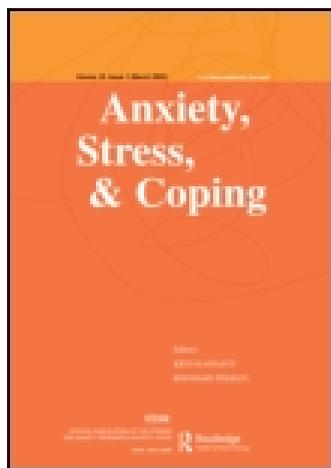


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Emotional distress and marital adjustment of caregivers: contribution of level of impairment and appraised burden

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Abstract

The study examined the relative contribution of both the husband's impairment and the caregiver's sense of burden to the caregiver level of emotional distress and marital adjustment. Two hundred and fifteen veterans with posttraumatic stress disorder (PTSD) and their wives participated in the study. Data were collected using self-report questionnaires and a series of clinical interviews with the veterans and their wives. Results indicated that spouses of PTSD veterans suffer from a higher level of emotional distress and a lower level of marital adjustment than the general population. Their level of distress is more closely associated with perceived caregiver burden than with the level of the veterans' impairment. The discussion highlights some cross-cultural similarities of the findings and the clinical and empirical implications of the study.

Keywords: *Caregiver burden, wives, distress, PTSD, war veterans*

Previous research has already documented that close and prolonged contact with a severely impaired spouse may serve as a chronic stressor, which over time can lead to various manifestations of distress among the spouses who are the main caregivers (e.g., Lev-Weisel & Amir, 2001; Ohaeri, 2001).

Several variables have been suggested as contributing to variability among the well being caregivers. One factor that was found to contribute consistently to the variability of the caregivers' mental status is the level of impairment of the care recipient, which serves as a primary stressor (Pearlin, Mullan, Semple, & Skaff, 1990) that contributes *directly* to the caregiver's mental distress (Tennstedt, Cafferata, & Sullivan, 1992). The more severe the husband's level of disability, the deeper is the wife's distress. Various measures of primary stressors have been recognized in the research literature, including care recipient's physical health (Clarke, 1997; Peters-Davis, Moss, & Pruchno, 1999), mental health (Ohaeri, 2001), and dysfunctional behaviours (Nagatomo et al., 1999). The association between the care recipient's status and the spouse's level of distress was documented among caregivers

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of various populations with mental health difficulties, such as spouses of Holocaust survivors (Lev-Weisel & Amir, 2001) and caregivers of Nigerian psychotic patients (Ohaeri, 2001).

Caregiver burden is defined as the extent to which caregivers perceive their emotional or physical health, social life, or financial status to be affected by their caring for their impaired relative (Zarit, Todd, & Zarit, 1986). Pearlin et al. (1990) described it as the feelings expressed by the caregiver regarding their energy level, satisfaction with the level of care provided, and the amount of time at their disposal to do everything necessary, including time for one's self.

However, studies differ in their understanding and analysis of caregiver burden. According to the stress model (Pearlin et al., 1990), burden is a primary stressor affected by background variables such as care giving history and socioeconomic characteristics. According to this model, the burden directly affects such outcomes as depression and physical health. According to the appraisal model (Lawton, Kleban, Moss, Rovine, & Glicksman, 1989), caregiver burden is conceptualized as a subjective evaluation. The demand to provide care does not necessarily become a stressor in itself. Whether or not such a demand is stressful is a matter of subjective appraisal. Thus, care giver burden was suggested as a mediator variable between the level of impairment of the care recipient (the primary stressors) and the emotional status of the caregiver. Based on this model, Yates, Tennstedt, and Chang (1999) found that the primary stressors (cognitive impairments, functional disability, and problem behaviours) indirectly led to caregiver depression through the subjective burden.

The current paper treats the level of the care recipient's disability as a primary stressor and the caregiver burden as a subjective appraisal. To gauge the complex relationships between the variables, we examine both the direct contribution of the husband's disability to the caregiver's distress and its indirect effect through the subjective appraisal of the caregiver burden. These questions are examined among a sample of veterans with posttraumatic stress disorder (PTSD) and their wives.

PTSD is the most common and conspicuous outcome of participation in war. PTSD is marked by a variety of intrusive, avoidance, and hyper-arousal symptoms, and is often accompanied by heightened anxiety, depression, hostility, and somatic symptoms (Kulka et al., 1990; Shalev, 2001), as well as difficulties in functioning (Solomon, 1993). Some of those who develop PTSD recover within a short period of time; in others the condition becomes chronic (Rosenheck & Fontana, 1994).

The literature indicates that wives of war veterans with PTSD constitute a high-risk population and suffer from increased rates of emotional problems accompanied by marital ones. Various manifestations of emotional distress have been reported among wives of PTSD casualties, including tension and stress (Jordan et al., 1992a; Verbosky & Ryan, 1988), a sense of worthlessness (Verbosky & Ryan, 1988), loneliness (Matsakis, 1988; Solomon et al., 1992a), confusion, loss of identity, loss of control, self-blame (Matsakis, 1998), somatic complaints, and psychiatric symptoms (Solomon et al., 1992a). These women were also found to report more conflict, less intimacy, less cohesion, and reduced satisfaction in their marital relations than wives of war veterans without PTSD (Solomon et al., 1992b; Mikulincer, Florian, & Solomon, 1995; Wilson & Kurtz, 1997). Moreover, the level of distress of these wives was found to be directly associated with the level of the veterans' impairment (Beckham, Lytle, & Feldman, 1996; Riggs, Byrne, Weathers, & Litz, 1998). The first aim of the current study is to examine the level of emotional distress and marital adjustment among wives of Israeli veterans who suffer from chronic PTSD and to

examine the direct association between the veteran's impairment and the level of his wife's distress.

Regarding the burden of care, PTSD has been conceptualized as a long-term condition that places a heavy burden upon the care giving wife, similar to what is experienced by couples adjusting to other chronic conditions (Hankin, Abueg, Gallagher-Thompson, & Murphy, 1992). The impact of the subjective perception of burden on the wives' level of distress was reported in studies of wives of war-induced PTSD casualties that found a positive correlation between the wives' sense of burden and their level of distress (Beckham, Lytle, & Feldman, 1996; Ben Arzi, Solomon, & Dekel, 2000; Calhoun, Beckham, & Bosworth, 2002). These studies demonstrated that the higher the sense of burden these women felt, the more severe was their distress. Although these studies examined the direct association between burden and distress, the role of the burden as a mediator between the husbands' level of impairment and the wives' distress has not been examined. Nor has there been an examination of the direct and the mediated roles of additional accompanying psychiatric symptoms or of the effect of the complexity of the husband's disability on the wife's level of distress.

The current study investigated the relative contribution of both the husband's impairment (measured as emotional distress and functional disability) and of the wife's sense of burden to the wife's level of distress (measured as emotional distress and marital adjustment). We examined whether there is a direct effect of the veteran's level of impairment on his spouse's level of distress, a mediated effect through the spouse's sense of burden, or both.

Method

Participants and procedure

Data for the study were collected at three assessment clinics administrated by the Israeli Ministry of Defense. All male participants ($N = 215$) were Israeli veterans who had applied to these clinics in order to receive a comprehensive psychiatric evaluation. This evaluation determines the level of mental and functional impairment due to exposure to traumatic military experiences. The level of impairment will than determine the amount of financial compensation granted by the ministry of defense.

The diagnosis of chronic combat-related PTSD was made through a psychiatric clinical interview, using DSM-IV criteria. Veterans with drug abuse problems or diagnosed with psychosis were not included in the sample. Mean number of PTSD symptoms at the time of the study was 14.80 ($SD = 2.21$, possible range 0 to 17). Although the combination of high symptom level and low variability validates the chronic and severe mental status of the sample, it did not allow us to use the PTSD level of symptoms as an independent measure of distress.

Examination of the veterans' backgrounds revealed that on the average 19.6 years had passed since the traumatic event. The average age of veterans at the time of the study was 48.76 years ($SD = 8.49$). Among the veterans 52% had elementary or partial high school education, 34% were high-school graduates, and 14% had a college degree. Unfortunately, no parallel data were gathered for the wives.

Data were gathered through clinical interviews and self-report questionnaires filled out by the veterans and their wives. Before completing the questionnaires participants were assured that data would remain confidential.

Measures

Each veteran's level of impairment was measured by his emotional distress and by his functional disability. Emotional distress was measured by the Symptom Checklist-90R (SCL-90R) using the Global Severity Index (GSI) that identifies the overall severity of psychiatric symptomatology. The SCL-90 has been found to correlate highly with similar MMPI scales (Derogatis, Rickles, & Rock, 1976). The scale has good psychometric properties (Derogatis & Clearly, 1977; Derogatis, Rickles & Rock, 1976) and has been used widely with various groups of Israeli populations, such as victims of a terrorist attacks (Amir, Weil, Kaplan, Tocker, & Witztum, 1998), Israeli civilians under constant threat to their lives (Mikulincer, Horesh, Eilati, & Kotler, 1999), and veterans (Solomon, 1993). Internal consistency for the veterans' sample was .97.

The level of functional disability was assessed by several psychiatrists and was summarized on a standardized Veterans' functional disability form. This form consists of 17 items relating to current functioning in three domains: daily functioning (e.g., self-hygiene, nutrition), personal relationships (ability to fulfil social roles such as parent and spouse), and occupational performance. Each item was evaluated on a Likert scale ranging from 0 (no impairment) to 6 (radically impaired). The veterans' level of functional impairment was scored as the mean of the 17 items. Cronbach alpha for the veterans' sample was .94, indicating high internal consistency. The veterans' level of functional impairment was found to be highly correlated with independent evaluations of social workers (Dekel, Solomon, & Bleich, in press).

The wives' level of distress was measured by their emotional distress (GSI score internal consistency was .98), marital adjustment, and sense of burden. Marital adjustment was assessed by the Dyadic Adjustment Scale (DAS) (Spanier, 1976), consisting of 32 items assessing marital consensus, cohesion, satisfaction, and affectional expression. The wives were asked to indicate the extent to which the item describes their and their husbands' current marital interaction. The dyadic adjustment score was calculated by summing the 32 items. High scores reflect better adjustment. Heyman, Sayers and Bellack (1994) reported a very good convergent validity (high correlations with other measures of marital functioning) and discriminant validity (low or no significant correlations with psychopathology subscales) of this scale. Comparing community group and a clinic group the score of 98 was suggested as a cutoff point between normative and problematic dyadic relations (Eddy, Heyman, & Weiss, 1991).

The scale has been widely used with Israeli populations such as couples undergoing treatment for infertility (Mikulincer, Horesh, Levy-Shiff, Manovich, & Shalev, 1998) and patients with severe affective disorder (Horesh & Fennig, 2000). Cronbach alpha for the wives' sample was .90, indicating high internal consistency.

The wives' sense of burden was measured by the Caregiver Burden Inventory (CBI). This questionnaire, developed by Novak and Guest (1989) for caregivers of patients with Alzheimer's disease, evaluates feelings and responses of caregivers to their spouses' needs. The authors identified the following five interpretable factors, each containing high loading and good internal reliability: time-dependence burden ("I don't have a minute of rest"); developmental burden ("I feel that I miss experiences in life"); physical burden ("I miss hours of sleep"); social burden ("My functioning at work is not at the same level as it was in the past"); and emotional burden ("I am angry about our relationship"). The wives were asked to indicate the extent to which each item described their feelings on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much). The CBI was used with an Israeli sample

of wives of veterans with PTSD and brain injuries (Ben Arzi, Solomon, & Dekel, 2000). Cronbach alpha for the wives' sample was .95, indicating high internal consistency.

Analysis

Structural Equation Modelling was carried out with the EQS program, Version 6 (Bentler, 2002). The analyses presented here were performed on variance-covariance matrices with missing values imputed using the expectation-maximization (EM) method. Two additional methods of dealing with missing values were used: listwise and pairwise deletion. All three methods yielded very similar results.

The variables in the data were multivariately non-normally distributed, with normalized multivariate kurtosis of 4.02. To overcome this violation of SEM assumptions, we employed the maximum-likelihood estimation method with robust standard errors together with Satorra-Bentler rescaled chi-square statistic (Satorra & Bentler, 1994) to compensate for non-normality of the variables. The difference between two scaled chi-squares is not distributed as chi-square, therefore, in calculating the significance of the differences between models, we used the Satorra-Bentler Scaled Difference Test (Satorra & Bentler, 1999).

Following the recommendations of Hu and Bentler (1999), we report two types of fit indexes, Non-Normed Fit Index (NNFI, also known as TLI) and Comparative Fit Index (CFI), as well as two indexes of misfit: Root Mean-Square Error of Approximation (RMSEA) and Standardized Root Mean-Square Residual (SRMR). NNFI and CFI close to or above .95, combined with RMSEA below 0.06 and SRMR below .09 are considered indicative of acceptable fit.

Each theoretical construct in the model was measured with three or four indicators. The veterans' functioning was indicated by three scores: daily functioning, personal relationships, and occupational performance. The wives' marital adjustment was indicated by four scores: marital consensus, cohesion, satisfaction, and affectional expression. Using the accepted approach of parcelling (Bandalos, 2002; Stacy, Bentler, & Flay, 1994), the veterans' SCL and the wives' burden and SCL were each randomly divided into three parcels to be used as three indicators.

The model tested two types of hypotheses: direct and mediated effects of independent upon dependent variables. Following Baron and Kenny (1986, p. 1177), we considered several pieces of evidence as compatible with a mediation hypothesis: (a) a significant effect of the independent variable upon the mediator; (b) a significant effect of the independent variable upon the dependent variable; (c) a significant effect of the mediator upon the dependent variable with the independent variable partialled out; and (d) the situation when the effect of the independent variable upon the dependent variable in (c) is significantly lower than in (a).

Results

Descriptive statistics and the intercorrelation matrix of latent variables are provided in Table I.

We first compared the levels of distress of the veterans and their wives (SCL-90-R GSI scores). Next, the veterans' level of distress was compared with normative data from the general US population ($M = 1.57$, Derogatis, 1977). The level of psychiatric symptomatology of the veterans was significantly higher than that of the wives ($t(215) = 18.98$; $p < .001$), and significantly higher than that of the general population, ($t(215) = 45.78$, $p < .001$).

Table I. Means, standard deviations, and matrix correlation.

		Veterans			Wives		
		Mean (SD)	Emotional distress (GSI)	Functional disability	Burden	Emotional distress (GSI)	Marital adjustment (DAS)
Veterans	Emotional Distress (GSI)	2.45 (.68)	1.00	.32***	.37***	.23**	-.35***
	Functional Disability	2.26 (.76)		1.00	.26***	.10	-.25**
Wives	Burden	3.05 (.98)			1.00	.66***	-.63***
	Emotional Distress (GSI)	1.20 (.89)				1.00	-.56***
	Marital Adjustment (DAS)	71.80 (27.19)					1.00

* $p < .05$; ** $p < .01$; *** $p < .001$.

To assess the marital adjustment reported by the veterans' spouses, scores on the Dyadic Adjustment Scale were compared with the suggested cutoff point of 98 as discriminating between normative and problematic marital relations. Results revealed that the level of dyadic adjustment among the spouses of PTSD veterans was significantly lower than the cutoff score, indicating problematic dyadic relations ($t(215) = 11.84$; $p < .001$).

As can be seen in Table I, there was a positive correlation between the veterans' emotional distress, measured by the self-report standardized questionnaire, and their functional disability, assessed by clinical interview. Furthermore, negative correlation was found between the wives' emotional distress and their marital adjustment, indicating that the more intense the wives' emotional distress, the lower their marital adjustment.

As expected, the wives' marital adjustment was negatively correlated with the two measures of their husbands' level of impairment: the more severe the veterans' emotional distress and functional disability, the more impaired was their wives' marital adjustment. In addition, the wives' emotional distress was positively correlated with that of their husbands'. However, no significant correlations were found between the wives' emotional distress and their husbands' level of functional disability.

Finally, the wives' caregiver burden was significantly associated with the two measures of the veterans' impairment and the two measures of the wives' distress. The significant correlations between the presumed mediator on one hand and the independent and the dependent variables on the other satisfy the first two of the necessary conditions for a mediation effect (Baron & Kenny, 1986).

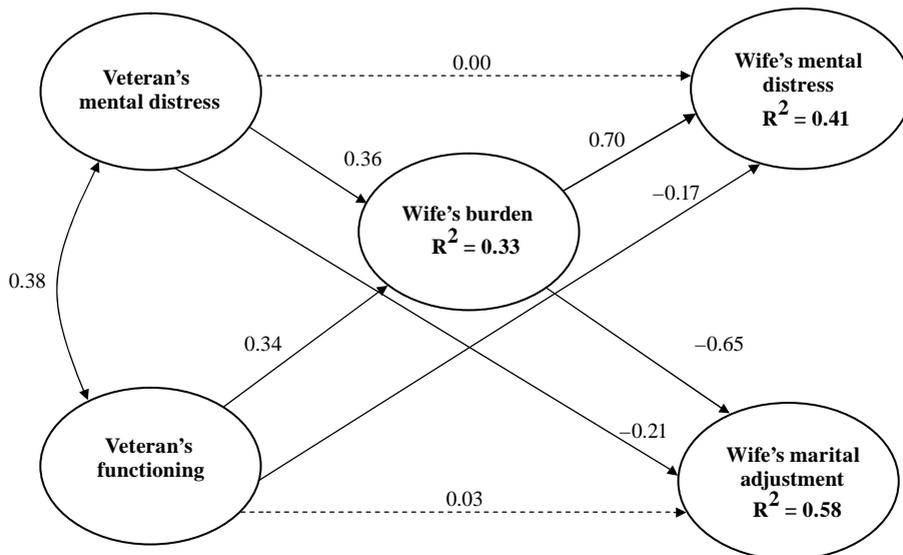
The direct and mediated effects of veterans' impairment measures upon the wives' marital adjustment and emotional distress were tested within a Structural Equation Model. The null model (i.e., the model of complete independence of all variables) was easily rejected, $\chi^2(120, N = 215) = 3881.27$, $p < .001$. The measurement model (i.e., confirmatory factor analysis) yielded acceptable results: $\chi^2(94, N = 215) = 141.75$, $p < .01$, NNFI = .986, CFI = .989, SRMR = .030, RMSEA = .049. Finally, a well-fitting structural model with high factor loadings was obtained $\chi^2(95, N = 215) = 144.10$, $p < .001$, NNFI = .985, CFI = .988, SRMR = .032, RMSEA = .049.

As shown in Figure 1, the paths from the wives' burden (the mediator) to the dependent variables were significant. Thus, the third condition of the mediation effect (Baron & Kenny, 1986) was satisfied. All the standardized coefficients leading from the independent to the dependent variables in Figure 1 were lower than the respective zero-order correlations (for example the simple correlation between veterans' distress and wives' distress which was negative and significant, $r = -.21$, is 0 in Figure 1), and so the final condition of mediation effect was also satisfied. Importantly, all the indirect effects in the model were found to be significant ($p < .001$) using Sobel's (1982) test.

The results therefore supported the mediation hypotheses. The relations between the veterans' and the wives' SCL and between the veterans' functioning and wives' marital adjustment were completely mediated by the caregiver's burden. The direct paths from the independent variables (veterans' SCL and veterans' functioning) to the dependent variables (wives' SCL and wives' marital adjustment, respectively) were non-significant. The relations between the veterans' SCL and the wives' marital adjustment and between the veterans' functioning and the wives' SCL were only partially mediated by the burden, as evidenced by the significant direct paths.

Discussion

The results support earlier findings whereby the main caregiver of an impaired husband presents elevated stress symptoms. In the current study the wives of the traumatized veterans displayed poor marital adjustment and suffered from an elevated level of emotional distress. These findings are consistent with previous clinical and empirical studies carried out on various populations of caregivers for traumatized veterans or patients with Alzheimer, depression, and similar impairments (e.g., Maloney, 1988; Jordan et al.,



Solid lines represent statistically significant paths. Dotted lines represent insignificant paths.

Veteran's functioning: daily functioning, personal relationships, and occupational performance.

Wife's burden and SCL of both partners were each randomly divided into three factors.

Wives' marital adjustment: marital consensus, cohesion, satisfaction, and affectional expression.

Figure 1. Path model results.

1992a). Taken together, the studies indicate that the responses of main caregivers are similar, and transcend both cultural differences and varieties of mental impairment.

Although the findings of the current study emphasized the stressfulness of life with a traumatized husband, the processes contributing to the development of this stressfulness are only partially understood. The relations between the veterans' SCL and the wives' marital adjustment and between the veterans' functioning and the wives' SCL are only partially mediated by the burden. These results point to both direct effects and mediating effects of this stressful situation. The level of the veterans' impairment and loss of resources has a direct effect on spouses' marital adjustment. The veterans' disability, is observable and is perceived as loss by other spouses in similar circumstances (Hobfoll, 2001).

The relations between veterans' and the wives' SCL and between the veterans' functioning and wives' marital adjustment are completely mediated by the wives' burden. These findings support the additional role of subjective appraisal in coping with stress situations in general (Hobfoll, 2001; Lazarus & Folkman, 1984) and with care-giving in particular (Lawton et al., 1989).

This finding is consistent with the literature describing the burden placed on wives of impaired husbands and traumatized veterans. For example, the wives of traumatized Vietnam War veterans whom Maloney (1988) had interviewed spoke at length about their lack of time for themselves, about being constantly busy and exhausted, and about their feelings of having missed out on opportunities for pleasure or advancement. Williams (1980) suggests that the wives of PTSD veterans tend to become caught in a "compassion trap" in which they sacrifice many of their own needs for their family.

The findings of this study are consistent with those of Beckham et al. (1996), who studied wives of Vietnam veterans and found that the perceived caregiver burden was a stronger predictor of their adjustment than the severity of their husband's PTSD. They are also consistent with the evidence in Lee and Gotlib's (1994) review of the literature on spouses of persons with a variety of mental disorders, which indicates that the spouses' level of distress was not predicted by the severity of the patients' symptomatology but rather by the burden on the caregiver.

The relations between veterans' SCL and the wives' marital adjustment and between the veterans' functioning and wives' SCL are only partially mediated by the burden. In addition to the indirect effects, the direct paths between these variables were significant. Higher levels of the husbands' impairment were associated with higher levels of distress on the part of the wives. This can be seen as a direct outcome of the chronic stress involved in living with a PTSD casualty (Solomon et al., 1992a). Maloney (1988) observed that wives may "identify so strongly with their men that they have authentically internalized their partners' stressor imagery" (p. 141), and gradually learn to feel and behave in ways similar to their traumatized husbands. This hypothesis was not tested directly, but is supported by findings that indicate that the profile of somatic and psychiatric symptoms displayed by wives of traumatized war veterans in many ways parallels the clinical picture presented by their husbands (Shalkes & Dekel, 2001; Solomon et al., 1992a).

Several methodological limitations should be pointed out regarding this research. First, because of its low variability, the level of PTSD symptoms could not serve as a direct measure of distress. We chose two other measures of disability (accompanying psychiatric symptoms and functional disability) in order to detect the role played by the veterans' level of impairment. Although in a study of Holocaust survivors, the correlations between the survivors' PTSD and the spouses' distress were lower than correlations with the GSI as a measure of the survivors' distress (Lev-Weisel & Amir, 2001) the uniqueness of the results

to PTSD veterans should be further explored by comparing PTSD veterans with either a control group or with another mental disorder.

Moreover, no data was available on the biographical background of the wives. The possibility that a personal or family history of trauma and other factors contributed to the wives' level of distress cannot be ruled out. Data were measured cross-sectionally, and significant time had elapsed since the initial traumatization. Therefore causal inferences should be made cautiously. Another possible limitation of the study lies with the unique characteristics of the sample. First, veterans in the current sample suffered from severe and chronic PTSD. This limits the external validity of the results. Second, all the participating veterans and their wives had requested compensation for their trauma from the Israel Ministry of Defense, and it cannot be ruled out that their desire for higher compensation may have led both partners to over-report symptoms. This possibility is not supported, however, by an examination conducted on a sub-sample of the current sample to detect exaggeration and malingering (Bleich, Solomon, & Dekel, 1997), utilizing the Hiscock Forced Choice Method for the Detection of Malingering (Hiscock & Hiscock, 1989). The performance of 92% of the subjects implied that they were not trying to exaggerate or malingering. In addition, several studies of similar veterans that compared reports of compensation claimants and others found no significant differences in self-reported rates of symptoms between the two groups (Jordan et al., 1992b; Smith & Frueh, 1996).

The practical implications of the study highlight the importance of helping the wives. These hidden victims suffer from emotional distress, poor marital adjustment, and high feelings of burden. Usually, the sole recipient of services is the veteran himself. But therapeutic agencies providing services to veterans should not forget their wives. We know from our clinical experience that a wife's high level of burden sometimes results in her avoiding or resisting therapy. We agree with Lyons and Root (2001) that it is difficult to extend services beyond the veteran to address other family members' needs when clinical resources are limited. But in view of the findings that negative family relationships may interfere with the outcome of PTSD treatment (Tarrier, Sommerfield, & Pilgrim, 1999), marital and family interventions should be viewed as integral investments in the veteran's recovery. In addition, wives can be taught stress-reducing techniques, meet with other wives in a similar situation, and form a support group. They can also get a consultation on how to develop unique tactics for self-fulfilment.

Future research should examine further theoretical developments in the research models of the caregivers' well being. Several models differentiated between primary and secondary appraisals (Evandrou, Glaser, & Henz, 2002; Yates, Tennstedt, & Chang, 1999). According to these models we measured only secondary appraisal: the caregiver's perception of being overwhelmed or overloaded by the daily care-giving experiences. We did not measure the primary appraisal, the hours of informal care provided, which represent both the caregiver's subjective appraisal of the needs of the care recipient and serve as a more objective measure of care giving work. The role of personal and social resources as mediators has not been examined either. Personal resources such as the caregiver's sense of mastery (Noh & Avison, 1988), social support (Rabins, Fitting, Eastham, & Fetting, 1990), and formal services (Bass, Noelker, & Rechlin, 1996) could improve our understanding of the complex and dynamic process of care giving.

The present study is significant because it is one of the few systematic investigations of wives of trauma victims. Our large sample allowed us to go beyond measuring the level of the wives' distress and to try and clarify some of the contributing factors. The study emphasizes the wives' level of distress and the role of burden perceptions in the well-being

of the caregiver. Longitudinal studies with several measuring points (Arai, Zarit, Sugiura, & Washio, 2002), which assess both situational and personal variables, would further reveal the underlying mechanisms.

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