

Relationship Distress in Partners of Combat Veterans: The Role of Partners' Perceptions of Posttraumatic Stress Symptoms

Keith D. Renshaw

George Mason University

Catherine M. Caska

University of Utah

Partners of combat veterans with posttraumatic stress disorder report elevated relationship and psychological distress, but little is known about the mechanisms by which such distress develops. In two separate samples, we examined partners' perceptions of veterans' PTSD symptoms, with a specific focus on the simultaneous associations of partners' distress with their perceptions of veterans' reexperiencing, withdrawal/numbing, and hyperarousal symptom clusters. The first sample consisted of 258 partners of Operation Enduring- and Iraqi Freedom-era veterans who completed questionnaires. The second sample consisted of 465 partners of Vietnam-era veterans who completed interviews as part of the National Vietnam Veterans Readjustment Study. In both samples, path analyses revealed that, when examined simultaneously, partners' perceptions of withdrawal/numbing symptoms were associated with greater distress, but perceptions of reexperiencing symptoms were unrelated to psychological distress and significantly associated with lower levels of relationship distress. Given the cross-sectional nature of the data in both samples, there are multiple plausible interpretations of the results. However, the pattern is consistent with an attributional model of partner distress,

whereby partners are less distressed when symptoms are more overtly related to an uncontrollable mental illness. Potential clinical implications are discussed.

Keywords: marital relationship; military personnel; posttraumatic stress disorders; war

RESEARCH HAS FIRMLY DOCUMENTED that spouses and romantic partners of veterans with combat-related posttraumatic stress disorder (PTSD) experience significant relationship and psychological distress in comparison to both the general population and partners of combat veterans without PTSD (see reviews by Monson, Taft, & Fredman, 2009; Renshaw, Blais, & Caska, 2011). Furthermore, the degree of partners' distress is positively correlated with the severity of veterans' PTSD symptoms, even when veterans have subclinical levels of PTSD symptoms (Monson et al., 2009; Renshaw, Blais, et al., 2011). Given that nearly two million U.S. service members have deployed to combat theaters over the past decade (Tanielian & Jaycox, 2008), and that 10 to 25% of these service members suffer from significant symptoms of PTSD within 3 months of their return (Hoge et al., 2004; Milliken, Auchterlonie, & Hoge, 2007; Tanielian & Jaycox, 2008), partners of veterans with postdeployment symptoms of PTSD represent a rapidly growing vulnerable population.

In addition to their own distress, partners of veterans with PTSD can play a significant role in the postdeployment psychological functioning of the combat veterans themselves. A recent study revealed that, of veterans with PTSD, those with higher relationship satisfaction were more likely to

This study was funded by the first author's start-up funds, provided by the University of Utah. The authors wish to thank Camila S. Rodrigues for her assistance with the data collection and management involved in this study, as well as the Utah National Guard Chaplains and the Utah National Guard/Reserve service members and families for their support of this project.

Address correspondence to Keith D. Renshaw, Department of Psychology, George Mason University, 4400 University Drive, MSN 3F5, Fairfax, VA 22030; e-mail: krenshaw@gmu.edu.

0005-7894/43/416-426/\$1.00/0

© 2011 Association for Behavioral and Cognitive Therapies. Published by Elsevier Ltd. All rights reserved.

seek therapy than those with lower relationship satisfaction (Meis, Barry, Kehle, Erbes, & Polusny, 2010). Furthermore, interpersonal disruptions, such as breakups and divorce, are cited as the most common precipitant to suicide attempts in service members (Kuehn, 2009). Finally, perceived social support is strongly negatively correlated with PTSD (Brewin, Andrews, & Valentine, 2000; Ozer, Best, Lipsey, & Weiss, 2003), and in adulthood, one of the primary potential sources of such support is romantic relationships or marriages (e.g., Carstensen, 1992). Thus, interventions for partners of combat veterans with PTSD have the potential not only to alleviate partners' distress, but also to buffer against exacerbations of veterans' symptoms and distress. However, for such interventions to be maximally effective, an understanding of the mechanisms by which such partners become distressed is needed.

Some research has attempted to gain such an understanding by examining the associations of specific types of PTSD symptoms with relationship distress. PTSD is described in the current *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) as having three primary clusters of symptoms: reexperiencing or intrusion (e.g., recurring dreams about the event, physiological reactivity to event-related stimuli), avoidance and withdrawal/numbing (e.g., avoiding trauma-related stimuli, emotional numbing), and hyperarousal (e.g., irritability, feeling on edge). Empirical research has further suggested that the avoidance and withdrawal/numbing symptoms may, in fact, be distinct from each other (e.g., King & King, 1994; Yufik & Simms, 2010). Studies that have examined the unique associations of these clusters with relationship distress have found that it is the avoidance and withdrawal/numbing cluster (particularly the withdrawal/numbing component, when it is analyzed separately from trauma-specific avoidance) that is most clearly associated with such distress (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004; Evans, McHugh, Hopwood, & Watt, 2003; Nelson Goff, Crow, Reisbig, & Hamilton, 2009; Riggs, Byrne, Weathers, & Litz, 1998; Solomon, Dekel, & Zerach, 2008; Taft, Schumm, Panuzio, & Proctor, 2008). These findings have generally been interpreted as reflective of the interpersonal nature of withdrawal and emotional numbing, which may lead to decreased communication and intimacy (e.g., Solomon et al., 2008).

Although informative, this literature is limited by the almost exclusive use of veterans' self-report of relationship distress, with only one study utilizing partners' report (Nelson Goff et al., 2009). Furthermore, all studies used veterans' self-report of PTSD

symptoms, as opposed to partners' own perceptions of veterans' symptoms. Partners' reports of veterans' symptoms provide a window into partners' overall perceptions of veterans' functioning. Such perceptions may reflect a number of different variables, including partners' objective observations of behavior, partners' interpretations of communication from veterans, relationship difficulties, partners' own biases, and partners' understanding of and attributions for veterans' behavior (among others). With regard to this latter possibility, Renshaw, Blais, et al. (2011) recently proposed a model of partners' distress, whereby partners' understanding of and attributions for combat veterans' PTSD symptoms and associated behaviors play an important role in the extent to which partners develop distress. Specifically, these authors postulated that partners may be less distressed by symptoms and behaviors if they are able to interpret them as reflective of a disorder (like PTSD) that was caused by something external (like combat experiences). Without such an understanding, partners may be prone to misinterpret these symptoms as reflective of another problem, like a change in the veterans' feelings toward them.

This attributional model is in line with a broader cognitive-behavioral interpersonal model of PTSD, which suggests that trauma survivors' behaviors, emotions, and cognitions interact with each other and, in turn, affect and are affected by the same constructs in their partners (Monson, Fredman, & Dekel, 2010; Monson, Stevens, & Schnurr, 2004). These effects can take place directly (e.g., survivors' behavior leads to a cognitive interpretation and subsequent emotion in the partner) or indirectly, via an effect on relationship factors (e.g., survivors' withdrawal leads to reduced intimacy in the relationship, which impacts partners' individual emotions, cognitions, and behaviors). The attributional model posited by Renshaw, Blais, et al. (2011) is an example of a specific individual cognitive process within partners that can, in turn, affect partners' emotional reaction to trauma survivors' symptoms.

This overall attributional model is also consistent with a model of relatives' responses to schizophrenia that was originally posited by Greenley (1986) and Hooley (1987). These researchers independently hypothesized that relatives would be more understanding of positive rather than negative symptoms of schizophrenia, because positive symptoms (e.g., hallucinations, delusions) are more easily discerned as due to a valid mental illness and out of an individual's control. On the other hand, negative symptoms can be misinterpreted as general character flaws or as problems that should be controllable by the individual. Such hypotheses were consistent with social psychological research showing that problems seen as

out of an individual's control evoke more pity and less blame than problems viewed as under a person's control (e.g., Weiner, Perry, & Magnusson, 1988). Hooley, Richters, Weintraub, and Neale (1987) found partial support for this model in a sample of spouses of individuals with schizophrenia. In that study, spouses of individuals with predominantly positive symptoms reported significantly higher marital satisfaction than spouses of individuals with predominantly negative symptom profiles. With regard to combat-related PTSD, two recent studies have examined partners' perceptions of veterans' deployment experiences as an index of their attributions for veterans' symptoms (Renshaw & Campbell, *in press*; Renshaw, Rodrigues, & Jones, 2008). Both studies revealed that the association of veterans' symptoms with partners' distress was strongest when partners perceived that veterans had experienced lower levels of traumatic deployment experiences, whereas the association was smaller or even negligible when partners perceived that veterans had experienced higher levels of traumatic events. From an attributional perspective, it is possible that perceptions of extensive combat exposure provided partners with a viable explanation for veterans' symptoms, which thereby weakened the association of such symptoms with partners' distress.

The present paper offers another step in evaluating partners' perceptions of veterans' symptoms and experiences in relation to their own psychological and relationship distress. We examined partners' perceptions of specific types of PTSD symptoms in veterans. For partners who may be unfamiliar with the specific diagnostic criteria for PTSD, reexperiencing symptoms are likely most easily identified as a reaction to a traumatic event (as these symptoms are overtly associated with the event itself), much in the same way that positive symptoms of schizophrenia are fairly readily identified as part of a mental illness (Greenley, 1986; Hooley, 1987). On the other hand, symptoms of withdrawal and emotional numbing and symptoms of hyperarousal are more general in nature and not overtly tied to the traumatic event itself, similar to negative symptoms of schizophrenia. Thus, from an attributional perspective, reexperiencing symptoms should be most easily interpreted as disorder related and out of an individual's control and, therefore, associated with lower levels of distress. Conversely, symptoms of withdrawal/numbing and hyperarousal should be more prone to being misinterpreted by partners as reflective of something beyond a disorder (e.g., believing their partner's feelings toward them had changed) and more controllable; thus, they should be associated with higher levels of distress.

Based on this reasoning, we hypothesized that, when partners' perceptions of all PTSD symptom clusters were examined as simultaneous predictors of

partners' distress, perceptions of withdrawal/numbing symptoms (and possibly hyperarousal symptoms) would be positively associated with partners' relationship and psychological distress, whereas perceptions of reexperiencing symptoms would be unrelated or even inversely related to partners' distress. Given that all clusters are associated with each other, we did not make similar predictions regarding the bivariate associations of perceptions of each cluster with partners' distress (because perceptions of reexperiencing symptoms would be associated with overall PTSD symptom severity, which would still be positively associated with partners' distress). Rather, we predicted differential associations of perceptions of reexperiencing symptoms with distress only when the variance due to perceptions of withdrawal/numbing and hyperarousal was controlled. We examined these hypotheses in two separate samples. The first was a sample of 258 couples, in which one member had served in the Utah National Guard/Reserves (NG/R) during Operations Enduring Freedom and Iraqi Freedom (OEF/OIF), the recent conflicts in Afghanistan and Iraq. The second consisted of 465 couples who participated in the National Vietnam Veterans Readjustment Study (NVVRS), a study of Vietnam-era veterans that was conducted in the late 1980s. The use of both of these samples allowed us to determine whether patterns of findings replicated across fairly large samples from two separate combat eras.

Study I

METHOD

Participants

The sample consisted of 258 spouses or cohabiting partners of Utah NG/R service members. Almost all couples (98.4%) were married, with an average length of marriage of 9.72 years ($SD=8.03$). Partners' mean age was 32.64 ($SD=8.25$), and the majority were female (98.4%) and White (91.7%). A total of 5.4% had a high school degree or less, 49.6% had some college education or an associate's degree, and 27.6% had a bachelor's or advanced degree. Of the service members, 218 had deployed overseas at least once between 2001 and 2008 (54.3% to Iraq, 16.7% to Afghanistan, 6.6% to other areas in the Middle East, and 7.0% elsewhere). The average length of these deployments was approximately 9 months ($M=9.92$, $SD=4.13$). Of the remaining 40 service members, seven reported at least one overseas deployment prior to 2001, with the other 33 reporting no history of overseas deployments.

Measures

PTSD Checklist (PCL). The PCL (Weathers, Litz, Herman, Huska, & Keane, 1993) is a 17-item, 5-

point Likert scale that assesses how much respondents have been bothered by PTSD symptoms within the past month. Each item reflects one of the 17 symptoms of PTSD as defined in the DSM-IV (American Psychiatric Association, 1994). Thus, in addition to an overall severity score, one can derive scores for any cluster of symptoms by summing the items within that cluster. The PCL demonstrates high internal consistency, test-retest reliability, and convergent validity (Norris & Hamblen, 2004).

In this study, partners completed an adapted version of the PCL instructing them to rate their perception of the service members' PTSD symptoms by indicating "how much you think your spouse has been bothered by that problem in the past month." Prior investigations have established good internal consistency and convergent validity for this method of assessing spousal perceptions of partners' PTSD (Gallagher, Riggs, Byrne, & Weathers, 1998; Renshaw et al., 2008). Internal consistencies of the overall scale (Cronbach's $\alpha = .95$) as well as the individual cluster subscales (Cronbach's $\alpha = .92$ for reexperiencing, .89 for avoidance and withdrawal/numbing, and .88 for hyperarousal) in this sample were also strong. When breaking down the avoidance and withdrawal/numbing cluster separately, internal consistency remained adequate (.75 for the three-item avoidance cluster, .89 for the four-item withdrawal/numbing cluster).

Depression Anxiety Stress Scale (DASS). The DASS (Lovibond & Lovibond, 1995) is a 42-item, 4-point Likert-type measure of depression, anxiety, and stress over the prior week. This scale and its respective subscales have shown good test-retest reliability, convergent and divergent validity, and internal consistency (Antony, Bieling, Cox, Enns, & Swinson, 1998). Internal consistency in this sample was also strong (Cronbach's $\alpha = .96$).

Relationship Assessment Scale (RAS). The RAS (Hendrick, 1988) is a seven-item, 5-point Likert-type measure assessing satisfaction in various types of close relationships. Partners in the current study completed the RAS in reference to their marital/romantic relationships with the combat veterans. Total scores are calculated by averaging all item responses, including two that are reverse scored. The standard use of the RAS is that higher scores represent greater relationship satisfaction. However, for ease of interpretation, we reverse coded the RAS, so that higher scores represent greater relationship distress. Internal consistency, item reliabilities, test-retest reliability, factorial validity, and convergent validity of this measure have proven to be high (Hendrick, 1988; Renshaw, McKnight, Caska, &

Blais, 2011). Internal consistency in this sample was high (Cronbach's $\alpha = .90$).

Procedure

All procedures were approved by the University of Utah Institutional Review Board and the Utah National Guard Judge Advocate General. Recruitment occurred during eight voluntary postdeployment workshops for Utah NG/R service members and their partners held between September 2007 and August 2008. Although initially targeted toward service members who had recently returned from overseas deployments, the workshops were opened to any current members of the Utah NG/R. Recruitment for the current study occurred at couple-based, marriage-enrichment workshops. All participants completed written, informed consent prior to participating, and members of each couple were requested to complete the questionnaires independently from one another to prevent biased or inaccurate responses. Participants either returned their completed packets at the end of the weekend-long workshop or were provided postage to mail them back when finished, at which point they were reimbursed \$10 per person. Approximately 490 couples attended the workshops, and a total of 258 full couples participated in the study, for an overall participation rate of 52.7%.

Analytic Plan

Basic associations of partners' perceptions of veterans' symptoms with partners' psychological and relationship distress were assessed via bivariate correlations. To evaluate the simultaneous associations of perceived symptom clusters with psychological and relationship distress in partners, path analysis via structural equation modeling software (Amos 17.0.0) was used. Specifically, partners' perceptions of reexperiencing/intrusion symptoms, avoidance/numbing symptoms, and hyperarousal symptoms were entered as exogenous (predictor) variables, with partners' total DASS score and the reverse-scored RAS as endogenous (outcome) variables. A fully saturated model was explored, with direct paths specified from each PTSD cluster variable to each partner distress variable, covariances specified among all error terms for PTSD cluster variables, and covariances specified among the error terms for the two partner distress variables (see Figure 1). An additional analysis with the avoidance cluster and withdrawal/numbing cluster modeled separately was also analyzed in this fashion (see Figure 2).

RESULTS

The correlations among the partner perception variables and partner distress variables are shown in Table 1. All correlations were significantly positive,

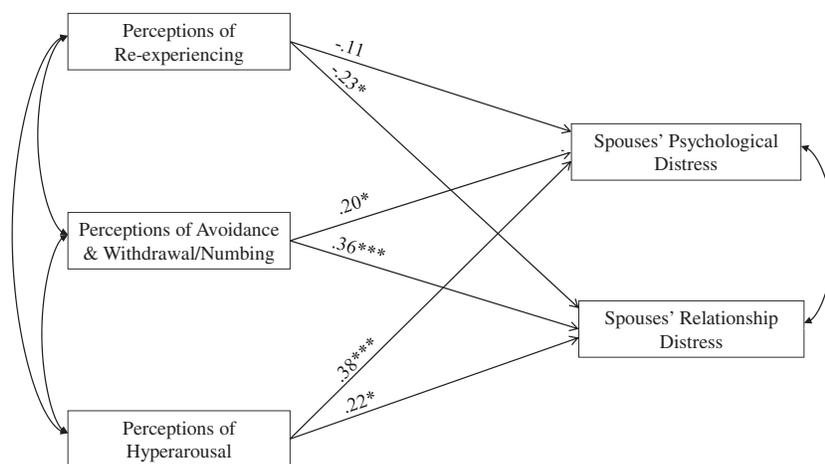


FIGURE 1 Path model of partners' perceptions of service members' symptoms (three clusters) and partner distress from Study 1. Note. Values represent standardized path estimates; only values for primary structural paths are shown. * $p < .05$, ** $p < .01$, *** $p < .001$.

with large effect sizes within the partner perception variables and within the two partner distress variables, and small to medium effect sizes for correlations of the perception variables with the two distress variables. Thus, as expected, partners' perceptions of any types of PTSD symptoms were associated with their endorsement of greater relationship and psychological distress at the bivariate level.

However, the path estimates from the path analysis showed a different pattern. When examined simultaneously from the perspective of three clusters (see Figure 1), partners' perceptions of avoidance and numbing/withdrawal symptoms and of hyperarousal symptoms were still significantly positively associated with both relationship distress and psychological distress in partners. However,

partners' perceptions of veterans' reexperiencing symptoms were nonsignificantly related to psychological distress and significantly *negatively* associated with relationship distress.

When examined as four clusters, with avoidance and withdrawal/numbing modeled separately (see Figure 2), partners' perceptions of withdrawal/numbing were significantly positively associated with psychological and relationship distress, whereas perceptions of trauma-specific avoidance were unrelated to distress. Also, partners' perceptions of hyperarousal remained significantly associated with greater psychological distress, but not relationship distress (but note that the effect size was nearly identical in both analyses). Finally, partners' perceptions of veterans' reexperiencing symptoms were

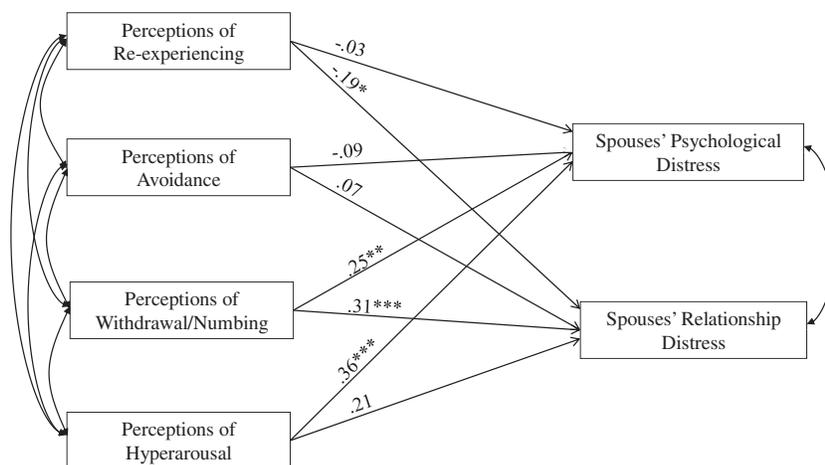


FIGURE 2 Path model of partners' perceptions of service members' symptoms (four clusters) and partner distress from Study 1. Note. Values represent standardized path estimates; only values for primary structural paths are shown. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table 1
Correlations Among Partners' Perceptions of Veterans' PTSD Symptom Clusters and Partners' Distress (Study 1)

	1	2	2a	2b	3	4
1. Perceived Reexperiencing						
2. Perceived Avoidance/Numbing	.69***					
2a. Perceived Avoidance	.71***	.87***				
2b. Perceived Withdrawal/Numbing	.58***	.94***	.66***			
3. Perceived Hyperarousal	.78***	.79***	.71***	.73***		
4. Partners' Psychological Distress (DASS)	.32***	.42***	.30***	.43***	.46***	
5. Partners' Relationship Distress (reverse-scored RAS)	.18**	.36***	.27***	.38***	.32***	.40***

Note. PTSD=posttraumatic stress disorder; DASS=Depression Anxiety Stress Scale; RAS=Relationship Assessment Scale.

** $p < .01$, *** $p < .001$.

again nonsignificantly related to psychological distress and significantly negatively associated with relationship distress.

Study 2

METHOD

Participants

The sample consisted of 465 spouses or cohabiting partners of Vietnam-era veterans. All were participants in the Family Interview Component of the NVVRS. The NVVRS was a nationally representative survey that examined the prevalence of PTSD and readjustment problems among Vietnam-era veterans in the late 1980s (Kulka et al., 1990). Partners' ages ranged from 21 to 73 ($M=40.0$, $SD=7.44$). Most partners (80.6%) were female; 19% were African American, 18.6% were Hispanic American, and 62.4% were White/other. Ninety-four percent of the couples were married, and the mean length of marriage was 14.44 years ($SD=7.18$).

Measures

Mississippi Scale for Combat-Related PTSD. The Mississippi Scale (Keane, Caddell, & Taylor, 1988) is a 35-item, 5-point Likert scale that assesses symptoms of PTSD based on the criteria and associated features outlined in the *Diagnostic and Statistical Manual of Mental Disorders—Third Edition* (DSM-III; American Psychiatric Association, 1980), with four subscales that assess (a) reexperiencing and situational avoidance, (b) withdrawal and emotional numbing, (c) arousal and lack of control, and (d) self-persecution (this latter subscale was not used in the present study). Although this measure combines reexperiencing and trauma-specific avoidance into one subscale, only 2 of the 11 items on the subscale actually assess avoidance (one focuses on use of alcohol or drugs, and the other focuses on avoiding reminders of the military). Thus, the subscale primarily taps symptoms related to reexperiencing, similar to the subscale from the PCL-M (see Study 1). We therefore retained the standard subscales from the Mississippi Scale in our

analyses, rather than attempting to model trauma-specific avoidance separately.

The Mississippi Scale has high internal consistency, test-retest reliability, and discriminant validity (Keane et al., 1988). Partners completed a modified version that asked about their perceptions of veterans' PTSD. Taft, King, King, Leskin, and Riggs (1999) reported a Cronbach's alpha of .94 for the partner perception version of the Mississippi Scale in this sample, and partners' perceptions were highly correlated with veterans' self-report. In addition, the Cronbach's alphas for the individual subscales assessing reexperiencing (.89), withdrawal and numbing (.86), and arousal and lack of control (.80) were all adequate. Thus, partners' responses on the Mississippi Scale appeared to be a reliable and valid assessment of their perceptions of veterans' PTSD clusters. It should be noted that Taft and colleagues utilized extrapolated scores on the partner perception version of this scale, regardless of the number of items missing, by averaging their responses on all items to which they responded. In contrast, we used either complete data or missing data estimation at the item level in our analyses (see below). In the current sample, the mean score for partners' perceptions of veterans' symptoms (based on complete data) was 64.38 ($SD=21.38$).

Marital Problems Index (MPI). The MPI (Jordan et al., 1992) consists of 16 Likert-style items that assess marital/relationship problems and dissatisfaction. Items in this index were selected for the NVVRS from several measures, such as the Dyadic Adjustment Scale (Spanier, 1976). The MPI was initially created by Jordan and colleagues in a study of partners' marital and psychological functioning, and it demonstrated good internal consistency and convergent validity. Total scores were calculated by averaging responses to each of the 16 items, with higher scores indicating more marital problems or relationship dissatisfaction. In this sample, partners' mean MPI score was 1.99 ($SD=0.87$).

Psychological Distress Index (PDI). The PDI (Renshaw, Rodebaugh, & Rodrigues, 2010) consists of 25 Likert-style items that assess psychological distress in partners of veterans. Similar to the MPI, the NVVRS did not include complete measures of psychological distress for partners of veterans; rather, interview questions were derived from a number of such measures. Thus, Renshaw and colleagues derived the PDI, which demonstrated good internal consistency, factorial validity, and convergent validity. Example items include “During the past year, how often have you felt depressed?” and “During the past year, how often have you felt anxious?” (see Renshaw et al., 2010, for the complete measure). Total scores represent partners’ average response on all 25 items, with higher scores reflecting greater distress. In this sample, partners’ mean score on the PDI was 2.03 ($SD=0.62$).

Procedure

Participants in the NVVRS were randomly selected from the military records of all veterans who served in the Vietnam War. From this larger group ($n=3,016$), a subsample of 466 veterans and their partners were selected to participate in the family component of the NVVRS. One participant had no data entered for the partner perception version of the Mississippi Scale, leaving 465 participants. Veterans were interviewed for approximately 5 hours on several different topics related to their combat experiences, postwar experiences, family adjustment, and psychological functioning. Partners were interviewed for approximately 1 hour, with a focus on the partners’ perception of family and marital adjustment (for more details, see Jordan et al., 1992; Kulka et al., 1990).

Analytic Plan

As in Study 1, bivariate correlations of partners’ perceptions of veterans’ symptoms with partners’ psychological and relationship distress were first assessed, followed by the same basic path analysis, using the cluster scores yielded from the Mississippi Scale. However, only 120 partners (25.8%) provided complete data with regard to their perceptions of veterans’ PTSD symptoms on the Mississippi Scale. The number of missing items per partner varied from 0 to 21 ($M=3.38$, $SD=3.98$), and 35.7% of the partners had more than 3 items missing. Although some items were answered by nearly all partners (e.g., more than 99% answered an item about whether the veteran was “an easy-going, even-tempered person”), other items were left unanswered by many (e.g., 44.7% failed to answer an item about whether the veteran had more close friends before joining the military, and 29.9% failed to answer an item about whether the veteran thought there were some things that he or she did in the military that could never be

discussed with anyone). Thus, although the overall amount of missing data for the entire scale was less than 10%, the amount of missing data for some individuals and on some items was substantial. Moreover, there were significant differences between partners with complete data and those with missing data on this measure. Specifically, partners with complete data endorsed significantly fewer relationship problems on the MPI, $F(1, 462)=4.30$, $p<.05$, and less psychological distress on the PDI, $F(1, 454)=7.80$, $p<.01$, and they were also married to veterans who endorsed lower levels of symptom severity on the Mississippi Scale, $F(1, 458)=10.57$, $p=.001$.

Because of these differences, and because it is impossible to know whether missing items were missing at random or missing not at random (see Schafer & Graham, 2002, for a full discussion of missing data), the path analysis was conducted twice, once using only the subset of individuals who provided complete data on the partner perception measure, and once using the full sample and estimating missing data via maximum likelihood. For those with complete data, path analyses were conducted simply by using total scale and subscale scores as observed variables. For the sample as a whole (i.e., including those with incomplete data), scores for partners’ perceptions of each cluster of veterans’ PTSD symptoms (reexperiencing/avoidance, withdrawal/numbing, and arousal/lack of control) were estimated as separate latent variables, using all items on the cluster subscales as observed indicators of the latent variable. For example, the latent variable for reexperiencing/avoidance included the 11 items from this subscale as observed indicators (note that, because trauma-specific avoidance is only assessed by two items, this cluster was not modeled separately in additional analyses, as was done in Study 1). Because the structural model was still saturated in terms of associations among exogenous and endogenous variables, any model-fit indices from this model were indicative of the fit of the measurement model only. Given that items were likely to have associations with items on other subscales, model fit was likely to be modest at best. This approach was still used, because the primary purpose of these analyses was to determine whether path estimates were similar to those obtained when using only participants with complete data for partner perceptions, and those obtained in Study 1.

RESULTS

The correlations among the partner perception variables and partner distress variables are shown in Table 2. As in Study 1, all correlations were strongly positive, with mostly large effect sizes. Thus, when

Table 2
Correlations Among Partners' Perceptions of Veterans' PTSD Symptom Clusters and Partners' Distress (Study 2)

	1	2	3	4
1. Perceived Reexperiencing/Situational Avoidance				
2. Perceived Withdrawal/Numbing	.72*** (n=152)			
3. Perceived Arousal/Lack of Control	.74*** (n=238)	.80*** (n=165)		
4. Partners' Psychological Problems Index	.44*** (n=262)	.54*** (n=187)	.45*** (n=317)	
5. Partners' Marital Problems Index	.42*** (n=264)	.60*** (n=190)	.59*** (n=323)	.60*** (n=456)

Note. Sample sizes are provided for each correlation, due to the large amount of missing data for some of the partner perception cluster subscales; PTSD=posttraumatic stress disorder.

*** $p < .001$.

examined bivariate, partner perceptions of any types of PTSD symptoms were again associated with their endorsement of greater relationship and psychological distress.

Also similar to Study 1, the results of the path analyses revealed a different pattern. No fit indices were able to be generated for the path analysis using only observed subscale scores from participants with complete data, as the model was saturated. The fit indices for the model with all participants reflected the fit of the measurement model only, which (as expected) was marginal to poor: RMSEA=.06, CFI=.87, TLI=.85. Path estimates from both models were similar (see Figure 3), and the overall significance of each path was largely consistent with those from Study 1. Once again, partners' perceptions of veterans' reexperiencing/avoidance symptoms were not significantly associated with psychological dis-

stress, but significantly associated with *lower* levels of relationship distress. Also, partners' perceptions of veterans' withdrawal/numbing symptoms were again significantly positively associated with greater psychological and relationship distress in partners. In contrast with results from Study 1, partners' perceptions of arousal/lack of control symptoms were significantly positively associated with their relationship distress, but nonsignificantly related to their psychological distress.

Discussion

The current paper explored how psychological and relationship distress in partners of combat veterans were associated with their perceptions of veterans' reexperiencing symptoms, emotional numbing/withdrawal, and hyperarousal symptoms. We examined these associations in two separate samples, one

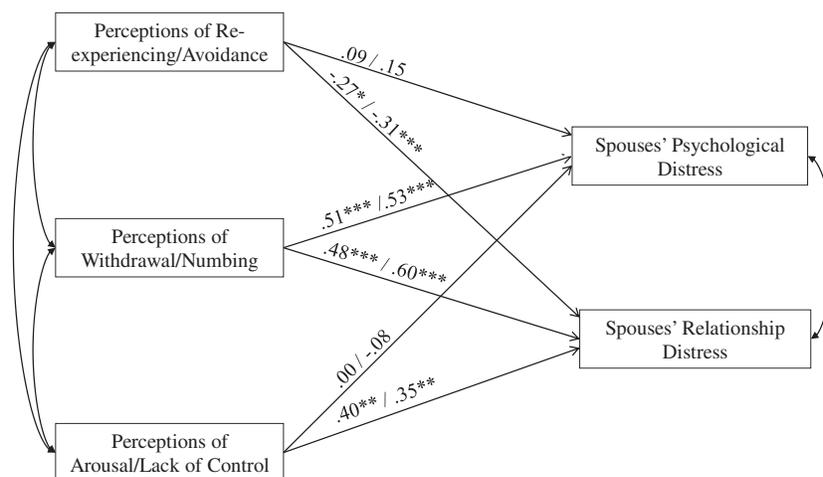


FIGURE 3 Path model of partners' perceptions of service members' symptoms and partner distress from Study 2. Note. Values represent standardized path estimates; values on the left represent the estimates from the path analysis with the subset of participants who provided complete data; values on the right represent the estimates from the structural equation model using all participants, with missing data estimated via full information maximum likelihood; only values for primary structural paths are shown. * $p < .05$, ** $p < .01$, *** $p < .001$.

with partners of veterans from the recent era of conflicts centered around Afghanistan and Iraq and a second with partners of veterans from the Vietnam era. As expected, perceptions of all types of symptoms had significantly positive correlations with partners' psychological and relationship distress. In other words, when looking at simple bivariate associations, partners who perceive greater levels of any type of symptoms in veterans also report greater personal psychological distress and greater distress in their marriages with those veterans.

However, multivariate analyses revealed a more complex picture. When accounting for perceptions of all PTSD symptoms simultaneously, the more general symptoms of withdrawal/numbing were consistently associated with greater relationship and psychological distress in partners. Perceptions of hyperarousal symptoms also demonstrated positive associations with relationship and/or psychological distress in both samples. In contrast, in both samples, partners' perceptions of veterans' reexperiencing symptoms were unrelated to their psychological distress and related to *lower* levels of relationship distress. In other words, in the context of perceptions of other symptoms of PTSD, partners who perceived more reexperiencing symptoms in veterans reported less distress in their relationships with those veterans.

As these are cross-sectional, self-report data, no definitive causal conclusions can be drawn. However, this pattern is consistent with our a priori hypotheses based on the attributional perspective of spousal distress (Renshaw, Blais, et al., 2011). This perspective suggests that general symptoms (e.g., social withdrawal) are more easily misinterpreted by partners as potentially reflective of veterans' feelings about them or their relationship and, thus, more distressing. On the other hand, trauma-specific symptoms are more clearly related to a mental disorder that is tied to a defined event, so these symptoms are less likely to be interpreted as a potential threat to the relationship as a whole. The fact that perceptions of reexperiencing symptoms were related to lower levels of relationship distress only, not partners' individual psychological distress, is also in line with this model. The attributional perspective does not assert that reexperiencing symptoms would be less stressful or difficult for partners, only that they might be less threatening to the relationship.

At the same time, other explanations of these findings are equally plausible. For instance, reexperiencing symptoms are more private and internal than are symptoms of withdrawal/numbing and hyperarousal. Thus, partners may be least able to witness reexperiencing symptoms, relative to the other symptoms of PTSD. Given this, it may be that partners in higher-functioning relationships are

more aware of veterans' reexperiencing symptoms than partners in more distressed relationships, due to increased levels of communication about internal experiences (which, for veterans, would include reexperiencing symptoms). Certainly, other explanations for this pattern also exist.

Although we cannot definitively determine the reason for the pattern of findings from the present data, they do add to our understanding of distress in partners of those with PTSD. It is important to emphasize that the exercise of determining the mechanisms by which such partners become distressed is not simply an intellectual one. Mechanisms of distress represent potential intervention targets; thus, this area of research has clear clinical implications. Our results suggest that, when working with a couple in which one individual has PTSD, one course of action to consider is helping the partner gain a greater awareness of all symptoms the survivor is experiencing, and connecting these symptoms to the traumatic event itself. Indeed, new couples-based treatments for PTSD have recently emerged, including cognitive-behavioral conjoint therapy for PTSD (Monson et al., 2004) and integrative behavioral couples therapy for PTSD (Erbes, Polusny, MacDermid, & Compton, 2008). These treatments place a strong emphasis on psychoeducation regarding the totality of PTSD, specifically including the emotional numbing/withdrawal and hyperarousal symptoms, as well as the facilitation of communication about intimate, internal experience to increase intimacy within couples. Our data support the potential benefit of these efforts.

The clinical implications of these findings are perhaps even further reaching for military couples. In the military, one can actually predict the occurrence of traumatic events during combat deployments, as over 90% of service members deployed during OEF/OIF have reported exposure to events that would qualify as traumatic, according to DSM criteria (e.g., Hoge et al., 2004). That overwhelming statistic, in combination with the knowledge that the vast majority of individuals who experience a trauma have at least a transient reaction that includes primary symptoms of PTSD (e.g., Riggs, Rothbaum, & Foa, 1995; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992), leads one to expect that most service members returning from combat deployments will experience at least some PTSD-like symptoms. If the negative interpersonal impact of these symptoms can be lessened to some degree by increasing partners' understanding of them as part of a larger, normative reaction to traumatic deployment events, partners may have greater capacity to provide support to veterans. Given that perceived social support is strongly associated with lower incidence and severity of PTSD after a trauma (Brewin et al., 2000; Ozer et

al., 2003), such spousal support could potentially reduce the number of service members who go on to develop PTSD.

There are a number of limitations that must be considered when interpreting these results. First and foremost, these analyses represent only proxies for direct tests of the attributional model. The results were consistently in line with the attributional theory across two large samples, but there was no direct assessment of partners' understanding of symptoms as part of a disorder and, as noted, other interpretations of these findings are plausible. Research that directly investigates the constructs associated with this model is needed. In addition, the data in both samples were cross-sectional; thus, no conclusions regarding causality of effects can be drawn. Also, the data are all from the perspective of the partners. Although this perspective contributes to an area of research that predominantly relies on veterans' report only, dyadic analyses and incorporation of objective measures in this area of research could provide further information regarding these constructs. Also, the sample from Study 1 was highly homogenous, as partners were mostly female, White, and from the same geographic region. Furthermore, participants in that sample were recruited via optional relationship enrichment workshops, potentially leading to a biased sample. The fact that the same pattern of results was detected in a second, more representative sample helps address this issue, but further research with more generalizable samples can contribute to our knowledge. Finally, there was a large amount of missing data for the key construct of partner perceptions in Study 2. Although we addressed this problem with estimation of missing data and replication across two samples, the results may have been impacted, particularly if data were missing not at random.

As the number of partners of combat veterans grows, so does the need for research regarding the mechanisms by which such partners become distressed or are resilient against such distress. As noted above, information regarding these mechanisms can help inform the development of interventions for those partners, and such interventions could benefit both partners and the combat veterans themselves. Based on the results presented here, the attributional model of spousal distress appears to be a tenable model. Further empirical work can lead to a more comprehensive, refined understanding of this population.

References

- American Psychiatric Association (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: Author.
- American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed, text rev.). Washington, DC: Author.
- Antony, M. M., Bieling, P. J., Cox, B. J., Enns, M. W., & Swinson, R. P. (1998). Psychometric properties of the 42-item and 21-item versions of the Depression Anxiety Stress Scales in clinical groups and a community sample. *Psychological Assessment, 10*, 176–181. doi:10.1037/1040-3590.10.2.176.
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology, 68*, 748–766. doi:10.1037/0022-006X.68.5.748.
- Carstensen, L. L. (1992). Social and emotional patterns in adulthood: Support for socioemotional selectivity theory. *Psychology and Aging, 7*, 331–338. doi:10.1037/0882-7974.7.3.331.
- Cook, J. M., Riggs, D. S., Thompson, R., Coyne, J. C., & Sheikh, J. I. (2004). Posttraumatic stress disorder and current relationship functioning among World War II ex-prisoners of war. *Journal of Family Psychology, 18*, 36–45. doi:10.1037/0893-3200.18.1.36.
- Erbes, C. R., Polusny, M. A., MacDermid, S., & Compton, J. S. (2008). Couple therapy with combat veterans and their partners. *Journal of Clinical Psychology, 64*, 972–983. doi:10.1002/jclp.20521.
- Evans, L., McHugh, T., Hopwood, M., & Watt, C. (2003). Chronic posttraumatic stress disorder and family functioning of Vietnam veterans and their partners. *Australian and New Zealand Journal of Psychiatry, 37*, 765–772. doi:10.1080/j.1440-1614.2003.01267.x.
- Gallagher, J. C., Riggs, D. S., Byrne, C. A., & Weathers, F. W. (1998). Female partners' estimations of male veterans' combat-related PTSD severity. *Journal of Traumatic Stress, 11*, 367–374. doi:10.1023/A:1024411422586.
- Greenley, J. R. (1986). Social control and expressed emotion. *Journal of Nervous and Mental Disease, 174*, 24–30. doi:10.1097/00005053-198601000-00004.
- Hendrick, S. S. (1988). A generic measure of relationship satisfaction. *Journal of Marriage and the Family, 50*, 93–98. doi:10.2307/352430.
- Hoge, C. W., Castro, C. A., Messer, S. C., McGurk, D., Cotting, D. I., & Koffman, R. L. (2004). Combat duty in Iraq and Afghanistan, mental health problems, and barriers to care. *New England Journal of Medicine, 351*, 13–22. doi:10.1056/NEJMoa040603.
- Hooley, J. M. (1987). The nature and origins of expressed emotion. In K. Halweg & M. J. Goldstein (Eds.), *Understanding major mental disorder: The contribution of family interaction* (pp. 176–194). New York: Family Process Press.
- Hooley, J. M., Richters, J. E., Weintraub, S., & Neale, J. M. (1987). Psychopathology and marital distress: The positive side of positive symptoms. *Journal of Abnormal Psychology, 96*, 27–33. doi:10.1037/0021-843X.96.1.27.
- Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., & Weiss, D. S. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology, 60*, 916–926. doi:10.1037/0022-006X.60.6.916.
- Keane, T. M., Caddell, J. M., & Taylor, K. L. (1988). Mississippi Scale for Combat-Related Posttraumatic Stress Disorder: Three studies in reliability and validity. *Journal of Consulting and Clinical Psychology, 56*, 85–90. doi:10.1037/0022-006X.56.1.85.
- King, L. A., & King, D. W. (1994). Latent structure of the Mississippi Scale for Combat-Related Post-Traumatic Stress Disorder: Exploratory and higher-order confirmatory

- factor analyses. *Assessment*, 1, 275–291. doi:10.1080/0969594940010301.
- Kuehn, B. M. (2009). Soldier suicide rates continue to rise: Military, scientists work to stem the tide. *Journal of the American Medical Association*, 301, 1111–1113. doi:10.1001/jama.2009.342.
- Kulka, R. A., Schlenger, W. E., Fairbank, J. A., Hough, R. L., Jordan, B. K., Marmar, C. R., & Weiss, D. S. (1990). *Trauma and the Vietnam war generation: Report of the findings from the National Vietnam Veterans Readjustment Study*. New York: Brunner/Mazel.
- Lovibond, S. H., & Lovibond, P. F. (1995). *Manual for the Depression Anxiety Stress Scales* (2nd ed.). Sydney: Psychology Foundation.
- Meis, L. A., Barry, R. A., Kehle, S. M., Erbes, C. R., & Polusny, M. A. (2010). Relationship adjustment, PTSD symptoms, and treatment utilization among coupled National Guard soldiers deployed to Iraq. *Journal of Family Psychology*, 24, 560–567. doi:10.1037/a0020925.
- Milliken, C. S., Auchterlonie, J. L., & Hoge, C. W. (2007). Longitudinal assessment of mental health problems among active and reserve component soldiers returning from the Iraq war. *Journal of the American Medical Association*, 298, 2141–2148. doi:10.1001/jama.298.18.2141.
- Monson, C. M., Fredman, S. J., & Dekel, R. (2010). Posttraumatic stress disorder in an interpersonal context. In J. G. Beck (Ed.), *Interpersonal processes in the anxiety disorders: Implications for understanding psychopathology and treatment* (pp. 179–208). Washington, DC: American Psychiatric Association. doi:10.1037/12084-007.
- Monson, C. M., Stevens, S. P., & Schnurr, P. P. (2004). Cognitive-behavioral couple's treatment for posttraumatic stress disorder. In T. A. Corales (Ed.), *Focus on posttraumatic stress disorder research* (pp. 251–280). Hauppauge, NY: Nova Science.
- Monson, C. M., Taft, C. T., & Fredman, S. J. (2009). Military-related PTSD and intimate relationships: From description to theory-driven research and intervention development. *Clinical Psychology Review*, 29, 707–714. doi:10.1016/j.cpr.2009.09.002.
- Nelson Goff, B. S., Crow, J. R., Reisbig, A. M. J., & Hamilton, S. (2009). The impact of soldiers' deployment to Iraq and Afghanistan: Secondary traumatic stress in female partners. *Journal of Couple and Relationship Therapy*, 8, 291–305. doi:10.1080/15332690903246085.
- Norris, F. H., & Hamblen, J. L. (2004). Standardized self-report measures of civilian trauma and PTSD. In J. P. Wilson & T. M. Keane (Eds.), *Assessing psychological trauma and PTSD* (pp. 63–102). (2nd ed.). New York: Guilford Press.
- Ozer, E. J., Best, S. R., Lipsey, T. L., & Weiss, D. S. (2003). Predictors of posttraumatic stress disorder and symptoms in adults: A meta-analysis. *Psychological Bulletin*, 129, 52–73. doi:10.1037/0033-2909.129.1.52.
- Renshaw, K. D., Blais, R. K., & Caska, C. M. (2011). Distress in spouses of combat veterans: The importance of interpersonally based cognitions and behaviors. In S. M. Wadsworth & D. Riggs (Eds.), *Risk and resilience in U.S. military families* (pp. 69–84). New York: Springer. doi:10.1007/978-1-4419-7064-0_4.
- Renshaw, K. D., & Campbell, S. B. (in press). Combat veterans' symptoms of PTSD and partners' distress: The role of partners' perceptions of veterans' deployment experiences. *Journal of Family Psychology*.
- Renshaw, K. D., McKnight, P., Caska, C. M., & Blais, R. K. (2011). The utility of the Relationship Assessment Scale in multiple types of relationships. *Journal of Social and Personal Relationships*, 28, 435–447. doi:10.1177/0265407510377850.
- Renshaw, K. D., Rodebaugh, T. L., & Rodrigues, C. S. (2010). Psychological and marital distress in spouses of Vietnam veterans: Importance of spouses' perceptions. *Journal of Anxiety Disorders*, 24, 743–750. doi:10.1016/j.janxdis.2010.05.007.
- Renshaw, K. D., Rodrigues, C. S., & Jones, D. H. (2008). Psychological symptoms and marital satisfaction in spouses of Operation Iraqi Freedom veterans: Relationships with spouses' perceptions of veterans' experiences and symptoms. *Journal of Family Psychology*, 22, 586–594. doi:10.1037/0893-3200.22.3.586.
- Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress*, 11, 87–101. doi:10.1023/A:1024409200155.
- Riggs, D. S., Rothbaum, B. O., & Foa, E. B. (1995). A prospective examination of symptoms of posttraumatic stress disorder in victims of nonsexual assault. *Journal of Interpersonal Violence*, 10, 210–214. doi:10.1177/0886260595010002005.
- Rothbaum, B. O., Foa, E. B., Riggs, D., Murdock, T., & Walsh, W. (1992). A prospective examination of post-traumatic stress disorder in rape victims. *Journal of Traumatic Stress*, 5, 455–475. doi:10.1002/jts.2490050309.
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7, 147–177. doi:10.1037/1082-989X.7.2.147.
- Solomon, Z., Dekel, R., & Zerach, G. (2008). The relationships between posttraumatic stress symptom clusters and marital intimacy among war veterans. *Journal of Family Psychology*, 22, 659–666. doi:10.1037/a0013596.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 38, 15–28. doi:10.2307/350547.
- Taft, C. T., King, L. A., King, D. W., Leskin, G. A., & Riggs, D. S. (1999). Partners' ratings of combat veterans' PTSD symptomatology. *Journal of Traumatic Stress*, 12, 327–334. doi:10.1023/A:1024780610575.
- Taft, C. T., Schumm, J. A., Panuzio, J., & Proctor, S. P. (2008). An examination of family adjustment among Operation Desert Storm veterans. *Journal of Consulting and Clinical Psychology*, 76, 648–656. doi:10.1037/a0012576.
- Tanielian, T., & Jaycox, L. H. (2008). *Invisible wounds of war: Psychological and cognitive injuries, their consequences, and services to assist recovery*. Santa Monica, CA: RAND Corporation.
- Weathers, F. W., Litz, B. T., Herman, D. S., Huska, J. A., & Keane, T. M. (1993, October). *The PTSD Checklist (PCL): Reliability, validity, and diagnostic utility*. Paper presented at the meeting of the International Society for Traumatic Stress Studies, San Antonio, TX.
- Weiner, B., Perry, R., & Magnusson, J. (1988). An attributional analysis of reactions to stigmas. *Journal of Personality and Social Psychology*, 55, 738–748. doi:10.1037/0022-3514.55.5.738.
- Yufik, T., & Simms, L. J. (2010). A meta-analytic investigation of the structure of posttraumatic stress disorder symptoms. *Journal of Abnormal Psychology*, 119, 764–776. doi:10.1037/a0020.

RECEIVED: February 1, 2011

ACCEPTED: September 29, 2011

Available online 14 October 2011