

# Military Beliefs and PTSD in Active-Duty U.S. Army Soldiers

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Posttraumatic distress after military combat is a major cost of war. One underinvestigated factor potentially associated with posttraumatic stress disorder (PTSD) symptoms is specific beliefs about one's military service. This study examined postdeployment self-reports from 272 active-duty U.S. Army soldiers to investigate potential associations between military-related PTSD symptom severity and 3 beliefs about the military: the importance and value ascribed to one's own work in the Army, to current military operations in Iraq and Afghanistan, and to military service in general. Higher scores on these 3 beliefs were negatively correlated with military-related PTSD symptom severity. However, in a combined regression model that controlled for recent combat exposure, only the belief about current military operations had a significant, unique association with PTSD symptom severity. That is, more positive beliefs about the value of operations in Iraq or Afghanistan were associated with lower PTSD symptoms.

**Keywords:** military service, soldiers, PTSD, cognition, combat exposure, U.S. Army

Posttraumatic stress disorder (PTSD) prevalence among soldiers who experienced combat in recent wars is greater than 20% (Thomas et al., 2010), increasing the importance of understanding factors that are associated with PTSD subsequent to combat. One such factor may be the beliefs that soldiers hold about their military service and specific operations (e.g., Britt, Adler, & Bartone, 2001; Britt, Dickinson, Moore, Castro, & Adler, 2007). More positive beliefs about service and mission may allow soldiers to integrate their subjective experiences with overarching values or goals—that is, to experience less dissonance between their beliefs and experiences (see Hembree & Foa, 2000). Dissonance regarding military combat is associated with higher psychological distress (Klug et al., 2011), while veterans who are able to find benefit, positive meaning, or enhanced growth from their experiences generally have been found to have higher levels of psychological adjustment and lower levels of PTSD (Owens, Steger, Whitesell, & Herrera, 2009; Schok, Kleber, Elands, & Weerts,

2008; Wood & Britt, 2010). Consistent with these patterns, evidence suggests that soldiers who value the military and believe that their work in the military is important derive more psychological benefits from deployment and experience less depression (Britt et al., 2001; Britt et al., 2007).

Beliefs regarding the value of military service and mission should be relevant for those who served in Operations Iraqi and Enduring Freedom, given the variability in these appraisals among veterans who served in the post-9/11 era. For example, 50% and 44% of such veterans respectively judged the wars in Afghanistan and Iraq to be “worth fighting,” with only 34% stating so for both wars (Pew Research Center, 2011). Although military pride (e.g., feeling proud to serve in the U.S. Army) has been shown to be negatively related to PTSD in service members (Britt et al., 2007), there have been no studies to date that separately evaluate the associations between active-duty service members' PTSD symptom severity and beliefs about one's own work in the military, the U.S. missions in Iraq and Afghanistan, and general military service. Such research would permit a more detailed understanding of the association between soldiers' military beliefs and PTSD, knowledge that could have important clinical utility as soldiers return from deployment.

Examining these beliefs (i.e., the importance of military service in general, of current missions, and of one's own military work) as separate constructs, rather than as an averaged military belief scale, is important due to the conceptual distinctions among them. For example, how much a soldier values military service in general is different from the value placed on a specific mission. In addition, significant differences between these beliefs have been found in a prior study, which uses a sample that overlaps with the current sample (Allen, Rhoades, Stanley, & Markman, 2011). Specifically, it was found that Army soldiers rated the importance and value of

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general military service significantly higher than that of current military operations in Iraq and Afghanistan. Moreover, these two variables had differential associations with deployment-related stress; only lower ratings of the current military operations significantly predicted greater stress.

The current study tested whether more positive beliefs about military work, mission, and service were associated with lower PTSD symptom severity. This question was tested for the three beliefs individually, as well as controlling for overlapping variance among the beliefs and combat exposure. Combat exposure was controlled for in the latter analysis given the direct effects of combat on PTSD symptom severity (Foy, Carroll, & Donahoe, 1987; Gallers, Foy, Donahoe, & Goldfarb, 1988) and its potential impact on soldiers' military beliefs.

## Method

### Procedures

Data for this study came from the prerandomization self-reports of soldiers participating in a controlled effectiveness trial of a marriage education program for army couples in 2007, at two forts in the United States (Allen, Stanley, Rhoades, Markman, & Loew, 2011). As the relationships between military beliefs and PTSD symptoms were not expected to differ by site, soldiers from both sites were treated as a single sample for the current analyses. Participants selected for the current study were active-duty males who experienced deployment in the past year and reported some level of combat exposure during this deployment. Most deployments were for Operations Enduring or Iraqi Freedom. Additionally, participants selected for the current study either reported no PTSD symptoms or reported such symptoms and attributed them at least in part to military experience (thus excluding soldiers who reported PTSD symptoms but did not attribute them whatsoever to military experience). The sample was restricted in this way in order to maintain this paper's focus on the relationships, given certain military experiences (i.e., deployment and combat), between military-specific beliefs and PTSD symptoms related to military experience.

### Participants

From the original sample of 662 couples, selection criteria noted earlier yielded 276 soldiers. Four others were excluded due to missing data on military beliefs; the final sample for the current analyses consisted of 272 soldiers. The average age was 29.33 ( $SD = 5.98$ ) years. Most (73%) were White, 11% were Hispanic American, 9% were African American, 2% were Asian American, 1% were American Indian or Alaska native, less than 1% were Hawaiian or Pacific Islander, and 4% were multiethnic. Education level was high school or equivalent for 69% of the sample, with the remainder reporting higher levels of education. The average length of service was 7.91 years ( $SD = 5.75$ ), and ranks included 4% private first class, 30% specialist, 46% junior noncommissioned officer (NCO), 11% senior NCO, 8% company-grade officer, and 2% field-grade officer. All participants were married.

### Measures

**Military beliefs.** Perceived importance and value of (a) one's work in the military, (b) current military operations, and (c)

military service in general were respectively evaluated with the following items: "My work in the U.S. Army is important and valuable," "What the U.S. is doing in Iraq and Afghanistan is important and valuable," and "Serving in the U.S. military is important, honorable, and valuable." Participants endorsed these items on 7-point scales (from 1 = *strongly disagree* to 7 = *strongly agree*). Similar one item measures have been used in other studies assessing such beliefs and associations with aspects of military service (Pew Research Center, 2011; Klug et al., 2011).

**PTSD symptoms.** PTSD symptom severity was measured with the psychometrically validated civilian version of the PTSD Checklist (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993), which lists the 17 *Diagnostic and Statistical Manual of Mental Disorders-IV* PTSD symptoms. The PCL-C was chosen for the parent study as a PTSD measure that could be given to both soldiers and spouses. Participants rated how much each symptom bothered them in the past month, from 1 = *not at all* to 5 = *extremely*, thus total scores could range from 17 to 85. This sample's average total score was 35.98 ( $SD = 15.52$ ), and internal consistency was excellent ( $\alpha = .94$ ). A follow-up question asked participants whether endorsed symptoms were related to their military experience. Specifically, respondents were asked, "How much are these problems and complaints related to (a) your own military experience, (b) your spouse's military experience, (c) other stressors in your life, (d) other stressors in your spouse's life," with response choices ranging from 1 = *not at all* to 5 = *completely*.

**Combat exposure.** Participants rated their exposure to several combat situations (e.g., whether they fired rounds at or were surrounded by the enemy) in their most recent deployment using the Combat Exposure Scale (Keane et al., 1989), a psychometrically validated 7-item self-report. Total scores can range from 0 to 41 (in this sample  $M = 17.89$ ;  $SD = 8.43$ ), and internal consistency was good in the current sample ( $\alpha = .81$ ).

### Data Analysis

Associations between military beliefs and PTSD symptoms were examined using bivariate correlations, partial correlations controlling for combat exposure, and in a combined regression model. These analyses were conducted with IBM SPSS Statistics (Version 20). Power analyses conducted with G\*Power 3 (Faul, Erdfelder, Buchner, & Lang, 2009) indicated that the size of the sample provided power of .92 to detect small-medium effects in correlation analyses and .94 to do so in the combined regression.

## Results

Consistent with the lower ratings for the current military operations found in (Allen, Rhoades, et al., 2011), average scores on perceived importance and value of (a) one's work in the military ( $M = 6.06$ ,  $SD = 1.32$ ), (b) current military operations ( $M = 4.39$ ,  $SD = 2.10$ ), and (c) military service in general ( $M = 6.25$ ,  $SD = 1.27$ ) were all significantly different from one another ( $r$ s from 2.89 to 15.96,  $ps < .01$ ), with beliefs about current military operations being least positive. Correlations among these items were moderate to large and statistically significant ( $r$ s from .37 to .64,  $ps < .001$ ), with the work and service beliefs being most strongly associated.

Table 1 presents test statistics for the associations between PTSD symptoms and the three military beliefs. PTSD symptoms had significant negative correlations with all three beliefs.<sup>1</sup> To further illustrate these relationships, the proportion of variance in PTSD symptoms explained by each association is presented in Table 1. Controlling for combat exposure (using partial correlations) did not substantially change these results; PTSD symptoms still had significant inverse relationships with each of the three military beliefs. Although PTSD symptoms and combat exposure were correlated at  $r = .29$  ( $p < .001$ ), none of the beliefs were correlated significantly with combat exposure (all  $r$ s between  $-.05$  and  $.05$ ), nor did any of them moderate the association between combat exposure and PTSD symptom severity.

A combined regression was then conducted to control for combat exposure and for overlapping variance in beliefs. In this model, only combat exposure ( $\beta = .28$ ,  $p < .001$ ), and belief in the importance and value of current military operations in Iraq and Afghanistan had significant associations with PTSD symptom severity.

### Discussion

In bivariate and partial (controlling for combat exposure) correlations, recently deployed U.S. soldiers' military-related PTSD symptom severity had significant inverse associations with their beliefs in the importance and value of their work in the military, of active military operations in Iraq and Afghanistan, and of military service overall. That is, the more these soldiers reported believing in these aspects of the military, the less military-related PTSD symptom severity they reported. When controlling for overlapping variance among the three beliefs in a regression model, only the belief about the military's operations in Iraq and Afghanistan had a significant unique association with soldiers' military-related PTSD symptom severity. Soldiers' belief in the importance and value of the current operations may have let them perceive potentially traumatic experiences as valuable sacrifices for a greater good, thus mitigating the development of dissonance related to such experiences, and helping to protect against PTSD symptoms. The magnitude of this association did not vary by level of combat exposure, suggesting that belief in the value of the operations in Iraq and Afghanistan provided a discrete boost to soldiers' psychological health, rather than an amount of benefit that differed by degree of combat exposure.

Results of the combined regression also suggest that belief in current military operations may be more salient, compared to beliefs about military work and military service in general. Soldiers' beliefs about the value of their military work and service in

general were both higher than their views of the U.S. operations in Iraq and Afghanistan, on average, underscoring the distinction between general appraisals and appraisals of current operations. The current results thus suggest that when providing psychological services to soldiers experiencing PTSD symptoms after a recent deployment, it may be beneficial to explore ways in which the combat operations experienced were valuable or important.

It is important to note that this study's data is cross-sectional, so the directionality of the observed relationships is unclear. For example, although it does not appear that higher levels of combat exposure undermined beliefs, experiencing greater military-related PTSD symptoms could result in soldiers giving lower ratings on the importance and value of military operations. Replication using measurement before and after deployment would be necessary to identify the impact of precombat beliefs on subsequent military-related PTSD symptom severity and to identify the potential impact of changes in these beliefs. Additionally, selection effects associated with the current sample (who chose to participate in a marriage-education study) could have biased the findings in unknown ways. It would thus be informative to replicate these analyses with different soldier-samples, including samples with unmarried military personnel, female military personnel, other branches of military service, or veterans of other military conflicts.

In any such replication, using multi-item scales to measure military beliefs would permit more nuanced assessment, such as collecting details regarding soldiers' beliefs about their specific tasks or combat experiences. More expansive analyses of military beliefs seem a promising avenue for future research to expand the knowledge base in this area, such as exploring various sources of value for soldiers (e.g., service to country, loyalty to unit) and how such sources relate to psychological functioning postcombat. It should also be noted that soldiers may believe endorsing PTSD symptoms to pose risk to their careers and therefore underreport such symptoms. This possibility is somewhat tempered in the current study because the questionnaires stated to participants that their answers would not be made available to army personnel at any time. Furthermore, unless underreporting behavior itself was also associated with military beliefs, its occurrence could not account for the associations identified in this study.

Despite this study's limitations, its findings suggest that soldiers' beliefs about their military missions are related to PTSD symptoms, perhaps being protective before combat, or a way to find benefit after combat. The relative ambivalence in this sample regarding U.S. actions in Iraq and Afghanistan, compared to non mission-specific aspects of military service, highlights a need to assess this type of belief and to explore its role as a potential risk factor for the development or maintenance of PTSD symptoms among soldiers and veterans.

Table 1

*Associations Between Military Beliefs and PTSD Symptoms*

Military belief	$r$	$r^2$	$p^a$	$\beta^b$
Value of own work	-.24***	.06	-.26***	-.13 <sup>†</sup>
Value of current operations	-.28***	.08	-.27***	-.18**
Value of service in general	-.26***	.07	-.25***	-.09

Note. PTSD = posttraumatic stress disorder.

<sup>a</sup> Controlling for combat exposure. <sup>b</sup> Controlling for combat exposure and other military beliefs.

<sup>†</sup>  $p < .1$ . \*\*  $p < .01$ . \*\*\*  $p < .001$ .

<sup>1</sup> The high means for the military work and military service items suggested non-normal distributions. Indeed, the distributions of these two variables had approximate skewness of  $-2$  and Kurtosis greater than  $3$ . Nonetheless, their associations with PTSD symptoms remained similar when replicated after using mirrored natural-logarithmic transformations to remediate the distributions. As there were no meaningful differences in the results, the nontransformed variables were used for the analyses presented in this paper.

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