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# Research Article

## DOES PTSD MODERATE THE RELATIONSHIP BETWEEN SOCIAL SUPPORT AND SUICIDE RISK IN IRAQ AND AFGHANISTAN WAR VETERANS SEEKING MENTAL HEALTH TREATMENT?

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**Objective:** *This study examined posttraumatic stress disorder (PTSD) as a potential moderating variable in the relationship between social support and elevated suicide risk in a sample of treatment-seeking Iraq and Afghanistan War Veterans.* **Method:** *As part of routine care, self-reported marital status, satisfaction with social networks, PTSD, and recent suicidality were assessed in Veterans (N = 431) referred for mental health services at a large Veteran Affairs Medical Center. Logistic regression analyses were conducted using this cross-sectional data sample to test predictions of diminished influence of social support on suicide risk in Veterans reporting PTSD.* **Results:** *Thirteen percent of Veterans were classified as being at elevated risk for suicide. Married Veterans were less likely to be at elevated suicide risk relative to unmarried Veterans and Veterans reporting greater satisfaction with their social networks were less likely to be at elevated risk relative to Veterans reporting lower satisfaction. Satisfaction with social networks was protective for suicide risk in PTSD and non-PTSD cases, but was significantly less protective for veterans reporting PTSD.* **Conclusions:** *Veterans who are married and Veterans who report greater satisfaction with social networks are less likely to endorse suicidal thoughts or behaviors suggestive of elevated suicide risk. However, the presence of PTSD may diminish the protective influence of social networks among treatment-seeking Veterans.* *Depression and Anxiety 27:1001–1005, 2010. Published 2010 Wiley-Liss, Inc.†*

**Key words:** *suicide; social support; PTSD; Iraq; Afghanistan*

### INTRODUCTION

Recent findings suggest that returning Veterans of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF) who are diagnosed with psychiatric

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disorders are at increased risk for suicide.<sup>[1]</sup> The onset of suicidal ideation or attempting suicide may represent preliminary steps toward completed suicide.<sup>[2]</sup> Hence, active suicidal ideation or recent suicide attempts are often used as markers of elevated suicide risk.<sup>[3–8]</sup> To prevent suicides, it is critical to identify and understand the risk and protective factors for elevated suicide risk among OEF/OIF Veterans with mental disorders.

The positive association between social support and mental health functioning is well established<sup>[9,10]</sup> and the presence of social support is inversely related to risk for suicidality.<sup>[11–13]</sup> Support drawn from social networks (spouses, family members, and friendships) may buffer psychological distress in persons with mental disorders,<sup>[9,10]</sup> thus decreasing risk for suicide.<sup>[11]</sup> Prior research indicates that marital status is protective for suicide in community samples of Veterans<sup>[14,15]</sup> and Veterans recently discharged from inpatient psychiatric care are less likely to complete suicide if they reside in a cohesive community.<sup>[16]</sup> A recent study found that in a community sample of OEF/OIF Veterans, PTSD was associated with an increased risk for suicidal ideation while post-deployment social support was protective for suicidal ideation.<sup>[17]</sup>

Although social support may be protective for suicide risk in OEF/OIF Veterans, the presence of PTSD may influence how individuals interact within social networks to cope with stressors, thus mitigating the protective mechanisms of social support. Prior research suggests that Veterans with PTSD are more likely to seek out social support than Veterans without PTSD; however, Veterans with PTSD are also less likely to use active problem solving and may instead rely on maladaptive coping strategies, such as emotional avoidance or self-blame that can decrease the benefit of close relationships.<sup>[18,19]</sup> Accordingly, although Veterans with PTSD may have access to social support, they may be less likely to benefit from it.

The purpose of this study was to examine whether PTSD diminishes the buffering effects of social support on elevated suicide risk in OEF/OIF Veterans seeking mental health treatment. We tested a moderation model, in which marital status and satisfaction with social networks were hypothesized to be less protective for suicide risk among OEF/OIF Veterans reporting PTSD relative to Veterans without PTSD.

## METHOD

### PARTICIPANTS

The sample was drawn from OEF/OIF Veterans ( $N = 466$ ) who were consecutively assessed and subsequently referred for mental health services at VA Puget Sound Health Care System (VAPSHCS) from 2004 to 2007. Cases that were missing key variables were omitted ( $n = 35$ ), resulting in a final sample of 431 participants. The study protocol included a waiver of informed consent to use de-identified clinic data and was approved by the University of Washington Internal Review Board and the Research and Development Committee of VAPSHCS.

The majority of the subjects were men (88.9%) and the average age was 32.4 years ( $SD = 8.95$ ). Two thirds of the sample indicated race/ethnicity as White (66.4%), 11% African-American, 6.8% Hispanic, 6% Native American or Pacific Islander, 4.2% Asian, and 5.6% indicated “other.” More than half of the sample (56.4%) indicated they were applying for service-connected disability and 10.7% indicated they were currently service-connected for PTSD. The majority of the subjects were not married (55.5%) while 44.5% indicated they were married or remarried.

### MEASURES

Veterans were assessed using the Veteran Affairs Military Stress Treatment Assessment (VAMSTA),<sup>[19]</sup> a multi-measure assessment packet used to assess pre- and post-treatment functioning for Veterans referred for treatment of military-related traumatic stress. The VAMSTA includes a number of well-established self-report instruments and has demonstrated good internal and test-retest reliability.<sup>[20]</sup> Each of the measures used in this study (described below) are included in the VAMSTA.

The military version of the posttraumatic checklist (PCL-M)<sup>[21]</sup> was used to assess PTSD. Screening criteria for PTSD required a PCL-M global score of 50 and the presence of the symptoms endorsed at a moderate or high levels across the three symptom clusters per the DSM-IV algorithm for diagnosing PTSD.

Marital status (married/unmarried) and ratings of satisfaction with social networks were used as measures of social support. Both marital status and subjective ratings of satisfaction with social relationships have been shown to influence clinical outcomes in trauma-exposed populations.<sup>[22]</sup> Satisfaction with social networks was measured using three items drawn from the Quality of Life Interview.<sup>[23]</sup> Items ask respondents to rate their satisfaction (1 = Terrible, 2 = Unhappy, 3 = Mostly Dissatisfied, 4 = Mixed, 5 = Mostly Satisfied, 6 = Pleased) in three domains of their social networks: (1) amount of time spent with other people, (2) quality of relationships with family members, and (3) amount of friendship in life.

We created an operational definition for *elevated suicide risk*, based on the report of recent active and/or frequent suicidal ideation or a recent suicide attempt. Current suicidal ideation was assessed using three items drawn from the Scale for Suicidal Ideation (SSI).<sup>[24]</sup> The three items from the SSI asked respondents to rate, within the past month: (1) their desire to make an active suicide attempt (1 = no desire, 2 = weak desire, 3 = moderate-to-strong desire), the frequency of suicidal ideation (1 = never, 2 = rarely/occasionally, 3 = off and on, 4 = persistently or continuously), and control over suicidal ideation (1 = no thoughts of suicide, 2 = sure of control over attempting, 3 = unsure of control over attempting, 4 = no sense of control over attempting). A single *yes/no* item in the VAMSTA asked respondents if they had made a suicide attempt in the 4 months before seeking VA care. Veterans were classified in the elevated suicide risk group if they indicated a score of 3 or more on any of the SSI items suggestive of active or prominent suicidal ideation or if they endorsed a recent suicide attempt.

### DATA ANALYSIS

We used SPSS Version 13 and conducted preliminary chi-square tests, Spearman's rho correlation, and analyses of variance for categorical and continuous variables in order to identify potential covariates. Thirteen percent ( $n = 56$ ) of the sample were classified as being at elevated suicide risk. There were no significant associations between sociodemographic variables (i.e., gender, age, race/ethnicity, years of education, disability-seeking status) and elevated suicide risk. Surprisingly, we found no significant association between marital status and Veteran's ratings of satisfaction with their social networks,

$r = -0.003, P > .50$ . Veterans who were unmarried ( $n = 239$ ) were no more likely to screen positive for PTSD than were married Veterans ( $n = 192$ ),  $Wald = 0.71, P = .398, OR = 1.17$ . However, Veterans in the PTSD group ( $n = 214$ ) reported significantly less satisfaction with their social networks ( $M = 3.7, SD = 1.13$ ) relative to Veterans in the non-PTSD group ( $n = 217$ ) ( $M = 4.9, SD = 1.09$ ),  $F(1,429) = 141.2, P < .001$ .

Logistic regression analysis was planned to test the hypothesis that PTSD status moderates the relationship between social support and elevated suicide risk. As the marital status and satisfaction with social networks variables were not significantly interrelated, we conducted two separate hierarchical logistical regression models following methods recommended for testing for moderation and interpreting interaction effects.<sup>[25,26]</sup> Main effect variables are entered into the first step of a regression model and the interaction terms are entered into the second step. Specifically, PTSD and marital status were entered into the first step of the model predicting group classification for elevated suicide risk and the interaction term (Marital Status  $\times$  PTSD) was entered into the second step of the regression model. A second regression model was conducted to test for moderation using satisfaction with social networks. The satisfaction variable was centered and standardized using a Z-score transformation and entered into the first step of the model with PTSD; the interaction term (Satisfaction with Social Networks  $\times$  PTSD) was entered into the second step of the model.

## RESULTS

The results of the two regression models testing moderation are presented in Table 1. In the first step of the Model 1, both marital status and PTSD were significantly related to elevated suicide risk. Veterans reporting PTSD were more likely to be classified in the elevated suicide risk group relative to non-PTSD Veterans, whereas married Veterans were 53% less likely to be in the elevated suicide risk group relative to unmarried Veterans. However, the interaction term (Marital Status  $\times$  PTSD) did not significantly predict group classification for elevated suicide risk (see Table 1). Accordingly, marital status did not differentially protect against elevated suicide risk in Veterans with and without PTSD.

**TABLE 1. Logistic regression models showing predictors of elevated suicide risk**

	Wald's Z	OR	CI (95%)
<i>Model 1 (marital status)</i>			
PTSD	31.28	11.98	5.02–28.59**
Marital status	6.32	0.47	0.26–0.85*
PTSD	22.35	10.46	3.95–27.69**
Marital status	1.40	0.27	0.03–2.35
PTSD $\times$ Marital Status	0.27	1.82	0.19–17.28
<i>Model 2 (satisfaction with social networks)</i>			
PTSD	14.38	5.29	2.36–14.85**
Social networks	14.01	0.51	0.36–0.73**
PTSD	14.59	9.37	2.97–29.51**
Social networks	10.75	0.18	0.06–0.50**
PTSD $\times$ Social Network	4.74	3.38	1.13–10.10*

\* $P < .05$ ; \*\* $P < .01$ .

In the first step of Model 2, both PTSD and satisfaction with social networks were significantly associated with elevated risk for suicide. Veterans reporting satisfaction ratings one standard deviation above the mean were 49% less likely to be classified in the elevated suicide risk group. In the second step of Model 2, the interaction term was a significant predictor of elevated suicide risk. Simple effects analyses showed that satisfaction with social networks was less protective for suicide risk in the PTSD group ( $OR = 0.61, P < .01$ ) relative to the non-PTSD group ( $OR = 0.20, P < .01$ ). A one standard deviation increase in satisfaction ratings corresponded to a 39% reduction in the likelihood of being classified in the elevated suicide risk group in Veterans reporting PTSD compared to the 80% decrease in likelihood observed in the non-PTSD group.

## DISCUSSION

Marital status and Veterans' ratings of satisfaction with social networks were independently protective for suicide risk in this sample of OEF/OIF Veterans referred for mental health services. As predicted, satisfaction with social networks reduced suicide risk in OEF/OIF Veterans, but was less protective for Veterans reporting symptoms of PTSD. The presence of PTSD in OEF/OIF Veterans may interfere with how Veterans utilize social networks, thus lessening the beneficial effects of social support. Further research is needed to explore specific help-seeking and interpersonal coping behaviors associated with PTSD to elucidate the mechanisms through which PTSD impacts use of social support. However, the current findings suggest that clinicians addressing PTSD should not overrate the protective aspect of social networks. Not only are OEF/OIF Veterans with PTSD likely to be less satisfied with their social networks, it seems their satisfaction has less impact on distress evidenced by suicide ideation and/or recent suicide attempts. Clinicians are encouraged to introduce interpersonal skills training and promote Veterans' positive engagement in their social networks,<sup>[27]</sup> especially among OEF/OIF Veterans who report limited or strained social support.

We did not find support for our hypothesized moderation model when examining the interaction between PTSD and marital status. Regardless of PTSD status, married Veterans may benefit from a live-in spouse who can readily provide assistance addressing psychosocial stressors, thus preventing the onset of suicidal thoughts or behaviors. Surprisingly, we found no association between marital status and satisfaction with social networks, perhaps suggesting that the instrumental support offered by spouses is protective for suicide risk through mechanisms independent of subjective relationship satisfaction. Marital status may also represent a perceived sense of responsibility for

others that protects OEF/OIF Veterans from suicidal impulses, irrespective of PTSD. Future research is needed to explore the ways in which objective and subjective features of social support interrelate in OEF/OIF Veterans.

The current findings should be considered within the context of study limitations. First, this study relied on self-report measures in a treatment-seeking sample. Veterans may have either minimized or inflated reports of specific symptoms due to stigma or compensation seeking. Thus, these results may not generalize to non-treatment-seeking OEF/OIF Veterans. Second, the data used for this study is cross-sectional, and causal relationships between PTSD, social support, and risk for future suicidal behaviors cannot be assumed. Although we found partial support for our proposed moderation model, it is also plausible that symptoms of PTSD contribute to a Veteran's progressive strain on social relationships,<sup>[28-30]</sup> thus increasing Veterans' social withdrawal and perceived burden on others, markers of risk that can portend suicide.<sup>[31]</sup> Alternatively, hereditary factors may inform a biological vulnerability in each domain, such that individuals who are predisposed to develop PTSD following traumatic life events are also predisposed to experience interpersonal difficulties or suicidal ideation. Large-scale prospective studies are needed to further test moderation and meditational models to determine the longitudinal course of PTSD, social support, and suicide risk in OEF and OIF Veterans. Finally, we relied on marital status and single-item ratings of satisfaction specific to social access (i.e., time spent with other people), and the amount and quality of friendships and family relationships. Because social support is a complex construct with multifaceted features,<sup>[9,10,32]</sup> future research should use comprehensive measures of social integration and objective and subjective appraisals of social support to identify mechanisms that may inform elevated suicide risk in OEF and OIF Veterans with mental health concerns.

## CONCLUSIONS

Iraq and Afghanistan War Veterans, who are married and report greater satisfaction with their social support networks, are less likely to endorse thoughts or behaviors suggestive of elevated suicide risk. Although protective for suicide risk in Veterans with and without PTSD, the buffering effects of social networks may be less pronounced in Veterans reporting symptoms of PTSD. Clinicians should assess for satisfaction with social networks and consider promoting positive interpersonal coping skills and greater social integration, especially for Veterans with PTSD. Veterans' friends and family members should be educated to detect warning signs of suicide and be informed of VA and community mental health resources in order to prevent Veteran suicide.

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*Conflict of Interest:* The authors declare there are no conflicts of interest.

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