2007): “This study seeks to improve the health and well-being of service members. Please select 0 if you are paying attention.” The second instructional manipulation check was included in the second half of the survey while assessing health-related quality of life with the VR-12 (Kazis et al., 2004; Kazis, Miller, et al., 2006; Kazis, Selim, et al., 2006), “This study seeks to improve the health and well-being of service members. Select Yes, limited a little if you are paying attention.” Respondents who failed both instructional manipulation checks were screened out of this study.

Data Collection

Seeking an approximate 50/50 male to female ratio, Qualtrics’ panels recruited participants by sending emails to those whose profiles suggested they may have experienced MSH/A and meet inclusion criteria to participate in the current study. Inclusion criteria included: (1) 18 years or older, (2) current service in the U.S. military or recent separation/discharge from U.S. military service (≤ 5 years), and (3) fluency in speaking, reading, and writing English. An electronic Letter of Information provided study details for respondents who met inclusion criteria, a copy of which is provided in Appendix B. This study was approved by the Institutional Review Board at Utah State
Military Status Screen

Qualtrics’ panels screened for participants with U.S. military experience by inquiring about employment status: full-time employed; part-time employed; retired; unemployed, not working; current or previous U.S. military service; student; stay at home parent. Those who selected “current or previous U.S. military service” were invited to take part in the survey. The validity of participants’ self-reported military status was monitored by researchers during data collection to exclude non-U.S. military respondents. Non-military respondents were identified and excluded from the study by cross-checking several questions that assessed military history and relevant demographics, including age, total years of service, component, branch, paygrade, rank, military job title, and each job title’s associated alpha/numeric code (i.e., Military Occupational Specialty [MOS], Air Force Specialty Code [AFSC], and Navy Enlisted Classification [NEC]).

Sexual Trauma Screen

This study utilized the SES-LFV (Koss et al., 2007) as a present/absent screen for MSH/A (dummy code: yes = 1, no = 0). Since a positive history of MSH/A is required to study MSH/A-related institutional betrayal, participants who endorsed a positive history of MSH/A were included in the present analyses.

Population and Sample

Survey data were collected from March to July 2021. Over 1120 people
responded to Qualtrics’ panel’s invitation to participate in the survey ($n = 1127$). Of these responders, 85 were identified as non-military respondents and were screened out of this study, 7 were excluded due to careless or random responding, and 167 dropped out of the study. This left a total of 868 respondents who met inclusion criteria to participate in the study. Nearly half of these respondents read the letter of information and provided consent to participate ($n = 423, 48.7\%$). Of those study completers, 21 (4.96\%) participants were screened out for failing both instructional manipulation checks. Of the 402 participants remaining, 396 disclosed MSH/A and comprised the final sample.

Measures

Self-report questionnaires were used to assess demographics, several military characteristics and experiences, institutional betrayal, somatic symptom severity, PTSD severity, and several health-related outcomes. See Table 1 for a summary of the variables included in the present study and the instruments used for their assessment.

Somatic symptom severity was assessed with the PHQ-15 (Kroenke et al., 2002), which functioned as a continuous measure to monitor self-reported distress related to somatic symptom severity. A sample item included: “During the past 7 days, how much have you been bothered by pain in your arms, legs, or joints (knees, hips, etc.)”? Participants indicated how bothered they were by each symptom during the past seven days on a 3-point scale, which ranged from 0 (not at all) to 3 (bothered a lot). Each item was summed to create a total score ranging from 0-30 with cut-off scores representing mild ($\geq 5$), moderate ($\geq 10$), and severe ($\geq 15$) levels of somatic symptom severity. The PHQ-15 has demonstrated good internal reliability (Kroenke et al., 2002) and criterion
### Table 1

**Summary of Study Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Method of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographic variables</strong></td>
<td></td>
</tr>
<tr>
<td>Age^</td>
<td>Age in years</td>
</tr>
<tr>
<td>Sex^</td>
<td>Sex assigned at birth: male = 1, female = 2</td>
</tr>
<tr>
<td>Race/Ethnicity^</td>
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<td>Post-secondary education^</td>
<td>Post-secondary education (no = 0, yes = 1)</td>
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</tr>
<tr>
<td>Component^</td>
<td>Active Duty (no = 0, yes = 1), National Guard (no = 0, yes = 1), Reserves (no = 0, yes = 1)</td>
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<td>Rank^</td>
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<tr>
<td>Years of service^</td>
<td>Years of service in years</td>
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<tr>
<td>Discharge status^</td>
<td>Current service member (no = 0, yes = 1), veteran separated/discharged &lt; 5yrs (no = 0, yes = 1)</td>
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<tr>
<td><strong>Predictors and outcomes</strong></td>
<td></td>
</tr>
<tr>
<td>History and type of sexual trauma</td>
<td><em>Sexual Experiences Survey - Long Form Victimization</em> (SES-LFV)</td>
</tr>
<tr>
<td>MSH alone</td>
<td>Endorsed items 1-10 on SES-LFV, but no items of sexual assault (i.e., 11-18)</td>
</tr>
<tr>
<td>MSA</td>
<td>Endorsed sexual assault items 11-18 on SES-LFV (note: MSA survivors in this study may or may not have also experienced MSH).</td>
</tr>
<tr>
<td>Institutional betrayal</td>
<td><em>Institutional Betrayal Questionnaire, Version 2</em></td>
</tr>
<tr>
<td>PTSD severity</td>
<td><em>PTSD Checklist for DSM-5</em></td>
</tr>
<tr>
<td>Depression severity</td>
<td><em>Patient Health Questionnaire-9</em></td>
</tr>
<tr>
<td>Somatic symptom severity</td>
<td><em>Patient Health Questionnaire-15</em></td>
</tr>
</tbody>
</table>

*Note.* ^ = covariate in the present study.
validity (van Ravesteijn et al., 2009) for distress related to somatic symptoms. Cronbach’s alpha was .90, which indicated a high level of internal consistency for the PHQ-15 scale in the present study.

The 21-item SES-LFV (Koss et al., 2007) examined occurrences of sexual victimization since age 14 and during the past 12 months. In the current study, however, the SES-LFV was modified for a military sample and captured unwanted sexual encounters during military service using items 1-18, which was described to respondents as “the time spent serving in the military between your date of initial entry and today’s date.” MSH alone was assessed using items 1-10 (e.g., “Someone made teasing comments of a sexual nature about my body or appearance after I asked them to stop”). Respondents rated items 1-10 on a 4-point frequency scale from 0 to 3+ times. Item 11 examined sexual contact (e.g., “Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt, or removed some of my clothes without my consent [but did not attempt sexual penetration]”). Items 12-18 assessed attempted or completed vaginal, oral, and anal penetration (e.g., “Someone had oral sex with me or made me have oral sex with them without my consent”). The SES-LFV has been scored using a variety of methods, which have demonstrated convergent validity with sexual assault-related constructs (Davis et al., 2014). Cronbach’s alpha was .93, which indicated a high level of internal consistency for the SES-LFV scale in the present study.

The presence (1) or absence (0) of MSH/A was determined based on the endorsement of any tactic on items 1-18, which was an inclusion criterion for the current
study. The present study also differentiated between the type of sexual trauma experienced, which was dichotomized as MSH alone through the endorsement of any tactic on items 1-10 (dummy code = 0) and MSA through the endorsement of any tactic on items 11-18 (dummy code = 1). In addition, those who experienced both MSH and MSA were dummy coded as 1 and were represented by the MSA category. As such, those who experienced MSA in the present study may or may not have also experienced MSH.

The 15-item Institutional Betrayal Questionnaire, Version 2 (IBQ.2; Smith & Freyd, 2013, 2017) was used to assess the number of experiences of institutional betrayal related to MSH/A. With approval by Dr. Jennifer Freyd through email correspondence on January 26, 2021, the present study modified the IBQ.2 instructions to measure perceptions of MSH/A-related institutional betrayal with items 1-12 (see Monteith et al., 2016). In response to each IBQ.2 item, participants were asked to think about the “military as a larger institution” in which they belong, including “the military in general,” or smaller systems within the military (i.e., military branch, base, academy, unit). Items measured perceptions of institutional betrayal by asking participants whether the military institution played a role in the sexually traumatic experience by failing to prevent or respond supportively (e.g., “covering up the experience”). Each item was rated with a 1 (yes) or 0 (no). Items 13-15 are additional items that are not included in the total score. Item 13 asked participants, “Prior to this experience, was this an institution or organization you identified with or felt a part of?,” which was rated on a 4-point Likert scale from not at all (1) to very much (4). This study did not include items 14 (e.g., “Are
you still a part of this institution?) and 15 (e.g., “Please briefly identify the institution involved [church, school]) because the military was the sole institution that was examined. Total scores ranged from 0 to 12 and higher scores indicated more experiences of MSH/A-related institutional betrayal. The IBQ.2 has demonstrated adequate construct validity (Reffi et al., 2018). Cronbach’s alpha was .77, which indicated an acceptable level of internal consistency for the IBQ.2 scale in the present study.

PTSD symptom severity was assessed with the 20-item PCL-5 (Weathers et al., 2013). The PCL-5 measured how bothered respondents were in reference to a stressful military event. Each item corresponded to the PTSD symptom clusters (Criteria B through E) in The Diagnostic and Statistical Manual of Mental Disorders (DSM–5; American Psychiatric Association [APA], 2013). A sample item included: “In the past month, how often were you bothered by repeated, disturbing and unwanted memories of the stressful experience?” Participants rated each item on a Likert-type scale ranging from 0 (not at all) to 4 (extremely). DSM-5 symptom cluster severity scores can be obtained by summing the scores for the items within a given cluster, i.e., cluster B (items 1-5), cluster C (items 6-7), cluster D (items 8-14), and cluster E (items 15-20). Total scores range from 0-80 with higher scores indicating more severe PTSD symptoms. Scores equal to or greater than 31 were indicative of a probable PTSD diagnosis (Bovin et al., 2016). The PCL-5 has demonstrated acceptable reliability and validity in military service members (Hoge et al., 2014). Cronbach’s alpha was .96, which indicated a high level of internal consistency for the PCL-5 scale in the present study.

Depression symptom severity was assessed with the 9-item Patient Health
*Questionnaire-9* ([PHQ-9]; Kroenke & Spitzer, 2002), which asked participants to indicate how bothered they were by symptoms of depression in the past two weeks. A sample item included, “Over the last 2 weeks, how often have you been bothered by feeling down, depressed, or hopeless?” Participants rated the frequency of each item with a four-point frequency scale, which ranges from 0 (not at all) to 3 (nearly every day). Total scores ranged from 0-27 with higher scores indicating more severe depression symptoms. Cut-off scores for depression severity ranged from mild (≥5), moderate (≥10), and moderately-severe (≥15), and severe (≥20). Research suggests the PHQ-9 is a valid and reliable measure for the assessment of depression severity (Kroenke & Spitzer, 2002; Kroenke et al., 2009). Cronbach’s alpha was .87, which indicated a good level of internal consistency for the PHQ-9 scale in the present study.

A demographic inventory provided information on participants’ biological sex, age, race/ethnicity, military service component, military branch, rank, discharge status, and educational attainment. From the demographic inventory, age, sex, race/ethnicity, discharge status, rank, component, post-secondary education, and total years of service were included as covariates in the present study.

Covariates for the present study were selected according to existing research and findings from Objective #1 showing an association with MSH/A, institutional betrayal, somatic symptoms, and/or PTSD severity (Armenta et al., 2019; Godfrey et al., 2015; Kimerling et al., 2007; McCutchan et al., 2016; Meadows et al., 2018; Sadler et al., 2017). Covariates in the current study included age, sex, race/ethnicity, post-secondary education, discharge status, total years of service, component, and rank.
Analytic Plan

The first research objective in this study examined sociodemographic and military service characteristics for the total sample and stratified by biological sex. Descriptive statistics, including frequencies, means, and standard deviations, were used to describe the total sample and by biological sex. Zero-order correlations, $t$ tests, chi-square statistics, and effect sizes were used to describe potential differences between male and female participants and to inform more complex models.

The second research objective assessed the hypothesized process by which MSH/A type related to somatic symptoms; specifically, whether PTSD severity mediated the association between MSH/A type and somatic symptom severity after controlling for covariates (i.e., “Non-Moderation Mediation Model”). The third research objective determined whether the direct and indirect effects were moderated based on the number of institutional betrayal experiences (i.e., “Moderated Mediation Model”). Marginal Mediation Analysis ([MMA]; T. S. Barrett et al., 2019) was used to address the second and third research objectives. MMA utilizes a series of generalized linear models (Hayes, 2017), coupled with average marginal effects, to obtain indirect and direct effects, regardless of the distributions of the mediator and outcome variables. The benefit of integrating average marginal effects into the mediation model estimation allows for the indirect and direct effects to be interpreted using regular standardized units, even if the mediator or outcome has a non-normal distribution. As such, MMA permits the comparison between indirect and direct effects, and the total effect can be obtained by adding the indirect and direct effects together.
To estimate the Non-Moderated Mediation Model, two linear regression sub-models were used to examine the direct and indirect paths. The first sub-model, “Path A,” was formed by regressing PTSD severity (M) onto MSH/A type (X), and institutional betrayal (W). The second sub-model, “Path B & C,” was formed by regressing somatic symptom severity (Y) onto PTSD severity (M), institutional betrayal (W), and MSH/A type (X). Each sub-model controlled for age, biological sex, race/ethnicity, discharge status, rank, component, post-secondary education, and total years of service.

To estimate the Moderated Mediation Model, the interaction between MSH/A type and institutional betrayal (X*W) was added to Path A and the interaction between PTSD severity and institutional betrayal (M*W) was added to Path B & C. Significant interactions were probed to determine meaningfulness.

The final mediation models only included significant moderation and/or mediation. The MMA used 1000 bootstrapped samples to determine the variance of the indirect, direct, and total effects. Statistical analyses were conducted using SPSS Version 28 (IBM Corporation, 2021) and R (R Core Team, 2019). A significance level of $p < .05$ was established a priori. See Figure 2 for a diagram of the statistical model of moderated mediation that was examined in Study #1.

**Results**

**Missing Values and Prefer Not To Answer**

There were very few missing values in this study, which may be explained by Qualtrics’ panels provider’s policy that participants needed to complete the entire survey
Figure 2

Statistical Model for Moderated Mediation

Note. X = independent variable; Y = dependent variable; M = mediator; W = moderator; SH/A = military sexual harassment and/or assault; PTSD = Posttraumatic stress disorder; IB # = institutional betrayal total; # = number of experiences.

to be compensated. Existing literature suggests compensation and reduced respondent burden, addressed in this study through conditional branching, increases completion rates (Bradburn, 1978; Briz-Redón, 2021; Chapin, 1920; Fricker et al., 2012, 2014Kost & de Rosa, 2018; Lavrakas, 2008; Sharp & Frankel, 1983; Turner et al., 2007). Because of a software issue during survey collection, a number of participants (n = 38, 9.60%) were allowed to skip the IBQ.2 items entirely. In most cases, listwise deletion was used to address missing data considering the sample did not have more than 5% item-level missingness on any measure or 10% missingness on total scale scores. As an alternative to non-responding, participants selected prefer not to answer, and thus, these responses were treated as “missing” in the analyses. There were no participants who selected prefer
not to answer on the IBQ.2, but the answer choice was selected by 19 participants on the PHQ-15 and PCL-5, which accounted for less than 5% of the total sample. Most participants selected prefer not to answer 1-2 times on the PHQ-15 (\( n = 14, 73.7\% \)) and the PCL-5 (\( n = 15, 68.2\% \)) if they utilized the response choice at all (range = 0 to 5). There were no statistically significant differences compared to those who did and did not endorse prefer not to answer.

To examine the pattern of missingness, a Missing Value Analysis with Expectation Maximization (EM) estimation was conducted for the PHQ-15 items (i.e., somatic symptoms) and PCL-5 items (i.e., PTSD). Little’s MCAR test was statistically significant for both the PHQ-15 (\( \chi^2(186) = 242.96, p = .003 \)) and PCL-5 (\( \chi^2(318) = 374.78, p = .02 \)). These findings suggest missingness (i.e., prefer not to answer) was not missing completely at random and should be addressed. As outlined in the instructions to score and interpret the PHQ-15 (Kroenke et al., 2002), prorated total scores for somatic symptom severity were calculated for those who selected prefer not to answer up to three times. Prorated scores were calculated by multiplying the participant’s partial raw score with 15 and then dividing by the total number of items that were actually answered. Total scores were not calculated on the PHQ-15 if participants did not provide an answer on four or more items and these participants were excluded from analyses (\( n = 2 \)). No significant differences were found between somatic symptom severity scores before (\( M = 11.02, SD = 6.69 \)) or after (\( M = 11.20, SD = 6.66 \)) prorated scores were incorporated (\( t[393] = .52, p = .60, d = .03 \)). To address missingness on the PCL-5, item-level mean imputation was used for those who selected prefer not to answer up to three times, which
was equal to or less than 15% of the participant’s total score for PTSD symptom severity. To calculate item-level mean imputation on the PCL-5, the mean of the items actually answered were used in replace of prefer not to answer responses. Participants who selected prefer not to answer four or more times were excluded from analyses ($n = 4$).

No significant differences were found between PTSD severity scores before ($M = 39.75$, $SD = 18.29$) or after ($M = 40.52$, $SD = 18.32$) item-level mean imputation was used ($t[312] = .74$, $p = .46$, $d = .04$).

**Objective #1: Group Differences and Posttraumatic Distress**

Chi-square tests of independence were conducted to examine group differences between biological sex ($males = 1$, $females = 2$) and MSH/A type ($MSH alone = 1$, $MSA = 2$) among the categorical demographic variables and primary variables of interest. The categorical variables included the following dummy codes: European/White ($no = 0$, $yes = 1$), Hispanic/Latinx/Spanish ($no = 0$, $yes = 1$), African American/Black ($no = 0$, $yes = 1$), Other Race/Ethnicity ($no = 0$, $yes = 1$), post-secondary education ($no = 0$, $yes = 1$), current service member ($no = 0$, $yes = 1$), veteran ($no = 0$, $yes = 1$), Army ($no = 0$, $yes = 1$), Air Force ($no = 0$, $yes = 1$), Marine Corps ($no = 0$, $yes = 1$), Coast Guard ($no = 0$, $yes = 1$), Navy ($no = 0$, $yes = 1$), Active Duty ($no = 0$, $yes = 1$), National Guard ($no = 0$, $yes = 1$), Reserves ($no = 0$, $yes = 1$), commissioned officer ($no = 0$, $yes = 1$), enlisted ($no = 0$, $yes = 1$), and warrant officer ($no = 0$, $yes = 1$). Phi was calculated for variables with two levels to determine relationship strength (Glass & Hopkins, 1996; Hays, 1994).

Chi-square tests of independence assume categories are mutually exclusive and
exhaustive, observations are independent, no cells have expected frequencies less than 1, and no more than 20% of the cells have expected frequencies less than 5 (Bewick et al., 2004; McHugh, 2013; Miller & Siegmund, 1982). Aside from the race/ethnicity and branch categories, these assumptions were met for each association tested. The Multi-racial, Asian American, Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, Middle Eastern/North African, and prefer not to answer variables violated the expected frequency assumption with more than 20% of cells having expected frequencies of less than 5. For example, frequencies were as low as 0 for both the Asian American and prefer not to answer categories. As such, these race/ethnicity categories were recoded into a dichotomous Other variable (no = 0, yes = 1) to meet this assumption (Bewick et al., 2004; McHugh, 2013; Miller & Siegmund, 1982). The Navy branch variable also violated the expected frequencies assumption with more than 20% of cells having expected frequencies of less than 5. The expected frequency for the Navy branch variable was 3. R. A. Fisher’s (1992) exact test was used to interpret and report associations with Navy branch to address the variable’s low frequency count (Kim, 2017).

Independent samples $t$ tests were performed to determine whether several continuous demographic and primary variables of interest varied by biological sex (male = 1, female = 2) and MSH/A type (MSH alone = 1, MSA = 2), including age, total years of military service, MSH/A-related institutional betrayal total, somatic symptom severity, PTSD severity, and depression severity. Several assumptions must be met for independent $t$ tests, which included the independence of observations, a normal distribution of the dependent variable, and homogeneity of the standard deviation in both
groups (Ross & Wilson, 2017). Cohen’s $d$ was calculated as an effect size for each $t$-test to quantify the difference between groups (Cohen, 1988).

The sample met assumptions of independence and normality, but Levene’s test for equal sample variances was statistically significant indicating the assumption of homogeneity across the two-sample variance was violated for PTSD severity ($F[1, 311] = 9.06, p \leq .01$) by biological sex. To address this violation, more conservative $t$-tests assuming heterogeneity of sample variances were reported.

**Sample Demographics by Biological Sex**

Table 2 presents a summary of all demographic and military service characteristics for the total sample ($N = 396$) and stratified by females (47.22%) and males (52.78%). Of the 396 participants, ages ranged from 18 to 45 and the average age was 32. A majority identified their race/ethnicity as European/White (53%), Hispanic/Latinx/Spanish (33.1%), or African American/Black (7.8%). More than three quarters of the sample had attained at least some post-secondary education (77%). Relative to the 127 veterans (32.1%) in the sample, most participants were current service members (67.9%) averaging approximately 9 years of service in the military ($M = 8.93, SD = 4.03$). On average, veterans were separated or discharged from military service 2 years prior to data collection ($M = 2.0, SD = 0.94$). Most participants served in the Army (60.4%) compared to 17.2% in the Air Force, 12.9% in the Marine Corps, 5.8% in the Coast Guard, and 3.8% in the Navy. In terms of rank, participants were mostly commissioned officers (37.9%), followed by enlisted service members (33.6%), and then warrant officers (28.5%).
Table 2

**Means, Standard Deviations, Frequencies, and Percentages for Demographics in Total Sample and Stratified by Biological Sex**

<table>
<thead>
<tr>
<th>Sociodemographic variable</th>
<th>Total sample (N = 396)</th>
<th>Female (n = 187)</th>
<th>Male (n = 209)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong>^</td>
<td>32.67 6.13</td>
<td>32.71 6.06</td>
<td>32.64 6.20</td>
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<td></td>
</tr>
<tr>
<td>Race/ethnicity (% yes)^</td>
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<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>European/White</td>
<td>210 53.03</td>
<td>98 52.41</td>
<td>112 53.59</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latinx/Black</td>
<td>131 33.08</td>
<td>64 34.22</td>
<td>67 32.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American/Black</td>
<td>31 7.82</td>
<td>14 7.49</td>
<td>17 8.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>24 6.06</td>
<td>11 5.88</td>
<td>13 6.22</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postsecondary education (% yes)^</td>
<td>305 77.02</td>
<td>150 80.21</td>
<td>155 74.16</td>
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<td></td>
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<tr>
<td>Service member (% yes)^</td>
<td>269 67.93</td>
<td>115 61.50</td>
<td>154 73.68</td>
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<tr>
<td>Veteran (% yes)^</td>
<td>127 32.07</td>
<td>72 38.50</td>
<td>55 26.32</td>
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<tr>
<td>Total years of service^</td>
<td>8.93 4.03</td>
<td>9.04 4.19</td>
<td>8.84 3.90</td>
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<tr>
<td>Branch (% yes)</td>
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<tr>
<td>Army</td>
<td>239 60.35</td>
<td>116 62.03</td>
<td>123 58.85</td>
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<td>Air Force</td>
<td>68 17.17</td>
<td>22 11.76</td>
<td>46 22.01</td>
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<tr>
<td>Marine Corps</td>
<td>51 12.88</td>
<td>22 11.76</td>
<td>29 13.88</td>
<td></td>
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</tr>
<tr>
<td>Coast Guard</td>
<td>23 5.81</td>
<td>15 8.02</td>
<td>8 3.83</td>
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<tr>
<td>Navy^</td>
<td>15 3.79</td>
<td>12 6.42</td>
<td>3 1.44</td>
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<td>Component^</td>
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<tr>
<td>Active Duty</td>
<td>225 56.82</td>
<td>115 61.50</td>
<td>110 52.63</td>
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<td>National Guard</td>
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<td>44 23.53</td>
<td>62 29.67</td>
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<td>Reserves</td>
<td>65 16.41</td>
<td>28 14.97</td>
<td>37 17.70</td>
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<tr>
<td>Rank^</td>
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<tr>
<td>Commissioned Officer</td>
<td>150 37.88</td>
<td>87 46.52</td>
<td>63 30.14</td>
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</tr>
<tr>
<td>Enlisted</td>
<td>133 33.59</td>
<td>47 25.13</td>
<td>86 41.15</td>
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<tr>
<td>Warrant Officer</td>
<td>113 28.54</td>
<td>53 28.34</td>
<td>60 28.71</td>
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<td></td>
</tr>
</tbody>
</table>

Note. d = Cohen’s d; ø = Cramer’s Phi; ^ included in the present study as a covariate; * = p-value reflects Fisher’s Exact Test due to low cell count.

**p ≤ .05**

**p ≤ .01**

**p ≤ .001**
There were statistically significant differences between males and females across a variety of demographic and military service characteristics ($p$'s range $\leq .001$ to $0.05$). There were more males ($22.01\%$) than females ($11.76\%$) in the Air Force, but more females ($6.42\%$) than males ($1.44\%$) in the Navy. There were also more commissioned officer females ($46.52\%$) than males ($30.14\%$), but more enlisted male ($41.15\%$) than female ($25.13\%$) service members. Of the current service members, there were a greater number of males ($73.68\%$) than females ($61.50\%$). Alternatively, there were more female ($38.50\%$) than male ($26.32\%$) veterans who were separated from service at the time of data collection.

Table 3 presents a summary of all primary variables of interest for the total sample ($N = 396$) and stratified by females ($n = 187$) and males ($n = 209$). Participants in this study experienced MSH ($83.30\%, n = 330$) or MSA ($74.24\%, n = 294$). Of the 330 participants who endorsed MSH, 228 ($69.09\%$) also experienced MSA. As described in the measures section, those who experienced both MSH and MSA were included in the MSA group for analyses. As can be seen in Table 3, most participants in this sample were in the which created the MSH alone group ($25.76\%, n = 102$) relative to the MSA group ($74.24\%, n = 294$).

Of the 396 participants in this sample, 25% experienced MSH, but not MSA. Of the 396 participants who experienced MSH/A, 86% endorsed MSH/A-related institutional betrayal. On average, MSH/A survivors experienced two instances of institutional betrayal (range = 0-6; median = 3). On average, females reported more experiences institutional betrayal ($M = 2.85$, $SD = 1.38$) relative to males ($M = 2.54$, 
<table>
<thead>
<tr>
<th>Variable</th>
<th>Total sample (N = 396)</th>
<th>Female (n = 187)</th>
<th>Male (n = 209)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSH/A Type</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSH only (% yes)</td>
<td>102 25.76</td>
<td>34 18.18</td>
<td>68 32.54</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>MSA (% yes)</td>
<td>294 74.24</td>
<td>153 81.82</td>
<td>141 67.46</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Betrayal Total</td>
<td>2.68 1.34</td>
<td>2.85 1.38</td>
<td>2.54 1.28</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Somatic Symptom Severity</td>
<td>11.56 5.98</td>
<td>12.08 6.34</td>
<td>11.08 5.62</td>
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<tr>
<td>PTSD Severity</td>
<td>40.52 18.32</td>
<td>40.66 20.20</td>
<td>39.03 16.63</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Depression Severity</td>
<td>9.43 5.83</td>
<td>9.04 6.04</td>
<td>9.78 5.63</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; PTSD = Posttraumatic Stress Disorder; ϕ = Cramer’s Phi; d = Cohen’s d; *= equal variances were not assumed using Levene’s Test for Equality of Variances.

* p ≤ .05  
** p ≤ .01  
*** p ≤ .001
SD = 1.28). The most common experiences included (1) responding inadequately to the experience, if reported, (2) creating an environment in which this type of experience seemed common or normal, (3) making it difficult to report the experience, (4) not taking proactive steps to prevent this type of experience, and (5) mishandling your case if disciplinary action was requested (see Table 4). There were no differences between males and females across each item of the IBQ.2, except item six: “Mishandling your case, if disciplinary action was requested.” Significantly more females (33.20%; n = 62) than males (22%; n = 46) reported their sexual trauma cases were mishandled following their request for disciplinary action to be taken, \( \chi^2(1)=6.18, p = .01; \phi = 0.13 \). There were statistically significant differences between males and females regarding MSH alone and

Table 4

*Frequencies and Percentages for Each Item Endorsed on the Institutional Betrayal Questionnaire—2 (N = 396)*

<table>
<thead>
<tr>
<th>Institutional betrayal questionnaire—2 Items</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responding inadequately to the experience, if reported?</td>
<td>123</td>
<td>31.06</td>
</tr>
<tr>
<td>Creating an environment in which this type of experience seemed common or normal?</td>
<td>112</td>
<td>28.28</td>
</tr>
<tr>
<td>Making it difficult to report the experience?</td>
<td>112</td>
<td>28.28</td>
</tr>
<tr>
<td>Not taking proactive steps to prevent this type of experience?</td>
<td>109</td>
<td>27.53</td>
</tr>
<tr>
<td>Mishandling your case if disciplinary action was requested?</td>
<td>108</td>
<td>27.27</td>
</tr>
<tr>
<td>Creating an environment in which this experience seemed more likely to occur?</td>
<td>82</td>
<td>20.71</td>
</tr>
<tr>
<td>Covering up the experience?</td>
<td>80</td>
<td>20.20</td>
</tr>
<tr>
<td>Denying your experience in some way?</td>
<td>77</td>
<td>19.44</td>
</tr>
<tr>
<td>Punishing you in some way for reporting the experience (e.g., loss of privileges or status)?</td>
<td>57</td>
<td>14.39</td>
</tr>
<tr>
<td>Suggesting your experience might affect the reputation of the institution?</td>
<td>57</td>
<td>14.39</td>
</tr>
<tr>
<td>Creating an environment where you no longer felt like a valued member of the institution?</td>
<td>33</td>
<td>8.33</td>
</tr>
<tr>
<td>Creating an environment where continued membership was difficult for you?</td>
<td>17</td>
<td>4.29</td>
</tr>
</tbody>
</table>
MSA (\(p\)'s range <.01 to \(\leq .001\)) in that more males (\(n = 68, 33\%\)) than females (\(n = 34, 18\%\)) reported MSH alone, but more females (\(n = 153, 82\%\)) than males (\(n = 141, 67\%\)) reported MSA (see Figure 3).

**Figure 3**

*Total Counts of Sexual Trauma Type Between Men and Women*

![Pie charts showing the number of men and women reporting MSH alone and MSA](image)

*Note.* MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault.

On average, participants reported mild levels of depression severity (\(M = 9.43, SD = 5.83\)), moderate levels of somatic symptom severity (\(M = 11.56, SD = 5.98\)) and clinically significant PTSD (\(M = 40.52, SD = 18.32\); see Table 3). There were no statistically significant differences in somatic symptom severity, PTSD severity, or depression severity between males and females. However, MSH alone survivors reported statistically significant higher levels of somatic symptom severity, PTSD severity, and depression severity when compared to those who experienced MSA (\(ps \geq .001\); see Figure 4).
Aside from item 19 on the PCL-5 (i.e., “having difficulty concentrating”), there were no significant differences between males and females across each item of the measures that examined somatic symptom severity, PTSD symptom severity, and depression severity. Relative to males ($M = 1.87$, $SD = 1.12$), females reported significantly higher levels of concentration difficulties ($M = 2.24$, $SD = 1.11$, $t[313] = -2.90$, $p \leq .01$, $d = -0.33$). Based on the four symptom clusters of PTSD according to DSM-5 criteria (APA, 2013), differences between males and females were also examined across Intrusions (Criterion B), Avoidance (Criterion C), Negative Alterations in Cognitions and Mood (Criterion D), and Hyperarousal and Reactivity (Criterion E). No
significant differences were found, however (\(ps \geq .05\)).

**Sample Demographics by MSH/A Type**

Table 5 presents a summary of all demographic and military service characteristics stratified by MSH alone (\(n = 102\)) and MSA (\(n = 294\)). There were statistically significant differences between MSH alone and MSA across a variety of demographic and military service characteristics (\(ps\) range \(\leq .001\) to \(.01\)). On average, men were reported more MSH alone than MSA (\(\bar{\theta} = -0.16\)) whereas women reported more MSA than MSH alone (\(\bar{\theta} = 0.16\)). More European/White and Hispanic/Latinx/Spanish participants endorsed MSA compared to MSH alone (\(\bar{\theta} = 0.21\) and \(\bar{\theta} = -0.24\), respectively). Greater amounts of post-secondary education were observed in MSA survivors, relative to those who experienced MSH alone (\(\bar{\theta} = 0.26\)). Current service members (\(\bar{\theta} = 0.19\)), veterans (\(\bar{\theta} = 0.13\)), and enlisted personnel (\(\bar{\theta} = 0.13\)) experienced greater amounts of MSA compared to MSH alone.

Table 6 presents a summary of all primary variables of interest stratified by MSH alone and MSA. Results revealed statistically significant differences between MSH alone and MSA across a variety posttraumatic distress variables (\(ps \leq .001\)). Relative to MSA, MSH alone survivors reported worse somatic symptom severity (\(d = 0.60\)), PTSD severity (\(d = 0.60\)), and depression severity (\(d = 0.63\)). MSH alone and MSA survivors reported comparable levels of MSH/A-related institutional betrayal experiences.

Figure 5 presents Pearson’s \(r\) correlation coefficients and illustrates the strength and direction of the relationships among the primary variables of interest and potential covariates. To create Figure 5, all categorical variables of interest were dummy coded...
Table 5

Means, Standard Deviations, Frequencies, and Percentages for Demographics Stratified by Military Sexual Harassment/Assault Type

<table>
<thead>
<tr>
<th>Sociodemographic variable</th>
<th>MSH only (n = 102)</th>
<th>MSA (n = 294)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological sex^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (% yes)</td>
<td>68</td>
<td>141</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female (% yes)</td>
<td>34</td>
<td>153</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age^</td>
<td>33.43</td>
<td>32.41</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Race/ethnicity (% yes)^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European/White</td>
<td>36</td>
<td>174</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latinx/Spanish</td>
<td>53</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>African American/Black</td>
<td>6</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Postsecondary education (% yes)^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European/White</td>
<td>60</td>
<td>245</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic/Latinx/Spanish</td>
<td>85</td>
<td>184</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service member (% yes)^</td>
<td>85</td>
<td>184</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Veteran (% yes)^</td>
<td>17</td>
<td>110</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total years of service^</td>
<td>8.38</td>
<td>9.13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Branch (% yes)</td>
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<td></td>
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<tr>
<td>Army</td>
<td>61</td>
<td>178</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Air Force</td>
<td>16</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Marine Corps</td>
<td>17</td>
<td>34</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Coast Guard</td>
<td>5</td>
<td>17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Navy^</td>
<td>2</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Component^</td>
<td></td>
<td></td>
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<tr>
<td>Active Duty</td>
<td>66</td>
<td>159</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>National Guard</td>
<td>25</td>
<td>81</td>
<td></td>
<td></td>
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<tr>
<td>Reserves</td>
<td>11</td>
<td>54</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rank^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissioned Officer</td>
<td>43</td>
<td>107</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enlisted</td>
<td>24</td>
<td>109</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warrant Officer</td>
<td>35</td>
<td>78</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; d = Cohen’s d; ø = Cramer’s Phi; ^ included in the present study as a covariate; * = equal variances were not assumed using Levene’s Test for Equality of Variances; b = p-value reflects Fisher’s Exact Test due to low cell count; *** p ≤ .001; ** p ≤ .01.
**Table 6**

**Means, Standard Deviations, Frequencies, and Percentages for Primary Variables of Interest Stratified by Type of Sexual Trauma**

<table>
<thead>
<tr>
<th>Variable</th>
<th>MSH alone (n = 102)</th>
<th>MSA (n = 294)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Betrayal Total</td>
<td>2.79 1.26</td>
<td>2.63 1.37</td>
<td>t(356)=1.03</td>
<td>p = .30</td>
<td>d = 0.12</td>
</tr>
<tr>
<td>Somatic Symptom Severity</td>
<td>14.14 5.59</td>
<td>10.66 5.87</td>
<td>t(392)=5.20</td>
<td>p &lt; .001***</td>
<td>d = 0.60</td>
</tr>
<tr>
<td>PTSD Severity</td>
<td>48.30 15.52</td>
<td>37.71 18.46</td>
<td>t(311)=4.66</td>
<td>p &lt; .001***</td>
<td>d = 0.60</td>
</tr>
<tr>
<td>Depression Severity</td>
<td>12.82 5.21</td>
<td>8.27 5.58</td>
<td>t(392)=7.19</td>
<td>p &lt; .001***</td>
<td>d = 0.63</td>
</tr>
</tbody>
</table>

*Note.* MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; PTSD = Posttraumatic Stress Disorder; *d* = Cohen’s *d*.

*** *p* ≤ .001.

into binary variables, including post-secondary education (0 = No, 1 = Yes), component (0 = Active Duty, 1 = National Guard/Reserves), branch (0 = Army, 1 = All other branches), rank (0 = Commission/Warrant Officer, 1 = Enlisted), and race/ethnicity (0 = White/Caucasian, 1 = All other race/ethnicities). The continuous and binary variables of interest were unchanged for the correlation matrix presented in Table 1, including: age, total years of service, total number of institutional betrayal experiences, somatic symptom severity, PTSD severity, depression severity, MSH/A type (0 = MSH alone, 1 = MSA), biological sex (0 = Male, 1 = Female), and discharge status (0 = Veteran, 1 = Service member).

There were statistically significant relationships among the primary variables of interest and potential covariates (*ps* range ≤ .001 to .05). Findings revealed a strong,
Figure 5

_Bivariate Correlation Matrix Showing Pearson’s r Among Primary Variables of Interest and Covariates_

*Note.* Ref = reference category; MSH/A type = military sexual assault and/or military sexual harassment (reference category = military sexual harassment alone). The strength and direction of relationships are depicted with shaded grid squares. *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$. 
positive relationship between somatic symptom severity and depression severity ($r = .75$). Using the coefficient of determination (i.e., $r^2$) to assess the practical importance of these findings, depression symptom severity explained 56.25% of the variability of somatic symptom severity in MSH/A survivors, and vice versa. There were also positive and negative moderate and moderately weak relationships. For instance, somatic symptom severity was positively related to PTSD severity ($r = .57; r^2 = 32.49\%$), PTSD severity was positively related to depression severity ($r = .50; r^2 = 25.00\%$) and the total number of institutional betrayal experiences ($r = .38; r^2 = 15.21\%$), race/ethnicity was positively related to discharge status ($r = .39; r^2 = 14.44\%$), age was positively related to total years of service ($r = .54; r^2 = 29.16\%$), and military service component was positively related to rank ($r = .33; r^2 = 10.89\%$). Alternatively, MSA (vs MSH alone) was negatively related to depression severity ($r = -.34; r^2 = 11.56\%$) and somatic symptom severity ($r = -.30; r^2 = 9.00\%$), and race/ethnicity was negatively related to post-secondary education ($r = -.36; r^2 = 12.96\%$).

Most notably, these results suggest depression severity explained more than 50% of the variability of somatic symptom severity in MSH/A survivors. Including depression severity as a covariate in the Non-Moderated and Moderated Mediation Models produced irregular results, suggesting the variable may create collider bias. Collider bias is the artificial link between two variables with a shared outcome. Collider variables can threaten the internal validity of a study and the accurate estimation of associations and should not be included in analyses (Holmberg & Andersen, 2022; Rohrer, 2018; Valls-Pedret et al., 2015). Covarying for depression in the present study changed the signs of
several regression estimates, such as changing the relationship between somatic symptom severity and rank from negative to positive. In addition, the indirect and direct effects were of opposite signs in the final model. After more consideration, it is quite possible that depression severity is an outcome of the mediator variable (i.e., PTSD severity) and/or the outcome variable (i.e., somatic symptom severity). As such, depression severity was removed as a covariate in this study. However, it is important to note that depression severity and its relationship with PTSD severity and somatic symptom severity appears to be an important area of study in MSH/A survivors and warrants further examination in future research studies.

Objectives 2 and 3: Moderated Mediation

The second and third research objectives were examined using MMA (T. S. Barrett et al., 2019). MMA utilized a series of generalized linear models (Hayes, 2017) in conjunction with average marginal effects to determine indirect and direct effects regardless of the distributions of the mediator and outcome variables. Several assumptions must be met concerning the data structure to use generalized linear models, including the independence of data points, normal distributions of residuals, and homogeneity of variance across each model and predictor (Hayes, 2017). Each of these assumptions were checked for the Non-Moderated and Moderated Mediation Models. No assumption violations were identified.

Path Analysis

Table 7 presents the standardized effect sizes using generalized linear models for
Table 7

Standardized Effect Sizes ($\beta$) and 95% Confidence Intervals for Each Path in the Non-Moderated and Moderated Mediation Models

<table>
<thead>
<tr>
<th>Path</th>
<th>Variable</th>
<th>Non-moderated mediation</th>
<th>Moderated mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>$\beta$</td>
<td>95% CI</td>
</tr>
<tr>
<td>a</td>
<td>PTSD Severity</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>MSA</td>
<td>-0.50</td>
<td>-0.75, -0.25*</td>
</tr>
<tr>
<td></td>
<td>Institutional Betrayal</td>
<td>0.38</td>
<td>0.27, 0.48*</td>
</tr>
<tr>
<td></td>
<td>MSH/A x Institutional Betrayal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age</td>
<td>0.01</td>
<td>-0.09, 0.12</td>
</tr>
<tr>
<td></td>
<td>Male (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>0.05</td>
<td>-0.06, 0.15</td>
</tr>
<tr>
<td></td>
<td>European/White (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Hispanic/Latinx/Spanish</td>
<td>-0.02</td>
<td>-0.29, 0.24</td>
</tr>
<tr>
<td></td>
<td>African American/Black</td>
<td>-0.27</td>
<td>-0.74, 0.20</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>-0.23</td>
<td>-0.65, 0.19</td>
</tr>
<tr>
<td></td>
<td>High school education (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Post-secondary education</td>
<td>-0.12</td>
<td>-0.40, 0.16</td>
</tr>
<tr>
<td></td>
<td>Total Years of Service</td>
<td>-0.07</td>
<td>-0.18, 0.04</td>
</tr>
<tr>
<td></td>
<td>Veteran (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Current Service Member</td>
<td>0.19</td>
<td>-0.07, 0.45</td>
</tr>
<tr>
<td></td>
<td>Enlisted (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commissioned Officer</td>
<td>-0.16</td>
<td>-0.43, 0.11</td>
</tr>
<tr>
<td></td>
<td>Warrant Officer</td>
<td>-0.22</td>
<td>-0.49, 0.06</td>
</tr>
<tr>
<td></td>
<td>Active Duty (ref)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>National Guard</td>
<td>-0.38</td>
<td>-0.65, -0.11*</td>
</tr>
<tr>
<td></td>
<td>Reserves</td>
<td>0.03</td>
<td>-0.30, 0.36</td>
</tr>
</tbody>
</table>

$F(14, 286) = 6.80^{***}$  $F(15, 285) = 6.32^{***}$

Adjusted $R^2 = 0.21$  Adjusted $R^2 = 0.21$

b Somatic Symptoms

| PTSD Severity | 0.38  | 0.27, 0.49* | 0.39  | 0.27, 0.50* |
| Institutional Betrayal | 0.14  | 0.03, 0.25* | 0.14  | 0.03, 0.25* |
| PTSD x Institutional Betrayal |        |            | 0.02  | -0.08, 0.12 |
| MSH only (ref) |        |            |        |            |
| MSA       | -0.34  | -0.59, -0.09* | -0.33  | -0.58, -0.09* |
| Age       | -0.09  | -0.19, 0.01 | -0.09  | -0.19, 0.01 |
| Male (ref) |        |            |        |            |
| Female    | 0.14   | 0.04, 0.24* | 0.14   | 0.04, 0.24* |
| European/White (ref) |        |            |        |            |
| Hispanic/Latinx/Spanish | 0.00   | -0.26, 0.25 | 0.01   | -0.25, 0.27 |

(table continues)
<table>
<thead>
<tr>
<th>Path</th>
<th>Variable</th>
<th>Non-moderated mediation</th>
<th>Moderated mediation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>β</td>
<td>95% CI</td>
</tr>
<tr>
<td>African American/Black</td>
<td></td>
<td>-0.05</td>
<td>-0.50, 0.40</td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>0.02</td>
<td>-0.38, 0.42</td>
</tr>
<tr>
<td>High school education</td>
<td>(ref)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Post-secondary education</td>
<td></td>
<td>-0.25</td>
<td>-0.52, 0.02</td>
</tr>
<tr>
<td>Total Years of Service</td>
<td></td>
<td>-0.07</td>
<td>-0.17, 0.04</td>
</tr>
<tr>
<td>Veteran (ref)</td>
<td></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Current Service Member</td>
<td></td>
<td>-0.12</td>
<td>-0.37, 0.13</td>
</tr>
<tr>
<td>Enlisted (ref)</td>
<td></td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Commissioned Officer</td>
<td></td>
<td>-0.10</td>
<td>-0.36, 0.15</td>
</tr>
<tr>
<td>Warrant Officer</td>
<td></td>
<td>-0.04</td>
<td>-0.30, 0.22</td>
</tr>
<tr>
<td>Active Duty (ref)</td>
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<td>--</td>
<td>--</td>
</tr>
<tr>
<td>National Guard</td>
<td></td>
<td>-0.14</td>
<td>-0.40, 0.12</td>
</tr>
<tr>
<td>Reserves</td>
<td></td>
<td>-0.08</td>
<td>-0.39, 0.23</td>
</tr>
</tbody>
</table>

\[ F(15, 284) = 9.24^{***} \quad F(16, 283) = 8.65^{***} \]

Adjusted \( R^2 = 0.29 \) \quad Adjusted \( R^2 = 0.29 \)

*Note.* \( ^a = \) Path a; \( ^{bc} = \) Path bc; PTSD = Posttraumatic Stress Disorder; MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; \( ref = \) Reference group; CI = Confidence Interval; *** \( p \leq .001 \); * \( p \leq .05 \).

Each sub-model in the Non-Moderated Mediation and Moderated Mediation Models (\( ps \) range \( \leq .001 \) to .05), both of which controlled for age, biological sex, race/ethnicity, post-secondary education, total years of service, discharge status (i.e., veteran vs current service member), rank, and component.

After accounting for covariates, the Non-Moderated Mediation Model was statistically significant in predicting the variance in PTSD severity (Adjusted \( R^2 = .21 \)) and somatic symptom severity (Adjusted \( R^2 = .29 \); \( ps \leq .001 \)). Findings revealed significant direct and indirect effects (\( ps \leq .001 \)). As can be seen in Figure 6, for those with an MSA response (dummy code = 1) relative to an MSH alone response (dummy code = 0; reference category), there was an associated decrease of –0.34 SDs in somatic symptom severity (i.e., direct effect) on average, after controlling for PTSD severity. In
addition, an MSA response relative to an MSH alone response was associated with a
decrease of -0.50 SDs in PTSD severity on average, and for every one SD increase in
PTSD severity, there was an associated increase of 0.38 SDs in somatic symptom
severity (i.e., indirect effects). Overall, these findings suggest the presence of mediation
where the relationship between MSH alone, relative to MSA, and higher somatic
symptom severity depends on higher PTSD severity.

Figure 6

* Individual Path Estimates in the Non-Moderated Mediation Model

Note. β = Standardized beta coefficient; X = independent variable; Y = dependent variable; M = mediator;
W = moderator; MSH/A type= military sexual assault and/or military sexual harassment (reference
category = military sexual harassment alone); PTSD = Posttraumatic Stress Disorder; * p < .05.

Similarly, the Moderated Mediation Model was statistically significant in
predicting the variance in PTSD severity (Adjusted $R^2 = .21$) and somatic symptom
severity (Adjusted $R^2 = .29$) after adjusting for covariates ($p < .001$). As can be seen in
Figure 7, the interaction between MSH/A type and institutional betrayal (i.e., $X*W$) on
PTSD severity, and the interaction between PTSD severity and institutional betrayal (i.e., M*W) on somatic symptom severity were not significant, which suggests there was no moderation. As a result, the Moderated Mediation Model was excluded, and the Non-Moderated Mediation Model was the final model tested using MMA.

**Figure 7**

*Moderated Mediation Model*

<table>
<thead>
<tr>
<th>Covariates</th>
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<tbody>
<tr>
<td>Age</td>
</tr>
<tr>
<td>Biological sex</td>
</tr>
<tr>
<td>Race/ethnicity</td>
</tr>
<tr>
<td>Discharge status</td>
</tr>
<tr>
<td>Rank</td>
</tr>
<tr>
<td>Component</td>
</tr>
<tr>
<td>Post-secondary education</td>
</tr>
<tr>
<td>Total years of service</td>
</tr>
</tbody>
</table>

Note. β = Standardized beta coefficient; X = independent variable; Y = dependent variable; M = mediator; W = moderator; MSH/A type = military sexual assault and/or military sexual harassment (reference category = military sexual harassment alone); PTSD = Posttraumatic Stress Disorder; IB # = total number of institutional betrayal experiences; MSH/AxIB = interaction term for military sexual harassment/assault and IB; PTSDxIB = interaction term for PTSD and the number of institutional betrayal experiences; * p ≤ .05.
Indirect Effects

Table 8 presents standardized effects sizes for each path using linear regression models, as well as standardized indirect, direct, and total effects for the Non-Moderated Mediation Model using MMA. As can be seen in Figure 8, both the standardized direct (-0.31) and indirect effects (-0.18) were statistically significant ($p < .05$). These findings indicate presence of mediation in that the relationship between MSA, relative to MSH alone, and lower somatic symptom severity depends on lower PTSD severity with a total effect of -0.49. PTSD severity accounted for 21.18% of the total effect from MSA, compared to MSH alone, to somatic symptom severity (i.e., indirect path/[total] * 100). Compared to those who experienced MSA, these findings suggest MSH alone experiences are associated with higher somatic symptom when PTSD severity is higher.

Discussion For Study #1

The goal of the present study was to determine whether the positive association between MSH/A and somatic symptoms was explained through PTSD severity, and whether this relationship was strengthened by experiencing MSH/A-related institutional betrayal. The purpose of this study was realized through three main objectives: (1) assess demographic and military characteristics, institutional betrayal, somatic symptom severity, and covariates stratified by biological sex, (2) examine whether PTSD severity mediates the association between MSH/A type and somatic symptom severity, and (3) determine whether the direct and indirect mediation effects are moderated based on the number of institutional betrayal experiences.
Table 8

Unstandardized Effect Sizes for Each Path and Standardized Effect Sizes for the Non-Moderated Mediation Model

<table>
<thead>
<tr>
<th>Path</th>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>z</th>
<th>β</th>
<th>95% CI</th>
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<tr>
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<tr>
<td>MSA</td>
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<td>-8.82</td>
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<td>-3.87</td>
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<tr>
<td>Institutional Betrayal</td>
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<td>4.94</td>
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<td>1.92</td>
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*b Somatic Symptoms

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<th>β</th>
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<tr>
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<th>z</th>
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<td></td>
<td>Commissioned Officer</td>
<td>-0.57</td>
<td>0.72</td>
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<td></td>
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<td>0.73</td>
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<td>Active Duty (ref)</td>
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<td></td>
<td>National Guard</td>
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<td>0.74</td>
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<tr>
<td></td>
<td>Reserves</td>
<td>-0.45</td>
<td>0.87</td>
<td>-0.52</td>
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</tr>
</tbody>
</table>

Direct Path: Somatic Symptom Severity onto MSH/A type
-0.31* -0.56, -0.06

Indirect Path: Somatic Symptom Severity onto MSH/A type and PTSD Severity
-0.18* -0.29, -0.08

Total Effect: (Direct Effect + Indirect Effect)
-0.49 --

Note. * = Path a; bc = Path bc; PTSD = Posttraumatic Stress Disorder; MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; ref = Reference group; CI = Confidence Interval.

* $p \leq .05$.
** $p \leq .01$.
*** $p \leq .001$.

Figure 8

Marginal Mediation Analysis

Note. $\beta =$ Standardized beta coefficient; $X =$ independent variable; $Y =$ dependent variable; $M =$ mediator; $W =$ moderator; MSH/A type= military sexual assault and/or military sexual harassment (reference category = military sexual harassment alone); PTSD = Posttraumatic Stress Disorder; * $p \leq .05$. 

Note. $\beta =$ Standardized beta coefficient; $X =$ independent variable; $Y =$ dependent variable; $M =$ mediator; $W =$ moderator; MSH/A type= military sexual assault and/or military sexual harassment (reference category = military sexual harassment alone); PTSD = Posttraumatic Stress Disorder; * $p \leq .05$. 

Figure 8
Objective #1: Group Differences and Posttraumatic Distress

Representation for men and women in this study were comparable considering most U.S. military personnel are men, with women accounting for only one-fifth of the military (DoD, 2017). Compared to the racial and ethnic representation in the U.S. military and its civilian counterparts (DoD, 2020, pp. 7-8; U.S. Census Bureau, 2021), the present study was representative in that most service members and veterans were White or European. However, this study was slightly more diverse in that there were more Hispanic, Latinx, and Spanish service members and veterans. Alternatively, Black or African American and Asian service members and veterans were underrepresented in the current study when compared to racial and ethnic representation in the U.S. military (DoD, 2017). On average, service members and veterans were 32-years-old and a majority served in the Army or Air Force, which is consistent with the size of each service branch in the U.S. military (DoD, 2017). In addition, the U.S. military is relatively young given the physical requirements and stressors associated with the occupation; 40% of service members are 25 years old or younger and 61% are 30 years old or younger (DoD, 2017). In 2018, the median age among all 18 million veterans in the U.S. was 65 (Vespa, 2020). Relative to enlisted service members, commissioned officers are typically older since they must hold a bachelor’s degree. Two-thirds of those in the present study served as officers in the military, which was unexpected since most U.S. service members and veterans are or were enlisted. For example, 17% of service members were officers in 2019 compared to 83% of those who were enlisted (DoD, 2019c, p. 68).
Consistent with previous research, MSH alone was more commonly experienced than MSA (DoD, 2021b; Street et al., 2008; Wilson, 2018). A greater percentage of men reported MSH alone and more experiences of institutional betrayal in this study compared to women. Previous research on the experiences of MSH/A survivors revealed that men believe the military institution contributed to the sexual trauma through hazing rituals or maintaining a highly sexualized environment (Monteith, Gerber, et al., 2019). As such, it is possible that MSH alone is perpetuated among men under the guise of initiation or hazing practices. Compared to men, higher rates of MSA were observed for women, and more women who requested disciplinary action be taken in response to MSH/A reported that their case was mishandled. Unfortunately, these findings were expected considering women service members have repeatedly described feeling “silenced and disempowered” when it comes to reporting MSH/A (Breslin et al., 2019; Brownstone et al., 2018; Campbell & Raja, 2005; Castro et al., 2015; Dardis et al., 2018; Dichter & True, 2015; Mattocks et al., 2012; Mengeling et al., 2014; Monteith et al., 2016; Monteith, Gerber, et al., 2019; Morral et al., 2015). Overall, these findings contribute to the extensive body of literature that both men and women are frequently burdened with MSH/A, and institutional betrayal is common experience as an added layer of harm (Andresen et al., 2019; Brownstone et al., 2018; Monteith, Bahraini, et al., 2016; Monteith, Gerber, et al., 2019). Despite efforts for more than a decade to update and create new policies and initiatives, improve reporting procedures, and increase resources (Acosta et al., 2021; DoD, 2015a, 2015b, 2021c), results of this study echo call for improved prevention and response efforts by DoD.
Compared to extant literature that examined institutional betrayal in the military population (Monteith, Bahraini, et al., 2016), MSH/A survivors in the present study reported low levels of institutional betrayal (i.e., $M = 8$ vs $2$, respectively). There was a lack of variability in the total scores of institutional betrayals, which may explain why moderated mediation was not observed in this study. However, our findings revealed more than 85% of all MSH/A survivors experienced institutional betrayal, which indicates institutional betrayal is a more pervasive experience among MSH/A survivors than previous studies found (Andresen et al., 2019; Monteith, Bahraini, et al., 2016). Similar to Monteith, Bahraini, et al. (2016), MSH/A survivors in this study experienced institutional betrayal by believing the military failed to prevent or respond effectively. For example, one of the most common instances of institutional betrayal among MSH/A survivors in this study was the belief that the U.S. military created an environment in which MSH/A seemed common or normal. Like previous research into the experiences of MSH/A survivors (Bell et al., 2018; Breslin et al., 2019; Burns et al., 2014; Mattocks et al., 2012; Sadler et al., 2017, 2018), this study also found that MSH/A survivors most commonly experienced institutional betrayal through lack of accountability or action and a difficult reporting process. According to recent data, most service members and veterans do not report their experiences of MSH/A (Andresen & Blais, 2019; Blais et al., 2017, 2019; Breslin et al., 2019; DoD, 2019c; Morral et al., 2015; Wilson, 2018), which inhibits accountability of the perpetrators, thereby continuing the cycle of violence.

The average levels of mental and physical health distress among men and women who experienced MSH/A reveals the toll sexual trauma might have on the well-being of
U.S. military service members and veterans. Both men and women in this study reported moderate somatic symptom severity, which was consistent with studies examining MSH/A survivors (Godfrey et al., 2015; Kimerling et al., 2007; Murray-Swank et al., 2018) and a college sample with a history of trauma (Smith & Freyd, 2017). Our findings underscore the presence of somatic symptoms in both men and women survivors of MSH/A, which might confer major distress and/or problems functioning in the U.S. military. The intense thoughts, behaviors, and feelings related to somatic symptoms may make it impossible to complete daily tasks. Indeed, somatic symptoms undermine military force readiness (Meadows et al., 2018), as well as increase healthcare utilization, expenses, and absences from work (Hoge et al., 2007).

The present study also found mild levels of depression, which is consistent with previous levels of distress found in MSH/A survivors (Andresen et al., 2019; Godfrey et al., 2015; Monteith, Gerber, et al., 2016). Notably, depression severity and somatic symptom severity were strongly related in MSH/A survivors. These findings are similar to existing literature that illustrates the high comorbidity between depression and somatic symptoms in military samples (Ferguson et al., 2006; Murray-Swank et al., 2018) and in primary-care settings around the globe (Kapfhammer, 2006; Kirmayer et al., 2004; Kroenke, 2003b). According to the CBT Model (Sharpe, 1995; Surawy et al., 1995; Richardson & Engel, 2004; Hutton, 2005), the development of somatic symptoms is likely multifactorial and self-perpetuating in that thoughts and behaviors interact with physical symptoms to produce and maintain somatic symptoms (Deary et al., 2007; P. Lang et al., 1970). Considering depression severity explained half of the variability for
somatic symptoms in our sample, it is possible that higher depression severity may be an important pathway for the development and maintenance of higher somatic symptom severity in MSA survivors.

On average, the severity of PTSD symptoms in the present study were clinically significant and suggestive of probable PTSD, similar to other studies of MSH/A-related institutional betrayal (Andresen et al., 2019; Monteith, Gerber, et al., 2016). Consistent with the findings of studies that examined PTSD and somatic symptom severity in the U.S. military (D. H. Barrett et al., 2002; Beckham et al., 2003; Bourn et al., 2016; Hoge et al., 2007; Moeller-Bertram et al., 2014; Rice et al., 2015; Runnals et al., 2013), there was a positive link between higher PTSD and somatic symptom severity in the present study. In a previous study of women veterans, PTSD was the most salient predictor for worse somatic symptom severity above and beyond depression, generalized anxiety, panic disorder, veteran status, age, and ethnicity (Escalona et al., 2004). For the most part, and contrary to previous research (Rice et al., 2015), the present study found that men and women MSH/A survivors reported comparable levels of mental and physical health distress. However, the women in this study found it more difficult to concentrate due to MSH/A-related PTSD symptoms compared to men. The CBT Model (Hutton, 2005; Richardson & Engel, 2004; Sharpe, 1995; Surawy et al., 1995) describes several factors that could maintain somatic symptoms, including cognitive processes, such as attention and rumination (Tingstedt et al., 2016). Taken together, these findings indicate the pathways that perpetuate somatic symptoms in women MSH/A survivors may be different than men, which could warrant unique intervention strategies.
Contrary to hypotheses and the findings of previous research studies that distinguished between MSH alone and MSA (Andresen & Blais, 2019; Andresen et al., 2019; Schry et al., 2015; Street et al., 2008), relative to MSA, MSH alone was linked to worse mental and physical health distress in men and women service members and veterans, including somatic symptom severity, PTSD symptom severity, and depression severity. These results may be explained by the fact that most of our sample were officers rather than enlisted service members and veterans. According to the 2018 WGRA, enlisted personnel experience the greatest risk for perpetrating and surviving MSA (Breslin et al., 2019). As such, our findings may better represent the experiences of officers in the military, a small, but powerful, group of leadership in the armed forces where MSA is less pervasive and/or distressing. On the other hand, the negative impact of MSH should not be underestimated. For example, recent studies revealed that uninhibited MSH within military units is an important independent risk factor for MSA (Schell et al., 2021; Stander et al., 2018). In a sample of 525 graduate students, Rosenthal et al. (2016) also found that sexual harassment that was perpetrated by faculty or staff was positively related to institutional betrayal in female students when compared to other forms of victimization, including sexual assault ($\beta = .40, p < .001$). Considering MSH is a risk factor for MSA, and each experience is differentially destructive and distressing, it will be important for future research to distinguish between each form of sexual violence to fully inform prevention and treatment strategies.

Objectives #2 and 3: Moderated Mediation

Our hypotheses for the present study were partly supported in that PTSD severity
explained 21% of the relationship between somatic symptom severity and MSH/A. Compared to MSA, MSH alone experiences were associated with higher somatic symptoms when PTSD severity was higher.

Previous research suggested MSA, not MSH alone, would be related to worse mental and physical health outcomes, including somatic symptoms and PTSD severity (Andresen & Blais, 2019; Andresen et al., 2019; Schry et al., 2015; Street et al., 2008), as such, these findings were somewhat unexpected. Nevertheless, MSH is reported even less than MSA (Acosta et al., 2021; Breslin et al., 2019; DoD, 2021b), and it is possible the current state of the literature illustrates an incomplete picture regarding the negative impact of MSH before and after separation from the military. Similar to our findings, previous research in military and civilian populations have demonstrated the positive associations between sexual harassment and PTSD (Larsen & Fitzgerald, 2011; Murdoch et al., 2006; Willness et al., 2007), PTSD and somatic symptom severity (Rice et al., 2015), and sexual harassment and somatic symptoms (Allroggen & Fegert, 2014; Fitzgerald, 1993; Gutek & Koss, 1993)

Our finding that worse PTSD severity partially explains the relationship between MSH alone and worse somatic symptom severity, relative to MSA, may be understood through the lens of the CBT Model (Sharpe, 1995; Surway et al., 1995; Richardson & Engel, 2004; Hutton, 2005), which proposes a multifactorial approach for understanding the development and maintenance of somatic symptoms (De Gucht & Maes, 2006; Kellner, 1990; Lipowski, 1986). There may be precipitating factors that led more severe somatic symptoms and PTSD in men and women who experienced MSH alone. For
example, MSH/A survivors have higher rates of other types of trauma prior and during their military service. Compared to the general population, those who join the military are exposed to higher rates of stress and trauma during childhood and adolescence (Blosnich et al., 2014). This finding appears particularly salient for MSH/A, which is also related to higher rates of sexual trauma and physical abuse during childhood (Klingensmith et al., 2014; Suris et al., 2013; Suris & Lind, 2008; Turchik & Wilson, 2010; Williams & Bernstein, 2011) and adult sexual trauma as a civilian (Bostock & Daley, 2007). Previous stress and trauma appear to compound and sensitize an individual to future traumas (Fernandez et al., 2020). As such, it is possible the service members and veterans who experienced MSH alone in the present study were also survivors of other forms of trauma that were not measured or accounted for in the present study, such as childhood sexual trauma and civilian sexual trauma. Therefore, previous experiences of trauma may have coalesced with MSH alone and continued to lower their threshold to detect somatic symptoms, thereby increasing physiological sensitization and distress intolerance. It will be important for future research to examine and control for participants’ lifetime history of trauma to elucidate the impact of MSH/A-related institutional betrayal on mental and physical health correlates.

Another precipitating factor that could explain worse somatic symptom severity and PTSD severity in MSH alone survivors is their unit climate. Existing literature indicates sexual trauma does not occur in a vacuum. Previous research suggests unit commanders and fellow service members play an important role in creating or denouncing a culture that is tolerant of MSH (Bell et al., 2018). Research has also
documented how a poor command climate that tolerates MSH is associated with MSA and that a change in culture and climate, in part, requires accountability (Marquis et al., 2017; Morral et al., 2018; Sadler et al., 2017). When there is a decreased likelihood of reporting MSH/A or being held accountable, sexual violence will flourish. Service members and veterans often describe unit climates where demeaning language and MSH are expected within military culture. More than two decades of research have documented that MSH often minimized or dismissed by leadership (Acosta et al., 2021; Castro et al., 2015; DoD, 2021c; Firestone & Harris, 2003; Magley et al., 1999; Murdoch & Nichol, 1995; Sadler et al., 1997, 2003, 2017, 2018; Schell et al., 2021; Stander et al., 2018; Turchik & Wilson, 2010). Alternatively, units have a decreased risk for MSH and MSA when service members believe that their commanders take MSH seriously (Sadler et al., 2017). As such, it is possible that, without command support, persistent MSH might diminish, disempower, and dehumanize the service member, which could explain heightened posttraumatic responses, including worse somatic symptom severity and PTSD (Buchanan et al., 2018; Chan et al., 2008; Friborg et al., 2017; Larsen & Fitzgerald, 2011; Nielsen & Einarsen, 2012; Willness et al., 2007).

As proposed by the CBT Model (Sharpe, 1995; Surawy et al., 1995; Richardson & Engel, 2004; Hutton, 2005), there are several cognitive, physiological, and biological processes that might perpetuate both somatic symptom severity and PTSD. For instance, it is possible that MSH will create chronically fearful or distrusting thoughts in those currently serving in the military considering MSH/A is related to shame, self-blame, self-doubt, and distrust in oneself and others (Bell & Reardon, 2011; Peterson et al., 2011;
Wasco, 2003), and blaming oneself and the perpetrator is related to worse PTSD severity in a small sample of civilian women who experienced sexual harassment ($n = 189$; Larsen & Fitzgerald, 2011). Furthermore, lack of control over one’s recovery and the perception that future sexual harassment is likely to continue is associated with worse PTSD severity (Larsen & Fitzgerald, 2011. MSH inherently violates the service members’ right to be treated ethically and professionally, and perpetrators may actually threaten their physical integrity and sense of safety (Burn, 2019), thereby creating fear, horror, or helplessness (Avina & O’Donohue, 2002). MSH was only recently added as a punishable offense under the UCMJ in January 2022, which suggests those who experienced MSH had no feasible way to escape the perpetrator(s) or threatening situation before then. As such, those who experienced MSH alone in the present study may have felt helpless, hopeless, and powerless to protect themselves unless they reported the MSH; as previously noted, MSH is grossly underreported, even more so than MSA (Acosta et al., 2021; Andresen & Blais, 2019; Blais et al., 2017, 2019; Breslin et al., 2019; DoD, 2019c. 2021b; Morral et al., 2015; Wilson, 2018).

Resembling the cognitive and physiological factors that maintain somatic symptoms in the CBT Model, intrusive and chronic thoughts of fear and distrust are associated with hyperactivity in the sympathetic nervous system, which increases muscle tension, heart rate, breathing, and sweat gland activity (Hoehn-Saric & McLeod, 2000), all of which are physiological symptoms related to PTSD (Blanchard et al., 1982; Bryant et al., 2008; McDonagh-Coyle et al., 2001; Wickramasuriya et al., 2019) and somatic symptoms (Kellner, 1985, 1987; Sharpe & Bass, 1992). Persistent, chronic, and
uncontrollable stress responses are central in most models that link trauma to poor physical health outcomes (Segerstrom & Miller, 2004). MSH/A survivors may find it nearly impossible to avoid or manage reminders of the sexual violence during their military service, which may be enough to elicit a strong physiological stress response. Real or perceived stress (e.g., MSH alone) activates the hypothalamic-pituitary-adrenal (HPA) axis, as well as the sympathetic and parasympathetic nervous systems (Smith & Vale, 2006). For instance, there is evidence that chronic psychological stress can have a negative impact on neuroendocrinological and immunological responses (Cohen, et al. 2007; Dhabhar, 2014). Furthermore, higher cortisol levels are related to negative perceptions of an event (Lovallo, 1997) and, compared to healthy controls ($n = 48$), traumatized individuals from the general community ($n = 77$) showed higher sympathetic and lower parasympathetic activation during rest and higher sympathetic reactivity to acute stress (Schuurmans et al., 2021). Overall, uncontrollable and unpredictable stressful experiences appear to play a role in the dysregulation of the HPA axis and autonomic nervous system. Therefore, it is possible that multiple instances of MSH alone, compared to a single instance of MSA, will chronically disrupt the stress response, potentially increasing somatic symptom severity and PTSD severity. In conjunction with findings of the present study, existing literature highlights the link between altered involuntary physiological changes following stressful or traumatic experiences, collectively suggesting there are neurobiological underpinnings for both the development and maintenance of somatic symptoms and PTSD symptoms.

Finally, previous research suggests stress impacts health through unhealthy
behaviors functioning as maladaptive coping mechanisms. For example, civilian and military sexual trauma is related to worse PTSD-related avoidance (Andresen et al., 2019), higher compulsive sexual behavior (Blais, 2021; Brownstone et al., 2018; Smith et al., 2014) increased substance use, including alcohol, tobacco, and illicit drug use (Bedard-Gilligan et al., 2013; Forkus et al., 2020; Lawler et al., 2005; Littleton et al. 2007; Moisson et al., 2019; Skinner et al., 2000; Ullman et al., 2013; Yalch et al., 2018), eating disorders, and abrupt weight change (Faravelli et al., 2004; Laws & Golding, 1996). In addition, MSH survivors are less likely to engage in medium-high levels of physical activity whereas MSA survivors are more likely to engage in low physical activity (A. Lang et al., 2003; Thomas et al., 2021). Overall, these findings suggest MSH and MSA survivors may cope with sexual trauma in different ways, which could influence the presentation and severity of mental and physical health distress. Thus, it is possible that, when compared to MSA survivors, those who experienced MSH alone in the present study experienced worse somatic symptom severity and PTSD by engaging in less exercise or other unhealthy behaviors.

Contrary to our hypotheses, experiencing institutional betrayal did not exacerbate the relationship between MSH/A and somatic symptoms, or the relationship between MSH/A and somatic symptom severity through PTSD severity. These findings suggest military service members and veterans who perceived institutional betrayal did not experience greater distress above and beyond MSH/A, which contradicts a growing body of literature in military and civilian populations (Andresen et al., 2019; Smith et al., 2016; Smith & Freyd, 2013, 2017; Wright et al., 2017). It can be argued, however, that
institutional betrayal would not exacerbate distress in MSH/A survivors if they do not recognize that a betrayal occurred. Like institutional betrayal (Smith & Freyd, 2013), *betrayal blindness* (Freyd, 1996) also extends from *Betrayal Trauma Theory* (Freyd, 1994, 1996) and may be one way to understand these findings in the context of betrayal trauma research.

Betrayal blindness is an automatic, unconscious response to trauma where forgetting, not-knowing, and unawareness help the individual survive abuse perpetrated by trusted individuals or institutions (Freyd, 1996, 1999; Freyd & Birrell, 2013). The concept of betrayal blindness originated by Freyd (1996, 1999) in an attempt to understand why some survivors do not remember traumatic experiences. Freyd and Birrell argue that internal and social processes work in tandem to keep trauma survivors unaware of the abuse, which can impact their sense of identity, interpersonal relationships, and trauma recovery. Betrayal blindness may create a disconnection between oneself and others through underlying cognitive mechanisms, including alexithymia, dissociation, and divided attention (Freyd & Birrell, 2013). Alexithymia is characterized by the inability to know or describe one’s emotional state (Polusny et al., 2008), and alexithymic individuals often mislabel their experiences as somatic symptoms because they have difficulty identifying or processing strong emotional cues (Goerlich, 2018). Alexithymia is associated with betrayal traumas (Goldsmith et al., 2012), greater physical health complaints (Polusny et al., 2008), and the persistence of trauma symptoms (O’Brien et al., 2008).

Another coping mechanism used to reduce or avoid emotional distress related to
trauma is dissociation (Foa & Hearst-Ikeda, 1996). Dissociation disconnects oneself from their thoughts, memories, feelings, or sense of identity (APA, 2013) and is linked to institutional betrayal (Smith & Freyd, 2017), somatic symptoms, and PTSD in trauma survivors (Kimerling et al., 2007; Kratzer et al., 2021; Smith & Freyd, 2017). Various cognitive processes have been linked to dissociation, including memory and attention in betrayal trauma survivors (Bernstein & Putman, 1986; Freyd et al., 2007; Freyd et al., 2005). Extant literature suggests dissociation may improve one’s ability to divide their attention across multiple domains in the environment in an effort to filter the information that enters conscious awareness and memory (DePrince & Freyd, 1999, 2001, 2004; Freyd et al., 1998; Stroop, 1935). Based on these findings, MSH/A survivors might find it easier to manage posttraumatic distress in environments with a lot of distraction or chaos. MSH/A survivors might also experience dissociation and/or alexithymia, all of which would bolster betrayal blindness, thereby decreasing posttraumatic distress for the sake of survival.

At its inception, betrayal blindness is built upon an extreme need to trust and to keep at least some aspect the situation intact (Freyd, 1996, 1999; Freyd & Birrell, 2013); withdrawing from comrades and the military environment could threaten the livelihood, functioning, and overall wellbeing of those in the military. Preliminary research findings suggest memories of abuse are less persistent in those with greater dependence on the perpetrator or institution (Freyd, 1996, 1999; Freyd & Birrell, 2013), and it is well-documentd that MSH/A is often dismissed or minimized by military leadership (Acosta et al., 2021; Castro et al., 2015; DoD, 2021c; Firestone & Harris, 2003; Magley et al.,
1999; Murdoch & Nichol, 1995; Sadler et al., 1997, 2003, 2017, 2018; Schell et al., 2021; Stander et al., 2018; Turchik & Wilson, 2010). Nearly 70% of the MSH/A survivors in the present sample were current service members, and thus, dependent upon their comrades, leaders, and the military institution for ongoing safety and protection at the time of data collection. This may occur by rationalizing or minimizing the sexual violence, or not allowing the information to register in their conscious awareness. As such, it is possible that many MSH/A survivors in the present study are blind to the betrayal in an effort to preserve the attachments, relationships, unit cohesion, institutions, and social systems they depend on for survival. It will be important for future research to examine whether betrayal blindness affects MSH/A survivors, thereby influencing the presentation of posttraumatic sequelae.

**Limitations and Implications**

The present study is not without limitations. First, causal inferences about the directionality of our findings cannot be made considering this study utilized a cross-sectional design. Second, all data were collected via self-report and are subject to recall bias. Third, status as a service member or veteran of the U.S. armed forces could not be confirmed considering official documentation was not required to participate in this study. Next, all the participants in the present sample experienced MSH/A, therefore prevalence estimates cannot be assumed. The majority of survivors were European/White officers serving on active duty in the Army, which limits the generalizability to other ethnically diverse groups and enlisted military personnel serving in different branches and components in the military. Finally, generalizability may also be impacted by self-
selection bias. It is possible that individuals who participate in research panels, and who opted to include themselves in this study, may be demographically or behaviorally different than the intended sample. Despite limitations, this study substantiates the damaging experience of men and women who experience MSH/A. While both MSH and MSA were associated with higher posttraumatic distress above and beyond covariates, our findings suggest MSH alone, not MSA, was linked to worse somatic symptom severity, in part, through worse PTSD severity. Based on our findings, MSH should be taken seriously, and effective prevention strategies are warranted. These findings illustrate the importance of distinguishing between forms of sexual violence to help identify those at greater risk for heightened posttraumatic sequelae. Clinically, these findings also suggest somatic symptoms may be a reliable marker for identifying MSH/A survivors and trauma-informed interventions may be necessary. In conclusion, clinical interventions targeting PTSD may also alleviate somatic symptom severity.
CHAPTER IV
STUDY #2 SUICIDE RISK

Suicide is a pervasive and serious concern in military service members. Suicide is the 10th leading cause of death in the United States among the general population (Centers for Disease Control [CDC], 2020), but the second leading cause of death among active-duty service members (Congressional Research Service [CRS], 2020). Between 2006 and 2020, there were 17,645 active-duty service members, including those who were mobilized as members of the National Guard and Reserve components, who died during military service. Of those mortalities, 24.0% \((N = 4,231)\) were death by suicide, whereas only 15.5% \((N = 2,729)\) were killed in action. Suicide rates have steadily increased across all service branches since 2013 (DoD, 2019b). Recent estimates also revealed that the National Guard’s suicide rate at 30.6 deaths per 100,000 is higher than rates observed in the Active Duty and Reserve components at 24.8 and 22.9 suicides per 100,000, respectively. As suicide rates continue to climb in the U.S. military, it is critical to identify perpetuating factors that may heighten risk for suicidal behaviors in this population.

Extant literature indicates men and women exposed to MSH/A are more likely to experience suicidal ideation, attempt suicide (Blais & Monteith, 2018; Bryan et al., 2015), and die by suicide (Kimerling et al., 2007, 2016). For instance, men and women who reported MSH/A were nearly three times more likely to have ever attempted suicide and twice as likely to report current suicidal ideation, even after controlling for sociodemographic, military characteristics, and lifetime depression and PTSD.
(Klingensmith et al., 2014). In addition, a large study examining MSH/A with suicide mortality in more than six million veteran revealed MSH/A exposure in men (hazard ratio $[HR] = 1.19$, 95% CI = 1.02 – 1.39, $p < .05$) and women (HR = 1.36, 95% CI = 1.01 – 1.83, $p < .05$) was associated with increased risk suicide mortality, even after adjusting for age, medical morbidity, rural residence, and mental health conditions (Kimerling et al., 2016). Finally, MSH/A that occurred during deployment was examined as a risk factor for recent suicidal ideation in 199 OEF/OIF veterans receiving inpatient trauma-focused treatment (Monteith et al., 2015). After controlling for combat exposure, age, and gender, findings revealed MSH/A that occurred on deployment was positively associated with recent suicidal ideation ($\beta = .17$, $p < .05$). Overall, these results suggest MSH/A exposure is associated with greater risk for suicidal behavior independent of mental health status, sociodemographic characteristics, and combat exposure.

**Three-Step Theory**

The *Three-Step Theory* (3ST; Klonsky & May, 2015) provides one framework in which to understand the positive association between suicidal behaviors and MSH/A-related institutional betrayal. The 3ST proposes that pain and hopelessness, a lack of social connectedness, and/or the capacity to attempt suicide contribute to increased suicide risk. According to the 3ST (Klonsky & May, 2015), the first step in the development of suicidal ideation is the presence of pain, which can include psychological, emotional, or physical pain. In conjunction with pain, however, an individual must also feel hopeless that the situation will improve to develop thoughts
about suicide (Klonsky & May, 2015). Both feelings of hopelessness and recurrent suicidal ideation are symptoms indicative of Major Depressive Disorder in *The Diagnostic and Statistical Manual of Mental Disorders I* ([DSM–5]; APA, 2013), and a number of literature reviews found that depression, in particular, was a strong risk factor for suicidal ideation, suicide attempt, and death by suicide (see reviews, Athey & Overholser, 2018; Hawton et al., 2013). In a large population-based study ($n = 6,351,854$) that identified exposure to MSH/A as a significant risk factor for suicide mortality in men and women veterans, the two most common mental health disorders present were depression ($n = 62,613, 44.0\%$) and PTSD ($n = 45,172, 31.8\%$; Kimerling et al., 2016). Other literature reviews have also documented the associated between PTSD and increased risk for suicidal ideation and attempts among veterans (see reviews, Krysinska & Lester, 2010; Pompili et al., 2013). A recent study of 1190 women service members and veterans also revealed that the association between suicidal ideation with MSH and MSA, particularly MSA, was mediated by more severe PTSD-related anhedonia and depression severity (Blais & Geiser, 2019). These findings suggest greater levels of PTSD and depression play a significant role in the positive association between MSH/A and suicidal ideation. The annual *Department of Defense Suicide Event Report* also revealed that roughly half of those who died by suicide in 2017 had a known mental health condition (Pruitt et al., 2019). However, an epidemiological study examining global trends of suicide mortality suggests most people seriously considering suicide do not attempt it (Nock, Borges, Bromet, Alonso, et al., 2008; Nock, Borges, Bromet, Cha, et al., 2008), which suggests it is important to consider factors that predict the transition
from suicidal ideation to attempt.

The next step of 3ST (Klonsky & May, 2015) relates to connectedness, which refers to a perceived sense of belonging or attachment to others, as well as one’s job, role, or any sense of purpose that maintains a desire to live. Connectedness is included in the 3ST as a protective factor against escalating the intensity of suicidal ideation in those at greatest risk for ideation (i.e., the combination of pain and hopelessness). In other words, the 3ST (Klonsky & May, 2015) proposes that suicidal ideation can transition from moderate to severe suicidal ideation if connectedness becomes disrupted. The occurrence of MSH/A depletes morale and camaraderie within the military (Davis et al., 2020), and thus, it is possible that experiencing institutional betrayal will intensify the damage caused to an individual’s connection to others and/or the military organization. For instance, a phenomenological study revealed that women veterans who experienced MSH/A reported changed attitudes toward the military institution that were indicative of institutional betrayal, including a “sense of loss regarding the organization that they had devoted themselves to and previously held in high esteem” (Brownstone et al., 2018, p. 406). It is possible that the significant violation of deep-seated values due to institutional betrayal may disrupt the connectedness that MSH/A survivors felt towards their comrades and the military institution itself.

The final step of 3ST (Klonsky & May, 2015) relates to the progression from suicidal ideation to attempting suicide, the capacity of which is facilitated through dispositional, acquired, and practical contributors. Dispositional contributors primarily include the genetic basis of pain variability, such as an individual’s sensitivity to physical
pain or their susceptibility to chronic pain (Young et al., 2012). Alternatively, practical contributors describe concrete factors that aid in one’s ability to attempt suicide, such as knowledge and access to firearms. Consistent with Joiner’s (2005) *Interpersonal Theory of Suicide*, acquired contributors describe the habituation to fear-invoking situations, which usually includes the experience of pain, injury, or death (Klonsky & May, 2015). It is believed that trauma exposure, or painful and provocative experiences, contributes to suicide capability through habituation to pain and fearless concerning death (Van Orden et al., 2010), and the accumulation of painful and provocative experiences will then confer a greater capacity for attempting suicide (Grossman et al., 2016; Joiner, 2005; Pisetsky et al., 2017; Smith et al., 2010). In addition to MSH/A (Kimerling et al., 2007, 2016), combat exposure is another type of painful and provocative experience believed to be associated with increased suicide risk in the military. A meta-analysis of 22 published studies examined the relationship between deployment and combat exposure with risk for suicide (Bryan et al., 2015). Across all predictors and outcomes, findings revealed a 25% increased risk for suicide among service members and veterans who previously deployed ($r = .08$). However, the largest combined effect was observed for those who were exposed to killing or death during combat ($r = .12$). Even after controlling for psychiatric symptoms, those who were exposed to death or killing in combat were at a 43% increased risk for suicidal ideation, attempt, and/or death.

**Conclusions from the Literature Review**

To date, Andresen et al. (2019) is the only study to examine MSH/A-related
institutional betrayal and suicide risk among military service members and veterans who were not required to be enrolled in VA care, though most participants were discharged from military service at the time of study completion. Moreover, the risk of suicide was represented through suicidal ideation alone without accounting for suicide attempt(s), which is a critical limitation in suicide risk assessment considering many individuals who experience suicidal ideation do not attempt suicide (Nock, Borges, Bromet, Alonso, et al., 2008; Nock, Borges, Bromet, Cha, et al., 2008). Based on Bryan et al.’s (2015) meta-analysis examining suicide risk, and the 3ST framework (Klonsky & May, 2015), it is possible that MSH/A increases suicide risk by creating pain and hopelessness, institutional betrayal increases risk of suicide by disrupting MSH/A survivors’ sense of connectedness to their comrades and the military itself, and exposure to killing/death during combat relates to the progression from suicidal ideation to attempting or dying by suicide. The current study addressed the limitations in previous research and determined whether MSH/A survivors who experience institutional betrayal and exposure to killing/death during combat are at the greatest risk for attempting or dying by suicide.

**Study #2 Research Objectives and Questions**

The primary purpose of this study was to explore whether specific experiences in combat strengthened the association between MSH/A-related institutional betrayal and increased risk for attempting or dying by suicide. The purpose of this study was realized through three main objectives. The first objective assessed demographic and military characteristics, institutional betrayal, suicidal behaviors, exposure to killing and/or dying during combat, and covariates stratified by biological sex and MSH/A type. The second
objective determined which correlates increased risk for suicidal behaviors in MSH/A survivors who experienced institutional betrayal. The third objective determined whether killing and/or exposure to death during combat strengthened the relationship between more experiences of MSH/A-related institutional betrayal and suicide risk.

The first objective was accomplished through the following steps:

1. Determine sociodemographic and military characteristics of the total sample.
2. Examine group differences in suicidal behaviors and covariates of MSH/A, depression severity, alcohol abuse, PTSD severity, age, sex, race/ethnicity, and post-secondary education stratified by biological sex and MSH/A type.

The second objective was accomplished through the following steps:

1. Determine whether the number of institutional betrayal experiences increased odds of clinical suicide risk after controlling for covariates (Main Effect 1).
2. Determine whether the presence of killing/death during combat exposure heightened suicide risk in those who experienced more institutional betrayal after controlling for covariates (Main Effect 2).

The third objective was accomplished through the following step (see Figure 9).

1. Determine whether the positive relationship between institutional betrayal and clinical suicide risk was heightened when killing/death exposure during combat was present after controlling for covariates (Interaction Effect).

**Figure 9**

*Conceptual Model of Moderation*

Note. IB = institutional betrayal; # = number of experiences.
Methods

Participant Recruitment

This study used an anonymous, online survey to collect data through Qualtrics’ panels, a copy of which is provided in Appendix A. Qualtrics’ panels recruit diverse samples with high quality respondents (Ibarra et al., 2018). A recent meta-analysis compared online panel samples, such as Qualtrics’ panels, to conventionally sourced data and found that the internal reliability estimates for scales and the effect size estimates were similar (Walter et al., 2018). The comparable psychometric findings between the two sample sources offers support in the validity for this method of data collection.

Respondents were compensated by their Qualtrics’ panel provider, which prevented respondent’s personal identifiers from being linked to study data. Incentives were based on the length of the survey, respondent’s specific panelist profile, and target acquisition difficulty, amongst other factors. The specific rewards varied and may have included cash, airline miles, gift cards, redeemable points, charitable donations, sweepstakes entrance, and vouchers. There was no research-based penalty for not completing or withdrawing from the survey. However, Qualtrics’ panels provider’s policy requires participants to complete the entire survey in order to be compensated. Partial completions were not partially compensated. As such, participants were provided with a prefer not to answer option on each item of the survey, which allowed them to skip any question and still have it marked as “complete” in the survey, thus allowing for full compensation by Qualtrics’ panels.

The survey used conditional branching, which is a questionnaire design technique
that helps the respondent navigate through the survey efficiently by utilizing skip patterns to ensure that respondents are only asked questions that apply to them (Lavrakas, 2008; Norman & Pleskac, 2002). This technique allows the survey to be tailored to each respondent due to their individual characteristics and experiences, which has been found to significantly reduce the time that it takes to complete the survey (Norman & Pleskack, 2002). Conditional branching may also reduce some aspects of respondent burden, including the length of the survey, ease of responding, and comprehension of the questions. Response burden can impact data quality and increase non-responses (Chapin, 1920; Bradburn, 1978; Briz-Redón, 2021; Fricker et al., 2012, 2014; Kost & de Rosa, 2018; Lavrakas, 2008; Sharp & Frankel, 1983; Turner et al., 2007).

Two instructional manipulation checks were incorporated into the survey to measure attentiveness and to screen out respondents who chose the same response option without distinguishing the question items (i.e., non-differentiation or straight-lining; see Oppenheimer et al., 2009). The first instructional manipulation check was included in the first half of the survey while assessing sexual trauma with the SES-LFV (Koss et al., 2007), “This study seeks to improve the health and well-being of service members. Please select 0 if you are paying attention.” The second instructional manipulation check was included in the second half of the survey while assessing health-related quality of life with the VR-12 (Kazis et al., 2004; Kazis, Miller, et al., 2006; Kazis, Selim, et al., 2006): “This study seeks to improve the health and well-being of service members. Select Yes, limited a little if you are paying attention.” Respondents who failed both instructional manipulation checks were screened out of this study.
Data Collection

Seeking an approximate 50/50 male to female ratio, Qualtrics’ panels recruited participants by sending emails to those whose profiles suggested they may have experienced MSH/a and meet inclusion criteria to participate in the current study. Inclusion criteria included: (1) 18 years or older, (2) current service in the U.S. military or recent separation/discharge from U.S. military service ($\leq$ 5 years), and (3) fluency in speaking, reading, and writing English. An electronic Letter of Information provided study details for respondents who met inclusion criteria, a copy of which is provided in Appendix B. This study was approved by the Institutional Review Board at Utah State University.

Military Status Screen

Qualtrics’ panels screened for participants with U.S. military experience by inquiring about employment status: full-time employed; part-time employed; retired; unemployed, not working; current or previous U.S. military service; student; stay at home parent. Those who selected “current or previous U.S. military service” were invited to take part in the survey. The validity of participants’ self-reported military status was monitored by researchers during data collection to exclude non-U.S. military respondents. Non-military respondents were identified and excluded from the study by cross-checking several questions that assessed military history and relevant demographics, including age, total years of service, component, branch, paygrade, rank, military job title, and each job title’s associated alpha/numeric code (i.e., Military Occupational Specialty [MOS], Air Force Specialty Code [AFSC], and Navy Enlisted
Classification [NEC]).

**Sexual Trauma Screen**

This study utilized the SES-LFV (Koss et al., 2007) as a present/absent screen for MSH/A (dummy code: yes = 1, no = 0). Since a positive history of MSH/A is required to study MSH/A-related institutional betrayal, participants who endorsed a positive history of MSH/A were included in the present analyses.

**Population and Sample**

Survey data were collected from March to July 2021. Over 1,120 people responded to Qualtrics’ panel’s invitation to participate in the survey ($n = 1,127$). Of these responders, 85 were identified as non-military respondents and were screened out of this study, 7 were excluded due to careless or random responding, and 167 dropped out of the study. This left a total of 868 respondents who met inclusion criteria to participate in the study. Nearly half of these respondents read the letter of information and provided consent to participate ($n = 423$, 48.7%). Of those study completers, 21 (4.96%) participants were screened out for failing both instructional manipulation checks. Of the 402 participants remaining, 396 disclosed MSH/A and comprised the final sample.

**Measures**

Self-report questionnaires were used to assess demographic and military characteristics, suicidal behaviors, MSH/A type, institutional betrayal, depression severity, PTSD severity, exposure to killing/death during combat, and alcohol abuse. See Table 9 for an overview of the variables and measures relevant to the present study.
Table 9

**Summary of Study Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Method of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic Variables</td>
<td>Demographic Questionnaire</td>
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<tr>
<td>Age &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
<td>Age in years</td>
</tr>
<tr>
<td>Sex &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
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<td>Race/Ethnicity &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
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<td></td>
<td>Hispanic/Latinx/Spanish (no = 0, yes = 1), African</td>
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<td></td>
<td>American/Black (no = 0, yes = 1), Other (no = 0, yes = 1)</td>
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<tr>
<td>Post-secondary education &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
<td>Post-secondary education (no = 0, yes = 1)</td>
</tr>
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<td>Military Service Information</td>
<td>Military Service Questionnaire</td>
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<td></td>
<td>Marine Corps (no = 0, yes = 1), Coast Guard (no = 0, yes =</td>
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<td></td>
<td>1), Navy (no = 0, yes = 1)</td>
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<td>Component</td>
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<td>Years of service</td>
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<td></td>
<td>separated/discharged ≤ 5yrs (no = 0, yes = 1)</td>
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<td><em>Combat Exposure Scale</em></td>
</tr>
<tr>
<td></td>
<td>Total combat exposure score</td>
</tr>
<tr>
<td>Predictors and/or Outcomes</td>
<td>Instruments</td>
</tr>
<tr>
<td>History and type of sexual trauma</td>
<td><em>Sexual Experiences Survey- Long Form Victimization</em> (SES-</td>
</tr>
<tr>
<td></td>
<td><em>(table continues)</em></td>
</tr>
<tr>
<td>MSH alone &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
<td>Endorsed items 1-10 on SES-LFV, but not items of sexual</td>
</tr>
<tr>
<td></td>
<td>assault (i.e., 11-18)</td>
</tr>
<tr>
<td>MSH/A &lt;%sup&gt;^&lt;i&gt;n&lt;/i&gt;%</td>
<td>Endorsed sexual assault items 11-18 on SES-LFV (<em>note:</em></td>
</tr>
<tr>
<td></td>
<td>MSH may or may not have been experienced in this group)</td>
</tr>
<tr>
<td>Biological sex of perpetrator</td>
<td>Male only (1), female only (2), both males and females</td>
</tr>
<tr>
<td>Perpetrator characteristics</td>
<td>(3),</td>
</tr>
<tr>
<td></td>
<td>Select all that apply: fellow service member, non-U.S.</td>
</tr>
<tr>
<td></td>
<td>military service member, non-U.S. military combatant,</td>
</tr>
<tr>
<td></td>
<td>member of my unit, member in my chain of command,</td>
</tr>
<tr>
<td></td>
<td>first line leader, battle buddy, friend, acquaintance,</td>
</tr>
<tr>
<td></td>
<td>civilian, other (please specify), I don’t know the identity</td>
</tr>
<tr>
<td></td>
<td>of the individual(s)</td>
</tr>
<tr>
<td>Institutional betrayal</td>
<td><em>Institutional Betrayal Questionnaire, Version 2</em></td>
</tr>
<tr>
<td></td>
<td>Total score of institutional betrayal</td>
</tr>
</tbody>
</table>

*(table continues)*
<table>
<thead>
<tr>
<th>Variables</th>
<th>Method of assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTSD severity^</td>
<td><em>PTSD Checklist for DSM-5</em></td>
</tr>
<tr>
<td></td>
<td>Total PTSD severity score</td>
</tr>
<tr>
<td>Depression severity^</td>
<td><em>Patient Health Questionnaire-8</em></td>
</tr>
<tr>
<td></td>
<td>Total depression severity score</td>
</tr>
<tr>
<td>Suicide risk</td>
<td><em>Suicidal Behaviors Questionnaire—Revised</em></td>
</tr>
<tr>
<td></td>
<td>Clinical suicide risk (cut score ≥ 8; 0 = none, 1 = at-risk for suicide)</td>
</tr>
<tr>
<td>Exposure to killing/death during combat</td>
<td><em>Combat Exposure Scale (CES)—Items 5-7</em></td>
</tr>
<tr>
<td></td>
<td>Positive (1) negative (0) for exposure to killing/death during combat</td>
</tr>
<tr>
<td>Alcohol abuse^</td>
<td><em>Alcohol Use Disorders Test-Concise</em></td>
</tr>
<tr>
<td></td>
<td>Total score of alcohol abuse</td>
</tr>
</tbody>
</table>

^ = covariate in the present study.

The 4-item *Suicidal Behaviors Questionnaire—Revised* (SBQ-R; Osman et al., 2001) evaluated levels of suicidal risk in the present study, including lifetime suicidal ideation and attempt (item 1), frequency of suicidal ideation over the past 12 months (item 2), threat of suicide attempt (item 3), and likelihood of attempting suicide in the future (item 4). A sample item included, “Have you ever told someone that you were going to commit suicide, or that you might do it?” Each item was rated using variable response anchors and scoring weights that ranged from 1-6: item 1 rated history of suicidal behavior from 1 (*never*) to 4b (*I have attempted to kill myself, and really hoped to die*), item 2 rated frequency of suicidal ideation from 1 (*never*) to 5 (*very often [5 or more times]*), item 3 rated threat of suicide attempt from 1 (*no*) to 3b (*yes, more than once, and really wanted to do it*), and item 4 rated likelihood of future suicide attempts from 0 (*never*) to 6 (*very likely*). Total scores ranged from 3-18, and scores equal to or greater than 8 indicated significant suicide risk in clinical samples. In the present study, SBQ-R scores ≥ 8 were transformed to differentiate between at-risk (*yes = 1*) and non-
suicidal participants (no = 0; Osman et al., 2001). The SBQ-R has demonstrated good internal consistency, adequate test-retest reliability, and good construct validity. Cronbach’s alpha was .93, which indicated a high level of internal consistency for the SBQ-R in the present study.

The 21-item SES-LFV (Koss et al., 2007) examined occurrences of sexual victimization since age 14 and during the past 12 months. In the current study, however, the SES-LFV was modified for a military sample and captured unwanted sexual encounters during military service using items 1-18, which was described to respondents as “the time spent serving in the military between your date of initial entry and today’s date.” MSH was assessed using items 1-10 (e.g., “Someone made teasing comments of a sexual nature about my body or appearance after I asked them to stop”). Respondents rated items 1-10 on a 4-point frequency scale from 0 to 3+ times. Item 11 examined sexual contact (e.g., “Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt or removed some of my clothes without my consent [but did not attempt sexual penetration]”). Items 12-18 assessed attempted or completed vaginal, oral, and anal penetration (e.g., “Someone had oral sex with me or made me have oral sex with them without my consent”). The SES-LFV has been scored using a variety of methods, which have demonstrated convergent validity with sexual assault-related constructs (Davis et al., 2014). Cronbach’s alpha was .93, indicating a high level of internal consistency for the SES-LFV scale in the present study. The SES-LFV has demonstrated convergent validity with sexual assault-related constructs across a variety of scoring methods (Davis et al., 2014).
The presence (1) or absence (0) of MSH/A was determined based on the endorsement of any tactic on items 1-18, which was an inclusion criterion for the current study. The present study also differentiated between the type of sexual trauma experienced, which was dichotomized as MSH alone through the endorsement of any tactic on items 1-10 (dummy code = 0) and MSA through the endorsement of any tactic on items 11-18 (dummy code = 1). In addition, those who experienced both MSH and MSA were dummy coded as 1 and were represented by the MSA category. As such, those who experienced MSA in the present study may or may not have also experienced MSH. Participants were also asked to indicate the biological sex of the perpetrator(s) and to label characteristics of the perpetrator (e.g., fellow service member, first line leader, acquaintance).

The 15-item Institutional Betrayal Questionnaire, Version 2 (IBQ.2; Smith & Freyd, 2013, 2017) was used to assess the number of experiences of institutional betrayal related to MSH/A. With approval by Dr. Jennifer Freyd through email correspondence on January 26, 2021, the present study modified the IBQ.2 instructions to measure perceptions of MSH/A-related institutional betrayal with items 1-12 (see Monteith et al., 2016). In response to each IBQ.2 item, participants were asked to think about the “military as a larger institution” in which they belong, including “the military in general,” or smaller systems within the military (i.e., military branch, base, academy, unit). Items measured perceptions of institutional betrayal by asking participants whether the military institution played a role in the sexually traumatic experience by failing to prevent or respond supportively (e.g., “covering up the experience”). Each item was rated with a 1
(yes) or 0 (no). Items 13-15 are additional items that were not included in the total score. Item 13 asks participants, “Prior to this experience, was this an institution or organization you identified with or felt a part of?,” which was rated on a 4-point Likert scale from not at all (1) to very much (4). This study did not include items 14 (e.g., “Are you still a part of this institution?”) and 15 (e.g., “Please briefly identify the institution involved [church, school]”) because the military was the sole institution that was examined. Total scores ranged from 0 to 12 and higher scores indicated more experiences of MSH/A-related institutional betrayal. The IBQ.2 has demonstrated adequate construct validity (Reffi et al., 2018). Cronbach’s alpha was .77, which indicated an acceptable level of internal consistency for the IBQ.2 scale in the present study.

Combat exposure was assessed with the 7-item Combat Exposure Scale ([CES]; Keane et al., 1989). The CES measured wartime stressors and respondents were asked about their exposure to various combat situations. A sample item included, “Did you ever go on combat patrols or have other dangerous duty?” Items were rated according to a 5-point frequency scale from 1 (never or no) to 5 (26+ times or 51+ times), 5-point duration scale from 1 (never) to 5 (7+ months), or a 45-point degree of loss scale from 1 (none) to 45 (76% or more). Total scores ranged from 0-41 with higher scores indicating greater exposure to combat. Items 5-7 inquired how often respondents (a) fired rounds at the enemy, (b) saw someone hit by incoming or outgoing rounds, and (c) were in danger of being injured or killed. These items were dummy coded as a binary present/absent variable (present = 1, absent = 0) and was included in the present study to account for acquired contributors when examining the risk of suicidal behaviors (see Klonsky &
May, 2015). The CES has demonstrated sound psychometrics, including test-retest reliability and internal stability (Keane et al., 1989). Cronbach’s alpha was .91, which indicated a high level of internal consistency for the CES scale in the present study.

Depression symptom severity was assessed with the Patient Health Questionnaire-8 ([PHQ-8]; Kroenke & Spitzer, 2002). The PHQ-8 measures how bothered respondents have been by symptoms of depression in the past two weeks. To limit potential multicollinearity between outcomes, the PHQ-9 was scored as a truncated measure (i.e., PHQ-8), which excludes the suicidal ideation item (Kroenke & Spitzer, 2002). A sample item included, “Over the last 2 weeks, how often have you been bothered by feeling down, depressed, or hopeless?” Respondents rated the frequency of each item using a 4-point frequency scale, ranging from 0 (not at all) to 3 (nearly every day). Items were summed for a total symptom severity score ranging from 0-24, and higher scores indicate more severe depression. Cut-off scores for depression severity range from mild (≥5), moderate (≥10), and moderately-severe (≥15), and severe (≥20). Depression severity was included as a covariate in the present study. The PHQ-8 has good psychometric support as a valid and reliable measurement tool for the assessment of depression severity (Kroenke & Spitzer, 2002; Kroenke et al., 2009). Cronbach’s alpha was .86, which indicated a good level of internal consistency for the PHQ-8 scale in the present study.

PTSD symptom severity during the past month was assessed with the 20-item PTSD Checklist for DSM-5 ([PCL-5]; Weathers et al., 2013). The PCL-5 measured how bothered respondents were in reference to MSH/A. Items correspond to the PTSD
symptom clusters (Criteria B through E) in DSM-5. A sample item included: “In the past month, how often were you bothered by repeated, disturbing and unwanted memories of the stressful experience?.” Respondents rated each item on a Likert-type scale ranging from 0 (not at all) to 4 (extremely). Items were summed to create a total symptom severity score ranging from 0-80, and higher scores indicated more severe PTSD. Scores equal to or greater than 31 are indicative of a probable PTSD diagnosis (Bovin et al., 2016). PTSD symptom severity was included as a covariate in the current study. The PCL-5 has demonstrated acceptable reliability and validity among members of the military (Hoge et al., 2014). Cronbach’s alpha was .96, which indicated a high level of internal consistency for the PCL-5 scale in the present study.

Alcohol abuse was measured with the Alcohol Use Disorders Test-Concise (AUDIT-C). The AUDIT-C is a brief 3-item alcohol screen derived from the 10-item AUDIT (Saunders et al., 1993) and screened for hazardous drinking behaviors. A sample item included, “How often do you have six or more drinks on one occasion?.” Items were rated using five answer choices that correspond to a 4-point system that ranging from a to e (e.g., never = 0 to daily or almost daily = 4). Total scores range from 0-12 and higher scores suggest more levels of hazardous drinking. Scores ≥ 4 indicate alcohol abuse in men whereas scores ≥ 3 indicate alcohol abuse in women. Total alcohol abuse scores were included in the current study as a covariate. Initially validated for use in VA outpatients (Bradley et al., 2003), the AUDIT-C has demonstrated good test-retest reliability and satisfactory convergent validity (Bush et al., 1998; Watterson et al., 2018). Cronbach’s alpha was .88, which indicated a good level of internal consistency for the
AUDIT-C scale in the present study.

A demographic inventory provided information on participants’ biological sex, age, race/ethnicity, military service component, military branch, rank, discharge status, and educational attainment. From the demographic inventory, age, sex, race/ethnicity, and post-secondary education were included as covariates in the present study.

Covariates for the present study were selected according to existing research and findings from Objective #1 showing an association with suicide risk, institutional betrayal, and combat exposure (Blais & Monteith, 2018; Bryan et al., 2015; Kimerling et al., 2007; Kimerling et al., 2016; Klingensmith et al., 2014; Monteith et al., 2015). Covariates in the current study included MSH/A, depression severity, alcohol abuse, PTSD severity, age, sex, race/ethnicity, and post-secondary education.

**Analytic Plan**

The first objective examined sociodemographic and military service characteristics for the total sample and stratified by biological sex and MSH/A type. Descriptive statistics, including frequencies, means, and standard deviations, were used to describe the total sample. Zero-order correlations, t-tests, chi-square statistics, and effect sizes were used to describe group differences and to inform more complex models. The second objective, which was tested as Model 1, assessed the hypothesized process by which the total number of institutional betrayal experiences (main effect 1) and the presence of exposure to killing/death during combat (main effect 2) related to suicide risk. Next, the third research objective was tested as Model 2 and determined whether the presence of killing/death exposure during combat increased the odds of clinical suicide
risk in MSH/A survivors who experienced institutional betrayal. Models 1 and 2 adjusted for covariates of MSH/A type, depression severity, PTSD severity, alcohol abuse, age, sex, race/ethnicity, and post-secondary education. Both models were examined using hierarchical multiple binary logistic regression in 1,000 bootstrapped samples.

Institutional betrayal and the presence of killing/death exposure during combat, the predictor variables in Model 1, were zero centered to improve interpretation of main effects and then multiplied to create the interaction term (Aiken et al., 1991; Cohen et al., 2003). The 2-way interaction between the number of institutional betrayal experiences and the presence of exposure to killing/death during combat was created and assessed in Model 2 (i.e., “Institutional Betrayal x Killing/Death Exposure”). Significant interactions were probed to determine meaningfulness. Statistical analyses were conducted using SPSS Version 28 (IBM Corporation, 2021) and R (R Core Team, 2019). See Figure 10 for the statistical model of moderation that was examined in the current study.

**Figure 10**

*Statistical Model for Moderation*

<table>
<thead>
<tr>
<th>Independent variable: IB #</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderator: Combat Killing/Death</td>
</tr>
<tr>
<td>Interaction: IB x Kill/Death</td>
</tr>
<tr>
<td>Dependent variable: Clinical Suicide risk</td>
</tr>
</tbody>
</table>

*Note. IB = institutional betrayal; # = number of experiences.*
Results

Missing Values and Prefer Not to Answer

Like the first study examined in this dissertation, there were very few missing values in the present analyses. Qualtrics’ panels provider’s policy required participants to complete the entire survey to be compensated. Prior research indicates compensation and reduced respondent burden, addressed in this study through conditional branching, increases completion rates (Chapin, 1920; Bradburn, 1978; Briz-Redón, 2021; Fricker et al., 2012, 2014; Kost & de Rosa, 2018; Lavrakas, 2008; Sharp & Frankel, 1983; Turner et al., 2007). Due to a software issue during survey collection, several participants \((n = 38, 9.60\%)\) were allowed to skip the IBQ.2 items entirely. In most cases, listwise deletion was used to address missing data considering the sample did not have more than 5% item-level missingness on any measure or 10% missingness on total scale scores.

As an alternative to nonresponding, participants were provided with prefer not to answer response options, and thus, these responses were treated as “missing” in the analyses. Prefer not to answer was selected by two participants on the SBQ-R, 19 on the PCL-5, and eight on the AUDIT-C, which accounted for less than 5% of the total sample. Most participants selected prefer not to answer 1-2 times on the SBQ-R \((n = 3, 0.76\%)\), PCL-5 \((n = 19, 4.80\%)\), and AUDIT-C \((n = 8, 2.02\%)\) if they utilized the response option (range = 0 to 4). There were no statistically significant differences between those who did and did not select prefer not to answer as a response choice.

A Missing Value Analysis with Expectation Maximization (EM) estimation was conducted to examine the pattern of missingness for the SBQ-R (i.e., suicide risk), PCL-5
(i.e., PTSD severity), and AUDIT-C (i.e., alcohol abuse). Little’s MCAR test was statistically significant for the PCL-5 ($\chi^2(318) = 374.78, p = .02$). These findings suggested missingness (i.e., prefer not to answer) was not missing completely at random and should be addressed. To address missingness on the PCL-5, item-level mean imputation was used for those who selected *prefer not to answer* up to three times, which was equal to or less than 15% of the participant’s total score for PTSD symptom severity. To calculate item-level mean imputation on the PCL-5, the mean of the items actually answered were used in replace of prefer not to answer responses. Participants who selected *prefer not to answer* four or more times were excluded from analyses ($n = 4$).

There were no statistically significant differences between PTSD severity scores before ($M = 39.75, SD = 18.29$) or after ($M = 40.52, SD = 18.32$) item-level mean imputation was used ($t[312] = .74, p = .46, d = .04$).

**Objective #1: Group Differences and Posttraumatic Distress**

Chi-square tests of independence were conducted to examine group differences between biological sex (*males* = 1, *females* = 2) and MSH/A type (*MSH alone* = 1, *MSA* = 2) among the categorical demographic variables and primary variables of interest. The categorical variables included the following dummy codes: clinical suicide risk (*no* = 0, *yes* = 1), killing/death exposure during combat (*no* = 0, *yes* = 1), European/White (*no* = 0, *yes* = 1), Hispanic/Latinx/Spanish (*no* = 0, *yes* = 1), African American/Black (*no* = 0, *yes* = 1), Other Race/Ethnicity (*no* = 0, *yes* = 1), post-secondary education (*no* = 0, *yes* = 1), current service member (*no* = 0, *yes* = 1), veteran (*no* = 0, *yes* = 1), Army (*no* = 0, *yes* = 1),
Air Force ($no = 0$, $yes = 1$), Marine Corps ($no = 0$, $yes = 1$), Coast Guard ($no = 0$, $yes = 1$), Navy ($no = 0$, $yes = 1$), Active Duty ($no = 0$, $yes = 1$), National Guard ($no = 0$, $yes = 1$), Reserves ($no = 0$, $yes = 1$), commissioned officer ($no = 0$, $yes = 1$), enlisted ($no = 0$, $yes = 1$), and warrant officer ($no = 0$, $yes = 1$). Phi was calculated for variables with two levels to determine relationship strength (Glass & Hopkins, 1996; Hays, 1994).

Chi-square tests of independence assume categories are mutually exclusive and exhaustive, observations are independent, no cells have expected frequencies less than 1, and no more than 20% of the cells have expected frequencies less than 5 (Bewick et al., 2004; McHugh, 2013; Miller & Siegmund, 1982). Apart from the race/ethnicity and branch categories, these assumptions were met for each association tested. The Multiracial, Asian American, Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, Middle Eastern/North African, and prefer not to answer variables violated the expected frequency assumption with more than 20% of cells having frequencies less than 5. For instance, frequencies were as low as 0 for both the Asian American and prefer not to answer categories. As such, these race/ethnicity categories were recoded into a dichotomous Other variable ($no = 0$, $yes = 1$) to meet this assumption (Bewick et al., 2004; McHugh, 2013; Miller & Siegmund, 1982). The Navy branch variable also violated the expected frequencies assumption with more than 20% of cells having frequencies of less than 5. The expected frequency for the Navy branch variable was 3. R. A. Fisher’s (1992) exact test was used to interpret and report associations with Navy branch to address the variable’s low frequency count (Kim, 2017).

Independent samples \( t \) tests were also conducted to determine whether continuous
demographic and primary variables of interest varied by biological sex (*males* = 1, *females* = 2) and MSH/A type (*MSH alone* = 1, *MSA* = 2), including age, total years of military service, institutional betrayal total, clinical suicide risk, PTSD severity, depression severity, and alcohol abuse. Several assumptions must be met for independent t-tests, which included the independence of observations, a normal distribution of the dependent variable, and homogeneity of the standard deviation in both groups (Ross & Wilson, 2017). Cohen’s *d* was calculated as an effect size for each *t*-test to quantify the difference between groups (Cohen, 1988). The sample met assumptions of independence and normality, but Levene’s test for equal sample variances was statistically significant, which indicated the assumption of homogeneity across the two-sample variance was violated for PTSD severity (*F*[1, 311] = 9.06, *p* ≤ .01) and depression severity (*F*[1, 392] = 4.38, *p* ≤ .05) by biological sex. To address these violations, more conservative *t*-tests assuming heterogeneity of sample variances were reported.

A binary logistic hierarchical regression was used to predict the effects of institutional betrayal, killing/death exposure during combat, and covariates on the likelihood that participants are at-risk for suicide (no/yes). Logistic regression requires a binomial distribution of scores for the dependent variable, normality of residuals, no extreme outliers, the absence of multicollinearity and homogeneity of variance, and does not assume linearity between the dependent variable and independent predictors (Grimm & Yarnold, 1995). Each of these assumptions were met for Model 1 and Model 2 in the current study. Each model’s overall fit to this sample was examined using the Hosmer-Lemeshow test (Hosmer & Lemeshow, 1980; Hosmer et al., 1997, 2013) and
Sample Demographics by Biological Sex

Table 10 presents a summary of all demographic and military service characteristics for the total sample \(N = 396\) and stratified by females (47.22%) and males (52.78%). Of the 396 participants, ages ranged from 18 to 45 and the average age was 32. A majority identified their race/ethnicity as European/White (53%), Hispanic/Latinx/Spanish (33.1%), or African American/Black (7.8%). More than three quarters of the sample had attained at least some post-secondary education (77%). Relative to the 127 veterans (32.1%) in the sample, most participants were current service members (67.9%) averaging approximately 9 years of service in the military \(M = 8.93, SD = 4.03\). On average, veterans were separated or discharged from military service 2 years prior to data collection \(M = 2.0, SD = 0.94\). Most participants served in the Army (60.4%) compared to 17.2% in the Air Force, 12.9% in the Marine Corps, 5.8% in the Coast Guard, and 3.8% in the Navy. In terms of rank, participants were mostly commissioned officers (37.9%), followed by enlisted service members (33.6%), and then warrant officers (28.5%).

There were statistically significant differences between males and females across a variety of demographic and military service characteristics \(p’s\) range ≤ .001 to .05). There were more males (22.01%) than females (11.76%) in the Air Force, but more females (6.42%) than males (1.44%) in the Navy. There were also more commissioned officer females (46.52%) than males (30.14%), but more enlisted male (41.15%) than female (25.13%) service members. Of the current service members, there were a greater
### Table 10

**Means, Standard Deviations, Frequencies, and Percentages for Demographics in Total Sample and Stratified by Biological Sex**

<table>
<thead>
<tr>
<th>Sociodemographic variable</th>
<th>Total sample ((N = 396))</th>
<th>Female ((n = 187))</th>
<th>Male ((n = 209))</th>
<th>(t) test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td>32.67 6.13</td>
<td>32.71 6.06</td>
<td>32.64 6.20</td>
<td>(t(394) = -0.11)</td>
<td>(p = .92)</td>
<td>(d = -0.01)</td>
</tr>
<tr>
<td><strong>Race/ethnicity (% yes)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European/White</td>
<td>210 53.03</td>
<td>98 52.41</td>
<td>112 53.59</td>
<td>(\chi^2(1) = 0.06)</td>
<td>(p = .81)</td>
<td>(\phi = -0.01)</td>
</tr>
<tr>
<td>Hispanic/Latinx/Black</td>
<td>131 33.08</td>
<td>64 34.22</td>
<td>67 32.06</td>
<td>(\chi^2(1) = 0.21)</td>
<td>(p = .65)</td>
<td>(\phi = 0.02)</td>
</tr>
<tr>
<td>African American/Black</td>
<td>31 7.82</td>
<td>14 7.49</td>
<td>17 8.13</td>
<td>(\chi^2(1) = 0.06)</td>
<td>(p = .81)</td>
<td>(\phi = -0.01)</td>
</tr>
<tr>
<td>Other</td>
<td>24 6.06</td>
<td>11 5.88</td>
<td>13 6.22</td>
<td>(\chi^2(1) = 0.02)</td>
<td>(p = .89)</td>
<td>(\phi = -0.01)</td>
</tr>
<tr>
<td><strong>Postsecondary education (% yes)</strong></td>
<td>305 77.02</td>
<td>150 80.21</td>
<td>155 74.16</td>
<td>(\chi^2(1) = 2.04)</td>
<td>(p = .15)</td>
<td>(\phi = 0.07)</td>
</tr>
<tr>
<td><strong>Service member (% yes)</strong></td>
<td>269 67.93</td>
<td>115 61.50</td>
<td>154 73.68</td>
<td>(\chi^2(1) = 6.73)</td>
<td>(p \leq .01**</td>
<td>(\phi = -0.13)</td>
</tr>
<tr>
<td><strong>Veteran (% yes)</strong></td>
<td>127 32.07</td>
<td>72 38.50</td>
<td>55 26.32</td>
<td>(\chi^2(1) = 6.73)</td>
<td>(p \leq .01**</td>
<td>(\phi = 0.13)</td>
</tr>
<tr>
<td>Total years of service</td>
<td>8.93 4.03</td>
<td>9.04 4.19</td>
<td>8.84 3.90</td>
<td>(t(394) = -0.51)</td>
<td>(p = .61)</td>
<td>(d = -0.05)</td>
</tr>
<tr>
<td><strong>Branch (% yes)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Army</td>
<td>239 60.35</td>
<td>116 62.03</td>
<td>123 58.85</td>
<td>(\chi^2(1) = 0.42)</td>
<td>(p = .52)</td>
<td>(\phi = 0.03)</td>
</tr>
<tr>
<td>Air Force</td>
<td>68 17.17</td>
<td>22 11.76</td>
<td>46 22.01</td>
<td>(\chi^2(1) = 7.28)</td>
<td>(p \leq .01**</td>
<td>(\phi = 0.14)</td>
</tr>
<tr>
<td>Marine Corps</td>
<td>51 12.88</td>
<td>22 11.76</td>
<td>29 13.88</td>
<td>(\chi^2(1) = 0.39)</td>
<td>(p = .53)</td>
<td>(\phi = 0.03)</td>
</tr>
<tr>
<td>Coast Guard</td>
<td>23 5.81</td>
<td>15 8.02</td>
<td>8 3.83</td>
<td>(\chi^2(1) = 3.17)</td>
<td>(p = .08)</td>
<td>(\phi = 0.09)</td>
</tr>
<tr>
<td>Navy*</td>
<td>15 3.79</td>
<td>12 6.42</td>
<td>3 1.44</td>
<td>(\chi^2(1) = 6.72)</td>
<td>(p \leq .05*)</td>
<td>(\phi = 0.13)</td>
</tr>
<tr>
<td>Component*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Duty</td>
<td>225 56.82</td>
<td>115 61.50</td>
<td>110 52.63</td>
<td>(\chi^2(1) = 3.16)</td>
<td>(p = .08)</td>
<td>(\phi = 0.09)</td>
</tr>
<tr>
<td>National Guard</td>
<td>106 26.77</td>
<td>44 23.53</td>
<td>62 29.67</td>
<td>(\chi^2(1) = 1.90)</td>
<td>(p = .17)</td>
<td>(\phi = 0.07)</td>
</tr>
<tr>
<td>Reserves</td>
<td>65 16.41</td>
<td>28 14.97</td>
<td>37 17.70</td>
<td>(\chi^2(1) = 0.54)</td>
<td>(p = .46)</td>
<td>(\phi = 0.04)</td>
</tr>
<tr>
<td>Rank*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissioned Officer</td>
<td>150 37.88</td>
<td>87 46.52</td>
<td>63 30.14</td>
<td>(\chi^2(1) = 11.25)</td>
<td>(p \leq .001***)</td>
<td>(\phi = 0.17)</td>
</tr>
<tr>
<td>Enlisted</td>
<td>133 33.59</td>
<td>47 25.13</td>
<td>86 41.15</td>
<td>(\chi^2(1) = 11.35)</td>
<td>(p \leq .001***)</td>
<td>(\phi = 0.17)</td>
</tr>
<tr>
<td>Warrant Officer</td>
<td>113 28.54</td>
<td>53 28.34</td>
<td>60 28.71</td>
<td>(\chi^2(1) = 0.01)</td>
<td>(p = .94)</td>
<td>(\phi = 0.00)</td>
</tr>
</tbody>
</table>

*Note. \(d =\) Cohen’s \(d\); \(\phi =\) Cramer’s \(\phi\); ^ included in the present study as a covariate; * = \(p\)-value reflects Fisher’s Exact Test due to low cell count.*

** \(p \leq .05\)

*** \(p \leq .001\)
number of males (73.68%) than females (61.50%). Alternatively, there were more female (38.50%) than male (26.32%) veterans who were separated from service at the time of data collection.

Table 11 presents a summary of all primary variables of interest for the total sample ($N = 396$) and stratified by females ($n = 187$) and males ($n = 209$). Participants in this study experienced MSH (83.30%, $n = 330$) or MSA (74.24%, $n = 294$). Of the 330 participants who endorsed MSH, 228 (69.09%) also experienced MSA. As described in the measures section, those who experienced both MSH and MSA were included in the MSA group for analyses. As can be seen in Table 10, most participants in this sample were in the which created the MSH alone group (25.76%, $n = 102$) relative to the MSA group (74.24%, $n = 294$).

Results indicated that most survivors of military sexual trauma experienced both MSH alone and MSA (74%). Of the 396 participants in this sample, 25% experienced MSH alone, but not MSA. There were statistically significant differences between males and females regarding MSH alone and MSA ($p$’s range $\leq .01$ to $\leq .001$) in that more males (33%) than females (18%) reported MSH alone, but more females (82%) than males (67%) reported MSA. Of the 396 participants who experienced MSA, 86% endorsed institutional betrayal. On average, MSA survivors experienced two instances of institutional betrayal. Compared to males ($M = 2.54$, $SD = 1.28$), females experienced higher levels of institutional betrayal ($M = 2.85$, $SD = 1.38$). A paired samples $t$ test was also conducted to assess the amount participants’ identified with the military institution before and after the MSH/A occurred (see Figure 11). On average, MSH/A survivors
Table 11

*Means, Standard Deviations, Frequencies, and Percentages for Primary Variables of Interest in Total Sample and Stratified by Biological Sex*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Total sample (N = 396)</th>
<th>Female (n = 187)</th>
<th>Male (n = 209)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>%</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>MSH/A Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MSH only (% yes)</td>
<td>102</td>
<td>25.76</td>
<td>34</td>
<td>18.18</td>
<td>68</td>
<td>32.54</td>
</tr>
<tr>
<td>MSA (% yes)</td>
<td>294</td>
<td>74.24</td>
<td>153</td>
<td>81.82</td>
<td>141</td>
<td>67.46</td>
</tr>
<tr>
<td>MSH/A Type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional betrayal total</td>
<td>2.68</td>
<td>1.34</td>
<td>2.85</td>
<td>1.38</td>
<td>2.54</td>
<td>1.28</td>
</tr>
<tr>
<td>Clinical suicide risk (% yes)</td>
<td>172</td>
<td>43.43</td>
<td>86</td>
<td>45.99</td>
<td>86</td>
<td>41.15</td>
</tr>
<tr>
<td>Killing/death exposure (% yes)</td>
<td>301</td>
<td>76.1</td>
<td>144</td>
<td>77.00</td>
<td>157</td>
<td>75.12</td>
</tr>
<tr>
<td>Alcohol Abuse</td>
<td>5.13</td>
<td>2.63</td>
<td>5.28</td>
<td>3.31</td>
<td>5.95</td>
<td>3.20</td>
</tr>
<tr>
<td>PTSD Severity</td>
<td>40.52</td>
<td>18.32</td>
<td>41.42</td>
<td>19.93</td>
<td>39.77</td>
<td>16.89</td>
</tr>
<tr>
<td>Depression Severity</td>
<td>8.69</td>
<td>5.24</td>
<td>11.55</td>
<td>4.66</td>
<td>7.66</td>
<td>5.05</td>
</tr>
</tbody>
</table>

*Note. MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; PTSD = Posttraumatic Stress Disorder; η = Cramer’s Φ; d = Cohen’s d; * included in the present study as a covariate; × equal variances were not assumed using Levene’s Test for Equality of Variances.*

* p ≤ .05
** p ≤ .01
*** p ≤ .001


Figure 11

*Mean Identification with the Military Institution Before and After Military Sexual Harassment and/or Assault* (score range = 1-4)

![Bar chart showing mean identification with the military before and after military sexual harassment and/or assault.](chart.png)

*Note.* MSH/A = Military Sexual Harassment and/or Assault.

identified with the military less after the sexual trauma occurred ($M = 2.51$, $SD = 0.89$), relative to before ($M = 2.68$, $SD = 0.99$; $t(351)=2.11, p<.05$). Of the 396 participants in this study, 254 (64.14%) provided information about the perpetrator(s). Post-hoc descriptive analyses revealed that perpetrators were most often male and a fellow service member or unit member, battle buddy, or first line leader (see Figures 13 and 14).

As can be seen Table 11, more than 40% of participants in the current sample were at-risk for suicide and more than 75% were exposed to killing and/or death during
Figure 12

*Biological Sex of MSH/A Perpetrators*

- Male only: 143
- Female only: 33
- Both females & males: 76

Figure 13

*Common MSH/A Perpetrator Characteristics*
combat. On average, participants reported hazardous levels of alcohol abuse ($M = 5.13, SD = 2.63$), mild levels of depression severity ($M = 8.69, SD = 5.24$), and clinically significant PTSD severity ($M = 40.52, SD = 18.32$; see Table 10). Aside from alcohol abuse, there were no statistically significant differences between males and females related to suicide risk, killing/death exposure during combat, PTSD severity, and depression severity. Compared to women, men reported higher levels of hazardous drinking ($p < .05$).

**Sample Demographics by MSH/A Type**

Table 12 presents a summary of all demographic and military service characteristics stratified by MSH alone ($n = 102$) and MSA ($n = 294$). There were statistically significant differences between MSH alone and MSA across a variety of demographic and military service characteristics ($ps$ range ≤ .001 to .01). On average, men reported more MSH alone than MSA ($\phi = -0.16$) whereas women reported more MSA than MSH alone ($\phi = 0.16$). European/White ($\phi = 0.21$) and Hispanic/Latinx/Spanish ($\phi = -0.24$) participants reported more MSA, relative to MSH alone. Relative to those who experienced MSH alone, a greater number of MSA survivors attended post-secondary education ($\phi = 0.26$). Furthermore, both current service members ($\phi = 0.19$) and veterans ($\phi = 0.13$) experienced MSA, rather than MSH alone. Finally, enlisted personnel experienced higher rates of MSA, relative to MSH alone.

Table 13 presents a summary of all primary variables of interest stratified by MSH alone and MSA. Results revealed statistically significant differences between MSH alone and MSA across a variety posttraumatic distress variables ($ps \leq .001$). Relative
<table>
<thead>
<tr>
<th>Sociodemographic variable</th>
<th>MSH only (n = 102)</th>
<th>MSA (n = 294)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biological sex^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male (% yes)</td>
<td>68 (66.67)</td>
<td>141 (47.69)</td>
<td>X²(1)  = 10.63</td>
<td>p ≤ .001***</td>
<td>ø = -0.16</td>
</tr>
<tr>
<td>Female (% yes)</td>
<td>34 (33.33)</td>
<td>153 (52.04)</td>
<td>X²(1)  = 10.63</td>
<td>p ≤ .001***</td>
<td>ø = 0.16</td>
</tr>
<tr>
<td>Age^</td>
<td>33.43 (6.25)</td>
<td>32.41 (6.07)</td>
<td>t(394)=1.46</td>
<td>p = .15</td>
<td>d = 0.17</td>
</tr>
<tr>
<td>Race/ethnicity (% yes)^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>European/White</td>
<td>36 (35.29)</td>
<td>174 (59.18)</td>
<td>X²(1)  = 17.35</td>
<td>p ≤ .001***</td>
<td>ø = 0.21</td>
</tr>
<tr>
<td>Hispanic/Latinx/Spanish</td>
<td>53 (51.96)</td>
<td>78 (26.53)</td>
<td>X²(1)  = 22.12</td>
<td>p ≤ .001***</td>
<td>ø = -0.4</td>
</tr>
<tr>
<td>African American/Black</td>
<td>6 (5.88)</td>
<td>25 (8.50)</td>
<td>X²(1)  = 0.72</td>
<td>p = .40</td>
<td>ø = 0.04</td>
</tr>
<tr>
<td>Other</td>
<td>7 (6.86)</td>
<td>17 (5.78)</td>
<td>X²(1)  = 0.16</td>
<td>p = .69</td>
<td>ø = -0.02</td>
</tr>
<tr>
<td>Postsecondary education (% yes)^</td>
<td>60 (58.82)</td>
<td>245 (83.33)</td>
<td>X²(1)  = 25.70</td>
<td>p ≤ .001***</td>
<td>ø = 0.26</td>
</tr>
<tr>
<td>Service member (% yes)^</td>
<td>85 (83.33)</td>
<td>184 (62.59)</td>
<td>X²(1)  = 14.96</td>
<td>p ≤ .001***</td>
<td>ø = 0.19</td>
</tr>
<tr>
<td>Veteran (% yes)^</td>
<td>17 (16.67)</td>
<td>110 (37.41)</td>
<td>X²(1)  = 14.96</td>
<td>p ≤ .001***</td>
<td>ø = 0.13</td>
</tr>
<tr>
<td>Total years of service^</td>
<td>8.38 (3.80)</td>
<td>9.13 (4.10)</td>
<td>t(394)=-1.61</td>
<td>p = .11</td>
<td>d = -0.19</td>
</tr>
<tr>
<td>Branch (% yes)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Army</td>
<td>61 (59.80)</td>
<td>178 (60.54)</td>
<td>X²(1)  = 0.02</td>
<td>p = .90</td>
<td>ø = 0.01</td>
</tr>
<tr>
<td>Air Force</td>
<td>16 (15.68)</td>
<td>54 (18.37)</td>
<td>X²(1)  = 0.21</td>
<td>p = .64</td>
<td>ø = 0.02</td>
</tr>
<tr>
<td>Marine Corps</td>
<td>17 (16.67)</td>
<td>34 (11.56)</td>
<td>X²(1)  = 1.76</td>
<td>p = .19</td>
<td>ø = -0.07</td>
</tr>
<tr>
<td>Coast Guard</td>
<td>6 (5.88)</td>
<td>17 (5.78)</td>
<td>X²(1)  = 0.00</td>
<td>p = .97</td>
<td>ø = -0.00</td>
</tr>
<tr>
<td>Navy^</td>
<td>2 (1.96)</td>
<td>13 (4.42)</td>
<td>X²(1)  = 1.26</td>
<td>p = .37</td>
<td>ø = 0.06</td>
</tr>
<tr>
<td>Component^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Active Duty</td>
<td>66 (64.47)</td>
<td>159 (54.08)</td>
<td>X²(1)  = 3.48</td>
<td>p = .06</td>
<td>ø = -0.09</td>
</tr>
<tr>
<td>National Guard</td>
<td>25 (24.51)</td>
<td>81 (27.55)</td>
<td>X²(1)=0.36</td>
<td>p = .55</td>
<td>ø = 0.03</td>
</tr>
<tr>
<td>Reserves</td>
<td>11 (10.78)</td>
<td>54 (18.37)</td>
<td>X²(1)=3.17</td>
<td>p = .08</td>
<td>ø = 0.09</td>
</tr>
<tr>
<td>Rank^</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Commissioned Officer</td>
<td>43 (42.16)</td>
<td>107 (36.39)</td>
<td>X²(1)=1.07</td>
<td>p = .30</td>
<td>ø = -0.05</td>
</tr>
<tr>
<td>Enlisted</td>
<td>24 (23.53)</td>
<td>109 (37.07)</td>
<td>X²(1)=6.23</td>
<td>p ≤ .01**</td>
<td>ø = 0.13</td>
</tr>
<tr>
<td>Warrant Officer</td>
<td>35 (34.31)</td>
<td>78 (26.53)</td>
<td>X²(1)=2.25</td>
<td>p = .13</td>
<td>ø = -0.08</td>
</tr>
</tbody>
</table>

*Note. MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; d = Cohen’s d; ø = Cramer’s Phi; ^ included in the present study as a covariate; *a = equal variances were not assumed using Levene’s Test for Equality of Variances; *b = p-value reflects Fisher’s Exact Test due to low cell count; *** p ≤ .001; ** p ≤ .01.
to MSA, a greater percentage of MSH alone survivors experienced killing and/or death during combat. Furthermore, MSH alone survivors reported higher levels of hazardous drinking (\(d = 0.60\)), PTSD severity (\(d = 0.60\)), and depression severity (\(d = 0.67\)) compared to MSA survivors. No statistically significant differences were observed between MSH alone and MSA regarding institutional betrayal and clinical suicide risk.

**Table 13**

*Means, Standard Deviations, Frequencies, and Percentages for Primary Variables of Interest Stratified Military Sexual Harassment/Assault Type*

<table>
<thead>
<tr>
<th>Variable</th>
<th>MSH alone (n = 102)</th>
<th>MSA (n = 294)</th>
<th>t test</th>
<th>Chi-square</th>
<th>ES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional betrayal total</td>
<td>2.79 1.26</td>
<td>2.63 1.37</td>
<td>(t(356) = 1.03)</td>
<td>(p = .30)</td>
<td>(d = 0.12)</td>
</tr>
<tr>
<td>Clinical suicide risk (% yes)</td>
<td>75 73.53</td>
<td>235 79.93</td>
<td>(\chi^2(1) = 0.49)</td>
<td>(p = .48)</td>
<td>(\phi = -0.05)</td>
</tr>
<tr>
<td>Killing/death exposure (% yes)</td>
<td>96 94.12</td>
<td>205 69.73</td>
<td>(\chi^2(1) = 24.71)</td>
<td>(p \leq .001***)</td>
<td>(\phi = -0.25)</td>
</tr>
<tr>
<td>Alcohol abuse</td>
<td>6.48 2.60</td>
<td>5.91 2.23</td>
<td>(t(323) = 4.17)</td>
<td>(p \leq .001***)</td>
<td>(d = 0.52)</td>
</tr>
<tr>
<td>PTSD severity</td>
<td>48.30 15.52</td>
<td>37.71 18.47</td>
<td>(t(311) = 4.66)</td>
<td>(p \leq .001***)</td>
<td>(d = 0.60)</td>
</tr>
<tr>
<td>Depression severity</td>
<td>11.55 4.63</td>
<td>7.70 5.08</td>
<td>(t(394) = 6.75)</td>
<td>(p \leq .001***)</td>
<td>(d = 0.67)</td>
</tr>
</tbody>
</table>

*Note.* MSH alone = Military Sexual Harassment alone; MSA = Military Sexual Assault; PTSD = Posttraumatic Stress Disorder; \(d = \text{Cohen’s } d; \phi = \text{equal variances were not assumed using Levene’s Test for Equality of Variances.}*** p \leq .001.*

Figure 14 presents Pearson’s \(r\) correlation coefficients and illustrates the strength and direction of the relationships among the primary variables of interest and potential covariates. To create Figure 14, all categorical variables of interest were dummy coded into binary variables, including post-secondary education (0 = No, 1 = Yes), component (0 = Active Duty, 1 = National Guard/Reserves), branch (0 = Army, 1 = All other branches), rank (0 = Commission/Warrant Officer, 1 = Enlisted), and race/ethnicity (0 =
Figure 14

Bivariate Correlation Matrix Showing Pearson’s r among Primary Variables of Interest and Covariates

Note. Ref = reference category; MSH/A = Military Sexual Harassment and/or Assault; MSH = Military Sexual Harassment alone. The strength and direction of relationships are depicted with shaded grid squares. *** $p \leq .001$; ** $p \leq .01$; * $p \leq .05$. 
White/Caucasian, 1 = All other race/ethnicities). The continuous and binary variables of interest were unchanged for the correlation matrix presented in Table 9, including: age, total years of service, total number of institutional betrayal experiences, clinical suicide risk (0 = no, 1 = yes), killing/death during combat (0 = negative, 1 = positive), alcohol abuse, PTSD severity, depression severity, MSH/A type (0 = MSH alone, 1 = MSA), biological sex (0 = Male, 1 = Female), and discharge status (0 = Veteran, 1 = Service member).

As can be seen in Figure 14, there were a number of statistically significant relationships among the primary variables of interest and potential covariates (ps range from < .01 to .05). The coefficient of determination (i.e., \( r^2 \)) was used to assess the practical importance of these findings and illustrate the amount of variance explained between each variable. Findings revealed moderate, positive relationship between age and years of service (\( r = .54; r^2 = 29.16\% \)), PTSD and depression (\( r = .49; r^2 = 24.01\% \)), alcohol abuse and depression (\( r = .44; r^2 = 19.36\% \)), institutional betrayal and PTSD (\( r = .39; r^2 = 15.21\% \)), years separated/discharged and alcohol (\( r = .40; r^2 = 19.00\% \)), institutional betrayal and PTSD (\( r = .39; r^2 = 15.21\% \)), years separated/discharged and depression (\( r = .38; r^2 = 14.44\% \)), and age and years separated/discharged (\( r = .34; r^2 = 11.56\% \)).

Moderate, negative relationships were also observed between MSH/A and alcohol (\( r = .33; r^2 = 10.89\% \)), and MSH/A and depression (\( r = .33; r^2 = 10.89\% \)).

**Objective #2: Main Effects 1 & 2**

Table 14 presents odds ratios using adjusted binary logistic regressions of clinical suicide risk on the total number of institutional betrayal experiences, the presence of
Table 14

**Adjusted Logistic Regressions of Clinical Suicide Risk on Institutional Betrayal, Exposure to Killing/Death During Combat, and Covariates with 1,000 Bootstrapped Samples (N = 396)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE</th>
<th>p value</th>
<th>β</th>
<th>95% CI</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Model 1: Suicide Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Betrayal Total</td>
<td>0.02</td>
<td>0.14</td>
<td>.87</td>
<td>1.02</td>
<td>-0.25, 0.31</td>
</tr>
<tr>
<td>No Combat Killing/Death Exposure (ref)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Exposed to killing/death</td>
<td>-0.04</td>
<td>2.05</td>
<td>.95</td>
<td>0.96</td>
<td>-1.51, 2.19</td>
</tr>
<tr>
<td>MSH alone (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>MSA</td>
<td>-1.09</td>
<td>0.46</td>
<td>.01**</td>
<td>0.34</td>
<td>-2.12, -0.28</td>
</tr>
<tr>
<td>PTSD Severity^</td>
<td>0.02</td>
<td>0.01</td>
<td>.10</td>
<td>1.02</td>
<td>-0.00, 0.04</td>
</tr>
<tr>
<td>Depression Severity^</td>
<td>0.10</td>
<td>0.05</td>
<td>.01**</td>
<td>1.11</td>
<td>0.02, 0.20</td>
</tr>
<tr>
<td>Alcohol Abuse^</td>
<td>0.22</td>
<td>0.07</td>
<td>&lt;.001***</td>
<td>1.25</td>
<td>0.11, 0.37</td>
</tr>
<tr>
<td>Age^</td>
<td>.04</td>
<td>0.03</td>
<td>.10</td>
<td>1.04</td>
<td>-0.02, 0.10</td>
</tr>
<tr>
<td>Male (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>0.22</td>
<td>0.35</td>
<td>.51</td>
<td>1.25</td>
<td>-0.48, 0.89</td>
</tr>
<tr>
<td>European/White (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hispanic/Latinx/Spanish</td>
<td>-0.47</td>
<td>0.38</td>
<td>.18</td>
<td>0.62</td>
<td>-1.36, 0.17</td>
</tr>
<tr>
<td>African American/Black</td>
<td>-0.01</td>
<td>1.34</td>
<td>.99</td>
<td>1.00</td>
<td>-1.96, 1.85</td>
</tr>
<tr>
<td>Other</td>
<td>0.94</td>
<td>0.78</td>
<td>.17</td>
<td>2.57</td>
<td>-0.60, 2.39</td>
</tr>
<tr>
<td>High school education (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Post-secondary education</td>
<td>-1.01</td>
<td>0.48</td>
<td>.02*</td>
<td>0.36</td>
<td>-2.11, -0.21</td>
</tr>
<tr>
<td><strong>Model 2: Moderated Suicide Risk</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Institutional Betrayal Total</td>
<td>-0.29</td>
<td>0.50</td>
<td>.48</td>
<td>0.75</td>
<td>-1.83, 1.43</td>
</tr>
<tr>
<td>No Combat Killing/Death Exposure (ref)</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Exposed to killing/death</td>
<td>-0.04</td>
<td>2.05</td>
<td>.95</td>
<td>1.45</td>
<td>-3.27, 4.43</td>
</tr>
<tr>
<td>MSH alone (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>MSA</td>
<td>-1.11</td>
<td>0.44</td>
<td>.01**</td>
<td>0.33</td>
<td>-2.11, -0.40</td>
</tr>
<tr>
<td>PTSD Severity^</td>
<td>0.02</td>
<td>0.01</td>
<td>0.08</td>
<td>1.02</td>
<td>-0.00, 0.04</td>
</tr>
<tr>
<td>Depression Severity^</td>
<td>0.10</td>
<td>0.05</td>
<td>.02*</td>
<td>1.11</td>
<td>0.02, 0.21</td>
</tr>
<tr>
<td>Alcohol Abuse^</td>
<td>0.22</td>
<td>0.07</td>
<td>&lt;.001***</td>
<td>1.25</td>
<td>0.11, 0.38</td>
</tr>
<tr>
<td>Age^</td>
<td>0.04</td>
<td>0.03</td>
<td>.08</td>
<td>1.04</td>
<td>-0.01, 0.10</td>
</tr>
<tr>
<td>Male (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Female</td>
<td>0.22</td>
<td>0.38</td>
<td>.52</td>
<td>1.41</td>
<td>-0.50, 0.99</td>
</tr>
<tr>
<td>European/White (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Hispanic/Latinx/Spanish</td>
<td>-0.46</td>
<td>0.39</td>
<td>.21</td>
<td>0.63</td>
<td>-1.33, 0.24</td>
</tr>
<tr>
<td>African American/Black</td>
<td>0.00</td>
<td>1.14</td>
<td>.99</td>
<td>0.92</td>
<td>-1.99, 1.80</td>
</tr>
<tr>
<td>Other</td>
<td>0.95</td>
<td>0.76</td>
<td>.16</td>
<td>2.59</td>
<td>-0.53, 2.56</td>
</tr>
<tr>
<td>High school education (ref)^</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>Post-secondary education</td>
<td>-0.99</td>
<td>0.48</td>
<td>.02*</td>
<td>0.35</td>
<td>-2.02, -0.19</td>
</tr>
</tbody>
</table>

Institutional betrayal x killing/death exposure | 0.34 | 0.55 | .42 | 1.40 | -1.46, 4.43 |

Note. B = unstandardized beta coefficient; SE = standard error; β = adjusted odds ratio; CI = confidence interval; ref = reference category; MSH alone = Military Sexual Harassment alone; MSH/A = Military Sexual Harassment and/or Assault; PTSD = Posttraumatic Stress Disorder.

* p ≤ .05.
** p ≤ .01.
*** p ≤ .001.
killing/death exposure during combat, and covariates, including MSH/A type, PTSD severity, depression severity, alcohol abuse, age, sex, race/ethnicity, and post-secondary education. The overall regression of Model 1 was significant ($\chi^2[12] = 87.79, p \leq .001$) and the Hosmer-Lemeshow (1980) Goodness-of-Fit Test was not statistically significant ($\chi^2[8] = 8.24, p = .41$). Nagelkerke’s $R^2$ indicated approximately 40% of the variance in clinical suicide risk was accounted for by the predictors and covariates overall. After adjusting for covariates, MSH alone ($\beta = 0.34$), depression severity ($\beta = 1.11$), alcohol abuse ($\beta = 1.25$), and post-secondary education ($\beta = 0.36$) were statistically significantly associated with clinical suicide risk ($ps$ range $\leq .001$ to .05). As can be seen in Figure 15, institutional betrayal and the presence of killing and/or death during combat were unrelated to clinical suicide risk after adjusting for covariates.

Figure 15

Model 1: Nonsignificant Main Effects 1 and 2 after Adjusting for Covariates ($ps > .05$)

Note. $\beta =$ Standardized beta coefficient; IB# = Institutional Betrayal Total; Combat Killing/Death = Exposure to killing and/or death during combat.

Objective #3: Moderated Suicide Risk

The overall regression of Model 2 was significant ($\chi^2[13] = 88.24, p \leq .001$) and
the Hosmer-Lemeshow (1980) Goodness-of-Fit Test was not statistically significant ($\chi^2[8] = 7.16, p = .52$). Nagelkerke’s $R^2$ indicated approximately 41% of the variance in clinical suicide risk was accounted for by the institutional betrayal x killing/death exposure, institutional betrayal, presence of killing/death during combat, and covariates overall. After adjusting for covariates, MSH alone ($\beta = 0.33$), depression severity ($\beta = 1.11$), alcohol abuse ($\beta = 1.25$), and post-secondary education ($\beta = 0.35$) were statistically significantly associated with clinical suicide risk ($ps \leq .001$ to .05). Institutional betrayal and the presence of killing and/or death during combat remained unrelated to clinical suicide risk. As can be seen in Figure 16, the presence of killing and/or death during combat did not moderate the relationship between institutional betrayal and clinical suicide risk above and beyond covariates.

**Figure 16**

*Model 2: Nonsignificant Moderation and Main Effects 1 and 2 after Adjusting for Covariates (ps > .05)*

```
Main Effect 1: IB #
\[ \beta = 0.75 \]

Main Effect 2: Combat Killing/Death
\[ \beta = 1.45 \]

Interaction: IB x Kill/Death
\[ \beta = 1.40 \]

Clinical Suicide Risk
```

*Note.* $\beta =$ Standardized beta coefficient; IB# = Institutional Betrayal Total; Combat Killing/Death = Exposure to killing and/or death during combat; IB x Kill/Death = interaction between institutional betrayal and the presence of killing/death during combat.
Discussion for Study #2

The goal of the present study was to determine whether institutional betrayal predicted clinical suicide risk after accounting for covariates, and whether this relationship was exacerbated by the presence of killing and/or death during combat exposure. The purpose of this study was realized through three main objectives. The first objective assessed demographic and military characteristics, institutional betrayal, clinical suicide risk, killing/death exposure during combat, and covariates stratified by biological sex and MSH/A type. The second objective determined whether institutional betrayal increased risk for suicidal behaviors in MSH/A survivors. The third objective determined whether killing and/or exposure to death during combat strengthened the relationship between institutional betrayal and clinical suicide risk.

Objective #1: Group Differences and Posttraumatic Distress

On average, men and women MSH/A survivors in this study reported clinically significant levels of PTSD and mild depression severity, which is consistent with prior research (Allard et al., 2011). More than three-quarters of our sample experienced MSH/A-related institutional betrayal or were exposed to killing and/or death during combat. In addition, more than 40% of the service members and veterans who experienced MSH/A in this study were at-risk for suicide. The high rate of clinical suicide risk in this population was foreseeable considering existing literature suggests combat exposure, especially combat that involved killing and/or exposure to death, increases suicide risk (Bryan et al., 2015) and those who experience MSH/A are twice as
likely to attempt suicide or report current suicidal ideation above and beyond sociodemographic, military characteristics, and lifetime depression and PTSD (Klingensmith et al., 2014). On average, men and women in this study reported levels of alcohol abuse that were indicative of Alcohol Use Disorder (Bradley et al., 2003), which is consistent with previous studies (Kimerling et al., 2007; Surís et al., 2004; Surís & Lind, 2008). Higher rates of hazardous drinking were observed in men and MSH alone survivors, relative to women and those who experienced MSA. Rates of hazardous drinking are typically higher among men than women (Waller et al., 2015).

Our findings also revealed that men and women who experienced MSH alone reported more severe depression severity and PTSD severity when compared to MSA survivors. There is some evidence to support our finding that MSH alone may be linked to worse posttraumatic distress, such as PTSD, after controlling for physical and sexual assault (Dansky & Kilpatrick, 1997). However, this finding is at odds with most studies that compared the impact of MSH to MSA (Andresen & Blais, 2019; Andresen et al., 2019; Blais, Brignone, Fargo, et al., 2019; Blais & Geiser, 2019; Monteith, Bahraini, et al., 2016; Monteith, Holliday, et al., 2019; Schry et al., 2015; Street et al., 2008; Wolfe et al., 1998). We believe our results should be considered with the caveat that most instances of MSH/A, especially MSH alone, go unreported, particularly among men (Acosta et al., 2021; Andresen & Blais, 2019; Blais et al., 2019, 2017; Breslin et al., 2019; DoD, 2019c; 2021b; Morral et al., 2015; Wilson, 2018). As such, it is reasonable to believe that the current state of the literature does not fully reflect the negative consequences experienced by those who were subjected to MSH alone. MSH is
commonly discounted by leadership in the military, but our findings suggest this failure of duty is a harmful oversight since those who experienced MSH alone reported more hazardous drinking, PTSD severity, and depression severity.

It should also be considered that sexual violence exists on a continuum of harm that typically begins with MSH and progresses to MSA (DoD, 2019a; Firestone et al., 2012). Sexual violence rarely fits into discrete events or behaviors, and there is often overlap between experiences of sexual violence throughout an individual’s lifetime. As such, our findings could suggest that our sample experienced more severe or persistent forms of MSH alone compared to MSA. It is possible that the men and women in this study who were categorized as MSH alone survivors may have also experienced other forms of sexual assault outside of the military setting that were unaccounted for, including childhood and/or civilian sexual trauma. Multiple or previous experiences of sexual trauma have been found to confer worse harm than single incidents (Baca et al., 2021). To fully understand the specific impact of MSH/A on posttraumatic outcomes, it will be important for future research comparing the experiences of MSH and MSA to also assess and control for a lifetime history of trauma.

Based on Betrayal Trauma Theory (Freyd, 1994, 1996), the relative power that the perpetrator has over the MSH/A survivor may also play a role in posttraumatic reactions. Sexual abuse from a trusted source is more damaging than trauma at the hands of a stranger (Freyd & Birrell, 2013; Smith & Freyd, 2013, 2017). The current study found that MSH/A perpetrators were most often men and a fellow service member or unit member, battle buddy, or first line leader. Our findings support existing research that
suggests MSH/A survivors are typically traumatized by men who are meant to be trustworthy in the military context (Breslin et al., 2019; DoD, 2019a; 2021a, 2021b, 2021c; Morral et al., 2015). Furthermore, our findings revealed that MSH/A survivors identified with the military less after the trauma occurred. Consistent with the deleterious effects that MSH/A has on trust, camaraderie, morale, and military retention rates (Brownstone et al., 2018; Davis et al., 2020; Dichter & True, 2015; DoD, 2019a; Millegan et al., 2016), these findings highlight that MSH/A also damages the value that survivors place on the institution itself. Future research is needed to determine whether posttraumatic outcomes and the perception of institutional betrayal differ according to leadership characteristics.

Objectives #2 and 3: Moderated Suicide Risk

Contrary to hypotheses and previous research (Andresen et al., 2019; Monteith, Bahraini, et al., 2016), institutional betrayal did not increase suicide risk in men and women MSH/A survivors after controlling for covariates in the current study. Based on 3ST (Klonsky & May, 2015) and Joiner’s (2005) Interpersonal Theory of Suicide, it was believed that exposure to killing and/or death would create habituation to fear-invoking situations (i.e., acquired contributors), thereby increasing suicide capability (Grossman et al., 2016; Joiner, 2005; Pisetsky et al., 2017; Smith et al., 2010). Unexpectedly, and unlike a meta-analysis that suggested exposure to killing and/or death during combat increased suicide risk by 25% (Bryan et al., 2015), combat killing/death exposure did not increase suicide risk in MSH/A survivors. Although several covariates were associated with an increased risk for suicide, such as MSH alone, depression, alcohol abuse, and
post-secondary education, we did not find evidence that killing and/or death exposure during combat exacerbated the link between institutional betrayal and clinical suicide risk.

According to the 3ST (Klonsky & May, 2015), suicide risk will increase with experiences that contribute to pain, hopelessness, social connectedness, and/or the capacity to attempt suicide. Connectedness is included in the 3ST as a protective factor against suicide attempt, and it was believed that institutional betrayal may increase suicide risk through disrupted connectedness. It is possible that connectedness did not become disrupted in MSH/A survivors if they were unaware that a betrayal occurred, a concept referred to as *betrayal blindness* (Freyd, 1996).

Originating from *Betrayal Trauma Theory* (Freyd, 1994, 1996), betrayal blindness is an automatic response to trauma where an unconscious unawareness helps the individual survive abuse at the hands of a trusted individual or institution (Freyd, 1996, 1999; Freyd & Birrell, 2013). Exposure to life-threatening situations in combat, even after exposure to killing and/or death, may unconsciously incentivize MSH/A survivors to remain unaware of the betrayal trauma in an effort to survive (Freyd & Birrell, 2013), especially if they continue to operate within the institution. Withdrawing from comrades and the military environment could threaten the livelihood, functioning, and overall wellbeing of military service members. Nearly 70% of the MSH/A survivors in the present sample were current service members, and thus, dependent upon their comrades, leaders, and the military institution for ongoing safety and protection at the time of data collection. It is possible that many MSH/A survivors in the present study were blind to
the betrayal in an effort to preserve the attachments, relationships, unit cohesion, institutions, and social systems they depend on for survival. Not only does betrayal blindness add to the cycle of violence by maintaining the status quo and reinforcing the harmful environment, Freyd and Birrell argued that internal and social processes work concurrently to keep trauma survivors unaware of the abuse, which in turn, negatively impacts a survivor’s sense of identity, interpersonal relationships, and trauma recovery. It will be important for future research to examine whether betrayal blindness affects MSH/A survivors, thereby influencing the presentation of posttraumatic sequelae.

Although exposure to killing and/or death did not strengthen the relationship between institutional betrayal and attempting and/or dying by suicide, Model 1 of this study was remarkably predictive of clinical suicide risk in a military population. Forty percent of variation in suicide risk was accounted for by the permutation of predictors in this study: institutional betrayal, exposure to killing/death during combat, MSH/A type, PTSD severity, depression severity, alcohol abuse, age, sex, race/ethnicity, and post-secondary education. These findings have significant clinical implications and suggest each of these areas may be important to examine when screening the military population for those at the highest risk of suicide. Future studies are needed to assess these predictors in a longitudinal fashion to understand their predictive efficacy, however.

Limitations and Implications

This study was not without limitations. First, data were cross-sectional and inferences about causality cannot be made. Additionally, data were self-report and, as such, are subject to recall bias. Furthermore, genuine status as a current or previous
member of the U.S. military could not be confirmed since official documentation of military service was not required to participate in this study. It is important to note that all participants included in this study experienced MSH/A, and therefore, MSH/A prevalence estimates cannot be assumed. Generalizability to racial and ethnic minorities, service branches, or ranks are also limited since most participants in this study were European/White officers serving on active duty in the Army. Generalizability may also be impacted by self-selection bias. It is possible that individuals who participate in research panels, and who self-selected to complete this research may be demographically or behaviorally different than the intended sample. Finally, the PCL-5 is used to screen individuals for PTSD, assess symptom severity, and to monitor symptom changes. As such, the PCL-5 should not be used as a stand-alone diagnostic tool for PTSD (Weathers et al., 2013). The PCL-5 can determine a provisional PTSD diagnosis, but the diagnosis needs to be confirmed with further assessment. When considering a diagnosis of PTSD, the clinician should use clinical interviewing skills, and a recommended structured interview to determine whether the diagnostic criteria per DSM-5 has been met (APA, 2013), such as the Clinician-Administered PTSD Scale for DSM-5, CAPS-5 (Blake et al., 1995). It may be helpful for future studies to examine the relationship between MSH/A-related institutional betrayal and PTSD using different assessment measures.

Despite these limitations, this study highlighted several variables that were related to clinical suicide risk, including MSH alone, depression severity, and alcohol abuse. Although institutional betrayal and exposure to killing/death during combat were unrelated to suicide risk, findings of this study suggest MSH alone should not be
dismissed or minimized. Effective prevention strategies are needed to thwart MSH, thereby decreasing risk for MSA and clinical suicide risk. Moreover, results of this study indicate that it is important for future research to differentiate between different types of sexual trauma to fully understand the severity of posttraumatic outcomes in MSH/A survivors. Clinically, these findings also suggest men and women who experience MSH alone may nonetheless be at-risk for suicide and trauma-informed interventions should be utilized.
CHAPTER V
CONCLUSION

Based upon Betrayal Trauma Theory (Freyd, 1994, 1996), this two-study dissertation explored experiences of MSH/A-related institutional betrayal in an effort to identify men and women at-risk for heightened posttraumatic outcomes. Each study examined individual- and macro-level factors associated with poor mental and physical health outcomes. Online survey data were collected for this study and most of the sample (N = 396) was comprised of commissioned officers currently serving on Active Duty in the Army. Findings of both studies revealed that MSA and institutional betrayal were more commonly experienced by women, whereas MSH alone was higher among men.

The first study of this dissertation evaluated whether PTSD severity explained the relationship between MSH/A type and somatic symptom severity, and whether this relationship depended on experiences of institutional betrayal. This study also accounted for several individual-levels factors associated with the primary variables of interest, including age, sex, race/ethnicity, post-secondary education, discharge status, total years of service, component, and rank. Findings of this study revealed that MSH alone survivors’ somatic symptom severity increased when PTSD symptom severity was higher. In fact, PTSD severity explained 21% of the relationship between MSH alone and worse somatic symptom severity. Although results indicated that institutional betrayal was linked with worse somatic symptom severity and PTSD severity, feeling betrayed by the military did not exacerbate the relationships between MSH/A and posttraumatic outcomes. This study also found that somatic symptom severity was highest among
women and those who experienced MSH alone, relative to men and MSA, respectively. This study identified PTSD as a potential treatment target for MSH/A survivors suffering from somatic symptom severity. Furthermore, somatic symptoms in a military population may indicate the presence of MSH/A, thereby requiring the provision of trauma-informed care and appropriate resources.

The second of these studies examined whether exposure to killing and/or death during combat strengthened the association between institutional betrayal and increased risk for suicidal behaviors. This study also accounted for several individual-level factors associated with the primary variables of interest, including MSH/A, depression severity, alcohol abuse, PTSD severity, age, sex, race/ethnicity, and post-secondary education. Contrary to hypotheses, institutional betrayal was unrelated to clinical suicide risk, and exposure to killing and/or combat did not exacerbate this relationship. However, MSH alone was identified as an independent risk factor for clinical suicide risk in men and women. Moreover, MSH alone was linked to higher posttraumatic distress, including more severe PTSD, depression, and hazardous drinking.

Overall, results of this dissertation highlight the damaging experience of MSH alone on military service members and veterans. In general, this dissertation found that MSH alone is a risk factor for severe posttraumatic distress, including suicide risk, somatic symptom severity, PTSD severity, depression, and alcohol abuse when compared to MSA. MSH is often the precursor to MSA, but the experience goes unreported or is not taken seriously by leadership, which likely contributes to the cycle of violence and maintains the abuse (Breslin et al., 2019; DoD, 2021c). This dissertation indicates that
any type of sexual violence is demeaning and has the potential to cause mental and physical harm to both men and women, and thus, it is imperative to employ effective prevention efforts for both MSH and MSA. To-date, most research that examines MSH/A focuses on survivors and the damage that sexual trauma has on their well-being. Instead, more research is needed to understand and prevent the perpetration of MSH/A and identify factors that sustain the cycle of violence, such as the behavior of toxic leadership, a lack of accountability for perpetrators, and retaliation tactics upon disclosure of sexual trauma.
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APPENDICES
Appendix A

Survey Instrument
Military-related Health and Institutional Experiences Survey

Demographics

Q7 What is your age?

▼ 18 (1) ... 70 (53)

Q26 What was your sex assigned at birth?

〇 Male (1)

〇 Female (2)

Q130 How do you currently describe your gender identity?

〇 Man, male, or masculine (1)

〇 Transgender man, male, or masculine (2)

〇 Woman, female, or feminine (3)

〇 Transgender woman, female, or feminine (4)

〇 Gender nonconforming, genderqueer, or gender questioning (5)

〇 Other, please specify: (8)

Q132 Which categories describe you? Select all that apply to you:

American Indian or Alaska Native (e.g., Navajo Nation, Blackfeet Tribe, Mayan, Aztec, Native Village of Barrow Inupiat Traditional Government, Nome Eskimo Community) (1)
Asian American (e.g., Chinese, Filipino, Asian Indian, Vietnamese, Korean, Japanese) (2)

Black or African American (e.g., Jamaican, Haitian, Nigerian, Ethiopian, Somalian) (3)

Hispanic, Latinx, or Spanish Origin (e.g., Mexican or Mexican American, Puerto Rican, Cuban, Salvadoran, Dominican, Colombian) (4)

Middle Eastern or North African (e.g., Lebanese, Iranian, Egyptian, Syrian, Moroccan, Algerian) (5)

Native Hawaiian or Other Pacific Islander (e.g., Native Hawaiian, Samoan, Chamorro, Tongan, Fijian, Marshallese) (6)

European or White American (e.g., German, Irish, English, Italian, Polish, French) (7)

Some other race, ethnicity, or origin, please specify: (8)

Q133 Which categories describe you? Select all that apply to you:

High school diploma or equivalent (1)

Vocational training (2)

Associate’s degree (e.g., AA, AE, AFA, AS, ASN) (3)

Bachelor’s degree (e.g., BA, BBA BFA, BS) (4)

Master’s degree (e.g., MA, MBA, MFA, MS, MSW) (5)

Doctorate degree (e.g., EdD, PhD, MD, DDS) (6)
Q147 Do you consider yourself to be:

- Heterosexual or straight (1)
- Gay or lesbian (2)
- Bisexual (3)
- Pansexual (5)
- Queer (6)
- Questioning (8)
- Asexual (9)
- I identify differently. Please specify: (10)

Q148 Which social class group do you identify with?

- Poor (1)
- Working Class (2)
- Middle Class (3)
- Affluent (4)

End of Block: Demographics
Military Service Information

Q19 Please select your current branch and component of military service.

▼ Air Force - Active Duty (26) ... Navy - Reserve (37)

Display This Question:

If Please select your current branch and component of military service. = Air Force - Active Duty

Or Please select your current branch and component of military service. = Air Force - Reserve

Or Please select your current branch and component of military service. = Air Force - National Guard

Q9 What is your current rank in the Air Force?

▼ E1 - Airman Basic (1) ... O-10 General (23)

Display This Question:

If Please select your current branch and component of military service. = Army - Active Duty

Or Please select your current branch and component of military service. = Army - Reserve

Or Please select your current branch and component of military service. = Army - National Guard

Q49 What is your current rank in the Army?

▼ E1 - Private (1) ... W5 - Chief Warrant Officer 5 (27)

Display This Question:

If Please select your current branch and component of military service. = Coast Guard - Active Duty

Or Please select your current branch and component of military service. = Coast Guard - Reserve
Q50 What is your current rank in the Coast Guard?

\[ ▼ E1 - Seaman Recruit (1) ... W4 - Chief Warrant Officer 4 (23) \]

Display This Question:

If Please select your current branch and component of military service. = Marine Corps - Active Duty

Or Please select your current branch and component of military service. = Marine Corps - Reserve

Q51 What is your current rank in the Marine Corps?

\[ ▼ E1 - Private (1) ... W5 - Chief Warrant Officer 5 (26) \]

Display This Question:

If Please select your current branch and component of military service. = Navy - Active Duty

Or Please select your current branch and component of military service. = Navy - Reserve

Q52 What is your current rank in the Navy?

\[ ▼ E1 - Seaman Recruit (1) ... W4 - Chief Warrant Officer 4 (25) \]

Q28 Have you served in multiple military components/branches?

- Yes (1)
- No (2)
Q8 How many years of service do you have?

▼ Less than 1 year (4590) ... 47 years (4637)

Q11 How many times did you deploy?

▼ 1 (1) ... 5 or more (7)

Q30 Did you ever serve in a combat or war-zone?

  ○ Yes (1)

  ○ No (2)

---

End of Block: Military Service Information

Combat Exposure Scale

Q209 Did you ever go on combat patrols or have other dangerous duty?

  ○ Never (1) (1)

  ○ 1-3 times (2) (2)

  ○ 4-12 times (3) (3)

  ○ 13-50 times (4) (4)

  ○ 51+ times (5) (5)

---
Q210 Were you ever under enemy fire?

- Never (1)
- 1-3 months (3)
- 4-6 months (4)
- 7+ months (5)

Q211 Were you ever surrounded by the enemy?

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

Q212 What percentage of the service members in your unit were killed (KIA), wounded or missing in action (MIA)?

- None (1)
- 1-25% (2)
- 26-50% (3)
- 51-75% (4)
- 76% or more (5)
Q213 How often did you fire rounds at the enemy?

- Never (1) (1)
- 1-2 times (2) (2)
- 3-12 times (3) (3)
- 13-50 times (4) (4)
- 51+ times (5) (5)

Q214 How often did you see someone hit by incoming or outgoing rounds?

- Never (1) (1)
- 1-2 times (2) (2)
- 3-12 times (3) (3)
- 13-50 times (4) (4)
- 51+ times (5) (5)

Q215 How often were you in danger of being injured or killed (i.e., being pinned down, overrun, ambushed, near miss, etc.)?

- Never (1) (1)
- 1-2 times (2) (2)
- 3-12 times (3) (3)
- 13-50 times (4) (4)
- 51+ times (5) (5)

End of Block: CES
**Sexual Experiences Scale – Long-Form Version**

Q241
The next set of questions refers to different unwanted sexual experiences that you might have had *during* military service.

*We know that these are personal questions, so we do not ask your name or other identifying information. Your information is completely confidential. We hope that this helps you to feel comfortable answering each question honestly.*

Please keep this timeframe in mind as you proceed:

*During military service* is the time spent serving in the military between your date of initial entry and today’s date.

How many times has the following occurred *during* your military service?

<table>
<thead>
<tr>
<th>How many times?</th>
<th>0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3+ (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Someone stared at me in a sexual way or looked at the sexual parts of my body after I had asked them to stop. (1)</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>2. Someone made teasing comments of a sexual nature about my body or appearance after I asked them to stop. (2)</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>3. Someone sent me sexual or obscene materials such as pictures,</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>
jokes, or stories in the mail or over the Internet, after I had asked them to stop. -- Do not include mass mailings or spam. (3)

4. Someone showed me pornographic pictures when I had not agreed to look at them. (4)

5. Someone made sexual or obscene phone calls to me when I had not agreed to talk with them. (5)

6. Someone watched me while I was undressing, was nude, or was having sex, without my consent. (6)

7. Someone took photos or videotapes of me when I was undressing, was nude, or was having sex, without my consent. (7)
8. Someone showed me the private areas of their body (ex. butt, penis, or breasts) without my consent. (8)

9. Someone made sexual motions to me, such as grabbing their crotch, pretending to masturbate, or imitating oral sex without my consent. (9)

10. Someone masturbated in front of me without my consent. (10)
Q242 11. Someone fondled, kissed, or rubbed up against the private areas of my body (lips, breast/chest, crotch or butt) or removed some of my clothes without my consent (*but did not attempt sexual penetration*).

<table>
<thead>
<tr>
<th>How many times?</th>
<th>0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3+ (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to.</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening).</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
<tr>
<td>d. Using force, for example holding me down with their body weight, pinning my arms, or having</td>
<td>o</td>
<td>o</td>
<td>o</td>
<td>o</td>
</tr>
</tbody>
</table>
e. Acting together with two or more people to do these things to me even though I objected. (6)

---

**Q243**

**12. Someone had oral sex with me or made me have oral sex with them without my consent by:**

<table>
<thead>
<tr>
<th>How many times?</th>
<th>0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3+ (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Using drugs, alcohol, or other substances to incapacitate</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening). (4)

d. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. (5)

e. Acting together with two or more people to do these things to me even though I objected. (6)
Display This Question:
If What was your sex assigned at birth? = Female

Q244

13. A man put his penis into my vagina, or someone inserted fingers or objects without my consent by:

<table>
<thead>
<tr>
<th>How many times?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (1)</td>
</tr>
<tr>
<td>1 (2)</td>
</tr>
<tr>
<td>2 (3)</td>
</tr>
<tr>
<td>3+ (4)</td>
</tr>
</tbody>
</table>

- a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure. (2)

- b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to. (3)

- c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening). (4)

- d. Using force, for example
holding me down with their body weight, pinning my arms, or having a weapon. (5)

e. Acting together with two or more people to do these things to me even though I objected. (6)
Q245 14. A man put his penis into my butt, or someone inserted fingers or objects without my consent by:

| How many times? |
|-----------------|---|---|---|---|
|                 | 0 (1) | 1 (2) | 2 (3) | 3+ (4) |
| a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure. | ○ | ○ | ○ | ○ |
| b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to. | ○ | ○ | ○ | ○ |
| c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening). | ○ | ○ | ○ | ○ |
| d. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. | ○ | ○ | ○ | ○ |
e. Acting together with two or more people to do these things to me even though I objected. (6)

Q246 15. Even though it didn’t happen, someone TRIED to have oral sex with me, or make me have oral sex with them without my consent by:

<table>
<thead>
<tr>
<th>How many times?</th>
<th>0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3+ (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure. (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to. (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
I was “too drunk or out of it” to stop what was happening. (4)

d. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon. (5)

e. Acting together with two or more people to do these things to me even though I objected. (6)
**Display This Question:**

*If What was your sex assigned at birth? = Female*

**Q247 16. Someone TRIED to put fingers, objects (such as a bottle or a candle) or their penis into my vagina but stopped before genital contact after:**

<table>
<thead>
<tr>
<th>How many times?</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 (1)</td>
</tr>
<tr>
<td>1 (2)</td>
</tr>
<tr>
<td>2 (3)</td>
</tr>
<tr>
<td>3+ (4)</td>
</tr>
</tbody>
</table>

a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure. (2)

b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to. (3)

c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening). (4)

d. Using force, for example holding me down with their
body weight, pinning my arms, or having a weapon. (5)
e. Acting together with two or more people to do these things to me even though I objected. (6)
Q248 17. Even though it didn’t happen, a man TRIED to put his penis into my butt, or someone tried to stick in objects or fingers without my consent by:

<table>
<thead>
<tr>
<th>How many times?</th>
<th>0 (1)</th>
<th>1 (2)</th>
<th>2 (3)</th>
<th>3+ (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Telling lies, verbal threats, making promises known to be untrue, or using verbal pressure.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>b. Showing displeasure, criticizing my sexuality or attractiveness, getting angry but not using physical force, after I said I didn’t want to.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>c. Using drugs, alcohol, or other substances to incapacitate me (i.e., taking advantage when I was “too drunk or out of it” to stop what was happening).</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
<tr>
<td>d. Using force, for example holding me down with their body weight, pinning my arms, or having a weapon.</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
<td>☒</td>
</tr>
</tbody>
</table>
e. Acting together with two or more people to do these things to me even though I objected. (6)
Q250 Did you sustain any physical injuries to your body when these things happened to you?

- Yes (1)
- No (2)

Q252 What was the sex of the individual(s) who did these things to you?

- Male only (1)
- Female only (2)
- Both females and males (3)

Q253 Which of the following characteristics best describe the individual(s) that did this to you during military service? (Please select all that apply)

- Fellow military service member (1)
- Non-U.S. military service member (2)
- Non-U.S. military combatant (3)
- Member of my unit (4)
- Member in my chain of command (5)
- First line leader (6)
- Battle buddy (7)
- Friend (8)
Q257
Resources are available to you if you decide you would like mental health care:

Information about military sexual trauma and related VA treatment options and benefits is available at http://www.mentalhealth.va.gov/msthome.asp

End of Block: SES-LFV
**Institutional Betrayal Questionnaire, Version 2**

Q55 This section will ask you to think about the military as a larger institution to which you belong, which may or may not call to mind specific individuals. This may include large systems, such as the military in general, or an entire branch of the Armed Forces. It may also include a smaller system, such as a military academy, military base, or specific unit.

In thinking about the military sexual trauma described in the previous section (i.e., unwanted sexual contact or attention experienced *during* military service), did the **military institution** play a role by...

<table>
<thead>
<tr>
<th></th>
<th>No (0) (1)</th>
<th>Yes (1) (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Not taking proactive steps to prevent this type of experience? (1)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Creating an environment in which this type of experience seemed common or normal? (2)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Creating an environment in which this experience seemed more likely to occur? (3)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Making it difficult to report the experience? (4)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Responding inadequately to the experience, if reported? (5)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Mishandling your case, if disciplinary action was requested? (6)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Covering up the experience? (7)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>8. Denying your experience in some way? (8)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>9. Punishing you in some way for reporting the experience (e.g., loss of</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Question</td>
<td>Options</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
<td></td>
</tr>
<tr>
<td>10. Suggesting your experience might affect the reputation of the military? (10)</td>
<td>[ ] Not at all (1)  [ ] Very little (2) [ ] A good deal (3)  [ ] Very much (4)</td>
<td></td>
</tr>
<tr>
<td>11. Creating an environment where you no longer felt like a valued member of the military? (11)</td>
<td>[ ] Not at all (1)  [ ] Very little (2) [ ] A good deal (3)  [ ] Very much (4)</td>
<td></td>
</tr>
<tr>
<td>12. Creating an environment where continued membership was difficult for you? (12)</td>
<td>[ ] Not at all (1)  [ ] Very little (2) [ ] A good deal (3)  [ ] Very much (4)</td>
<td></td>
</tr>
</tbody>
</table>

Q74 13. Prior to this experience, was the military an institution or organization you identified with or felt a part of?

- [ ] Not at all (1)  
- [ ] Very little (2)  
- [ ] A good deal (3)  
- [ ] Very much (4)  

End of Block: IBQ.2
Patient Health Questionnaire – 15

Q86 During the **past 7 days**, how much have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not bothered at all (0)</th>
<th>Bothered a little (1)</th>
<th>Bothered a lot (2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stomach pain (1)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Back pain (2)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain in your arms, legs, or joints (knees, hips, etc.) (3)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Menstrual cramps or other problems with your periods (WOMEN ONLY) (4)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Headaches (5)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest pain (6)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dizziness (7)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fainting spells (8)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling your heart pound or race (9)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shortness of breath (10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain or problems during sexual intercourse (11)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symptom</td>
<td>Score 1</td>
<td>Score 2</td>
<td>Score 3</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>---------</td>
<td>---------</td>
<td>---------</td>
</tr>
<tr>
<td>Constipation, loose bowels, or diarrhea (12)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nausea, gas, or indigestion (13)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling tired or having low energy (14)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble sleeping (15)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**End of Block: PHQ-15**
PTSD Checklist for DSM-5

Q17 Below is a list of problems and complaints that people sometimes have in response to a very stressful military experience. Please read each problem carefully and mark the statement to the right to indicate how much you have been bothered by that military problem in the last month.

**In the past month, how much were you bothered by:**

<table>
<thead>
<tr>
<th></th>
<th>Not at all (0)</th>
<th>A little bit (1)</th>
<th>Moderately (2)</th>
<th>Quite a bit (3)</th>
<th>Extremely (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeated, disturbing, and unwanted memories of the stressful experience?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Repeated, disturbing dreams of the stressful experience?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Feeling very upset when something reminded you of the stressful experience?</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>Having strong physical reactions when something reminded you of the stressful experience(for</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>
example, *heart pounding, trouble breathing, or sweating)?* (5)

Avoiding memories, thoughts, or feelings related to the stressful experience? (6)

Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)? (7)

Trouble remembering important parts of the stressful experience? (8)

Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)? (9)

Blaming yourself or someone else for the stressful experience or what happened after it? (10)

Having strong negative feelings such as fear, horror, anger,
<table>
<thead>
<tr>
<th>Feeling</th>
<th>Question</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td><em><strong><strong><strong><strong><strong><strong><strong><strong>guilt, or shame? (11)</strong></strong></strong></strong></strong></strong></strong></strong></em>_____________</td>
<td>☐</td>
</tr>
<tr>
<td>12</td>
<td>_________________Loss of interest in activities that you used to enjoy? (12)</td>
<td>☐</td>
</tr>
<tr>
<td>13</td>
<td>_________________Feeling distant or cut off from other people? (13)</td>
<td>☐</td>
</tr>
<tr>
<td>14</td>
<td>_________________Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)? (14)</td>
<td>☐</td>
</tr>
<tr>
<td>15</td>
<td>_________________Irritable behavior, angry outbursts, or acting aggressively? (15)</td>
<td>☐</td>
</tr>
<tr>
<td>16</td>
<td>_________________Taking too many risks or doing things that could cause you harm? (16)</td>
<td>☐</td>
</tr>
<tr>
<td>17</td>
<td>_________________Being “super alert” or watchful, on guard? (17)</td>
<td>☐</td>
</tr>
<tr>
<td>18</td>
<td>_________________Feeling jumpy or easily startled? (18)</td>
<td>☐</td>
</tr>
<tr>
<td>19</td>
<td>_________________Having difficulty concentrating (19)</td>
<td>☐</td>
</tr>
<tr>
<td>20</td>
<td>_________________Trouble falling or staying asleep (20)</td>
<td>☐</td>
</tr>
</tbody>
</table>
Q77 If you were bothered by any problem or complaint listed above, which of the following best describes the stressful event you referenced?

- □ Unwanted sexual attention or contact during military service (1)
- □ Combat or exposure to a war-zone (e.g., hostile incoming fire, combat patrol or mission) (3)
- □ Non-combat related incident during military service (e.g., vehicular accident, physical assault or violence, training accident) (4)
- □ Non-military related event or accident (e.g., car crash, fire, hurricane, mugging) (5)
- □ I was not bothered by any of the previous problems or complaints (6)

End of Block: PCL-5
Patient Health Questionnaire – 9

Q23 Over the last 2 weeks, how often have you been bothered by any of the following problems?

<table>
<thead>
<tr>
<th>Problem</th>
<th>Not at all (0) (1)</th>
<th>Several days (1) (2)</th>
<th>More than half the days (2) (3)</th>
<th>Nearly every day (3) (4)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Little interest or pleasure in doing things (1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trouble falling or staying asleep, or sleeping too much (3)</td>
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<td>Feeling tired or having little energy (4)</td>
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<td>Poor appetite or overeating (5)</td>
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<td>Feeling bad about yourself-or that you are a failure or have let yourself or your family down (6)</td>
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<td>Trouble concentrating on things, such as reading the newspaper or watching television (7)</td>
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<td>Moving or speaking so</td>
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slowly that other people could have noticed. Or the opposite- being so fidgety or restless that you have been moving around a lot more than usual (8)

Thoughts that you would be better off dead, or after hurting yourself (9)

Q24 If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

○ Not difficult at all (1)

○ Somewhat difficult (2)

○ Very difficult (3)

○ Extremely difficult (4)

End of Block: PHQ-9
Suicide Behaviors Questionnaire – Revised

Q219 Have you ever thought about or attempted to kill yourself?

- 1. Never (1)
- 2. It was just a brief passing thought (2)
- 3a. I have had a plan at least once to kill myself but did not try to do it (3)
- 3b. I have had a plan at least once to kill myself and really wanted to die (4)
- 4a. I have attempted to kill myself, but did not want to die (5)
- 4b. I have attempted to kill myself, and really hoped to die (6)

Skip To: End of Block If Have you ever thought about or attempted to kill yourself? = 1. Never
Q220 1. Have you ever thought about or attempt to kill yourself?

- 1. Never (1)
- 2. It was just a brief passing thought (2)
- 3a. I have had a plan at least once to kill myself but did not try to do it (3)
- 3b. I have had a plan at least once to kill myself and really wanted to die (4)
- 4a. I have attempted to kill myself, but did not want to die (5)
- 4b. I have attempted to kill myself, and really hoped to die (6)

Q221 2. How often have you thought about killing yourself in the past year?

- 1. Never (1)
- 2. Rarely (1 time) (2)
- 3. Sometimes (2 times) (3)
- 4. Often (3-4 times) (4)
- 5. Very often (5 or more times) (5)

Q222 3. Have you ever told someone that you were going to commit suicide, or that you might do it?

- 1. No (1)
- 2a. Yes, at one time, but did not really want to die (2)
- 2b. Yes, at one time, and really wanted to die (3)
Q223 How likely is it that you will attempt suicide someday?

○ 0. Never (1)
○ 1. No chance at all (2)
○ 2. Rather unlikely (3)
○ 3. Unlikely (4)
○ 4. Likely (5)
○ 5. Rather likely (6)

Q224 If you are experiencing thoughts of suicide, there are many resources available to you:

Suicide Hot-line at 800-273-TALK. The Veterans Crisis Line (available 24/7) at 1-800-273-8255 (Press 1) or text 838255

You may also go to a local emergency room or find your nearest VA facility or Vet Center by using this website: https://www.va.gov/directory/guide/home.asp.

If you are in need of immediate medical or mental health attention, please contact 911.

End of Block: SBQ-R
Alcohol Use Disorders Test – Concise

Q216 How often do you have a drink containing alcohol?

- Never (0) (1)
- Monthly or less (1) (2)
- 2-4 times a month (2) (3)
- 2-3 times a week (3) (4)
- 4 or more times a week (4) (5)

Skip To: End of Block If How often do you have a drink containing alcohol? = Never (0)
Q217 How many standard drinks containing alcohol do you have on a typical day?

- 1 or 2 (0) (1)
- 3 or 4 (1) (2)
- 5 or 6 (2) (3)
- 7 to 9 (3) (4)
- 10 or more (4) (5)

Q218 How often do you have six or more drinks on one occasion?

- Never (0) (1)
- Less than monthly (1) (2)
- Monthly (2) (3)
- Weekly (3) (4)
- Daily or almost daily (4) (5)

End of Block: AUDIT-C
Debrief and Resources

Q22 Thank you for participating in this research. We greatly appreciate your willingness to take part in this anonymous survey. The information obtained in this study is expected to help us better understand traumatic experiences and post-traumatic reactions among U.S. military service members. The overall goal of this research is to better inform policy, treatment, and prevention efforts related to sexual violence experienced during military service.

Several resources are available to you if you decide you would like mental health care. The Department of Defense and the Department of Veterans Affairs offers psychological treatment for post-deployment or military-related distress. The Veterans Crisis Line is also available 24/7 at 1-800-273-8255 (Press 1) or text 838255. If you are experiencing thoughts of suicide, you may contact the Suicide Hot-line at 800-273-TALK. You may also go to a local emergency room or find your nearest VA facility or Vet Center by using this website: https://www.va.gov/directory/guide/home.asp. If you are in need of immediate medical or mental health attention, please contact 911.

Information about accessing care at Vet Centers is available at 1-877-927-8387 and http://www.vetcenter.va.gov/index.asp

Information about military sexual trauma and related VA treatment options and benefits is available at http://www.mentalhealth.va.gov/msthome.asp

The Rape, Abuse, and Incest National Network (RAINN) operates a 24/7, toll free hotline and chat which links callers to the nearest RAINN-associated rape crisis center and can assist survivors in obtaining services: 800-656-HOPE (800-656-4673) and https://www.rainn.org/

End of Block: Debrief and Resources
Appendix B

Letter of Information
Military Experiences and Health Outcomes Study

Introduction
You are invited to participate in a research study conducted by Dr. M. Scott DeBerard, Ph.D. and Felicia Andresen, M.A. in the Department of Psychology at Utah State University. The purpose of this research is to examine U.S. service members’ health and wellbeing, as well as stressful or traumatic experiences that may have occurred during military service, including sexual harassment, and/or assault. Your participation, including the amount of information you share about your health and personal experiences, is entirely voluntary.

This form includes detailed information on the research to help you decide whether to participate. Please read it carefully and ask any questions you have before you agree to participate.

Procedures
Your participation will involve the completion of a 20-minute or less anonymous survey. You will be asked to complete a series of questionnaires inquiring about your demographic and military service characteristics and experiences, history of combat, sexual trauma, mental and physical health, and alcohol use. We anticipate that 400 people will participate in this research study. The survey is conducted by Qualtrics, which is an online survey company that uses encryption and passwords to maintain confidential records of study participation. You will be compensated according to your agreement with your panel provider, which occurs completely separate from this research study.

Before you read this form, you responded to some questions regarding eligibility criteria for the current study (i.e., status as a current service member, English fluency, over 18 years old) and a question asking whether you experienced sexual harassment and/or assault during your military service. Researchers will maintain that data if you agree to enter the full study.

Risks
This is a minimal risk research study. That means that the risks of participating are no more likely or serious than those you encounter in everyday activities. The foreseeable risks include emotional discomfort or distress while answering some of the questions. In order to minimize those risks and address discomfort, the researchers will provide you with immediate and long-term resources that are available to you outside of this research study. Since we cannot identify who you are or provide treatment, you are encouraged to download a copy of this document to obtain the list of resources provided, even if you decide to withdraw from the study. You are welcome to stop being part of the study at any time or skip any question you choose. Online data collection always carries the risk that data could be lost or revealed to others. As such, we have made every effort to ensure your anonymity during your participation.

Several resources are available to you if you decide you would like additional support and/or treatment:

- If you are experiencing thoughts of suicide, contact the Suicide Hot-line at 800-273-TALK.
  - The Veterans Crisis Line is also available 24/7 at 1-800-273-8255 (Press 1) or text 838255.
  - You may also go to a local emergency room or find your nearest VA facility: https://www.va.gov/find-locations/
  - If need immediate medical or mental health attention, please contact 911.
- Military OneSource - Mental Health Resources for Active Duty, Reserve, and National Guard service members and veterans: https://www.militaryonesource.mil/health-wellness/mental-health/mental-health-resources/
CURRICULUM VITAE

FELICIA J. ANDRESEN (VANDENEST)
fja.andresen@gmail.com | 507.380.9905

EDUCATIONAL BACKGROUND

PhD in Combined Clinical/Counseling Psychology—APA Accredited
Utah State University (USU), Logan, UT
Dissertation Title: Institutional Betrayal Related to Sexual Trauma in Military Service Members: An Examination of Posttraumatic Sequelae
Dissertation Chair: Scott DeBerard, Ph.D.

Clinical Internship—APA Accredited
Veterans Affairs Portland Health Care System (VAPORHCS), Oregon

Master of Arts in Clinical Psychology
Minnesota State University (MNSU), Mankato, MN
Master’s Thesis: Bullying in Senior Living Facilities: A Qualitative Study
Thesis Chair: Jeffrey Buchanan, Ph.D.

Bachelor of Science in Psychology (Summa Cum Laude)
Minor: Sociology
MNSU, Mankato, MN

COMPETITIVE AWARDS

<table>
<thead>
<tr>
<th>Award Description</th>
<th>Year</th>
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<tr>
<td>Anthony LaPray Scholarship ($1,000, USU)</td>
<td>April 2020</td>
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<tr>
<td>Division 19 Student Research Grant ($1,500, APA)</td>
<td>January 2020</td>
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<tr>
<td>Division 19 Student Travel Award ($750, APA Society for Military Psychology)</td>
<td>May 2017</td>
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<tr>
<td>Psi Chi Winter Unrestricted Travel Grant ($1,135.69, MNSU)</td>
<td>Fall 2015</td>
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<tr>
<td>Creating a Strong &amp; Vibrant Community Grant ($750, MNSU)</td>
<td>March 2015</td>
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<tr>
<td>Special Funding for Research Travel Grant ($344.21, MNSU)</td>
<td>May 2014</td>
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</tbody>
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CLINICAL EXPERIENCE

Psychology Intern
Primary Care and Mental Health Integration (PCMIH)
Clinical Supervisors: Vanessa Hara, PsyD & Mary Steers, PhD (Licensed Providers); Claire Boyer, PsyD.
Direct contact hours: 120 | Supervision hours: 65 | Other support hours: 405
Responsibilities:
- Provided same-day access to behavioral health services by conducting functional assessments from the clinic’s PACT teams using the 5-A model
- Provided time-limited, problem-focused treatment consisting of 1-6 sessions of psychotherapy (30-minute appointments)
- Shared timely feedback to PACT teams about patient diagnoses, treatment, and follow-up plans.
- Regularly engaged in measurement-based care to inform case conceptualization and monitor clinical outcomes using a variety of assessment instruments:
  - Columbia-Suicide Severity Rating Scale (C-SSRS)
  - Alcohol Use Disorders Identification Test-Concise (AUDIT-C)
  - Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)
  - Generalized Anxiety Disorder—7 (GAD-7)
Psychology Intern

Substance Abuse & Treatment Program (SATP)
Licensed Clinical Supervisors: Wendy Johnson, Ph.D. & Pamella Howard, Psy.D.
Direct contact hours: 116.5 | Supervision hours: 65 | Other support hours: 527
Responsibilities:

- Worked as a member of a multidisciplinary team by presenting cases and engaging in weekly staff meetings, in-service training, consultation, and coordinating patient care
- Conducted biopsychosocial assessments, treatment planning, focused assessments and/or case management (including monitoring of Urine Drug Screens and Breathalyzer exams) for Substance Use Disorders (SUD)
- Provided psychoeducation and a variety of evidence-based practices in individual, couples, and group therapy, including Behavioral Couples Therapy, Dialectical Behavior Therapy, Cognitive Behavioral Therapy for SUD, and motivational interviewing
- Regularly engaged in measurement-based care to inform case conceptualization and monitor clinical outcomes using a variety of assessment instruments:
  - Brief Addiction Monitor-Revised (BAM-R)
  - Columbia-Suicide Severity Rating Scale (C-SSRS)
  - Alcohol Use Disorders Identification Test-Concise (AUDIT-C)
  - Primary Care PTSD Screen for DSM-5 (PC-PTSD-5)
  - Patient Health Questionnaire—2 (PHQ-2)
- Maintained timely and accurate documentation
- Carried an approximate weekly caseload of 5 individual clients, 1 couples therapy case (co-facilitator), and 1-2 groups (co-facilitator)
- Participated in weekly didactic training and seminars

Psychology Intern

PTSD Clinical Team (PCT)
Licensed Clinical Supervisors: Cassi Franklin, Ph.D. & Daniel Levinson, Ph.D.
Direct contact hours: 162.50 | Supervision hours: 78.50 | Other support hours: 494
Responsibilities:

- Worked as a member of a multidisciplinary team by presenting cases and engaging in weekly staff meetings, in-service training, consultation, and coordinating patient care
- Conducted comprehensive PTSD assessments and engaged in measurement-based care using a variety of assessment instruments:
  - Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)
  - PTSD Checklist for DSM-5 (PCL-5)
  - Patient Health Questionnaire—9 (PHQ-9)
  - Columbia-Suicide Severity Rating Scale (C-SSRS)
- Provided psychoeducation, Prolonged Exposure, Cognitive Processing Therapy, and Imagery Rehearsal Therapy in individual and group therapy settings
- Maintained timely and accurate documentation
- Carried an approximate caseload of 8 individual clients (weekly/biweekly) and co-facilitated 1-2 groups (weekly)
- Participated in weekly didactic training and seminars
- Provided 20- to 25-minute presentation on “Military Sexual Trauma-Related Institutional Betrayal” to PCT
- Engaged in program development by updating PCT’s Policy and Procedures Manual
Student Therapist/Practicum Student 2020-2021
VA Salt Lake City Health Care System: PTSD Assessment
Licensed Clinical Supervisor: Jason Goodson, Ph.D.
Direct contact hours: 29 | Supervision hours: 25.5 | Other support hours: 60
Responsibilities:
- Conducted weekly PTSD assessments using the Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)
- Generated comprehensive PTSD assessment reports, diagnoses, and referrals

Student Therapist/Graduate Assistant (20 hours/week) 2019-2020
USU Behavioral Health Clinic: Acceptance & Commitment Therapy (ACT)
Licensed Clinical Supervisor: Mike Twohig, Ph.D.
Direct contact hours: 325 | Supervision hours: 79.75 | Other support hours: 162.25
Responsibilities:
- Provided individual psychotherapy to adult community mental health clients using ACT
- Conducted comprehensive assessments and routine outcome monitoring using a variety of assessment instruments:
  - Diagnostic Interview for Anxiety, Mood, and OCD and Related Neuropsychiatric Disorders (DIAMOND)
  - Mini International Neuropsychiatric Interview (MINI), Minnesota Multiphasic Personality Inventory—2 (MMPI-2)
  - Mini Mental Status Exam II (MMSE-2)
  - Acceptance and Action Questionnaire II (AAQ-II)
  - Generalized Anxiety Disorder—7 (GAD-7)
  - Patient Health Questionnaire—9 (PHQ-9)
  - Outcome Questionnaire—45.2 (OQ-45.2)
- Generated diagnoses, integrative reports, and referrals with supervisor
- Carried an approximate caseload of 10 clients per week
- Participated in weekly didactic training

Student Therapist/Graduate Assistant (20 hours/week) 2018-2019
USU Student Health and Wellness Center
Licensed Clinical Supervisor: Scott DeBerard, Ph.D.
Direct contact hours: 288.75 | Supervision hours: 59.50 | Other support hours: 354.25
Responsibilities:
- Provided brief psychotherapy, stress management and coping skills, and psychoeducational skills training
- Brief screening and assessment using PHQ-9, GAD-7, and AAQ-II
- Consulted with medical providers on medication side effects, case conceptualization, and treatment planning and adherence
- Conducted suicide risk assessment and created safety plans
- Generated recommendations, diagnoses, and/or referrals to specialty mental health care
- Carried an approximate caseload of 18 clients per week
- Participated in weekly didactic training
- Trained using cognitive behavior therapy (CBT), ACT, and behavioral activation
- Provided applied clinical practice presentations: Behavioral Activation; Sleep Hygiene
- Appointed as student liaison between primary care team, clinical supervisor, and practicum team
- Participated in multidisciplinary staff meetings

Student Therapist/Practicum Student 2017-2018
USU Psychology Community Clinic
Licensed Clinical Supervisors: Scott DeBerard, Ph.D. and Sara Boghosian, Ph.D.
Assessment Supervisor: Marietta Veeder, Ph.D.
Direct contact hours: 100.50 | Supervision hours: 101 | Other support hours: 188
Responsibilities:

- Provided individual psychotherapy to community mental health clients, including children and adult populations
- Generated integrative reports, recommendations, and/or diagnoses with supervisor(s)
- Carried an approximate caseload of 7 clients per week
- Trained using ACT, CBT, dialectical behavior therapy, motivational interviewing, behavioral activation, and exposure therapy
- Participated in weekly didactic training and seminars
- Conducted a comprehensive case presentation

**CLINICAL WORKSHOPS AND PRESENTATIONS – ATTENDED**

- **The Latest on Dialectical Behavior Therapy and Marsha's Memoir**
  - February 2020
  - Sheila Crowell, Ph.D.
  - Utah Center for Evidence Based Treatment, Salt Lake City, UT

- **Focused Acceptance and Commitment Therapy: The Basics and Beyond**
  - April 2019
  - Kirk Strosahl, Ph.D.
  - Utah State University, Logan, UT

- **Advanced ACT: Doing Experiential Work Without Exercises**
  - August 2018
  - Matthieu Villatte, Ph.D., & Jennifer Villatte, Ph.D.
  - Utah State University, Logan, UT

- **Introduction to ACT & ACT Experiential Workshop**
  - August 2017
  - Michael P. Twohig, Ph.D., & Eric Lee, M.A.
  - Utah State University, Logan, UT

**PEER-REVIEWED JOURNAL ARTICLES**


**PUBLISHED ABSTRACTS**


**PROFESSIONAL PRESENTATIONS – ORAL**


**PROFESSIONAL PRESENTATIONS – POSTER**


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**REVIEW EXPERIENCE**

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<td>Military Psychology</td>
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<tr>
<td>Behavior Therapy</td>
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<td>Behavior Analysis- Research and Practice</td>
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**GRANT REVIEW**

| USU Graduate Enhancement Award | Spring 2019 |
| MNSU Fall/Spring Undergraduate Research Center Grant | 2014-2016 |

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**RESEARCH EXPERIENCE**

**Research Assistant** 2020-2022

Health Psychology and Behavioral Medicine Lab (USU)
Supervisor: Scott DeBerard, Ph.D.
Responsibilities:
- Constructed participant surveys
- Prepared IRB proposals
- Cleaned, entered, analyzed, and organized data

**Research Assistant** 2016-2020

Military Social Science Lab (USU)
Supervisor: Rebecca Blais, Ph.D.
Responsibilities:
- Prepared grants, scholarships, professional presentations, and manuscripts for publication
- Constructed participant surveys
- Prepared IRB proposals
- Cleaned, entered, analyzed, and organized data
- Assisted in study recruitment procedures
- Managed longitudinal data collection and compensation
- Coordinated and managed participant communication
**Research Assistant/Practicum Student**  
Minneapolis VA Medical Center  
Supervisor: Melissa Polusny, Ph.D.  
Responsibilities:  
- Scanned participant surveys and extracted data  
- Assisted with recruitment and data collection procedures for ADAPT4U clinical trial

**Research Assistant**  
Gerontology Research Team (MNSU)  
Supervisor: Jeffrey Buchanan, Ph.D.  
Responsibilities:  
- Developed participant interviews and manage data collection  
- Entered, cleaned, analyzed, and organized data  
- Prepared IRB proposals  
- Prepared manuscripts for publication  
- Conducted paired stimulus preference assessments

**Research Assistant**  
Cognitive Psychology Research Team (MNSU)  
Supervisor: Karla Lassonde, Ph.D.  
Responsibilities:  
- Developed participant survey  
- Entered, analyzed, and organized data  
- Managed participant recruitment and compensation

**Research Assistant**  
Sexual Health Research Team (MNSU)  
Supervisor: Eric Sprankle, Psy.D.  
Responsibilities:  
- Managed participant compensation and debrief procedures

**TEACHING EXPERIENCE**

**Teaching Assistant**  
PSY 3210: Abnormal Psychology (USU)  
PSY 1010: General Psychology (USU)  
PSY 3460: Neuroscience I (USU)  
PSY 5200: Interviewing Psychology (USU)  
Supervisor: Heath Earl, Ph.D.  
Responsibilities:  
- Taught three guest lectures: *Process-Oriented Group Therapy: The Here-and-Now* (5200); *Suicide* (1010); *Generativity: The Work of Adulthood* (1100)  
- Provided feedback on writing assignments  
- Managed student grades and emails

**Teaching Assistant**  
PSY 3210: Abnormal Psychology (USU)  
Supervisor: Michael Twohig, Ph.D.  
Responsibilities:  
- Proctored exams  
- Provided feedback on exams and studying techniques  
- Managed student grades and emails

**Teaching Assistant**  
PSY 3210: Abnormal Psychology (USU)
Supervisor: Rebecca Blais, Ph.D.

Responsibilities:

- Taught two guest lectures: Stress and Anxiety Disorders; Suicide
- Held weekly office hours and managed student grades
- Conducted exam review sessions
- Provided feedback on exams and studying techniques

LEADERSHIP

- Served on the student selection committee to interview Dean candidates for USU’s Emma Eccles Jones College of Education and Human Services March 2021
- Peer-elected graduate student representative, USU Combined PhD Program 2018-2019
  - Organized and led regular student meetings
  - Developed and facilitated weekly writing groups
  - Attended monthly faculty and Director of Clinical Training meetings
  - Presented to the first-year cohort on imposter syndrome, stress management, self-care, and goal setting
- Created and provided graduate school application workshops for USU student veterans across three regional campuses in Utah 2017-2018

RELEVANT WORK EXPERIENCE

Graduate Assistant (20 hours/week) July 2020-June 2021
USU Combined Clinical/Counseling PhD Program
Supervisors: Michael Levin, PhD and Renee Galliher, PhD
Responsibilities:
- Worked directly with the director and associate director of clinical training (Drs. Levin and Galliher) in collecting data for accreditation and maintaining quality of clinical training for the Combined Clinical/Counseling PhD program.

Graduate Assistant (20 hours/week) 2014-2016
Undergraduate Research Center ([URC], MNSU)
Supervisor: Karla Lassonde, URC Director
Responsibilities:
- Assisted in the planning and coordination of the annual MNSU Undergraduate Research Symposium
- Managed quarterly research grant applications
- Peer-reviewed undergraduate research grant proposals
- Provided grant writing workshops for undergraduate students
- Promoted undergraduate research for MNSU Honors Program
- Helped coordinate with local, regional, and national research events (e.g., National Conference on Undergraduate Research, Posters on the Hill)
- Managed URC website and email

Resilience Trainer Assistant 2015-2016
Minnesota Army National Guard, 134th Brigade Support Battalion
Supervisor: Captain Matthew Alken, Company Commander
Responsibilities:
- Educated Soldiers at the unit- and squad-level to be more resilient by teaching classes and facilitating smaller group discussions.
- Provided skills in emotion awareness and regulation, impulse control, de-catastrophizing, putting it in perspective, effective communication, challenging negative beliefs, problem solving, and real time resilience.
Operations and Training Sergeant (E6; Staff Sergeant) 2007-2016
Minnesota Army National Guard, 134th Brigade Support Battalion
Supervisor: Sergeant First Class Kevin Lund
Responsibilities:
- Provided purpose, direction, and motivation to junior enlisted Soldiers while working to accomplish the mission and improve the organization
- Supervised tasks and evaluated performance of junior enlisted Soldiers
- Accountable for $400,000+ worth of sensitive items and equipment on deployment
- Assisted in operational planning, training, and readiness at the battalion and brigade level
- Identified and mitigated risks to personnel and equipment as the Battalion Safety Officer

COMMUNITY/PROFESSIONAL SERVICE

- Provided local, unsheltered homeless individuals with donated care packages and community resources in Cache Valley, UT, January 2019
- Provided resident companion visits to assist in daily activities and promote activity engagement at Ecumen Pathstone Living, Mankato, MN, 2014-2015
- Assisted in participant registration, event set-up, and clean up for the Walk to End Alzheimer’s at Sibley Park in Mankato, MN, Fall 2014
- Assisted the Department Service Officer for the Disabled American Veterans (DAV) in speaking with inpatient Veterans about their hardships and wellbeing at VA Medical Centers, November 2013
- Participated in Veteran’s Day event to interact and spend time with the children at Park Side Elementary School in Marshall, MN, Fall 2010
- Organized and participated in quarterly fundraisers for Veteran’s families at Southwest Minnesota State University, Marshall, MN, 2009-2011

CERTIFICATIONS
LGBTQA Allies on Campus Training (USU Access & Diversity Center) February 2018

COMMITTEES
Multicultural & Diversity Committee (VAPORHCS) July 2021-Present

PROFESSIONAL MEMBERSHIPS – STUDENT MEMBER
International Society for Traumatic Stress Studies 2019-Present
Association for Contextual Behavioral Science 2018-Present
Association for Behavioral and Cognitive Therapies 2018-Present
Military Psychology (Division 19), American Psychology Association 2017-Present
American Psychological Association 2016-Present
Psi Chi 2013-Present