

Combat Exposure, Mental Health, and Relationship Functioning Among Women Veterans of the Afghanistan and Iraq Wars

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This study examined associations between warzone exposures to combat with postdeployment relationship and family functioning in 134 women who deployed to the conflicts in Afghanistan and Iraq. Survey invitations were sent by mail to 600 randomly selected women who experienced recent military deployments and were residing in New England. The web-based survey included measures of combat exposure, posttraumatic stress disorder (PTSD) symptoms, alcohol misuse, postdeployment stress exposure, family functioning, intimate relationship satisfaction, and parenting. Multivariate linear regression with bootstrapping estimates of indirect effects was used to examine whether PTSD symptoms and alcohol misuse accounted for associations between women's combat exposure and their postdeployment relationship and family functioning. Results indicated that women's PTSD symptoms had a direct and negative effect on postdeployment family functioning and on intimate relationship satisfaction. There was no direct association between combat exposure or alcohol misuse with any of the family or relationship functioning variables, however, the indirect association from combat to postdeployment family functioning ($b = -.13$, $SE = 0.07$, 95% confidence interval [CI]: $-.33$, $-.03$) and intimate relationship satisfaction ($b = -.25$, $SE = 0.18$, 95% CI: $-.79$, $-.001$) was significant and negative through its association with PTSD symptoms. Parenting satisfaction was significantly and negatively associated with postdeployment stress only. This study is among the first to characterize the impact of deployment experiences on women veterans' relationship and family functioning. Findings suggest that women veterans who have been exposed to combat and who have higher levels of PTSD symptoms may benefit from relationship and family focused services after deployment.

Keywords: combat, women veterans, family functioning, relationships, PTSD

Women represent one of the fastest growing segments of today's military and veteran populations and the number of women veterans enrolled in the Veterans Health Administration (VHA) is projected to steadily increase through 2020 (Department of Veterans Affairs, 2011). Unique to the newest generation of women who have served in the conflicts in Afghanistan and Iraq are

combat exposure levels that are only slightly lower than those reported by men (Vogt, Vaughn, et al., 2011). Although a growing research literature has examined the impact of exposures to combat on mental and behavioral health symptoms after deployment in women veterans (Street, Gradus, Giasson, Vogt, & Resick, 2013; Vogt, Smith, et al., 2011), little to no research has examined the

This article was published Online First September 7, 2015.

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Suzannah Creech's effort on this project was supported by VHA VISN 1 Career Development Award Number VICDA2011-11, with additional support from the Department of Veterans Affairs. The contents of this article are those of the authors and do not necessarily represent the views of the Department of Veterans Affairs or the United States Government.

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impact of combat exposure on women veterans' family or intimate relationship functioning after deployment. An understanding of the interpersonal outcomes of deployment is essential to developing a full spectrum of VHA services that meet the postdeployment transition needs of this new generation of women veterans and service members. This study thus sought to examine whether women veterans' combat exposure negatively impacted their postdeployment family functioning, intimate relationship satisfaction, and parenting satisfaction and confidence. This study also examined whether women's posttraumatic stress disorder (PTSD) symptoms and alcohol misuse accounted for this effect.

Among populations exposed to trauma, PTSD symptoms are strongly associated with intimate relationship problems (Taft, Watkins, Stafford, Street, & Monson, 2011). Recent theoretical models such as Monson, Fredman, and Dekel's (2010) cognitive-behavioral interpersonal theory of PTSD postulate that the cognitive and behavioral processes that impact the development and maintenance of PTSD also account for the close association between PTSD and relationship functioning impairments. For example, the behavioral avoidance symptoms of PTSD both maintain the disorder and impact close relationship functioning (Dekel & Monson, 2010). Similarly, emotional process disturbances (numbing) and conflict management and problem solving difficulties also impact relationship functioning and are common to PTSD (Monson, Taft & Fredman, 2009). Supporting this perspective is a consistent pattern of findings obtained from samples of male veterans indicating that it is not combat trauma per se, but the PTSD symptoms arising from combat trauma that are associated with marital functioning after deployment (Goff, Crow, Reisbig, & Hamilton, 2007; Renshaw, Rodrigues, & Jones, 2009).

For example, among large samples of mostly male veterans returning from the wars in Afghanistan and Iraq, PTSD symptoms after deployment are associated with lower relationship satisfaction and distress on a variety of measures of marital and family functioning (Allen, Rhoades, Stanley, & Markman, 2010; Erbes, Meis, Polusny, & Compton, 2011; Erbes, Meis, Polusny, Compton, & Wadsworth, 2012). A similar pattern is emerging for parenting relationships after deployment, with one study finding an association between increased PTSD symptoms and parenting challenges (Gewirtz, Polusny, DeGarmo, Khaylis, & Erbes, 2010) and another finding an association between PTSD and decreased parenting alliance (Allen et al., 2010). Taken together, this growing body of work has indicated that there is a negative impact of postdeployment symptoms of PTSD on intimate relationship and family functioning.

To date this recent literature on postdeployment family and relationship functioning has focused predominately on male service members and veterans. Although returning to close relationships after deployment may present challenges to veterans of both genders, close relationship and family functioning variables after deployment have important relevance to women veterans because of their likelihood of bearing significant caregiving responsibilities for children and other responsibilities at home (Mattocks et al., 2012). This gap in the literature is particularly important in the context of women veterans' postdeployment relationship adjustment as past research in a large sample of veterans from the first Gulf War indicated that there was a significant gender difference in the effect of combat exposure on postdeployment family functioning (Taft, Schumm, Panuzio, & Proctor, 2008). Specifically, for male veterans, PTSD symptoms fully accounted for the asso-

ciation between combat exposure and family functioning. However, for female veterans, there was also a significant and direct effect of combat exposure on family functioning, indicating that PTSD symptoms didn't fully account for the association. The present study therefore sought to determine whether this pattern of findings would be observed in a sample of more recently deployed women veterans for whom levels of combat exposure are likely to be significantly higher than those observed among women veterans of Gulf War I.

This study also examined whether alcohol misuse might account for postdeployment family and intimate relationship functioning problems. High rates of alcohol misuse have been detected after deployments (Jakupcak et al., 2010; Santiago et al., 2010), and alcohol misuse and intimate relationship functioning are strongly associated in civilian samples (see Marshal, 2003 for a review). Some have suggested that alcohol misuse may increase the risk for close relationship problems in returning veterans by increasing negative communication, anger, and emotional withdrawal (Meis, Erbes, Polusny, & Compton, 2010). Although combat exposure has a demonstrated association with alcohol misuse in women veterans, (Hassija, Jakupcak, Maguen, & Shipherd, 2012) the impact of alcohol misuse on family or relationship functioning after deployment in women veterans has not yet been examined.

The goal of this study was to examine associations between combat exposure, PTSD symptoms, and alcohol misuse with four different measures of family and close relationship functioning in a sample of 134 women veterans who deployed to the U.S. missions in Afghanistan and Iraq: postdeployment family functioning, intimate relationship satisfaction, parenting satisfaction and parenting confidence. It was hypothesized that greater levels of combat exposure would be associated with higher symptoms of PTSD and greater alcohol misuse. In accordance with Monson and colleagues' (2010) model, it was postulated that PTSD symptoms would account for an indirect effect between combat exposure with postdeployment family functioning, intimate relationship satisfaction, and parenting satisfaction and confidence. We also hypothesized that alcohol misuse would have a negative and direct effect on these family functioning variables. To control for the possibility that it is postdeployment stress exposure, rather than combat exposure or mental health symptoms, that accounts for family and relationship impairments, postdeployment stress was included as a covariate in regression models.

Method

Participants

Procedures were approved by the local VA Institutional Review Board. Potential participants for this study were obtained through the Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), or Operation New Dawn (OND) Roster, a database that identifies veterans, both VHA users and nonusers, who have been involved in the OEF/OIF/OND missions in Afghanistan and Iraq. The roster is maintained by the VHA Office of Public Health, Post-Deployment Epidemiology Program. The participant pool was 600 randomly selected females who had deployed to OEF, OIF or OND and were residing in veterans Integrated Service Network 1 (VISN 1; New England) at the time of the study. All 600 potential participants received a mailed letter containing in-

formation about the study, a document with the elements of informed consent, and a \$5 bill. Repeat reminder mailings were sent 2 and 4 weeks later. There were 109 survey invitations that came back as incorrect addresses and there were 134 women who at least partially completed the survey for a survey response rate of 27%.

Each survey invitation contained a link to the survey website, a nonsearchable website that was hosted by the secure survey provider PsychData. Participants were presented with the informed consent document, indicated their consent to participate and were presented with the survey, which took approximately 30 minutes to complete. Though all participants completed a global measure of family functioning after deployment, participants completed measures of intimate relationship satisfaction only if they indicated they were “in a current romantic relationship of any kind” ($n = 102$). Participants completed measures of parenting satisfaction and confidence only if they indicated they were currently a “primary caregiver/parent to a child under the age of 18” ($n = 64$).

Measures

Participants provided demographic information such as their age, race/ethnicity, marital status, medical service use and military service history. Questions regarding gender and OEF/OIF/OND service were included as secondary validation of the intended sample. No participants violated inclusion criteria for the study.

Combat exposure. The Combat Experiences scale from the Deployment Risk and Resilience Inventory-2 (DRRI-2) assessed for exposure to combat experiences during each participant’s most recent deployment (Vogt et al., 2013). This scale contains 17 items reflecting exposure to combat (e.g., being exposed to hostile fire) on a 6-point Likert scale ranging from 1 (*never*) to 6 (*daily or almost daily*). Items are summed to create a total score with higher scores indicative of greater exposure. Psychometric data for the DRRI-2 provides good evidence of criterion-related and discriminant validity as well as internal consistency reliability where expected (Vogt et al., 2013).

PTSD symptoms. The PTSD Checklist (PCL) was used to measure symptoms of PTSD experienced in the last month (Weathers, Litz, Herman, Huska, & Keane, 1993), based on the *Diagnostic and Statistical Manual*, 4th ed. (*DSM-IV*; American Psychiatric Association, 2000). The PCL contains 17 items rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*extremely*) and participants were asked to endorse symptoms based on “the most stressful event that happened to you, that you witnessed, or you learned about.” Items are summed with higher scores reflecting greater symptomatology in the past month. In samples of women veterans that are not seeking mental health treatment, suggested cut scores range from 31 (Yeager et al., 2007) to 38 (Dobie et al., 2002). The PCL possesses acceptable test-retest reliability and internal consistency (Wilkins, Lang, & Norman, 2011).

Alcohol misuse. The Alcohol Use Disorders Identification Test (AUDIT) was completed to assess for current problem drinking behavior (Saunders, Aasland, Babor, de la Fuente, & Grant, 1993). The AUDIT is a 10-item screening questionnaire with three questions on the amount and frequency of drinking, three questions on alcohol dependence, and four on problems caused by alcohol. Each response on the AUDIT is scored on a 0 to 4 point scale, all items are summed, and higher scores reflect greater levels of

alcohol misuse. A cut-score of 8 is recommended as an indicator of hazardous and harmful alcohol use (Saunders et al., 1993). The measure has a reported median reliability coefficient of .83, and adequate construct and criterion related validity (Reinert & Allen, 2007).

Postdeployment stress exposure. The DRRI-2 Postdeployment Stressors scale contains 14 dichotomous items (0 = no; 1 = yes) assessing exposure to life stressors after the most recent deployment (e.g., robbery, job loss). Items are summed to create a total score and higher scores on this scale are indicative of greater exposure to stressors after deployment.

Family functioning. The DRRI-2 Postdeployment Family Functioning scale contains 12 items assessing overall family functioning in terms of communication and closeness (e.g., “I get along well with my family members”) since the most recent deployment on a 5-point Likert scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Responses to items on this scale are summed to create a total score, and higher scores on the postdeployment family functioning scale represent more positive family functioning after deployment. Respondents are instructed to complete this scale about the family with whom they spend the most time.

Intimate relationship satisfaction. The Couples Satisfaction Index (CSI) is a 32 item measure of intimate relationship satisfaction (Funk & Rogge, 2007). Items are rated on a 6-point Likert scale with varied anchor points depending on the item. For example, one-item queries about dyadic agreement on decision making, ranging from 5 (*always agree*) to 0 (*always disagree*), whereas another queries thoughts about ending the relationship ranging from 0 (*not at all true*) to 5 (*completely true*). Items are summed with higher scores reflecting greater satisfaction. Scores above 104.5 are generally considered “satisfied” (Funk & Rogge, 2007). The measure has good convergent and construct validity with other relationship satisfaction measures as well as strong internal consistency (Funk & Rogge, 2007).

Parenting confidence and satisfaction. The 16-item Parenting Sense of Competence scale was developed to measure parents’ satisfaction with parenting and their self-efficacy in the parenting role (Gibaud-Wallston & Wandersmann, 1978; Johnston & Mash, 1989). Items (e.g., “I am frustrated while my child is at his/her present age”) are scored on a 6-point Likert scale ranging from 1 (*strongly agree*) to 6 (*strongly disagree*). Items are summed with higher scores reflecting higher overall ratings of parental confidence. The measure also contains a parenting satisfaction subscale composed of six items, which was also calculated for this study (Gilmore & Cuskelly, 2009). Acceptable internal consistency estimates (Johnston & Mash, 1989) and convergent validity for the satisfaction subscale have been reported (Rogers & Matthews, 2004).

Data Analysis

Data analyses were conducted using IBM SPSS Statistics (Version 20). The program G*Power was used for post hoc power analyses (Faul, Erdfelder, Buchner, & Lang, 2009). The SPSS MEDIATE macro (Preacher & Hayes, 2008) was used to calculate multiple regression models predicting family and relationship functioning outcomes from the combat exposure IV with postdeployment stress exposure included as a covariate. Each regression tested whether PTSD symptoms and alcohol use accounted for

significant indirect effects between combat exposure and the dependent variables. Four identical regression models predicting postdeployment family functioning, intimate relationship satisfaction, parenting confidence, and parenting satisfaction were tested. Multiple regressions with bias-corrected percentile bootstrap confidence intervals (based on 5,000 bootstrap samples) to estimate indirect effects were used (Hayes, 2009). Bootstrapping is a non-parametric resampling approach for estimating indirect effects that is more powerful than more traditional tests for indirect effects (Hayes, 2009). Cohen's f^2 was calculated to determine effect size for the overall regression models (Cohen, 1988). Preacher and Kelley's k^2 , an index of effect size that quantifies the proportion of the maximum possible indirect effect that could have occurred, was also calculated where relevant (2011). In accordance with Cohen's (1988) guidelines and following the recommendations of Preacher and Kelley (2011), small, medium, and large effect sizes for both k^2 and f^2 are .01, .09, and .25, respectively. Missing data accounted for 4.58% of the data set as a whole. Listwise deletion was used for missing data, as an imputed version of the data set resulted in identical results.

Results

Demographic data and military service history of the sample is presented in Table 1. The sample was evenly dispersed between those women who completed a deployment within the last 6 years (49%) and those whose most recent deployment occurred between 6 and 12 years ago (51%). The median number of years since returning from deployment was 7. Most women in the full sample indicated they were currently residing with a partner or other close family member such as a child or parent (82%). Of those women who indicated they were in a romantic relationship, most described their relationship status as married or partnered (62%), with the remaining selecting their status as dating (20%), and engaged/other (18%). Most women who were in a romantic relationship indicated they had daily contact with their partner (94%), with the remaining women indicating they had contact 3–5 times a week (4%) and 1–2 times a week (2%). None of the demographic variables significantly predicted the dependent variables of postdeployment family functioning, intimate relationship satisfaction, or parenting confidence and satisfaction (all $ps > .05$).

Descriptive statistics and correlations between variables included in the study are presented in Table 2. Though combat exposure was not significantly associated with any of the dependent variables, combat exposure was significantly and positively associated with PTSD symptoms and alcohol misuse ($ps < .01$). There were also significant and negative bivariate correlations between PTSD symptoms and postdeployment family functioning and intimate relationship satisfaction ($ps < .01$), but not with either of the parenting scales. Alcohol misuse was significantly and negatively correlated with postdeployment family functioning ($p < .05$) and with intimate relationship satisfaction ($p < .01$).

As can be seen in Figure 1, the model predicting postdeployment family functioning was significant, $R^2 = .18$, $F(4, 115) = 6.12$, $p < .001$. The effect size for the overall model was medium to large, Cohen's $f^2 = .21$. Combat exposure had a significant and positive direct effect on PTSD symptoms, $B = .52$, $SE = .18$, $p < .001$, and on alcohol use $B = .19$, $SE = .07$, $p = .001$. In turn, PTSD symptoms had a significant and negative direct effect on

Table 1
Demographics and Military Service History of the Study Sample

	<i>M</i>	<i>SD</i>	<i>n</i>	<i>%</i>
Demographics of the study sample (<i>n</i> = 134)				
Age	37.11	8.74		
Years education	16.10	2.87		
Years of active duty service	5.69	5.31		
Years of guard/reserve service	7.33	7.61		
Race				
White			109	81.34
Black			12	8.95
Asian			2	1.50
Multiracial			2	1.50
Native American			3	2.24
Other			6	4.48
In a current romantic relationship			102	77.86
Biological, adoptive or step-children living with you			54	40.30
Parent to a child under age of 18 during last deployment			35	27.56
Military service history (<i>n</i> = 130)				
Most recent deployment				
OEF			59	45.38
OIF			57	43.85
OND			11	8.46
Other			3	2.31
Branch of service				
Army			64	49.23
Navy			25	19.23
Air Force			40	30.77
Marines			0	0
Coast Guard			1	.78
One deployment			68	52.31
Two or more deployments			62	47.69
Highest rank was officer			40	30.77

Note. Branch of service is collapsed across active duty and reserve components. OEF = Operation Enduring Freedom (Afghanistan); OIF = Operation Iraqi Freedom (Iraq); OND = Operation New Dawn (Iraq).

postdeployment family functioning, $B = -.26$, $SE = .07$, $p < .001$. Alcohol use did not have a significant direct effect on postdeployment family functioning $B = -.12$, $SE = .18$, $p = .51$. Controlling for postdeployment stress exposure, the indirect effect of combat exposure on postdeployment family functioning via PTSD symptoms was estimated to be $-.13$ ($SE = 0.07$), with a 95% confidence interval of $-.33$, $-.03$. The k^2 for the indirect effect was .10, a medium effect. These results indicate that controlling for postdeployment stress exposure, PTSD symptoms also had a significant direct and negative effect on postdeployment family functioning. Further, PTSD symptoms accounted for a significant indirect effect between combat exposure and postdeployment family functioning.

The model predicting intimate relationship satisfaction was also significant, $R^2 = .20$, $F(4, 87) = 5.41$, $p < .001$. The effect size for the overall model was large, Cohen's $f^2 = .25$. Combat exposure had a significant and positive direct effect on PTSD symptoms, $B = .53$, $SE = .12$, $p < .001$, and on alcohol use $B = .18$, $SE = .06$, $p < .001$. PTSD symptoms had a significant and negative direct effect on relationship satisfaction, $B = -.48$, $SE = .22$, $p = .04$. Alcohol use did not have a significant direct effect on intimate relationship satisfaction, $B = -1.04$, $SE = .61$, $p = .09$. Controlling for postdeployment stress exposure, the indirect effect

Table 2
Correlations and Descriptive Statistics for Variables in the Study

Variables	1	2	3	4	5	6	7	8
1. Combat exposure	—							
2. PTSD symptoms	.45**	—						
3. Alcohol misuse	.37**	.37**	—					
4. Postdeployment stress	.39**	.59**	.27**	—				
5. Postdeployment family functioning	-.14	-.41**	-.19*	-.26**	—			
6. Intimate relationship satisfaction	-.19	-.40**	-.32**	-.33**	.40**	—		
7. Parenting confidence	-.10	-.09	-.06	-.21	.31*	.13	—	
8. Parenting satisfaction	-.21	-.18	-.21	-.33**	.36**	.27*	.88**	—
<i>M</i>	22.27	31.98	4.36	2.67	47.99	119.19	74.39	25.41
<i>SD</i>	8.94	16.72	5.39	2.50	10.57	30.97	11.37	5.99
Cronbach's α	.85	.97	.88	.75	.97	.97	.88	.80

Note. All means presented represent the mean summed score for each measure.

* $p < .05$. ** $p < .01$.

of combat exposure on relationship satisfaction via PTSD symptoms was estimated to be $-.25$ ($SE = 0.18$), with a 95% confidence interval of $-.79, -.001$. The k^2 for the indirect effect was $.07$, a small-medium effect. Consistent with our hypotheses, these results indicate that PTSD symptoms had a significant and direct effect on relationship satisfaction and that PTSD symptoms accounted for a significant indirect effect between combat exposure and postdeployment relationship satisfaction.

Results for parenting satisfaction, $R^2 = .13$, $F(4, 60) = 2.14$, $p = .09$, and parenting confidence, $R^2 = .05$, $F(4, 60) = .70$, $p = .59$, did not support the hypothesized model in that there was no significant association between either PTSD symptoms or alcohol misuse with parenting confidence or parenting satisfaction, and there was no direct effect of combat exposure. Post hoc power analyses for the overall mediation models indicated power was $.65$ and $.58$, respectively, indicating these analyses were under powered and therefore the null finding should be interpreted with caution. In contrast, the model including only the main effects of combat exposure and postdeployment stress exposure on parenting satisfaction was significant, $R^2 = .11$, $F(2, 62) = 3.92$, $p = .03$, indicating that postdeployment stress exposure was significantly and negatively associated with parenting satisfaction, $B = -.64$,

$SE = .30$, $p = .04$. The effect size for the overall model was small, Cohen's $f^2 = .13$.

Discussion

This study is among the first to examine associations between warzone exposures to combat with postdeployment intimate relationship and family functioning in women veterans who were previously deployed to the conflicts in Afghanistan and Iraq. Though these data are cross-sectional and preclude conclusions regarding causality, findings indicated women veterans' combat exposure was directly and positively associated with PTSD symptoms, and indirectly and negatively associated with both postdeployment family functioning and intimate relationship satisfaction through PTSD symptoms. Further, women veterans' PTSD symptoms were directly and negatively associated with both postdeployment family functioning and intimate relationship satisfaction. These findings are consistent with prior studies that found PTSD symptoms but not combat exposure predicted intimate relationship difficulties after deployment (Goff et al., 2007; Renshaw, Rodrigues, & Jones, 2009) and with the larger literature that has associated postdeployment PTSD symptoms with decreased relationship adjustment among male OEF/OIF veterans (Allen et al., 2010; Erbes et al., 2011; Erbes et al., 2012). Findings were in contrast to a longitudinal study of veterans from the first Gulf War that indicated there was also a direct association between combat exposure with family functioning problems among women veterans (Taft et al., 2008). One explanation for the difference in findings is that the measures of combat exposure, PTSD symptoms, and family functioning differ between these two studies. Another plausible explanation for the difference is that the present study utilizes cross-sectional data while the 2008 study by Taft and colleagues used longitudinal data collected immediately after deployment and again 18–24 months later.

With regard to parenting, the hypothesis that parenting confidence and parenting satisfaction would be impacted by combat exposure through PTSD symptoms or alcohol use was not supported. Post hoc power analyses indicated that the mediation models were slightly underpowered to detect effects for the parenting variables; therefore this finding must be interpreted with caution. In contrast, simple regression models indicated postdeployment stress but not combat exposure was a significant predictor of parenting satisfaction and there were significant and positive

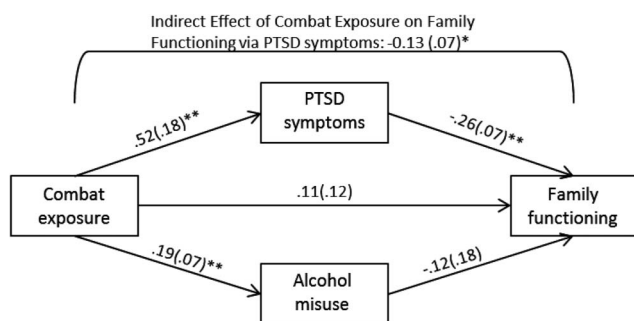


Figure 1. Diagram of regression coefficients for postdeployment family functioning. Unstandardized regression weights shown with standard errors in parentheses. The dependent variable is postdeployment family functioning. Covariate (postdeployment stress exposure) is not shown. Models tested for the dependent variables of relationship satisfaction, parenting confidence, and parenting satisfaction were the same as shown. * $p < .05$. ** $p < .01$.

correlations between parenting satisfaction with intimate relationship satisfaction and postdeployment family functioning. Taken together these findings suggest that it may be the overall family environment and stress level that impacts women veterans' parenting satisfaction most.

Parenting findings are in contrast to prior studies that found associations between PTSD symptoms with parenting difficulties in primarily male samples of OEF/OIF/OND veterans (Gewirtz et al., 2010) and with two studies of Vietnam era women veterans that found associations between PTSD symptoms with parenting satisfaction (Berz, Taft, Watkins, & Monson, 2008; Gold et al., 2007). One reason for this difference may be that the measures of parenting satisfaction used in each of these studies were different. Our sample of women who deployed to Iraq and Afghanistan is also likely to differ significantly from Vietnam era women veterans with regard to combat exposure and other important socioeconomic and societal variables. However, the relatively higher combat exposure in our sample compared to what would be expected in a Vietnam era sample would suggest a stronger association between combat exposure, PTSD symptoms, and parenting dissatisfaction. Therefore, the low number of women in our analyses for these variables underscores the need to examine these constructs in larger samples of women and men veterans, particularly considering the limited data on parenting among mothers who have deployed to a war zone (Gewirtz, McMorris, Hanson & Davis, 2014).

As hypothesized, higher combat exposure was directly and positively associated with greater alcohol misuse, but our hypothesis that alcohol misuse would also be related to family and relationship impairments after deployment was not supported. Despite significant and negative bivariate correlations between alcohol use with postdeployment family functioning and intimate relationship satisfaction, more complex regression models did not detect a significant direct or indirect effect of alcohol use on any of the family or relationship functioning variables. This finding is in line with those from other samples of returning veterans that also found significant bivariate associations between alcohol misuse with relationship satisfaction measures, but did not detect a strong relationship between alcohol misuse and family functioning impairments when PTSD symptoms (Gewirtz et al., 2010) and depression (Blow et al., 2013) were included. These findings suggest that whereas alcohol misuse may accompany deployment and postdeployment stress, alcohol use appears to be less influential on close relationships when considered alongside other mental health symptoms. Findings from laboratory studies might suggest that whereas measures of recent alcohol misuse may not have a direct relationship with family functioning, measures of acute and situational alcohol intoxication and binge consumption may be more important to examine in this context (Eckhardt, 2007; Eckhardt & Crane, 2008).

Monson and colleagues' (2010) model suggests the cognitive and behavioral processes that impact the development and maintenance of PTSD account for the close association between PTSD and relationship functioning impairments. In other words, consistent with our findings and with the existing literature among male veterans (Goff et al., 2007; Renshaw, Rdrigues, & Jones, 2009), PTSD symptoms rather than combat trauma exposure may explain intimate relationship difficulties

after deployment. This association may prove crucial to trauma recovery, as has been postulated in theories suggesting there may be a reciprocal relationship between PTSD and relationship functioning impairments (Monson et al., 2010; Monson, Taft, & Fredman, 2009; Goff & Smith, 2005). An intriguing line of research has indicated that relationship functioning appears to at least be an important influence on PTSD treatment engagement and response. Recent studies have indicated that supportive intimate relationships help facilitate treatment utilization (Meis, Barry, Kehle, Erbes, & Polusny, 2010) and a line of longitudinal research in Australian veterans has indicated lower family functioning prior to treatment predicted higher PTSD symptoms post treatment (Evans, Cowlshaw, Forbes, Parslow, & Lewis, 2010; Evans, Cowlshaw, & Hopwood, 2009). Additional work should explore whether there are gender differences in the influence of family and relationship functioning on PTSD treatment response and engagement, and in associations between combat exposure, PTSD symptoms, and post-deployment relationship functioning in larger and longitudinal samples comprised of women and men veterans. Longitudinal data will be essential to understanding the directionality of these associations.

The VHA has made recent efforts to provide increased access to family and relationship services after deployment and for all veterans (Glynn, 2013) and a number of recent studies have reported results indicating that veterans are also interested in family involvement in mental health services (Batten et al., 2009; Meis et al., 2013). In addition, a number of validated interventions have now been developed and tested that emphasize treatment of PTSD within an intimate relationship (Monson et al., 2012) and trauma informed treatment to prevent intimate partner violence in at-risk couples (Taft et al., 2014; Hayes et al., 2015). Despite this shift toward more awareness of the need for such treatments and access to them within the VHA, there remains a need for increased research on the postdeployment transition needs of women veterans (Bean-Mayberry et al., 2011). For example, though this study did not examine the relationship between the experience of military sexual trauma and family functioning difficulties, this is a critical area in need of further study.

Findings from this study must be qualified in consideration of several important limitations. The first limitation to consider is the cross-sectional nature of these data, which limits the ability to presume directionality. For example, although we hypothesize that PTSD symptoms negatively influence family functioning, an equally valid alternative hypothesis is that family or relationship functioning impairments increase PTSD symptoms after combat exposure. Our hypotheses, however, are consistent with the larger body of work in this area, including data drawn from longitudinal studies where directionality is clearer. Second, though we analyze several family and relationship functioning variables separately, it is important to note that these variables likely have a cumulative influence on one another and may reciprocally contribute to PTSD symptoms, and this was not measured in our analyses. In addition, the number of parents to minor children in our sample was low, limiting the conclusions that may be drawn from that subset of our analyses. Finally, there are several potential threats to generalizability including a geographically limited sample, a methodology that

precluded involvement of women without a computer and Internet access, and an overall response rate of 27%. In addition, as our sample was drawn from the community, PTSD symptoms are lower and relationship satisfaction higher than would be observed in a mental health treatment-seeking sample. However, concerns about generalizability are somewhat alleviated given that other samples of returning women veterans report levels of combat exposure and PTSD symptoms that are comparable to those observed in this sample (Vogt, Vaughn, et al., 2011). It should also be noted that the nonresponse rate is a conservative estimate based on returned mail and does not account for nonreturned mail that failed to reach the intended potential participant.

Despite these limitations, this study provides important information on the associations between combat exposure, PTSD and relationship and family functioning among women who deployed to the U.S. military conflicts in Afghanistan and Iraq. Results suggested that higher combat exposure was indirectly associated with greater problems with family and intimate relationship functioning after deployment through a relationship with PTSD symptoms. There was also evidence of a direct association between higher PTSD symptoms with family and intimate relationship functioning impairments. Further, there was an association between parenting satisfaction with postdeployment stress exposure, family functioning, and intimate relationship satisfaction. As the population of women in the military and women served by VHA continues to grow, these findings suggest that women veterans who have been exposed to combat and who have higher levels of PTSD symptoms may benefit from relationship and family focused services.

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Received February 11, 2015

Revision received July 15, 2015

Accepted July 21, 2015 ■

Call for Papers for a Special Section of the *Journal of Family Psychology*

Military Deployment Communication: New Findings and Conceptual Frameworks

Editors: Steven L. Sayers and Galena Rhoades

The *Journal of Family Psychology* invites manuscripts for a special section on military deployment communication.

The ability of military service members to maintain regular communication with their intimate partners and spouses during their deployment to a combat has increased dramatically in the last decade. Researchers have begun to expand beyond investigating the role of written communication for couples experiencing this type of separation. Only recently have studies been conducted on the impact of modern communication (e.g., Skype and instant messaging) on the job of the service member and the functioning of both service member and spouse. The literature in this area, however, lacks an accepted conceptual framework for understanding these modes of communication. Furthermore, there has not been an exploration of the reasons why inquiry in this area is important. For instance, what individual- and couple-based outcomes are important to examine and why, and what implications do these findings have for military policy, training, and deployment preparation for military families?

The intent of this special section is to bring together empirical papers that contribute to the developing conceptual frameworks of deployment communication and a broader consideration of the impact of deployment communication on the psychological health and well-being of military families. Papers that contribute new findings and advance the development of this important area of research will be considered for publication.

The deadline for receipt of papers for this special section is **August 1, 2016**.

Questions regarding the special section should be addressed to the section editors, Steven L. Sayers (steven.sayers@va.gov) and Galena Rhoades (grhoades@du.edu). Please follow the journal's Instructions to Authors found elsewhere in this journal for information about how to prepare an article. Manuscripts must be submitted electronically through the Manuscript Submission Web Portal of the *Journal of Family Psychology* (<http://www.apa.org/pubs/journals/fam/?tab=4>).

Please be sure to specify in the cover letter that the submission is intended for the special section on Military Deployment Communication. All papers will be initially screened by the editors, and papers that fit within the scope of this special section will be sent out for blind peer review.