

Psychological Distress and Burden Among Female Partners of Combat Veterans With PTSD

Gina Manguno-Mire, PhD,*† Frederic Sautter, PhD,*† Judith Lyons, PhD,†‡ Leann Myers, PhD,§ Dana Perry, MS,† Michelle Sherman, PhD,†|| Shirley Glynn, PhD,¶ and Greer Sullivan, MD, MPH#†

Abstract: Psychological distress among cohabitating female partners of combat veterans with posttraumatic stress disorder (PTSD) was examined in a cross-sectional study using a modified version of the Health Belief Model. A convenience sample of 89 cohabitating female partners of male veterans in outpatient PTSD treatment was interviewed by telephone using a structured interview. Partners endorsed high levels of psychological distress with elevations on clinical scales at or exceeding the 90th percentile. Severe levels of overall psychological distress, depression, and suicidal ideation were prevalent among partners. Multivariate analyses revealed that perceived threat, recent mental health treatment, and level of involvement with veterans predicted global partner psychological distress. Partner burden was predicted by partner self-efficacy, perceived threat, barriers to mental health treatment, and partner treatment engagement. These findings are compelling since they demonstrate that partners of veterans with combat-related PTSD experience significant levels of emotional distress that warrant clinical attention. Psychological distress and partner burden were each associated with a unique combination of predictors, suggesting that although these constructs are related, they have distinct correlates and potentially different implications within the family environment. Future research should examine these constructs separately using causal modeling analyses to identify modifiable targets for interventions to reduce psychological distress among partners of individuals with PTSD.

Key Words: PTSD, psychological distress, marital relationships, partner burden, spouses, family factors.

(*J Nerv Ment Dis* 2007;195: 144–151)

*VA South Central (VISN 16) Mental Illness Research, Education, and Clinical Center, Little Rock, Arkansas; †Department of Psychiatry and Neurology, Tulane Health Sciences Center, New Orleans, Louisiana; ‡G. V. "Sonny" Montgomery Veterans Affairs Medical Center, Jackson, Mississippi; §Tulane University School of Public Health and Tropical Medicine, New Orleans, Louisiana; ||Oklahoma City Veterans Affairs Medical Center, Oklahoma City, Oklahoma; ¶Veterans Affairs Greater Los Angeles Health Care System at West Los Angeles, University of California at Los Angeles, Los Angeles, California; and #Department of Psychiatry, University of Arkansas for Medical Sciences, Little Rock, Arkansas.

Supported in part by the VA South Central (VISN 16) Mental Illness Research, Education, and Clinical Center.

Send reprint requests to Gina Manguno-Mire, PhD, Tulane Health Sciences Center School of Medicine, 1440 Canal Street TB-53, New Orleans, LA 70112.

Copyright © 2007 by Lippincott Williams & Wilkins

ISSN: 0022-3018/07/19502-0144

DOI: 10.1097/01.nmd.0000254755.53549.69

Living with an individual with a severe mental illness (SMI) contributes to increased rates of psychological distress among family members (see Baronet, 1999, for a cogent review). This robust finding has been demonstrated among family members of schizophrenic adults (Oldridge and Hughes, 1992) and those with unipolar (Jeglic et al., 2005) and bipolar depression (Perlick et al., 2001), obsessive-compulsive disorder, and agoraphobia (Renshaw et al., 2000). Family members, and in particular spouses, of individuals with chronic posttraumatic stress disorder (PTSD) also demonstrate significant negative psychological sequelae.

Studies conducted among veterans with chronic combat-related PTSD suggest that the core symptoms of PTSD, as well as the associated behavioral and interpersonal deficits, have a disruptive effect on intimate relationships and the psychological functioning of spouses or domestic partners (Jordan et al., 1992; Kulka et al., 1990; Verbosky and Ryan, 1988). Research has shown that veterans with PTSD report greater family and marital instability, higher rates of relationship distress, and more negative interpersonal relationships than combat veterans without PTSD. Intimate partners of PTSD veterans exhibit higher rates of psychological symptoms and poorer psychological adjustment than partners of veterans without PTSD in both longitudinal and cross-sectional studies (Beckham et al., 1996; Calhoun et al., 2002).

One concept that has received considerable research attention in the family mental health literature is caregiver burden. Caregiver burden, a term originally used to describe the burden or strain experienced by caregivers of older chronically ill adults and of patients with dementia, has been extensively studied (Dunkin and Anderson-Hanley, 1998) and recently applied to examine the impact of mental illness on family caregivers (Baronet, 1999). Caregiver burden is associated with poorer psychological outcomes and decreased quality of life among caregivers across a number of physical (Beckham et al., 1995; Draper et al., 1992) and mental illnesses (Loukissa, 1995). According to a review by Baronet, variables found to relate to the occurrence of burden include sociodemographic variables (age, relationship, living situation), illness and symptom variables (illness severity), and caregiver psychological and environmental resources (coping resources, self-efficacy). Research among spouses of veterans with chronic combat-related PTSD has demonstrated high levels of burden (Beckham et al., 1996; Calhoun et al., 2002) similar to those found among caregivers of individuals with

dementia and chronic schizophrenia (Saunders, 2003). In the present study, we refer to caregiver burden as *partner burden* to emphasize the dyadic role that spouses play relative to caregiving and highlight the multiple roles that spouses/partners can occupy.

Psychological adjustment of the veteran's immediate family members is an important variable to consider because of the wealth of data indicating the importance of the overall family environment in recovery and relapse among those with SMI (Loukissa, 1995; Saunders, 2003) and chronic PTSD (Schnurr et al., 2004). Increased conflict and hostility, including high levels of expressed emotion (EE), in the patient's environment have been associated with poorer treatment outcomes for SMI (Hooley and Teasdale, 1989; King and Dixon, 1996; Perlick et al., 2001; Pilling et al., 2002) and PTSD (Tarrier et al., 1999). Psychological distress in partners has also been found to be inversely related to marital satisfaction (Chadiha et al., 2003; Pretorius, 1997). Since domestic partners are likely to be a source of social support for individuals with PTSD and the inclusion of significant others in a patient's mental health treatment has been found to improve outcome (Galovski and Lyons, 2003; Sheehan, 1987; Monson et al., 2003), research that examines partner psychological functioning is sorely needed. By increasing our understanding of the psychosocial variables that influence recovery from traumatic stress, we can inform the development of effective treatment strategies for patients with PTSD and their families.

As part of a larger study using the Health Belief Model (HBM; Strecher et al., 1997) to predict partner involvement in veteran mental health treatment (Sautter et al., 2006), we sought to identify variables involved in psychological distress and burden among domestic partners of veterans with combat-related PTSD. Our goal was to explore the relationship between psychological distress and partner burden in the context of specific family and treatment factors. Based on the prevailing literature on psychological distress and caregiver burden in partners, we predicted that partner psychological distress would be associated with decreased contact with veterans (indicating high levels of behavioral avoidance), greater perceived burden, and a high degree of perceived threat. We expected that veteran PTSD severity, cognitive appraisals, such as perceived threat and low partner self-efficacy, and family demographic characteristics, such as financial strain, would be related to increased partner burden.

METHODS

Participants

The sample targeted cohabitating female partners of male combat veterans with PTSD. Veterans were recruited from outpatient PTSD programs at the New Orleans VA Medical Center (NOVAMC) and the Jackson VA Medical Center (Jackson VAMC) from July to November 2002. Veterans were considered to have a diagnosis of PTSD if they had a documented chart diagnosis of PTSD and a documented service-connected disability rating for PTSD from the Department of Veterans Affairs. Because we were interested in collecting data from partners about perceived benefits and barriers to treatment, we selected active outpatients, who

were defined as having at least four outpatient visits for PTSD treatment within the 12 months prior to the study. All inclusion criteria were verified through a review of the veteran's medical record. Based on these criteria, 100 partners were recruited, resulting in a final sample of 89 cohabitating female partners. Eleven veterans refused study participation.

Partners were exclusively female and had an average age of 52 years ($SD = 5.8$). Ninety-two percent were married, and almost all had completed high school (41%) or some college (45%). The sample of participants was predominantly Caucasian (51%). The average number of household members was three ($SD = 1.1$), and the annual household income average was \$37,500 ($SD = \$18,700$). A financial index was computed as a measure of financial strain defined as *annual income/household number*. The average financial index for participants in the present study was \$14,226 ($SD = \$9,013$). Results were collapsed across sites because χ^2 and t test statistics revealed no significant statistical differences between the sites on any of the study variables.

Procedure

We conducted a cross-sectional study in which we targeted for recruitment all male combat veterans in outpatient PTSD programs at the NOVAMC and the Jackson VAMC from July to November 2002. Ninety-four veterans were recruited from the NOVAMC, and 17 veterans were recruited from the Jackson VAMC. Recruitment differences were a result of the different recruitment procedures necessitated by site-specific Institutional Review Board requirements. At the NOVAMC, veterans were given a flyer describing the study and eligibility requirements during a clinic visit. Interested veterans provided contact information (i.e., name, last four digits of their social security number, telephone number, and preferred time to be called). Eleven veterans refused to participate at the time of the follow-up telephone call, yielding a total sample of 72 veterans from the NOVAMC. At the Jackson VAMC, a brief information sheet about the study was offered to veterans during a clinic visit. To participate, both the veteran and his partner were required to sign and mail back an authorization form in which they consented to be called and provided their telephone number and a preferred time to be contacted. Preaddressed, postage-paid envelopes were provided. Seventeen veterans and their partners returned study forms and were evaluated for study eligibility. Eligibility criteria for participants and demographic information for veterans were obtained through a medical record review, and a final list of eligible participants was sent to the VISN 16 Mental Illness Research Education and Clinical Center (MIRECC) headquarters in Little Rock, Arkansas. To facilitate and standardize data coordination and collection across both sites, interviewer training, telephone interviewing, and data entry were coordinated by MIRECC personnel in Little Rock. All telephone interviews were conducted by the same interviewer. The average administration time for the interview was 45 minutes; partners were reimbursed \$20 for completing the interview. Although the primary focus of the study was on interviewing partners, veterans were also interviewed to allow for a self-report of current PTSD symptoms.

TABLE 1. Descriptive Statistics and Scale Reliabilities

| Scale | Mean | SD | α |
|--|-------|------|----------|
| Veteran PTSD symptom severity (PCL-M) | 68.69 | 10.3 | 0.93 |
| Partner psychological adjustment | | | |
| BSI-18 GSI | 26.3 | 16.4 | 0.89 |
| BSI-18 Anxiety | 10.0 | 5.9 | 0.87 |
| BSI-18 Depression | 9.0 | 6.1 | 0.89 |
| BSI-18 Somatization | 7.4 | 6.0 | 0.85 |
| Partner burden (BI) | 45.6 | 16.2 | 0.91 |
| Partner mental health treatment (past 6 mo) | | | |
| Yes | 28% | — | |
| No | 72% | — | |
| Veteran-partner involvement | 19.3 | 5.1 | 0.74 |
| Partner appraisal of threat | 6.0 | 3.1 | 0.81 |
| Partner self-efficacy | 5.3 | 2.2 | 0.54 |
| Partner treatment engagement | 16.4 | 8.1 | 0.73 |
| Perceived barriers to mental health treatment | 6.2 | 5.4 | 0.67 |
| Perceived benefits to partner treatment engagement | 10.4 | 2.0 | 0.54 |

Materials

A telephone survey instrument, the Partner Experiences with PTSD Survey (PEPS), was developed to collect information from partners about their psychological symptoms, mental health treatment, and involvement in the veteran's mental health treatment. Descriptive statistics and reliability estimates for subscales are presented in Table 1. The PEPS was a synthesis of three published instruments (PTSD Checklist—Military Version [PCL-M], Burden Inventory [BI], Brief Symptom Inventory-18 [BSI-18]) and seven study-specific scales developed by a team of content experts from the Department of Veteran Affairs and VA South Central MIRECC who have extensive experience in PTSD treatment and family therapy. Structured instrument pretests with veterans and family members were conducted to identify and resolve issues related to respondent burden in regard to overall survey length, participant comprehension, and item and scale order. Pretests were followed by formal debriefing sessions conducted separately with interviewers and respondents to elicit concerns related to respondent burden, interview length, face validity, and item wording and clarity.

The PCL-M (Weathers et al., 1993) was administered by telephone to veterans to obtain an index of current PTSD symptoms. The PCL-M is a 17-item self-report scale that provides an estimate of PTSD severity using a 5-point scale. Scores of 50 are generally used to suggest a clinical diagnosis of PTSD, and the average score for Vietnam veterans is 64 (Ruggiero et al., 2003). Extensive psychometric data supporting its use are available (Blanchard et al., 1996).

The BI (Zarit et al., 1980) is a 22-item self-report inventory used to measure subjective and objective caregiver burden over the past 30 days on a 5-point scale, with higher scores reflective of greater caregiver burden. The BI was originally developed to evaluate perceived burden among caregivers of Alzheimer patients but has been adapted for use

in various populations, including spouses/partners of veterans with chronic PTSD (Becker et al., 1996; Calhoun et al., 2002). BI items are worded in a nonspecific manner and consist of general questions tapping the overall concept of caregiver burden (e.g., “. . . how often have you felt strained when you are around your partner?”), and it has adequate psychometric data supporting its use (Zabora et al., 2001; Zarit et al., 1980).

The BSI-18 (Derogatis, 2000), a shortened version of the 53-item BSI (Derogatis, 1992), was selected to decrease respondent burden. The BSI-18 measures psychological distress experienced during the past 7 days and consists of an overall distress scale (Global Severity Index [GSI]) and three subscales measuring depressive, anxiety, and somatic symptoms. The BSI-18 is used routinely and has adequate psychometric data supporting its use (Derogatis, 2000).

Study-specific scales were created using the expanded HBM (Strecher et al., 1997) as a guide, and these are detailed below. Only scales that state a specific time period for respondents to consider were time-anchored; other scales refer to items without reference to a particular period of time.

Veteran-Partner Involvement

Seven items evaluated the extent to which partners reported being involved in the veterans' lives during the past month. Item 1 (“We are interested in knowing how deeply involved you are with your partner. By ‘involved,’ we mean the extent to which you and your partner share your time and personal lives, and the extent to which you support each other. How deeply are you involved with [veteran's name]?”) reflected a global rating of general and emotional involvement and was rated on a 4-point scale ranging from “very involved” (4) to “not involved” (1). Items 2 to 7 reflected the occurrence of specific behaviors during the past month (e.g., given partner a ride, done household chores together, or participated in social activities together) and were rated for frequency from “every day” (5) to “not at all” (1). Both types of items were included to provide global as well as specific anchors for the Veteran-Partner Involvement scale.

Partner Appraisal of Threat

Partners were asked to evaluate the level of threat that the veteran's emotional difficulties posed in three separate areas: (1) “How would you rate the degree of threat that your partner's emotional difficulties pose to your physical well-being?”; (2) “How would you rate the degree of threat that your partner's emotional difficulties pose to your emotional well-being?”; and (3) “How would you rate the degree of threat that your partner's emotional difficulties pose to your relationship with your partner?” using a 5-point scale ranging from “extremely high” (4) to “no threat” (0). An actual measure of physical violence was not included because we were primarily interested in the partner's appraisal of threat. Partners reporting high levels of perceived threat (score >2) by their partner were directed to their local VA for immediate clinical intervention.

Partner Self-Efficacy

Three items evaluated the degree of control that partners feel they have over the veteran's emotional difficulties and were rated on a 5-point scale ranging from "total control/ability" (5) to "no control/ability" (0). Items included (1) "How would you rate the degree of control or influence you have over your partner's emotional difficulties?"; (2) "How would you rate the degree of control or influence you have over the way your partner's difficulties affect you?"; and (3) "How would you rate your ability to cope with your partner's emotional difficulties?"

Partner Treatment Engagement

Partner treatment engagement was measured by 4 items that assessed the extent to which partners were involved in the veteran's PTSD treatment during the past 6 months. Partners were asked how often they (1) "helped the veteran attend his scheduled mental health appointments," (2) "helped the veteran take his psychiatric medication," (3) "communicated with the veteran's mental health providers," (4) "participated in therapy sessions with the veteran," (5) "talked to the veteran to encourage him to actively continue his treatment," and (6) "provided the veteran with emotional support and allowed him to talk about his emotional difficulties." Responses were rated on a 6-point scale ranging from 0 to 6 with 6 indicating "about every day" and 0 indicating "not at all."

Perceived Barriers to Partner Treatment Engagement

Seven items evaluated the degree to which specific obstacles prohibited involvement by partners in the veterans' PTSD treatment. Partners were asked the degree to which 7 factors (e.g., physical distance, work schedule, family responsibilities, communication difficulties, financial limitations, bureaucratic problems, and confusion or lack of information) made it difficult to assist veterans in getting help for their problems. Items were rated on a 5-point scale ranging from "an extremely serious problem" (4) to "no problem" (0).

Perceived Benefits of Veteran Treatment

Partners were asked how important they believed the following treatment opportunities were for veterans: (1) "psychotherapy or counseling sessions every 1–2 weeks," (2) "medication evaluations so that he can get medicine," and (3) "family therapy sessions that are available to both veterans and partners." Partners rated these items on a 5-point scale ranging from "extremely important" (4) to "not important at all" (0).

Partner Mental Health Treatment

Partners were asked, "In the last 6 months, how often have you received mental health treatment?" Responses were coded for frequency ranging from "about once a week" (5) to "not at all" (0).

Data Analytic Strategy

Scale mean imputation was performed to replace missing items. This method has been shown to be a reliable

TABLE 2. Spearman Correlations With Outcome Variables (Partner Psychological Distress and Partner Burden) Among Partners of Veterans With PTSD

| | Partner Distress | Partner Burden |
|---------------------------------|------------------|----------------|
| Veteran PTSD | 0.28** | 0.38** |
| Partner age | −0.14 | −0.22 |
| Veteran-partner involvement | −0.34** | −0.28** |
| Perceived threat | 0.54*** | 0.59*** |
| Partner self-efficacy | −0.33** | −0.36*** |
| Partner treatment engagement | 0.13 | 0.20 |
| Perceived barriers | 0.19 | 0.41*** |
| Perceived benefits | 0.27* | 0.25* |
| Partner mental health treatment | 0.27** | 0.10 |
| Partner distress | — | 0.67*** |
| Partner burden | 0.67*** | — |

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

procedure for accounting for missing data when using Likert scales (Sabel-Soteres, 2005). In the present study, the frequency of missing data was very low, and to be conservative, scale imputation was not used in cases in which more than 2 items were missing. The primary outcome variables were partner psychological distress, computed from the GSI scale of the BSI-18, and caregiver burden, defined as the total sum computed from the BI. Predictor variables included in the regression model included partner demographics (age, education, ethnicity, financial index, household size), veteran PTSD severity (total PCL-M score), veteran-partner involvement, partner mental health treatment, and conceptual variables from the HBM (perceived threat, partner self-efficacy, partner treatment engagement, perceived barriers, and perceived benefits). All PEPS Scale variables were defined as the sum of the scale with the exception of Mental Health treatment. Due to the infrequency with which partners received mental health treatment, partner mental health treatment was recoded into a dichotomous variable (any treatment/no treatment).

Spearman correlations, or Spearman point-biserial correlations where appropriate, were computed to evaluate the relationship between the outcome variables and possible predictors and are presented in Table 2. To examine the independent effects of these variables, multiple regression analyses were performed. Covariates univariately associated with any of the outcomes at $p < 0.20$ were retained as possible predictors in the subsequent multiple regression model. The first set of multiple regressions used the continuous forms of the outcome variables (partner psychological distress, partner burden, and summation score) in linear regression models. Stepwise regression methods were employed, with the retained covariates used as possible predictors. Interactions were also included as possible effects.

RESULTS

Partner Psychological Distress

Partners reported a high degree of psychological distress with average GSI scores at or above the 90th percentile. Individual subscales measuring anxiety, depressive, and so-

TABLE 3. Multiple Regression Analysis of Psychological Distress (GSI) Among Partners of Veterans With PTSD

| Variable | Adjusted | | | | | df |
|-------------------------|----------|------|----------------|----------------|--------|-------|
| | B | SE B | R ² | R ² | F | |
| Model | — | — | .44 | .42 | 21.6** | 3, 84 |
| Partner involvement | -0.53 | 0.27 | | | | |
| Perceived threat | 2.84 | 0.45 | | | | |
| Mental health treatment | 6.40 | 2.98 | | | | |

***p* < 0.001.

matic symptoms were also above the 90th percentile. Approximately 15% of partners reported recent suicidal ideation, and over 60% reported that their partner demonstrated a physical threat to their well being. Approximately one quarter of partners reported receiving some mental health treatment in the 6 months prior to the study.

Results of the linear multiple regression analysis are summarized in Table 3 and indicated that significant predictors of global psychological distress were veteran-partner involvement, perceived threat, and recent partner mental health treatment. Analysis of GSI scores indicated a trend that as veteran-partner involvement increased, GSI score decreased ($p = 0.059$). As perceived threat increased, GSI score increased ($p < 0.001$). Partners who had received mental health treatment in the past 6 months evidenced higher GSI scores by an average of 6.4 units ($p = 0.034$). There were no additional covariates entered into the model and no significant interaction terms.

Partner Burden

To evaluate the relationship of partner burden to demographic status, veteran symptoms, and cognitive variables, such as perceived threat and partner self-efficacy, a linear multiple regression analysis was employed. Results summarized in Table 4 indicated that several independent variables were statistically related to partner burden (i.e., veteran PTSD severity, partner treatment engagement, partner self-efficacy, perceived threat, and perceived barriers). Veteran PTSD severity ($p = 0.003$), partner treatment engagement ($p = 0.071$), and perceived threat ($p = 0.048$)

TABLE 4. Multiple Regression Analysis of Burden (BI) Among Partners of Veterans With PTSD

| Variable | Adjusted | | | | | df |
|------------------------------|----------|------|----------------|----------------|---------|-------|
| | B | SE B | R ² | R ² | F | |
| Model | — | — | .55 | .51 | 14.94** | 6, 75 |
| Veteran PCL score | 0.43 | 0.14 | | | | |
| Perceived threat | 0.55 | 0.77 | | | | |
| Perceived barriers | -0.16 | 0.51 | | | | |
| Partner self-efficacy | -2.01 | 0.67 | | | | |
| Partner treatment engagement | 0.29 | 0.16 | | | | |
| Threat*barriers | 0.16 | 0.08 | | | | |

***p* < 0.001.

were associated with increased partner burden. As partner self-efficacy increased, burden was found to decrease ($p = 0.034$). Main effects for threat and burden were qualified by a significant interaction term (threat*barriers), which indicated that increased perceived barriers to engagement in veteran mental health treatment functioned to accelerate the effect of greater perceived threat among partners.

DISCUSSION

Given the importance of environmental factors in recovery from exposure to traumatic stress, the present study sought to investigate psychological adjustment among cohabitating partners of veterans with PTSD. The primary aim of the study was to evaluate the applicability of a modified version of the HBM (Strecher et al., 1997) to psychological distress among female partners of veterans with combat-related PTSD. Because the extant literature suggests that the conceptual distinction between psychological distress and burden has become blurred (Brannan and Heflinger, 2001), we evaluated differential correlates of partner psychological distress and caregiver/partner burden derived from the HBM. Results supported the conceptualization of psychological distress and partner burden as related but with distinct correlates. Our findings are consistent with those reported by Brannan and Heflinger (2001) among caregivers of adolescents with SMI. Brannan and Heflinger (2001) found that symptom severity of patients was strongly related to caregiver strain (i.e., burden), and their findings also demonstrated a lack of empirical support for a relationship between psychological distress and caregiver burden.

Partner Psychological Distress

Partner distress, including suicidal ideation, was frequent among the sample of domestic partners in the present study, suggesting symptom severity that warrants clinical attention. Very few partners were receiving individual or conjoint therapy, although veterans were actively involved in ongoing outpatient care. It should be noted that partners with higher distress scores were more likely to have received recent mental health treatment. Elevated rates of psychological distress in partners of veterans with PTSD are consistent with research indicating that PTSD is associated with significant interpersonal problems and disturbances in social relationships and family functioning (Carroll et al., 1985; Jordan et al., 1992; Solomon et al., 1987). Social relationships have been found to play a moderating role in recovery from other mental illnesses, in particular depression, bipolar disorder, and schizophrenia. Marital discord, spouse's EE, and perceived spouse criticalness were all potent predictors of relapse in patients with major depression (Gerlsma and Hale, 1997; Hooley and Teasdale, 1989). Related work in traumatic stress is still in its infancy, but initial results reveal a similar picture. Higher rates of PTSD have been found among families characterized by low expressiveness, low cohesiveness, and high conflict (Westerlink and Giarratano, 1999). Work by Tarrier et al. (1999) demonstrated that civilians with PTSD who had key relatives who exhibited high levels of EE showed less treatment improvement. In addition, recent work by Monson et al. (2005) with veterans indicated that intimate

relationship functioning was associated with trauma-focused PTSD treatment outcome. As such, partner psychological distress and overall relationship quality may be an important variable to consider in the treatment of PTSD.

Findings indicated that perceived threat was associated with increased psychological distress in partners. Partners who believed that the veteran's emotional symptoms demonstrated a threat to the relationship or to their own emotional or physical well being reported increased distress. This is consistent with other findings in the anxiety literature demonstrating an association between cognitive variables, such as threat perception, risk estimation, and clinical anxiety (Williams et al., 1997). Systematic research using cognitive paradigms has yielded effective cognitive-behavioral techniques focused on reducing perceptual biases and may have applicability for the amelioration of psychological distress in partners of individuals with PTSD. Work among caregivers of stroke survivors also demonstrates a relationship between emotional distress and cognitive variables, such as threat appraisal, self-esteem, and low benefit appraisal (Bakas and Burgener, 2002).

Cognitive coping abilities, as reflected by estimates of partner self-efficacy, were not found to moderate the relationship between perceived threat and partner psychological distress. Self-efficacy has been related to decreased distress among caregivers of stroke patients and patients with dementia (Bakas and Burgener, 2002; Coon et al., 2003). One potential explanation for the negative finding between self-efficacy and distress may be that the presence of interpersonal violence within the relationship may impair and overwhelm personal coping resources. A limitation of the present study is that the perception of threat found in the present study may represent the presence of an actual physical threat, which was not examined. Interpersonal violence is prevalent in the relationships of combat veterans with PTSD. Byrne and Riggs (1996) found that 42% of the 50 Vietnam veterans studied had engaged in at least one act of violence against their partner in the previous year, while 92% engaged in at least one act of verbal aggression in the preceding year. The presence of physical or interpersonal violence experienced by partners is a significant clinical concern that should be addressed in future studies.

A trend was noted in that greater involvement with veterans was related to decreased psychological distress in partners. One explanation for this finding may be that increased involvement (i.e., participation in shared activities) with veterans reflects increased dyadic or family cohesion, which has been associated with improved psychological outcomes and increased quality of life in families of psychiatric patients (Canive et al., 1995; Garrison et al., 1997; Kager et al., 2000; King and Dixon, 1996) and physically ill children (Salewski, 2003; Sloper, 2000). In addition, partners who are more involved with their husbands may benefit from the buffering effects of social support, which have been postulated as a coping resource and stress-reduction mechanism (Keane et al., 1985; King et al., 1998; Pretorius, 1997). Avoidance symptoms in veterans are negatively correlated with family cohesion and marital adjustment (Hendrix et al.,

1998). Avoidance symptoms, particularly emotional numbing, have also been found to inhibit intimacy and contribute to relationship dysfunction (Riggs et al., 1998). One possible explanation of the finding that greater involvement with veterans was associated with less distress is that increased involvement between veterans and partners may serve to reduce psychological distress through the direct or indirect influences of social support. Given that PTSD can be conceptualized as a "disorder of avoidance," interventions targeting behavioral avoidance in patients with PTSD may have a positive impact on social functioning and partner psychological adjustment. Ongoing studies are presently being conducted to examine the effectiveness of a manualized intervention focused on decreasing behavioral avoidance in couples where the veteran has chronic PTSD (Sautter and Thompson, 2005).

Partner Burden

Several studies have found high rates of caregiver burden among caregivers of chronically mentally ill persons. Caregiver burden is typically conceptualized as the objective difficulties (e.g., financial strain) associated with caring for the chronically ill, as well as the subjective problems associated with caregiver demands (e.g., emotional strain; Price and Stevens, 2005). Recently, researchers have begun to examine the construct of burden as it relates to PTSD. Hankin et al. (1993) have conceptualized PTSD as a "long-term disease of fluctuating course which places stress upon the caregiving significant partner, similar to what is experienced among couples adjusting to a chronic disease of later life" (Hankin et al., 1993, p. 2). Present findings suggest that the HBM is more applicable to the understanding of partner burden than partner distress.

Results indicate that partner burden was high and comparable to levels of caregiver burden experienced by relatives of individuals with severe physical limitations (Schneider et al., 1999). Multivariate analyses demonstrated the anticipated relationship between veteran PTSD symptoms and burden. PTSD severity has been shown to be a reliable predictor of partner burden and is consistent with prior research (Beckham et al., 1996; Calhoun et al., 2002).

Partner treatment engagement was shown to be weakly associated with partner burden. Partners who were more engaged in the veteran's treatment tended to report greater levels of burden. There are several potential reasons for this: (1) veterans with severe and debilitating PTSD symptoms may warrant greater treatment involvement from partners; (2) partners may become involved in the veteran's treatment to access resources for themselves or other family members; and (3) partners may become more involved in the veteran's treatment with the expectation that improvement in the veteran's symptoms will decrease the partner's own symptom burden.

The interaction between perceived threat and perceived barriers to mental health treatment demonstrated that as perceived barriers to treatment increased, the effect of threat became exaggerated and was associated with greater burden. Partners who feel they have limited access to the veteran's mental health care may experience uncertainty or lack of control over the veteran's symptoms, thereby exacerbating

the negative impact of PTSD on partners. Partners may also be acknowledging the inherent barriers to involvement in the veteran's care that are reflective of the dynamics of the VA model of care. Within the VA Healthcare setting, veterans control the flow of information and are de facto decision-makers about whether partners become involved in their care. Published and anecdotal data from recent pilot research (Sautter and Thompson, 2005) indicate that veterans are often reluctant to engage their families in their PTSD treatment even when it is offered to them (Glynn et al., 1999; Lyons and Root, 2001). Further evaluation of this dynamic is warranted since data suggest that including family members in treatment is beneficial (Lefley and Johnson, 1990) and is a component of several recent mental health treatment initiatives (President's New Freedom Commission on Mental Health Mental Health, 2003).

As predicted by the modified HBM and research with caregivers of patients with dementia, greater partner self-efficacy was associated with decreased partner burden, even after controlling for partner distress, perceived threat, and perceived barriers to mental health treatment. Data by Perlick et al. (2001) indicate that psychosocial factors, such as caregiver burden and emotional overinvolvement at baseline, mediated bipolar patients' medication adherence and overall outcomes 15 months posttreatment. The question remains unanswered as to whether partner burden or other psychosocial factors have a similar impact on individuals with PTSD. Family interventions that focus on improving partner self-efficacy may result in a reduction in partner burden, although this remains to be empirically examined. Recent data from a randomized study that employed a group skills-building approach with female caregivers of relatives with dementia demonstrated that self-efficacy can be enhanced following a discrete intervention and that self-efficacy was found to mediate overall treatment gains (Coon et al., 2003). It is possible that by reducing burden among partners of veterans with PTSD, improvements in veteran symptomatology may also be realized.

Study Limitations

The current study has several shortcomings. First, the convenience sampling method and modest study size limit the generalizability of our findings. Second, data are solely self-report and were collected from partners using scales created by the investigators specifically for the present study. Third, partners were cohabitating with combat veterans who had chronic PTSD stemming from distal trauma (average 30+ years). The complexity of studying family factors associated with the psychological adjustment of family members of veterans with intractable PTSD without information related to premorbid adjustment including potential risk/resilience factors (Yehuda, 1999) is a daunting challenge. Without prospective data, it is impossible to determine whether relationship difficulties present following exposure to trauma are consequences of PTSD and associated symptoms or perhaps reflect assortative mating strategies (Dufort et al., 1994). Finally, since the partners were all cohabitating with individuals involved in current mental health treatment, the present results may not generalize to a nontreatment-seeking population.

Despite the study's limitations, these data demonstrate that partners of veterans with PTSD are highly distressed and are receiving limited mental health interventions. This finding is important because it suggests that the family environment of veterans with PTSD may be very stressful, and stressful family environments have been shown to have a negative impact on PTSD treatment outcome (Tarrier et al., 1999). High levels of distress in partners of PTSD veterans may make it difficult for them to support PTSD treatment actively among veterans, although research needs to be conducted to understand exactly how distress in partners relates to treatment outcome. Future studies should include larger samples of participants with more recent trauma histories to overcome limitations of extant data. It is critical to the mental health needs of PTSD patients and their cohabitating partners that the causal relationship between PTSD symptoms and emotional distress in partners be clarified and understood further.

ACKNOWLEDGMENTS

We would like to express our appreciation to an anonymous reviewer for his/her thoughtful feedback on an earlier version of this manuscript.

REFERENCES

- Bakas T, Burgener SC (2002) Predictors of emotional distress, general health and caregiving outcomes in family caregivers of stroke survivors. *Top Stroke Rehabil.* 9:34–45.
- Baronet A-M (1999) Factors associated with caregiver burden in mental illness: A critical review of the research literature. *Clin Psychol Rev.* 19:819–841.
- Beckham JC, Burker EJ, Rice JR, Talton SL (1995) Patient predictors of caregiver burden, optimism and pessimism in rheumatoid arthritis. *Behav Med.* 20:171–178.
- Beckham JC, Lytle BL, Feldman ME (1996) Caregiver burden in partners of Vietnam war veterans with posttraumatic stress disorder. *J Consult Clin Psychol.* 64:1068–1072.
- Blanchard EB, Jones-Alexander J, Buckley TC, Forneris CA (1996) Psychometric properties of the PTSD Checklist (PCL). *Behav Res Ther.* 34:669–673.
- Brannan AM, Heflinger CA (2001) Distinguishing caregiver strain from psychosocial distress: Modeling the relationships among child, family and caregiver variables. *J Child Fam Stud.* 10:405–418.
- Byrne CA, Riggs DS (1996) The cycle of trauma: Relationship aggression in male Vietnam veterans with symptoms of posttraumatic stress disorder. *Violence Vict.* 11:213–225.
- Calhoun PS, Beckham JC, Bosworth HB (2002) Caregiver burden and psychological distress in partners of veterans with chronic posttraumatic stress disorder. *J Trauma Stress.* 15:205–212.
- Canive JM, Sanz-Fuentenebro J, Vazquez C, Qualls C, Fuentenebro F, Tuason VB (1995) Family environment predictors of outcome in schizophrenic patients in Spain: A nine-month follow-up study. *Acta Psychiatr Scand.* 92:371–377.
- Carroll EM, Rueger DB, Foy DW, Donahoe CP Jr (1985) Vietnam combat veterans with posttraumatic stress disorder: analysis of marital and cohabitating adjustment. *J Abnorm Psychol.* 94:329–337.
- Chadiha LA, Rafferty J, Pickard J (2003) The influence of caregiving stressors, social support and caregiving appraisal on marital functioning among African American wife caregivers. *J Marital Fam Ther.* 29:479–490.
- Coon DW, Steffen A, Sorocco K, Gallagher-Thompson D (2003) Anger and depression management: Psychoeducational skill training interventions for women caregivers of a relative with dementia. *Gerontologist.* 43:678–689.
- Derogatis LR (1992) *Brief Symptom Inventory (BSI)*. Minneapolis, Minnesota: NCS Pearson.

- Derogatis LR (2000) *Brief Symptom Inventory-18 (BSI-18)*. Minneapolis, Minnesota: Pearson Assessments.
- Draper BM, Poulos CJ, Colc AM, Poulos RG, Ehrlich R (1992) A comparison of caregivers for elderly stroke and dementia victims. *J Am Geriatr Soc.* 40:896–901.
- Dufort GG, Kovess V, Boivin JF (1994) Spouse similarity for psychological distress and well-being: A population study. *Psychol Med.* 24:431–447.
- Dunkin JJ, Anderson-Hanley C (1998) Dementia caregiver burden: A review of the literature and guidelines for assessment and intervention. *Neurology.* 51:S53–60.
- Galovski T, Lyons J (2003) Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran's family and possible interventions. *Aggress Viol Behav.* 28:141–165.
- Garrison CZ, Waller JL, Cuffe SP, McKeown RE, Addy CL, Jackson KL (1997) Incidence of major depressive disorder and dysthymia in young adolescents. *J Am Acad Child Adolesc Psychiatry.* 36:458–465.
- Gerlsma C, Hale WW (1997) Predictive power and construct validity of the Level of Expressed Emotion (LEE) scale: Depressed out-patients and couples from the general community. *Br J Psychiatry.* 170:520–525.
- Glynn SM, Eth S, Randolph ET, Foy D, Urbaitis M, Boxer L, Paz GG, Leong CB, Firman G, Salk JD, Katzman JW, Crothers J (1999) A test of behavioral family therapy to augment exposure for combat-related post-traumatic stress disorder. *J Consult Clin Psychol.* 67:243–251.
- Hankin CS, Abueg F, Gallagher-Thompson D, Murphy RT (1993, October) *Caregiver Stress: Conceptualizing Adaptation of Partners of Posttraumatic Stress Disorder Combat Veterans*. Paper presented at the International Society for Traumatic Stress Studies, San Antonio (TX).
- Hendrix CC, Erdmann MA, Briggs K (1998) Impact of Vietnam veterans' arousal and avoidance on spouses' perceptions of family life. *Am J Fam Ther.* 26:115–128.
- Hooley JM, Teasdale JD (1989) Predictors of relapse in unipolar depressives: expressed emotion, marital distress and perceived criticism. *J Abnorm Psychol.* 98:229–235.
- Jeglic EL, Pepper CM, Ryabchenko KA, Griffith JW, Miller AB, Johnson MD (2005) A caregiving model of coping with a partner's depression. *Fam Relat.* 54:37–45.
- Jordan BK, Marmar CR, Fairbank JA, Schlenger WE, Kulka RA, Hough RL, Weiss DS (1992) Problems in families of male Vietnam veterans with posttraumatic stress disorder. *J Consult Clin Psychol.* 60:916–926.
- Kager A, Lang A, Berghofer G, Henkel H, Steiner E, Schmitz M, Rudas S (2000) Family dynamics, social functioning and quality of life in psychiatric patients. *Eur J Psychiatry.* 14:161–170.
- Keane TM, Scott WO, Chavoya GA, Lamparski DM, Fairbank JA (1985) Social support in Vietnam veterans with post traumatic stress disorder: a comparative analysis. *J Consult Clin Psychol.* 53:95–102.
- King LA, King DW, Keane TM, Fairbank JA, Adams GA (1998) Resilience-recovery factors in post-traumatic stress disorder among female and male Vietnam veterans: Hardiness, postwar social support and additional stressful life events. *J Pers Soc Psychol.* 74:420–434.
- King S, Dixon M (1996) The influence of expressed emotion, family dynamics and symptom type on the social adjustment of schizophrenic young adults. *Arch Gen Psychiatry.* 53:1098–1104.
- Kulka RA, Schlenger WE, Fairbank JA, Hough RL, Jordan BK, Marmar CR, Weiss DS (1990) *Trauma and the Vietnam War Generation: Report on the Findings From the National Vietnam Veterans Readjustment Study*. New York: Brunner/Mazel.
- Lefley HP, Johnson DL (1990) *Families as Allies in Treatment of the Mentally Ill*. Washington (DC): American Psychiatric Press.
- Loukissa DA (1995) Family burden in chronic mental illness: A review of research studies. *J Adv Nurs.* 21:248–255.
- Lyons JA Root LP (2001) Family members of the PTSD veteran: Treatment needs and barriers. *NC-PTSD Clin Q.* 10:48–52.
- Monson CM, Rodriguez BF, Warner RA (2005) Cognitive-behavioral treatments for PTSD in the real world: Do interpersonal relationships make a real difference? *J Clin Psychol.* 61:751–761.
- Monson CM, Guthrie KA, Stevens S (2003) Cognitive-behavioral couples' treatment for posttraumatic stress disorder. *Behavior Therapist.* 26:393–401.
- Oldridge M, Hughes I (1992) Psychological well-being in families with a member suffering from schizophrenia. *Br J Psychiatry.* 161:249–251.
- Perlick DA, Rosenheck RR, Clarkin JF, Raue P, Sirey J (2001) Impact of family burden and patient symptom status on clinical outcome in bipolar affective disorder. *J Nerv Ment Dis.* 189:31–37.
- Pilling S, Bebbington P, Kuipers E, Garety P, Geddes J, Orbach G, Morgan C (2002) Psychological treatments in schizophrenia, I: Meta-analysis of family intervention and cognitive behaviour therapy. *Psychol Med.* 32:763–782.
- President's New Freedom Commission on Mental Health (2003) *Achieving the Promise: Transforming Mental Health Care in America*. <http://www.mentalhealthcommission.gov/reports>.
- Pretorius BT (1997) The quality of dyadic relationships and the experience of social support. *S Afr J Psychol.* 27:171–175.
- Price JL, Stevens SP (10/12/05) *Partners of Veterans With PTSD: Caregiver Burden and Related Problems*. National Center for PTSD Fact Sheet. www.ncptsd.va.gov/facts/specific/fs_partners_veterans.html.
- Renshaw KD, Chambless DL, Rodebaugh TL, Steketee G (2000) Living with severe anxiety disorders: Relatives' distress and reactions to patient behaviors. *Clin Psychol Psychother.* 7:190–200.
- Riggs DS, Byrne CA, Weathers FW, Litz BT (1998) The quality of intimate relationships of male Vietnam veterans: Problems associated with post-traumatic stress disorder. *J Trauma Stress.* 11:87–102.
- Ruggiero KJ, Del Ben K, Scotti JR, Rabalais AE (2003) Psychometric properties of the PTSD Checklist-civilian version. *J Trauma Stress.* 16:495–502.
- Sabel-Soteres AL (2005) Imputation methods for missing data in Likert scaled items. *Diss Abstr Int B.* 66:1246.
- Salewski C (2003) Illness representations in families with a chronically ill adolescent: Differences between family members and impact on patients' outcome variables. *J Health Psychol.* 8:587–598.
- Saunders JC (2003) Families living with severe mental illness: A literature review. *Iss Ment Health Nurs.* 24:175–198.
- Sautter FJ, Lyons J, Manguno-Mire G, Perry D, Han X, Sherman M, Myers L, Landis R, Sullivan G (2006) Predictors of partner engagement in PTSD treatment. *J Psychopathol Behav Assess.* 28:123–130.
- Sautter FJ, Thompson KE (2005) *PTSD Avoidance Therapy (PAT)*. Unpublished raw data.
- Schnurr PP, Lunney CA, Sengupta A (2004) Risk factors for the development versus maintenance of posttraumatic stress disorder. *J Trauma Stress.* 17:85–95.
- Schneider J, Murray J, Banerjee S, Mann A (1999) Eurocare: A cross-national study of co-resident spouse carers for people with Alzheimer's disease: I-Factors associated with carer burden. *Int J Geriatr Psychiatry.* 14:651–661.
- Sloper P (2000) Predictors of distress in parents of children with cancer: A prospective study. *J Pediatr Psychol.* 25:79–91.
- Solomon Z, Mikulincer M, Freid B, Snosner Y (1987) Family characteristics and posttraumatic stress disorder: A follow-up of Israeli combat stress reaction casualties. *Fam Proc.* 26:383–394.
- Strecher VJ, Champion VL, Rosenstock IM (1997) The health belief model and health behavior. In DS Gochman (Ed), *Handbook of Health Behavior Research* (pp 71–151). New York: Plenum Press.
- Tarrier N, Sommerfield C, Pilgrim H (1999) Relatives' expressed emotion (EE) and PTSD treatment outcome. *Psychol Med.* 29:801–881.
- Verbosky SJ, Ryan DA (1988) Female partners of Vietnam veterans: Stress by proximity. *Iss Ment Health Nurs.* 9:95–104.
- Weathers FW, Litz BT, Herman DS, Huska JA, Keane TM (1993) *The PTSD Checklist: Reliability, Validity and Diagnostic Utility*. Paper presented at the annual meeting of the International Society for Traumatic Stress Studies, San Antonio (TX).
- Westerlink J, Giarratano L (1999) The impact of posttraumatic stress disorder on partners and children of Australian Vietnam veterans. *Aus N Z J Psychiatry.* 33:841–847.
- Williams JMG, Watts FN, MacLeod C, Mathews A (1997) *Cognitive Psychology and Emotional Disorders* (2nd ed). New York: Wiley.
- Yehuda R (1999) *Risk Factors for Posttraumatic Stress Disorder*. Washington (DC): American Psychiatric Press, Inc.
- Zabora J, BrintzenhofeSzoc K, Jacobsen P, Curbow B, Piantadosi S, Hooker C, Owens A, Derogatis L (2001) A new psychosocial screening instrument for use with cancer patients. *Psychosomatics.* 42:241–246.
- Zarit SH, Reever KE, Bach-Peterson J (1980) Relatives of the impaired elderly: Correlates of feelings. *Gerontologist.* 20:649–655.