

The Role of Ex-POWs' PTSD Symptoms and Trajectories in Wives' Secondary Traumatization

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Secondary traumatization describes the phenomenon whereby those in proximity to trauma survivors develop psychological symptoms similar to those experienced by the direct survivor. The current study examined secondary trauma (ST) and generalized distress symptoms (general psychiatric symptomatology, functional disability, and self-rated health) in wives of former prisoners of war (ex-POWs). The study compared wives of Israeli ex-POWs from the 1973 Yom Kippur War with wives of a matched control group of non-POW Yom Kippur War combat veterans (CVs). The wives also were divided into groups based on their husbands' current posttraumatic stress disorder (PTSD) status and PTSD trajectory (i.e., chronic, delayed), and their outcomes were compared with resilient CVs. We found that wives of ex-POWs with PTSD reported higher ST and generalized distress than wives of ex-POWs and non-POW CVs without PTSD. Wives of ex-POWs with chronic PTSD reported the highest levels of functional disability. We also found that the relationships between husbands' prior captivity, and wives' ST and general psychiatric symptomatology were fully mediated by the husbands' PTSD symptoms. These findings indicate that it is exposure to a partner with PTSD that leads to overall ST and other distress symptoms, and not simply to a trauma survivor. Furthermore, the more severe their husbands' PTSD, the more wives are at risk for ST and general psychiatric symptomatology. Wives of partners with PTSD should therefore be considered high-risk groups for ST and distress that may require targeted interventions.

Keywords: prisoner of war, wives, posttraumatic stress disorder, secondary traumatization, trajectories

Marriage is considered one of the most significant and meaningful frameworks for intimate relationships. It is widely held that strong, loving, and supportive marriages increase well-being, health, and happiness, while problematic marriages and marital breakdown cause distress for both partners (e.g., Waite & Gallagher, 2000). Due to the intensive, long-term, and reciprocal nature of marriage however, the psychological state of one partner impacts the spouse "for better or for worse." In this manner, even a positive and loving marriage can paradoxically lead to the transmission of distress between partners (Figley, 1986).

The term *secondary traumatization* (ST) has been used to describe the phenomenon whereby those in proximity to trauma survivors become indirectly exposed to the effects of trauma, and develop psychological distress symptoms similar to those experienced by the direct survivor (Figley, 1986; Rosenheck & Nathan, 1985). Populations that have been identified as suffering from ST include the families of Holocaust survivors (e.g., Danieli, 1986;

Lev-Wiesel & Amir, 2001), the wives of soldiers (Figley, 1986), and the wives of former prisoners of war (ex-POWs; Dent et al., 1998).

Research generally conceptualizes ST in two ways (Galovski & Lyons, 2004). The first focuses on people who were only indirectly exposed to the traumatic event, but developed symptoms that are similar to posttraumatic stress disorder (PTSD; e.g., intrusive thoughts, flashbacks, avoidance behaviors, etc.). The second perspective is broader, referring to more generalized distress in people who have a close relationship with a trauma survivor (e.g., Renshaw et al., 2011). This distress can include PTSD-like symptoms as well as depressive, somatic, and anxiety symptoms; functional problems; sleep disturbances; and sense of burden. In line with the recommendations of Renshaw and colleagues (2011), in this study we use the term *ST* to describe the transmission of specific PTSD-like symptoms, while we use the term *generalized distress* to refer to general psychiatric symptoms, functional disability, and low self-rated of health.

In the current study we investigate ST and the generalized distress in wives of Israeli former POWs from the Yom Kippur War (YKW), and compare them with a control group of wives of combat veterans from the same war. War captivity is a particularly extreme interpersonal traumatic experience that commonly entails prolonged and brutal torture, systematic humiliation, and deprivation (Herman, 1992). Ex-POWs have reported an array of complex and multifaceted psychological and psychiatric symptoms, of which the most common and conspicuous outcome is PTSD (e.g., Sutker & Allain Jr, 1996) as well other negative outcomes includ-

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ing depression (Page, Engdahl, & Eberly, 1991), somatic symptoms (Beebe, 1975), cognitive deficits (Sutker, Winstead, Galina, & Allain, 1990), and health problems (Ursano & Benedek, 2003).

As distress may be transmitted between spouses, it would be expected that wives of ex-POWs also would be at increased risk for psychological and physical problems. Furthermore, many of the problems reported by ex-POWs are related to the marriage framework (e.g., Herman, 1992; Solomon, Dekel, & Mikulincer, 2008), with ex-POWs showing increased rates of divorce (Nice, McDonald, & McMillian, 1981) and marital aggression (O'Donnell, Cook, Thompson, Riley, & Neria, 2006). This may be due to the interpersonal nature of the traumatic experience that can cause severe damage to the sense of trust and belief in others (Herman, 1992). This, in turn, intrinsically interferes with intimate relationships that may cause distress in partners.

Spousal ST

A large body of evidence suggests that partners of trauma survivors with PTSD are more likely to report psychological distress (e.g., Jordan et al., 1992), and sleeping and somatic problems (e.g., Dirkzwager, Bramsen, Adèr, & van der Ploeg, 2005). Several studies have indicated that spousal ST and distress is correlated with partners' PTSD symptom severity (e.g., R. Dekel & Solomon, 2007; Riggs, Byrne, Weathers, & Litz, 1998). A meta-analysis conducted by Lambert, Engh, Hasbun, and Holzer (2012) examined the relationship between survivors' PTSD and relationship quality, and partners' psychological distress. They found a small effect for PTSD and perceived relationship quality, and a moderate effect for PTSD and partners' psychological distress, with a stronger effect seen among military samples. Another meta-analysis found PTSD to be positively associated with intimate relationship discord as well as physical aggression (Taft, Watkins, Stafford, Street, & Monson, 2011). It may be that husbands' hyperarousal symptoms such as outbursts of anger, aggression, and irritability are stressors for the traumatized individual's spouse (Savarese, Suvak, King, & King, 2001; Taft et al., 2007), causing distress and reducing relationship quality (R. Dekel & Monson, 2010; Maloney, 1988).

The literature generally conceptualizes ST as resulting from exposure to a trauma survivor with PTSD, however there remain unanswered questions over this pathway. For example, Monson, Taft, and Fredman (2009) suggested that most studies of spousal ST had not specifically anchored the spouses' reported symptoms to their partners' traumatic experiences, and may reflect the spouses own traumatic experiences, thus calling into question whether they were reporting secondary traumatic symptoms or PTSD symptoms resulting from their own traumatic experiences. A second question regarding the role of secondary trauma exposure compared with secondary posttraumatic psychopathology exposure. As previously described, we might expect that wives of ex-POWs would be at increased risk of generalized distress, however may they also be at increased risk of ST regardless of their husbands' PTSD status?

A third question is whether the impact that husbands' PTSD has on wives goes beyond the current mental health status of the husband. In their meta-analysis, Lambert et al. (2012) found that the relationship between PTSD and partners' psychological distress was larger in couples where the trauma had taken place in the

distant past, rather than more recently. This suggested a need to look at the long-term effects of trauma. One approach was to look at the impact of PTSD trajectories. PTSD has a complex and variable longitudinal course, with symptoms waxing and waning (Blank, 1993). According to the *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.; DSM-5; American Psychiatric Association [APA], 2013), PTSD onset can occur any time from 1 month after the traumatic event with no upper limit, and can be acute or chronic (APA, 2013). A number of longitudinal studies have identified a number of characteristic PTSD trajectories following trauma exposure (e.g., Bonanno & Mancini, 2012). In the same vein, previous research conducted on YKW ex-POWs identified four PTSD trajectories: chronic, delayed, recovered, and resilient (for more details, see Solomon, Horesh, Ein-Dor, & Ohry, 2012).

To the best of our knowledge, there has been no research that has examined the role of husbands' PTSD trajectories in wives' distress. However, Ahmadi, Azampoor-Afshar, Karami, and Mokhtari (2011) examined Iranian combat veterans and their wives and found that duration of husbands' PTSD significantly predicted wives ST. Therefore, it would be expected that wives of husbands with chronic PTSD trajectories would report higher ST than wives of husbands with delayed, recovered, and resilient trajectories due to the wives' longer duration of secondary exposure.

In the current study we aim to investigate the role of ex-POWs' PTSD status, trajectories, and symptom levels on their wives ST and other generalized distress symptoms, namely, general psychiatric symptoms, functional disability, and self-rated health. In particular, we hypothesize that (a) wives of ex-POWs with PTSD will report higher ST and general distress than wives of ex-POWs without PTSD and non-POW combat veterans; (b) wives of ex-POWs with chronic PTSD will report higher ST and general distress than wives of ex-POWs with delayed, recovered, and resilient trajectories, and (c) husbands' PTSD symptoms will mediate the relationship between husbands' war captivity status and wives' ST.

Method

Participants

This study constitutes part of a larger longitudinal study assessing the impact of war captivity on (a) former prisoners of war and (b) their wives (for more details, see R. Dekel & Solomon, 2006; S. Dekel, Ein-Dor, & Solomon, 2012). Data were collected from two groups of YKW combat veterans (CVs): (a) ex-POWs and (b) a matched control group of non-POW CVs, at three time points (1991, 2003, and 2008–2010). Data also were collected from these CVs' wives at two time points (T1: 2003/2004; T2: 2010–2011). The current study utilizes data collected from the wives at T2 in all analyses, and from the husbands at all three of the husbands' measurement waves.

Substantial attrition, and in several cases addition, occurred from one wave of assessment to the other. In the husbands' second wave (2003), of the 164 ex-POWs who participated in the first wave (1991), 10 could not be located, four had died, and six could not participate because of deterioration in their mental status. Of the remaining 144 ex-POWs, 121 participated in the second wave.

In the third wave (2008–2010), 25 had died, 29 could not be located or refused to participate and six could not participate because of deterioration in their mental status. In total, 176 participated in the third wave.

Regarding the CVs, 185 men participated in the first wave of measurement. In the second wave, 41 could not be located and one had died. Of the remaining 143 controls, 106 participated in the second wave (2003). In the third wave, all of the CVs from the first wave who could be located were contacted, and 118 participated in the third wave (2008–2010).

Wives of ex-POWs. According to Israel's Ministry of Defense (IDF), 240 combat veterans from the Israeli infantry were captured during the YKW and held in Egypt or Syria for between 1 to 8 months (ex-POWs). The wives of the ex-POWs that participated in the earlier waves of the longitudinal study were invited to participate in the current study. In 2008, 147 of the ex-POWs were married at the time. Of these, 116 wives participated at T2 (78.9%).

Wives of CVs. The CVs were sampled from IDF computerized data banks. They were from the same units as the ex-POWs, and matched to the ex-POWs for personal and military background characteristics. The wives of CVs that had previously participated in the longitudinal research were invited to participate in the current study. In 2008, 103 CVs were married or had a partner (88.8%). Of these, 56 of their wives participated in the current study at T2 (54.4%).

Background variables. No significant differences between wives of ex-POWs and wives of CVs were found in the following background variables for the wives: country of birth, age ($M = 58.28$, $SD = 5.79$), years of marriage ($M = 34.20$, $SD = 9.19$), timing of marriage (before/after the YKW), number of children ($M = 3.23$, $SD = 3.00$), employment status (47.7% of the women were working in full-time jobs, 20.9% had part-time jobs, and 31.4% were not working), and history of life events. The only significant differences were indicated for religiosity, $\chi^2(2) = 6.43$, $p < .05$, and level of education, $t(165) = 2.62$, $p < .01$. A higher number of wives of ex-POWs defined themselves as religious (44%) as compared with CVs' wives (28.6%). Wives of ex-POWs also reported fewer years of education ($M = 14.16$, $SD = 3.20$) than CVs' wives ($M = 15.50$, $SD = 2.92$). In addition, we compared wives of ex-POWs married before the war, and wives of ex-POWs married after the war, and found no significant differences in background variables. We subsequently divided the wives into groups according to their husband's PTSD status, and according to his trajectory. No significant differences were found in sociodemographic variables between these groups apart from in education $F(3, 71) = 3.31$, $p < .05$, with wives of resilient CVs reporting more years of education than wives of ex-POWs with chronic PTSD. The veteran husbands' (ex-POWs and CVs) background variables have been previously described, with no significant differences found between these two groups (Zerach, Greene, Ginzburg, & Solomon, 2014).

Measures

Completed by wives and husbands.

Posttraumatic stress and ST. Husbands' PTSD symptoms and trajectories and wives' ST symptoms were measured via the PTSD inventory (PTSD-I; Solomon, Benbenishty, Neria, & Abramowitz,

1993), a well-validated, 17-item, self-report questionnaire. The items on the PTSD-I correspond to the *DSM-IV-TR* diagnosis for PTSD (APA, 2000). Respondents rated symptoms experienced in the previous month on a scale ranging from 1 (*not at all*) to 4 (*almost always*). Wives' ST scores were obtained by asking wives to rate their own posttraumatic symptoms specifically anchored to their husbands' experiences of combat or captivity (e.g., "When I see or hear things that recall my partner's captivity I have more severe sleep disturbances or oversensitivity to noise"). Husbands' current PTSD scores were obtained by husbands asking to rate their posttraumatic symptoms related to their own combat or captivity experiences. The number of positively endorsed symptoms was calculated by counting the items in which the respondents answered 3 (*often*) or 4 (*almost always*) as these responses best capture the *DSM-IV-TR* criteria of "persistent" experiencing of these symptoms. Scores were dichotomized (PTSD, no PTSD) using *DSM-IV-TR* PTSD criteria: A respondent was considered to have PTSD if he endorsed at least one intrusive, three avoidant, and two arousal symptoms. Husbands' PTSD trajectories were derived from husbands' PTSD status in each of the three waves of data collection (further details in the Results section). For the mediation analyses, husbands' current PTSD symptom levels, and their score on the PTSD-I was treated as a continuous variable. The PTSD-I has proven psychometric properties in terms of high test-retest reliability (Schwarzwald, Solomon, Weisenberg, & Mikulincer, 1987), concurrent and convergent validity (Solomon et al., 1993; Solomon & Mikulincer, 1988). The PTSD-I reliability value for wives' ST was Cronbach's $\alpha = .91$ and for husbands' PTSD in 2008, Cronbach's $\alpha = .95$.

Completed by wives only.

Functional disability. Functional disability (*DSM-IV-TR* Criterion F) was assessed through one self-report question assessing the degree to which the participants' mental state interfered with routine activities on a five-point rating scale ranging from 1 (*no interference*) to 5 (*very high level of interference*). Answers of 4 (*interfered quite a lot*) and 5 (*very high level of interference*) were considered endorsement of functional disability as both indicated that the participant's life was considerably affected.

Psychiatric symptoms. Psychiatric symptoms were measured using the Symptom Checklist 90 (SCL-90; Derogatis, 1977), a widely used, well-validated, 90-item, self-report questionnaire measuring a range of psychological issues. The General Severity Index (GSI) examines the overall severity of psychiatric symptomatology. Items are rated on a scale of 0 (*not at all*) to 4 (*extremely*) about the 2-week period prior to completing the questionnaire. The SCL-90 has been found to have good validity (Peveler & Fairburn, 1990) and reliability (Solomon, Shklar, & Mikulincer, 2005). Cronbach's α for the General Severity Index (GSI) was .96.

Self-rated general health perception. Self-rated general health was measured using the Medical Outcomes Short-Form Health Survey (SF-36; Ware, Snow, Kosinski, & Gandek, 1993). This is a 36-item, self-report measure assesses eight concepts of health referring to the previous month. Participants in this study completed only the general health subscale (5-items). Respondents indicated their agreement with items on the questionnaire using a scale ranging from 1 (*definitely not true*) to 5 (*definitely true*). Higher scores suggest better perceived health. The questionnaire has good construct validity (Lewin-Epstein, Sagiv-Schifter,

Shabtal, & Shmueli, 1998). Cronbach's alpha in the current study was .78 for general health.

Procedure

Ex-POWs, CVs, and their wives, were located through contact information provided in previous waves of the longitudinal study. Potential participants were sent a letter in which we introduced the present study and informed them that research assistants (licensed social workers) would contact them. After receiving an explanation of the aim of the present study, participants were offered the option of completing research questionnaires either in their homes or at a location of their choice. Informed consent was obtained for all participants. Approval for this study was given by the Tel Aviv University Ethics Committee.

Results

The results section comprises a number of comparisons and analyses. We first compared outcomes between three groups: wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, and wives of CVs. Our second comparison was of the outcomes of three groups: wives of ex-POWs with chronic PTSD, wives of ex-POWs with delayed PTSD, and wives of CVs. For correlations between the dependent variables, please see Table 1, which shows that correlations were appropriate for multivariate analysis of variance (MANOVA). Finally, we conducted two mediation analyses to see whether husbands' PTSD symptoms mediated the relationship between husbands' captivity and ST and general psychiatric symptoms in the wives.

To decide whether the data had missing values in a pattern that was random, we conducted two tests. The aim was to evaluate whether we should complete missing values. First we measured the frequencies of present and missing PTSD symptoms values (of the men in the second measurement wave), and found 170 (43.2%) were present and 124 (56.8%) were missing. Then, we measured differences between these groups in all of the variables, using Little's Missing Completely at Random test. It was found that groups differed in the husbands' PTSD symptoms in the first and third wave. It also was found that these groups were different in the wives' ST, GSI, and self-rated health at T2 and their GSI measure and self-rated health. We also found significant differences between the husbands' PTSD in 2008 and the wives PTSD at T2. Moreover, prior attempts to account for missing data, using multiple imputation analysis, seemed to bias the original data, with

analyses revealing different (and more significant) results, probably because of the larger sample. These findings indicate that the data are missing in a pattern that is not random. Thus, we decided to be cautious and use a smaller sample comprising only men who participated in all waves in PTSD symptoms to calculate the trajectories groups.

Group Differences Between Wives of Ex-POWs With PTSD, Ex-POWs Without PTSD, and CVs' Wives

We excluded wives whose husbands had missing data as to their PTSD status in 2008. As less than 1% ($n = 1$) of the husbands from the CV group reported having PTSD, his wife was omitted from the analyses leaving three groups: wives of ex-POWs who met the criteria for PTSD ($n = 66, 38.4\%$), wives of ex-POWs who did not meet the criteria for PTSD ($n = 36, 20.9\%$), and a control group of wives of CVs who did not meet the criteria for PTSD ($n = 46, 26.7\%$). No significant differences were found in sociodemographic variables between these three groups. Means, standard deviations, univariate analysis of variance (ANOVA) F statistics, and group comparisons for the dependent variables are summarized in Table 2.

ST. ANOVAs returned a significant effect of grouping (wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, wives of CVs) on ST total scores. MANOVAs returned a significant effect of grouping on ST subscales Pillai's trace $F(6, 264) = 4.98, p < .001, \eta_p^2 = .10$. Separate univariate ANOVAs on the outcome variables revealed significant effects for all subscales. Wives of ex-POWs with PTSD reported significantly worse scores on the ST total score and hyperarousal score compared with the other two groups, and on avoidance score compared with wives of CVs. Both wives of ex-POWs with PTSD and wives of ex-POWs without PTSD reported significantly worse scores on the intrusion subscale compared with wives of CVs.

Functional disability. ANOVAs returned a significant effect of grouping (wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, controls) on functional disability. Wives of ex-POWs with PTSD reported significantly greater levels of functional disability compared with the other two groups.

Psychiatric symptoms (SCL-90 GSI). ANOVAs returned a significant effect of grouping (wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, wives of CVs) on SCL-90 GSI. Wives of ex-POWs with PTSD reported significantly worse GSI scores compared with wives of CVs.

Table 1
Pearson Correlations Between the Dependent Variables

Variables	1	2	3	4	5	6	7
1. ST	—						
2. Intrusion	.79** (156)	—					
3. Avoidance	.85*** (156)	.51*** (156)	—				
4. Hyperarousal	.86*** (156)	.51*** (156)	.61*** (156)	—			
5. Level of functional disability	.67*** (154)	.55*** (154)	.49*** (154)	.62*** (154)	—		
6. GSI	.78*** (154)	.52*** (154)	.68*** (154)	.75*** (154)	.63*** (168)	—	
7. Self-rated health	.55*** (155)	.41*** (155)	.49*** (155)	.46*** (155)	.50*** (169)	.61*** (170)	—

Note. Values in parentheses are valid N; ST = secondary traumatization; GSI = General Severity Index.
** $p < .01$. *** $p < .001$.

Table 2

Means, Standard Deviations, and Univariate F Results of Outcome Variables for Wives of Ex-POWs With PTSD, Wives of Ex-POWs Without PTSD, and Wives of CVs

	Wives of ex-POWs with PTSD (<i>n</i> = 66)	Wives of ex-POWs without PTSD (<i>n</i> = 36)	Wives of CVs (<i>n</i> = 46)	<i>F</i>	η_p^2	Group comparisons
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
ST	5.84 (4.51)	3.41 (3.87)	2.38 (2.76)	10.74*** (2, 133)	.14	a > b, c
Intrusion	1.65 (1.70)	1.06 (1.46)	0.21 (0.47)	13.57*** (2, 133)	.17	a, b > c
Avoidance	1.79 (1.82)	0.97 (1.56)	0.81 (1.25)	5.55** (2, 133)	.08	a > c
Hyperarousal	1.40 (1.85)	1.38 (1.62)	1.36 (1.62)	6.08** (2, 133)	.08	a > b, c
Functional disability	2.37 (1.27)	1.57 (0.98)	1.31 (0.76)	14.66*** (2, 142)	.17	a > b, c
GSI	1.17 (0.72)	0.96 (0.61)	0.73 (0.53)	6.31** (2, 144)	.08	a > c
Self-rated health	3.45 (0.96)	3.85 (0.70)	4.08 (0.69)	8.21** (2, 145)	.10	c > a

Note. The group comparisons column compares the mean level of the variable in each group. PTSD = posttraumatic stress disorder; CV = combat veteran; ST = secondary traumatization; a = ex-POWs' wives with PTSD; b = ex-POWs' wives without PTSD; c = CVs' wives; GSI = General Severity Index.

** *p* < .01. *** *p* < .001.

Self-rated health (SF-36 subscale). ANOVAs returned a significant effect of grouping (wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, wives of CVs) on self-rated health. Wives of ex-POWs with PTSD endorsed significantly worse self-rated health compared with wives in the CVs group, but not with wives of ex-POWs without PTSD.

Group Differences of Wives According to Husbands' PTSD Trajectories

We investigated the impact of husbands' PTSD trajectories in wives of ex-POWs, excluding those wives whose husbands had missing data regarding their PTSD symptoms in any of the three waves of data collection. Wives were divided into four groups according to the ex-POW's self-reported PTSD symptoms at all three of the husbands' measurement waves (1991, 2003, 2008): chronic PTSD, if the ex-POW met criteria for PTSD in all three waves (*n* = 22, 17.3%); delayed PTSD, if the ex-POW did not endorse PTSD criteria in the first wave but did in subsequent waves (*n* = 51, 40.2%); recovered PTSD if they endorsed PTSD criteria in either of the first two waves, but not in the third (*n* = 2, 1.7%); and resilient, if the ex-POW never endorsed criteria for PTSD (*n* = 9, 7.1%). The recovered and resilient groups were

omitted from our analyses due to their small group sizes. An additional group was included in the comparisons: wives of resilient CVs who did not endorse PTSD criteria in any of the measurement waves (*n* = 45, 35.4%). Means, standard deviations, univariate ANOVA *F* statistics, and group comparisons for the dependent variables are summarized in Table 3.

ST. ANOVAs returned a significant effect of grouping (wives of ex-POWs with chronic PTSD, wives of ex-POWs with delayed PTSD, wives of resilient CVs) on ST total score. MANOVAs returned a significant effect of grouping on ST subscales Pillai's trace $F(6, 138) = 2.34, p < .05, \eta_p^2 = .09$. Separate univariate ANOVAs on the outcome variables revealed significant effects for intrusion. Wives of resilient CVs reported significantly less intrusion compared with the other two groups.

Functional disability. ANOVAs returned a significant effect of grouping (wives of ex-POWs with chronic PTSD, wives of ex-POWs with delayed PTSD, wives of resilient CVs) on functional disability. Wives of ex-POWs with chronic PTSD reported significantly higher levels of functional disability compared with wives of resilient CVs.

Psychiatric symptoms (SCL-90 GSI). ANOVAs returned a nonsignificant effect of grouping (wives of ex-POWs with chronic

Table 3

Means, Standard Deviations, and Univariate F Results of Outcome Variables for Wives by Husbands' PTSD Trajectory

	Wives of chronic PTSD ex-POWs (<i>n</i> = 22)	Wives of delayed PTSD ex-POWs (<i>n</i> = 51)	Wives of resilient CVs (<i>n</i> = 45)	<i>F</i>	η_p^2	Group comparisons
	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)	<i>M</i> (<i>SD</i>)			
ST	5.89 (3.48)	4.97 (4.51)	2.32 (2.98)	4.90* (2, 70)	.12	a, b > c
Intrusion	1.72 (1.71)	1.42 (1.56)	0.23 (0.43)	7.21* (2, 70)	.17	a, b > c
Avoidance	1.67 (1.37)	1.55 (1.91)	0.77 (1.31)	1.98 (2, 70)	.05	
Hyperarousal	2.50 (1.65)	2.00 (1.82)	1.32 (1.59)	2.34 (2, 70)	.07	
Functional disability	2.28 (1.23)	1.81 (1.06)	1.23 (0.53)	5.80** (2, 69)	.14	a > c
GSI	1.21 (0.65)	1.00 (0.61)	0.81 (0.59)	2.22 (2, 70)	.06	
Self-rated health	3.59 (0.98)	3.60 (0.88)	3.93 (0.76)	1.15 (2, 71)	.03	

Note. The group comparisons column compares the mean level of the variable in each group. PTSD = posttraumatic stress disorder; CV = combat veteran; ST = secondary traumatization; a = ex-POWs' wives with PTSD; b = ex-POWs' wives without PTSD; c = CVs' wives; GSI = General Severity Index.

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

PTSD, wives of ex-POWs with delayed PTSD, wives of resilient CVs) on SCL-90 GSI scores.

Self-rated health (SF-36 subscale). ANOVAs returned a nonsignificant effect of grouping (wives of ex-POWs with chronic PTSD, wives of ex-POWs with delayed PTSD, wives of resilient CVs) on self-rated health.

The Husbands' PTSD Symptoms as a Mediator Between the Husbands' Captivity and the Wives' Total ST Score

The fourth aim of this study dealt with the possible mediation role of the husbands' PTSD symptoms level in the association between the husbands' war captivity and the wives' total ST score. To examine the mediation, we used a bootstrapping method with 1,000 bootstrap resamples (see Figure 1). Bootstrapping is a non-parametric method that generates an estimate of the indirect effect, including a 95% confidence interval. When zero is not in the 95% confidence interval, it can be inferred that the indirect effect is significantly different from zero at $p < .05$ (two-tailed), and thus, that the effect of the independent variable (in this case husbands' war captivity) on the dependent variable (wives' total ST score) is mediated by the proposed mediating variable (the husbands' PTSD symptoms level).

Significant accelerated corrected-bias bootstrap analysis indicated that the mediation path between the husbands' captivity, through the husbands' PTSD symptoms, into the wives' total ST, was significant (bias-corrected bootstrap 95% CI [1.13, 3.32]). The variance in the wives' total ST score accounted for by the husbands' captivity, although the wives' total ST score regressed on both the husbands' captivity and the husbands' PTSD symptoms, was nonsignificant ($\beta = .05$, $SE = .90$) $t(134) = .51$, *ns*. Hence, the relationship between the husbands' captivity and the wives' total ST was fully mediated by the husbands' PTSD symptoms.

The Husbands' PTSD Symptoms as a Mediator Between the Husbands' Captivity and the Wives' General Psychiatric Symptoms

To examine the possible mediation role of the husbands' PTSD in the association between husbands' captivity status and the wives' GSI score, we used a bootstrapping method with 1,000 bootstrap resamples (see Figure 2).

Significant accelerated corrected-bias bootstrap analysis indicated that the mediation path between the husbands' captivity, through the husbands' PTSD symptoms, into the wives' GSI, was significant (bias-corrected bootstrap 95% CI [.06, .39]). The variance in the wives' GSI score accounted for by the husbands' captivity, although the wives' GSI score regressed on both the husbands' captivity and the husbands' PTSD symptoms, was nonsignificant ($\beta = .10$, $SE = .14$), $t(145) = 1.06$, *ns*. Hence, the relationship between the husbands' captivity and the wives' GSI was fully mediated by the husbands' PTSD symptoms.

Discussion

This study examined ST and other generalized distress symptoms (general psychiatric symptomatology, functional distress, and self-rated health) in wives of ex-POWs. We found that wives of ex-POWs with PTSD reported higher ST and generalized distress than wives of ex-POWs and non-POW combat veterans without PTSD. Wives of ex-POWs with chronic PTSD reported the highest levels of ST and generalized distress, suggesting that duration of exposure plays a role in ST and general distress. We also found that the relationships between husbands' prior captivity, and wives' ST and general psychiatric symptomatology were fully mediated by the husbands' PTSD symptom level.

In addition to the finding that wives of ex-POWs with PTSD reported higher ST symptoms, we also found that they were at risk of higher general psychiatric symptoms, more severe and more frequent functional distress, and worse self-rated health. These findings suggest that negative psychological outcomes in spouses of individuals with PTSD should be conceptualized in broader terms as suggested by Renshaw et al. (2011), and not just focused on ST symptoms. The distress associated with living with a partner with PTSD may be manifested in many other forms not yet identified, and this issue requires further investigation.

In line with the meta-analysis conducted by Lambert et al. (2012), we found that wives' ST and general psychiatric symptoms were fully mediated by the husbands' PTSD symptoms. Crucially, this suggests that it is having a relationship with someone that has PTSD that is a mechanism for ST and psychiatric symptoms, rather than simply having a relationship with a trauma survivor per se. Moreover, the higher the severity of the husbands' PTSD symptoms, the more likely the wives was to suffer both ST and generalized psychiatric symptoms. This supports previous findings

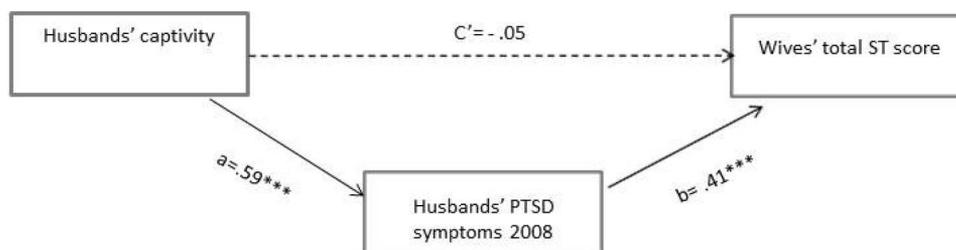


Figure 1. Unstandardized path coefficients of mediation model assessing whether husbands' posttraumatic stress disorder (PTSD) symptoms in 2008 mediate the effects of war captivity on wives total secondary traumatization (ST) score. Dashed lines represent nonsignificant paths; solid lines represent significant paths. *** $p < .001$.

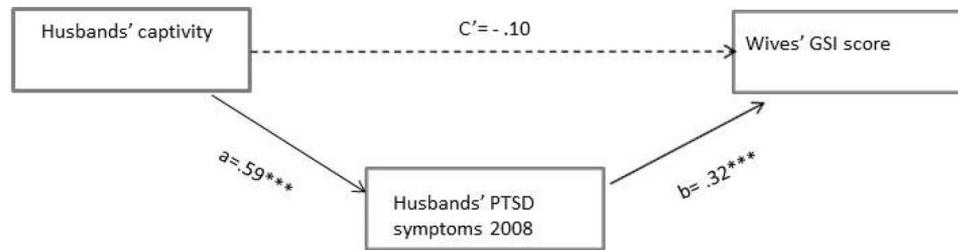


Figure 2. Unstandardized path coefficients of mediation model assessing whether husbands' posttraumatic stress disorder (PTSD) symptoms in 2008 mediate the effects of war captivity on wives' General Severity Index (GSI) score. Dashed lines represent nonsignificant paths; solid lines represent significant paths. *** $p < .001$.

(Beckham, Lytle, & Feldman, 1996; Calhoun, Beckham, & Bosworth, 2002) and has implications for the identification of high-risk groups.

Our findings that the wives of ex-POWs with chronic PTSD reported higher levels of ST symptoms and functional disability compared with wives of ex-POWs with resilient and delayed trajectories point to the importance of duration of exposure to their husband's traumatic symptoms. Prolonged exposure to a person with PTSD may lead to caregiver burden (Hankin, Abueg, Gallagher-Thompson, & Murphy, 1993), in which a person perceives their own emotional or physical health, social life or financial status to be negatively affected by their caregiving role (Zarit, Todd, & Zarit, 1986). Wives of combat veterans with PTSD not only support their husbands emotionally, but also have increased responsibility in the family for earning money, supporting their children, and taking on tasks within the family that they would not otherwise have done. This ongoing burden can take an increasingly severe psychological toll on wives (for review, see R. Dekel & Monson, 2010).

Furthermore, as discussed earlier, meta-analyses indicate that PTSD is associated with intimate relationship discord and physical aggression (Taft et al., 2011), as well as relationship quality and partners' psychological distress (Lambert et al., 2012). It may be that higher levels of ST symptoms reported by wives of ex-POWs with PTSD reflect the traumatic impact of the husbands' PTSD symptoms on wives' psychological functioning. In line with these meta-analyses, a study of U.S. WWII ex-POWs found that ex-POWs who have PTSD were more likely to report marital distress and intimacy problems with their wives compared with ex-POWs without PTSD, more than 50 years after captivity (Cook, Riggs, Thompson, Coyne, & Sheikh, 2004), with these impairments associated ex-POWs' emotional numbing symptoms. Previous studies on the current sample of ex-POWs also have found that their PTSD symptoms were associated with reduced sexual satisfaction, marital adjustment and marital intimacy (Zerach, Anat, Solomon, & Heruti, 2010), and increased verbal aggression (Solomon, Dekel, & Zerach, 2008), all of which are likely to have a negative impact on their wives.

We did not find significant differences between wives of ex-POWs with chronic or delayed PTSD on ST, general psychiatric symptoms or self-rated health as would have been expected if duration is important, although we did find that wives of ex-POWs with chronic PTSD, but not delayed PTSD reported higher functional disability compared with CVs. However, it may be that by T2 their responses to their husbands' distress had already habituated to the point of plateauing. In other words, there may be a threshold point where duration of exposure ceases to exacerbate ST and distress symptoms.

Fredman, Vorstenbosch, Wagner, Macdonald, and Monson (2014) suggested that spouses may exhibit "partner accommodation" whereby they adapt their own behavior in response to these symptoms to reduce the likelihood of exacerbating the PTSD of their significant other. This may take the form of avoiding physical contact, or refraining from expressing their thoughts or feelings. Fredman et al. noted, however, that partner accommodation may come at a cost for the partner themselves, with a positive association between partner accommodation and partner distress. Examining ST symptom clusters in the current study, we found that wives of ex-POWs with PTSD reported more hyperarousal symptoms than wives of ex-POWs without PTSD and wives of CVs, and more avoidance symptoms compared with wives of CVs. It is possible that as part of partner accommodation, wives' sensitivity to and avoidance of potential stressors for their husband may lead to wives developing ST hyperarousal and avoidance symptoms themselves.

Although most of our findings pointed to the importance of PTSD in the husband for wives' ST symptoms, in the case of intrusion symptoms, wives of ex-POWs both with and without PTSD reported significantly higher levels than wives of CVs. This suggests that intrusion ST symptoms may not be a reaction to the husbands' PTSD symptoms, but rather to the husbands' prior traumatic experiences. Although avoidance and hyperarousal symptoms are more focused on current events and behaviors, intrusion symptoms tend to consist of images, thoughts, memories, and nightmares of the traumatic event itself. It could be that it is sufficient that wives of ex-POWs have heard or read about their husbands' experiences, either directly from their husband, or through media reports, for them to develop their own intrusion symptoms in which the content is related to their husbands' captivity.

Although this study investigates the impact of husbands' distress on wives, it is crucial to acknowledge that these effects may be bidirectional (Bramsen, Van der Ploeg, & Twisk, 2002). That is, wives' ST symptoms may be an additional stressor for traumatized husbands, exacerbating husbands' symptoms, creating a spiraling cycle of distress. Furthermore, wives' partner accommodation in the form of avoidance behaviors may not only be maladaptive for the wives as discussed earlier, but might also maintain or even exacerbate the PTSD of their partners (Monson et al., 2009).

There are a number of limitations to this study. First, although common in trauma research, self-report measures are vulnerable to reporting bias. Another limitation is the lack of information on wives' mental health and family history prior to their marriages, as this was not feasible. Another further limitation is that although we used the

term *resilient* to describe husbands who did not endorse PTSD criteria at any of the three measurement waves, it should be noted that these participants may have had other maladaptive responses to their trauma exposure. Moreover the wives of resilient ex-POWs group only consisted of nine members, so we were not able to draw conclusions regarding this group. Finally, as this study looked solely at ST and generalized distress in wives as related to their husbands, caution should be exercised in generalizing these results to husbands of traumatized wives.

This study has some important clinical implications. In particular, wives of partners with chronic and severe PTSD should be considered high-risk groups for ST and distress. These groups may require targeted and possibly joint interventions that address their ST and other psychiatric symptoms, functional disability, as well as their perception of their health. Research has suggested that conjoint cognitive behavior therapy may reduce the distress of partners of individuals with PTSD, as both partners have an opportunity to address the distressing impact of these symptoms in a therapeutic setting (Monson, Schnurr, Stevens, & Guthrie, 2004; Shnaider, Pukay-Martin, Fredman, Macdonald, & Monson, 2014). The study also suggests that, regardless of their husbands' PTSD status, wives of trauma survivors may develop intrusion symptoms related to the content of their husbands' experiences, which may also require intervention.

Finally, this study highlights several important issues. First, these findings generally support previous studies that indicate that it is exposure to a partner with PTSD that leads to overall ST and generalized distress, and not simply to a trauma survivor. Furthermore, the more severe the husbands' PTSD symptoms, the more the wife is at risk of ST and general psychiatric symptomatology. However, ST intrusion symptoms may follow a different mechanism and develop in response to partners' traumatic experiences, rather than as a reaction to partners' PTSD symptoms.

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