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Gender differences in the expression of PTSD symptoms among active duty military personnel

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ABSTRACT

This study examined gender differences in posttraumatic stress disorder (PTSD) symptoms and symptom factors in the total U.S. active duty force. Data were drawn from the 2008 Department of Defense Survey of Health Related Behaviors among Active Duty Military Personnel including 17,939 men and 6751 women from all services. The results indicated that women expressed more distress than men across almost all the symptoms on the PTSD Checklist except for hypervigilance. Women also scored significantly higher on all four factors examined: Re-experiencing, Avoidance, Emotionally Numb, Hyperarousal. More women than men were distressed by combat experiences that involved some type of violence, such as being wounded, witnessing or engaging in acts of cruelty, engaging in hand-to-hand combat, and, to a lesser extent, handling dead bodies. Men who had been sexually abused had a greater number of symptoms and were consistently more distressed than women on individual symptoms and symptom factors.

Extensive research indicates that although men are more likely than women to be exposed to traumatic events, women are more likely than men to experience PTSD, especially among civilians (Norris, Foster, & Weisshaar, 2002). Several conceptualizations for this apparent contradiction have been examined, including biological, feminist/psychodynamic, and social-cognitive perspectives (Saxe & Wolfe, 1999). However, in a comprehensive review of the literature on gender and PTSD, Norris and colleagues noted that the data "... neither support nor refute any of the various theoretical perspectives convincingly" (Norris et al., 2002, pg. 34). Because men and women differ in their vulnerability to depression and substance abuse, as well as in the expression of symptoms of those disorders, an important research question is whether the gender variation in symptom expression seen in other mental health disorders also applies to specific PTSD symptoms.

Gibbs (1989) hypothesized that men's posttraumatic reactions are different from, but not necessarily less disturbing, than those of women. Men are less likely than women to report internalizing disorders (e.g., anxiety or depression) and more likely to report externalizing disorders (e.g., substance use disorders) (Kessler, Sonnega, Bromet, Hughes, & Nelson, 1995; Green et al., 1997). Thus, diagnostic systems of PTSD symptoms, such as the Diagnostic Statistical Manual (APA, 2000), may be a better fit for women's stress reactions than for men's (King, Street, Gradus, Vogt, & Resick, 2013). Women may be more likely to develop internalizing psychopathology after trauma exposure that is consistent with anxiety disorders like PTSD, whereas men may be more apt to externalize expressions of distress (Tolin & Foa, 2006). Among community members exposed to assaultive violence, Breslau, Chilcoat, Kessler, Peterson, and Lucia (1999) found that women were more likely to report numbing and avoidance symptoms, men were more likely to report irritability and impulsiveness. In the National Comorbidity Study-Replication (Kessler et al., 1995), women more frequently endorsed exaggerated startle and feelings of emotional distance in the PTSD module, men more frequently endorsed intrusive thoughts, nightmares, irritability, and foreshortened future (Palm, Strong, & MacPherson, 2009). Whereas Chung and Breslau (2008) found that only trauma type—not gender—was associated with different symptom profiles, Tolin and Foa (2006) concluded from their literature review that sex differences in risk of exposure to particular types of traumatic events could only partially account for the differential in PTSD risk between men and women.

Several studies have examined symptom clusters in PTSD in civilian populations (Asmundson, Stapleton, & Taylor, 2004; Elhai & Palmieri, 2011; Polusny et al., 2008; Stewart, Conrod, Pihl, & Dongier, 1999), and military or peacekeeping personnel (Jakupcak et al., 2010; Maguen, Stalnaker, McCaslin, & Litz, 2009; Pietrzak,

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Goldstein, Malley, Rivers, & Southwick, 2010; Mansfield, Williams, Hourani, & Babeu, 2010). Few studies, however, have assessed gender differences in PTSD symptom expression in the military (King et al., 2013; Scott et al., 2013; Hall, Elhai, Grubaugh, Tuerk, & Magruder, 2012). Among Operation Enduring Freedom/Operation Iraqi Freedom (OEF/OIF) veterans, an item response theory analysis of individual symptoms was used to search for a consistent set of symptoms or underlying latent dimensions in the PTSD checklist, Military Version (PCL-M) (King et al., 2013). Small but significant gender differences were observed, in which women tended to report more frequent concentration difficulties and distress from reminders, whereas men tended to report more frequent nightmares, being emotionally numb, and hypervigilance. Furthermore, the study was limited to veterans, who are not representative of the active-duty population, used only military-related trauma, and did not examine the influence of other trauma types on the expression of symptoms. The PCL-M scale ignores symptoms from nonmilitary experiences and can miss common causes of deployment or war-related PTSD in women (e.g., sexual assault rather than combat) and deployment-related exacerbations of PTSD symptoms, if the original inciting trauma is not military related (Bray et al., 2010). The Scott et al. (2013) study found that an emotional numbing factor was independently related to hazardous drinking only among women veterans but the study was also limited to veterans and gender differences in predictors of individual PTSD symptoms were not examined. The Hall et al. (2012) study was also conducted among veterans presenting to medical clinics and did not show the distribution of individual symptoms. Limiting the investigation of symptom expression only to factor scores or clusters may mask important gender differences in individual symptoms.

Since many studies have established the importance of combat exposure (Hoge et al., 2004; Tanielian & Jaycox, 2008; Phillips, Leardmann, Gumbs, & Smith, 2010) and sexual abuse—military and premilitary (Mota et al., 2012; Maguen, Cohen, et al., 2012; Maguen, Luxton, Skopp, Madden, 2012; Stretch, Knudson, & Durand, 1998)—as strong risk factors for PTSD among military personnel, the effects of both types of trauma should be evaluated simultaneously when examining gender differences in PTSD symptom profiles. Further, Maguen, Cohen, et al. (2012) reported that there was a stronger association between combat-related injury and PTSD symptoms for women than men, although they found no gender differences with respect to specific PTSD symptoms experienced and few gender differences in the impact of combat stressors on mental health. These studies make it clear that further understanding of gender-specific mechanisms that contribute to the onset and course of PTSD among military personnel will benefit from an examination of both individual- and factor-level PTSD symptom expression and of various trauma types in a population-based military sample. In addition, to better address treatment needs of all active-duty personnel with PTSD and not combat veterans alone, a representative sample of this population should be employed.

To determine whether the expression of PTSD symptoms varies by gender, this study examines the prevalence of each DSM-IV symptom and each factor in the PTSD checklist, Civilian Version (PCL-C), among military men and women in a large population-based sample of active-duty personnel in all service branches. We use the evidence-based four-factor model of PTSD, which has been well supported by the literature (Elhai & Palmieri, 2011; Yufik & Simms, 2010). We address three specific aims: (1) to examine potential differences in PTSD symptom presentations (individual items and PCL-C symptom clusters derived from factor analyses) between active-duty men and women, (2) to determine the associations of PTSD symptoms and factors with specific combat experiences and sexual abuse history (premilitary vs. military) by gender, and (3) to identify unique predictors of each PTSD symptom factor by gender, including interactions between combat exposure factors and sexual abuse.

Since the literature suggests that both gender and trauma type may play important roles in PTSD symptom expression, we hypothesize that, overall, women will have higher rates of PTSD and more internalizing symptoms than men, while men with PTSD will have more externalizing symptoms than women. We further hypothesize that the higher rate of PTSD among women than men will be reduced when trauma types (combat experience and sexual abuse history) are controlled. Men and women will have similar rates of PTSD within traumatic subtypes.

1. Methods

1.1. Participants

Data were drawn from the 2008 Department of Defense (DoD) Survey of Health Related Behaviors among Active Duty Military Personnel (HRB Survey) (Bray et al., 2010). Participants were randomly selected using a two-stage cluster sample. In stage one, personnel for each DoD Service (Army Navy, Air Force, Marine Corps) were grouped near installations, and 64 installations were selected proportional to their population size. In stage two, individuals were sampled within installations stratified by gender, rank, and location. Women and officers were oversampled to ensure adequate sample sizes for analyses. A replacement sample was also selected when targeted individuals were gone owing to deployment, relocation, or discharge from the military. Finally, a mail sample was selected from personnel who were too far from installations to participate in group sessions. A total of 24,690 individuals (17,939 men, 6751 women) completed questionnaires (response rate 70.1%). Data were weighted to represent all active duty personnel and to adjust for nonresponse.

1.2. Measures

In addition to sociodemographic and service-related variables—age, race/ethnicity, education, marital status, rank, and deployment—we examined the following PTSD symptom and predictor variables.

1.2.1. PTSD

Symptom severity was assessed using the PTSD Checklist, Civilian Version (PCL-C), a 17-item self-report instrument that measures DSM-IV PTSD symptom criteria B, C, and D and asks respondents to rate the extent to which they have been bothered by each symptom during the previous 30 days using a 5-point scale (1 = not at all, 5 = extremely) (Weathers, Litz, Huska, & Keane, 1994). Symptoms were related to any stressful experience so that the outcome would be independent of predictors. A standard cuff score of >50 indicates probable PTSD. The PCL-C has been shown to be a valid and reliable screening instrument (Bliese et al., 2008; Ruggiero, Del Ben, Scotti, & Rabalais, 2003; Dobie et al., 2002) and has been used extensively in other military surveys (Hoge et al., 2004; Gore et al., 2013). Four PCL subscales, representing the four PTSD dimensions identified by psychometric work of King and others (King, Leskin, King, & Weathers, 1998; Marshall, 2004; McDonald et al., 2008; Mansfield et al., 2010) were computed. Each scale averaged the score of its component items. The four subscales represented Re-experiencing (items a–e in Table 1), Avoidance (items f and g), Emotionally Numb (items h–l), and Hyperarousal (items m–q). Reliability (Cronbach's a) exceeded .90 for all three scales with more than two items.

1.2.2. Depression

Current depression was assessed using the 10-item version of the Center for Epidemiologic Studies Depression Scale (CESD-10).