



Sex differences in coping strategies in military survival school



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ABSTRACT

A wealth of research has examined psychological responses to trauma among male military service members, but few studies have examined sex differences in response to trauma, such as coping strategies. This study assessed coping strategies used by male and female U.S. service members completing an intensely stressful mock-captivity exercise, compared strategies by sex, and assessed the relationship between coping and posttraumatic stress symptoms (PTSS). Two hundred service members (78% male) completed self-report surveys before and after mock captivity. Surveys assessed demographics, service characteristics, PTSS, and coping strategies used during mock captivity. Participants used seven coping strategies: denial, self-blame, religion, self-distraction, behavioral disengagement, positive reframing, and planning. Women used denial ($p \leq .05$), self-blame ($p \leq .05$), and positive reinterpretation ($p \leq .05$) strategies more frequently than men, and they had higher PTSS levels following the exercise. Structural equation modeling showed that the relationship between sex and PTSS was fully mediated by coping strategies. The results of this study suggest that reducing the use of maladaptive coping strategies may mitigate PTSS among females. Future efforts should target improving coping during highly stressful and traumatic experiences.

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1. Introduction

One of the most prevalent health issues experienced by active-duty service members is posttraumatic stress disorder (PTSD), which is estimated to affect one sixth of veterans of Operations Iraqi and Enduring Freedom (Cohen, Gima, Bertenthal, Kim, & Marmar 2010; Hoge, Terhakopian, Castro, Messer, & Engel, 2007; Seal et al., 2009). The consequences of PTSD are severe; veterans with PTSD are at an increased risk for numerous adverse outcomes, including poor physical health, substance abuse, and attrition (Hoge et al., 2007; Jakupcak, Tull, McDermott, Kaysen, Hunt, & Simpson, 2010; Schmied, Highfill-McRoy, & Larson, 2012). To reduce the risk of

PTSD among service members, for whom exposure to trauma is often a requisite of service, it is critical to understand the causal pathways through which the disorder develops.

An important consideration in the study of PTSD is the difference in prevalence rates between men and women. Research in civilian populations has consistently shown higher rates of PTSD in women, with some studies reporting a twofold higher risk compared with men (Breslau, 2009; Kesler, Sonnega, Bromet, Hughes, & Nelson, 1995; Olf, Langeland, Draijer, & Gersons, 2007). Results from research involving military populations have been less consistent. For example, while two large studies found higher rates of PTSD among women, several others found higher rates among men, or found no sex differences (Haskell et al., 2010; Maguen, Bosch, Marmar, & Seal, 2010; Ramchand et al., 2010; Rona, Fear, Hull, & Wessely, 2006; Schell & Marshall, 2008; Smith et al., 2008). It should be noted that sex differences in rates and types of combat exposure due to historical restrictions on females serving in combat roles complicate sex comparisons of PTSD levels. Nevertheless, the inconsistent findings indicate a need to further elucidate the relationship between sex and PTSD.

Differences in the coping strategies used by men and women during and after highly stressful or traumatic situations may explain the disparate rates of PTSD across sexes. There is evidence

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that certain coping strategies are associated with increased risk of psychiatric symptoms following trauma; these maladaptive strategies are broadly classified as emotion- and avoidance-based strategies, and include self-blame, denial, and rumination (Lazarus & Folkman, 1984; Pacella et al., 2011; Pineles et al., 2011; Schnider, Elhai, & Gray, 2007; Tamres, Janicki, & Helgeson, 2002). Many studies and reviews have concluded that women use these maladaptive techniques more frequently than men do (Matud, 2004; Nolen-Hoeksma, 2001, 2012; Nolen-Hoeksma & Aldao, 2011; Tamres et al., 2002). For instance, in a study of 2816 civilians, female participants reported using emotion- and avoidance-based coping styles significantly more frequently than male participants did (Matud, 2004). However, no study has compared coping strategies used by male and female service members during military-specific events or exercises.

Methodological issues further limit the conclusions that can be drawn regarding sex differences in coping and PTSD. For example, with the exception of studies of victims of natural disasters or terror attacks, most coping studies have typically pooled individuals who may have experienced similar types of trauma, but under unique circumstances (i.e., child abuse, motor vehicle accidents; Araya, Chotai, Komproe, & de Jong, 2007; Carstenson et al., 2012; Pacella et al., 2011; Ullman & Filipas, 2005). The variability in traumatic experiences and surrounding circumstances make it difficult to generate accurate comparisons because it is unclear whether sex differences in coping are simply due to differences in the nature of the traumatic event. Ruling out this explanation requires controlling for or standardizing the trauma experienced by men and women. Moreover, most studies have been cross-sectional and/or have relied on retrospective self-reports of the coping strategies used during and after traumas that may have occurred several years earlier (Breslau, 2009).

An additional limitation of previous research regarding sex differences in coping and PTSD is a lack of consideration of prior traumatic events and preexisting PTSD. Research suggests prior traumatic exposure may influence how individuals respond to and cope with future trauma; specifically, individuals with a prior history of trauma may have more negative reactions to future trauma (Breslau, Chilcoat, Kessler, & Davis, 1999; Breslau, Peterson, & Schultz, 2008; Brewin, Andrews, & Valentine, 2000; Ehlers & Clark, 2000; Johnsen, Eid, Laberg, & Thayer, 2002; Olf et al., 2007). Additionally, individuals with prior traumatic exposure may already be experiencing psychological distress, including posttraumatic stress symptoms (PTSS), because of that experience (Breslau, 2009). Therefore, it is critical to include measures of both prior trauma and preexisting PTSS when examining the relationship between how individuals cope with a highly stressful event and their future distress.

Research conducted in standardized conditions is needed to clarify the relationships between sex, coping, and PTSD. To address this and other limitations of previous research, we examined the relationships between prior traumas, coping, and PTSS in 200 male and female service members completing an intensely stressful standardized military training activity. The primary objective of this study was to compare the coping strategies used by male and female service members during the training activity. Based on previous research, we hypothesized that notable differences in coping strategies across sexes would be observed (Matud, 2004; Nolen-Hoeksma, 2001, 2012; Nolen-Hoeksma & Aldao, 2011; Tamres et al., 2002). Specifically, we expected that women would report both more PTSS and greater use of avoidant coping strategies. In addition, we hypothesized that sex differences in PTSS would be partially explained by sex differences in coping. This hypothesis was tested using a path model (see Fig. 1). As Fig. 1 shows, we examined the mediational role of coping in the relationship between sex and PTSS, while also accounting for prior

traumatic exposure, preexisting PTSS, and demographic characteristics.

2. Methods

2.1. Study setting

Data for this study were collected during the Survival, Evasion, Resistance, and Escape (SERE) training conducted at the Center for Security Forces SERE Learning Site West, located in San Diego, California. SERE training, which includes a period of realistic mock captivity, is required by the US military for all service members in positions characterized as high risk of capture. SERE is a 12-day course, which is composed of a 5-day period of classroom-based didactic training and a 7-day period of field training, during which students learn survival, evasion, resistance, and escape techniques. During the field training, students are “captured” by a simulated enemy in order to practice utilizing resistance techniques in response to mock exploitation. A more comprehensive description of SERE has been published elsewhere (Dimoulas et al., 2007; Morgan et al., 2004; Morgan et al., 2000; Taylor et al., 2012), although many aspects of the training curriculum are classified.

2.2. Study design and procedures

This prospective study utilized survey data collected as part of a larger study that took place between October 2011 and August 2012. Participants were recruited on the first day of SERE training via a staff-administered oral brief providing a study overview to all SERE students. Following the brief, interested students attended an in-person meeting to review study details and complete the written consent form. Due to staff and equipment limitations, study enrollment was limited to approximately 25% of all SERE students; therefore, participants were enrolled on a first-come, first-serve basis. Females were oversampled to achieve a sample size sufficient for sex comparisons. Data for the current study were collected at two time points: at consent prior to the start of the training (baseline), and within 24 h after completing SERE training (follow-up). At baseline, participants completed a written questionnaire assessing demographics, medical history, and measures of PTSS and prior traumatic experiences. Participants also completed a shortened version of the baseline survey at follow-up, which included measures of coping and PTSS.

2.3. Participants

Because a primary aim of the larger study from which the present data were drawn was to quantify biological response to acute stress, participants were excluded from the present study based on the following criteria: (1) self-reported use of anabolic or ergogenic substance, drug, or supplement within the past 3 months, (2) current antihypertensive medication use, or (3) current type 1 or type 2 diabetes diagnoses requiring medication. The final sample included 200 service members (78% male).

2.4. Measures

2.4.1. Posttraumatic stress symptoms

PTSS was assessed with the 22-item Impact of Events Scale-Revised version (IES-R; Weiss & Marmar, 1997). Participants completed the IES-R at baseline and follow-up. The IES-R includes three subscales corresponding to PTSD symptom clusters (i.e., intrusion, hyperarousal, avoidance; DSM-IV, American Psychiatric Association, 2000). At baseline, participants were asked to report how much they felt bothered or distressed within the past 7 days by “the most impactful event you have previously experienced.” At

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