

COMBAT DISCLOSURE IN INTIMATE RELATIONSHIPS: A MEDIATOR
BETWEEN PARTNER SUPPORT AND POSTTRAUMATIC STRESS

A Dissertation

by

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ABSTRACT

Although previous research has shown a negative relation between partner support and PTSD symptom severity among military service members following deployment, the mediating mechanisms of this effect remain poorly understood. This study examined willingness to disclose deployment- and combat-related experiences as a mediating mechanism underlying the linkage between intimate partner support and PTSD symptom severity in a sample of 76 U.S. Air Force service members deployed to Iraq in a year-long, high-risk mission. Airmen's reports of overall social support, and partner support specifically, significantly predicted concurrent post-deployment PTSD symptom severity. Subsequent mediation analyses demonstrated that level of comfort with disclosure of combat-related experiences by service members to their intimate partners accounted for a significant portion of the relation between partner support and post-deployment PTSD symptom severity. The level of Airmen's disclosure was also inversely related to levels of relationship distress. Implications of these findings for prevention and intervention strategies and for further research are discussed.

DEDICATION

Achievements mean nothing without the incredible love and support of family and friends. I dedicate this work to my husband, Tony, from whom I derive my strength and from my daughter, Sonia, who is my shining light and the driving force of my determination. I also dedicate this work to my mother, Irma, who encouraged me to pursue my dreams and made sacrifices for me to achieve them. She believed in me before I believed in myself. To my brother, Jeromey, and my sisters, Amanda and Jessica, your support and words of encouragement are precious to me. And to my dear friends both near and far who keep me grounded in the things that truly matter in life. Finally, this work is dedicated to all those honorable men and women who serve our great country. Your fortitude, commitment, and sacrifice are extraordinary.

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CHAPTER I

INTRODUCTION

Since the terrorist attacks on the United States on September 11th, 2001, over 2 million American service members have been mobilized to Iraq and Afghanistan in Operations Iraqi Freedom (OIF) and Enduring Freedom (OEF). This sustained mobilization, the largest since the Vietnam War, has created unique challenges related to its duration, tempo, and ambiguous combat circumstances. Nearly 800,000 service members have deployed multiple times (Tan, 2009), with relatively short interim periods between deployments, potentially exacerbating the effects of deployment for themselves as well as their family members.

Although many service members and their families demonstrate remarkable resilience in response to the service member's deployment to a combat theater, many others do not. Exposure to combat places a service member at risk for the development of posttraumatic stress disorder (PTSD) (Buydens-Branchey, Noumair, & Branchey, 1990; King, King, Foy, Keane, & Fairbank, 1999), with prevalence rates of PTSD estimated at 12% to 20% for combat soldiers and Marines returning from OIF (Hoge et al., 2004). Furthermore, as many as 40% of returning service members have sought mental health treatment shortly upon returning from deployment (Hoge et al., 2004). In a large study of Iraq and Afghanistan veterans receiving Veterans Affairs (VA) health care, 37% received a mental health diagnosis; 22% were diagnosed with

PTSD, and 17% with depression (Seal et al., 2009). Multiple deployments result in relatively higher risk for anxiety, depression, alcohol use, and acute stress (Hoge, Auchterlonie, & Milliken, 2006; Hoge et al., 2004). Returning soldiers demonstrated a four-fold increase in new-onset PTSD compared with pre-deployment base rates (Polusny et al., 2011). The effects of PTSD have been shown to extend beyond individual service members and also to impact their intimate relationships adversely (Allen, Rhoades, Stanley, & Markman, 2010; Riggs, Byrne, Weathers, & Litz, 1998).

Posttraumatic stress disorder is an anxiety disorder that can develop as a result of exposure to a traumatic stressor such as combat. As it is currently defined in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV-TR; American Psychiatric Association, 2000), exposure includes witnessing, directly experiencing, or learning about a traumatic event which involved the threat of serious harm or death. Subsequent to trauma exposure, a person suffering from PTSD responds to the event with intense fear, helplessness, or horror, and exhibits characteristics from each of the following three symptom clusters: re-experiencing the traumatic event, avoidance and numbing, and persistent hyperarousal (American Psychiatric Association, 2000). The presence of these symptoms must persist for more than one month and cause significant distress and impairment for the individual to meet criteria for PTSD.

Lifetime prevalence rates for PTSD are estimated at 8% for adults (Bradley, Greene, Russ, Dutra, & Westen, 2005). The risk of developing PTSD increases with greater proximity and intensity of the traumatic event, in this case combat exposure (Buydens-

Branchey et al., 1990; Hoge et al., 2006; Polusny et al., 2011; Schnurr, Lunney, & Sengupta, 2004).

Previous research has examined a variety of potential risk and protective factors for PTSD. Converging evidence from these studies documents perceived social support as one of the strongest protective factors against PTSD (for reviews see Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003). Specifically, veterans with higher levels of social support reported better mental and physical health outcomes, including fewer PTSD symptoms, compared with those with lower levels of support (Barrett & Mizes, 1988; Keane, Scott, Chavoya, Lamparski, & Fairbank, 1985; Ren, Skinner, Lee, & Kazis, 1999; Vogt & Tanner, 2007), even when controlling for premorbid behavioral functioning in areas of family, school, employment, and social history (Barrett & Mizes, 1988). For Vietnam veterans, the maintenance of PTSD was associated with lower social support at homecoming and lower concurrent social support (Schnurr et al. 2004). More recent research assessing OIF Army National Guard members across the deployment cycle demonstrated that lower perceived social support at post-deployment was associated with the development of PTSD (Polusny et al., 2011).

However, although the association between social support and PTSD is well established, the causal directionality of this relation is less clear. Recent evidence suggests a bidirectional relation between social support and PTSD. A longitudinal study of natural disaster survivors found that greater social support following the initial impact (in the first 6 to 12 months) led to fewer PTSD symptoms following the disaster. Additionally, post-disaster PTSD symptoms also led to less social support assessed

between 12 to 18 months following the disaster (Kaniasty & Norris, 2008). Social support buffers the impact of trauma, whereas PTSD also appears to erode support networks over time. Benotsch and colleagues (2000) also found evidence in support of the bidirectional relation between PTSD and social support in Gulf War veterans such that social support at time 1 predicted PTSD symptoms at time 2, while PTSD symptoms at time 1 also predicted social support at time 2. Moreover, results indicated that on average, veterans' perceptions of support remained stable whereas PTSD symptoms increased over time (Benotsch et al., 2000).

Additional evidence supports the notion that PTSD symptoms erode social support, particularly when considerable time has elapsed from the initial trauma event or when the psychological disturbance is chronic. A longitudinal study of veterans in residential treatment for chronic PTSD found that more severe PTSD at time 1 predicted greater erosion of perceived social support from nonveterans friends. However, initial levels of perceived support did not predict the course of PTSD symptoms in this residential sample (Laffaye, Cavella, Drescher, & Rosen, 2008). King et al. (2006) found in a sample of Gulf War veterans that PTSD symptoms at time 1 predicted social support at time 2, but the reverse was not true. It is important to keep in mind that time 1 was measured 18-24 months post-deployment whereas time 2 was five years after time 1 in this particular study; thus, these findings may not reflect the initial bidirectional relation between PTSD and social support. Cross-sectionally, however, PTSD and social support were negatively associated at both time points (King, Taft, King, Hammond, & Stone, 2006). In general, existing literature lacks longitudinal studies

evaluating the temporal relation between PTSD and social support shortly following combat trauma exposure.

Social support is a complex protective factor to consider. It is multifaceted, and generally organized into two types: functional and structural. Structural support refers to the size and complexity of the social network including the number of group memberships and the number of available persons to provide support. Functional support refers to emotional and instrumental assistance from the support network. In addition to being multifaceted, support can derive from different sources (e.g., spouses, relatives, friends, or peers). It can also be examined in terms of actual support actions received versus perceived support. The source, type, quality, and quantity are all important elements to consider empirically. One study of Vietnam veterans suggested that postwar structural and functional social support served as a mediator of the relation between war zone stressors and PTSD. Among the resilience-recovery factors measured, functional support had the largest total effect on PTSD for men and women (King, King, Fairbank, Keane, & Adams, 1998).

The perception of social support may have a unique and important role in psychological health. Some evidence suggests that perceived support may even be more beneficial than received or actual support (Bolger, Zuckerman, & Kessler, 2000; Rafaeli & Gleason, 2009). Additionally, perceptions of support can be affected by psychological health. Beck et al. (2009) found that depression and PTSD symptoms influenced the perception of social support, with the most salient symptoms being related to emotional numbing, depression, and hyperarousal. Thus, it may be that the most

critical aspects of support cannot be measured objectively, but rather must be evaluated subjectively bearing in mind that these are influenced by factors such as psychological health.

Traditionally high levels of social support was theorized to have a stress-buffering effect against the negative effects of stress – such that the link between life stress and poor mental health is stronger for people with low social support compared to people with high social support. However, Lakey and Orehek (2011) recently proposed another theoretical explanation for the buffering effects of social support. Relational regulation theory (RRT) places less emphasis on intrapersonal factors (e.g. coping) and places more emphasis on interpersonal factors namely social interaction. Within RRT, social interaction has a direct causal role in improving mental health. Although existing research, both cross-sectional and prospective study designed, reliably indicating social support as a resiliency factor protecting against PTSD, there is still a limited understanding of the differential benefits of the various types (i.e., structural or functional) and sources (e.g., friends, family, or significant others) of support or – more importantly – the mediating mechanisms of social support.

Spouses and intimate partners often serve as a primary source of social support in adulthood (Beach, Martin, Blum, & Roman, 1993). Over half of all service members are married (U.S. Department of Defense, 2007) and, among nonmarried personnel, many report being in an exclusive intimate relationship lasting 6 months or longer. Compared with veterans of previous wars, OEF/OIF service members are older and more likely to be married or otherwise partnered (Monson, Fredman, & Adair, 2008). Marital status is

often used (in part or whole) as an index of support, and has been linked to a wide variety of health benefits (Stolzenberg & Waite, 2005). Veterans reported that support from their spouses was greater than support from nonveteran friends and relatives (Laffaye et al., 2008); however, spouses can also function as sources of stress, rather than support, for combat veterans (Laffaye et al., 2008) particularly when they are unsupportive (Byrne & Riggs, 2002). Hence, understanding the mechanisms by which resilience to PTSD is imparted through partner support is vital to both prevention and intervention strategies aimed at harnessing the potential benefits of these intimate relationships.

Intimate Relationships and PTSD

Cross-sectional research has consistently demonstrated a positive association between PTSD symptoms and relationship distress for OEF/OIF soldiers and National Guard members (Allen et al., 2010; Nelson Goff, Crow, Reisbig, & Hamilton, 2007; Renshaw, Rodrigues, & Jones, 2008). This association was also true for Vietnam veterans and their partners. One study found that over 70% of Vietnam veterans with PTSD reported clinically significant relationship distress compared to 30% of veterans without PTSD (Riggs et al., 1998). These veterans also reported more difficulties with intimacy and more steps toward divorce and separation (Riggs et al., 1998). Indeed, Vietnam veterans with PTSD were twice as likely as those without PTSD to get divorced (Jordan et al., 1992). As a group, veterans with PTSD report more problems with relationship adjustment (Carroll, Rueger, Foy, & Donahoe, 1985; MacDonald, Chamberlain, Long, & Flett, 1999). A large longitudinal study of OIF soldiers indicated

that concerns about interpersonal conflict increased by 4-fold post-deployment (Milliken, Auchterlonie, & Hoge, 2007). A recent meta-analysis evaluating PTSD and intimate relationship problems cited an association of medium effect size between PTSD and relationship discord, and this association was stronger in military samples compared with civilian samples (Taft, Watkins, Stafford, Street, & Monson, 2011).

Moreover, specific symptom clusters or components of PTSD such as dissociation (Nelson Goff et al., 2007) and numbing or avoidance symptoms (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Erbes, 2011; Evans, McHugh, Hopwood, & Watt, 2003; Renshaw & Campbell, 2011; Riggs et al., 1998) appear to be associated with greater erosion of relationship functioning. Specific problematic areas of relationship functioning for service members struggling with PTSD and their partners have also been identified. For active duty Army personnel, negative communication, positive bonding, and parenting alliance mediated the relation between marital satisfaction and PTSD (Allen et al., 2010). PTSD avoidance symptoms have also been found to relate negatively to spouses' communication satisfaction (Hendrix, Erdmann, & Briggs, 1998). Vietnam veterans diagnosed with PTSD reported greater difficulty in self-disclosure and expressiveness to their partners compared with veterans without PTSD (Carroll et al., 1985). Other research, with ex-prisoner of war Israeli combat veterans, has shown the negative relation between marital intimacy and PTSD to be mediated by the level of self-disclosure to their partners (Solomon, Dekel, & Zerach, 2008).

Overall, convergent evidence from these studies documents the importance of communication, particularly self-disclosure, in veteran populations with PTSD.

Veterans with PTSD generally exhibit a fear of intimacy and a lack of emotional sharing (Sherman, Zanotti, & Jones, 2005). Although avoidance can be an adaptive coping strategy in limited contexts, evidence suggests that avoidance may be particularly harmful in the context of intimate relationships and in the manifestation of PTSD (Reddy, Meis, Erbes, Polusny, & Compton, 2011).

Therapeutic interventions from a variety of theoretical perspectives emphasize the importance of disclosure of traumatic experiences and cognitive or behavioral engagement of avoided stimuli. Some research supports the benefits of disclosing traumatic experiences outside of a formalized treatment setting. For military peacekeepers in the United Kingdom, talking about their experiences was associated with less psychological distress, with most turning to peers and family members (Greenberg et al., 2003).

Additionally, written expression paradigms have demonstrated beneficial effects of disclosure for active duty soldiers and their spouses. Baddeley and Pennebaker (2011) studied the effects of having soldiers or their spouses write about their thoughts and feelings related to the transition of returning home from deployment. Couples were randomly assigned to one of four conditions in which (a) both partners, (b) the soldier only, (c) the civilian spouse only, or (d) neither partner engaged in expressive writing related to deployment transitions. Couples in the “soldier only” condition demonstrated the greatest increase in relationship satisfaction one month following the expressive

writing paradigm, particularly when the soldier had been exposed to heavy combat.

Recent research by Hoyt et al. (2010) found that the relation between social support and PTSD was mediated by disclosure of positive emotions, demonstrating the importance of a positive exchange or sharing for partners struggling with PTSD.

Cognitive and Emotional Processing of Trauma

Cognitive and emotional processing models offer a potential theoretical explanation for why disclosure of past trauma may have a protective effect against the experience of combat-related PTSD for service members and veterans. Cognitive processing theory proposes that traumatic experiences can shatter a person's basic assumptions, or schemas, about the world (Creamer, Burgess, & Pattison, 1992). Assimilation of such experiences – i.e., incorporating them into existing or modified schema – is considered critical for resolution; if not incorporated into existing or modified schema, such events can result in enduring distress (Horowitz, 1986). Hence, incomplete cognitive processing is presumed to contribute to intrusive thoughts, hyperarousal, or subjective sense of enduring danger that is overgeneralized (Ehlers & Clark, 2000). The traumatized person engages in negative appraisals of normal reactions to the traumatic event and often views themselves as permanently damaged (Ehlers & Clark, 2000).

Avoidance, a central characteristic of PTSD, is considered a poor coping strategy that prevents elaboration or contextualization of the event and contributes to maladaptive coping strategies such as suppression, selective attention to threat cues, and the formation of safety behaviors (Creamer et al., 1992; Ehlers & Clark, 2000). It has been

postulated that intrusive thoughts may actually allow for greater processing of the trauma (Creamer et al., 1992). Cognitive processing interventions emphasize the importance of integrating the traumatic event with preexisting schema and placing it in the appropriate context of place and time to recover from the trauma. For example, recent work by Monson et al. has shown improvement in individual and relationship functioning for combat veterans receiving cognitive-behavioral conjoint therapy for PTSD that focuses on eliciting the soldiers' disclosure of traumatic events and partners' empathic responding (Monson et al., 2008). Feedback from others can help correct negative appraisals of the event or of one's self (Ehlers & Clark, 2000).

In addition to cognitive processing, Foa and Kozak's (1986) model emphasizes the importance of emotional processing of traumatic events, and also highlights the maladaptive role of avoidance following trauma. Efficacious therapeutic interventions for PTSD attempt to resolve past trauma through prolonged exposure whereby the individual no longer avoids traumatic thoughts and feelings (Foa, Hembree, & Rothbaum, 2007). Trauma is thought to blur the boundaries between safety and danger (Foa, Steketee, & Rothbaum, 1989), and avoidance prevents emotional processing and thereby ultimately precludes the formation of new cognitive appraisals of the traumatic event (Foa & Rothbaum, 1998). In their longitudinal study, Benotsch et al. (2000) found that avoidance coping at time 1 predicted PTSD at time 2 for Gulf war veterans. Avoidance was also related to lower levels of communication with spouses for Vietnam veterans (Hendrix et al., 1998).

One way of initiating cognitive and emotional processing of traumatic combat-related experiences is through disclosure of these experiences in an empathic and supportive relational environment. Recent work by Monson and colleagues has shown improvement in individual and relationship functioning for combat veterans receiving cognitive-behavioral conjoint therapy for PTSD that focuses on eliciting the soldiers' disclosure of traumatic events and partners' empathic responding to facilitate dyadic cognitive restructuring and decrease behavioral avoidance (Fredman, Monson, & Adair, 2011; Monson, Fredman, & Adair, 2008). In this approach, unlike in other therapeutic approaches, explicit renditions of the traumatic event are discouraged (Fredmen et al., 2011). Additionally, others have applied existing efficacious couple therapy approaches such as Integrative Behavioral Couple Therapy (IBCT) to the treatment of PTSD (Erbes, Polusny, MacDermid, & Compton, 2008) which encourages limited disclosure of combat experiences without delving into systemic exposure.

Aforementioned therapeutic approaches encourage disclosure of traumatic experiences to differing degrees of detail and in various contexts. However, the majority of OIF and OEF soldiers who screen positive for a mental illness do not seek professional mental health treatment (Hoge et al., 2004). That is, service members returning from combat often turn to others in their social support network to discuss experiences and consequences of combat outside of a therapeutic context. Indeed, because nearly half of veterans seeking outpatient mental health treatment for PTSD reported that a healthcare provider was not the first person to whom the veteran disclosed his or her trauma (Leibowitz, Jeffreys, Copeland, & Noël, 2008).

Furthermore, two-thirds of married United Kingdom peacekeepers spoke about their deployment experiences and, of those who spoke to someone, the vast majority spoke to their spouse (Greenberg et al., 2003). The role of significant others in providing a supportive context for disclosure of traumatic experiences may be particularly critical in promoting protection from PTSD and related adverse outcomes.

Systemic Interpersonal Effects of Trauma

Empirical evidence increasingly illustrates the systemic effect of traumatic stress on the couple's relationship. Nelson Goff and Smith (2005) described the systemic, interpersonal effect of trauma in their Couple Adaptation to Traumatic Stress Model (CATS). In their CATS model, distress is described as either primary – resulting directly from trauma exposure – or secondary – resulting from the partners' primary stress response. Bidirectional relations are postulated to exist between couple functioning and individual functioning, in addition to bidirectional relations between the individual psychological functioning of each partner.

Exposure to traumatic stress not only disrupts the functioning of the traumatized individual, but also can disrupt couple functioning and the individual functioning of the partner mutually. In addition, available resources and predisposing factors contribute to both the individual level of functioning and the couple functioning (Nelson Goff & Smith, 2005). Essentially, the CATS model is a circular model that proposes that a primary stress response to trauma not only affects the couple's functioning but also the other partner's individual functioning, and that secondary responses on the part of the partner can intensify symptoms caused by the primary trauma, creating a system of

distress interactions. Applying Nelson Goff and Smith's (2005) model to combat service members, they proposed bidirectional pathways between the service member's functioning and the couple's relationship and the couple's relationship to the partner's functioning. There are also hypothesized bidirectional pathways between the service member's functioning to his or her partner's functioning. PTSD symptoms are thought to affect the service member directly through primary trauma effects, but also indirectly by the effects these symptoms have on both the relationship and the partner through secondary trauma (Nelson Goff & Smith, 2005).

Other research suggests that disclosure in some contexts may have adverse effects on the traumatized individual and the partner. A study examining sexual assault survivors demonstrated that negative social reactions in response to disclosure were strongly correlated with PTSD symptoms (Ullman, Townsend, Filipas, & Starzynski, 2007). Conceivably, if disclosure occurs in an unsupportive, distressed intimate relationship this could promote further negative impact on the traumatized individual's compromised psychological functioning.

Additionally, there is a vast literature on secondary stress responses to trauma. Evidence in this area suggests that a secondary stress response often occurs as a result of exposure to the primary trauma survivor's PTSD symptoms. Indeed, research has indicated that veterans' numbing and arousal symptoms were predictive of family distress (Galovski & Lyons, 2004), and partners of combat veterans with PTSD experienced higher levels of psychological distress (Manguno-Mire et al., 2007). Furthermore, in a study of Vietnam veterans, communication about deployment

experiences served as a moderator between the veteran's PTSD symptoms and the partner's own psychological distress (Campbell & Renshaw, 2012). Communication about deployment experiences was not related to the partners' psychological distress when the veteran did not have clinically significant PTSD symptoms, but was significantly related to the partners' distress when veterans had clinically significant PTSD (Campbell & Renshaw, 2012).

Disclosure of trauma may alternatively have beneficial effects on an intimate relationship. A service member's disclosure may influence the accuracy of a partner's perceptions and attributions regarding the service member's stress reactions post-deployment; in turn, these cognitions may influence the partner's own stress reaction upon reintegration. Renshaw et al. (2008) found that spouses exhibited the greatest psychological distress when they viewed their service member partners as having psychological difficulties, but the service members themselves reported being asymptomatic. Additionally, spouses' marital satisfaction was negatively related to soldiers' self-reported symptoms. However, the spouse's perception of the service member's combat experiences moderated this effect. Specifically, when spouses perceived that their partners had experienced high levels of combat, spouses' marital distress was no longer related to service members' self-reported PTSD symptoms, whereas when spouses perceived low levels of combat, spouses' marital distress was positively related to service members' self-reported PTSD symptoms. That is, attributions linking a service member's PTSD symptoms to combat experiences resulted in an attenuated negative effect on the spouse's own psychological and marital distress.

Furthermore, perceptions are particularly important in attenuating the link between relationship distress and avoidance/numbing symptoms of PTSD (Renshaw & Campbell, 2011).

The current investigation sought to assess the impact of disclosure of deployment- and combat-related experiences in the relation between partner support and PTSD symptoms for U.S. Air Force Security Force active duty members following a year-long, high risk deployment to Iraq. The direct concurrent association between perceived social support, and specifically partner support, and PTSD symptoms was evaluated 6- to 9 months post-deployment. Additionally, the service member's level of comfort with disclosure to his or her intimate partner was also assessed as a potential mediating mechanism by which partner support lends its greatest benefit in resiliency following deployment- and combat-related trauma. Similar to a mediational model proposed by Hoyt et al. (2010), it was hypothesized that the service member's willingness to disclose deployment- and combat-related experiences would serve as the primary mechanism by which partner support attenuates the experience of PTSD symptoms.

Because other intrapersonal and interpersonal factors such as the number of combat experiences encountered during deployment and the level of relationship distress may potentially influence the level of comfort with disclosure to one's intimate partner, these contextual factors were also assessed. Both relationship distress and the number of combat experiences are highly related to PTSD symptoms; additionally in focus group discussions, service members' qualitatively report that relationship quality and the

combat experiences influence their willingness to discuss their deployment experiences with their partner. Finally, moderated mediation effects were also evaluated.

Relationship distress and the number of combat related experiences were assessed as prognostic indicators moderating the benefits of combat disclosure. For example, it may be that disclosure of experiences is only effective at either high or low levels of combat experiences. Or higher levels of relationship distress may decrease the effectiveness of disclosure and moderate disclosure's effect on PTSD symptoms. Hence, the following corresponding hypotheses were evaluated:

- (1) There will be negative relations between both overall perceived social support and perceived partner support and service members' symptoms of PTSD.
- (2) The negative relation between perceived partner support and PTSD symptoms will be partially mediated by the willingness to disclose thoughts and feelings related to deployment- and combat-related experiences to one's intimate partner, such that a mechanism by which partner support is related to lower levels of PTSD symptoms is through higher levels of comfort with combat disclosure.
- (3) Relationship distress will be negatively related to the service member's level of comfort with combat disclosure to his or her partner.
- (4) Relationship distress will moderate the mediation effect of disclosure on PTSD symptoms through its interaction with partner support, thus resulting in a moderated mediation effect.

- (5) Additionally, the number of combat experiences encountered during deployment will be negatively related to the service member's level of comfort with combat disclosure to his or her partner.
- (6) The number of combat experiences will moderate the mediation effect of disclosure on PTSD symptoms through its interaction with combat disclosure, thus resulting in a moderated mediation effect.

CHAPTER II

METHOD

Participants

Participants were a subset of active-duty service members from a larger longitudinal investigation of U.S. Air Force Security Forces. The original investigation assessed a variety of risk and protective factors across a year-long deployment to Iraq (Cigrang et al., 2011). Two detachments of Airmen (combined $n = 318$) were tasked to train Iraqi Police Transition Teams, a high-risk mission that required patrolling in communities with insurgent fighters. They were assessed at three time points in the deployment cycle: pre-deployment, in-theater, and post-deployment. Partner support and combat disclosure were only assessed post-deployment. A total of 196 Airmen voluntarily participated in the follow-up assessment at 6- to 9 months post-deployment. Of these service members, 112 Airmen reported to be in a committed relationship lasting 6 months or longer at pre-deployment and were followed across the deployment cycle. Of those partnered Airmen, 76 remained in the same committed relationship across the entirety of the deployment cycle and were included in the current investigation. The current sample excluded any romantic relationships that had ended in divorce ($n = 24$) or had taken steps to end the relationship after deployment ($n = 12$).

Of the 76 partnered Airmen, the majority (92%) were male with an average age of 27.9 years ($SD = 6.1$, range = 21-42). The mean years of education was 13.7 ($SD = 1.8$, range = 12-20), with over half (60%) of the service members graduating from

high school or earning a GED. The average duration of all prior deployments combined was 13.1 months ($SD = 7.3$, range = 1-30), with a mean of 13.9 months since the last deployment ($SD = 8.2$, range 3-39). Nearly half of the Airmen (46%) had deployed at least twice previously in an OEF/OIF mission. A majority (66%) of participants were Caucasian, followed by 14% African American, 11% Hispanic, 5% Asian, and 2% Native American.

Measures

PTSD. The PTSD Checklist – Military version (PCL-M) is a 17-item measure corresponding to the 17 symptoms of PTSD outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM–IV, American Psychiatric Association, 1994). Items also correspond to the three clusters of PTSD: re-experiencing, avoidance/numbing, and hyperarousal (Weathers, Huska, & Keane, 1991). For each item, respondents rate how much they have been “bothered by the problem in the past month” on a 5-point Likert scale from 1 (“not at all”) to 5 (“extremely”), with scores ranging from 17-85. The PCL-M demonstrates excellent internal consistency ($\alpha = .96$) and test-retest reliability ($r = .96$) (Weathers, Litz, Herman, Huska, & Keane, 1993), and correlates highly with other standardized measures of PTSD (Forbes, Creamer, & Biddle, 2001). For all Airmen who completed post-deployment measures, the PCL-M demonstrated excellent internal consistency ($\alpha = .95$; mean inter-item $r = .55$). Comparable values ($\alpha = .96$; mean inter-item $r = .61$) were found for the 76 service members in the same intimate relationship across the deployment cycle included in this study.

Social support. The Multidimensional Scale of Perceived Social Support (MSPSS) is a 12-item measure designed to capture the subjective, perceived adequacy of social support (Zimet, Dahlem, Zimet, & Farley, 1988) across three sources including family, friends, and significant other. Items are rated on a 7-point Likert scale ranging from 1 (“very strongly disagree”) to 7 (“very strongly agree”), with scores ranging from 12-84. Subscales distinguishing among the three sources of social support were supported through factor analysis. The present study used both the overall measure of social support as well as the 4-item subscale specifically targeting support from the Airman’s “significant other” or intimate partner. The MSPSS was administered at post-deployment only.

Previous research has supported the 2- to 3-month temporal stability of both the total social support score ($r = .85$) and “significant other” subscale ($r = .72$) as well as their internal consistency ($\alpha = .88$ for the total score and $.91$ for the “significant other” subscale). The MSPSS has been shown to correlate positively with other measures of social support (Kazarian & McCabe, 1991), to correlate negatively with measures of depression and anxiety (Zimet, Powell, Farley, Werkman, & Berkoff, 1990), and to be generally unrelated to measures of social desirability (Kazarian & McCabe, 1991). For all Airmen in the current study who completed post-deployment measures, the full measure of the MSPSS demonstrated excellent internal consistency ($\alpha = .94$; mean inter-item $r = .56$). Comparable values ($\alpha = .93$; mean inter-item $r = .52$) were found for the 76 participants in the same intimate relationship across the deployment cycle. Additionally, the 4-items of the “significant other” subscale demonstrated excellent

internal consistency ($\alpha = .93$; mean inter-item $r = .79$) for the 76 Airmen in a committed relationship.

Combat disclosure. The Combat Disclosure Scale (CDS) is a 6-item self-report measure designed specifically for this study to evaluate a service member's willingness to disclose his or her thoughts and feelings related to deployment- and combat-related experiences to an intimate partner (Balderrama-Durbin et al., 2011). Items are measured on a 4-point Likert scale ranging from 1 ("strongly disagree") to 4 ("strongly agree"), with scores ranging from 6 (no disclosure) to 24 (high disclosure). Three of the six items assess the disclosure of deployment experiences more broadly, whereas the remaining three items assess disclosure of combat-related experiences specifically (refer to Table 1). The CDS was administered at post-deployment only. For the 76 Airmen who were in an intimate relationship and completed post-deployment measures, the CDS demonstrated excellent internal consistency ($\alpha = .94$; mean inter-item $r = .73$).

Relationship distress. The Marital Satisfaction Inventory – Brief form (MSI-B) is a 10-item screening measure designed to identify intimate relationship distress (Whisman, Snyder, & Beach, 2009). Two items from each of five scales from the Marital Satisfaction Inventory – Revised (Snyder, 1997) including Global Distress, Time Together, Sexual Dissatisfaction, Affective Communication, and Problem-Solving Communication were selected for this measure based on item-scale correlations. Scores range from 0-10, with half of the items coded as discordant if answered "true" and half as discordant if answered "false." Using a cut-score ≥ 4 for discriminating distressed from nondistressed couples, the MSI-B exhibits high sensitivity and specificity (.87 and

.84, respectively). In the original standardization sample, the MSI-B had good temporal reliability (6-week $r = .79$) and internal consistency ($\alpha = .81$; mean inter-item $r = .31$). For the 76 Airmen in an intimate relationship who completed post-deployment measures in this study, the MSI-B demonstrated high internal consistency ($\alpha = .91$; mean inter-item $r = .49$).

Combat experiences. The Exposure to Combat Scale (ECS) lists 22 stressful experiences that may have occurred during deployment, and was adapted from an 18-item measure previously described by Hoge et al. (2004). Service members indicate whether or not they have experienced a combat-related event (e.g., “being shot at” or “seeing dead or seriously injured Americans”), and also rate the event’s emotional impact on a 4-point Likert scale from 1 = “no impact” to 4 = “extreme impact.” For this study, the number of stressful events experienced served as the measure of interest, with scores ranging from 0-22. Prior research suggests a strong positive relation between combat experiences and PTSD symptomatology following deployment (Hoge et al., 2004). For all Airmen who completed post-deployment measures, the ECS (scored as number of experienced stressful events) demonstrated good internal consistency ($\alpha = .88$; mean inter-item $r = .26$). Comparable values ($\alpha = .90$; mean inter-item $r = .29$) were obtained for the 76 participants in the same intimate relationship across the deployment cycle.

CHAPTER III

RESULTS

Bivariate correlations among variables are shown in Table 2. PTSD symptoms were negatively related to partner support and combat disclosure, $r = -.36$ and $r = -.38$, $p < .05$, respectively, and positively related to relationship distress and number of combat experiences, $r = .29$ and $r = .37$, $p < .05$, respectively. Partner support was positively related to combat disclosure, $r = .27$, $p < .05$, and negatively related to relationship distress, $r = -.51$, $p < .05$. Finally, relationship distress was negatively related to combat disclosure, $r = -.29$, $p < .05$.

Potential covariates such as age, years of education, combined months of prior deployments, and ethnicity were examined to determine their relation with the primary variables of interest including PTSD symptoms, partner support, combat disclosure, relationship distress, and number of combat experiences. Gender effects could not be evaluated due to the insufficient number of females in the sample. Age was positively related to partner support ($r = .26$, $p < .05$). Although age and length of relationship were highly correlated ($r = .70$, $p < .001$), length of relationship was not related to perceived partner support ($r = .08$, $p = .60$). Age was assessed as a covariate in subsequent analyses involving partner support and did not appreciably change any of the results. All other potential covariates evaluated were not significantly related to the primary variables of interest.

Prior to conducting mediation analysis, simple regression was used to examine the direct effects of both overall perceived social support (including family, friends, and significant other) on PTSD symptom severity, as well as specific effects of perceived partner support (to compare findings from this sample of 76 service members to previous studies in this domain). Consistent with prior literature, regression replicated the negative relation between overall social support and PTSD symptom levels in the current sample [$\beta = -.53$, $t(71) = -5.28$, $p < .001$]. That is, overall social support accounted for 28.2% of the variance in post-deployment PTSD symptom severity, constituting a large effect. Moreover, regression analysis confirmed the direct specific effect of perceived partner support on PTSD symptom levels [$\beta = -.36$, $t(72) = -3.24$, $p < .05$; see Figure 1], with partner support accounting for 12.7% of the variance in post-deployment PTSD symptom severity, constituting a medium effect.

Mediation Analyses

The negative relation between perceived partner support and PTSD symptoms was hypothesized to be partially mediated by the level of willingness to disclose thoughts and feelings related to deployment- and combat-related experiences to one's intimate partner. A classic mediation model proposed by Baron and Kenny (1986) was used to test if the level of combat disclosure to partners mediated the relation between partners' support and service members' PTSD symptoms (Hypothesis 2). In accordance with Baron and Kenny's (1986) model, three sequential regression models were used to demonstrate mediation effects:

$$(1) Y = \beta_{10} + \beta_{11}X + e_1$$

$$(2) M = \beta_{20} + \beta_{21}X + e_2$$

$$(3) Y = \beta_{30} + \beta_{31}X + \beta_{32}M + e_3$$

Additionally, four conditions must be met:

1. For Equation 1, there must be an overall effect of the predictor on the outcome variable; that is, β_{11} must be significant.
2. For Equation 2, there must be an effect of the predictor on the mediator; that is, β_{21} must be significant.
3. For Equation 3, there must be an effect of the mediator on the outcome variable controlling for the predictor; that is, β_{32} must be significant.
4. In Equation 3, the residual direct effect of the predictor on the outcome (β_{31}) should be smaller (in absolute value) than the overall effect of the predictor in Equation 1 (β_{11}).

For the current analyses, the outcome variable was post-deployment PTSD symptom severity as determined from the PCL-M, the predictor was the level of perceived partner support as measured by the Significant Other factor of the MSPSS, and the mediator was the level of the service member's self-reported combat disclosure.

Analyses confirmed each of these four conditions for mediation. As noted earlier, there was an overall negative effect of perceived partner support on PTSD ($\beta = -.36$; see Figure 1). Second, there was also a significant effect of perceived partner support on combat disclosure such that greater perceived partner support predicted greater likelihood of being comfortable disclosing deployment- and combat-related experiences [$\beta = .27, t(64) = 2.25, p < .05$]. Third, combat disclosure significantly

predicted post-deployment PTSD symptom levels [$\beta = -.33, t(63) = -2.74, p < .05$], after controlling for the effects of perceived partner support [$\beta = -.18, t(63) = -1.49, p = .14$]. Finally, the direct effect of partner support on PTSD (Figure 1a) became nonsignificant with the addition of disclosure in the model (Figure 1b), demonstrating at least partial mediation.

To assess the significance of the mediation effect, a bootstrapping method was used to estimate the confidence interval of the indirect effect. Bootstrapping is a nonparametric resampling method that approximates the sampling distribution from the available data. Bootstrapping methods are recommended when either the sample size or predicted effect size is restricted (MacKinnon, Lockwood, & Williams, 2004). A total of 5,000 iterations of sampling in Mplus (version 6; Muthén & Muthén, 2010) were used to examine the indirect effect of partner support on PTSD symptoms through the mediating mechanism of combat disclosure. Cases with missing scale scores ($n = 8$) were included and estimated using the Full Information Maximum Likelihood (FIML) procedure. Results demonstrated that the indirect effect of partner support on PTSD through combat disclosure was significant with a 95% confidence interval of -.90 to -.05 (see Table 3).

Considering the cross-sectional nature of the data, and prior evidence suggesting the bidirectional relation between PTSD and social support, a second competing model was examined whereby PTSD predicted partner support with combat disclosure as a mediator of this effect. This competing model had poorer model fit, $AIC = 851.90$ compared to $AIC = 1035.81$ from the original model. Additionally, the indirect effect of

PTSD on partner support was not mediated by combat disclosure such that the confidence interval contained zero.

Direct Effects of Relationship Distress and Combat Experiences on Disclosure

Post-deployment Relationship distress and the number of combat experiences were evaluated as relevant contextual factors due to their known association with PTSD symptoms and service members' qualitative reports of their potential impact on their willingness to discuss their deployment experiences with their partner. Both relationship distress (as measured by the MSI-B) and the number of combat experiences were expected to be negatively related to the level of combat disclosure (Hypotheses 3 and 4 respectively). These contextual factors were analyzed separately due to restrictions in power. Regression analyses confirmed that, as hypothesized, greater relationship distress predicted a lower likelihood of combat disclosure by service members to their partners [$\beta = -.29$, $t(62) = -2.41$, $p < .05$]. Moreover, as the number of combat experiences increased, there was also a nonsignificant trend for participants to engage in less combat disclosure [$\beta = -.23$, $t(61) = -1.85$, $p = .07$] (see Table 3).

Moderated Mediation Analyses

Moderated mediation models attempt to explain both how and when a particular effect occurs. Specifically, such models were used to examine if relationship distress and number of combat experiences could explain the strength of the indirect effect of partner support on PTSD through combat disclosure. Relationship distress was predicted to moderate the relation between partner support and combat disclosure, whereas the number of combat experiences was predicted to moderate the relation

between the mediator, combat disclosure, and PTSD symptoms (refer to Figures 2 & 3). In both instances, to test the significance of these conditional indirect effects, the interaction terms were evaluated for significance. This was done using methods that are analogous to testing interaction effects in regression (Preacher, Rucker, & Hayes, 2007).

To test the moderated mediation effect of relationship distress, the following regression analyses were used where M indicates combat disclosure, X indicates partner support, W indicates relationship distress, and Y reflects PTSD symptoms:

$$(1) M = a_0 + a_1X + a_2W + a_3XW + e_1$$

$$(2) Y = b_0 + b_1M + c'_1X + e_2$$

Equation 2 is the same mediation equation used from the simple mediation analyses above where it was demonstrated that the relation between partner support and PTSD symptoms is mediated by combat disclosure. Equation 1 tested if the relation between partner support and combat disclosure is moderated (examined through the interaction effect) by relationship distress, thus moderating pathway “a” in the mediational analyses (see Figure 2).

Because the relation between relationship distress and combat disclosure had already been demonstrated, the test of greatest interest was the interaction effect between relationship distress and partner support. Results demonstrated that there was no interaction effect of relationship distress and partner support predicting combat disclosure [$\beta = .13, t(60) = 0.23, p = .82$]; thus, hypothesis 4 predicting the moderated mediation effect of relationship distress was not supported.

To test the moderated mediation effect of the number of combat experiences, the following regression analyses were used where M indicates combat disclosure, X indicates partner support, W indicates the number of combat experiences, and Y reflects PTSD symptoms:

$$(1) M = a_0 + a_1X + e_1$$

$$(2) Y = b_0 + b_1M + b_2W + b_3MW + c'_1X + e_2$$

Equation 1, the relation between partner support and combat disclosure, had already been demonstrated in analyses described earlier. Hence, Equation 2 tested whether the relation between combat disclosure and PTSD symptoms was moderated (examined through the interaction effect) by the number of combat experiences, thus moderating pathway “b” in the mediational analyses (see Figure 3).

Only the number of combat experiences significantly predicted PTSD symptoms in the model described in Equation 2 [$\beta = .74, t(58) = 2.10, p < .05$]. All other predictors including the moderation of combat disclosure (the interaction term) were non-significant; thus, hypothesis 6 predicting the moderated mediation effect of the number of combat experiences was not supported. However, without the interaction term in the model, both combat disclosure [$\beta = -.26, t(59) = -2.15, p < .05$] and the number of combat experiences [$\beta = .31, t(59) = 2.65, p < .05$] uniquely predict PTSD symptoms.

CHAPTER IV

CONCLUSION

Although social support has previously been shown to serve as an important post-deployment protective factor buffering the adverse effects of combat exposure and PTSD (Polusny et al., 2011), the mediating mechanisms of social support have not been well explicated. The present study aimed to disentangle the effects attributable to partner support, a specific source of social support, and their underlying mechanisms, potentially contributing to more efficacious prevention and intervention protocols aimed at service members as they return from combat operations and confront diverse challenges of reintegrating into their families and intimate relationships.

Replicating previous findings, in the present study service members' reports of overall social support were significantly related to PTSD symptom severity 6- to 9-months after returning from a year-long high-risk deployment to Iraq, accounting for 28.2% of the variance in this critical outcome. Moreover, intimate partner support accounted for nearly half of this effect, predicting 12.7% of post-deployment PTSD symptoms constituting notable overall effects. Subsequent mediation analyses demonstrated that the willingness to disclose deployment- and combat-related experiences by service members to their intimate partners explained a significant portion of the relation between partner support and post-deployment PTSD symptom severity. Findings suggest that higher levels of partner support may promote a safe context for vulnerable disclosure, and that it is specifically through the willingness to disclose

deployment- and combat-related experiences that the detrimental effects of combat exposure are partially mitigated after returning from deployment.

Because recent longitudinal research suggests a bidirectional relation between social support and PTSD, the possibility that PTSD symptoms, namely avoidance and emotional numbing, lead to reluctance to disclosure which then reduced the service members' subjective experience of partner support was examined. This reverse mediation model was not supported lending greater confidence to the primary model despite the cross-sectional nature of the data. Considering these findings as a whole, it is more likely that partner support fosters a safer context for disclosure and that it is through disclosure that PTSD symptoms are attenuated. This finding is consistent with Lakey and Orehek's (2011) relational regulation theory (RRT) describing social interaction and relational influences being that the root of the association between perceived support and mental health.

Both relationship distress and the number of combat experiences were also evaluated as contextual factors potentially impacting service members' level of combat disclosure. As predicted, higher levels of relationship distress were associated with lower levels of combat disclosure. That is, combat disclosure was more likely to occur in a supportive, emotionally safe relationship. Furthermore, there was a tendency for those Airmen who experienced a greater number of traumatic experiences during deployment to engage in less combat disclosure with their partners. Although not reaching statistical significance, this suggests further research exploring two possibilities: first, higher exposure to combat may impede disclosure in informal or

social relationships because of perceived vulnerability or risk to the service member's own emotional functioning; or, second, service members may be reluctant to disclose higher levels of combat-related trauma in an effort to protect their partners from anticipated reactive distress. Future studies could also examine how different kinds of combat-related experiences, rather than simply their number, might influence the likelihood of post-deployment disclosure.

Relationship distress and number of combat experiences were further evaluated as potential moderators of the mediation effect of partner support on PTSD through combat disclosure. Neither relationship distress nor number of combat experiences moderated the mediation effect of combat disclosure. However, findings demonstrated that both the number of combat experiences and the disclosure of deployment- and combat-related experiences were independently related to post-deployment PTSD, which supports the importance of combat disclosure in predicting PTSD symptoms.

The benefits of disclosing emotionally difficult experiences have been reliably demonstrated in formal therapeutic settings. For example, interventions for PTSD rely on disclosure of traumatic events to facilitate cognitive and emotional processing of the trauma (Foa et al., 2007; Resick & Schnicke, 1992). Additionally, recent research demonstrates improvement in individual and relationship functioning for combat veterans receiving cognitive-behavioral conjoint therapy for PTSD that facilitates veterans' disclosure of traumatic events and partners' empathic responding (Monson et al., 2008). Although disclosure and processing of trauma have been demonstrated to be effective in formal treatment settings, the current study suggests that,

at least for some, disclosure also yields benefits in naturally occurring, supportive intimate relationships. Combat disclosure to one's intimate partner within a supportive context potentially promotes both cognitive and emotional processing of combat-related trauma following deployment.

What still remains unclear is the frequency and the content of the disclosure including the level of explicit detail the service member divulges related to their deployment- and combat-related experiences. Characteristics such as the quality (what is being said and at what level of detail) and the quantity (how frequently the service member is engaging in disclosure) likely have important implications on the benefits and the potential consequences of the disclosure. More disclosure does not necessarily yield greater benefits for either service members or their partner. Future research could evaluate specific behavioral characteristics and characteristics of the disclosure itself in this relational context.

The relation between intimate partner support and the willingness to disclose traumatic emotional experiences is likely to be bidirectional, and to involve both interpersonal as well as intrapersonal effects. In the present study, higher levels of relationship satisfaction predicted higher levels of Airmen's willingness to disclose deployment- and combat-related experiences. Although not assessed in this study, greater disclosure could foster subjective intimacy for both service members and their partners. For example, observational research has shown that men's vulnerable self-disclosure in an intimate relationship significantly enhanced their own feelings of intimacy, independent of their female partners' level of empathic responding (Mitchell,

Castellani, Herrington, Joseph, Doss, & Snyder, 2008). In the same study, women's intimacy was predicted by their male partners' level of self-disclosure, but not by their own. Other diary studies have linked self-disclosure (Laurenceau, Feldman Barrett, & Rovine, 2005; Lippert & Prager, 2001) as well as partner-disclosure (Laurenceau et al., 2005) to greater intimacy for both men and women in married or cohabiting relationships. The intimacy-enhancing effects of vulnerable self-disclosure for men is particularly striking, given that the majority of participants in this study (92%) and the majority of service members generally (86%; U.S. Department of Defense, 2007) are men. The benefits of disclosure may be related to couple factors not evaluated in the current study.

Beyond their potential relation to intimacy, disclosure of deployment- and combat-related experiences may influence partners' cognitions regarding service members' reintegration difficulties and, relatedly, the partners' own emotional reactions. Renshaw et al. (2008) demonstrated that perception of veterans' symptoms to deployment- and combat-related trauma produced an attenuated negative effect on spouses' own marital distress. Considered in their entirety, such findings suggest the benefits of further research examining combat-related disclosure, attributions for post-deployment PTSD or related disorder symptoms (e.g., depression or substance abuse), and empathic responding as mediating mechanisms in both partners' psychological and relationship functioning. Furthermore, a closer evaluation of the PTSD clusters separately, namely avoidance/numbing symptoms, may provide additional insight into the differential role of disclosure in intimate relationships.

Integration of current findings with prior empirical work suggests potential prevention and intervention strategies for service members and their partners.

Considering that service members can benefit from self-disclosure of combat trauma to their partners, mental healthcare providers could work to enhance service members' ability to engage in self-disclosure in ways that would be most likely to elicit a positive response from their partners. Existing couple communication interventions can help inform providers of strategies most likely to elicit empathic responding (Epstein & Baucom, 2002; Erbes et al., 2008; Jacobson & Christensen, 1996; Johnson, 2004).

Similarly, partners could be trained to use positive emotional responsiveness and active listening techniques when responding to service members' combat disclosure. Couples should be taught how to effectively communicate about service members' deployment and how it has uniquely impacted each partner (Sautter, Armelie, Glynn, & Wielt, 2011).

The disclosure of deployment- and combat-related experiences could also be encouraged within a couple therapy context even if partners themselves cannot disclose or respond constructively on their own. With such couples, the therapist can encourage vulnerable disclosure and model empathic responding, thereby facilitating constructive changes in partners' attributions regarding service members' post-deployment behaviors. The modification of attributions from internal (characterological) to external (combat trauma-related) may promote partners' empathic responses or reduce their own negative reactivity.

Some limitations of the present study bear noting. Data were restricted to service members' reports, and collateral data from intimate partners regarding either the

Airmen's or their own functioning were not available. Because the data for mediational analyses were cross-sectional, causal linkages remain to be tested in future studies assessing PTSD symptom severity at some point subsequent to ratings of partner-support and combat-related disclosure. In the present longitudinal study, the number of partnered service members available at 6-9 months post-deployment who remained in the same relationship throughout the study was too small to permit evaluation of more complex mediational models incorporating additional potential mediators or moderators of partner support and PTSD symptom severity. Finally, the percentage of female service members in the present sample (8%) was too small to examine potential sex effects suggested from previous studies comparing linkages among vulnerable disclosure, empathic responding, and relationship intimacy (e.g., Mitchell et al., 2008).

Despite these limitations, the present study is the first to document the role of disclosure of combat-related experiences as a mediating mechanism in the well-documented linkage between social support and post-deployment PTSD symptom severity in a sample of service members returning from a year-long, high-risk mission. This study also is one of the very few existing longitudinal studies assessing service members mobilized to combat theaters throughout the deployment cycle. Continued efforts should be undertaken to better understand the differential benefits of various sources and types of social support (e.g., logistic versus emotional) and their potential mediators and moderators. Further research should examine effects of combat disclosure on partners' psychological and relationship functioning to examine potential secondary traumatic stress responses (Dirkzwager, Bramsen, Adèr, & van der Ploeg,

2005; Nelson Goff, Crow, Reisbig, & Hamilton, 2009; Renshaw, Allen, Rhoades, Blais, Markman, & Stanley, 2011). Greater understanding of such issues as what kinds of combat-related disclosure to encourage, optimal formats for disclosure and empathic responding, and how to strengthen distressed relationships not yet conducive to vulnerable disclosures by those struggling with traumatic experiences, will better inform prevention and intervention strategies with those men and women returning from combat deployment in their country's service.

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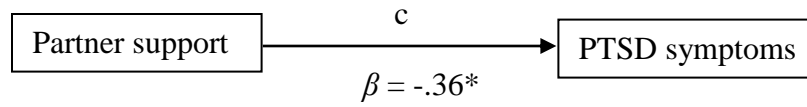
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APPENDIX

(a) Direct Effect



(b) Indirect Effect

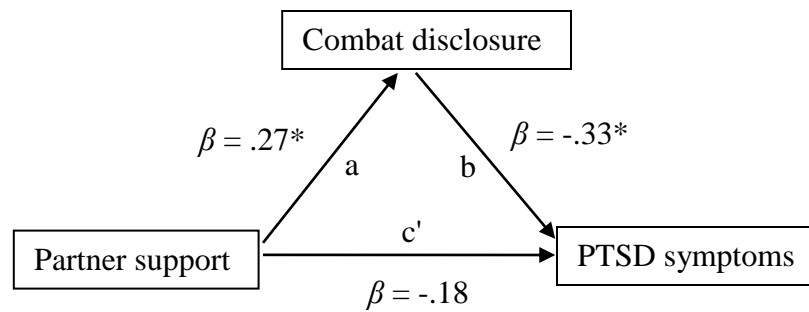


Figure 1. Mediation Analyses. Path models for the direct (a) and indirect (b) effects of partner support on PTSD symptom severity through combat disclosure, based on Baron and Kenny's (1986) mediation model.

* $p < .05$

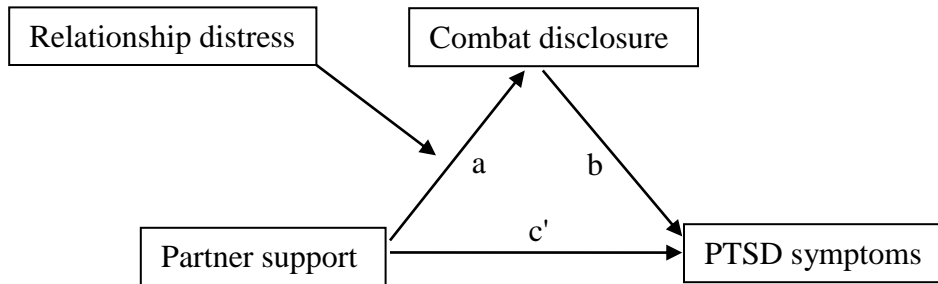


Figure 2. Relationship Distress Moderated Mediation. Path model for moderated mediation effect for relationship distress on the indirect effect of partner support on PTSD symptom severity through combat disclosure.

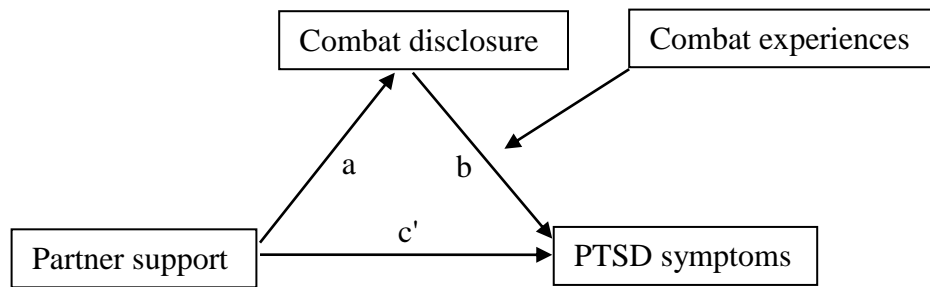


Figure 3. Number of Combat Experiences Moderated Mediation. Path model for moderated mediation effect for the number of combat experiences on the indirect effect of partner support on PTSD symptom severity through combat disclosure.

Table 1

Combat Disclosure Scale

1. I avoid discussing deployment experiences with my partner.	1	2	3	4
2. There are things that I have done during my deployment that I have intentionally kept from my partner.	1	2	3	4
3. There are things that I experienced during deployment that I will not discuss with my partner.	1	2	3	4
4. I find it hard to discuss my feelings related to combat with my partner.	1	2	3	4
5. I find it difficult to talk about my combat experience with my partner.	1	2	3	4
6. I am uncomfortable discussing some aspects of my combat experience with my partner.	1	2	3	4

Note. Participants rate their agreement with each of the statements on a scale from 1 to 4:

1 = Strongly Disagree; 2 = Disagree; 3 = Agree; and 4 = Strongly Agree. The first 3 items assess the disclosure of deployment experiences more broadly, whereas the remaining 3 items assess disclosure of combat-related experiences specifically

Table 2

Correlations

	1	2	3	4
1. PTSD symptoms	–			
2. Partner support	-.36**	–		
3. Combat disclosure	-.38**	.27*	–	
4. Relationship distress	.29*	-.51**	-.29*	–
5. Combat experiences	.37**	-.09	-.23	.18

Note. PTSD = posttraumatic stress disorder.

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

Table 3

Summary of Regression Results Including both Direct and Indirect Effects

Path/effect	<u>Regression Results</u>		95%
	β	SE	Confidence Interval
c (PS \rightarrow PTSD)	-.36*	.38	[-2.00, -0.48]
a (PS \rightarrow CD)	.27*	.16	[0.04, 0.67]
b (CD \rightarrow PTSD)	-.33*	.36	[-1.71, -0.27]
c'	-.18	-.18	[-1.64, 0.24]
a x b (indirect effect)	-.11*	.06	[-0.90, -0.05]
Relationship distress	-.29*	.21	[-0.91, -0.09]
Combat experiences	-.23	.12	[-0.47, 0.02]

Note. PS = partner support, PTSD = Posttraumatic stress symptom severity, CD = combat disclosure. Reported confidence intervals are centered around unstandardized regression coefficients. The confidence interval for the indirect effect was estimated using a bootstrapping method whereas the regression coefficient was estimated using the Sobel test (1982).

* $p < .05$