Published in final edited form as:

J Trauma Stress. 2018 April ; 31(2): 181–190. doi:10.1002/jts.22280.

Military Sexual Assault in Transgender Veterans: Results From a Nationwide Survey

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Abstract

There is limited understanding about the frequency of military sexual assault (MSA) in transgender veterans, characteristics associated with MSA, or subsequent mental and behavioral health problems. To address this gap, we used an online national survey of 221 transgender veterans to identify prevalence of MSA and to assess its association with demographic characteristics, past history of sexual victimization, and stigma-related factors. We also evaluated the association between MSA and several mental and behavioral health problems. Overall, 17.2% of transgender veterans experienced MSA, but rates differed significantly between transgender women (15.2%) and transgender men (30.0%). Using adjusted regression models, MSA was associated with adult sexual assault prior to military service, odds ratio (*OR*) = 4.05, 95% CI [1.62, 10.08], and distal minority stress during military service, *OR* = 2.98, 95% CI [1.28, 6.91]. With respect to health outcomes, MSA was associated with past-month posttraumatic stress disorder (PTSD) symptom severity, *B* = 10.18, 95% CI [3.45, 16.91]; current depression symptom severity, *B* = 3.71, 95% CI [1.11, 6.30]; and past-year drug use, *OR* = 3.17, 95% CI [1.36, 7.40]. Results highlight the vulnerability of transgender veterans to MSA, and the need for military prevention programs that acknowledge transgender individuals' heightened risk. Furthermore, clinicians should consider clinical screening for PTSD, depression, and drug use in transgender veterans who have a history of MSA.

Transgender people are a historically marginalized population that continually faces enormous social and economic challenges and health disparities (Bryant & Schilt, 2008; James et al., 2016; Stotzer, 2009). Approximately one-quarter of transgender people experience some form of gender-bias motivated violence at some point in their lives (Bryant & Schilt, 2008; Grant et al., 2011). For example, the 2015 U.S. Transgender Survey found that 13% of transgender people surveyed were sexually assaulted in a primary- or secondary-school (i.e., K—12) setting because they were either openly transgender or perceived to be transgender; 15% of survey respondents were verbally, physically, or sexually harassed at work in the last year due to their gender identity; and nearly half (47%) of respondents were sexually assaulted at some point in their life-time (James et al., 2016). In the 2010 National Transgender Discrimination Survey, a staggering 90% of people surveyed had experienced harassment or discrimination at work over the course of their careers (Grant et al., 2011).

Transgender individuals are overrepresented in the military and in the veteran population. While prevalence of transgender people in the community is estimated to be around 4.3 per 100,000 persons, prevalence among veterans who use Veterans Health Administration (VA) services is approximately 23 per 100,000 persons (Blosnich et al., 2013). Of the nearly 28,000 respondents to the 2015 U.S. Transgender Survey, 15% were veterans, which is twice the rate in the U.S. population as a whole (James et al., 2016). Military service may confer unique risks for exposure to violence and discrimination for transgender individuals. In a 2008 survey of transgender veterans, conducted by the Transgender American Veterans Association and the Palm Center, 20% of respondents under 35 years of age had been questioned by a military officer regarding their sexual orientation, leading to fears of discharge under the “Don’t Ask, Don’t Tell” policy in place at the time, which barred openly gay or lesbian people from military service but prohibited inquiries into a servicemember’s sexuality (Bryant & Schilt, 2008). This report also highlighted the discrimination and stigma faced by transgender service members who were required to present in the military as the gender to which they were assigned at birth (Bryant & Schilt, 2008). This was further illustrated in a recent study by Dietert and Dentice (2015) that examined the work-place experience for transgender active-duty military members, in which a common theme was the struggle to endure the stigma and stress of hiding a true identity in order to maintain employment or preserve access to retirement benefits. In another study, Harrison-Quintana and Herman (2013) qualitatively described negative aspects of the military experience for 74 transgender veterans, including instances of gender identity-related physical and sexual violence committed by military peers.

Military sexual trauma (MST) is defined by the Department of Veterans Affairs as “a physical assault of a sexual nature, battery of a sexual nature, or sexual harassment which occurred while the veteran was serving on active duty” (Title 38 U.S. Code 1720D, 2006). Rates of MST among VA outpatients are approximately 20% for women and 1% for men (Hoyt, Klosterman Rielage, & Williams, 2011; Kimerling, Gima, Smith, Street, & Frayne, 2007; Surís & Lind, 2008). Military sexual assault (MSA) is a narrower construct that includes penetrative acts of sexual assault and does not include sexual harassment or other types of physical assault; thus, the prevalence of MSA is often lower than that of MST (Skinner et al., 2000; Turchik & Wilson, 2010).

Only two previous studies have examined rates of MST among transgender veterans, both using administrative data sets of VA users (Brown & Jones, 2016; Lindsey et al., 2016), and no studies have specifically assessed MSA. In one study, by Brown and Jones (2016), the prevalence of MST among transgender veterans was 15%, compared to 6% for nontransgender veterans; these rates were not stratified or examined by gender. In the other study, Lindsey et al. (2016) found that the prevalence of MST was 15% overall among transgender veterans who served in the recent military conflicts in Iraq and Afghanistan, with 20% prevalence for transgender men and 13% prevalence for transgender women. Both studies used VA administrative databases, which classify transgender veterans by a diagnosis of “Gender Identity Disorder” rather than through self-identification, and required a declaration of MST to a VA provider, which can lead to lower reported prevalence than survey or anonymous reporting of sexual harassment and assault (Cook, Gidycz, Koss, & Murphy, 2011; Koss, 1993).

The “minority stress model” is a helpful framework for understanding the context of transgender veterans’ lived experiences and potential negative outcomes, including heightened risk for MSA. This model articulates the different types of stressors unique to one’s minority identity, which transgender veterans may experience (Hendricks & Testa, 2012; Meyer, 2003). Specifically, “distal minority stressors” are defined as external events of prejudice and discrimination. For transgender veterans, these may include being interrogated about gender identity, being threatened with loss of custody of children or military career, or being forced to undergo psychological treatment. “Proximal minority stressors” are defined as internal processes, such as feelings of stress, anxiety, and concern, regarding concealment of true gender identity. The model posits that such minority stressors are often interdependent and may be associated with other general stressors (e.g., MSA). For transgender veterans, we hypothesized that MSA is more likely to occur in an environment in which transgender veterans experience proximal and distal minority stressors. In other words, an environment in which discrimination toward gender nonconformity is prevalent may also be one in which acts of assault and violence, among other distal stressors, are more likely to occur (Hendricks & Testa, 2012; Lombardi, Wilchins, Priesing, & Malouf, 2002; Stotzer, 2009). For example, this interrelatedness between minority stressors and experiences of violence was shown in a survey of lesbian and bisexual women by Balsam and Szymanski (2005), in which minority stress was associated with domestic violence victimization and perpetration, and in another study of lesbian women and gay men by Carvalho, Lewis, Derlega, Winstead, and Viggiano (2011), in which victims of interpersonal violence reported greater expectations of prejudice and discrimination. Additionally, a survey of lesbian, bisexual, and queer women in Toronto found that minority stressors were associated with experiences of sexual violence (Logie, Alaggia, & Rwigema, 2014).

There is limited information about how MSA affects the mental and behavioral health of transgender veterans. In the study by Lindsey et al. (2016) of transgender veterans who served in the recent military conflicts in Iraq and Afghanistan, individuals who indicated they had experienced MST were more likely to be diagnosed with mental health conditions, such as posttraumatic stress disorder (PTSD; transgender men, odds ratio [OR] = 6.09, 95% CI [1.22, 30.44]; transgender women, OR = 2.42, 95% CI [1.11, 5.24]), depression (transgender men, OR = 3.33, 95% CI [1.12, 9.93]), and personality disorder [transgender

men, $OR = 3.86$, 95% CI [1.05, 14.22]; transgender women, $OR = 4.6$, 95% CI [2.02, 10.52]), but not with alcohol- or substance-use disorders. These findings are similar to results from other studies with veteran samples. For example, among women veterans, several studies have demonstrated a strong and consistent association between MST and PTSD, across age ranges and military conflicts (Gibson et al., 2015; Surís & Lind, 2008; Turchik & Wilson, 2010). In a nationally representative sample of veterans, Klingensmith, Tsai, Mota, Southwick, and Pietrzak (2014) found that MST was significantly associated with PTSD, major depressive disorder, generalized anxiety disorder, and suicidal ideation, but not with substance-use disorders. Nonetheless, findings on the association between MST and substance-use disorders are mixed (Kimerling et al., 2010; Maguen et al., 2012).

Our study was the first to our knowledge to estimate the prevalence of MSA in a national sample of self-identified transgender veterans. We also assessed associations between minority stress during military service (both distal minority stress, represented by experiences of discrimination during service, and proximal minority stress, represented by internal anxieties related to gender identity during service) and prior traumatic experiences with sexual assault, which was an innovative approach to examining the high prevalence of MSA in this population. Finally, we examined associations between MSA (rather than MST) and mental health and substance-use outcomes for the first time in this population. Based on the extant literature, we hypothesized that experiences of minority stress and past traumatic events would be associated with higher rates of MSA, and that experiences of MSA would increase the risk of negative mental and behavioral health outcomes.

Method

Participants and Procedure

Data were collected in February through May 2015, via an anonymous Internet-based survey about “the health and life experiences of transgender veterans.” Participants were recruited using online methods that included outreach to listserves, online groups, and organizations that serve transgender veterans, as well as via advertising through Facebook (Menlo Park, CA, USA). Online ads included a survey link that led to an information statement that explained the purpose and anonymous nature of the survey, as well as potential risks and benefits. Eligibility criteria were also explained (age 18 years or older, veteran of the U.S. armed forces, transgender identity, live in the United States). The survey took approximately 1 hour to complete and participants were not compensated. This research was approved by the institutional review board at VA Puget Sound Healthcare System.

Of the 312 eligible individuals who agreed to participate, data from 14 participants failed validity checks. Specifically, all surveys were examined to ensure they met the eligibility criteria and to examine internal consistency of the data. Of the remaining 298 veterans, 27 were removed for not identifying as either a transgender man or transgender woman. An additional 50 were removed for incomplete sexual assault measures, for a final sample size of 221. Respondents who were removed for nonresponse were more likely to be younger (mean age = 41.6 years, $p = .002$) and a transgender man (26.0%, $p = .030$). Overall, the mean age of the sample was 48.8 years ($SD = 14.88$), the majority were White (88.2%), and 62.7% had used the VA (Table 1). With respect to gender identity, 13.6% ($n = 30$) were

transgender men, while 86.4% ($n = 191$) were transgender women. The overwhelming majority of the sample (99.5%) served in the military as the gender identity assigned to them at birth, with one participant indicating that she served as a woman and that she currently identifies as a male-to-female transgender individual. This is in line with military regulations at the time of data collection, and with a 2008 report from the Palm Center of transgender veterans, which found that 97% of their sample was unable to transition before leaving the military (Bryant & Schilt, 2008).

Measures

Demographics.—Transgender identity was assessed through both sex assigned at birth and self-reported current gender identity. Participants whose current gender identity was different from their sex assigned at birth were classified as transgender, with those who were classified as male at birth and currently identifying as women, or as male-to-female, coded as transgender women, and those who were classified as female at birth and currently identifying as men, or as female-to-male, coded as transgender men. Variables that captured military experience included combat zone exposure (yes or no) and branch of service. Age, race/ethnicity, and education level were also assessed.

Military sexual assault.—We assessed MSA with three items adapted from the Sexual Experiences Survey (SES; Koss & Gidycz, 1985) about specific types of sexual assault (oral, vaginal, anal) that occurred during active military service (e.g., “How many times during your military service has someone had oral sex with you or made you have oral sex with them without your consent?”). Any occurrence of any type of sexual assault was classified as “yes.”

Prior trauma.—Childhood trauma exposure was assessed with the Childhood Trauma Questionnaire (Bernstein et al., 1994), a well-studied and commonly used scale with excellent validity and reliability; Cronbach’s alpha in this sample was .94. Adult sexual assault prior to military service was assessed in a parallel fashion to MSA, with three questions adapted from the SES about specific types of sexual assault (oral, vaginal, and anal) that occurred after age 18 but prior to entering the military (e.g., “Since your 18th birthday, how many times before your military service has: Someone inserted fingers, objects, or a penis into your vagina without your consent?”). Any incidence on one of the three questions was classified as “yes” for adult sexual assault (Koss & Gidycz, 1985).

Distal and proximal minority stress.—Military distal minority stress was evaluated with eight items that assessed whether the military carried out punishment related to transgender status during service (e.g., “Were you ever forced to undergo psychiatric evaluation or receive psychiatric treatment due to your gender identity?”; Lehavot, Simpson, & Shipherd, 2016; Simpson, Balsam, Cochran, Lehavot, & Gold, 2013). A response of “yes” to any item was scored as positive for distal stress. Military proximal minority stress was assessed with an eight-item scale adapted from a previous study of lesbian, gay, and bisexual veterans (Cochran, Balsam, Flentje, Malte, & Simpson, 2013; Lehavot et al., 2016). An example item includes, “In the service, I was constantly trying to conceal my gender identity.” Participants responded to these items on a Likert-type scale ranging from 1

(*strongly disagree*) to 5 (*strongly agree*), with higher scores indicating greater military proximal minority stress. Cronbach's alpha for this scale in the current sample was .80.

Mental health.—The eight-item Patient Health Questionnaire (PHQ-8; Kroenke et al., 2009; Wells, Horton, LeardMann, Jacobson, & Boyko, 2013) was used to assess symptoms of depression over the last 2 weeks, with scores ranging from 0 to 24. This is a well-validated scale in clinical, veteran, and general populations; Cronbach's alpha in this sample was .93.

The 17-item PTSD Checklist-Civilian (PCL; Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) was used to assess PTSD symptoms consistent with the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; American Psychiatric Association, 1994) definition over the past month, with scores ranging from 0 to 80 (Keen, Kutter, Niles, & Krinsley, 2008). This is a frequently used and well-validated scale for veteran populations; Cronbach's alpha in this sample was .96.

Past-year suicidal ideation was assessed with the single item: "How often have you thought about killing yourself in the past year?," which is Item 2 from the Suicide Behavior Questionnaire-Revised (SBQ-R), a reliable and valid scale used to assess different aspects of suicide (Osman et al., 2001). Responses to this item were assessed on a Likert-type scale ranging from 1 to 5, with responses of *never*, *rarely* (1 time), *sometimes* (2 times), *often* (3–4 times), and *very often* (5 times).

Substance use.—Unhealthy alcohol use was assessed using the three-item Alcohol Use Disorders Identification Test (AUDIT-C; Bush, Kivlahan, McDonell, Fihn, & Bradley, 1998; Pokorney, Miller, & Kaplan, 1972), a widely used, reliable, and valid scale with scores ranging from 0 to 12 (Cronbach's alpha in our sample was .84). Skew and kurtosis of unhealthy alcohol use were 1.00 and 3.58, respectively, and thus the measure was dichotomized at the recommended cutoff score of 3, which is the clinical cutoff score used for nontransgender women (Bradley et al., 2003).

Current smoking was assessed with the question "Do you now smoke cigarettes every day, some days, or not at all?," and was dichotomized ("yes" was coded if any level of smoking was endorsed). Drug use was assessed with the question "In the past year, how often did you use the following -----?" (options included marijuana, cocaine, stimulants, and nonprescribed opiates), and was dichotomized with any use being classified as "yes." Both current smoking and drug use were dichotomized due to relatively low prevalence in the sample, and for ease of clinical interpretation.

Data Analysis

We first compared participants with and without history of MSA on all study variables, using chi-square tests on bivariate or categorical variables and independent *t* tests for continuous variables. We then calculated correlations between all major study variables using Pearson, point biserial, and tetrachoric correlations, depending on whether variables were continuous or dichotomous. We then evaluated the association between potential risk factors for MSA (i.e., prior trauma exposure, military distal and proximal minority stressors)

with logistic regression, adjusting for age, race, and gender identity. Next, we examined the association between MSA and mental health and substance use, using a series of linear regressions (for the continuous mental health outcomes) and logistic regressions (for the dichotomous substance use outcomes), adjusted for age, race, and gender identity. Missing data were rare (< 5% on all measures) and ranged from one response missing on military branch to 22 responses missing on drug use. In analyses, missing data were removed with listwise deletion due to the small amount of missing data (Allison, 2002). All analyses were performed with STATA version 14 (StataCorp., 2015).

Results

Bivariate associations by MSA status are presented in Table 1, and correlations among all study variables are presented in Table 2. Overall prevalence of MSA in the sample was 17.2%. Although the majority of participants who reported a history of MSA were transgender women (76%), the proportion of MSA among transgender women was 15.2% ($n = 29$) and the proportion of MSA among transgender men was 30.0% ($n = 9$), $p = .046$.

Compared with participants without a history of MSA, transgender veterans who experienced MSA were more likely to report a history of sexual assault as an adult prior to entering the military (13.3 % vs. 43.2%, respectively; $p < .001$), military distal minority stress (22.2% vs. 57.1%, respectively; $p < .001$), and military proximal minority stress ($M = 3.85$, $SD = 0.89$ vs. $M = 4.34$, $SD = 0.46$, respectively; $p = .002$). Similarly, veterans with a history of MSA were also more likely than those without a history of MSA to report greater symptom severity of PTSD (PCL scores of 53.25 vs. 42.57, respectively; $p = .002$) and depression (PHQ scores of 13.12 vs. 9.02, respectively; $p = .003$), as well as more likely to report past-year drug use (38.2% vs. 17.0%, respectively; $p = .005$). Additionally, participants with a history of MSA also had a trend toward significantly more frequent suicidal ideation than those without (on a scale of 1 to 5, where 1 indicates the respondent never thinks of suicide and 5 indicates the respondent thinks of suicide very often or has thought about it 5 times in the past year, 2.71 vs. 2.26, respectively; $p = .110$; Table 1).

In an adjusted analysis of factors associated with MSA, gender identity, age, race, and childhood trauma were not associated with MSA, whereas adult sexual assault prior to the military, $OR = 4.04$, 95% CI [1.62, 10.08], and distal minority stress, $OR = 2.98$, 95% CI [1.28, 6.91], were significantly associated; overall $\chi^2(7, N = 194) = 33.84$, $p < .001$. There was also a trend toward significance with proximal minority stress, $p = .056$ (Table 3).

The association between MSA and health outcomes was assessed in a separate series of models that were adjusted for demographic factors (Tables 4 and 5). In these models, MSA was significantly associated with PTSD symptom severity, $B = 10.18$, 95% CI [3.45, 16.91], depression symptom severity, $B = 3.71$, 95% CI: [1.11, 6.30], and drug use, $OR = 3.03$, 95% CI [1.35, 6.75].

Discussion

In this online, national survey of transgender veterans, 17.2% of respondents reported MSA. This percentage is similar to the 15% prevalence rate found in two prior studies that assessed

prevalence of MST using VA administrative data (Brown & Jones, 2016; Lindsay et al., 2016), despite MSA representing only a subset of MST experiences. The similarity is striking, given the difference in methodologies across studies, with the former studies focused on veterans identified as transgender via *International Classification of Diseases* (9th ed.; ICD-9; World Health Organization, 1977) codes and screened for MST in the VA, and the current study having used self-identity as transgender in an anonymous, online survey that assessed MSA (a narrower construct than MST, which also includes sexual harassment). More specifically, 30.0% of transgender men in the current sample, who served as women during their military service, reported MSA, as did 15.2% of transgender women in our sample, who served as men (vs. 20% of nontransgender women and 1% of nontransgender men; Hoyt et al., 2011; Kimerling et al., 2007; Surís & Lind, 2008). These high rates are concerning, and suggest a critical need to focus on sexual assault prevention and improvements in safety for transgender service members.

Factors associated with MSA included prior adult sexual assault and minority stress (both distal and proximal) during military service. Prior sexual assault has a well-established association with future assault in the general population (Basile & Smith, 2011; Breiding, 2014). Nonetheless, there has been very little research conducted on the association between civilian sexual assault and subsequent military sexual assault, and what findings there are on this are mixed. In a convenience sample of 196 racially diverse women veterans from the Los Angeles area, Himmelfarb, Yaeger, and Mintz (2006) failed to find an association between adult sexual assault prior to military service and MSA, and in a survey of 506 women veterans of the Vietnam and Persian Gulf conflicts, Sadler, Booth, Cook, and Doebbeling (2003) found that 14% of participants indicated having experienced sexual violence both prior to (as a child and/or adult) and during military service. Our findings indicate that this association could be more pronounced for transgender veterans than for nontransgender women veterans. A possible explanation for this difference in findings could be the role of childhood trauma in predicting future assault. Childhood trauma was extremely common in our sample, and is associated with both adult sexual assault and MSA (Coid et al., 2001; Kimerling et al., 2007; Surís & Lind, 2008). Future research should further explore the association between childhood, adult civilian, and military assault in both representative samples of veterans as well as in transgender veterans.

The association between military distal stress and MSA suggests that these experiences may go hand in hand during military service. These findings are in line with the minority stress theory, which acknowledges that minority stressors may interplay with or lead to additional, more general stressors (Meyer, 2003). Indeed, the military can be a setting in which expressions of aggressive masculine behaviors may contribute to both discrimination toward gender nonconformity and high rates of sexual assault experienced by transgender individuals during their service (Harrison-Quintana & Herman, 2013; Rosen, Knudsen, & Fancher, 2003; Sadler et al., 2003). Thus, sexual assault prevention may need to include gender-identity awareness programming that focuses on reducing discrimination and harassment of transgender military personnel.

We also found associations between MSA and current symptoms of PTSD, depression, and drug use. Among veterans generally, MSA has strong associations with these outcomes,

particularly with PTSD (Himmelfarb et al., 2006; Kimerling et al., 2007), although an association between MST and substance use disorders was not detected in another study of transgender veterans (Lindsay et al., 2016). The current study assessed any drug use in the past year, as opposed to substance-use disorder, which may explain the discrepancy of these findings. Notably, transgender veterans in our sample, regardless of whether they reported having experienced MSA, reported high rates of both PTSD and depression symptom severity, as well as drug use (20.6%), which suggests that screening for mental health symptoms and drug use is needed at clinical encounters. Because PTSD research and treatment is a priority at the VA, we recommend future research that examines the acceptability and efficacy of existing treatments among transgender veterans, given the high rates of PTSD and depression in this population and especially considering that increasing numbers of transgender veterans are accessing the VA for health services (Kauth et al., 2014). However, despite this increasing trend toward VA use, many transgender veterans do not use VA services, so non-VA clinics serving transgender individuals may want to consider screening for veteran status and MSA.

The current study had several limitations. Despite utilizing a national sample of transgender veterans, the sample size was limited and prevented us from separating transgender men ($n = 30$) and women ($n = 191$) in analyses, and may have limited our power to detect significant differences in some outcomes. In addition, the study used a convenience sample, which limits generalizability to transgender veterans more broadly. For instance, transgender veterans who saw our advertisements on social networking sites or online groups, had access to the Internet, and had interest in completing the survey may be different than the larger population of transgender veterans. Nonetheless, it is noteworthy that the demographic characteristics of our sample are similar to those of prior studies of transgender veterans that used administrative data sets (Brown & Jones, 2016). Another limitation is the cross-sectional design and reliance on retrospective self-report. However, prior research has indicated that prevalence rates of MST may be underreported in VA screening, and therefore the self-report in the context of our anonymous survey could be considered a strength (Kimerling et al., 2007; Surís & Lind, 2008). The current study also included experiences of gender-based discrimination during military service (distal minority stress), but due to limitations of sample size, we were unable to examine this construct as a categorical or count variable that could capture the impact of increasing amounts of discrimination in this population. Future research should be powered to fully explore experiences of minority stress, so that the full scope of the transgender military experience can be better understood.

On June 30, 2016, the military changed their policy regarding transgender individuals, allowing them to serve openly (Rosentel, Hill, Lu, & Barnett, 2016; Spencer, 2017). The visibility of transgender veterans is thus increasing, even in the midst of confusion about their status in the military, and a sometimes hostile political environment (Hirschfeld Davis & Cooper, 2017). At the time of this writing, the Department of Defense was examining their policies on transgender service and access to transition-related care. Thus, while the future policy on transgender service is unclear, it is clear that transgender people have always been a part of the military. Therefore, it is increasingly important to examine the culture of military service and military experiences among transgender service members, including rates of MSA and the factors associated with it. Like all veterans, transgender

veterans have served our country, and it is critical that institutions and health care professionals advocate for their safety.

Acknowledgments

This research was supported by a research grant from the Williams Institute Small Grants Program to Drs. Lehavot, Simpson, and Shipherd. This work was supported by the Denver-Seattle VA Health Services Research & Development (HSR&D) Center of Innovation, VA Puget Sound Health Care System, VA Boston Health Care System, and the University of Washington. Ms. Beckman was supported by an Agency for Healthcare Research and Quality (AHRQ) Pre-Doctoral Research Training Grant (T-32). Dr. Lehavot was supported by a VA Career Development Award from the Clinical Science Research & Development (CSR&D) Service of the VA Office of Research and Development (IK2 CX000867). The views expressed in this article are those of the authors and do not necessarily reflect the position or policy of the Department of Veterans Affairs.

References

- Allison PD (2002). Missing data: Quantitative applications in the social sciences. *British Journal of Mathematical and Statistical Psychology*, 55, 193–196. 10.1348/000711002159653
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR*. Washington, DC: Author.
- Balsam KF, & Szymanski DM (2005). Relationship quality and domestic violence in women's same-sex relationships: The role of minority stress. *Psychology of Women Quarterly*, 29, 258–269. 10.1111/j.1471-6402.2005.00220.x
- Basile KC, & Smith SG (2011). Sexual violence victimization of women: Prevalence, characteristics, and the role of public health and prevention. *American Journal of Lifestyle Medicine*, 5, 407–417. 10.1177/1559827611409512
- Bernstein DP, Fink L, Handelsman L, Foote J, Lovejoy M, Wenzel K, ... Ruggiero J (1994). Initial reliability and validity of a new retrospective measure of child abuse and neglect. *The American Journal of Psychiatry*, 151, 1132–1136. 10.1176/ajp.151.8.1132 [PubMed: 8037246]
- Blanchard EB, Jones-Alexander J, Buckley TC, & Forneris CA (1996). Psychometric properties of the PTSD Checklist (PCL). *Behaviour Research and Therapy*, 34, 669–673. 10.1016/0005-7967(96)00033-2 [PubMed: 8870294]
- Blosnich JR, Brown GR, Shipherd JC, Kauth M, Piegari RI, & Bossarte RM (2013). Prevalence of gender identity disorder and suicide risk among transgender veterans utilizing Veterans Health Administration care. *American Journal of Public Health*, 103, e27–e32. 10.2105/AJPH.2013.301507
- Bradley KA, Bush KR, Epler AJ, Dobie DJ, Davis TM, Sporleder JL, ... Kivlahan DR (2003). Two brief alcohol-screening tests from the Alcohol Use Disorders Identification Test (AUDIT): Validation in a female Veterans Affairs patient population. *Archives of Internal Medicine*, 163, 821–829. 10.1001/archinte.163.7.821 [PubMed: 12695273]
- Breiding MJ (2014). Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization—National Intimate Partner and Sexual Violence Survey, United States, 2011. *Morbidity and Mortality Weekly Report, Surveillance Summaries* (Washington, DC: 2002), 63, 1.
- Brown GR, & Jones KT (2016). Mental health and medical health disparities in 5135 transgender veterans receiving healthcare in the Veterans Health Administration: A case-control study. *LGBT Health*, 3, 122–131. 10.1089/lgbt.2015.0058 [PubMed: 26674598]
- Bryant K, & Schilt K (2008, 8). Transgender people in the U.S. military: Summary and analysis of the 2008 transgender American Veterans Association Survey. Paper prepared for The Palm Center and the Transgender American Veterans Association (TAVA).
- Bush K, Kivlahan DR, McDonell MB, Fihn SD, & Bradley KA (1998). The AUDIT alcohol consumption questions (AUDIT-C): An effective brief screening test for problem drinking. *Archives of Internal Medicine*, 158, 1789–1795. 10.1001/archinte.158.16.1789 [PubMed: 9738608]
- Carvalho AF, Lewis RJ, Derlega VJ, Winstead BA, & Viggiano C (2011). Internalized sexual minority stressors and same-sex intimate partner violence. *Journal of Family Violence*, 26, 501–509. 10.1007/s10896-011-9384-2

- Cochran BN, Balsam K, Flentje A, Malte CA, & Simpson T (2013). Mental health characteristics of sexual minority veterans. *Journal of Homosexuality*, 60, 419–435. 10.1080/00918369.2013.744932 [PubMed: 23414280]
- Coid J, Petruckevitch A, Feder G, Chung WS, Richardson J, & Moorey S (2001). Relation between childhood sexual and physical abuse and risk of revictimisation in women: A cross-sectional survey. *The Lancet*, 358(9280), 450–454. 10.1016/S0140-6736(01)05622-7
- Cook SL, Gidycz CA, Koss MP, & Murphy M (2011). Emerging issues in the measurement of rape victimization. *Violence Against Women*, 17, 201–218. 10.1177/1077801210397741 [PubMed: 21307030]
- Dietert M, & Dentice D (2015). The transgender military experience: Their battle for workplace rights. *SAGE Open*, 5(2), 215824401558423. 10.1177/2158244015584231
- Gibson CJ, Gray KE, Katon JG, Simpson TL, & Lehavot K (2016). Sexual assault, sexual harassment, and physical victimization during military service across age cohorts of women veterans. *Women's Health Issues*, 26, 225–231. 10.1016/j.whi.2015.09.013 [PubMed: 26632005]
- Grant JM, Mottet LA, Tanis J, Harrison J, Herman JL, & Keisling M (2011). *Injustice at every turn: A report of the national transgender discrimination survey*. Washington, DC: National Center for Transgender Equality and National Gay and Lesbian Task Force.
- Harrison-Quintana J, & Herman JL (2013). Still serving in silence: Transgender service members and veterans in the National Transgender Discrimination Survey. *LGBTQ Policy Journal*, 3, 1–13.
- Hendricks ML, & Testa RJ (2012). A conceptual framework for clinical work with transgender and gender nonconforming clients: An adaptation of the Minority Stress Model. *Professional Psychology: Research and Practice*, 43, 460–467. 10.1037/a0029597
- Himmelfarb N, Yaeger D, & Mintz J (2006). Posttraumatic stress disorder in female veterans with military and civilian sexual trauma. *Journal of Traumatic Stress*, 19, 837–846. 10.1002/jts.20163 [PubMed: 17195980]
- Hirschfeld Davis J, & Cooper H (2017, 7 26). Trump says transgender people will not be allowed in the military. *The New York Times*. Retrieved from <https://www.nytimes.com/2017/07/26/us/politics/trump-transgender-military.html>
- Hoyt T, Klosterman Rielage J, & Williams LF (2011). Military sexual trauma in men: A review of reported rates. *Journal of Trauma & Dissociation*, 12, 244–260. 10.1080/15299732.2011.542612 [PubMed: 21534094]
- James SE, Herman JL, Rankin S, Keisling M, Mottet L, & Anafi M (2016). *The report of the 2015 U.S. Transgender Survey*. Washington, DC: National Center for Transgender Equality.
- Kauth MR, Shipherd JC, Lindsay J, Blosnich JR, Brown GR, & Jones KT (2014). Access to care for transgender veterans in the Veterans Health Administration: 2006–2013. *American Journal of Public Health*, 104, S532–S534. 10.2105/AJPH.2014.302086 [PubMed: 25100417]
- Keen SM, Kutter CJ, Niles BL, & Krinsley KE (2008). Psychometric properties of PTSD Checklist in sample of male veterans. *Journal of Rehabilitation Research & Development*, 45, 465–474. 10.1682/JRRD.2007.09.0138 [PubMed: 18629754]
- Kimerling R, Gima K, Smith MW, Street A, & Frayne S (2007). The Veterans Health Administration and military sexual trauma. *American Journal of Public Health*, 97, 2160–2166. 10.2105/AJPH.2006.092999 [PubMed: 17971558]
- Kimerling R, Street AE, Pavao J, Smith MW, Cronkite RC, Holmes TH, & Frayne SM (2010). Military-related sexual trauma among Veterans Health Administration patients returning from Afghanistan and Iraq. *American Journal of Public Health*, 100, 1409–1412. 10.2105/AJPH.2009.171793 [PubMed: 20558808]
- Klingensmith K, Tsai J, Mota N, Southwick SM, & Pietrzak RH (2014). Military sexual trauma in US veterans: Results from the National Health and Resilience in Veterans Study. *The Journal of Clinical Psychiatry*, 75, e1133–1139. 10.4088/JCP.14m09244 [PubMed: 25373123]
- Koss MP, & Gidycz CA (1985). Sexual experiences survey: Reliability and validity. *Journal of Consulting and Clinical Psychology*, 53, 422–423. 10.1037/0022-006X.53.3.422 [PubMed: 3874219]
- Koss MP (1993). Detecting the scope of rape: A review of prevalence research methods. *Journal of Interpersonal Violence*, 8, 198–222. 10.1177/088626093008002004

- Kroenke K, Strine TW, Spitzer RL, Williams JB, Berry JT, & Mokdad AH (2009). The PHQ-8 as a measure of current depression in the general population. *Journal of Affective Disorders*, 114, 163–173. 10.1016/j.jad.2008.06.026 [PubMed: 18752852]
- Lehavot K, Simpson TL, & Shipherd JC (2016). Factors associated with suicidality among a national sample of transgender veterans. *Suicide and Life-Threatening Behavior*, 46, 507–524. 10.1111/sltb.12233 [PubMed: 26878597]
- Lindsay JA, Keo-Meier C, Hudson S, Walder A, Martin LA, & Kauth MR (2016). Mental health of transgender veterans of the Iraq and Afghanistan conflicts who experienced military sexual trauma. *Journal of Traumatic Stress*, 29, 563–567. 10.1002/jts.22146 [PubMed: 27868261]
- Logie CH, Alaggia R, & Rwigema MJ (2014). A social ecological approach to understanding correlates of lifetime sexual assault among sexual minority women in Toronto, Canada: Results from a cross-sectional internet-based survey. *Health Education Research*, 29, 671–682. 10.1093/her/cyt119 [PubMed: 24412812]
- Lombardi EL, Wilchins RA, Priesing D, & Malouf D (2002). Gender violence: Transgender experiences with violence and discrimination. *Journal of Homosexuality*, 42, 89–101. 10.1300/J082v42n01_05
- Maguen S, Cohen B, Ren L, Bosch J, Kimerling R, & Seal K (2012). Gender differences in military sexual trauma and mental health diagnoses among Iraq and Afghanistan veterans with posttraumatic stress disorder. *Women's Health Issues*, 22, e61–e66. 10.1016/j.whi.2011.07.010 [PubMed: 21907590]
- Meyer IH (2003). Prejudice as stress: Conceptual and measurement problems. *American Journal of Public Health*, 93, 262–265. 10.1037/0033-2909.129.5.674 [PubMed: 12554580]
- Osman A, Bagge CL, Gutierrez PM, Konick LC, Kopper BA, & Barrios FX (2001). The Suicidal Behaviors Questionnaire-Revised (SBQ-R): Validation with clinical and nonclinical samples. *Assessment*, 8, 443–454. 10.1177/107319110100800409 [PubMed: 11785588]
- Pokorny AD, Miller BA, & Kaplan HB (1972). The brief MAST: A shortened version of the Michigan Alcoholism Screening Test. *American Journal of Psychiatry*, 129, 342–345. 10.1176/ajp.129.3.342 [PubMed: 5053717]
- Rosen LN, Knudson KH, & Fancher P (2003). Cohesion and the culture of hypermasculinity in US Army units. *Armed Forces & Society*, 29, 325–351. 10.1177/0095327X0302900302
- Rosentel K, Hill BJ, Lu C, & Barnett JT (2016). Transgender veterans and the Veterans Health Administration: Exploring the experiences of transgender veterans in the Veterans Affairs healthcare system. *Transgender Health*, 1, 108–116. 10.1089/trgh.2016.0006 [PubMed: 29159302]
- Sadler AG, Booth BM, Cook BL, & Doebbeling BN (2003). Factors associated with women's risk of rape in the military environment. *American Journal of Industrial Medicine*, 43, 262–273. 10.1002/ajim.10202 [PubMed: 12594773]
- Simpson TL, Balsam KF, Cochran BN, Lehavot K, & Gold SD (2013). Veterans administration health care utilization among sexual minority veterans. *Psychological Services*, 10, 223–232. 10.1037/a0031281 [PubMed: 23730965]
- Skinner KM, Kressin N, Frayne S, Tripp TJ, Hankin CS, Miller DR, & Sullivan LM (2000). The prevalence of military sexual assault among female Veterans' Administration outpatients. *Journal of Interpersonal Violence*, 15, 291–310. 10.1177/088626000015003005
- Spencer AB (2017). Understanding the Department of Defense's policy regarding transgender servicemembers. *The Army Lawyer*, 2, 4–17.
- StataCorp. (2015). *Stata Statistical Software: Release 14*. College Station, TX: StataCorp LP.
- Stotzer RL (2009). Violence against transgender people: A review of United States data. *Aggression and Violent Behavior*, 14, 170–179. 10.1016/j.avb.2009.01.006
- Surís A, & Lind L (2008). Military sexual trauma: A review of prevalence and associated health consequences in veterans. *Trauma, Violence, & Abuse*, 9, 250–269. 10.1177/1524838008324419
- Title 38 U.S.C. § 1720D (2006). Counseling and treatment for sexual trauma.
- Turchik JA, & Wilson SM (2010). Sexual assault in the U.S. military: A review of the literature and recommendations for the future. *Aggression and Violent Behavior*, 15, 267–277. 10.1016/j.avb.2010.01.005

- Wells TS, Horton JL, LeardMann CA, Jacobson IG, & Boyko EJ (2013). A comparison of the PRIME-MD PHQ-9 and PHQ-8 in a large military prospective study, the Millennium Cohort Study. *Journal of Affective Disorders*, 148, 77–83. 10.1016/j.jad.2012.11.052 [PubMed: 23246365]
- World Health Organization. (1977). *International classification of diseases* (9th ed.). Geneva, Switzerland: Author.

Table 1

Demographic Characteristics of Transgender Veterans Sampled, by Military Sexual Assault (MSA) Status

Characteristic	MSA (n = 38)			No MSA (n = 183)			p	Statistical Test	Overall Sample (n = 221)		
	M	SD	n	M	SD	n			M	SD	n
Age, years	47.89	15.81		49.03	14.72		.670	$t(219) = 0.43$	48.83	14.88	
Race							.172	$\chi^2(1, N = 220) = 1.87$			
White			36			159					195
Non-White			2			24					26
Gender							.046*	$\chi^2(1, N = 221) = 3.99$			
Transgender woman			29			162					191
Transgender man			9			21					30
Branch of Service							.138	$\chi^2(1, N = 220) = 8.36$			
Army			13			67					80
Navy			15			38					53
Marine Corps			3			17					20
Air Force			6			42					48
Coast Guard			1			4					5
National Guard/Reserves			0			14					14
Served in a combat zone			18			88		$\chi^2(1, N = 220) = 0.01$			106
Ever used VA services			29			109		$\chi^2(1, N = 220) = 3.63$			138
No college degree			20			102		$\chi^2(1, N = 221) = 0.12$			122
Past trauma											
Childhood trauma	2.14	0.12		2.04	0.06		.434	$t(219) = -0.78$	2.06	0.05	
Adult sexual assault before military service			16			24		$\chi^2(1, N = 218) = 18.43$			40
Distal minority stress			20			38		$\chi^2(1, N = 206) = 17.51$			58
Proximal minority stress							.999**	$t(201) = -3.18$			
Mental health	4.34	0.46		3.85	0.89				3.94	0.85	
PTSD	53.25	18.44		42.57	18.68		.002**	$t(210) = -3.13$	44.38	19.03	
Depression	13.12	7.18		9.02	7.17		.003**	$t(202) = -3.04$	9.70	7.32	
Suicidal ideation	2.71	1.53		2.26	1.46		.110	$t(203) = -1.60$	2.34	1.47	

Characteristic	MSA (n = 38)				No MSA (n = 183)				Statistical Test	p	Overall Sample (n = 221)			
	M	SD	n	%	M	SD	n	%			M	SD	n	%
Unhealthy alcohol use			20	58.8			84	49.4	$\chi^2(1, N = 204) = 1.00$	.316		104	51.0	
Smoking			10	29.4			26	15.2	$\chi^2(1, N = 203) = 3.82$	.051		36	17.6	
Drug use			13	38.2			28	17.0	$\chi^2(1, N = 199) = 7.79$	.005**		41	20.6	

Note. Continuous comparisons were assessed using *t* tests and categorical comparisons were completed with chi-square tests. VA = Veterans' Health Administration; PTSD = posttraumatic stress disorder.

* $p < .05$.

** $p < .01$.

Table 2

Correlations Among All Major Study Variables

Variable	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Age ^a	-.11	-.36***	-.05	.02	-.08	.18	-.03	-.20	-.28***	-.21*	-.20***	-.18**	-.22**
2. Race ^b	-	.35	.06	-.00	-.10	.10	-.19	.06	-.03	-.09	-.06	-.10	.30
3. Gender ^b	-	-	.02	.11	.36	.01	.24	.15*	.12	.08	-.06	.12	.34
4. Childhood trauma ^a	-	.29***	-	.15*	-.19	.05	.05	.36***	.28***	.20	-.09	.15*	.10
5. Adult sexual assault prior to military ^b	-	-	-	-	.36	-.21**	.52	.26***	.14*	-.07	.08	.14	.30
6. Distal minority stress ^b	-	-	-	-	-	-.21**	.48**	.32***	.24***	.11	.09	.13	.05
7. Proximal minority stress ^a	-	-	-	-	-	-	-.22**	-.33***	-.31***	-.25**	-.11	-.22**	-.08
8. Military sexual assault ^b	-	-	-	-	-	-	-	.21**	.21**	.11	.14	.26	.37
9. PTSD ^a	-	-	-	-	-	-	-	-	.78***	.50***	.14*	.24***	.16*
10. Depression ^a	-	-	-	-	-	-	-	-	-	.55***	.13	.17*	.23***
11. Suicidal ideation ^a	-	-	-	-	-	-	-	-	-	-	.31***	.16*	.12
12. Unhealthy alcohol use ^b	-	-	-	-	-	-	-	-	-	-	-	.16	.30
13. Smoking ^b	-	-	-	-	-	-	-	-	-	-	-	-	.27
14. Drug use ^b	-	-	-	-	-	-	-	-	-	-	-	-	-

Note. Pearson correlations are presented between continuous variables, point biserial correlations between continuous and dichotomous variables, and tetrachoric correlations between dichotomous variables. PTSD = posttraumatic stress disorder.

^aContinuous variable.

^bDichotomous variable.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3
Logistic Regression of Factors Associated With Military Sexual Assault (MSA) in Transgender Veterans

Correlates	<i>B</i>	<i>SE</i>	<i>OR</i>	95%CI
Transgender men (Referent: transgender women)	0.62	0.61	1.85	[0.56, 6.09]
Age	-0.01	0.02	0.99	[0.96, 1.02]
Non-White (Referent: White)	-0.85	0.84	0.43	[0.08, 2.23]
Childhood trauma	-0.12	0.28	0.88	[0.51, 1.54]
Adult sexual assault prior to military (Referent: No)	1.40	0.47	4.05**	[1.62, 10.08]
Distal minority stress (Referent: No)	1.09	0.43	2.98*	[1.28, 6.91]
Proximal minority stress	0.71	0.37	2.03	[0.98, 4.21]

Note. Variables with no referent are continuous.

* $p < .05$.

** $p < .01$.

Table 4
Association Between Military Sexual Assault (MSA) and Mental Health in Transgender Veterans

Outcome	<i>B</i>	95% CI	<i>SE</i>	Model <i>F</i>	<i>df</i>
PTSD ^a	10.18**	[3.45, 16.91]	3.42	4.87**	[4, 207]
Depression ^a	3.71**	[1.11, 6.30]	1.32	6.56**	[4, 199]
Suicidal ideation ^a	0.36	[-0.18, 0.90]	0.27	3.59**	[4, 200]

Note. All analyses adjusted for gender identity, race, and age. PTSD = posttraumatic stress disorder; df = degrees of freedom.

^a Assessed continuously using linear regressions.

* *p* < .05.

** *p* < .01.

Table 5
Association Between Military Sexual Assault (MSA) and Substance Use in Transgender Veterans

Outcome	B	SE	Adjusted OR	95%CI	Model χ^2	n	df
Unhealthy alcohol use	0.28	0.39	1.33	[0.61, 2.87]	10.39*	204	4
Current smoker	0.66	0.45	1.94	[0.80, 4.73]	10.45*	181	3
Drug use	1.15	0.43	3.17**	[1.36, 7.40]	20.34**	199	4

Note. Unhealthy alcohol use, smoking, and drug use were assessed dichotomously using logistic regressions. All analyses adjusted for gender identity, race, and age. OR = odds ratio; df = degrees of freedom.

* $p < .05$.

** $p < .01$.