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Partners' Attributions for Service Members' Symptoms of Combat-Related Posttraumatic Stress Disorder

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Abstract

The association of service members' combat-related PTSD with partners' distress is weaker when spouses/partners believe that service members experienced more traumatic events during deployment. Also, when simultaneously examining partners' perceptions of all PTSD symptoms, perceptions of re-experiencing symptoms (the symptoms most obviously connected to traumatic events) are significantly, negatively related to distress in partners. These findings are consistent with the notion that partners may be less distressed if they make external, rather than internal, attributions for service members' symptoms. The present study explicitly tests this possibility. Civilian wives of active duty service members completed measures regarding their own marital satisfaction, their perceptions of service members' combat exposure during deployments, their perceptions of service members' symptoms of PTSD, and their attributions for those symptoms. External attributions were significantly, positively associated with perceptions of combat exposure ($r_p = .31$) and re-experiencing symptoms ($\beta = .33$) and significantly, negatively associated with perceptions of numbing/withdrawal symptoms ($r_p = -.22$). In contrast, internal attributions were significantly, negatively associated with perceptions of re-experiencing symptoms ($\beta = -.18$) and significantly, positively associated with perceptions of numbing/withdrawal symptoms ($\beta = .46$). Internal attributions significantly moderated the negative association of PTSD symptoms with marital satisfaction, such that the association strengthened as internal attributions increased. These findings are the first explicit support for an attributional understanding of distress in partners of combat veterans. Interventions that alter partners' attributions may improve marital functioning.

Keywords

Marital Relationship; Military Personnel; Stress Disorders; Posttraumatic; War

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With the recent military operations in Iraq and Afghanistan, the number of combat veterans in the United States and around the world has increased dramatically over the past decade (e.g., Bonds, Baiocchi, & McDonald, 2010). The potential negative effects of combat exposure from these and prior conflicts have been well-documented, with clear evidence of elevated rates of posttraumatic stress disorder (PTSD) in service members and veterans exposed to combat (e.g., Hoge et al., 2004; Kulka et al., 1990; Milliken, Auchterlonie, & Hoge, 2007; Seal et al., 2009). Studies also show that combat exposure and other deployment stressors are associated with severity of subclinical levels of PTSD symptoms (e.g., Vogt et al., 2011).

More recently, increasing attention has been devoted to the experiences of military family members, particularly spouses and romantic partners. Distress in romantic relationships of those who deploy to combat theaters seems linked primarily to symptoms of PTSD and other psychological problems, rather than the experience of deployment or combat itself (e.g., Allen, Rhoades, Stanley, & Markman, 2010). Indeed, recent meta-analyses have confirmed a strong association of PTSD diagnosis/severity with relationship distress in combat veterans (Taft, Watkins, Stafford, Street, & Monson, 2011) and in their spouses/partners (Lambert, Engh, Hasbun, & Holzer, 2012). These links are found whether examining presence of PTSD diagnosis, or severity of PTSD symptoms at all levels (including subclinical).

The experience of relationship distress is, in its own right, a pressing concern. This concern is further compounded, however, by the importance of relationships for service members and veterans with PTSD symptoms. Specifically, relationship problems for combat veterans with PTSD are associated with poorer prognosis overall (Evans, Cowlshaw, & Hopwood, 2009), lower rates of treatment-seeking (Meis, Barry, Kehle, Erbes, & Polusny, 2010), and greater risk for suicide (Nademin et al., 2008). Thus, there is a strong need to address relationship distress in partners, particularly in the context of high levels of PTSD.

Toward this end, we need an understanding of the mechanisms by which partners of individuals with combat-related PTSD symptoms develop relationship distress. Research has begun to identify several potential mechanisms, including partners' reports of burden (e.g., having to take on more household responsibilities) due to service members'/ veterans' PTSD symptoms (Beckham, Lytle, & Feldman, 1996; Calhoun, Beckham, & Bosworth, 2002; Caska & Renshaw, 2011; Dekel, Solomon, & Bleich, 2005; Manguno-Mire et al., 2007), impaired communication (Allen, Rhoades, Stanley, & Markman, 2010; Campbell & Renshaw, 2012; Solomon, Dekel, & Zerach, 2008), and the experience of secondary traumatic stress (e.g., Dekel, 2007; Dekel et al., 2005; Dirkzwager, Bramsen, Adèr, & van der Ploeg, 2005; Nelson Goff, Crow, Reisbig, & Hamilton, 2009). In a recent series of articles, Renshaw and colleagues (Renshaw, Blais, & Caska, 2011; Renshaw & Campbell, 2011; Renshaw & Caska, 2012; Renshaw, Rodrigues, & Jones, 2008) have posited that partner's attributions for symptoms may be important in moderating the level of relationship distress they experience in the face of these symptoms. Specifically, when partners view symptoms as part of an overall disorder (PTSD) that arose due to external events (combat experiences), they may be less distressed by such symptoms. Conversely, if partners view symptoms as arising from internal, dispositional tendencies of service members/veterans,

those partners may be more likely to experience both relationship and psychological distress. This notion is consistent with prior research that has found that people are more critical of and hostile toward relatives with mental illness if they view the relatives' behavior as internal and controllable (e.g., Barrowclough & Hooley, 2003). Moreover, it is consistent with social psychological theory on general reactions to negative behaviors in others, whereby people tend to react with more pity and less blaming when they view behaviors as externally caused and out of the person's control (e.g., Weiner, Perry, & Magnusson, 1988).

To date, findings regarding the links between PTSD and relationship distress are consistent with this posited role of attributions, although such attributions have not been explicitly examined. In two studies, Renshaw and colleagues (Renshaw et al., 2008; Renshaw & Campbell, 2011) assessed partners' perceptions of potentially traumatic experiences they thought service members had experienced while deployed. In both samples, the association between service members' PTSD symptom severity (total symptoms in one study, and specifically numbing/withdrawal symptoms in the other study) and partners' relationship distress was significantly positive when partners believed that service members had experienced lower levels of combat while deployed. In contrast, the association was nonsignificant when partners believed that service members had experienced greater levels of combat while deployed. The authors speculated that partners' perceptions of higher levels of combat exposure were related to a tendency to make external (rather than internal) attributions for PTSD symptoms, which reduced the impact of such symptoms on relationship distress.

In an additional study, Renshaw and Caska (2012) examined partners' perceptions of specific types of PTSD symptoms in two samples: a sample of Iraq/Afghanistan-era National Guard/Reserve service members and a sample of Vietnam era veterans. PTSD is defined as having three separate symptom clusters: re-experiencing, avoidance, and hyperarousal (American Psychiatric Association, 2000). Extensive empirical research further demonstrates that the avoidance cluster actually may comprise two distinct factors: situational avoidance and emotional numbing/withdrawal (review by Yufik & Simms, 2010). Renshaw and Caska (2012) speculated that emotional numbing/withdrawal symptoms were more likely to be interpreted by partners as stable, internal characteristics of veterans, due to their diffuse and vague nature, whereas re-experiencing symptoms were more likely to be interpreted by partners as part a negative reaction specifically to external events (i.e., stressful/traumatic experiences while deployed). Consistent with this, in both samples, partners' perceptions of emotional numbing/withdrawal symptoms were associated with greater relationship distress in partners, but partners' perceptions of re-experiencing symptoms were associated with lower relationship distress in partners (when perceptions of all clusters were examined simultaneously). Thus, again, they interpreted the findings as reflective of a potential positive effect of external attributions and a potential negative effect of internal attributions.

Despite the promise of these findings, no one has yet examined partners' explicit attributions for combat veterans' symptoms. The purpose of this paper is to address this gap and explicitly test the role of attributions in the associations between combat exposure, PTSD symptoms, and partners' distress. In a large sample of partners of service members who had

deployed during the conflicts in Iraq and Afghanistan, we assessed partners' perceptions of service members' deployment experiences, their perceptions of service members' PTSD symptoms, and their internal and external attributions for those symptoms. Our first major aim was to examine partners' perceptions of combat exposure in relation to partners' tendency to make external, rather than internal, attributions for PTSD symptoms. Within this aim, we first attempted to replicate the prior finding that perceptions of combat exposure moderate the association of service members' PTSD with spouses' marital satisfaction (Renshaw et al., 2008; Renshaw & Campbell, 2011), and then examined the associations of spouses' perceptions of combat exposure with spouses' explicit reports of internal and external attributions for service members' symptoms. Our hypotheses were that perceptions of combat exposure would be positively associated with external attributions and unrelated or negatively related to internal attributions. Finally, we examined whether explicitly reported external and internal attributions for PTSD symptoms moderated the association of service members' PTSD with spouses' marital satisfaction. We hypothesized that these moderations would be significant, such that the association would be weaker in the context of higher external and lower internal attributions.

Our second major aim was to examine partners' perceptions of the four clusters of PTSD symptoms (re-experiencing, situational avoidance, emotional numbing/withdrawal, and hyperarousal) in relation to partners' tendency to make external or internal attributions for PTSD symptoms. We first attempted to replicate the prior finding that, when examined simultaneously, perceptions of re-experiencing symptoms would be significantly associated with higher marital satisfaction, whereas perceptions of emotional numbing/withdrawal symptoms would be significantly associated with lower marital satisfaction (Renshaw & Caska, 2012). Subsequently, we examined the associations of spouses' perceptions of the four symptom clusters with their explicitly reported internal and external attributions for service members' symptoms. Our hypotheses were that perceptions of re-experiencing symptoms would be related to higher external and lower internal attributions, and that perceptions of emotional numbing/withdrawal symptoms would be related to more internal and fewer external attributions (we expected no significant associations for either situational avoidance or hyperarousal).

Method

Participants and Procedures

Original sample and procedure—The participants in the current study are a subset of 664 Army soldiers and wives originally recruited for a randomized clinical trial of PREP for Strong Bonds, a marriage education intervention adapted for use in the U.S. Army (Stanley, Allen, Markman, Rhoades, & Prentice, 2010). All procedures were IRB-approved. To qualify for the trial, all couples were required to be married, have at least one active duty partner stationed at one of two Army bases, speak and read English fluently, not to have previously participated in a marriage workshop similar to the one being studied, and to agree to undergo random assignment to the intervention or control conditions. The intervention condition consisted of approximately 14 hours of psychoeducation, administered during a 1-day, on-post training during the week, followed by a 2-day weekend workshop off-post. The

psychoeducation included modules on typical relationship issues, such as communication, emotion regulation, forgiveness, and sexuality, among others. With regard to the focus of the present study, no modules were designed around PTSD.

Participants first completed baseline surveys, then either were assigned to the control condition or participated in the intervention, after which they completed post-intervention phase surveys. Subsequently, participants were contacted by email to complete follow-up surveys online (or via hard copy upon request) every 6 months thereafter. Fifty-three percent were randomly assigned to the marital education intervention condition and 47% were assigned to the control condition.

Present sample and procedure—The current study utilized civilian wives' survey responses from the 2-year follow up, when the survey was altered to include questionnaires designed to address the research questions of the present study. At this follow-up, the project had a 95% retention rate. Of the 95% of participants who completed this follow-up, the questions for this study were given only to spouses who were still married at the time of the survey, which included 86% of the original sample (i.e., approximately 9% of the participants at this time point were not still married). As would be expected, those who did not receive the questions did have lower reports of marital satisfaction at baseline ($F[1, 659] = 35.54, p < .001$). However, there were no significant differences in those who did or did not receive these questions based on whether participants were assigned to the intervention condition ($F[1, 660] = 1.11, p = .29$). Moreover, there were no significant differences on any of the variables of interest in the study based on whether participants were assigned to the intervention condition (all $ps > .25$), and controlling for group assignment did not change the pattern of significance of any results. Thus, group assignment did not appear related to the constructs in this study, and results are reported without accounting for this variable.

Of the 574 wives who received these questions, 483 were civilian females currently married to an active duty soldier in the US Army (this excluded 7 civilian males married to active duty females, and 16 dual Army couples, and 68 other couples in which either the husband or wife was in the Guard or Reserves or failed to report their military/civilian status). Due to the small numbers of other couple compositions, we focused our analyses on these 483 civilian wives married to active duty husbands. These wives averaged 30.80 ($SD = 6.12$) years old, and the majority reported their highest degree as a high school diploma or GED (52%). Seventy-one percent were 71% white non-Hispanic, 11% white-Hispanic, 10% African-American, 4% mixed race, 2% American-Indian or Alaska native, 1% Asian and 1% Pacific Islander.

At this follow-up time point, all wives received questions regarding their perceptions of their spouses' PTSD symptoms (see Measures). Following this, wives were asked a general question about whether their husbands had experienced any of the PTSD symptoms on the measure. This question was designed to facilitate skip logic in the survey. The skip logic was such that only wives who responded affirmatively to this follow up question were then given questions regarding their attributions for these symptoms. This resulted in a smaller subsample available for attribution analyses (286 out of 483). Compared to wives without attribution data, wives with attribution data rated their husbands' PTSD symptoms ($t(477) =$

12.92, $p < .001$) and combat exposure higher ($t(292) = 2.54, p < .05$), and their own marital satisfaction lower ($t(481) = -3.39, p < .01$). This pattern was expected, as not answering attribution questions inherently indicates that the wives reported their husbands did not experience symptoms of PTSD, and PTSD is correlated with both higher combat exposure and lower marital satisfaction. However, wives who did and did not provide attribution data were not significantly different (all $ps > .50$) in age, race/ethnicity, recruitment site, or condition (intervention or control).

Skip logic was also used for administration of the perception of combat exposure, such that only wives who indicated that their spouses had been exposed to combat or similar situations of risk of harm within the past year received this questionnaire. This approach also resulted in a smaller subsample available for analyses involving perceptions of combat exposure (294 out of 483). Again, as was expected, wives with combat exposure data reported significantly higher levels of husband PTSD symptoms compared to wives who did not receive these questions ($t(437) = 2.45, p < .05$). Wives in the two groups did not, however, significantly differ in marital satisfaction, external attributions, internal attributions, age, race/ethnicity, or assigned group.

Measures

Spousal Perceptions of PTSD Symptoms—The 17-item PTSD Checklist (PCL; Weathers, Litz, Herman, Huska, & Keane, 1993) was adapted in such a way that wives responded with their *perceptions* of the symptoms their husband was experiencing regarding a stressful experience (Renshaw, Rodrigues, and Jones, 2008). Participants rated whether their spouse had been bothered by each specific symptom in the past month on a 1 (*not at all*) to 5 (*extremely*) scale. Each item reflects a specific DSM-IV criterion for PTSD (4th ed.; *DSM-IV*; American Psychiatric Association, 1994). A sum of all 17 questions resulted in scores ranging from 17 to 84 with a mean score of 30.17 ($SD = 15.37$). The original PCL has shown strong reliability and validity in prior studies (Pratt, Brief, & Keane, 2006), as has the spousal perceptions modification (Renshaw & Caska, 2012; Renshaw, Rodrigues, & Jones, 2008). High internal consistency was also obtained in the current sample ($\alpha = .94$).

Spousal Perceptions of Combat Exposure—The Combat Exposure Scale (CES; Keane et al., 1989) was also modified so that respondents reported their understanding of their partners' combat experiences. Prior studies have found high internal consistency for the CES (Keane et al., 1989) and for the spousal perception modification (Renshaw, Rodrigues, & Jones, 2008). Internal consistency was also strong in the current sample ($\alpha = .83$). Scores could range from 0 to 41, with scores of 0 to 8 indicating *light exposure*, 9 to 16 indicating *light to moderate exposure*, 17 to 24 indicating *moderate exposure*, 25 to 32 indicating *moderate to heavy exposure*, and 33 to 41 indicating *heavy exposure*. Mean score in the current study was 13.62 ($SD = 10.03$).

Marital Satisfaction—The Kansas Marital Satisfaction Scale (KMS; Schumm et al., 1986) is a frequently used, three-item scale assessing satisfaction with the marriage, the partner as a spouse, and the relationship with spouse. The scale is scored as the mean of the three items, with a possible range of 1 (*extremely dissatisfied*) to 7 (*extremely satisfied*). The

measure has shown strong reliability and validity in prior studies (e.g., Schumm et al., 1986), and internal consistency in the current sample was very high ($\alpha = .97$).

Attributions—Participants were asked two questions assessing internal attributions, and two questions assessing external attributions. Following the spousal perception PCL, the next set of questions asked, “How much are these problems and complaints for your spouse (those that you endorsed on the previous page) related to: (1) the type of person he is, (2) an aspect of his personality, (3) situations your spouse has experienced, (4) things that have happened to your spouse.” The first two items (internal attributions) were highly correlated with each other ($r = .92, p < .001$), and the latter two items (external attributions) were also highly correlated with each other ($r = .84, p < .001$), with much smaller correlations of the external attribution items with the internal attribution items (all r s $< .25$). An exploratory factor analysis (principal axis factoring with a direct oblimin rotation, to allow for covariance among factors) of these 4 items yielded a Scree plot that suggested the presence of 2 factors that accounted for 88% of the variance. The factors clearly mapped onto internal attributions and external attributions, with primary loadings greater than .90 and cross-loadings less than .05. Thus, we derived an internal attribution score by summing the two internal attribution items and an external attribution score by summing the two external attribution items.

Data Analyses

Preliminary analyses—We first examined descriptive statistics and bivariate associations among the established measures of perceived combat exposure, perceived PTSD symptoms, and marital satisfaction. Subsequently, we performed a series of basic analyses on our attribution scores to evaluate their suitability for analyses, prior to testing the primary aims of the study.

Aim #1—First, to replicate prior findings with regard to perceptions of combat exposure, we conducted a multiple regression of partners’ relationship satisfaction onto perceived PTSD symptoms, perceived combat, and the interaction of these two variables. Second, to evaluate whether perceived combat was associated with attributions for symptoms, we examined partial correlations (controlling for perceived PTSD symptoms) of partners’ report of perceived combat with their external and internal attribution scores. Third, we evaluated whether partners’ attributions moderated the association of perceived PTSD symptoms with partners’ relationship satisfaction by conducting two multiple regressions of relationship satisfaction onto partners’ perceived PTSD symptoms, attributions for PTSD symptoms (external in one regression, internal in the other regression), and the interaction between perceived PTSD symptoms and attributions.

Aim #2—First, to replicate prior findings with regard to perceived PTSD symptom clusters, we first conducted a multiple regression of partners’ relationship satisfaction onto their perceptions of service members’ four PTSD symptom clusters (i.e., re-experiencing, situational avoidance, emotional numbing/withdrawal, and hyperarousal). Second, to evaluate the associations of specific clusters with types of attributions, we examined

regressions of partners' external and internal attribution scores onto their perceptions of each specific symptom cluster.

In all regressions across both aims, variables were centered and interaction terms were created by multiplying centered variables together, as recommended by Aiken and West (1991). Any significant interactions were probed via analysis of simple slopes (Aiken & West, 1991). All regressions were checked for problems with multicollinearity and normal distribution of residuals, with no such problem identified. All analyses were conducted using the Statistical Package for Social Sciences, version 17.0.

Results

Preliminary Analyses

The means, standard deviations, and intercorrelations of measures of wives' perceptions of combat exposure, wives' perceptions of service members' PTSD symptoms (overall, and by cluster), and wives' relationship satisfaction, are shown in Table 2. Generally, wives reported fairly high levels of marital satisfaction, and moderate levels of perceived PTSD, with the mean level approaching cutoffs recommended by Bliese and colleagues (2008) as indicative of possible PTSD. Wives' satisfaction was negatively correlated with perceptions of total PTSD symptoms and perceptions of each PTSD symptom cluster, but not perceived levels of combat exposure.

The internal and external attribution scores had a small to moderate (but significant) correlation with each other ($r = .19, p = .001$), but they were moderately to strongly correlated with partners' reports of perceived PTSD symptoms (internal: $r = .40, p < .001$; external: $r = .44, p < .001$). This pattern suggested that, as partners perceived greater PTSD symptoms, they were likely to make more attributions of either type. When controlling for perceived PTSD symptoms, the resulting partial correlation of internal and external attributions was negligible, $r_p = -.06, p = .52$. In other words, once the overall symptom levels were accounted for, the two attributions appeared to be orthogonal, and not opposite ends of a single continuum. Thus, we analyzed them as separate variables in all subsequent analyses. In addition, given the overlap of both attribution scores with perceived PTSD symptoms, we partialled out partners' perceived PTSD symptoms in all subsequent bivariate analyses involving attributions.

To provide a preliminary evaluation of the convergent validity of the attribution scores, we examined partial correlations (controlling for partners' perceived PTSD symptoms) of each attribution score with partners' response to an explicit question at the end of the partner-report PCL that asked partners how much they attributed any symptoms service members were experiencing to the service members' "military experience" (scored on a 5-point Likert scale). Partners' responses to this attributional statement were positively correlated with their external attribution score ($r_p = .45, p < .001$) but nonsignificantly, negatively correlated with their internal attribution score ($r_p = -.11, p = .22$). This pattern offers preliminary support for the validity of the external attribution score, and further suggests the independence of internal attributions from external attributions.

Aim #1: Combat Exposure and Attributions

Moderation by Perceptions of Combat Exposure—The overall regression of wives' marital satisfaction onto their perceptions of service members' PTSD symptoms and combat exposure, as well as the interaction of these two variables, was significant, $F(3, 253) = 11.57, p < .001, R^2 = .12$. As shown in Table 3, perceived PTSD symptoms were significantly, negatively associated with marital satisfaction, perceived combat was nonsignificant, and the interaction term was significant. As predicted, the significant interaction term indicated that the association of perceived PTSD symptoms with marital satisfaction was moderated by wives' perceptions of combat exposure. A probe of this interaction indicated that the association of perceived PTSD symptoms with marital satisfaction was weaker ($\beta = -.22, p < .01$) when perceived combat exposure was higher (+1 *SD*), and stronger ($\beta = -.49, p < .001$) when perceived combat exposure was lower (−1 *SD*). These results were consistent with our hypotheses and prior findings by Renshaw and colleagues (2008, 2011).

Correlations of Combat Exposure and Attributions—The partial correlation (controlling for perceived PTSD symptoms) of wives' external attributions with their perceived combat exposure was significantly positive ($r_p = .31, p < .001$). In contrast, the partial correlation of wives' internal attributions with their perceived combat exposure was nonsignificant and negative ($r_p = -.16, p = .07$). These results offered preliminary support for Renshaw and colleagues' (2008, 2011) speculation that partners' perceptions of combat exposure while deployed might be, in part, a proxy indicator for external attributions.

Moderation by External Attributions for PTSD Symptoms—The overall regression of wives' marital satisfaction onto perceived PTSD symptoms, external attributions for symptoms, and the interaction of these two variables was significant, $F(3, 239) = 13.10, p < .001, R^2 = .14$. Perceived PTSD symptoms were significantly, negatively associated with marital satisfaction, and external attributions for symptoms were significantly positively associated with marital satisfaction; however, the interaction term was nonsignificant (see Table 3). The nonsignificant interaction term indicated that there was no moderation by external attributions for symptoms. Thus, although external attributions demonstrated a positive main effect above and beyond the negative effect of PTSD symptoms, they did not moderate the association between PTSD symptom severity and marital satisfaction, which was inconsistent with our hypothesis.

Moderation by Internal Attributions for PTSD Symptoms—The overall regression of wives' marital satisfaction onto perceived PTSD symptoms, internal attributions for PTSD symptoms, and the interaction of these two variables was significant, $F(3, 239) = 28.95, p < .001, R^2 = .27$. In this regression, all three terms were significant (see Table 3). Interestingly, the negative main effect for internal attributions was more than twice the size of that for PTSD symptoms. Furthermore, the significant interaction term indicated that the association of perceived PTSD symptoms with marital satisfaction was moderated by wives' tendency to make internal attributions for those symptoms. A probe of this interaction indicated that the association was stronger ($\beta = -.24, p = .001$) when wives reported a greater tendency (+1 *SD*) to make internal attributions, and near zero ($\beta = -.03, p = .71$)

when wives reported a lower tendency ($-1 SD$) to make internal attributions. This pattern was consistent with our hypotheses.

Aim #2: PTSD Symptom Clusters and Attributions

Marital Satisfaction and PTSD Symptom Clusters—The overall regression of wives' marital satisfaction onto perceptions of service members' symptoms of re-experiencing, situational avoidance, emotional numbing/withdrawal, and hyperarousal was significant, $F(4, 428) = 22.04, p < .001, R^2 = .17$. As shown in Table 4, perceptions of re-experiencing symptoms were significantly, positively associated with marital satisfaction, whereas perceptions of emotional numbing/withdrawal symptoms were significantly negatively associated with marital satisfaction. Perceptions of other symptoms were nonsignificantly associated with marital satisfaction. These results were consistent with a priori hypotheses and prior research (Renshaw & Caska, 2012). Of note, the variance inflation factor (VIF) values for each variable ranged from 3.01 to 3.59, indicating the presence of some multicollinearity (as was expected) but not enough to violate assumptions of regression.

Regressions of Attributions onto Symptom Clusters—Results from regressions of wives' external and internal attributions for PTSD symptoms onto wives' perceptions of the severity of the four clusters of PTSD symptoms are shown in Table 5. Both regressions were significant ($F[4, 250] = 20.10, p < .001, R^2 = .24$ for external; $F[4, 250] = 22.00, p < .001, R^2 = .26$ for internal). Consistent with hypotheses, re-experiencing symptoms were significantly positively associated with external attributions and significantly negatively associated with internal attributions, whereas emotional numbing/withdrawal symptoms demonstrated the opposite pattern. Situational avoidance was nonsignificant in both regressions. Interestingly, hyperarousal was significantly positively associated with *both* types of attributions.

Discussion

This paper represents the first explicit test of an attributional model of the association of combat-related PTSD symptoms with marital satisfaction in wives of service members. This attributional model posits that PTSD symptoms are less strongly associated with relationship distress in partners when those partners view the symptoms as part of an overall psychological response to external, traumatic events, rather than a function of internal, characterological variables. Prior studies have found that the negative association of service members' PTSD with their partners' marital satisfaction becomes weaker as the partners believe the service members were exposed to greater levels of combat while deployed (Renshaw & Campbell, 2011; Renshaw et al., 2008). In addition, prior findings also have revealed that, when examining partners' perceptions of specific types of PTSD symptoms, perceptions of emotional numbing symptoms are negatively associated with relationship satisfaction, whereas perceptions of re-experiencing symptoms are *positively* associated with relationship satisfaction (Renshaw & Caska, 2012). Both sets of findings have been interpreted as support for the attribution model, but none of the studies have assessed actual attributions in partners.

In the present sample of recently deployed service members and their wives, we replicated these prior findings in a new sample, and then extended them by examining wives' explicit internal and external attributions for any symptoms they perceived in service members. Our results lent support to nearly all of Renshaw and colleagues' (Renshaw & Campbell, 2011; Renshaw & Caska, 2012; Renshaw et al., 2008) prior speculations. First, we found that wives' perceptions of higher levels of combat exposure were associated with a greater tendency to make external attributions for service members' PTSD symptoms, although not quite significantly associated with a lesser tendency to make internal attributions. In addition, both types of attributions were associated with marital satisfaction in the expected directions (positive for external and negative for internal), even when controlling for level of perceived PTSD symptoms. Interestingly, however, it was internal attributions that moderated the association of PTSD symptoms with marital satisfaction, such that the association became stronger as wives tended to make more internal attributions. Contrary to expectations, external attributions did not significantly moderate this association. Finally, results regarding perceptions of symptom clusters were fully consistent with Renshaw and Caska's (2012) speculations. Perceptions of more re-experiencing symptoms were associated with more external and less internal attributions, whereas perceptions of more emotional numbing symptoms demonstrated the opposite pattern.

Thus, our results were consistent with the notion that wives' attributions for symptoms play a significant role in the associations of service members' PTSD symptoms with wives' marital satisfaction. Wives who attributed symptoms more to internal causes were likely to report lower marital satisfaction overall and to show a stronger association between their satisfaction and their perceptions of their husbands' PTSD symptoms. In contrast, wives who attributed symptoms more to external causes reported higher marital satisfaction overall. It must be noted that, despite the consistency with an attributional model, the cross-sectional nature of our data prevents us from drawing definitive conclusions about causality. For instance, it is possible that couples with better relationships overall have more open communication, which leads partners to have greater awareness of the extent of combat exposure and re-experiencing symptoms experienced by the service member. Along these lines, wives who are more maritally satisfied may simply be more likely to make more beneficent attributions (i.e., external rather than internal) for symptoms. As all data were collected simultaneously, it is entirely possible that wives who were in relationships they perceived as poor might be more likely to make blaming attributions for any problems they identified. Future research that includes pre-combat relationship measures can help clarify this issue.

The consistency of the findings with the attributional model, however, does offer some potential clinical implications for this population. Although approximately half of the couples in this study were assigned to receive a marital intervention (PREP for Strong Bonds), the intervention focused on broad couples' processes (e.g., emotional communication, problem-solving techniques), without specific attention to dealing with PTSD symptoms. Our results suggest that wives of individuals with symptoms of combat-related PTSD might benefit from more specific interventions that aim to increase their awareness of how external events, such as deployment-related stress and trauma, might have contributed to PTSD symptoms. For instance, psychoeducation about the common reactions

to stress and trauma could help wives shift from more internal to more external attributions for symptoms, which might alleviate some of their marital distress. The couple could then view themselves as working together against the problem of PTSD, rather than working against one another (e.g., Monson & Fredman, 2012). Moreover, such psychoeducation should likely pay specific attention to the more “negative” symptoms of emotional numbing and withdrawal, which are particularly damaging to relationship satisfaction, and more likely to be attributed to internal factors. In addition, the sizes of the effects detected suggest that the negative effects of internal attributions are even more influential than the positive effects of external attributions. Thus, interventions likely need to target not only increasing external attributions, but also decreasing internal attributions, as they are not simply opposite ends of the same continuum. Helping wives view numbing and withdrawal as possible reactions to stressful/traumatic events could provide some attenuation of the negative impact of such symptoms on relationship satisfaction.

Additionally, the present results suggest that encouraging service members to find some way to share their experiences during combat and the totality of symptoms they experience, specifically including re-experiencing symptoms, might help alleviate some distress for spouses by increasing their likelihood of making external rather than internal attributions for symptoms. Indeed, recent research suggests that service members’ wives who feel that they understand their husbands’ symptoms and that their husbands are willing to talk about their problems have higher marital satisfaction; moreover, the link between husbands’ PTSD and wives’ marital distress is weaker in such couples (Allen, Stanley, Rhoades, Markman, & Loew, 2012). At the same time, we have little knowledge to guide the precise level of sharing that is optimal in such couples. Developers of couples-based therapies for PTSD have encouraged only limited sharing of traumatic events, without excessive detail (e.g., Erbes, Polusny, MacDermid, & Compton, 2008; Fredman, Monson, & Adair, 2011). Moreover, a recent study found that veterans’ frequency of communication about deployment was associated with higher psychological distress when veterans had higher levels of PTSD symptoms (Campbell & Renshaw, 2012). Thus, greater empirical knowledge of optimal patterns of such communication is needed to guide clinicians in their recommendations to those with PTSD and their spouses.

It is also important to recognize that communication in couples where one individual has PTSD is, on average, impaired. Several studies have found negative associations of PTSD symptom severity with quality of communication in couples (e.g., Cook, Riggs, Thompson, Coyne, & Sheikh, 2004), with some further findings that impairment in communication mediates the association of PTSD symptoms with marital distress (Allen et al., 2010; Campbell & Renshaw, 2013; Solomon, Dekel, & Zerach, 2008). Thus, interventions focused on spouses’ attributions might be confounded by other problems in relationship processes. Moreover, changing attributions only addresses one element of the many factors that contribute to stress in relationships of service members and veterans with symptoms of combat-related PTSD. The recent development of conjoint therapies for PTSD (Erbes et al., 2008; Monson & Fredman, 2012) provides a venue for in-depth work with couples struggling with these issues. The present results suggest that attending to partners’ cognitions during such therapies might enhance results, particularly with regard to the improvement of partners’ relationship satisfaction.

When interpreting the results from our study, some important considerations must be made. First, the effect sizes detected ranged from small to medium. Although these effects were significant in our somewhat large sample, the overall variance in marital satisfaction that is accounted for by wives' attributions is modest. Clearly, a multitude of factors influences ratings of marital satisfaction in this population, both related and unrelated to military service and mental health. It is noteworthy, however, that in analyses that included PTSD symptoms and internal attributions, internal attributions clearly accounted for more variance. Moreover, at low levels of internal attributions, the association of PTSD symptoms with marital satisfaction was close to zero. Given the clearly established link of PTSD symptoms with marital satisfaction (meta-analyses by Lambert et al., 2012; Taft et al., 2011), such a finding is notable. Second, although 86% of the original participants completed measures for this follow-up time point, the 14% who did not had lower levels of marital satisfaction 2 years earlier. Thus, our sample may have been biased toward less distress than a sample taken at random. The most intuitive effect such a bias could have is an attenuation of effects related to marital satisfaction; thus, it is possible that the present results may have been even stronger in a sample that contained more distressed couples, by increasing the range on the variables assessed. However, we cannot empirically address this possibility. Future research with samples of spouses with more distress is needed to address this possibility.

In addition to these considerations, there are other limitations to the present study. First, our data are cross-sectional, which prohibits the examination of directionality in associations. As noted above, there are alternative explanations to the attributional model that cannot be ruled out by the present data. Future research that examines relationships both before and after the experience of deployment or other trauma is necessary to address these issues. Second, approximately half of the sample was assigned to receive a marital intervention prior to participating in the study. Although whether or not participants were assigned the intervention or control condition had no association with the variables of interest in this study, future replications in other samples is needed. Third, our sample was wholly comprised of male service member/female civilian couples. This homogeneity does not allow for the exploration of potential gender effects, and results may not generalize to female service members and male partners, gay/lesbian couples, or dual military couples. Finally, these data represent only wives' reports. Future research that evaluates self-reports, partner-reports and objective reports of these constructs is sorely needed to further our understanding of the issues facing military couples in which a service member experiences symptoms of PTSD. These limitations notwithstanding, the present study offers the most comprehensive examination to date of the attributions of partners of service members with combat experience, and the results indicate that future research in this area is warranted.

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Highlights

- We explicitly assessed partners' attributions for service members' PTSD symptoms.
- Attributions mediate and moderate associations of symptoms with partners' distress.
- External attributions are generally associated with lower distress.
- Internal attributions are generally associated with higher distress.

Table 1

Factor Loadings from Principal Axis Factoring Analysis of Attribution Items

	1	2
1. Situations your spouse has experienced	.92	.03
2. Things that have happened to your spouse	.91	.05
3. The type of person he or she is	.06	.95
4. An aspect of his or her personality	.00	.96

Table 2
Means, Standard Deviations, and Intercorrelations of Partner Reports of Combat Exposure, PTSD Symptoms, and Marital Satisfaction

	<i>M</i>	<i>SD</i>	1	2	3	4	5	6
1. Combat Exposure	14.94	6.40						
2. PTSD Symptoms (total)	30.09	15.25	.28***					
3. Re-Experiencing Symptoms	8.34	4.72	.32***	.91***				
4. Situational Avoidance Symptoms	3.72	2.24	.22***	.86***	.79***			
5. Emotional Numbing/Withdrawal Symptoms	8.18	4.63	.16**	.90***	.73***	.73***		
6. Hyperarousal Symptoms	9.84	5.30	.29***	.92***	.77***	.72***	.77***	
7. Marital Satisfaction	5.51	1.56	-.03	-.36***	-.25***	-.33***	-.41***	-.30***

Note. PTSD = Posttraumatic stress disorder.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

Table 3

Coefficients from Regressions of Wives' Marital Satisfaction onto Their Perceptions of Service Members' PTSD, Potential Moderators, and Relevant Interactions

	B	SE	β
<i>Perceptions of Combat Exposure as Moderator</i>			
Perceptions of PTSD Severity	-0.52	0.09	-.36***
Perceptions of Combat Exposure	0.08	0.10	.05
Interaction	0.20	0.09	.14*
<i>External Attributions for Symptoms as Moderator</i>			
Perceptions of PTSD Severity	-0.58	0.10	-.39***
External Attributions	0.26	0.10	.17*
Interaction	-0.10	0.09	-.08
<i>Internal Attributions for Symptoms as Moderator</i>			
Perceptions of PTSD Severity	-0.21	0.10	-.14*
Internal Attributions	-0.52	0.11	-.34***
Interaction	-0.16	0.08	-.14*

Note. PTSD = Posttraumatic stress disorder.

** $p < .01$.

* $p < .05$.

*** $p < .001$.

Table 4

Coefficients from Regressions of Wives' Marital Satisfaction onto Their Perceptions of Service Members' PTSD Symptom Clusters

	B	SE	β
Perceptions of Re-Experiencing	0.06	0.03	.18*
Perceptions of Situational Avoidance	-0.10	0.06	-.15
Perceptions of Emotional Numbing/Withdrawal	-0.14	0.02	-.41***
Perceptions of Hyperarousal	-0.00	0.02	-.01

Note. PTSD = Posttraumatic stress disorder.

** $p < .01$.

* $p < .05$.

*** $p < .001$.

Table 5

Coefficients from Regressions of Wives' Attributions for Symptoms onto Wives' Perceptions of Service Members' PTSD Symptom Clusters

	External Attributions			Internal Attributions		
	B	SE	β	B	SE	β
Re-Experiencing	0.08	0.02	.33***	-0.04	0.02	-.18*
Situational Avoidance	0.06	0.05	.10	0.02	0.05	.04
Emotional Numbing/Withdrawal	-0.06	0.02	-.22**	0.11	0.02	.46***
Hyperarousal	0.06	0.02	.27**	0.04	0.02	.18*

Note. PTSD = Posttraumatic stress disorder.

*
 $p < .05$.

**
 $p < .01$.

 $p < .001$.