THE ASSOCIATION OF MILITARY SEXUAL TRAUMA SEVERITY WITH RISKY AND
SUICIDAL BEHAVIORS: RISK FACTORS FOR PREMATURE MORTALITY EXAMINED
THROUGH AN INTERPERSONAL THEORY

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The Association of Military Sexual Trauma Severity with Risky and Suicidal Behaviors: Risk Factors for Premature Mortality Examined through an Interpersonal Theory

Thesis directed by Associate Professor Elizabeth Allen

ABSTRACT

Risky and suicidal behaviors are global health concerns as well as of great interest in military populations. The current study examined the associations between military sexual trauma (MST) severity, risk taking, and suicide risk among veterans. The interpersonal psychological theory (IPT) of suicidal behavior provided a model by which to understand the potential associations of MST severity with risky and suicidal behaviors. Specifically, interrelationships among higher levels of MST severity, shame, and IPT constructs (perceived burdensomeness, thwarted belongingness, and acquired capability) were expected to predict a greater risk for premature mortality (risky and suicidal behaviors). These associations were examined in a sample of 59 veterans, with a history of MST. Forty-six percent of this survivor sample endorsed suicidal ideation and ten percent reported at least one suicide attempt, within the past year. Relationships among the variables were explored with bivariate correlations, two-way and three-way interactions, exploratory factor analysis, and within a structural equation model. Results indicated that MST severity, via shame, was indirectly associated with higher levels of MST survivors’ total perceived burdensomeness and thwarted belongingness, risky behaviors, and post-MST suicidal ideation. The significance of greater levels of shame for MST survivors’ increased risk for risky and suicidal outcomes and how it relates to perceived burdensomeness and thwarted belongingness are discussed. This study adds to the current
research, with the results suggesting clinicians target shame and interpersonal difficulties in their efforts to improve veterans’ long-term health outcomes following exposure to MST.

The form and content of this abstract are approved. I recommend its publication.

Approved: Elizabeth Allen
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CHAPTER I

INTRODUCTION

The Association of Military Sexual Trauma Severity with Risky and Suicidal Behaviors:

Risk Factors for Premature Mortality Examined through an Interpersonal Theory

Veterans are at a higher risk for a number of mental and physical health problems, compared to the general population (e.g., Drescher, Rosen, Burling, & Foy, 2003; Kasprow & Rosenheck, 2000). For example, veterans are at an increased likelihood of: substance use (Johnson et al., 2013), posttraumatic stress disorder (Johnson et al., 2013), traumatic brain injury (Bahraini et al., 2014), and suicidal thoughts and attempts (RAND, 2011; Kemp & Bossarte, 2012; Rudd, Goulding, & Bryan, 2011). In addition, veterans are at greater risk for liver disease (Weiner, Richmond, Conigliaro, & Wiebe, 2011), lung cancer and circulatory diseases (Bedard & Deschénes, 2006), chronic pain (Olenick, Flowers, & Diaz, 2015) and disabilities from exposure to Agent Orange (Erdtmann, 2015; Olenick, Flowers, & Diaz, 2015). These findings are particularly concerning given that increased mental and physical health problems significantly predict premature mortality (Calitz, Pollack, Millard, & Yach, 2015; Vreeland, 2007). Veterans’ risk for prematurity mortality above the civilian population is of great national concern. Understanding veterans’ premature mortality risk requires further exploration into the unique experiences which they endure.

Research has begun to investigate the disparities between veterans and civilians’ risk for premature mortality. In an examination of cause of death among male Vietnam veterans who sought PTSD treatment, Drescher and colleagues (2003) found that 62.4% of all deaths were accounted for by possibly preventable behavioral causes, including accidents (29.4%), chronic substance abuse (14.7%), and intentional death by suicide, homicide, or police (13.8%). In
addition, Weiner and colleagues (2011) conducted a respective cohort study comparing the mortality rates of veterans receiving inpatient treatment following a suicide attempt during 1993-1998 at a Veterans Affairs (VA) medical facility, to the general U.S. adult population. The authors found that the cumulative mortality risk in the veterans was three times greater than expected within the U.S. civilian cohort matched on age and sex. Weiner and colleagues (2011) suggest that veterans are a unique community, compared to civilians, and prevention efforts should not only target suicide risk, but also major chronic diseases and unintentional injuries.

Risky and suicidal behaviors (e.g., non-suicidal self-injury, non-fatal suicide attempts) are concerning health outcomes for veterans, especially because they are risk factors for premature mortality.

Complicating the research is the paradox of “the healthy soldier effect.” The rigorous physical and mental examinations given upon entering the military would suggest that military personnel should be generally healthier than their civilian counterparts upon beginning their service, which has been found to be true (Seltzer & Jablon, 1974; Bollinger et al., 2015; Weiner, Richmond, Conigliaro, & Wiebe, 2011). However, Waller and McGuire (2011) described that there was an excess of death by suicide and motor vehicle accidents that negated the expected healthy soldier effect for a prolonged life expectancy compared to civilian counterparts. Similarly, Bollinger and colleagues (2015) reported no support for the expected lower mortality from the healthy soldier effect among Operation Enduring Freedom, Operation Iraqi Freedom, and Operation New Dawn (OEF/OIF/OND) veterans. Both studies suggest that post-deployment risky behaviors, such as risky driving, may be one of the factors contributing to these veterans’ premature mortality and requires further examination. In addition, the unique influences
contributing to risky and suicidal behaviors for veterans have not been completely understood and addressed.

Thus, it is important to recognize specific factors that increase risk for premature mortality among veteran populations. Military sexual trauma (MST) is a distinct military experience that is hypothesized, for this study, to be associated with veterans’ engagement in risky and suicidal behaviors.

**Military Sexual Trauma and Associated Sequelae**

In 2002, the U.S. Department of Veterans Affairs (VA) instituted a national screening program in which all veterans enrolled in VA healthcare are assessed for MST. The standard Veteran Health Administration (VHA) MST screening includes two questions that determine if a veteran experienced sexual harassment and/or sexual assault while in the military (Department of Veteran Affairs, 2010). The VA identified MST as a priority for research after results demonstrated that approximately 1 in 4 women and 1 in 100 men screen positive for MST (VA, 2015b; Yano et al., 2006). Although the rate of MST for women is significantly higher than men, the numbers of MST survivors by gender are similar due to the significantly greater percentage of men who have served in the military. In addition, these estimates only account for veterans seeking services at a VA who were willing to disclose MST when screened by a VA healthcare provider. Supporting the VA reports regarding men, but not limited to VA help-seeking veterans, are data from the longitudinal Millennium Cohort Study. In this study, Millegan and colleagues (2016) found that among 37,711 servicemen, one percent reported recent sexual harassment and 0.2 percent reported recent sexual assault. In terms of rates for women, earlier research found that as many as 63 percent of servicewomen reported sexual harassment and 43 percent experienced attempted rape during their military service (Fontana & Rosenheck, 1998), which
are even higher rates than found by more recent research. This could be indicative of the high number of false negatives reported with standardized screenings, which may be in part influenced by the sensitive nature of the questions and the stigma associated with MST. Accurate knowledge of the rates and prevalence of MST uncovers the number of veterans at heightened risk for mental and physical health problems.

On average, MST is associated with lower levels of mental and physical health for both men and women (e.g., Klingensmith et al., 2014; Millegan et al., 2016; O’Brien & Sher, 2013, Surís & Lind, 2008). However, there may be differences in the specific types or intensity of such problems after MST for men compared to women. For example, Kimerling and colleagues (2007) found gender differences among male and female MST survivors in physical and mental health sequelae despite similar characteristics in age, race/ethnicity, and marital status. Of the physical and mental health conditions evaluated, MST was most strongly associated with PTSD in both men and women. However, alcohol use and anxiety disorders, including PTSD, were significantly more common among female survivors of MST compared to male survivors of MST. In contrast, men who reported MST had a higher prevalence of adjustment disorders, bipolar disorders, and schizophrenia or other psychotic disorders compared to women who reported MST. Dissociative, eating, and depressive disorders were similarly prevalent in both men and women survivors of MST (Kimerling et al., 2007). In addition to differences examined among men and women MST survivors, studies have found that the association between MST and negative health issues, such as posttraumatic stress disorder (PTSD), depression, and suicidal ideation and attempt, remain significant after controlling for other types of abuse (e.g., childhood abuse; Suris et al., 2007) and combat (Kang, Dalager, Mahan, & Ishii, 2005; Luterek, Bittinger,
& Simpson, 2011; Monteith et al., 2015). These findings suggest that MST is an important correlate of adverse mental and physical health, including risk for premature mortality.

Given the extensive mental and physical health correlates of MST, it is perhaps not surprising that it is also associated with suicidal thoughts and behaviors. Indeed, MST is significantly associated with increased risk for self-directed violence, identified as “behavior that is self-directed and deliberately results in injury or the potential for injury to oneself” (CDC, 2013, p. 21). Veterans who screen positive for MST are more likely to have a history of suicidal ideation and attempts, relative to those who screen negative (e.g., Bryan, Bryan, & Clemans, 2014; Kimerling et al., 2016; Monteith, Menefee, Forster, Wanner, & Bahraini, 2015; Pavao et al., 2013). Kimerling and colleagues (2016) described that male and female veterans who screened positive for MST were significantly more likely to die by suicide compared to veterans who did not report MST. This effect remained significant even after adjusting for age, rural residence, medical morbidity, and mental health diagnoses, although the effect size was not as large. Furthermore, MST was associated with recent suicidal ideation after adjusting for exposure to combat in a recent study of OEF/OIF/OND veterans (Monteith et al., 2015).

Understanding the associations between MST and suicidal behaviors may have a direct link to prevention efforts regarding premature mortality in veterans. For example, offering additional points of intervention for MST survivors while still engaged in the Armed Forces may mitigate an increased risk for engaging in risky and suicidal behaviors for these individuals. Similarly, continued efforts to identify and support veteran survivors of MST is warranted, for those enrolled and not enrolled in the VA.

To determine the factors that are associated with MST survivors’ increased risk for premature mortality, the context and culture in which it occurs must be considered. Generally,
active duty military servicemembers, Reserve and National Guard, and veterans may be at an elevated risk for suicide due to unique stressors experienced compared to civilian populations (Pease, Billera, & Gerard, 2015; Morin, 2011). Military culture includes distinct values, traditions, hierarchies, and codes of conduct that greatly differ from civilian culture, in addition to the possible distress of deployment, exposure to combat and killing, and military-related physical and psychological injuries (Coll, Wiess, & Yarvis, 2011; Pease, Billera, & Gerard, 2015; Denneson et al. 2015). Military traditions, hierarchies, and code of conduct may also create an environment which inhibits reporting of MST, with several studies stating that survivors are encouraged to keep quiet (Monteith et al., 2018a; Pavao et al., 2013). According to the Department of Defense (2011), approximately 80 to 90 percent of military sexual assaults are unreported while in the service. If the individual does not disclose, he or she is left to manage with the long-term effects silently and likely continues to work alongside the perpetrator. If an individual does report MST, reports are also often ignored or retaliated against (Burgess, Slattery, & Herlihy, 2013), which further encourages survivors to keep silent. Additional research is needed on the association of MST with risk factors for premature mortality, and potential mediators such as thwarted belongingness, perceived burdensomeness, shame, and acquired capability to engage in lethal self-harm. The reasons these constructs were chosen is further described below.

**Active Duty Military and Veteran Risky Behaviors**

Before exploring such mediators, it is important to fully understand the range of behaviors considered to be risk factors for premature mortality. While research has begun to explore the relationship between MST and suicide, little is known about the association between MST and risky behaviors specifically. However, military suicide research includes several
studies on specific types of risky behaviors, to understand veterans’ general propensity for risk-taking (e.g., Sheppard and Earleywine, 2013; Thomsen et al., 2011; Rosen et al., 2008). Operationalizing risky behavior is difficult given the wide range of behaviors identified as risky and the diverse definitions for each of those. According to Strom and colleagues (2012), risky behavior is defined as purposeful engagement in behavior that may result in a negative consequence or loss. Engagement in the following types of risky behaviors will be explored for the purpose of this study: risky driving, unsafe sexual behavior, substance use, and non-suicidal self-injury.

Risky driving is rampant within military populations. Risky driving includes racing cars, riding a motorcycle without a helmet, drinking and driving, driving aggressively, and carrying a firearm in the vehicle while driving. Research varies widely with reports that 14.8 to 77.8% of servicemembers and veterans report engaging in risky driving (Kuhn et al., 2010; Strom et al., 2012; Sayer et al., 2010; Fear et al., 2008; Sheppard & Earleywine, 2013; Borders, McAndrew, Quigley, & Chandler, 2012). An examination of National Guard members found that the prevalence of risky driving was significantly greater in soldiers with a history of mental health problems, deployment to a combat area, deployment related traumatic events, and combat stress (Hoggatt et al., 2015). Given the high rates of vehicular accidents and deaths in veteran and active duty populations, risky driving appears to have a direct link to these populations’ increased risk for premature mortality. The likelihood of engaging in one type of risky behavior is also associated with a greater likelihood to engage in another, including that of risky sexual behavior.

Risky sexual behavior is positively associated with sexual trauma history in both military and civilian populations (Johnson & Johnson, 2013; Lang et al., 2003). Risky sexual behaviors
are described as increasing the likelihood for contracting or transmitting disease or the occurrence of an unwanted pregnancy. These behaviors include unprotected sex, promiscuity, and unreliable methods of birth control. Borders and colleagues (2012) found that in a sample of mostly male recently returned veterans, 20% had unsafe sex within the past month alone. In addition, research supports that increased risky sexual behavior often occurs concurrently with substance use (Wray et al., 2015). Among female veterans, a lifetime history of sexual assault is associated with higher levels of substance use and risky sexual behaviors (Lang et al., 2003).

In fact, substance use is yet another risky behavior that is found consistently higher within military samples compared to civilian counterparts (Hoerster et al., 2012). Between 2004 and 2006, surveys by the Substance Abuse and Mental Health Services Administration (SAMSHA) reported that 7.1% of veterans met criteria for a substance abuse disorder in the past year (SAMSHA, 2014). Risky substance use is generally associated with premature mortality, and this has been explicitly examined in veterans, with links found between veterans’ substance use and increased risk for suicide (Chapman & Wu, 2014) and medical disease (Possemato, Wade, Anderson, & Ouimette, 2010). In addition, women engaging in risky substance use were reported to be at higher risk for premature mortality than men (Lindbald et al., 2016). Thus, greater risk for premature mortality in veterans may be partially attributable to engaging in more risky behaviors.

As noted above, there are significant overall connections between substance use and risky sexual behavior in veterans. Another established link is between substance use and aggressive behaviors (Dowd, 1998). Relatedly, veterans engage in self-aggressive behavior or self-directed violence more than civilians. Researchers fail to agree on whether self-injurious behaviors such as non-suicidal self-injury (NSSI; e.g., cutting, pulling hair, picking at scabs) and suicide
attempts should be included in the study of risky behaviors. The literature supports a distinction between NSSI as a unique risky behavior in a study comparing individuals with NSSI history to those utilizing an “indirect” method of self-injury (e.g., abusive relationships, substance abuse, or other risky behaviors), and a control group (Germain & Hooley, 2012). The NSSI group was more self-critical, scored higher on suicide proneness, and reported more suicide attempts than the “indirect” self-injury and control groups. In studies of NSSI in military and veteran samples, NSSI was positively associated with PTSD symptoms (James, Strom, & Leskela, 2014), greater trauma exposure, more combat support deployments, being female, and suicide ideation, attempts, and planning (Bryan & Bryan, 2014).

Thus, the literature supports that veterans engage in an increased rate of risky behaviors, such as risky driving, unsafe sexual behaviors, substance use, and non-suicidal self-injury, compared to their civilian counterparts. However, few studies have considered multiple types of risky behavior in their research. There is also a gap in the literature on the specific types of risk-taking behaviors among MST survivors. Identifying and appropriately attending to the specific types of risky behaviors that MST survivors engage in has important implications for preventing veterans’ risk for premature death, including suicide and accidents. In addition, understanding risky and suicidal behaviors of MST survivors within a theoretical model will provide a basis for prevention and intervention recommendations regarding reducing the risk for premature mortality.

**The Interpersonal Psychological Theory of Suicidal Behavior**

In both military and civilian cultures, the interpersonal psychological theory (IPT) of suicidal behavior (Joiner, 2007) offers a model by which to understand predictors of suicide. This theory focuses on three distinct constructs: thwarted belongingness, perceived
burdensomeness, and acquired capability for suicide. Thwarted belongingness refers to when the “need to belong” is unmet. Perceived burdensomeness comprises two dimensions of interpersonal functioning – beliefs that the self is so flawed as to be a liability to others, and affectively-laden cognitions of self-hatred. Together, thwarted belongingness and perceived burdensomeness are theorized to lead to a desire for death (Joiner, 2007; Van Orden et al., 2010). The third construct is acquired capability for lethal self-harm, or suicide. Acquired capability for suicide is comprised of both increased physical pain tolerance and reduced fear toward death. It is theorized that this occurs through habituation and exposure to physically painful and/or fear-inducing experiences (Joiner, 2007). Through repeated exposure, an individual can habituate to the physically painful and fearful aspects of self-harm, making it more possible for him or her to engage in increasingly painful, physically damaging, and lethal forms of self-harm.

The IPT posits that individuals with high levels of thwarted belongingness and perceived burdensomeness are at risk for suicidal ideation. However, it is those who also have increased acquired capability who are at an increased risk for lethal (or near lethal) suicide attempts. Essentially, the acquired capability facilitates suicidal action in the context of the desire to die or from suicidal ideation arising from thwarted belongingness and perceived burdensomeness. The constructs of the IPT have received support in studies of civilian, active duty, and veteran populations (Bryan, Clemans, & Hernandez, 2012; Bryan, Morrow, Anestis, & Joiner, 2010; Brenner et al., 2008; Monteith et al., 2013). IPT has also been recently examined in a sample of 92 female veterans with a history of MST (Monteith, Bahraini, & Menefee, 2017). The authors reported significant associations for perceived burdensomeness and fearlessness toward death with suicidal ideation in the past week and highlighted the importance of continued research of the IPT model with MST survivors.
In addition, the IPT constructs have been associated with not only suicidal behaviors, but also different types of risky behaviors such as substance use and risky sexual behaviors (Woerner, Kopetz, Lechner, & Lejuez, 2016). In a series of studies examining induced thwarted belongingness, results included higher levels of aggressive behaviors (Twenge, Baumeister, Tice, & Stucke, 2001), reduced prosocial behaviors (Twenge, Baumeister, DeWall, Ciarocco, & Bartels, 2007), greater unhealthy life choices, and accident proneness (Twenge, Catanese, & Baumeister, 2002). Similarly, perceived burdensomeness on the family was significant in predicting self-injurious behaviors among patients with alcohol and drug abuse (Al-Sharqi, Sherra, Al-Habeeb, & Qureshi, 2012). Interpersonal difficulties, specifically thwarted belongingness and perceived burdensomeness, are proposed to be dynamic factors and when these states are prolonged, their relationship to suicidal ideation is theorized to be strengthened (Van Orden et al., 2010). As previously described, MST is strongly associated with a history of suicidal ideation. Therefore, for the current study it was hypothesized that MST severity will predict higher levels of thwarted belonging and perceived burdensomeness, possibly mediated by shame.

Perceived burdensomeness is described as having two dimensions of interpersonal functioning, which includes 1) the belief the individual is flawed to the degree which he or she is a liability to others and 2) emotionally overloaded cognitions of self-hatred (Van Orden et al., 2010). Shame is of particular interest as it is significantly associated with sexual trauma (DeCou et al., 2017) and suicidal ideation in a military population (Bryan, Ray-Sannerud, Morrow, & Etienne, 2013; Bryan, Morrow, Etienne, & Ray-Sannerud, 2013), and is a common theme in suicide notes (Foster, 2003). Furthermore, in recent qualitative studies of male MST survivors, shame was often expressed by survivors who also experienced suicidal ideation (Monteith et al.,
According to the IPT, shame is theorized to be associated with feelings of burdensomeness and indirectly related to suicidal ideation (Joiner, 2007; Van Orden et al., 2010). The relationship between shame and perceived burdensomeness has not been empirically evaluated to date. In the current study, it is hypothesized that shame will mediate the association between MST severity and perceived burdensomeness.

Painful and provocative events, such as childhood maltreatment, repetitive physical and sexual abuse history, combat exposure, and previous suicide attempts have been theorized to increase the risk for lethal and near lethal suicidal behaviors, as such physically painful and frightening experiences theoretically increase acquired capability for suicide (Joiner, 2007). In a qualitative study of veterans recently returning from deployment, Brenner and colleagues (2008) coded themes that supported the salience of painful and provocative events potentially linked to acquired capability for suicide among veterans, finding that these are often painful experiences related to military training and experience. In the current study, it is expected that MST severity, which may indicate greater levels of painful and frightening experiences, will be associated with higher levels of acquired capability for suicide. In turn, acquired capability for suicide is also hypothesized to interact with thwarted belongingness and perceived burdensomeness, with higher levels of all three in combination predicting an increased likelihood for risky and suicidal behaviors.

**Considerations in Military Research**

In addition to the hypothesized links delineated above, it is also important to consider the interplay of gender and military experience variables which may also shape the associations of MST with the variables of interest in this study (VA, 2015a). Gender and combat exposure have been shown to be important in regard to clinical implications for MST, suicide, and risky
behavior research. Military women are more likely to be sexually assaulted by a fellow service member than to be killed in combat (Kamarck, 2015), which further demonstrates the significantly increased risk women are at for MST. In addition, male and female risk taking is exhibited differently. For example, men are more likely to engage in risky health/safety behaviors compared to women (Rolison, Hanoch, Wood, & Liu, 2013). Lastly, engagement in suicidal behaviors and risk for death by suicide differs by gender. Both veterans and individuals who die by suicide are more likely to be male (Kemp & Bossarte, 2012). Male veteran MST survivors are also more likely to report suicidal ideation as compared to female veteran MST survivors (Monteith et al., 2016). However, female veterans are six times more likely to die by suicide than their civilian counterparts (Hoffmire, Kemp, & Bossarte, 2015). These findings are important to consider when examining MST survivors’ risk for premature mortality.

Combat exposure has also been of interest to research in the recent wars, with a number of studies on risky behaviors focused on combat exposure (Thomsen et al., 2011; Sheppard & Earleywine, 2013; Killgore et al., 2008). In support of the recent conflicts, 65% of OIF soldiers and 46% of OEF soldiers reported engaging in combat (Hoge et al., 2004). In suicide research, the evidence has varied regarding the impact of combat on risk for suicide and requires further exploration on the experiences the individual had while in combat and beyond exposure (LeardMann et al., 2013; Reger et al., 2015; Bryan et al., 2015; Bryan et al., 2010). Due to the possible influence of gender and combat on the outcomes evaluated in this study, the relationships between the study variables and gender and combat exposure are important to explore.

**Hypotheses for the Current Study**

The current study has five hypotheses.
H1: Greater MST severity will predict higher levels of shame, perceived burdensomeness, thwarted belongingness, acquired capability for suicide, suicidal ideation, and risky and suicidal behaviors. In terms of risky and suicidal behaviors, greater MST severity will specifically predict a higher likelihood of engaging in post-MST risky health and safety behaviors, risky drug and alcohol use, non-suicidal self-injury (NSSI), and suicide attempts.

H2: A two-way interaction of perceived burdensomeness and thwarted belongingness will predict a history of post-MST suicidal ideation. Specifically, the posited positive relationship between perceived burdensomeness and suicidal ideation will be stronger at high levels of thwarted belongingness compared to low levels of thwarted belongingness.

H3: A three-way interaction of perceived burdensomeness, thwarted belongingness, and acquired capability for suicide will predict a history of post-MST suicide attempts, non-suicidal self-injury, risky health and safety behaviors, and risky drug and alcohol use. Specifically, high levels of perceived burdensomeness, thwarted belongingness, and acquired capability in combination will predict a greater likelihood for risky and suicidal behaviors.

H4: Higher levels of risky health and safety behaviors, alcohol use, and drug use, and endorsement of post-MST NSSI and post-MST suicide attempt will predict a one-factor latent variable, risk for premature mortality.

H5: The association between MST severity and perceived burdensomeness will be at least partially mediated by shame.

The preceding hypotheses are seen as building toward a larger model which is based on the conceptual framework for this study (e.g., IPT). Figure 1 presents the conceptual pathways guided by the literature reviewed above in which: (a) MST severity directly predicts greater levels of shame, perceived burdensomeness, thwarted belongingness, and acquired capability, (b)
a two-way interaction of perceived burdensomeness and thwarted belongingness predicting a history of post-MST suicidal ideation, (c) a three-way interaction of the IPT constructs predicting post-MST suicide attempts and engagement in risky behaviors, (d) MST severity and perceived burdensomeness at least partially mediated by shame, and (e) perceived burdensomeness, thwarted belonging, and acquired capability each predicting a latent factor representing behavioral risk factors for premature mortality (i.e., risky and suicidal behaviors).

Hypotheses 1-5 are conceptualized as a sequence of tests which may or may not ultimately support this model. Therefore, the actual model to be tested in this study will be planned based on the results obtained as the basic analyses of Hypotheses 1-5 are completed. Furthermore, the best-fitting model will depend on iterative tests of measurement and structural indices. That is, the model presented in Figure 1 is largely conceptual and theoretical, whereas the actual model(s) to be ultimately tested will be empirically informed by the preceding analyses. As the analyses proceed, the conceptual model of Figure 1 will continue to operate as an orienting framework as much as possible, although specific paths and/or latent constructs may evolve.

Given the relevance of combat exposure and gender to a number of constructs in the current study, the association of these variables with other study constructs will also be explored.
CHAPTER II

METHODS

Participants and Procedures

Veterans aged 18 to 89 with a history of MST (as defined by VA; 38 USC §1720D, U.S. Government, 2014) who were eligible to receive Veteran Health Administration (VHA) care were recruited and eligible to enroll. Recruitment procedures consisted of posting flyers at community events and in VA settings and contacting veterans who provided their information to the lab with an interest to be recruited for future research. The flyers ranged in wording and images to attract male and female participants. Eligibility was determined utilizing a brief telephone screen, including the VHA MST screening questions. The standard VHA MST screening questions to assess history of MST asked were: (a) “While you were in the military, did you receive any uninvited and unwanted sexual attention, such as touching, cornering, pressure for sexual favors, or inappropriate verbal remarks?”; (b) “While you were in the military, did anyone ever use force or the threat of force to have sexual contact with you against your will?” (Department of Veteran Affairs, 2010, p. 1). Permission was requested to review participants’ VA medical records to determine MST screening history and the presence of psychiatric disorders.

A positive MST screen within the VA medical record was not an inclusion criterion on account of the likelihood for false negatives. Veterans who answered affirmative to either MST question during the telephone screen described above were considered positive for MST. Exclusion criteria included imminent risk for suicide, severe psychiatric symptoms (e.g., active psychosis), or severe cognitive impairment. This was determined by a review of each veteran’s medical record and clinical judgment by the team during the screening process. The local VA
Research and Development (R&D) Committee and Colorado Multiple Institutional Review Board (COMIRB) approved the research protocol. Upon completion of participation, participants were compensated and provided information on VA MST services.

A total of 59 veteran participants were included in this study, with 31 (52.5%) reporting an affiliation to the Army, 16 (27.1%) Air Force, 13 (22.0%) Navy, 3 (5.1%) Marines, and 2 (3.4%) Reserves. The percentages equate to more than one hundred percent, as participants were able to indicate service with more than one branch. The sample was predominately cisgender female (55.9%), with 37.3% reporting as cisgender male, 5.1% transgender, and 1.7% intersex. The participants ranged in age from 22 to 73 (M=50.05; SD=12.54). The racial distribution was 66.1% White/Caucasian, 15.3% Black/African American, 5.1% Native American/Native Alaskan, 1.7% Pacific Islander, 6.8% Multiracial, and 5.1% “Other”. The veterans reported serving during the following military eras: 1.7% Post-Korean War, 20.3% Vietnam War, 61% Post-Vietnam War (Peacetime), 39% Desert Storm, and 18 (30.5%) Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn. In addition, 54.2% reported a history of deployment, with 22% having been in combat.

Measures

Demographics

The veterans completed a brief demographic questionnaire that assessed age, sex, race, and ethnicity. Military specific demographic information included branch(es) of service, service era(s), deployment history (i.e., “How many times were you deployed?”), and combat exposure (i.e., “Have you been in combat?”).
MST Severity

**Sexual Harassment Scale (SHS)**

The SHS is Section K-2 labeled “Relationships during Deployment” within the Deployment Risk and Resiliency Inventory-2 (DRRI-2), Items 9-16 (Vogt et al., 2013). The DRRI-2 was created within the VA National Center for PTSD. Research utilizing the DRRI-2 is limited in MST research. The SHS assesses exposure to unwanted verbal conduct of a sexual-nature or unwanted sexual contact while in the military. The perpetrator may be other unit members, commanding officers, or civilians encountered during deployment (Vogt et al., 2013). The eight items are rated on a Likert scale from 1 (“Never”) to 4 (“Many times”), with a total score ranging from 8 to 32. Higher scores represent greater MST severity. A sample item from the SHS is: “During deployment, the people I worked with made crude and offensive sexual remarks directed at me, either publicly or privately.” The original DRRI-2 measure is specific to the “most recent deployment.” However, for this study, an amended version was included that measured the same eight items for “While you were in the military.” This modification was made to capture experiences of MST throughout military service, as opposed to only during one’s most recent deployment. The SHS was found to be highly reliable with this sample ($\alpha=.88$).

**Risky and Suicidal Behaviors**

Engagement in risky and suicidal behaviors was measured by four self-report assessments.

**Domain-Specific Risk-Taking Scale – Health and Safety Subscale (DOSPERT-HS)**

The DOSPERT is a 30-item self-report questionnaire assessing the likelihood of engaging in risk-taking in five content domains: financial decisions, health/safety, recreational, ethical, and social (Blais & Weber, 2006). For the purpose of this study only the Health/Safety
subscales was included. This subscale is comprised of six items from the following risk-taking behaviors supported in the literature review: risky driving, risky sexual behaviors, risky substance use in a social setting, and a disregard for personal safety. The DOSPERT instructs participants to rate the likelihood that they would engage in specific risky activities using a 7-point Likert rating scale ranging from 1 (“Extremely Unlikely”) to 7 (“Extremely Likely”), with summed scores ranging from 6 to 42 for the Health/Safety subscale. Higher scores represent an increased likelihood of engaging in health/safety risky behaviors. An example item from the DOSPERT-HS is: “Please indicate the likelihood that you would engage in the described activity or behavior if you were to find yourself in that situation: Engaging in unprotected sex” (Blais & Weber, 2006). Test-retest reliability for the Health/Safety subscale has been estimated at 0.75, and the subscale has shown concurrent validity with behavioral risky assessments (such as counts of alcohol and drug use; Blais & Weber, 2006). In the current sample, the DOSPERT-HS was reliable with an alpha coefficient of .85.

**The Alcohol Use Disorders Identification Test Consumption (AUDIT-C)**

The AUDIT-C is a brief three-item screening for risky drinking and possible alcohol abuse (Bush et al., 1998). This measure was initially developed as a screening tool for problematic drinking in male VA primary care patients. However, it has since been validated in non-VA primary care settings and the US general population (Bradley et al., 1998; Daeppen, Yersin, Landry, Pécout, & Decrey, 2000). The AUDIT-C is scored on a scale of 0 to 12; summed for the purpose of this study. The higher the score on the AUDIT-C, the more likely the individual’s drinking is affecting his or her safety. The three items assess how often the individual drinks alcohol, how many standard drinks are consumed on a typical day, and how often he or she is having six or more drinks in one occasion (binge drinking). The participants
were prompted to answer the questions as they are relevant to him or her within the last 12 months or year. The reliability and validity of the AUDIT-C were supported by comparing the AUDIT-C with the AUDIT within a health questionnaire (H-AUDIT) and the AUDIT used as a single scale (S-AUDIT) in 332 non-VA primary care patients (Daeppen, Yersin, Landry, Pécoud, & Decrey, 2000). In the current sample, the AUDIT-C was reliable with an alpha coefficient of .85.

**The Drug Use Disorders Identification Test (DUDIT)**

The DUDIT is a validated 11-item self-report measure that assesses drug use (Berman et al., 2005). The measure includes a list of commonly abused drugs, such as sedatives, hypnotics, analgesics, and prescription medications, and notes not to consider alcohol when answering the questions. The DUDIT offers a scaled response for each item on behavioral frequency to provide a more comprehensive description of use compared to a dichotomous yes/no option found in many other drug use instruments. An example question item is: “How often are you influenced heavily by drugs?” The corresponding scaled responses items for this question are: “Never”, “Less often than once a month”, “Every month”, “Every week”, “Daily or almost every day.” The responses were scored from 0 to 4, with summed scores ranging from 0 to 44 and higher scores indicating greater drug use. Similar to the AUDIT-C, the participants were prompted to answer the questions as they are relevant to him or her within the last 12 months or year. The DUDIT has been found to be psychometrically valid with high convergent validity ($r = .85$) and reliability ($\alpha = .94$) when compared with the Drug Abuse Screening Test (DAST-10; Voluse et al., 2012). In addition, the DUDIT had sensitivity and specificity scores of .90 and .85, when using the cut-off score of 8. In the current sample, the DUDIT was highly reliable ($\alpha=.93$).
The SITBI-Short Form is a structured interview that measures a broad range of suicidal thoughts and behaviors with 72 items, including NSSI (Nock et al., 2007). The SITBI was administered by a licensed psychologist or a masters-level licensed professional counselor. For the purpose of this study, questions were added to assess if the NSSI, suicidal ideation, and suicide attempts occurred prior to or following MST. An example of this addition is: “When was the most recent attempt?” “Was this before or after you experienced [military sexual trauma]?” Participants endorsing a lifetime history of NSSI, suicidal ideation, or attempt were asked follow-up questions of how recently they had these thoughts or behaviors. Participants who endorsed that “yes” they experienced post-MST NSSI, post-MST suicidal ideation, or post-MST suicide attempt within the past year were coded as 1, whereas participants who denied these occurrences within the past year were coded as 0. The SITBI has demonstrated high inter-rater reliability and sound concurrent validity with other measures of self-injurious thoughts and behaviors (Nock et al., 2007).

**Interpersonal Psychological Theory of Suicidal Behavior**

**Interpersonal Needs Questionnaire-12 (INQ-12)**

The INQ-12 (Van Orden et al., 2008) is a 12-item measure designed to quantify participants’ recent beliefs about the degree to which they feel disconnected from others (i.e. thwarted belongingness) and feel like a burden on people in their lives (i.e., perceived burdensomeness). Five items measure thwarted belongingness and seven items measure perceived burdensomeness. An example item capturing recent experiences of belongingness is: “These days, other people care about me” (reverse scored for thwarted belongingness; Van Orden et al., 2008). A sample item indicating level of recent perceived burdensomeness is:
“These days, I think I am a burden on society”. Participants indicate the magnitude each item is true for him or her using a 7-point Likert scale (1: Not at all true for me; 7: Very true for me). Summed scores for thwarted belongingness, perceived burdensomeness, and total INQ were included in this study. Higher scores reflect greater thwarted belongingness, perceived burdensomeness, and the composite of these two constructs (total INQ). Research on the INQ-12 has demonstrated high construct validity and internal reliability for the subscales scores (Freedenthal et al., 2011; Van Orden et al., 2008; Davidson, Wingate, Rasmussen, & Slish, 2009; Hill & Pettit, 2012; Lamis & Lester, 2012). The total INQ-12 score was highly reliable in this sample (α=.94), as were the thwarted belongingness (α=.91) and perceived burdensomeness subscales (α=.94).

**Acquired Capability for Suicide Scale – Fearlessness About Death (ACSS-FAD)**

The ACSS-FAD is a 7-item self-report measure of fearlessness about death and the likelihood to engage in potentially lethal self-harmful behaviors (Ribeiro et al., 2014). Each item is rated on a 5-point scale, ranging from 0 (“not at all like me”) to 4 (“very much like me”), with a higher total score indicating greater fearlessness about engaging in self-harm behaviors and death. An item from the ACSS-FAD is: “The fact that I am going to die does not affect me” (Ribeiro et al., 2014). There is not a specified time period which the participant is directed for answering the extent he or she feels a fearlessness toward death. Findings suggest the ACSS-FAD demonstrates high reliability and validity (Ribeiro et al., 2014), including within a military population (Anestis, Khazem, Mohn, & Green, 2015). In the current sample, the reliability of the ACSS-FAD was .80.
**Trauma Related Shame Inventory (TRSI-24)**

The TRSI-24 (Øktedalen, et al., 2014) is a 24-item measure of trauma-related shame. The assessment measures the different shame reactions that people sometimes feel or think about themselves after experiencing trauma. The participants are prompted in the directions to answer best fit for the items, for him or her “over the past week”. An item from the TRSI-24 is: “Because of what happened to me, I am disgusted with myself” (Øktedalen, et al., 2014). Trauma-related shame is measured on a 4-point scale ranging from “Not true of me” to “Completely true of me.” Higher total scores indicate higher levels of experienced trauma-related shame. Initial evidence supports construct validity, with further examination of construct validity and reliability recommended for this relatively new measure (Øktedalen, et al., 2014). The TRSI was found to be highly reliable with this sample (\(\alpha=.98\)).

**Data Analytic Plan**

To describe the sample, means and standard deviations will be evaluated. For hypothesis one, a series of bivariate analyses will be conducted wherein higher levels of shame, perceived burdensomeness, thwarted belongingness, acquired capability, suicidal ideation, and risky behaviors and suicidal behaviors are expected to be associated with greater MST severity.

For the second hypothesis, a two-way interaction between perceived burdensomeness and thwarted belongingness will be tested with a regression, which includes the interaction of PB and TB. If the interaction term is significant, TB will be tested as the moderator to determine if the posited positive relationship between perceived burdensomeness and suicidal ideation will be stronger at high levels of thwarted belongingness compared to low levels of thwarted belongingness.
For the third hypothesis, a 3-way interaction of the IPT constructs (perceived burdensomeness, thwarted belongingness, and acquired capability for suicide) on risky and suicidal behaviors will be assessed with a series of multiple linear and logistic regressions.

The fourth hypothesis will be tested through an exploratory factor analysis (EFA). A latent variable of risk for premature mortality is expected to be comprised of three observable variables of risky behaviors (summed scores of the following measures: DOSPERT, AUDIT-C, DUDIT), and two observable variables of suicidal behaviors (history of post-MST suicide attempt within the past year and post-MST NSSI within the past year).

Per Baron and Kenny (1986), the fifth hypothesis will be explored by a series of multiple regressions to determine if MST severity and perceived burdensomeness is at least partially mediated by shame.

As described earlier, the results of these analyses and the conceptual framework presented in Figure 1 will be used to develop a structural equation modeling (SEM) to evaluate overall pathways. This model will be tested with MPlus statistical software (Version 7.31; Muthen & Muthen, 2014). A SEM analysis will be conducted to obtain the direct and indirect effects of all variables. The estimated model parameters determined by the results of hypotheses 1-5 will be utilized to predict the correlations or covariances between measured variables. The predicted correlations or covariances will then be compared to observed correlations or covariances to determine overall model fit. SEM also has advantages in examining latent variables and complex relationships between variables in a single model that are corrected for measurement error (Geiser et al., 2013). A SEM power analysis recommends a minimum sample size of 200 to detect an effect for the number of potential variables within this model (per Figure
1). This study is underpowered with a sample of 59 veterans. A full-information maximum likelihood estimation will be used to analyze the model.

The following indices for goodness of fit will be calculated: Chi Square Test, Root Mean Square Error of Approximation (RMSEA), the Comparative Fit Index (CFI), and Standardized Root Mean Square Residual (SRMR; Hooper, Coughlan, & Mullen, 2008; Hu & Bentler, 1999). The RMSEA will help determine how well the developed a priori model fits the data and what is the most parsimonious model, in part due to its sensitivity to the number of parameters in the model (Hooper et al., 2008). The CFI is a commonly used fit indices, performing well even with a small sample size. Conventional criteria recommend an acceptable fit at the following values: chi square > .05, a RMSEA < 0.08, and a CFI > 0.90, SRMR < .07. Whereas a chi square > .05, RMSEA < 0.05, CFI > 0.95, SRMR < .08 indicate a good fit (Hooper et al., 2008; Hu & Bentler, 1999).
CHAPTER III
RESULTS

Variable Descriptives and Correlations

Table 1 presents descriptives, means of the summed scores, and correlations for the variables examined. Exploring some specific responses on the MST, suicide risk, and risky behavior measures yielded important indicators for this sample. Over half of the veterans in the sample endorsed, “while I was in the military the people I worked with physically forced me to have sex,” happening at least once. Over 45% of the participants \(n=27\) reported a history of post-MST suicidal ideation within the past year. Furthermore, approximately 10.2% \(n=6\) reported at least one post-MST suicide attempt and 11.9% \(n=7\) reported a history of post-MST non-suicidal self-injury (NSSI). In addition, over 20% of the participants reported being somewhat to extremely likely to drink heavily at a social function and drive in a car without a seat belt. Over 30% of the sample endorsed a likelihood to engage in unprotected sex, ride a motorcycle without a helmet, and walk home alone in an unsafe area, if they found themselves in that situation.

The first hypothesis was not supported, as MST severity was only significantly related to shame \(r=.30, p < .05\), but no other outcome variable. Given these results, the hypotheses were adapted to consider the indirect effects of MST severity via shame not only on perceived burdensomeness, but on several other variables. The associations between shame and other study variables are found in Table 1. Specifically, shame was significantly associated with perceived burdensomeness \(r=.72, p \leq .001\), thwarted belongingness \(r=.46, p \leq .001\), total INQ score (perceived burdensomeness and thwarted belongingness; \(r=.67, p \leq .001\)), risky health and safety behaviors \(r=.34, p \leq .01\), risky drug use \(r=.35, p \leq .01\), and post-MST suicidal ideation
(\(r_{pb} = .44, \ p \leq .001\)). Due to the small number of participants who identified as transgender and intersex, gender includes only the male and female participants in these analyses. Shame was not significantly associated with acquired capability for suicide, risky alcohol use, post-MST suicide attempt, post-MST NSSI, gender, or combat exposure.

To inform the other hypotheses, including developing the best-fitting model, all bivariate correlations were considered. Total INQ score was similarly significantly associated with risky health and safety behaviors (\(r = .31, \ p \leq .01\)), risky drug use (\(r = .56, \ p \leq .01\)), and post-MST suicidal ideation (\(r_{pb} = .44, \ p \leq .001\)). Risky health and safety behaviors had a significant relationship to both risky drug use (\(r = .69, \ p \leq .001\)) and risky alcohol use (\(r = .40, \ p \leq .001\)); however, risky drug and alcohol use were not correlated (\(r = .16, \ p > .05\)). Furthermore, post-MST suicidal ideation was associated with post-MST suicide attempt (\(r_{φ} = .37, \ p \leq .01\)) and post-MST NSSI within the past year (\(r_{φ} = .29, \ p \leq .05\)); however, post-MST suicide attempt and post-MST NSSI were not significantly associated (\(r_{φ} = .05, \ p > .05\)).

Gender (relative to male or female) and combat exposure widely varied in their relationships to the other items. Having identified as male was significantly related to perceived burdensomeness (\(r_{pb} = -.31, \ p < .05\)), risky health and safety behaviors (\(r_{pb} = -.47, \ p < .001\)), and risky drug use (\(r_{pb} = -.37, \ p < .01\)). Surprisingly, reporting no combat exposure was significantly associated with perceived burdensomeness (\(r_{pb} = -.24, \ p < .05\)) and risky drug use (\(r_{pb} = -.22, \ p < .05\)). Combat exposure was not significantly related to other measures within this sample.

**Interpersonal Psychological Theory Interactions on Suicidal Outcomes**

The two and three-way interactions of the interpersonal psychological theory of suicidal behavior constructs (perceived burdensomeness, thwarted belongingness, and acquired capability for suicide) on suicide risk outcomes (post-MST suicidal ideation, suicide attempt, and NSSI) are
presented in Table 2. A multiple linear regression was conducted to explore Hypothesis 2, an expected two-way interaction of perceived burdensomeness and thwarted belongingness. There was not a significant two-way interaction effect for perceived burdensomeness and thwarted belongingness on post-MST suicidal ideation in the past year. However, the overall model was significant ($F(3, 55) = 8.170, p < .001$).

Regarding Hypothesis 3, there was not a three-way interaction effect of perceived burdensomeness, thwarted belongingness, and acquired capability in the prediction of post-MST suicide attempt or NSSI. The overall model was not statistically significant for post-MST suicide attempt ($F(3, 51) = .503, p = .828$) or post-MST NSSI ($F(7, 51) = .299, p = .951$), within the past year.

As a result of these findings, the interaction of acquired capability for suicide and Total INQ score was examined as a predictor of a range of risky behaviors and suicide risk outcomes as shown in Table 3. The purpose of this was to simplify the interaction term (i.e., by combining perceived burdensomeness and thwarted belonging into one construct of Total INQ) and to explore if acquired capability for suicide moderates the association between INQ and multiple aspects of risky and suicidal behaviors. However, results revealed no significant interaction effects, indicating that acquired capability for suicide does not moderate the association between Total INQ score and any of the risky behaviors and suicide risk outcomes. Due to these findings, acquired capability for suicide was removed from further analyses.

**Exploratory Factor Analysis of Risk for Premature Mortality**

To test the fourth hypothesis, a principal axis factoring (PAF) analysis examined if risky health and safety behaviors, risky drug use, risky alcohol use, post-MST suicidal ideation, post-MST suicide attempt, and post-MST NSSI loaded onto one factor, risk for premature mortality.
An oblimin rotation was utilized to allow factors to be correlated. The exploratory factor analysis (EFA) resulted in four factors (Table 4). Initial eigenvalues indicated that the first two factors explained 35.7% and 20.9% of the variance, respectively. The third and fourth factors had eigenvalues at and just under one and 16.9% and 14.0% of the variance. Furthermore, there were some significant cross loadings. Considering the EFA did not support one latent factor, the four-factor solution was not completely clean, the four-factor solution did not result in a large reduction of variables (from six to four), and the association between the six risk variables and other variables in the current study differed per risk variable, the six risky behavior and suicide risk outcomes were retrained separately in the evolving SEM model.

Model Fit: An Examination of MST Severity, Shame, Perceived Burdensomeness and Thwarted Belongingness, on Risky Behaviors and Suicide Risk Outcomes

In an effort to build the best-fitting model, results from the bivariate correlations, interactions, and potential factors were considered as previously described. In addition, due to a non-significant relationship between MST severity and perceived burdensomeness, Hypothesis 5 (shame will at least partially mediate the association between MST severity and perceived burdensomeness) was not supported. The models tested were revised to examine the indirect effect of MST severity on Total INQ score via shame. Total INQ was then posited as a direct predictor of the six risky behaviors (health and safety, drug use, alcohol use) and suicide risk outcomes (post-MST suicidal ideation, NSSI, and suicide attempts; see Figure 3). However, the best fitting model, which has only the three risky behaviors as outcomes, is presented in Figure 2. The process of testing and comparing these two models is described below.

The two models (Figures 2 and 3) produced adequate fit statistics. The best fitting, parsimonious model to describe the associations between these variables is detailed in Figure 2.
and included 15 parameters. The model had adequate fit: $x^2 (7) = 12.90 (p > .05)$, RMSEA = 0.120 (90% CI: 0.000-0.221), CFI = 0.940, and SRMR = 0.076. The results revealed that shame explained 44.9% of the total variance ($R^2 = .449, p < .001$), in predicting total INQ (perceived burdensomeness and thwarted belongingness). Due the small sample size, the CFI is informative about the fit and promising for examining this model with a larger sample.

Due to the use of categorical suicide risk outcome variables (yes/no), model fit is not available as described above when including the six risky behavior and suicide risk variables. However, model fit can be determined by comparing the Akaike Information Criteria (AIC) and Bayesian Information Criteria (BIC). The best fitting model remains the one including only risky behaviors as outcomes (Figure 2). The larger model, with 24 parameters that included risky behaviors and suicide risk outcomes (Figure 3), has a larger AIC and BIC. However, the larger model is useful in providing logistic regression odds ratio (OR) results for the suicide risk outcomes. Total INQ scores were associated with an increased risk for post-MST suicidal ideation within the past year (OR 1.06, $p < .001$). Total INQ was not significantly associated with higher odds of post-MST suicide attempt (OR 1.02, $p > .05$) and post-MST NSSI (OR 1.02, $p > .05$), within the past year. The significant finding for post-MST suicidal ideation, even with the relatively low odds ratio, is informative given the generally low base rate of suicide risk outcomes. When gender and combat exposure were added to the analyses, to further explore their relationship with variables in the model, the model retained an adequate fit. However, the overall patterns of associations among variables are better explained as represented in Figure 2.
CHAPTER IV
DISCUSSION

The current study findings are consistent with prior research, in that military sexual trauma (MST) severity was associated with shame (e.g., Millegan et al., 2016; O’Brien & Sher, 2013, Surís & Lind, 2008). However, this study broadens the literature by further demonstrating the significant association between shame and interpersonal difficulties, specifically thwarted belongingness and perceived burdensomeness, which in turn is associated with MST survivors’ increased likelihood for risky behaviors (drug use and health/safety behaviors) and suicidal ideation. Of note, although MST severity was not directly associated with increased suicidal ideation or attempts, 46% of this survivor sample as a whole reported suicidal ideation in the past year and 10% reported at least one suicide attempt in the past year. These findings support the literature that MST survivors are at an increased risk for suicidal ideation and attempt, compared to veterans without history of MST (e.g., Bryan, Bryan, & Clemans, 2014; Kimerling et al., 2016; Monteith et al., 2015). Furthermore, this sample’s reported rates of post-MST suicidal ideation and attempt within the past year is startling when compared to a recent national survey that found in a sample of 10,406 veterans only 5.0% reported suicidal ideation and 1.0% reported attempted suicide within the past 12 months (Blosnich, Brenner, & Bossarte, 2016). The current study further highlights MST survivors’ heightened suicide risk.

In addition, over 20% of the survivors within this sample reported a likelihood to engage in risky health and safety behaviors (e.g., excessive drinking, unprotected sex, risky driving, walking alone at night). Although MST severity was not significantly associated with the risk outcomes of this study, prevalence of these among the participants suggests that additional
attention is warranted for potentially contributing factors such as, shame and interpersonal difficulties, on MST survivors’ risk for premature mortality.

**MST Severity and Shame**

Shame has been previously linked to MST (e.g., Johnson, 2012; Monteith et al., 2018a; Monteith et al., 2018b). For this sample, shame was associated MST and with several additional negative sequelae. This is also consistent with findings that shame has serious implications on an individual’s functioning. Shame has been described as a stable, uncontrollable psychological state that perpetuates a negative self-evaluation or self-hatred and leaves an individual feeling inferior and vulnerable (Bryan et al., 2013; Van Orden et al., 2010). Themes associated with shame include deeply demoralizing events that exacerbate feelings of betrayal and heightened sensitivity to anger and mistrust of others (Gamliel & Levi-Belz, 2016), which likely contribute to MST survivors’ barriers in feeling secure in themselves and interpersonal difficulties. Furthermore, MST survivors are often retraumatized, in ways that may increase shame, even after single events of harassment or assault, from their experiences of blame, misdiagnosis, and questioning of culpability (Northcut & Kienow, 2014).

**Shame and Interpersonal Difficulties**

This study found that veteran MST survivors who endorsed higher levels of shame were more likely to experience greater total perceived burdensomeness and thwarted belongingness. Intense feelings of shame in MST survivors can be debilitating, with other studies similarly reporting significant associations in survivors’ trouble connecting with others and social isolation (Bell, Turchick, & Karpenko, 2014; Luterek et al., 2011; Mondragon et al., 2015) and perceived burden (Katz et al., 2012). The strong association of shame to self-hate found in other research is
one explanation for why MST survivors experience increased rates of perceived burden and thwarted belonging from others.

Furthermore, the context in which MST occurs is important to consider in regard to shame and interpersonal difficulties. MST transpires within a complex environment, where stereotypical masculine and paternalistic expectations are reinforced, such as the importance of leadership, intolerance of mistakes, expected emotional control and self-sufficiency, and loyalty to the institution and those within the institution (Bell, Turchik, & Karpenko, 2014; Northcut & Kienow, 2014). Although this environment aligns with the goals of military readiness, it may also unintentionally contribute to the retraumatization of MST survivors. Their trauma and shame may be compounded by efforts to preserve the high standards of the military and maintain the status quo. Furthermore, rape myths (e.g., men cannot be raped, MST is not important enough to report, fears about sexuality; Monteith et al., 2018a; Monteith et al., 2018b; Murdoch et al., 2007) likely perpetuate feelings of perceived burden and thwarted belonging to the military and others in general. In addition, survivors of MST often continue to work and live with perpetrator(s), as well as friends of the perpetrator(s) and may rely on their perpetrator(s) for career advancement (Katz et al., 2007). These interpersonal stressors may influence experiences of thwarted belongingness and perceived burdensomeness for the survivor within his/her unit and continue to manifest postdischarge.

Research on institutional betrayal experienced by MST survivors supports this study’s findings that higher levels of shame and interpersonal difficulties are associated with increased engagement in post-MST risky behaviors and suicidal ideation. Experiences of MST within a unit or by superiors are likely to lead to significant emotional distress and betrayal from the institution (unit, leadership, branch, military) that exist to keep people safe (Mondragon et al.,
Negative experiences from reporting MST relate to perceptions of institutional betrayal (Monteith, Bahraini, Matarazzo, Soberay, & Smith, 2016), which may also have a role in MST survivors’ risk for self-directed violence through feelings of thwarted belongingness (Monteith, Bahraini, & Menefee, 2017). The identity of MST survivors can then subvert from individual needs to loyalty of the unit, branch of service, and country, which can obscure survivors’ identity to one of shamefulness and isolation (Northcut & Kienow, 2014). The expectations for servicemembers to continue to be at peak performance post-MST may contribute to feelings of shame, thwarted belongingness, and perceived burdensomeness as MST survivors struggle to manage the physical, emotional, behavioral, and interpersonal effects of the trauma.

Previous research has found that shame can inhibit disclosure of trauma-related experiences and entrap survivors in negative ruminations that invite self-criticism and punishment, which increases the likelihood of not connecting with significant others, family, friends, and providers (Gaudet et al., 2016; Forbes, Creamer, Hawthorne, Allen, & McHugh, 2003). Factors like social withdrawal and low social support are often precursors for risky and suicidal behaviors. Subsequent negative outcomes may perpetuate experiences of shame and increase engagement in risky behaviors and suicidal thoughts. Therefore, it is not surprising that MST survivors experience the compounded effect of shame, perceived burdensomeness, and thwarted belongingness (Monteith, Bahraini, & Menefee, 2017), as well as an increased likelihood for risky behaviors and suicidal ideation.

**Shame, Interpersonal Difficulties, Risky Behaviors, and Suicide Risk**

The literature suggests that shame is a risk factor for risk-taking behaviors (Stuewig & Tangney, 2007) and suicide (Dutra, Callahan, Forman, Mendelsohn, & Herman, 2008; Bryan,
Morrow, Etienne, & Ray-Sannerud, 2013), although few studies have examined the mechanisms which may also contribute to the increased risk for premature mortality among these individuals. Servicemembers and veterans who struggle with feelings of shame and interpersonal difficulties are also likely to experience additional barriers in coping effectively (Gaudet, Sowers, Nugent, & Boriskin, 2016).

This study supports that individuals who experience shame and interpersonal difficulties are more likely to report an increase in self-sabotaging behaviors (e.g., risky health and safety behaviors and substance use) and suicidal ideation. The effects of MST may be exacerbated through what Northcut and Kienow (2014) examined as the trauma trifecta: loss of professional and personal identity, the occurrence of self-harm behaviors in an effort to gain control of the body, and the traumatization that can transpire due to the distinct culture in which MST occurs, especially should the individual report the incidence and try to seek help. In an effort to gain control of their body, MST survivors may resort to risky behaviors. To the degree that Veterans engage in risky health and safety behaviors such as risky driving, substance use, and walking alone in an unsafe neighborhood, this may represent some level of general disregard for personal safety and perhaps even a type of passive suicidal ideation. MST survivors’ passive and active suicidal ideation through reported ideation and risk-taking behaviors emphasize the need to cultivate an environment in which they are believed, supported, and that there are interventions which will help survivors manage negative thoughts and feelings effectively. In addition, shame, perceived burdensomeness, and thwarted belongingness are important factors to account for in understanding chronic suicide risk (Monteith, Bahraini, & Menefee, 2017). By recognizing the precursors of risky behaviors and suicide risk, appropriate avenues for prevention and intervention can be instituted.
Future Directions: Clinical Care

Due to the large numbers of servicemembers that return with a history of MST and the current number of veterans who are MST survivors, clinicians should expect to see MST survivors in practice and will need the appropriate skills to work with this population (Valente & Wight, 2007; Williams & Bernstein, 2011). The experience as a civilian, to a servicemember, to a veteran, uniquely contributes to how veterans view themselves and relate to others around them (Northcut & Kienow, 2014). Conceptualizing MST as a violation of trust that occurs within the context of close relationships may help clinicians understand why MST survivors experience higher levels of shame, and, as the findings of this study suggest, that the degree to which they experience shame then increases the likelihood of interpersonal difficulties, risky behaviors, and suicidal ideation. Furthermore, given the high levels of reported suicidal ideation in this sample, clinicians should be prepared to assess, monitor, and intervene on suicidal ideation when working with MST survivors. Factors to target within clinical care may include shame and interpersonal difficulties.

The significant associations found in this study, specifically between shame and interpersonal difficulties (total perceived burdensomeness and thwarted belongingness), suggest that group interventions may be particularly helpful for veterans with a history of MST. Group therapy may increase survivors’ belongingness and lessen experiences of shame, by providing an opportunity to connect with other survivors. There are several existing programs (Hoyt, Rielage, & Williams, 2012) that benefit MST survivors that would also be important for civilian providers to offer. Because the trauma occurred within a military context, civilian mental health facilities could support veterans by offering individual and group services for MST survivors who are not comfortable within a military-related setting such as the VA.
Hoyt, Rielage, and Williams (2012) described a treatment program for male MST survivors that integrated elements of evidence-based treatment such as dialectical behavior therapy, safety seeking, and cognitive processing therapy. These interventions focused on increasing coping skills (e.g., interpersonal effectiveness) and emotional regulation (e.g., managing shame) prior to trauma-focused therapy. Several therapeutic techniques, including traditional cognitive behavior therapy and mind/body interventions, have been found to be successful in decreasing shame in survivors of sexual trauma (Northcut & Kienow, 2014) that most veteran and civilian clinicians are trained to incorporate in their practice. Continued education for veteran and civilian providers on the prevalence and negative sequelae linked to MST will likely improve appropriate screening of and access to care for MST survivors. The tools that target factors associated with risky and suicidal outcomes, such as shame and interpersonal difficulties, exist. However, for MST survivors to receive appropriate care, improve coping strategies, and reduce risk for premature mortality, known barriers to accessing care must be overcome first.

**Future Directions: Accessing Care**

Despite mandatory screening and eligibility to receive free treatment for MST survivors at VAs, research has found that OEF/OIF male MST survivors are less likely to use outpatient mental health services than OEF/OIF female MST survivors (Turchik, Pavao, Hyun, Mark, & Kimerling, 2012). In addition, Turchik and colleagues (2011) found no other gender differences in veterans’ mental health utilization, only in MST-related care. This provides further insight on the negative effects of shame and perceived burden that male MST survivors report in this study and previous findings. The male survivors in this study may be at an increased risk for perceived burdensomeness and risky drug use and health and safety behaviors in part due to this lack of
help seeking and shame. Although resources and evidence-based treatment exist, there may be a lack of knowledge and barriers to engage in these services. According to previous research, female veterans also experience stigma related to MST, such as distrust in providers and being seen as weak, that may interfere with help-seeking (Holland, Rabelo, & Cortina, 2016; Koo & Maguen, 2014). Although in this study male and female survivors were significantly different in reported levels of shame experienced, shame should be addressed in both female and male resources and treatment.

Given the different barriers in help-seeking reported by male and female MST survivors in prior studies, it is important that informational dissemination attends to these differences (Turchick, Rafie, Rosen, & Kimerling, 2014). Male survivors, who see sexual assault as a women’s issue, may benefit from receiving information that addresses shame and its association with interpersonal difficulties and risky behaviors. Similarly, female MST survivors would benefit from targeted information that addresses the shame and interpersonal difficulties that are specific to female survivors, for example coping with the masculine and paternalistic environment in which MST occurs. Other health research (e.g., breast cancer; Thomas, 2010) found that there needs to be a marked difference in not only changing the gender in which the materials target, but also adjust the symptoms and treatment implications as needed. Although Turchick and colleagues (2014) reported that the gender-targeted brochures were acceptable and expected to facilitate treatment, the lack of uptake emphasizes the complexity in relation to shame experienced and possible perceived need of care (e.g., perceived burdensomeness) to access care. These discrepancies further suggest that survivors may benefit from civilian providers offering MST related resources and treatment.
Future Directions: Screening and Assessment

Prior research supports that there is a need to educated civilian clinicians on military culture and experience to provide unique and appropriate services to the veteran population, which includes military sexual trauma (Coll, Weiss, & Yarvis, 2011). Incorporating standard intake questions related to military service and experience would support efforts to recognize and treat military specific trauma. Furthermore, clinical providers of MST survivors should re-evaluate a pre-existing diagnosis of bipolar disorder and borderline personality disorder (Northcut & Kienow, 2014). MST survivors have been misdiagnosed as having long-standing pathology to skew the credibility of survivors when reporting MST. Misdiagnosis may perpetuate feelings of shame and perceived burden postdischarge. Survivors may also not challenge these misdiagnoses as they may increasingly feel as if they cannot trust their own judgment (Northcut & Kienow, 2014).

There is strong research support for clinicians to use theoretically driven and empirically informed risk-assessments (e.g., Gamliel & Levi-Belz, 2016; Rogers, 2003). However, the current research is limited on the use of the IPT constructs and shame within clinical settings. In a study of 388 mental health professionals, the interpersonal theory of suicidal behavior constructs (e.g., thwarted belongingness and perceived burdensomeness) was significantly associated with therapists’ risk assessment for suicidal ideation and attempts and general resiliency (Gamliel & Levi-Belz, 2016). This suggests that clinicians recognize the importance of these factors on suicide risk; however, there does not appear to be a consistent manner in which these interpersonal difficulties are considered in combination or discretely. Efforts to explicitly include perceived burdensomeness, thwarted belongingness, and shame within risk assessments is warranted. Furthermore, providing clinicians knowledge about empirically supported ways of
assessing and predicting suicide risk will enhance the field’s competence, with the potential to prevent premature mortality.

**Future Directions: Research**

Continued research that examines the extent in which MST severity is associated with veterans’ risk for premature mortality through the interpersonal psychological theory of suicidal behavior (IPT) is supported by this and other studies. The field would benefit from understanding the full extent that factors of the IPT are linked to risky behaviors, suicidal thoughts, and suicidal behaviors as it relates to premature mortality, specific to veterans with and without a history of MST. Future research should include a comprehensive methodology that captures the engagement in risky behaviors including but not limited to risky driving, recreation, substance use, social behaviors, sexual behaviors, and ethical and financial behaviors. The field is currently limited in its examination of several specific types of risky behaviors in active duty military and veterans, specifically those with a history of MST. This study and other research support the alarming rate at which veterans report engaging in risky behaviors (e.g., Sheppard & Earleywine, 2013; Borders et al., 2012; Lang et al., 2003) and suicidal thoughts and behaviors (e.g., Kimerling et al., 2016; Monteith, Menefee, Forster, Wanner, & Bahraini, 2015).

Furthermore, there are limited studies on the potentially cyclical nature of shame and risky and suicidal behaviors. Additional research on the process which shame, the IPT constructs, and risky and suicidal outcomes prolong the cycle of negative experiences for MST survivors would also inform barriers to help-seeking and opportunities for prevention and intervention. An examination of perceived burden related to perceived need for care, which may deter veterans from help-seeking, would also provide additional knowledge and inform efforts to engage MST survivors in care.
In addition, continued efforts to explore the acceptability and effectiveness of MST groups through civilian practice is warranted. Civilians providers have the opportunity to reach more MST survivors who experience shame and want to avoid military institutions in seeking help. Efforts to expand the knowledge of and decrease shame, perceived burdensomeness, and other behaviors related to MST care, would improve the mental and physical health outcomes for MST survivors.

Limitations

The following limitations should be considered when interpreting the results. This study is underpowered to adequately examine the relationships among several variables. With a small sample size, it is often difficult to find significant relationships and therefore, increases the likelihood for type II error. Although relationships were found in bivariate correlations and within a larger model that builds on the indirect relationship of MST severity via shame to thwarted belongingness and perceived burdensomeness, potentially there exists a more meaningful and precise model. A study with a larger sample size could appropriately examine if a latent variable of premature mortality exists and if the inclusion of acquired capability for suicide provides a better understanding of MST survivors’ risk for premature mortality.

In addition, the design and procedures limit generalizability given the use of a convenience sample with no control group. The results of this research may not generalize to MST survivor veterans outside of the Denver VA Medical Center and Colorado Springs Community-Based Outpatient Clinics (CBOC), and to veterans seeking care outside of the VA. Furthermore, it is likely that veterans engage in riskier behaviors than those of the general population. Therefore, including a civilian control group would determine how risky behaviors vary by population and sexual trauma history, military related or otherwise. Generalizability also
may be limited due to the distribution among branches within the veteran sample (Department of Veterans Affairs, 2018). Sailors and Marines were underrepresented, whereas Soldiers and Airmen were slightly overrepresented.

The measures within the study also had varying reporting time intervals (e.g., risky behaviors and suicide risk within the past year associated with recent feelings of perceived burdensomeness and thwarted belongingness). There were efforts to control for this. For example, suicide risk within the past year was specifically chosen from the SITBI to match the prompts for the AUDIT and DUDIT. Furthermore, perceived mental health stigma may negatively influence veterans’ willingness to report mental health concerns, especially suicidal thoughts and behaviors (Hoge et al., 2004). Although research supports that self-report measures have been shown to be well-suited for suicide research (Friedman & Asnis, 1989; Kaplan et al., 1994), I acknowledge the potential for reporting bias, especially with a veteran population.

To my knowledge few, if any, studies have examined shame, risky behaviors, suicide risk, perceived burdensomeness, thwarted belongingness, and acquired capability among veterans with a history of MST. In addition, research on MST survivors’ shame and suicide risk is limited. Therefore, this study has the potential to inform future research that will improve prevention, intervention, and assessments efforts for MST survivors and veterans in general.

**Conclusions**

MST is a significant trauma that precedes negative mental health outcomes. The findings of the current study found that MST survivors endorsed suicidal ideation at a high rate (46%). In addition, the results indicated that MST severity, via shame, was indirectly associated with higher levels of MST survivors’ total perceived burdensomeness and thwarted belongingness, risky behaviors, and post-MST suicidal ideation. Furthermore, greater total thwarted
belongingness and perceived burdensomeness, constructs within the interpersonal theory of suicidal behavior, were significantly associated with post-MST drug use, risky health and safety behaviors, and suicidal ideation. Although this study has limitations, it contributes to the current literature and suggests areas of intervention to decrease risk for premature mortality among MST survivors. Treatment of MST survivors should be flexible in not only addressing symptom reduction of shame, but also increase interpersonal and social functioning.

This study begins to examine the gaps in the literature on the association of shame on risky and suicidal outcomes, specifically as it relates to the constructs of the interpersonal theory of suicidal behavior (IPT). Continued efforts to understand MST survivors’ experiences within a theoretical model can better inform leadership and clinicians of survivors’ needs and evidence-based treatment. The results of this study point to the need to consider shame, perceived burdensomeness, and thwarted belongingness as salient variables associated with risky behaviors and suicidal ideation, among MST survivors. There is a need to inform prevention and intervention strategies to use specifically in military and civilian settings that address MST and associated negative outcomes. By educating providers and leadership on MST and assessing it and the constructs of shame and IPT in practice, it will illuminate opportunities to intervene and improve MST survivors’ health and prevent risk for premature mortality.
Table 1
Descriptives and Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Mean</th>
<th>SD</th>
<th>n (%)</th>
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<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>13</th>
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<tbody>
<tr>
<td>1. MST Severity (SHS)</td>
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<td></td>
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<td>2. Shame (TRSI)</td>
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<td>23.77</td>
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</tr>
<tr>
<td>3. INQ Total (INQ-12)</td>
<td>12-79</td>
<td>36.42</td>
<td>18.77</td>
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<td>4. Thwarted Belonging (INQ-12)</td>
<td>5-35</td>
<td>16.58</td>
<td>8.88</td>
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<td>5. Perceived Burden (INQ-12)</td>
<td>7-48</td>
<td>19.85</td>
<td>11.80</td>
<td>.06</td>
<td>.46***</td>
<td>.88***</td>
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<td>6. Acquired Capability (ACSS-FAD)</td>
<td>0-28</td>
<td>18.19</td>
<td>7.21</td>
<td></td>
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<td>7. Risky Health/Safety (DOSPERT-HS)</td>
<td>6-42</td>
<td>17.36</td>
<td>10.19</td>
<td>-.19</td>
<td>.34**</td>
<td>.31**</td>
<td>.08</td>
<td>.43***</td>
<td>-.03</td>
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<td>8. Drug Use (DUDIT)</td>
<td>0-42</td>
<td>6.51</td>
<td>10.62</td>
<td>-.10</td>
<td>.35**</td>
<td>.56**</td>
<td>.16</td>
<td>.45***</td>
<td>.07</td>
<td>.69***</td>
<td></td>
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<td>9. Alcohol Use (AUDIT-C)</td>
<td>0-11</td>
<td>2.00</td>
<td>2.87</td>
<td>.11</td>
<td>.25</td>
<td>.21</td>
<td>.02</td>
<td>.32*</td>
<td>-.08</td>
<td>.40***</td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>10. SI Past Year (SITBI)</td>
<td>27</td>
<td>.14</td>
<td>.44***</td>
<td>.44***</td>
<td>.25</td>
<td>.53***</td>
<td>.01</td>
<td>.20</td>
<td>.20</td>
<td>.20</td>
<td>.24</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>11. SA Past Year (SITBI)</td>
<td>6</td>
<td>.02</td>
<td>.07</td>
<td>.10</td>
<td>.06</td>
<td>.11</td>
<td>.13</td>
<td>.02</td>
<td>.23</td>
<td>.04</td>
<td>.37*</td>
<td>*</td>
<td></td>
<td></td>
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<tr>
<td>12. NSSI Past Year (SITBI)</td>
<td>7</td>
<td>-.02</td>
<td>.15</td>
<td>.11</td>
<td>.11</td>
<td>.09</td>
<td>.00</td>
<td>.08</td>
<td>.09</td>
<td>.18</td>
<td>.29*</td>
<td>.05</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>13. Gender*</td>
<td>55</td>
<td>.18</td>
<td>-.23</td>
<td>-.23</td>
<td>-.08</td>
<td>-.31*</td>
<td>.20</td>
<td>-.47**</td>
<td>-.37**</td>
<td>.02</td>
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<td>-.20</td>
<td>-.07</td>
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<tr>
<td>14. Combat</td>
<td>13</td>
<td>.06</td>
<td>-.17</td>
<td>-.21</td>
<td>-.13</td>
<td>-.24*</td>
<td>.07</td>
<td>-.21</td>
<td>-.22*</td>
<td>-.06</td>
<td>.15</td>
<td>-.04</td>
<td>-.07</td>
<td>-.08</td>
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</tbody>
</table>

Note: * indicates significance at p < .05, ** at p < .01, *** at p < .001.
Note. SD = standard deviation; SHS = Sexual Harassment Scale; TRSI = Trauma-Related Shame Inventory; INQ-12 = Interpersonal Needs Questionnaire-12; ACSS-FAD = Acquired Capability for Suicide Scale – Fearlessness About Death; DOSPERT-HS = Domain-Specific Risk-Taking Scale – Health and Safety Subscale; DUDIT = The Drug Use Disorders Identification Test; AUDIT-C = Alcohol Use Disorders Identification Test Consumption; SI = Suicidal Ideation; SA = Suicide Attempt; NSSI = Non-Suicidal Self-Injury; SITBI = Self-Injurious Thoughts and Behaviors Interview.

Gender* Three participants identified as transgender and one participant identified as intersex. Due to the small number of participants in these categories, gender includes only 55 (22 male and 33 female) participants.

* p < .05, ** p ≤ .01, *** p ≤ .001.
Table 2
Interaction of perceived burdensomeness and thwarted belongingness predicting suicidal ideation.
3-way interaction of perceived burdensomeness, thwarted belongingness, and acquired capability predicting suicide attempt and non-suicidal self-injury.

<table>
<thead>
<tr>
<th></th>
<th>Post-MST Suicidal Ideation</th>
<th>Post-MST Suicide Attempt</th>
<th>Post-MST NSSI</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>b</td>
<td>SE</td>
<td>t</td>
</tr>
<tr>
<td>Perceived Burden</td>
<td>.017</td>
<td>.013</td>
<td>1.276</td>
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<tr>
<td>Thwarted Belonging</td>
<td>-.021</td>
<td>.014</td>
<td>-1.474</td>
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<tr>
<td>Burden*Belonging</td>
<td>.001</td>
<td>.001</td>
<td>1.047</td>
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<tr>
<td>ACSS-FAD</td>
<td>-.022</td>
<td>.022</td>
<td>-.991</td>
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<td>Burden<em>Belonging</em>ACSS-FAD</td>
<td>.001</td>
<td>.001</td>
<td>1.047</td>
</tr>
<tr>
<td>Belonging*ACSS-FAD</td>
<td>.001</td>
<td>.001</td>
<td>1.047</td>
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<tr>
<td>Burden<em>Belonging</em>ACSS-FAD</td>
<td>-6.939</td>
<td>.000</td>
<td>-1.061</td>
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</tbody>
</table>

Note. ACSS = Acquired Capability for Suicide Scale – Fearlessness About Death
Table 3
Interaction of total perceived burdensomeness and thwarted belongingness (total INQ) and acquired capability predicting risky behaviors and suicide risk outcomes.

<table>
<thead>
<tr>
<th></th>
<th>Post-MST Suicidal Ideation</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Total INQ</td>
<td>.006</td>
<td>.009</td>
<td>.695</td>
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<tr>
<td>ACSS-FAD</td>
<td>-.010</td>
<td>.017</td>
<td>-.550</td>
</tr>
<tr>
<td>Total INQ*ACSS-FAD</td>
<td>.000</td>
<td>.000</td>
<td>.727</td>
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<table>
<thead>
<tr>
<th></th>
<th>Post-MST Suicide Attempt</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>b</td>
<td>SE</td>
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<tr>
<td>Total INQ</td>
<td>-.003</td>
<td>.006</td>
<td>-.443</td>
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<tr>
<td>ACSS-FAD</td>
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<td>.012</td>
<td>-.222</td>
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<tr>
<td>Total INQ*ACSS-FAD</td>
<td>.000</td>
<td>.000</td>
<td>.785</td>
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<table>
<thead>
<tr>
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<th>Post-MST Non-Suicidal Self Injury</th>
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<tbody>
<tr>
<td></td>
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<tr>
<td>Total INQ</td>
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<td>.006</td>
<td>.779</td>
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<tr>
<td>ACSS-FAD</td>
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<td>.013</td>
<td>.459</td>
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<tr>
<td>Total INQ*ACSS-FAD</td>
<td>.000</td>
<td>.000</td>
<td>-.515</td>
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<table>
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<th>Risky Health &amp; Safety Behaviors</th>
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<tr>
<td>Total INQ</td>
<td>.187</td>
<td>.185</td>
<td>1.011</td>
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<tr>
<td>ACSS-FAD</td>
<td>.011</td>
<td>.377</td>
<td>.029</td>
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<tr>
<td>Total INQ*ACSS-FAD</td>
<td>-.001</td>
<td>.010</td>
<td>-.111</td>
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<table>
<thead>
<tr>
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<th>Risky Drug Use</th>
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<tr>
<td></td>
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<td>b</td>
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<tr>
<td>Total INQ</td>
<td>.056</td>
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<tr>
<td>ACSS-FAD</td>
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<tr>
<td>Total INQ*ACSS-FAD</td>
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<td>.010</td>
<td>.845</td>
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<table>
<thead>
<tr>
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<th>Risky Alcohol Use</th>
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</thead>
<tbody>
<tr>
<td></td>
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<td>SE</td>
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<tr>
<td>Total INQ</td>
<td>.099</td>
<td>.052</td>
<td>1.881</td>
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<tr>
<td>ACSS-FAD</td>
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<td>.936</td>
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<tr>
<td>Total INQ*ACSS-FAD</td>
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<td>.003</td>
<td>-1.383</td>
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Note. Total INQ = Interpersonal Needs Questionnaire-12 Total; ACSS = Acquired Capability for Suicide Scale – Fearlessness About Death
### Table 4

**Summary of Exploratory Factor Analysis results for premature mortality**

<table>
<thead>
<tr>
<th>Item</th>
<th>Risky Health and Drug Use</th>
<th>Post-MST SI and SA</th>
<th>Risky Health and Alcohol Use</th>
<th>Post-MST NSSI</th>
<th>Post-MST Suicidal Behaviors</th>
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<td>DOSPERT HS</td>
<td>.881</td>
<td>.023</td>
<td>.636</td>
<td>.081</td>
<td>.118</td>
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<tr>
<td>DUDIT</td>
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<td>.309</td>
<td>.239</td>
<td>.126</td>
<td>.162</td>
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<tr>
<td>AUDIT-C</td>
<td>.257</td>
<td>.049</td>
<td>.630</td>
<td>.156</td>
<td>.162</td>
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<tr>
<td>Post-MST SI</td>
<td>.194</td>
<td>.588</td>
<td>.374</td>
<td>.143</td>
<td>.568</td>
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<tr>
<td>Post-MST SA</td>
<td>.156</td>
<td>.685</td>
<td>.015</td>
<td>.539</td>
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<tr>
<td>Post-MST</td>
<td>.081</td>
<td>.126</td>
<td>.143</td>
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</table>

*Note.* Factor loadings over .50 appear in bold.
Conceptual model (based on IPT) of MST severity predicting risk for premature mortality in which (a) MST severity directly predicting greater levels of shame, perceived burdensomeness, thwarted belongingness, and acquired capability, (b) a two-way interaction of perceived burdensomeness and thwarted belongingness predicting a history of post-MST suicidal ideation, (c) a three-way interaction of the IPT constructs predicting post-MST suicide attempts and engagement in risky behaviors, (d) MST severity and perceived burdensomeness at least partially mediated by shame, and (e) perceived burdensomeness, thwarted belonging, and acquired capability each predicting a latent factor representing behavioral risk factors for premature mortality (i.e., risky and suicidal behaviors).
Figure 2

Standardized results of MST severity predicting increased shame and its association with Total INQ on risky behaviors.

*p < .05, **p ≤ .01, ***p ≤ .001.
Standardized results of MST severity predicting increased shame and its association with Total INQ on risky behaviors and suicide risk outcomes.

*p < .05, **p ≤ .01, ***p ≤ .001.
REFERENCES


