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PTSD Symptoms and Marital Adjustment Among Ex-POWs' Wives

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This study prospectively assessed the implications of war captivity and former prisoners of war's (ex-POWs) posttraumatic stress disorder (PTSD) and PTSD trajectory on their wives' marital adjustment, adjusting for their secondary traumatization (ST). Results show that marital adjustment of the wives of ex-POWs with PTSD ($N = 66$) was lower compared to wives of ex-POWs ($N = 37$) and combat veterans ($N = 55$) without PTSD symptoms. Investigating the possible mechanism underlying the lower marital adjustment, via a mediating model, indicated that husbands' PTSD symptoms mediated the association between captivity and the wives' marital adjustment. Moreover, husbands' PTSD trajectories assessed over 17 years were implicated in their wives' marital adjustment; wives of ex-POWs with chronic PTSD reported lower marital adjustment compared to wives of resilient ex-POWs. The substantial novelty was revealed in prospective deterioration found in dyadic adjustment among wives of ex-POWs with delayed PTSD, but not for wives of chronic or resilient ex-POWs. Implications for research and practice are discussed.

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

In Western society, marital relationships are often perceived as the most intimate and significant of adult relationships, and are considered to be pivotal to the well-being of both spouses (e.g., Roth, 1988). Hence, being a spouse is one of the most important roles a person will take on in his or her family life. The resulting marital adjustment has the power to mitigate coping with the vicissitudes in life and more importantly, as in our concern, can also be negatively affected. Therefore, it is important to assess the interrelation of the mental status of one spouse on the other, specifically with regard to the role this plays in marital adjustment.

Marital adjustment is a multifaceted construct, and may also be referred to as marital quality (e.g., Proulx, Helms, & Buehler, 2007), marital stability (Schumm, Bell, & Gade, 2000), couple adjustment (Gewirtz, Polusny, DeGarmo, Khaylis, & Erbes, 2010), or marital satisfaction and functioning (e.g., Goff, Crow, Reisbig, & Hamilton, 2007; Renshaw, Rodrigues, & Jones, 2008). A commonly accepted definition of marital adjustment, which has been adopted by the current study, refers to perceived satisfaction based on several separate, yet related, subsystems. These dimensions include satisfaction, consensus, cohesion, and affection in the marital relationship (Spanier, 1976). Marital satisfaction refers to the level of happiness in the relationships and conflicts experienced by the couples. Marital cohesion represents collaborative activities between couples. Marital consensus refers to the levels of agreement on certain important issues, previously agreed upon by the couple, such as managing finances or important decisions. Affection expression is related to how often the couples express their love to each other (Zargar, 2014).

Marital adjustment is not stable or fixed, but an ongoing process that is susceptible to change over time (e.g., McNulty & Karney, 2001). Across the life span, various unexpected, negative life events may occur that have the potential to affect the interpersonal state in familial subsystems (Minuchin, 1974; Minuchin, Nichols, & Lee, 2007). For instance, traumatic events that occur outside of the marriage may stimulate changes in one or both marital partners. Such events have been implicated in changes of marital adjustment (e.g., Johnson & Williams-Keeler, 1998).

Military combat and war captivity are conspicuous traumas with a considerable emotional and interpersonal toll. The present study takes a step further toward understanding the longitudinal impact of the implications of combat and captivity of husbands and their resulting posttraumatic stress disorder (PTSD) on wives' marital adjustment.

War Captivity

Combat is a highly traumatic experience that entails the tangible risk of being killed, maimed, or wounded. For those combatants who are captured by the enemy, the trauma of war is compounded.

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War captivity comprises brutal torture, severe humiliation, and a prolonged and harsh deprivation of basic needs (Herman, 1992). Unlike other traumatic events, captivity is a highly intimate, interpersonal experience, with captors having total control over their prisoner. Captors make decisions about the life or death of the captive, and often deliberately inflict extreme physical and psychological pain aiming to break the captive's spirit. The captive's unique and complex interaction with the captor often leaves a detrimental imprint on the captive's subsequent interpersonal relationships, particularly with regard to issues such as control, trust, and intimacy (Herman, 1992). Indeed, research has revealed that former prisoners of war (ex-POWs) displayed lower trust, self-disclosure, and intimacy and higher verbal violence than did comparable veterans who were not held captive (Solomon, Dekel, & Zerach, 2008). It was argued that the trauma of captivity undermines the perception of others as trustworthy and gives rise to mistrust and detachment from others. The negative implications of captivity can extend to family relationships, and are reflected in lower marital adjustment among wives of traumatized ex-POWs (Zerach, Greene, & Solomon, 2015).

Ex-POWs are at high risk for developing psychiatric sequelae, the most common of which is PTSD (e.g., Solomon et al., 2012). A considerable body of research conducted in various armies around the globe and across numerous wars has consistently documented elevated rates of PTSD among ex-POWs (e.g., Port, Engdahl, & Frazier, 2001; Rintamaki, Weaver, Elbaum, Klama, & Miskevics, 2009). Yet, the manifestations of PTSD are not the same for different individuals, and this fact increases the importance of assessing it more accurately.

Trajectories of PTSD

The course of PTSD varies over time, with symptomology fluctuating in frequency and intensity; there exists the possibility that the onset of PTSD may occur at any time during the life course following exposure to trauma (American Psychiatric Association, 2013). Research has identified prototypical PTSD trajectories (Bonanno, 2004), including the following: recovery: initial PTSD symptomology that subsides with time; chronic: the individual has a continuous clinical level of PTSD symptoms; delayed: the onset of PTSD occurs after an asymptomatic period postexposure; and resilient: there are no or only a few subclinical symptoms, both in the short- and long-term postexposure. In other words, PTSD, similar to marital adjustment, tends to wax and wane. Therefore, there is a need to examine the fluctuations of PTSD and the impact on marital relationships.

The emotional implications of chronic PTSD result from a highly crystallized, pervasive ailment that, over time, impairs many areas of functioning, including intimate relationships. Ex-POWs with delayed PTSD face subsequent life changes and events that reactivate captivity-related distress long after the trauma has taken place. The resilient and recovery groups do not currently suffer from PTSD, with the resilient group seeming to have a more secure psychological foundation that might allow them to maintain greater emotional equanimity and thereby better marital adjustment, despite exposure to events that could potentially reactivate captivity-related distress. Given the enduring nature of chronic PTSD, we hypothesize that chronic PTSD will take a higher toll on the marital adjustment of the wives of these veterans, followed by the wives of ex-POWs with delayed PTSD, and then wives of ex-POWs recovered from PTSD, with the least affected being the resilient group.

In light of the observed heterogeneity in PTSD trajectories, and given the impact of husbands' PTSD on marital adjustment, this study aims to widen the current limited knowledge by assessing the prospective relations between the husbands' PTSD trajectory and the wives' marital adjustment over an extended time period.

PTSD and Marital Adjustment

Studies conducted among ex-POWs from the United States (Engdahl, Dikel, Eberly & Blank, 1997) and Israel (Solomon & Dekel, 2005) have found that ex-POWs are at an increased risk of developing PTSD, which negatively impacts the intimate relations of traumatized veterans (for a review, see Monson, Taft, & Fredman, 2009). The manifestations of the impaired intimate relations vary across traumatized individuals and their partners.

Research has revealed that the marital relationships of traumatized veterans are undermined by PTSD, leading to higher rates of divorce than in their trauma-exposed counterparts without PTSD (e.g., Cook, Riggs, Thompson, Coyne, & Sheikh, 2004). Studies have documented that male veterans with chronic PTSD have been found to be less emotionally expressive with their partners (Carroll, Rueger, Foy, & Donahoe, 1985) and to have greater intimacy problems (Riggs, Byrne, Weathers, & Litz, 1998), compared to veterans without chronic PTSD. However, review of the literature reveals that these studies are limited in that they either use a cross-sectional or retrospective approach (e.g., Gewirtz et al., 2010; Zerach, Greene, Ginzburg, & Solomon, 2014). Moreover, previous studies have focused only on one partner's perspective within the marital adjustment.

Only one study examined the relationship between PTSD and marital adjustment, over time. In a study of married or partnered National Guard soldiers recently returned from combat duty in Iraq, Erbes, Meis, Polusny, and Compton (2011) found that veterans' PTSD predicted poor relationship adjustment in both male and female soldiers at two time points, initially and 1 year after their return. However, this study did not assess the effect of veterans' PTSD trajectories on wives' marital adjustment.

Despite the great interest in PTSD, there are very few studies examining husbands' PTSD trajectories and wives' marital adjustment over time. The husbands' PTSD has relevance in understanding the mechanisms through which wives' marital adjustment is influenced. Research has suggested that PTSD symptoms of hyperarousal include irritability and outbursts of anger (e.g., O'Donnell, Cook, Thompson, Riley, & Neria, 2006), with spouses reporting that, as a result, they feel they have to "walk on eggshells" (Maloney, 1988, p. 143). This leads us to question how wives of ex-POWs with PTSD experience their marital life and the resulting impact on their marital adjustment.

Secondary Traumatization

A growing body of research shows that the detrimental impact of war trauma spreads beyond the individual veteran, affecting other family members (for a review, see R. Dekel & Monson, 2010). This phenomenon has been described as secondary traumatization (ST), when the implications of trauma, as experienced by

the primary trauma survivor, are transmitted to the significant other (Figley, 1986). However, ST does not encapsulate the entire picture of the impact of trauma on those close to the trauma survivor. It can also manifest itself in other forms, such as marital adjustment. This study aims to fill this knowledge gap.

PTSD is the factor that serves as the basic mechanism between captivity and ST, and thus explains the effect of trauma on the family (Greene, Lahav, Bronstein, & Solomon, 2014). The Greene et al. (2014) study, which is cross-sectional in nature, has also shown that PTSD trajectories are implicated in ST, however. The current study explores further this mechanism and its validity for marital adjustment, and beyond secondary traumatization. This allows us to further conclude whether PTSD is only implicated in the mental state of the spouse, or in both their mental and marital adjustment.

PTSD and Wives' Marital Adjustment

Studies based on ex-POWs' wives' perspectives similarly demonstrated associations between wives' ST and their marital adjustment (e.g., Zerach et al., 2014). Only a handful of studies have specifically focused on wives' perception of the effects of war captivity trauma on their marital relationships. In a sample of Australian ex-POWs' wives, Hall and Simmons (1973) found feelings of abandonment and suppressed anger toward their husbands. Moreover, Bernstein (1998) also found that wives of World War II U.S. ex-POWs reported elevated emotional distance. More recently, an Israeli study, utilizing the same sample as the current study, found that wives of Israeli ex-POWs reported lower marital adjustment compared to wives of non-POW combat veterans (R. Dekel & Solomon, 2006). A study by R. Dekel, Enoch, and Solomon (2008) was, to the best of our knowledge, the first to investigate both spouses' marital adjustment; however, a cross-sectional design was used, and therefore effects over time and PTSD trajectories were not examined.

In scrutinizing the literature, we found that most studies utilized only a cross-sectional design, as opposed to the current study, which is longitudinal, which will allow this study to advance the understanding of the effect between spouses over time. Moreover, this study was further refined compared to the previous related study, as it assesses the additional aspects of marital consensus, expression of affection, marital satisfaction, and marital cohesion in the marital adjustment of wives' of ex-POWs with PTSD.

The question arises whether it is the captivity itself or its psychopathological consequences for the husbands that affect the wives' marital adjustment, beyond their ST. The current study prospectively investigates marital adjustment in wives of ex-POWs and wives of combat veterans by examining the ramifications of the (1) husbands' war captivity, (2) husbands' PTSD, and (3) husbands' PTSD trajectory over time, adjusting for wives' ST. Specifically, we hypothesize that (1) wives of ex-POWs with PTSD will report lower marital adjustment than will wives of ex-POWs and combat veterans without PTSD at Time 2 (37 years after the war); (2) a mediation model is expected, in which the PTSD symptoms mediate the association between the husbands' captivity and the wives' marital adjustment; (3) over time, marital adjustment will decline among all groups, but a more substantial decline will be found among wives of ex-POWs with PTSD; and (4) over time, marital adjustment will be lower in wives of ex-POWs with chronic PTSD than that of wives of ex-POWs with delayed or resilient ex-POWs.

Method

Participants

This study is part of a multicohort longitudinal study of male Israeli combat veterans of the 1973 Yom Kippur War (see S. Dekel, Ein-Dor, & Solomon, 2012, and Solomon & Dekel, 2005, for more details) and their spouses. Two groups took part: (1) ex-POWs captured and held in Syria or Egypt, and (2) comparable combat veterans who were not captured. Both groups were matched for personal, military, and combat background variables.

The data regarding the PTSD trajectories of husbands were collected from ex-POWs and veterans at all three measurement waves: 18, 30, and 35 years after the war. In the first wave, 164 ex-POWs participated, and in the second wave, 121 ex-POWs participated (10 could not be located, 4 had died, and 6 could not participate because of deterioration in their mental status). In the third wave, 176 ex-POWs participated (25 had died, 29 could not be located or refused to participate, and 6 could not participate because of deterioration in their mental status). Regarding control veterans, 185 men participated in the first wave of measurement. In the second wave, 41 could not be located and 1 had died. Of the remaining 143, 106 participated in the second wave. In the third wave all veterans who participated in the first wave were contacted, and 118 participated in the third wave.

Data were collected from these veterans' wives twice, at 30 years after the war (Time 1, or T1) and 37 years after the war (Time 2, or T2). Of the married 147 ex-POWs, 83 wives participated in T1 and 116 wives participated in T2. Of the 100 married veterans, 71 wives participated in T1 and 56 wives participated in T2.

Regarding husbands, no significant differences were found between the ex-POWs and control combat veterans groups in the following background variables: age, education, father's country of origin, military assignment during the war, and participation in war activity prior to the Yom Kippur War (for details, see Zerach et al., 2014). Regarding wives, demographic group differences were calculated for T2, and no significant differences were found in age, country of birth, years of marriage/cohabitation, number of children, work, and income status. The women's ages ranged from 36 to 79 years ($M = 57.90$, $SD = 5.87$). Fifty-two percent of the women in both groups held full-time jobs, 26% had part-time jobs, and 22% were not working. Thirty-eight (32.8%) of the ex-POWs' wives and 19 (33.9%) of the controls' wives were married before the captivity while the remainder were married after the war. Mean years of marriage among wives of ex-POWs ($M = 33.6$, $SD = 10.3$) were slightly lower compared to the control group ($M = 35.1$, $SD = 6.7$). In addition, among wives of ex-POWs, 6.6% were divorced, compared to 4.9% among controls. We do not have any information about the percentage of ex-POWs' wives who were dating their husbands when they were captured.

The two groups differed in religiosity and years of education. More ex-POWs' wives defined themselves as religious (32.5% vs. 12.5% among controls' wives) and fewer as secular (56% vs. 71.4%). In addition, ex-POWs' wives' mean years of education were slightly lower ($M = 14.16$ years, $SD = 3.20$) than those of

controls ($M = 15.50$, $SD = 2.92$). In order to test whether these variables should be entered as covariates to the analyses in the current study, we conducted extra demographic analyses. We divided the wives according to their husbands' PTSD status (wives of ex-POWs with and without PTSD and wives of controls without PTSD) and according to his PTSD trajectory (chronic, delayed, resilient). No significant differences were found in sociodemographic variables between these groups apart from education, $F(2, 140) = 3.36$, $p = .04$, partial $\eta^2 = .05$, with wives of ex-POWs with PTSD reporting lower education compared to wives of controls. Because of this result, education was used as a covariate in the analysis comparing these groups.

Procedure

Tel Aviv University and Israeli Defense Force ethics committees approved this research. The purpose of the study was explained to ex-POWs, veterans, and wives, and they were asked to sign an informed consent form before participating. Questionnaires were completed either at home or at the preferred location of the individual.

Questionnaires

Posttraumatic Stress Disorder Inventory and ST (PTSD-I). Husbands' PTSD symptoms and wives' ST were assessed via the PTSD-I (Solomon et al., 1993). Husbands and wives indicated the frequency of items reflecting the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM–IV*; American Psychiatric Association, 1994) symptoms of PTSD (intrusion, numbing/avoidance, and hyperarousal). Items are scored on a 4-point Likert scale, ranging in frequency from 1 (*least*) to 4 (*greatest*).

Husbands' current PTSD scores were obtained by asking husbands to rate their posttraumatic symptoms related to their own combat or captivity experiences. Ex-POWs and veterans were considered to have PTSD if they met the *DSM–IV–TR* criteria by endorsing at least one symptom of intrusion, at least three symptoms of numbing/avoidance, and at least two hyperarousal symptoms and criterion F (functional impairment); (DSM-IV-TR; American Psychiatric Journal, 2000). 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 over sensitivity to noise").

The PTSD-I is a well-validated screening tool with strong reliability (Solomon et al., 1993). In the current study, the internal consistency was high for veterans' PTSD and wives' ST ($\alpha = .95$ and .91, respectively).

Dyadic Adjustment Scale (DAS). Marital adjustment was measured using the DAS (Spanier, 1976), a 32-item self-report questionnaire that has been widely used to assess marital satisfaction and adjustment. The scale comprises four subscales assessing marital consensus (i.e., the extent of agreement and amount of time spent together), expression of affection (i.e., individual's satisfaction with the expression of affection and sex), marital satisfaction (i.e., amount of tension and the extent to which ending the relationship was considered), and marital cohesion (i.e., common interests and shared activities) (Caselli & Motta, 1995). Reported internal consistency (alpha) coefficients are above .90 (Riggs et al., 1998). In the current study, Cronbach's alpha was 0.96 in T2 and .95 in T1.

Statistical Analyses

Descriptive analyses were performed to check for demographic differences between study groups using chi-square and Mann–Whitney (U). Multivariate analysis of variance with covariates (MANCOVA), analyses of covariance (ANCOVAs), and discriminant functions analysis compared the effect of grouping and prospective changes on marital adjustment. We used the advanced mediation methodology (Hayes, 2009), based on the bootstrapping approach of Preacher and Hayes (2008) to assess the mediation model. The model was assessed with PROCESS, a versatile computational tool (Hayes, 2012).

Results

Does Husbands' PTSD Predict Wives' Marital Adjustment, Adjusting for Their ST?

Three groups were included in the study: wives of ex-POWs with PTSD ($n = 66$, 44.6%), wives of ex-POWs without PTSD ($n = 37$, 25%), and controls without PTSD ($n = 45$, 30.4%). (PTSD is determined by who has met or has not met the *DSM* criteria of PTSD.) Only one control veteran endorsed PTSD symptoms, so he and his wife were excluded from this study. For the mediation analysis, the variable of husbands' PTSD was treated as a continuous variable.

We wanted to examine whether the effects of the husband's PTSD is implicated in the wives' marital adjustment as well as in wives' ST. Therefore, we explored the role of wives' ST as a control variable. Education was entered as another variable. To examine differences in T2 marital adjustment among the three study groups, controlling for wives' T2 ST and education, we conducted a one-way MANCOVA. The results revealed a significant overall effect to differences in T2 marital adjustment among the three study groups, Pillai's Trace, $F(8, 248) = 2.36$, $p = .05$, partial $\eta^2 = .07$ (see Table 1).

To probe the nature of the difference in marital adjustment, we examined the relative contribution of the four marital adjustment subscales: satisfaction, cohesion, consensus, and affect to the degree of difference between wives of ex-POWs with and without PTSD and controls, by using a discriminant function analysis, followed by a series of univariate ANOVAs. Means, standard deviations, test statistics and their level of significance are presented in Table 1.

As can be seen from Table 1, wives of ex-POWs with PTSD reported significantly less total marital adjustment, consensus, and affection than did wives of control veterans without PTSD. However, no differences were found for cohesion and satisfaction. No other differences were found between the groups. The covariate of wives' T2 ST yielded significant overall effect, Pillai's Trace, $F(4, 124) = 3.09$, $p = .02$, partial $\eta^2 = .09$ (as well as significant effects for its subscale), but no significant effect was found for education, Pillai's Trace, $F(4, 124) = .41$, $p = .8$, partial $\eta^2 = .01$. As can be seen in Table 1, the analyses revealed that affection had the greatest contribution to the difference between groups. Con-

Table 1
Means (and Standard Deviations) of T2 DAS Variables Across Study Groups

Measure, T2	β	Wives of ex-POWs with PTSD		Wives of ex-POWs without PTSD		Control wives without PTSD		$F(2, 127)$	Partial η^2
		M	*SD*	*M*	*SD*	*M*	*SD*		
Total	34.08[a]	8.99	36.27[c]	8.23	37.8[b]	9	3.75[*]	.06	
Affection	.98	7.08[a]	2.79	7.4[c]	3.15	8.88[b]	2.7	4.37[**]	.06
Consensus	.86	42.34[a]	14.25	45.94[c]	12.43	50.05[b]	11.9	3.55[*]	.05
Satisfaction	.59	33.78[a]	9.13	36.2[a]	7.9	38[a]	8.82	2.08	.03
Cohesion	.7	13.74[a]	6.74	14.91[a]	5.31	16.12[a]	4.96	2.17	.03

Note. The DAS symptoms as reported by the spouses at T2. Within rows, means lacking a common superscript differ significantly. Measures are ranked by magnitude of difference; $\eta p^2 < .01$ refers to a weak magnitude of difference; $\eta p^2 > .06$ refers to a moderate magnitude of difference; $\eta p^2 > .14$ refers to a strong magnitude of difference. T2 = Time 2 (37 years after the war); DAS = Dyadic Adjustment Scale; ex-POW = former prisoners of war; PTSD = posttraumatic stress disorder.
[a] Wives of ex-POWs with PTSD. [b] Wives of ex-POWs without PTSD. [c] Adheres to both groups.
[*] $p < .05$. [**] $p < .01$.

sensus had the second greatest contribution to the discrimination between the groups. Cohesion was the third discriminant, and the last was satisfaction.

Husbands' PTSS as Mediator Between Captivity and Wives' Marital Adjustment

Husbands' T2 (2008) PTSS (post-traumatic stress symptoms) mediates the link between captivity and wives' T2 (2011) marital adjustment. The simple mediation, which can be considered to represent an average model, was tested by applying Hayes's (2009) model for estimating the size and significance of the indirect effect in mediation. In the analyses, we used husbands' PTSD (continuous variable) as mediator and captivity (the predictor) as a dummy variable. The use in dummy predictor variables is well accepted using PROCESS macros (Hayes & Preacher, 2014). The dependent variable, that is, marital adjustment, was controlled for the effects of wives' T2 ST continuous variable as covariate. Education was entered as another covariate. Thus, we used a simple mediation model with covariates. Criteria for the mediation were met, beyond the covariates inserted (see Figure 1).

T2 PTSD significantly mediated the association between captivity and wives' T2 marital adjustment, adjusting for the influence of the covariates. Additionally, significant indirect effect could be verified in the analyses on marital adjustment (indirect effect = −9; *SE* = 4.16; $z = -2.25$; $p = .02$; 95% confidence interval for husbands PTSS based on 5000 bootstrap resamples,

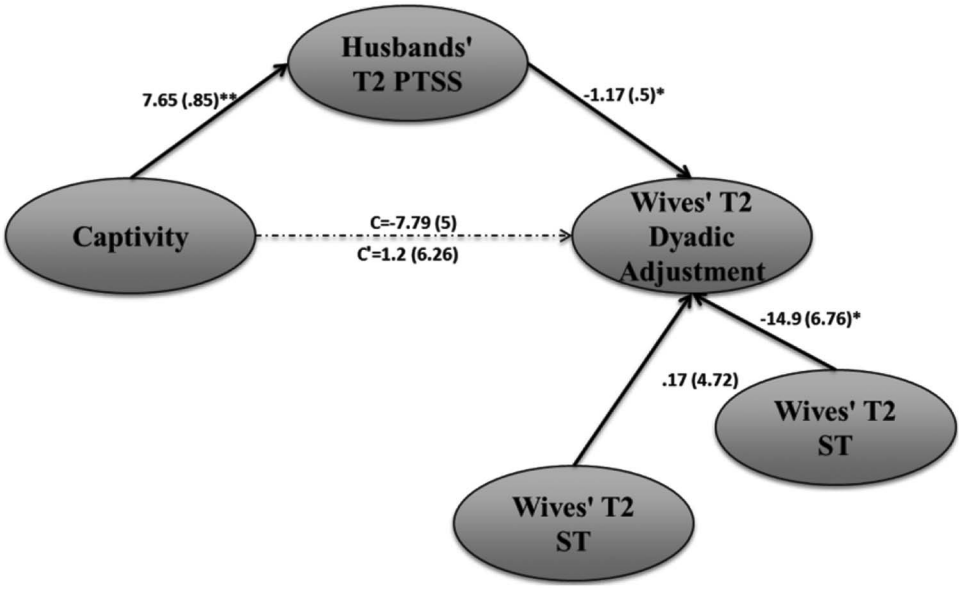

Figure 1. Basic mediation model. Individual path estimates for the predictor and mediator in the mediation model are presented. Captivity was inserted to the analysis as a dummy variable; the ex-POWs group was coded as positive (0.5), and the control group was coded as a negative value (−0.5). PTSS = ; ST = secondary traumatization. [*] $p < .05$. [**] $p < .01$.

[−19.66, −1.798]. Figure 1 presents individual path estimates for the predictor and mediator in the mediation model. As for the covariate, wives' ST (β = −14.96, *SE* = 6.76, *t* = −2.2, *p* = .02) significantly predicted wives' marital adjustment. No significant effect was found for education (β = .17, *SE* = 4.72, *t* = .03, *p* = .9).

Change in Marital Adjustment over Time

To prospectively examine differences in marital adjustment, we conducted a two-way ANOVA with the three study groups (wives of ex-POWs with PTSD, wives of ex-POWs without PTSD, and control wives) and time of measurement (T1, T2) as factors. Time of measurement was treated as a within-subject repeated factor. The dependent variable was the DAS total score. Wives' T1 and T2 ST as well as education were inserted as covariates.

The analyses revealed no main effect for time of measurement, Pillai's trace, $F(1, 68) = .12$, $p = .73$, partial $\eta^2 = .00$, indicating that at T2 ($M = 103.97$, $SD = 25.34$), participants endorsed similar levels of marital adjustment as at T1 ($M = 106.21$, $SD = 28.89$). No significant effects were found for group, Pillai's trace, $F(2, 68) = .86$, $p = .43$, partial $\eta^2 = .03$, or for the interaction between time of measurement and group, Pillai's trace, $F(2, 68) = .69$, $p = .5$, partial $\eta^2 = .02$ (see Table 2). No significant effects were found for the covariates of wives' T1 ST, Pillai's trace, $F(1, 68) = .06$, $p = .8$, partial $\eta^2 = .00$, nor for T2 ST, Pillai's trace, $F(1, 68) = 1.37$, $p = .24$, partial $\eta^2 = .02$ and education, Pillai's trace, $F(1, 68) = .48$, $p = .49$, partial $\eta^2 = .01$.

Husbands' PTSD Trajectories and Wives' Marital Adjustment

Trajectories of PTSD for ex-POWs were determined on the basis of the ex-POWs' reports from the three waves of assessment, as follows: (a) "chronic," with PTSD symptoms reported at all three waves of measurement ($n = 26$, 4.9%); (b) "delayed," with onset at any point after a period without reporting PTSD symptoms (i.e., ex-POWs who did not report PTSD symptoms in the first wave of measurement, but did suffer from the disorder at the second or third measurements) ($n = 61$, 11.6%); (c) "recovery," with a reported remission of PTSD symptoms (i.e., ex-POWs who reported PTSD symptoms in the first or second waves of measurement, but not in the third wave) ($n = 4$, 0.8%); and (d) "resilience," those who did not report PTSD symptoms at any of the three waves of measurement ($n = 54$, 10.3%). In the present study, the recovered group was omitted from our analyses because of small sample size.

We then assessed the direction of change in marital adjustment over time among wives of ex-POWs with different trajectories of PTSD, adjusting for the wives' T1 ST. In order to prospectively examine differences in marital adjustment over time, we conducted a two-way ANCOVA (analysis of covariance) with the three study groups: (1) wives of ex-POWs with chronic PTSD symptoms; (2) wives of ex-POWs with delayed PTSD symptoms; and (3) wives of resilient ex-POWs. Time of measurement (T1, T2) was treated as a within-subject repeated factor. The dependent variable was the marital adjustment total score. Wives' T1 ST was entered into the analysis as covariate.

The analyses revealed no main effect for time of measurement, Pillai's trace, $F(1, 61) = .02$, $p = .88$, partial $\eta^2 = .00$, indicating that at T2, participants reported similar levels of marital adjustment ($M = 104.19$ $SD = 25.59$) as at T1 ($M = 105.05$, $SD = 28.1$). Significant effects were found for PTSD trajectories, Pillai's trace, $F(2, 61) = 2.95$, $p = .05$, partial $\eta^2 = .09$, indicating that wives of ex-POWs with chronic PTSD symptoms reported lower marital adjustment ($M = 93.2$, $SD = 6.89$) than did wives of ex-POWs with a resilient course ($M = 113.78$, $SD = 4.91$). No other differences were found between the groups. As we expected, we found an interaction effect between time of measurement and PTSD trajectories, Pillai's trace, $F(2, 63) = 3.28$, $p = .04$, partial $\eta^2 = .1$, indicating that wives of ex-POWs with delayed PTSD reported significantly larger relative decreases in marital adjustment over time than did wives of resilient ex-POWs and those with chronic PTSD. No differences were found between the two points of assessment in wives of ex-POWs with chronic and resilient PTSD (see Table 3). Moreover, at T1, wives of ex-POWs with chronic PTSD reported significantly lower marital adjustment than did wives of ex-POWs with a delayed or resilient course of PTSD. However, no differences were found between the groups at T2 (see Table 3). The wives' T1 ST factor yielded no significant effect, Pillai's trace, $F(1, 61) = 1.39$, $p = .24$, partial $\eta^2 = .02$. There was

Table 2
Means (and Standard Deviations) of Total DAS Score Across Groups of PTSD Trajectory over Time

	Wives of ex-POWs with PTSD		Wives of ex-POWs without PTSD		Control wives without PTSD			
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2, 68)	Partial η^2
T1	101.29[a]	30.67	105.46[a]	29.69	111.3[a]	25.96	.69	.02
T2	95.58[a]	23.22	105.8[b]	25.85	109.4[b]	5.26		

Note. The DAS symptoms as reported by the spouses. Within rows, means lacking a common superscript differ significantly, $p < .01$. Measures are ranked by magnitude of difference: $\eta p^2 < .01$ refers to a weak magnitude of difference; $\eta p^2 > .06$ refers to a moderate magnitude of difference; $\eta p^2 > .14$ refers to a strong magnitude of difference. The *F* value presented is for the interaction affect. DAS = Dyadic Adjustment Scale; ex-POW = former prisoners of war; PTSD = posttraumatic stress disorder; T1 = Time 1 (30 years after the war); T2 = Time 2 (37 years after the war).
[a] Wives of ex-POWs with PTSD. [b] Wives of ex-POWs without PTSD.
* $p < .05$.

Table 3
Means (and Standard Deviations) of DAS Variables Across Study Groups of PTSD Trajectory over Time

	Wives of ex-POWs with chronic PTSD		Wives of ex-POWs with delayed PTSD		Wives of ex-POWs with resilient PTSD			
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*(2, 63)	Partial η^2
T1	86.54[a]	41.45	111.12[b]	23.3	115.07[a]	22.71	3.28*	.1
T2	99.63[a]	29.05	101.75[a]	25.5	113.91[a]	23.36		

Note. The DAS symptoms as reported by the spouses. Within columns, means lacking a common superscript differ significantly, $p < .05$. Partial $\eta^2 < .01$ refers to a weak magnitude of difference. Partial $\eta^2 > .06$ refers to a moderate magnitude of difference. Partial $\eta^2 > .14$ refers to a strong magnitude of difference. The *F* value presented is for the interaction affect. DAS = Dyadic Adjustment Scale; ex-POW = former prisoners of war; PTSD = posttraumatic stress disorder; T1 = Time 1 (30 years after the war); T2 = Time 2 (37 years after the war).
[a] Wives of ex-POWs with PTSD. [b] Wives of ex-POWs without PTSD.

no significant interaction between ST and time, Pillai's trace, $F(1, 61) = .05$, $p = .83$, partial $\eta^2 = .00$.

Discussion

The findings demonstrate that both husbands' captivity and PTSD symptoms are specifically implicated in their wives' marital adjustment. This was further revealed when taking into consideration the well-known spill-over from husbands' PTSD symptoms to secondary traumatization. Investigation of the possible implications of PTSD trajectories showed, as expected, that wives of ex-POWs with chronic PTSD symptoms reported lower marital adjustment than did wives of resilient ex-POWs. Results confirmed the mediating role of the husbands' PTSD in the association between the husbands' captivity and the wives' marital adjustment. This extends the literature referring to the mechanisms of contagion effects. Although the literature supports the notion that marital adjustment fluctuates, prospective analyses showed unchanging levels of marital adjustment over time among wives of ex-POWs with and without PTSD and control veterans. Beyond this, it was found that it was not enough to only consider the effect of the husbands' PTSD; rather it was when the trajectories of their PTSD were considered that the impact over time on marital adjustment was found. The substantial novelty in the current study is that within the wives of ex-POWs with PTSD, the hypothesized prospective deterioration in marital adjustment was found in wives of ex-POWs with delayed PTSD, but not for wives of chronic or resilient ex-POWs. The implications and clinical importance are discussed here.

The current study's results showed that, while adjusting for ST, wives of ex-POWs with PTSD reported significantly less consensus, affection, and total marital adjustment, than did the wives of controls. In the current study, the effect was revealed to be more substantial for affection and consensus. This finding shows the detrimental effect of captivity as well as PTSD on wives' marital adjustment, beyond the well-known intrapsychic consequence of ST. This is in line with studies demonstrating lower marital adjustment in wives of ex-POWs (Campbell & Renshaw, 2013).

Several explanations may be proposed for these findings accentuating the role of captivity and PTSD. Herman (1992) argued that exposure to prolonged interpersonal trauma, such as captivity, damages the survivors' sense of self, autonomy, and trust, seriously undermining their capacity to maintain intimate relationships and to function as marital partners. The ramifications of living with a traumatized ex-POW further exacerbates emotional distance observed in lower marital adjustment with less agreement on important issues and undermined marital affection between partners.

The aspect of affection in marital adjustment further highlights the notion that ex-POWs may experience a more constrained array of affection and feelings of detachment from their wives. Ex-POWs may experience continuing conflict between managing their PTSD and satisfying their partners. Because of this struggle, they may no longer know how to demonstrate affection within the marital relationship or may fail to notice their partner's need for affection because of their lack of trust (Goff et al., 2007). Wives may therefore feel a lack of an ability to behave naturally and to be authentic, with confidence that their husband will accept and love them for who they are (Kaslow & Robison, 1996). Despite their increasing need and desire for more intimacy, the wives may not make such a request because of fear of angry outbursts and rejection from their traumatized, detached husband, and hence may feel neglected, unappreciated, and even unloved. Furthermore, wives often feel responsible for the ex-POW's well-being after their return (R. Dekel, Gldblatt, & Solomon, 2006) and may abandon their own needs in order to focus on those of their traumatized husband. This may gradually diminish the wives' ability to rely on the marital relationship for feelings of affection.

The dyadic consensus assessed the extent of agreement between the participants and their partners on matters that were important to their relationship. Veterans may return from captivity and find that their spouses have assumed the primary roles and responsibilities (Waldrep, Cozza, & Chun, 2004). In this way, the veterans may feel that their families have learned to live without them and that they are no longer a contributing member of the family (Waldrep et al., 2004). Moreover, veterans may be unable to effectively communicate their difficulties and the problems may worsen, with veterans experiencing isolation and emotional withdrawal. The relationships are less open and honest, which damages the level of agreement between partners, and negative feelings that may naturally arise toward the traumatized husband may not be expressed in

order to avoid conflict (R. Dekel et al., 2006). This suppression may give rise to a sense of frustration.

The results confirmed the mediating role of the husbands' PTSD in the association between the husbands' captivity and the wives' marital adjustment, after adjusting for wives' secondary traumatization. This study was the first to assess the results of this contagion process while also taking into account the wives' ST. In other words, it shows that the path of secondary effects of the husbands' PTSD not only has an intrapsychological impact, but also impacts marital relations. Viewed through a contagion model, the wives' marital adjustment could be damaged as a result of high closeness between partners. Identification and empathy with the mental state of the husbands are the basic mechanisms in this model that chafe at marital relations, from the wives' perspective (Figley, 2005). The experience can be described as a gradual process of becoming enmeshed in the husbands' pathology, with all of one's energy being directed at minimizing the effect on self and family (Galovski & Lyons, 2004). Hence, the wives develop their own pattern of damaged marital states, characterized by lower marital adjustment.

It is generally argued that among most couples, marital adjustment tends to decline over time, mostly in the later stages of life (e.g., Kulik, 2001) as a result of regular changes that occur in later life, such as retirement or children leaving home. With regard to changes over time, it was surprising to find in our study that wives of ex-POWs reported similar levels of marital adjustment in T2 in comparison to T1. This result is not in line with the existing knowledge on marital adjustment. Such a contradiction may be due to the effects of trauma and how it disrupts marital adjustment. A possible explanation is that these wives may feel free from the burden of child-rearing. In previous years these wives have had to take care of their children as well as their husbands. Both were a burden on the marital relationship. When children leave, a more balanced marital adjustment is attained and the expected decrease does not take place. Further follow-ups may help to elucidate this.

To the best of our knowledge, the research regarding the long-term impact of captivity and PTSD on spouses' marital adjustment is mostly based on cross-sectional studies. However, other areas of mental health demonstrate a time-varying relationship with marital adjustment. For example, studies have shown that in partners with acute coronary syndrome, lower marital satisfaction was associated with both spouses' elevated depression symptoms (R. Dekel et al., 2014), and that decline of marital satisfaction over time was predicted by the husband's depression (Hsiao & Hwang, 2010).

The profound novelty in the current study is the examination of the effect of husbands' long-term PTSD trajectories on wives' marital adjustment. To date, this is the first study referring to this question, and its importance lies in the understanding that PTSD varies over time. The trajectories outline prototypical, heterogeneous patterns of resilience and distress and may enable the prediction of psychological outcomes (Karstoft, Armour, Elkit, & Solomon, 2013), as well as of marital adjustment. Examination of the relationships between PTSD trajectories and wives' marital adjustment revealed, as expected, that wives of ex-POWs with a chronic PTSD trajectory reported lower marital adjustment than did wives married to husbands with a resilient course. Chronic PTSD entails a consistent burden for caregivers (i.e., wives), both in terms of the objective (e.g., financial difficulties) as well as the subjective (affective reactions, loneliness, emotional pain). It seems that the heavy and enduring burdens exert a high toll reflected in marital adjustment and satisfaction, depleting already-exhausted tangible and emotional resources.

One would have expected that wives of husbands with chronic PTSD would report an increasing decline in marital adjustment over time. Surprisingly, while wives of ex-POWs with delayed PTSD reported lower marital adjustment at T2 than at T1, wives of ex-POWs with chronic PTSD reported the same or even higher marital adjustment at T2 compared to T1. This seems counterintuitive, as one would expect that dealing with chronic PTSD would take a higher toll on the marital adjustment, because wives have to live with the constant enduring symptoms of their husbands.

One explanation for the stability in marital adjustment from T1 to T2 reported by wives of ex-POWs with chronic PTSD relates to the stability of chronic symptoms. While the ongoing exposure to their husbands' symptoms over three decades could lead to exhaustion, frustration, and helplessness, it may have also allowed these wives to habituate. In light of the enduring marriages and low rate of divorce among the current sample, it is also possible that the wives married to ex-POWs with chronic PTSD have found meaning in staying married to their husbands. They might have even found other ways to compensate for the lack of satisfaction in their marriage. On the other hand, delayed PTSD may undermine and shatter the marital adjustment of the wives, who may feel intense helplessness considering the unpredictable and sudden onset of symptoms after a long period of normalcy in which there were no posttraumatic symptoms.

Several limitations of the current study should be noted. First, the use of self-report measures, although very common in trauma studies, entails the risk of a reporting bias. Second, the lack of precaptivity assessment of marital adjustment limits our ability to infer causality. Third, there was a long lag between assessments, which further complicates our interpretation of data on the relations between captivity, PTSD, and wives' marital adjustment. Fourth, though marital relationships are bidirectional, the present study focused only on the effect of husbands' PTSD on their wives' marital adjustment. Finally, the generalizability of our findings may be limited because of the unique context of our study, which represents Israeli ex-POWs and their wives. As with any contextual research, caution must be used when extrapolating findings to other settings.

In conclusion, this study suggests that wives of traumatized ex-POWs are susceptible to lower marital adjustment. The novel finding is that lower marital adjustment was observed over time in those married to ex-POWs with delayed PTSD. However, the findings suggest a stable pattern when the PTSD trajectory is chronic. This may reflect variability in results of prolonged exposure to the stressful situation of living with a traumatized spouse. Future studies should include the bidirectional relations between both husbands' PTSD and wives' ST and marital adjustment in order to evaluate the influence of trauma within the family system.

Psychological interventions should take into account PTSD trajectories, as wives who live for years with husbands with chronic PTSD have different needs in therapy than do wives who live with the sudden onset of their husbands' delayed PTSD. The providers of mental health care who treat these women may gain valuable information about their lives if the course of PTSD is inquired about during the intake.

Wives of husbands with chronic PTSD suffer from ongoing symptoms for years, which may fluctuate, being more or less severe. Although the wives have adapted to these symptoms and they no longer find them shocking, it is important to give voice to the different coping mechanisms they have developed in order to survive in their marriages. Wives of husbands with delayed PTSD are in a situation where they feel less in control, as the outburst of symptoms is shocking. Treatment should give these wives information to help them prepare and understand the context of the situation. These wives may feel confused, angry and even guilty that they may have caused the onset of symptoms. Treatment should give a place for these emotions to be expressed.

The findings of the current study further suggested that the dimensions most undermined due to captivity are affection and consensus. Hence, treatment should target communication of affection and establish consensus between partners. Treatment should practice affection demonstration and communication about it, allowing the traumatized partner to explain feelings of detachment as something that is a result of trauma and not something that has to do with his partner. Furthermore, it should legitimize the need for intimacy and affection. As for establishing consensus between partners, communication on important topics can be enhanced and practiced.

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