

Interpersonal Violence Throughout the Lifespan Associations With Suicidal Ideation and Suicide Attempt Among a National Sample of Female Veterans

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Background: Female veterans experience interpersonal violence (ie, physical and sexual violence) more often than male veterans and nonveteran females. There is limited knowledge of types of interpersonal violence across the lifespan in relation to suicidal ideation and suicide attempt. Prior research has also focused on those accessing the Veterans Health Administration (VHA) care.

Objective: This study examined if physical and sexual violence at differing time points (ie, premilitary, during military service) were associated with suicidal ideation and a suicide attempt at subsequent time points. We anticipated that violence would be associated with an increased risk of suicidal ideation and attempt; however, given limited prior research, we were uncertain which types of violence and time points would be associated with risk.

Research Design: Data from a cross-sectional national survey.

Subjects: A total of 407 female veterans using, formerly using, or who never used VHA care.

Measures: Suicidal ideation, suicide attempt, physical violence, and sexual violence were assessed.

Results: Premilitary sexual, but not physical, violence was associated with military suicidal ideation. Both premilitary and military sexual and physical violence were associated with postmilitary suicidal ideation. Premilitary and military sexual, but not physical, violence were associated with a postmilitary suicide attempt. These results were maintained after accounting for VHA use. A significant model for military suicide attempt was not generated.

Conclusions: Assessment of premilitary and military sexual violence among female veterans is warranted within the context of suicide risk assessment and prevention. Preventing sexual violence

among female veterans may be important for preventing suicidal ideation and attempt.

Key Words: female veteran, physical violence, sexual violence, suicidal ideation, suicide attempt

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Rates of suicide among US veterans remain a public health concern, exceeding those of the comparable adult nonveteran population. In a recent report by the Department of Veterans Affairs, age-adjusted veteran suicide rates in 2017 were 1.5 times higher than those of nonveteran adults.¹ Yet within this, there are striking sex differences. While male veterans experienced an age-adjusted suicide rate 1.3 times higher than nonveteran adult males, the age-adjusted suicide rate was 2.2 times higher among female veterans compared with nonveteran adult females.¹ This disparity may be partially explained by an increase in suicide rates among female veterans relative to male veterans and female nonveterans; age-adjusted rates of suicide in female veterans increased 60.5% from 2005 to 2017, compared with 42.9% and 33.3% in male veterans and female nonveterans respectively.²

Despite this, understanding factors that increase the risk for suicide, suicide attempt, and suicidal ideation among female veterans remains limited. To date, various studies have reported associations between several factors, including psychiatric diagnoses and trauma exposure, with suicide risk among female veterans.³ While female veterans can experience myriad traumas (eg, combat), the relationship between interpersonal violence (ie, physical or sexual violence) and suicidal self-directed violence appears especially notable.³

Interpersonal violence is highly prevalent among female veterans and to a greater extent than for male veterans.^{4,5} Indeed, a large-scale epidemiologic examination found rates of interpersonal violence among female veterans exceeded those of male veterans and nonveteran females.⁶ A review by Zinzow et al⁵ noted that studies have generally reported high rates of physical and sexual violence (18%–72%) among female veterans, albeit ranging widely based on the definition and time period assessed.

In addition, many female veterans experience interpersonal violence across the lifespan. In a study of female veterans referred for VA trauma-focused treatment, 60.4%

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reported at least one form of childhood abuse (eg, physical or sexual abuse). Interpersonal violence in adulthood was also pervasive, with 77.0% reporting a history of sexual assault and 54.8% endorsing an experience of physical assault.⁷

In fact, interpersonal violence is rarely a singular occurrence.⁸ Female veterans who experience premilitary violence, such as childhood sexual abuse, are at increased risk for sexual violence during military service.^{9–12} This association is not isolated to premilitary interpersonal violence; female veterans who experience interpersonal violence as adults, including during military service, are also at increased risk for subsequent (ie, postmilitary) interpersonal violence.^{9,10} Taken in aggregate, high rates of interpersonal violence throughout the lifespan among female veterans likely illustrate a lifelong pattern of violence beginning in childhood and persisting during military service and following separation from the military.⁷

A burgeoning research base has established an association between interpersonal violence with suicidal ideation and attempt among female veterans. Benda¹³ found that childhood, as well as adult, physical and sexual violence, were associated with suicidal ideation and suicide attempt among homeless female veterans seeking Veterans Health Administration (VHA) substance-related treatment. Bryan et al¹⁴ noted, among military personnel and veterans in college, females who experienced premilitary sexual violence were more likely to report suicidal ideation and suicide attempts. In addition, several studies have reported that sexual harassment and/or sexual assault during military service (ie, military sexual trauma) are associated with suicidal ideation,^{15,16} suicide attempt,^{17,18} and suicide¹⁹ among female veterans.^{3,20}

While these studies are integral to understanding the role of interpersonal violence in suicidal ideation and suicide attempt among female veterans, several gaps remain. Prior research has focused on the impact of sexual violence, to the exclusion of physical violence. In addition, research has predominantly focused on violence during specific timeframes (eg, military service), yet rarely has focused on other timeframes in which interpersonal violence can occur. This is a limitation, as female veterans often present with histories of chronic interpersonal violence, making it difficult to ascertain how these specific experiences relate to risk for suicide.

This body of research has also predominately focused on suicidal ideation, with limited understanding of the role of interpersonal violence in suicide attempts, which are less common, clinically more concerning, and distinct from suicidal ideation.^{21,22} Finally, the majority of female veterans do not use VHA care²³ and suicide rates among non-VHA using female veterans have increased at a greater magnitude relative to VHA using female veterans.²⁴ Yet prior research has largely focused on veterans using VHA services. Thus, we are unaware of any studies that have simultaneously examined the roles of both physical and sexual violence across the lifespan in relation to suicidal ideation and suicide attempts among a general sample of female VHA and non-VHA using veterans.

The present study sought to address these gaps by examining if sexual and physical violence at differing time

points (ie, premilitary, during military service) were associated with suicidal ideation and suicide attempts during and following military service. Given prior research, we hypothesized that interpersonal violence would be positively associated with suicidal ideation and a suicide attempt at subsequent time points. We anticipated that findings would elucidate discreet time points and types of interpersonal violence that could be targeted through tailored prevention, assessment, and interventional efforts.

METHODS

Participants and Procedures

Data were collected as part of a national, cross-sectional survey.²⁵ Female veterans aged 18–89 years enrolled in VHA care were identified using the VA Corporate Data Warehouse. Records for nonveterans, the deceased, those with a discrepancy in sex/age, those with inconsistent/incomplete identifiers, or an unusable address were removed, resulting in 782,454 eligible female veterans. From these, 3000 female veterans were randomly selected, stratified by age and region, and equally divided into those who currently (past year), previously (before the past year), or never (no use ever) used VHA care.

Three mailings inviting participation were sent to identified female veterans. The initial mailing included an invitation letter, a postcard consent, a paper version of the survey, a debriefing form, and a stamped addressed envelope to return the paper survey. Alternatively, participants could complete the survey online. In total, 52 (12.7%) participated online and 355 (87.3%) participated via paper. Groups did not differ in terms of rates of interpersonal violence, suicidal ideation, or suicide attempt based on the mode of participation ($P > 0.05$). Participation was anonymous and no compensation was provided. This study was approved by the local institutional review board.

Of 463 who initiated the survey, those who reported male birth sex reported current active status or full-time Guard/Reserves, indicated that they had not separated from the military, only answered the eligibility questions, or reported previously taking the survey were excluded ($n = 22$). In addition, those with missing data on relevant measures (ie, missing suicidal ideation data, $n = 11$; missing suicide attempt data, $n = 10$; missing physical violence data, $n = 7$; missing sexual violence data, $n = 12$; data were nonexclusive) utilized for inferential analyses were excluded from the analytic sample ($n = 34$). This resulted in a final analytic sample of 407 female veterans. Of this sample, 158 (46.3%) had used VHA services in past 12 months, 102 (25.0%) had used VHA services previously but not in the past 12 months, and 117 (28.7%) had never used VHA services.

Measures

Suicidal ideation and suicide attempt were assessed using an abbreviated self-report version of the Self-Injurious Thoughts and Behaviors Interview (SITBI),²⁶ modified based on methods by Bryan and Bryan.²⁷ Participants were asked if they had experienced suicidal ideation (ie, “Have you ever had thoughts of killing yourself?”) and suicide attempt (ie,

“Have you ever made an actual attempt to kill yourself in which you had at least some intent to die?”) in their lifetime. Those who reported lifetime suicidal ideation or attempt were queried regarding the presence/absence of each respective experience at specific time points, including premilitary service (ie, “during the first 18 years of your life” and “after age 18, but before your military service”; collapsed), during military service (ie, “during your military service”), and following separation from the military (ie, “after separating from the military”; yes/no for each). The SITBI has strong reliability and corresponds to other suicidal ideation and attempt measures.²⁶

Childhood physical and sexual violence were assessed with methodology consistent with the Adverse Childhood Experiences Study (ACES),^{28–30} but with minor changes in wording to reflect *any* individual perpetrating the violence, rather than only a “parent, stepparent, or adult living in the home” (to enable assessment of childhood interpersonal violence broadly, rather than childhood abuse specifically). Childhood physical violence was assessed with 2 items, with responses of “never” indicative of no childhood physical violence. Childhood sexual violence was assessed with 4 yes/no items, with any “yes” response indicative of sexual violence in childhood. The ACES is considered one of the “gold standards” for assessing traumatic and stressful experiences during childhood and is commonly used to measure childhood physical and sexual abuse.^{28,29}

Physical and sexual violence in adulthood were assessed using a methodology consistent with a study published by Sadler et al.³¹ Violence exposure during adulthood was measured at 3 time points to mirror the assessment of suicidal ideation and suicide attempt: (1) premilitary service (age 18 y and above, but before military service); (2) during military service; and (3) following separation from the military, with one yes/no question per time point and violence type. The question assessing the history of physical violence were based on definitions from the National Criminal Victimization Survey and the National Institute of Justice and Centers for Disease Control and Prevention Survey (ie, “... were you ever pushed, shoved, grabbed, slapped, kicked, beaten, choked, threatened, or attacked with a weapon or other object (independent of sexual violence event[s])?”).³² The question assessing the history of sexual violence were based on definitions used by the American Medical Association³³ and the American College of Obstetricians and Gynecologists.³⁴ Both definitions have been used in prior research³¹; however, the definition for sexual violence was expanded to include experiences of non-penetrative sexual violence (ie, “... did you experience any act that occurred without your consent that involved the use or threat of force of sexual contact, for example, attempted or completed sexual penetration of your vagina, mouth, or rectum?”).

Participants were also administered a self-report sociodemographic questionnaire assessing demographics (eg, age, education, race, ethnicity) and military service-related characteristics (eg, service era, branch, combat deployment). In addition, female sex was confirmed using the following item: “What is your birth sex?”

Analytic Plan

Four logistic regressions were conducted, each with different criterion variables (ie, suicidal ideation during military service; suicidal ideation following separation from the military; suicide attempt during military service; suicide attempt following separation from the military). Predictor variables included physical and sexual violence (yes/no; dichotomous). Only violence exposure occurring before the discreet suicidal ideation and suicide attempt time points were entered into each model; thus, models examining suicidal ideation or attempt during military service included premilitary sexual and physical violence, whereas models examining suicidal ideation or attempt following separation from the military also included military sexual and physical violence. Interpersonal violence during childhood and premilitary adulthood were collapsed into a “premilitary” variable given the limited number of individuals who experienced premilitary adult interpersonal violence, coupled with the fact that a portion of participants potentially enlisted before age 18 and thus did not experience a premilitary adulthood timeframe.

Demographic and military service-related characteristics were examined to determine if they were associated with the outcomes of interest. Any characteristics significantly associated with an outcome were included in the respective models as covariates. In addition, sensitivity analyses were conducted for all models based on VHA use (ie, past 12 mo use, prior use but not in the past 12 mo, never used). This was to determine if effects were maintained when accounting for use of VHA services. A standard level of significance was used for each model (<0.05). All analyses were conducted using SPSS, version 26.0.

RESULTS

Demographic and Military Service-related Characteristics

The sample demographic and military-related characteristics can be found in Table 1. The sample mean was 55.55 (SD = 12.42) years old. In terms of education, 32 (7.9%) veterans reported attaining a high school diploma or equivalent, 95 (23.3%) reported a history of some college, 171 (42.1%) attained an Associates or Bachelor’s degree, and 109 (26.8%) had a graduate degree. The sample was predominantly White (n = 294; 72.2%), with 62 (15.2%) identifying as Black, 12 (2.9%) identifying as Asian American/Pacific Islander, 7 (1.7%) identifying as Native American/Alaskan Native, 17 (4.2%) identifying as multiracial, and 8 (2.0%) identifying as another race. Finally, 142 (34.9%) of the sample identified as Hispanic.

The majority of the sample served in the Army (n = 166; 43.2%), with 115 (29.9%) serving in the Air Force, 84 (21.9%) in the Marines, 28 (7.3%) in the Navy, and 5 (1.3%) in the Coast Guard. Mirroring age, participants served in myriad eras: 6 (1.5%) Korean, 9 (2.5%) post-Korean, 69 (17.0%) Vietnam, 176 (43.2%) post-Vietnam, 186 (45.7%) Desert Storm/Shield, and 131 (32.2%) Operation Enduring Freedom/Operation Iraqi Freedom/Operation New Dawn. In addition, 108 (26.5%) reported deployment to a combat zone.

TABLE 1. Demographic and Military Characteristics for the Analytic Sample (N = 407)

Variables	Mean	SD
Age	55.55	12.42
Education [n (%)]		
High school diploma or equivalent	32 (7.9)	
Some college, no degree	95 (23.3)	
Associates or Bachelor's degree	171 (42.1)	
Graduate degree	109 (26.8)	
Race* [n (%)]		
White	294 (72.2)	
Black	62 (15.2)	
Asian American/Pacific Islander	12 (2.9)	
Native American/Alaskan Native	7 (1.7)	
Multiracial	17 (4.2)	
Other	8 (2.0)	
Ethnicity†		
Hispanic	142 (34.9)	
Non-Hispanic	265 (65.1)	
Branch of service‡§ [n (%)]		
Army	166 (43.2)	
Air Force	115 (29.9)	
Marines	84 (21.9)	
Navy	28 (7.3)	
Coast Guard	5 (1.3)	
Service era§		
Korean	6 (1.5)	
Post-Korea	9 (2.2)	
Vietnam	69 (17.0)	
Post-Vietnam	176 (43.2)	
Desert Storm/Shield	186 (45.7)	
OEF/OIF/OND	131 (32.2)	
Combat deployment	108 (26.5)	

*n = 7 missing data.

†n = 2 missing data.

‡n = 23 missing data.

§Data are nonexclusive.

OEF indicates Operation Enduring Freedom; OIF, Operation Iraqi Freedom; OND, Operation New Dawn.

Rates of Interpersonal Violence, Suicidal Ideation, and Suicide Attempt

Rates of interpersonal violence, suicidal ideation, and suicide attempt can be found in Table 2. The majority of the sample reported a lifetime history of physical (n = 250; 65.1%) or sexual (n = 251; 65.1%) violence. Premilitary physical (n = 202; 49.6%) and sexual (n = 212; 52.1%) violence were the most prevalent, with 99 (24.3%) participants endorsing physical violence during military service and 115 (28.3%) reporting sexual violence during military service.

Among the sample, 193 (47.4%) reported a lifetime history of suicidal ideation. Rates were highest following separation from the military (n = 141; 34.6%), with 98 (24.1%) participants endorsing suicidal ideation during military service. Sixty-nine (17.0%) participants reported a lifetime suicide attempt. Mirroring suicidal ideation, rates were highest the following separation from the military (n = 45; 11.1%), with 33 (8.1%) of participants endorsing a suicide attempt during military service.

Suicidal Ideation

All suicidal ideation regression models were significant (Table 3). Premilitary sexual violence, but not premilitary

TABLE 2. Interpersonal Violence, Suicidal Ideation, and Suicide Attempt Across the Lifespan Within the Sample (N = 407)

Variables	n (%)
Physical violence (lifetime)	250 (65.1)
Premilitary physical violence	202 (49.6)
Military physical violence	99 (24.3)
Physical violence following separation from the military*	94 (23.1)
Sexual violence (lifetime)	251 (65.4)
Premilitary sexual violence	212 (52.1)
Military sexual violence	115 (28.3)
Sexual violence following separation from the military	44 (10.8)
Suicidal ideation (lifetime)	193 (47.4)
Premilitary suicidal ideation	97 (23.8)
Military suicidal ideation	98 (24.1)
Suicidal ideation following separation from the military	141 (34.6)
Suicide attempt (lifetime)	69 (17.0)
Premilitary suicide attempt	33 (8.1)
Military suicide attempt	33 (8.1)
Suicide attempt following separation from the military	45 (11.1)

*n = 1 missing data for postmilitary physical violence.

physical violence, was associated with elevated odds of reporting experiencing suicidal ideation during military service ($\chi^2_4 = 34.70, P < 0.001$). However, both physical and sexual violence across both time points (ie, premilitary and military) were associated with elevated odds of reporting suicidal ideation following separation from the military ($\chi^2_4 = 68.34, P < 0.001$). When sensitivity analyses were conducted for both models to include VHA use, effects attenuated but significance was maintained.

Suicide Attempt

While the overall model for military suicide attempt was nonsignificant ($\chi^2_2 = 4.99, P = 0.082$), premilitary sexual violence was associated with suicide attempt during military service (Table 4). Conversely, the postmilitary suicide attempt model was significant ($\chi^2_4 = 24.26, P < 0.001$). Only premilitary and military sexual violence were associated with suicide attempt following separation from the military; in contrast, neither premilitary or military physical violence were significantly associated with suicide attempt following separation from the military. Mirroring suicidal ideation

TABLE 3. Associations Between Prior Physical and Sexual Violence and Suicidal Ideation (N = 407)

Variables	Suicidal Ideation	
	OR (95% CI)	P
Suicidal ideation during military service		
Premilitary physical violence	1.56 (0.95, 2.54)	0.076
Premilitary sexual violence	2.35 (1.42, 3.88)	0.001
Suicidal ideation following separation from the military*		
Premilitary physical violence	1.94 (1.23, 3.05)	0.004
Premilitary sexual violence	2.28 (1.44, 3.62)	< 0.001
Military physical violence	1.94 (1.16, 3.25)	0.011
Military sexual violence	2.78 (1.70, 4.55)	< 0.001

Significant values are bolded.

*The suicidal ideation during military service model covaried for combat deployment and age.

CI indicates confidence interval; OR, odds ratio.

TABLE 4. Associations Between Prior Physical and Sexual Violence and Suicide Attempt (N = 407)

Variables	Suicide Attempt	
	OR (95% CI)	P
Suicide attempt during military service		
Premilitary physical violence	0.81 (0.39, 1.68)	0.565
Premilitary sexual violence	2.37 (1.08, 5.19)	0.031
Suicide attempt following separation from the military		
Premilitary physical violence	1.06 (0.54, 2.05)	0.874
Premilitary sexual violence	2.36 (1.15, 4.84)	0.019
Military physical violence	1.83 (0.92, 3.63)	0.087
Military sexual violence	2.56 (1.31, 5.05)	0.006

Significant values are bolded.
CI indicates confidence interval; OR, odds ratio.

models, a sensitivity analysis found that when VHA use was included as a factor, significance was maintained for all factors.

DISCUSSION

To our knowledge, this is the first study to examine interpersonal violence across the lifespan in relation to suicidal ideation and suicide attempt among female veterans. Findings extend current knowledge regarding factors associated with suicidal ideation and suicide attempt among female veterans. Moreover, by surveying female veterans nationally, including those not currently using VHA care, our findings extend knowledge regarding female veterans more broadly. Consistent with prior research,⁴⁻⁷ rates of physical and sexual violence were notably high. Rates of interpersonal violence appeared especially pronounced before military service. Therefore, continued assessment within health care settings of physical and sexual violence throughout the lifespan is pertinent to ensure cycles of victimization are identified and addressed. Further, given the associations of premilitary and during military violence to suicidal ideation and suicide attempt, a continued focus on addressing violence-related concerns and “breaking the cycle” of violence remains critical. For instance, further expansion of response and prevention efforts during military service are likely integral.³⁵

Sexual Violence

Sexual violence was consistently associated with suicidal ideation and suicide attempt. Sexual violence preceding military service was associated with a greater than double risk of experiencing suicidal ideation during military service. In regression models focused on suicidal ideation and suicide attempt following separation from the military, sexual violence preceding and occurring during military service was associated with elevated odds of experiencing suicidal ideation and suicide attempt. This finding suggests that risk for suicidal ideation and suicide attempt among female veterans is not isolated to premilitary (eg, childhood or early adulthood) nor military sexual violence, but encompasses both.

While premilitary sexual violence, such as childhood sexual abuse, has been associated with suicidal ideation and attempt in specific clinical (eg, homeless female veterans¹³)

and college student¹⁴ samples, our findings also align with other studies in highlighting the role of sexual violence during one’s military service on suicidal ideation and suicide attempt in a national sample of female veterans.^{16,19} Currently, VHA mandates universal screening for sexual violence that occurred during veterans’ military service (ie, military sexual trauma) as part of clinical care. However, while clinical practice guidelines recommend a broad assessment of violence exposure,³⁶ standardized assessment of premilitary sexual violence is not currently mandated as part of a universal screen. Assessment of sexual violence throughout the lifespan is likely integral and important to assess suicide risk among female veterans during health care assessment and treatment.

Physical Violence

In contrast, physical violence was not uniformly associated with suicidal ideation nor suicide attempt. That is, premilitary and military physical violence were associated with elevated odds of suicidal ideation following separation from the military, but not suicide attempt following separation from the military. In addition, premilitary physical violence was not significantly associated with military suicidal ideation or suicide attempt. This suggests that, among female veterans, physical violence may play a less prominent role in risk for suicidal ideation or attempt over time, relative to sexual violence.

While both sexual and physical violence are distressing events, sexual violence can result in perceptions of guilt and shame, especially when survivors second-guess their responses during the violence and blame themselves for what they did or did not do.³⁷ Importantly, shame and guilt are associated with suicidal ideation and attempt in trauma-exposed military and veteran samples.^{4,38} As such, it is likely important to not only assess the experience of sexual violence, but also the impact of such experiences on cognitive-affective states (eg, thoughts about oneself, the world, and others; shame; guilt).^{37,39,40} This information can subsequently be utilized to inform optimal interventions to address these sequelae; for example, cognitive processing therapy has been noted as being particularly salient in addressing psychiatric symptoms and belief systems among veterans exposed to sexual violence during one’s military service.⁴¹⁻⁴³ Despite this, it is important to note that understanding of specific drivers of risk for suicide based on sexual and physical violence remain largely unknown.^{44,45} As such, further examination of factors specific to sexual, versus physical, violence is warranted to better understand drivers of risk specific to each potentially traumatic experience and how best to appropriately intervene upon these factors.

Limitations

While the current study has several strengths, specific limitations should be noted. The study was cross-sectional and relied on retrospective recall, which may be subject to recall bias. To ensure that interpersonal violence preceded suicidal ideation and suicide attempt, only models examining military and postmilitary separation suicidal ideation and suicide attempt were conducted, limiting understanding of the

role of interpersonal violence in premilitary suicidal ideation and attempt as well as the role of interpersonal violence following separation from the military. Childhood and premilitary adulthood violence were also combined into a premilitary variable. While informative, this limits understanding of the impact of childhood versus premilitary adult interpersonal violence exposure. In addition, other facets of interpersonal violence (eg, severity, chronicity, perpetration by a stranger versus family member or friend) were not assessed and remain important areas for future research.

It is also important to note that a portion of data were missing, resulting in decreased sample size. Further, while the assessment of physical violence was based upon a validated item, it is unclear if military physical violence potentially included combat exposure, which may have impacted results. This study was also inclusive only of veterans, limiting understanding of this relationship and risk among military service personnel.

Finally, the military suicide attempt model was non-significant. While sexual violence was determined to be a significant factor within this model, this likely suggests the import of additional factors as they relate to subsequent suicidal self-directed violence. Because of this, further research, inclusive of additional clinical factors (eg, chronicity and severity of violence), may be warranted to elucidate premilitary risk factors for suicide attempt during one's military service.

CONCLUSIONS

Interpersonal violence, suicidal ideation, and suicide attempt are unfortunately common occurrences among female veterans. Our findings suggest that interpersonal violence is pervasive across the lifespan, and that sexual violence in particular is associated with suicidal ideation and suicide attempt among female veterans. Our results, combined with prior research, suggest that preventing interpersonal violence, particularly sexual violence, is likely a critical aspect to preventing suicidal ideation and attempt among female veterans. Further research examining drivers of risk specific to sexual violence is needed to appropriately conceptualize and intervene upon suicide risk among female veterans.

REFERENCES

- Department of Veterans Affairs. 2019 National Veteran Suicide Prevention Annual Report; 2019. Available at: www.mentalhealth.va.gov/docs/data-sheets/2019/2019_National_Veteran_Suicide_Prevention_Annual_Report_508.pdf. Accessed February 25, 2020.
- Department of Veterans Affairs. 2017 National Suicide Data Appendix; 2019. Available at: www.mentalhealth.va.gov/docs/data-sheets/2017/2017_National_Data_Appendix.xlsx. Accessed February 25, 2020.
- Monteith LL, Holliday R, Brostow DP, et al. Understanding suicide among female veterans: a theory-driven approach. In: Kumar U, ed. *The Routledge International Handbook of Military Psychology and Mental Health*. Oxfordshire, UK: Routledge; 2019:411–424.
- Wilson LC. The prevalence of military sexual trauma: a meta-analysis. *Trauma Violence Abuse*. 2018;19:584–597.
- Zinzow HM, Grubaugh AL, Monnier J, et al. Trauma among female veterans: a critical review. *Trauma Violence Abuse*. 2007;8:384–400.
- Lehavot K, Katon JG, Chen JA, et al. Post-traumatic stress disorder by gender and veteran status. *Am J Prev Med*. 2018;54:e1–e9.
- Kelly UA, Skelton K, Patel M, et al. More than military sexual trauma: interpersonal violence, PTSD, and mental health in female veterans. *Res Nurs Health*. 2011;34:457–467.
- Luterek JA, Bittinger JN, Simpson TL. Posttraumatic sequelae associated with military sexual trauma in female veterans enrolled in VA outpatient mental health clinics. *J Trauma Dissociation*. 2011;12:261–274.
- Creech SK, Orchowski LM. Correlates of sexual revictimization among women veterans presenting to primary care. *Traumatology*. 2016;22:165–173.
- Iverson KM, Mercado R, Carpenter SL, et al. Intimate partner violence among women veterans: previous interpersonal violence as a risk factor. *J Trauma Stress*. 2013;26:767–771.
- Schry AR, Beckham JC, Calhoun PS, et al. Sexual revictimization among Iraq and Afghanistan war era veterans. *Psychiatr Res*. 2016;240:406–411.
- Surís A, Holliday R, Weitlauf JC, et al. Military sexual trauma in the context of veterans' life experiences. *Fed Pract*. 2013;30:16s–20s.
- Benda B. Gender differences in predictors of suicidal thoughts and attempts among homeless veterans that abuse substances. *Suicide Life Threat Behav*. 2005;35:106–116.
- Bryan CJ, Bryan AO, Clemans TA. The association of military and premilitary sexual trauma with risk for suicide ideation, plans, and attempts. *Psychiatry Res*. 2015;227:246–252.
- Gradus JL, Street AE, Suvak MK, et al. Predictors of suicidal ideation in a gender-stratified sample of OEF/OIF veterans. *Suicide Life Threat Behav*. 2013;43:574–588.
- Monteith LL, Hoffmire CA, Holliday R, et al. Do unit and post-deployment social support influence the association between deployment sexual trauma and suicidal ideation? *Psychiatry Res*. 2018;270:673–681.
- Kimerling R, Gima K, Smith MW, et al. The Veterans Health Administration and military sexual trauma. *Am J Public Health*. 2007;97:2160–2166.
- Pavao J, Turchik JA, Hyun JK, et al. Military sexual trauma among homeless veterans. *J Gen Intern Med*. 2013;28:536–541.
- Kimerling R, Makin-Byrd K, Louzon S, et al. Military sexual trauma and suicide mortality. *Am J Prev Med*. 2016;50:684–691.
- Monteith LL, Holliday R, Hoyt T, et al. Military sexual trauma and suicidal self-directed violence: a narrative review and proposed agenda for future research. In: Kumar U, ed. *The Routledge International Handbook of Military Psychology and Mental Health*. Oxfordshire, UK: Routledge; 2019:389–410.
- May AM, Klonsky ED. What distinguishes suicide attempters from suicide ideators? A meta-analysis of potential factors. *Clin Psychol Sci Pract*. 2016;23:5–20.
- Nock MK, Borges G, Bromet EJ, et al. Suicide and suicidal behavior. *Epidemiol Rev*. 2008;30:133–154.
- Department of Veterans Affairs. Women Veterans Report; 2015. Available at: www.va.gov/vetdata/docs/SpecialReports/Women_Veterans_2015_Final.pdf. Accessed February 25, 2020.
- Department of Veterans Affairs. VA National Suicide Data Report 2005–2015; 2018. Available at: www.mentalhealth.va.gov/docs/data-sheets/2015/OMHSP_National_Suicide_Data_Report_2005-2015_06-14-18_508.pdf. Accessed February 25, 2020.
- Monteith LL, Holliday R, Miller C, et al. Suicidal ideation, suicide attempt, and non-suicidal self-injury among female veterans: prevalence, timing, and onset. *J Affect Disord*. 2020;273:350–357.
- Nock MK, Holmberg EB, Photos VI, et al. Self-Injurious thoughts and behaviors interview: development, reliability, and validity in an adolescent sample. *Psychol Assess*. 2007;19:309–317.
- Bryan CJ, Bryan AO. Sociodemographic correlates of suicidal thoughts and behaviors among college student service members/veterans. *J Am Coll Health*. 2015;63:502–507.
- Dube SR, Felitti VJ, Dong M, et al. Childhood abuse, neglect, and household dysfunction and the risk of illicit drug use: the Adverse Childhood Experiences Study. *Pediatrics*. 2003;111:564–572.
- Felitti VJ, Anda RF, Nordenberg D, et al. Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults: the Adverse Childhood Experiences (ACE) Study. *Am J Prev Med*. 1998;14:245–258.
- Wyatt GE. The sexual abuse of Afro-American and white American women in childhood. *Child Abuse Negl*. 1985;9:507–519.
- Sadler AG, Booth BM, Mengeling MA, et al. Life span and repeated violence against women during military service: effects on health status and outpatient utilization. *J Womens Health*. 2004;13:799–811.

32. Tjaden P, Thoennes P. *Prevalence, Incidence and Consequences of Violence Against Women: Findings From the National Violence Against Women Survey*. Washington, DC: National Institute of Justice, Centers for Disease Prevention and Control; 1998.
33. American Medical Association. *Strategies for the Treatment and Prevention of Sexual Assault*. Chicago, IL: American Medical Association; 1995.
34. American College of Obstetricians and Gynecologists. *ACOG Technical Bulletin 209: Domestic Violence*. Washington, DC: American College of Obstetricians and Gynecologists; 1995.
35. Skopp NA, Roggenkamp H, Hoyt TV, et al. Army Sexual Harassment/ Sexual Assault Response & Prevention Program (SHARP) Tiger Team: a model to inform prevention. *Mil Behav Health*. 2020;8:64–73.
36. Department of Veterans Affairs, Department of Defense. VA/DoD clinical practice guideline for the management of posttraumatic stress disorder and acute stress disorder; 2017. Available at: www.healthquality.va.gov/guidelines/MH/ptsd/VADoDPTSDCPGFinal.pdf. Accessed September 25, 2020.
37. Foa EB, Rothbaum BO. *Treating the Trauma of Rape: Cognitive-Behavioral Therapy for PTSD*. New York, NY: The Guilford Press; 1998.
38. Bryan CJ, Morrow CE, Etienne N, et al. Guilt, shame, and suicidal ideation in a military outpatient clinical sample. *Depress Anxiety*. 2013;30:55–60.
39. Bryan CJ, Grove JL, Kimbrel NA. Theory-driven models of self-directed violence among individuals with PTSD. *Curr Opin Psychol*. 2017;14:12–17.
40. Holliday R, Monteith LL, Wortzel HS. Understanding, assessing, and conceptualizing suicide risk among veterans with PTSD. *Fed Pract*. 2018;35:24–27.
41. Holliday R, Holder N, Monteith LL, et al. Decreases in suicide cognitions after cognitive processing therapy among veterans with posttraumatic stress disorder due to military sexual trauma: a preliminary examination. *J Nerv Ment Dis*. 2018;206:575–578.
42. Holliday R, Link-Malcolm J, Morris EE, et al. Effects of cognitive processing therapy on PTSD-related negative cognitions in veterans with military sexual trauma. *Mil Med*. 2014;179:1077–1082.
43. Surís A, Link-Malcolm J, Chard K, et al. A randomized clinical trial of cognitive processing therapy for veterans with PTSD related to military sexual trauma. *J Trauma Stress*. 2013;26:28–37.
44. Bryan CJ, McNaughton-Cassill M, Osman A, et al. The associations of physical and sexual assault with suicide risk in nonclinical military and undergraduate samples. *Suicide Life Threat Behav*. 2013;43:223–234.
45. Holliday R, Borges LM, Stearns-Yoder KA, et al. Posttraumatic stress disorder, suicidal ideation, and suicidal self-directed violence among U.S. military personnel and veterans: a systematic review of the literature from 2010 to 2018. *Front Psychol*. 2020;11:1998.