Moderating Effect of Marital Status on the Association Between Combat Exposure and Post-Deployment Mental Health in Canadian Military Personnel

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For military personnel, there are positive and negative aspects of marriage, which may contribute to mental health during times of high stress. The present study investigated the relationship of marital status with three mental health outcomes (general mental health, posttraumatic stress disorder [PTSD], depression) among 14,624 Canadian military personnel recently deployed in support of the mission in Afghanistan. Greater combat exposure was associated with poorer postdeployment mental health, but marital status was, on its own, only slightly associated with PTSD. Marital status significantly moderated the relationship between combat exposure and mental health: For both single and married participants, mental health declined as combat exposure increased, but this association was stronger for married members. This association could be due to the additional familial demands that married personnel may face upon their return from deployment or to the stresses associated with poor marital satisfaction. Overall, results suggest that the relationship between marital status and mental health after deployment is complex and may vary according to other factors.

Keywords: combat exposure, marital status, marriage, mental health, military

In military organizations, postdeployment mental disorders are prevalent. In Canada, 14% of Canadian Armed Forces (CAF) personnel deployed in support of the mission in Afghanistan were diagnosed with a deployment-related mental health condition within 4 years of their return (Boulos & Zamorski, 2013). These problems have enormous effects on individuals, their families, and for society in general (Con-

ference Board of Canada, 2012; Karney, Ramchand, Chan Osilla, Barnes Calderone, & Burns, 2008). The relationship between military deployment and mental health in military members has been well documented (see Watkins, 2014, for a review), with psychological well-being generally declining with increasing combat exposure. Consistent with this association, Boulos and Zamorski (2013) found that CAF personnel deployed to a high-threat area had 5 times the risk of being diagnosed with a deployment-related mental condition.

Beyond affecting the mental health of military personnel, military deployment can be taxing for military members' relationships with their spouses or partners (Negrusa & Negrusa, 2014). Nevertheless, marriage may play a role in facilitating adjustment after military deployment. Married members are more likely to receive an appropriate familial postdeployment homecoming reception (Bolton, Litz, Glenn, Orsillo, & Roemer, 2002) and may be encour-

aged by spouses to seek mental health services or limit unhealthy behaviors (Stack & Eshleman, 1998). Because of combined incomes and shared expenses, marriage may also contribute to a better financial standard of living (Ross, Mirowsky, & Goldsteen, 1990).

Two general hypotheses for the increased well-being associated with marriage exist: (a) social selection theory, which holds that mentally healthier individuals are more likely to have strong, lasting relationships (Ren, Skinner, Lee, & Kazis, 1999) and less likely to divorce (Negrusa & Negrusa, 2014), and (b) social causation theory, in which the social benefits afforded by marriage contribute to well-being. Some studies have provided support for an association between marriage and better mental health among military members (Bolton et al., 2002; Booth-Kewley, Larson, Highfill-McRoy, Garland, & Gaskin, 2010; Iversen et al., 2008). For example, results of a population-based cohort study of U.S. military personnel revealed that symptoms of new-onset PTSD were more prevalent among members who were never married or divorced compared with those who were married (Smith et al., 2008). However, these associations are not always observed (Riddle et al., 2007). Indeed, service members who were single demonstrated a higher prevalence of alcohol abuse, but not of posttraumatic stress disorder (PTSD) or neurotic disorders, in a study of U.K. military members (Iversen et al., 2009). In another study, although symptoms of new-onset depression were found to be more prevalent among male unmarried U.S. service members, for women, they were more common among those who were married (Wells et al., 2010).

Despite the potential advantages of marriage, there may be some drawbacks to being married in the military, including greater child-rearing and housekeeping demands or familial separation during military operational duties, such as deployment (Newby et al., 2005; Wells et al., 2010). Marital relationships often become strained from the demands of deployment (Newby et al., 2005), resulting in additional stress. Consequently, the relationship between marital status and postdeployment mental health may be more complex. Rather than being directly associated with postdeployment mental health, marital status could play a role by influencing the extent to which the mental health of military personnel is affected by deployment experiences. In their study of U.S. Reservists, Riviere, Kendall-Robbins, McGurk, Castro, and Hoge (2011) found that the service members who had never been married experienced the greatest increase in PTSD prevalence from 3 months to 1 year postdeployment. It is possible that marriage, through the social benefits it affords, helps to buffer the longer term effects of deployment on mental health.

With the mixed findings regarding the association of marriage with postdeployment mental health, it is not clear whether married personnel experience greater or poorer mental health than their single counterparts, nor how marital status influences the association of combat and mental health. In an effort to address this gap, the present study was conducted to explore and describe the moderating effect of marital status on the relationship between combat exposure and postdeployment mental health in a large population of CAF personnel who deployed in support of the CAF's combat and peace support mission in Afghanistan.

Method

Procedure

The data were collected 90–180 days postdeployment as part of the Enhanced Post-Deployment Screening (EPDS) process—a compulsory health screening for all CAF members who deployed overseas for 60 days or longer—to identify CAF members with deployment-related health difficulties. The EPDS consists of a paper-and-pencil questionnaire measuring various aspects of mental and physical health and sociodemographic information, followed by an interview with a mental health professional. At least 76% of personnel who require the screening complete it (Zamorski, Rusu, & Garber, 2014).

Participants

The sample consisted of 15,832 CAF members who had deployed in support of the mission in Afghanistan and who completed the EPDS questionnaire between January 2009 and July 2012. Most participants were married or living with a partner (55.5%; $n = 8,789$), followed by single, never married (39.6%; $n = 5,835$). Only

a small proportion of the overall sample identified as separated, divorced, or widowed (7.6%; $n = 1,203$). In military populations, these individuals often differ significantly in mental health from other unmarried members (Lapierre, Schwegler, & LaBauve, 2007; Wells et al., 2010). Therefore, these cases were eliminated from analyses to provide a simpler comparison of single and married members, resulting in a sample size of 14,624. The participants were primarily male (91.5%; $n = 13,379$), of the Regular Force (85.0%; $n = 12,425$), and in the Canadian Army (80.4%; $n = 11,734$), with some members of the Royal Canadian Air Force (15.0%; $n = 2,027$) and the Royal Canadian Navy (5.7%; $n = 836$). At the time of EPDS completion, participants' ages ranged between 18 and 60 years, with an average age of 32.18 years ($SD = 8.57$). Most were noncommissioned members (NCMs; 85.6%; $n = 12,509$), with some officers (14.4%; $n = 2,099$).

Measures

Marital status. As part of a demographic questionnaire, participants were asked to state their marital status. Response options were "married/living with partner[1]," "divorced," "single (never married)," "separated," and "widowed." However, as earlier noted, only CAF members who were single (never married) or married/living with a partner were included in the present study.

Combat exposure. Combat exposure was measured using 30 items of an adapted version of the Combat Experiences Scale[2], which assesses potentially distressing experiences military personnel might encounter on deployment (Killgore et al., 2008). For each item, participants were asked, "During your most recent deployment, did you experience. . . ." The response options were "no" and "yes." A sum score of all 30 items indicated total combat exposure count, with higher scores reflecting greater combat exposure (Kuder–Richardson 20 coefficient of .92). Participants reported a mean of 7.66 ($SD = 6.41$) combat experiences.

Mental health. Among CAF members, combat has been shown to have varying magnitudes of effects on different mental conditions (Sareen et al., 2008). Accordingly, three different outcomes of mental health were assessed.

General mental health. Overall mental well-being was assessed using the mental component summary (MCS) measure of the Medical Outcomes Study 36-item Short Form (SF-36) Health Survey. Survey items are generally prefaced with the question "How much of the time during the past four weeks. . . ." The MCS is calculated using the eight norm-based subscales of the SF-36 reflecting mental and physical health. The MCS scores are standardized, with a mean of 50, a SD of 10, and a possible range of 0–100. Higher scores indicate better mental health (for detailed information on SF-36 scoring algorithms, see Ware, Kosinski, & Dewey, 2000). Participants obtained a mean score of 50.54 ($SD = 9.77$) on the MCS.

PTSD. PTSD symptomatology was measured using the PTSD Checklist, civilian version (PCL-C; Weathers, Litz, Herman, Huska, & Keane, 1993). The PCL-C contains 17 items describing diagnostic symptoms of PTSD. Survey items are prefaced with the statement "Please indicate how much you have been bothered by each problem in the past month." Responses are made on a 5-point Likert-type scale with response options of "not at all," "a little bit," "moderately," "quite a bit," and "extremely." Items are summed, with higher total scores indicating greater PTSD symptomatology. Possible total scores range from 17 to 85 (Cronbach's $\alpha = .94$). A mean PCL-C score of 22.69 ($SD = 9.02$) was reported by participants.

Depression. Depression was assessed using the nine depression items of the Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001), which measures diagnostic symptoms of depression. Participants were asked, "Over the last two weeks, how often have you been bothered by any of the

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[1] In 2014, approximately 38% of Canadian adults were legally married, and 9% were in a "common law" relationship (Statistics Canada, 2014), defined as a conjugal relationship of at least 1 year of continuous cohabitation (Canada Revenue Agency, 2014). The present study's definition of *married* includes all participants who identified themselves as married or living with a partner, regardless of legal status.

[2] In this "adapted" version, four items of the original scale were removed because positive responses might signal investigation into potential misconduct (e.g., "witnessing mistreatment of a non-combatant") or due to redundancy (e.g., multiple items on different sorts of "close calls" experienced), and others were slightly reworded.

following problems?" Responses are made on a 4-point Likert-type scale with options of "not at all," "several days," "more than half the days," and "nearly every day." Items are summed, with higher total scores suggesting greater depressive symptomatology. Possible total scores range from 0 to 27 ($\alpha = .88$). Participants obtained a mean score of 2.69 ($SD = 3.96$) on the PHQ-9.

Mental health care use. CAF members with a history of mental health service use tend to report poorer mental health postdeployment (Zamorski, Watkins, & Rusu, 2015). Therefore, an item, "Have you ever seen, or talked to on the telephone, a health professional about your emotional or mental health? (Not including routine pre- or post-deployment screening.)," was included in the analyses as a covariate. Response options were coded 1 = "no" (81.8%; $n = 10,661$) and 2 = "yes" (18.2%; $n = 2,376$).

Demographics. Several sociodemographic and military characteristics were measured for inclusion as covariates, namely sex, age, rank group (categorized into two groups: NCM and officer), component (Regular Force vs. Reserve Force), element (Army, Navy, or Air Force; dummy coded, with "Army" as the reference variable), number of past deployments (categorized as none vs. one or more), and time since deployment (measured in number of days).

Statistical Analysis

Analyses were conducted using IBM SPSS Statistics v. 23. To assess the main effects of combat exposure and marital status on postdeployment mental health, as well as the potential moderating effect of marital status on the association between combat exposure and mental health, three moderation analyses controlling for various covariates were conducted. The predictor variable, combat exposure, was first centered by subtracting the mean from all observed scores, resulting in a mean of zero. Marital status was the moderator, and MCS score, PCL-C score, and PHQ-9 score were the respective dependent variables. Unstandardized coefficients indicated the main effects of each predictor on the outcome, and the interaction between combat exposure and marital status was examined to investigate a potential moderating effect of marital status on the associations between levels of combat exposure and mental

health outcomes. The proportion of missing data across variables ranged from 0% to 10%. Missing data were handled using a multiple imputation approach. Specifically, five data sets were generated in which missing values were predicted using existing values from other variables. When possible, analyses were then conducted on each imputed data set, from which pooled estimates were derived. For analyses in which SPSS does not generate pooled estimates for the statistics of interest, results from one randomly selected imputed data set were interpreted.

Results

A summary of pairwise correlations between all variables included in subsequent analyses is presented in Table 1. A significant negative correlation was observed between marital status and combat exposure, with single participants ($M = 8.68$, $SD = 6.53$) reporting significantly more combat exposure than married participants ($M = 6.97$, $SD = 6.24$; $t(14,622) = 15.78$, $p < .001$). Marital status was also significantly positively correlated with depression but was not significantly associated with general mental health or PTSD symptoms. Specifically, married participants ($M = 2.80$, $SD = 4.03$) reported slightly, but significantly more depression symptoms than single participants ($M = 2.60$, $SD = 3.92$; $t(14,622) = -2.89$, $p < .01$).

Moderation Analyses

Stepwise regression analyses were conducted with combat exposure, marital status, and all covariates entered in Step 1, followed by the interaction term for marital status and combat exposure in Step 2. SPSS does not generate pooled estimates for all regression statistics of interests (i.e., R^2 and F) from multiply imputed data sets. Because patterns of results were similar across multiply imputed data sets, results from one randomly selected imputed data set are presented.

In Step 1, the model significantly predicted each of the mental health outcomes, with $R^2 = .08$, $F(11, 14,612) = 120.20$, $p < .001$ for general mental health; $R^2 = .16$, $F(11, 14,612) = 252.12$, $p < .001$ for PTSD; and $R^2 = .09$, $F(11, 14,612) = 137.95$, $p < .001$ for depression. The main predictor variable, com-

Table 1
Summary of Pairwise Correlations Among Demographic and Military Variables, Marital Status, Combat Exposure, and Mental Health Outcomes

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. Sex	—														
2. Age	.06***	—													
3. Rank	.08***	.23***	—												
4. Component	-.01	-.08***	.00	—											
5. Army	-.15***	-.28***	-.15***	.12***	—										
6. Navy	.07***	.10***	.04***	-.07***	-.50***	—									
7. Air Force	.12***	.26***	.15***	-.09***	-.81***	-.10***	—								
8. Past deployment	-.04***	.41***	.01	-.12***	-.06***	.02*	.06***	—							
9. Time since deployment	-.00	.04***	.03**	.07***	-.00	-.01	.01	.02*	—						
10. Past MH care use	.10***	.07	-.00	-.04***	-.03**	.02**	.02**	.06***	.03	—					
11. CE	-.18***	-.28***	-.13***	.03**	.34***	-.19***	-.26***	-.07***	.05***	-.01	—				
12. Marital status	.01	.48***	.12***	-.17***	-.14***	.04***	.14***	.27***	.03***	.07***	-.13***	—			
13. MCS	-.06***	.03*	.07***	.02*	-.03***	-.00	.04*	.02*	.00	-.23***	-.15***	-.00	—		
14. PCL-C	.02*	-.01	-.08***	-.00	.06***	-.01	-.06***	.00	.02*	.24***	.29***	.02	-.72***	—	
15. PHQ-9	.06***	.02*	-.08***	-.02*	.02*	.00	-.03*	-.00	.01	.22***	.16***	.02**	-.79***	.81***	—

Note. MH = mental health; CE = combat exposure; MCS = mental component summary; PCL-C = PTSD Checklist, civilian version; PHQ = Patient Health Questionnaire. Sex was coded 0 = *male*; 1 = *female*. Rank groups were coded 0 = *NCM*; 1 = *officer*. Component was coded 0 = *Regular Force*; 1 = *Reserve Force*. Army was coded 0 = *other element*; 1 = *Army*. Navy was coded 0 = *other element*; 1 = *Navy*. Air Force was coded 0 = *other element*; 1 = *Air Force*. Past deployment was coded 0 = *none*; 1 = *one or more*. Past mental health care use was coded 0 = *no*; 1 = *yes*. Marital status was coded 0 = *single*; 1 = *married*.
* $p < .05$. *** $p < .01$. **** $p < .001$.

bat exposure, was significantly associated with poorer general mental health ($B = -1.56$, $p < .001$) and greater PTSD ($B = 2.92$, $p < .001$) and depression symptomatology ($B = .77$, $p < .001$), whereas marital status was only significantly associated with PTSD symptoms ($B = .34$, $p < .05$), with married participants reporting slightly greater PTSD symptomatology. After adding the interaction term for marital status and combat exposure in Step 2, the model significantly predicted each of the mental health outcomes, with $R^2 = .08$, $F(12, 14,611) = 110.95$, $p < .001$ for general mental health; $R^2 = .16$, $F(12, 14,611) = 232.52$, $p < .001$ for PTSD; and $R^2 = .09$, $F(12, 14,611) = 127.23$, $p < .001$ for depression. The addition of the interaction term resulted in a small, but statistically significant change in R^2 for each outcome, with $\Delta R^2 = .001$, $F(1, 14,611) = 8.53$, $p < .01$

for general mental health; $\Delta R^2 = .001$, $F(1, 14,611) = 14.35$, $p < .001$ for PTSD; and $\Delta R^2 = .001$, $F(1, 14,611) = 8.58$, $p < .01$ for depression. Unstandardized regression coefficients and the standard errors for the models in each step are summarized in Table 2.

In Step 2, sex, element, and previous deployment were significantly associated with all mental health outcomes. Specifically, women and members who had never previously been deployed reported poorer mental health. Poorer mental health was also associated with Navy versus Army status; however, there were no associations with being in the Air Force relative to being in the Army. Age was significantly associated with PTSD and depression symptomatology, such that symptom reporting increased with increasing age. Rank group was significantly associated with each outcome,

Table 2
Summary of Results of Final Moderation Analyses Predicting Mental Health Outcomes

Variable	MCS score		PCL-C score		PHQ-9 score	
	B	*SE* B	*B*	*SE* B	*B*	*SE* B
Step 1						
Sex	−2.36***	.29	1.54***	.25	0.97***	.12
Age	−0.01	.01	0.07***	.01	0.03***	.01
Rank	1.49***	.23	−1.71***	.20	−0.85***	.09
Component	0.44*	.22	0.16	.20	−0.14	.09
Navy	−.97**	.35	1.26***	.31	0.44**	.14
Air Force	0.09	.24	0.27	.22	0.01	.10
Past deployment	0.52**	.17	−0.36*	.15	−0.28***	.07
Time since deployment	0.00	.00	−0.00	.00	0.00	.00
Past MH care use	−6.22***	.22	6.19***	.20	2.51***	.09
CE	−1.56***	.09	2.92***	.08	0.77***	.04
Marital status	−0.29	.18	0.34*	.16	0.10	.08
Step 2						
Sex	−2.35***	.29	1.52***	.25	0.96***	.12
Age	−0.01	.01	0.08***	.01	0.04***	.00
Rank	1.50***	.23	−1.72***	.20	−0.85***	.09
Component	0.45*	.22	0.14	.20	−0.15	.09
Navy	−.98**	.35	1.27***	.31	0.44**	.14
Air Force	0.05	.24	0.31	.22	0.03	.10
Past deployment	0.55**	.17	−0.39*	.15	−0.28***	.07
Time since deployment	0.00	.00	0.00	0.00	−0.00	.00
Past MH care use	−6.20***	.22	6.17***	0.20	2.50***	.09
CE	−1.30***	.12	2.62***	0.11	0.66***	.05
Marital status	−0.26	.18	0.33	0.16	0.09	.07
CE * marital status	−0.46**	.16	0.53***	0.14	0.19**	.06

Note. MCS = mental component summary; PCL-C = PTSD Checklist, civilian version; PHQ = Patient Health Questionnaire; MH = mental health; CE = combat exposure. Sex was coded 0 = *male*; 1 = *female*. Rank groups were coded 0 = *NCM*; 1 = *officer*. Component was coded 0 = *Regular Force*; 1 = *Reserve Force*. Navy was coded 0 = *other element*; 1 = *Navy*. Air Force was coded 0 = *other element*; 1 = *Air Force*. Past deployment was coded 0 = *none*; 1 = *one or more*. Past mental health care use was coded 0 = *no*; 1 = *yes*. Marital status was coded 0 = *single*; 1 = *married*.
* $p < .05$. ** $p < .01$. *** $p < .001$.

with NCM participants reporting poorer mental health than officers. Members of the Reserve Force demonstrated slightly better general mental health than members of the Regular Force, but there were no differences in PTSD or depression. Mental health care use also showed a significant association with all outcomes, such that members reporting mental health service use reported poorer mental health. There were no significant associations between time since deployment and the mental health outcomes.

The interaction between combat exposure and marital status was significantly associated with each mental health outcome ($B = -.46$, $p < .01$ for general mental health; $B = .53$, $p < .001$ for PTSD symptoms; and $B = .19$, $p < .01$ for depression symptoms). To interpret these interactions, simple slopes for single and for married participants generated by the SPSS PROCESS macro (Hayes, 2013) were examined. Predicted values of the mental health outcomes were plotted using the approach outlined by Dawson (2014). The slopes for married and single participants were significantly different from zero (married participants: $B = -1.76$, $p < .001$ for general mental health; $B = 3.15$, $p < .001$ for PTSD symptoms; and $B = .85$, $p < .001$ for depression symptoms; single participants: $B = -1.30$, $p < .001$ for general mental health; $B = 2.62$, $p < .001$ for PTSD symptoms; and $B = .66$, $p < .001$ for depression symptoms), indicating that combat exposure was associated with poorer mental health outcomes for both groups. However, as shown in Figures 1–3, the slopes were steeper for married participants than for single participants.

Discussion

Summary of Findings

In line with past findings (Watkins, 2014), combat exposure was found to be associated with poorer mental health in all assessed outcomes. Although married and single participants only significantly differed on PTSD symptoms, marital status significantly moderated the relationship between combat exposure and all mental health outcomes. Specifically, although mental health decreased as combat exposure increased for single and married participants, this association was stronger for married members, suggesting that they were more negatively psychologically affected by increasing combat exposure. However, the magnitude of this moderation effect was small.

Comparison With Other Findings and Interpretation

These findings are consistent with the mixed effects of marital relationships and the unique stressors experienced by married military personnel noted in the introduction. These stressors, such as home and childcare demands (Wells et al., 2010) and familial separation (Newby et al., 2005), may have been especially overwhelming under recent conditions of elevated combat exposure. In-
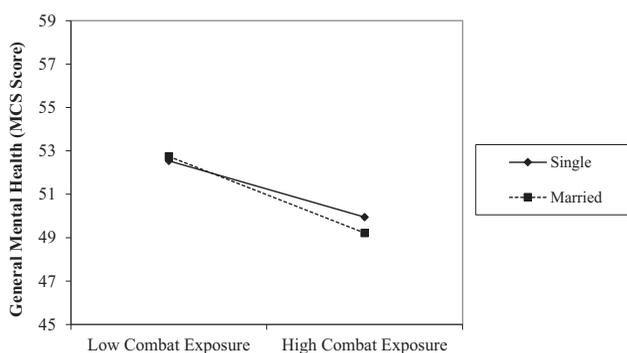

Figure 1. Moderating effect of marital status on the association between combat exposure and general mental health. MCS = mental component summary.
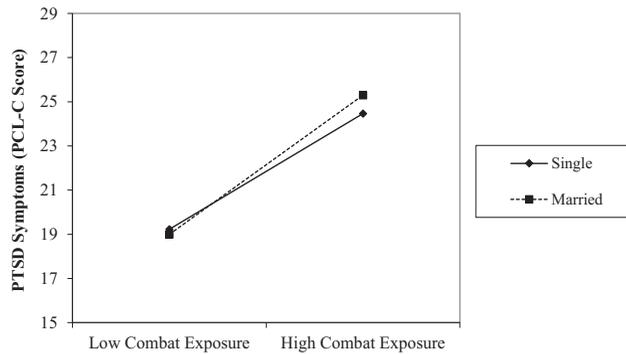
Figure 2. Moderating effect of marital status on the association between combat exposure and PTSD symptomatology. PCL-C = PTSD Checklist, civilian version.

deed, relative to their single counterparts, married members have been shown to be less likely to perceive positive aspects of deployment, such as additional deployment pay or the opportunity for self-improvement. They have also been found to be more likely to focus on the negative social consequences of deployment, such as absence from important family events and strain on marital relationships (Newby et al., 2005). This distraction caused by family problems during deployment can lead to "negative spillover," interfering with performance of occupational duties (Carter & Renshaw, 2015).

Although small, the moderation effects could be attributable to a "reverse buffering" effect of social relationships in times of high stress observed in some studies on occupational stressors (Kobasa & Puccetti, 1983; Smith et al., 2013). To explain this phenom-

enon, Kobasa and Puccetti (1983) theorized that excessive discussion about stressful experiences with family members may lead certain individuals to engage in negative behaviors such as self-pity or emotion-focused, rather than problem-focused, coping, which may be less likely to reduce stress, especially if the conversations involve the expression of anger (Folkman & Lazarus, 1988). Meanwhile, Lehman and Hemphill (1990) identified "unhelpful" types of socialization when experiencing health problems, such as minimization or catastrophization of experiences and unsolicited information or advice, which may be provided by spouses. The association between marriage and better mental health is also sometimes shown to only hold true when perceived marital satisfaction is high. At low levels of marital satisfaction, communication with spouses is linked to poorer post-
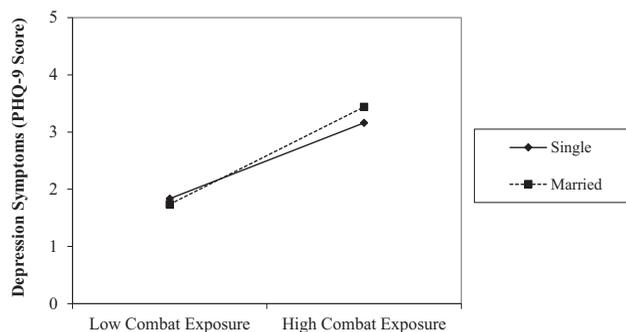

Figure 3. Moderating effect of marital status on the association between combat exposure and depressive symptomatology. PHQ = Patient Health Questionnaire.

deployment mental well-being (Carter et al., 2011).

The social benefits of marriage could have been expected to protect against the detrimental psychological effects of combat. However, spousal social support may not be suitable for buffering these effects. In one study of U.S. Marine recruits, military social support, but not civilian social support, was found to protect against the effect of training stress on PTSD symptoms (Smith et al., 2013). This finding was interpreted in accordance with the "match hypothesis," which posits that stress buffering is most likely to occur if the sources of stress and social support are consistent. Accordingly, spousal social support would be less effective under occupational stress (Cohen & Wills, 1985). Consistent with this perspective, substantial buffering of occupational stressors by coworker social support has been documented in the military context (Bliese & Britt, 2001; Brailey, Vasterling, Proctor, Constans, & Friedman, 2007; Mitchell, Gallaway, Millikan, & Bell, 2012). These findings suggest that support from peers with shared experiences is more effective in protecting against poor mental health outcomes. In a study of U.S. military veterans, Laffaye, Cavella, Drescher, and Rosen (2008) found that, although both spouses and veteran friends provided social advantages, veteran friends did not provide the social stress, such as critical attitudes, that spouses did, suggesting that mutual understanding of stressful experiences is crucial in protecting well-being (Cohen & McKay, 1984).

Limitations and Future Research

Several limitations must be considered in interpreting the findings of the present study. First, because the study was cross-sectional, the direction of the associations between the predictors and the mental health outcomes could not be determined. Furthermore, separated, divorced, and widowed members were excluded from the analyses because they were relatively few in number and because formerly married individuals often differ significantly in mental health from individuals who have never married (Lapierre et al., 2007; Wells et al., 2010). This approach helped to reduce some heterogeneity among single

members and facilitate the interpretability of findings on the possible role of marriage in the relationship between combat exposure and mental health. If numbers allow for it, then it could be of value to compare formerly married members to married members and those who have never married in future studies on this topic.

Beyond the exclusion of formerly married members in the current study, the application of census-like definitions of marital status may also have limited results. Specifically, "married" status was defined as being married or living with a partner and believed to be indicative of the presence of spousal social support. However, participants who identified as never married could also be in a romantic relationship with a noncohabitating partner, who could also provide social support. Future research in this area would benefit from including a marital status category for a noncohabitational romantic relationship.

The effect sizes of the proposed predictors on postdeployment mental health should also be considered because some were very small in magnitude. The full models, with all predictors, only accounted for 8%, 16%, and 9% of the variance in general mental health, PTSD, and depression, respectively. This low proportion of accounted variance in postdeployment mental health could have been related to the restricted range of scores observed on some measures of interest, particularly measures of depressive and PTSD symptoms. Alternatively, the small effect sizes suggest that there are other factors contributing to postdeployment psychological difficulties. In the present study, only marital status was examined as a potential moderator of the association between combat exposure and postdeployment mental health. Other mechanisms that might explain differences or similarities in postdeployment mental health by marital status were not explicitly or sufficiently measured and their roles can only be speculated. Thus, future research in this area should include, for example, extensive measures of social support that incorporate the source and perceived quality of the support in addition to a broader range of family-related psychosocial factors, such as familial demands and marital satisfaction.

Conclusion

Married participants in this study appeared to be more negatively psychologically affected by high combat exposure. This association could be due to the additional familial demands that married personnel may face upon their return from deployment, or to the stresses associated with poor marital satisfaction. Overall, results suggest that the relationship between marital status and mental health after deployment is complex and may vary according to other factors. Additional research is warranted to explore and identify the mechanisms that may explain the role of marital status in the mental health of military personnel upon return from deployment.

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