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Self-Disclosing Trauma and Post-Traumatic Stress Symptoms in Couples: A Longitudinal Study

Jacob Y. Stein, Yael Lahav, and Zahava Solomon

Objective: Most research concerning the implications of self-disclosure on trauma's aftermath has focused on the salubrious effects disclosure may foster for the primary victim. However, the manner in which recipients of disclosure are symptomatically affected by it remains unexamined. Of particular interest are spouses who are often the primary support providers and are therefore susceptible to secondary traumatization. Assessing posttraumatic stress symptoms (PTSS) and self-disclosure among traumatized veterans and their wives, the current longitudinal study begins to fill this gap in the literature. *Method:* A total of 220 couples consisting of Israeli veterans, of whom 128 were former prisoners of war (ex-POWs) and 92 were combatants, and their wives were examined. PTSS and self-disclosure of both partners were assessed 30 and 35 years after the war using the Posttraumatic Stress Disorder Inventory (PTSD-I; Solomon et al., 1993) and the Self-Disclosure Index (SDI; Miller, Berg, & Archer, 1983), respectively. Analyses included Pearson intercorrelations analyses and four stepwise hierarchical multiple regression analyses. *Results:* Findings indicated that increments in veterans' disclosure are not only consistently associated with the reduction of their wives' PTSS but may also explain and predict some of the change in the wives' PTSS over time. However, such a longitudinal effect was not evident concerning the veterans' PTSS. *Conclusion:* Traumatized ex-POWs' and combatants' self-disclosure within the marital relationship may contribute to the amelioration of their wives' secondary traumatization, and thus may be a goal worth pursuing in therapy. However, more research is needed to further understand this relation.

War and war captivity may be extremely traumatizing both for veterans who experienced them directly (e.g., Herman, 1992) and their wives, exposed vicariously to their husbands' trauma (e.g., Greene, Lahav, Bronstein, & Solomon, 2014). However, the role veterans' self-disclosure plays

in their wives' traumatization currently remains uninvestigated.

In non-veteran populations, empirical research indicates that the oral as well as written self-disclosure of distressing experiences may have significant salubrious effects (e.g., Frattaroli, 2006; Smyth, Pennebaker, & Arigo, 2012).

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For trauma victims, disclosure is associated with a reduction of posttraumatic stress symptoms (PTSS), especially when reactions to disclosure are positive (Bolton, Glenn, Orsillo, Roemer, & Litz, 2003). Hence, disclosure is central to most treatments for posttraumatic stress disorder (PTSD; e.g., Foa, Keane, Friedman, & Cohen, 2009). Nevertheless, the effect of self-disclosure on its audience, particularly on family members, remains largely unexamined.

Shortt and Pennebaker (1992) observed that listening to trauma stories may increase listeners' heart rates and skin responses. Conversely, Koenig Kellas, Horstman, Willer, and Carr (2015) found that the disclosure of adversity among college friends may lead, in the short term, to a decrease in listeners' positive and negative affect. However, as time progresses, negative affect may increase and even exceed initial levels. Similarly, listening to trauma stories may bear for listeners both positive and negative personal meanings (e.g., Cummings, 2011; Goldenberg, 2002). No current study, however, directly examined the effect of trauma self-disclosure on listeners' PTSS. Such an investigation is particularly pertinent in the case of trauma survivors' spouses, both because they are often the natural recipients of such disclosure and because women are typically more susceptible to secondary traumatization (Baum, Rahav, & Sharon, 2014)—the manifestation of PTSS in those close to the primary trauma survivor (e.g., Figley, 1995).

Traumatization and Self-Disclosure

The association between self-disclosure and traumatization within the marital relationship may be thought of in two opposing directions. On one hand, there is the exacerbating perspective. Diagnostically, exposure resulting in PTSD may include "[l]earning that the traumatic event(s) occurred to a close family member or close friend" (American Psychiatric Association [APA], 2013, p. 271). It may then be expected that more self-disclosure on the behalf of veterans would be associated with greater PTSS

among their wives. Moreover, self-disclosure may also exacerbate the disclosing veteran's own PTSS, serving as reexposure to the trauma via its telling.

Alternatively, an ameliorating effect may be expected. Spouses are typically aware of the trauma regardless of their husbands' disclosure. Thus, while they may lack the specific details of the trauma, these may be imaginatively filled in. Thus the trauma, while not discussed, is nevertheless present (Nelson Goff et al., 2015). It then transpires that both partners cope alone with images of the war or captivity in what has been termed "experiential isolation" (Stein & Tuval-Mashiach, 2015). Self-disclosure, as a mechanism for emotional regulation and processing, may work within this communicative void and lead to empathy and reciprocal sharing (Rimé, 2009). Moreover, self-disclosure may strengthen the marital bond (Finkenauer & Hazam, 2000; Hansen & Schuldt, 1984) and facilitate emotional support and communal coping (Lyons, Mickelson, Sullivan, & Coyne, 1998), as well as free both partners from their isolated coping. Increases in veterans' self-disclosure may then be associated with lower rates of PTSS among both partners, giving rise to an ameliorative effect.

The current prospective study examined whether an exacerbating or an ameliorating perspective best depicts the relation between self-disclosure and PTSS in couples wherein the husband is veteran of combat or war captivity (ex-POW). We hypothesized the following:

H1: Both partners' self-disclosure will be associated with both partners' PTSS, either positively (i.e., exacerbating) or negatively (i.e., ameliorating).

H2: Both combatants' and ex-POWs' self-disclosure will contribute to the prediction of both partners' PTSS, either in an exacerbating or ameliorating manner.

H3: The wives' self-disclosure will contribute to the prediction of both partners' PTSS, either in an exacerbating or ameliorating manner.

METHOD

Procedure and Participants

The present study used data from a longitudinal investigation on the psychological implications of war and war-captivity among Israeli veterans and their wives (for details, see Solomon, Horesh, Ein-Dor, & Ohry, 2012). A cohort of Israeli veterans from the 1973 Yom Kippur War and their wives were identified and followed over time. The current study used data collected at two points in time: 2003/2004 (T1) and 2008/2011 (T2).

Veterans

Israel Defense Forces (IDF) files were used to locate potential veteran participants, who were then invited to participate. Veterans' wives were recruited via their spouses. Research assistants (licensed social workers) administered a battery of questionnaires to both veterans and their wives in their homes or another location of their choice. Before filling out the questionnaires, participants signed an informed consent form. This study was approved by the Tel Aviv University ethics committee.

A total of 240 combat soldiers of the IDF infantry were captured during the Yom Kippur War and held captive and tortured either in Egypt or Syria for 1.5 to 8 months. In the initial assessment (in 1991; not included in the present study), of the total 240 ex-POWs, 31 could not be located, three were deceased, and 20 were abroad. Of the remaining 186, 22 refused participation, leaving 164 ex-POWs (88.17% response rate). At T1, of the total 240 ex-POWs, 10 could not be located, 4 were deceased, and 6 could not participate due to a deteriorated mental state. Of the remaining 220, 99 refused to participate, leaving 121 who participated at T1 (55% response rate). At T2, 29 could not be located, 20 were deceased, and 6 could not participate due to a deteriorated mental state, leaving 185 ex-

POWs, of which 176 agreed to participate in the current study (95.1% response rate).

A control group of 280 comparable veterans was sampled from the IDF's computerized records. These individuals participated in the same war but were not taken captive and were matched in personal (age, ethnic background, marital status, and educational background) as well as military backgrounds (military units, roles, and IDF psychosocial profiles). The sample consisted of combat veterans exposed to battlefield stressors, active fighting, and exposure to life-threatening events. In the aforementioned initial sampling, of the total 280, 5 were deceased and 20 were abroad. Of the remaining 255, 70 refused to participate, leaving 185 controls (72.5% response rate). At T1, 41 of the 185 could not be located and one was deceased. Of the remaining 143 controls, 106 agreed to participate in the study (74.13% response rate). At T2, of the 185, 20 could not be located or refused to participate in the study and 5 were deceased. Of the remaining 160, 118 agreed to participate at T2 (73.75% response rate). For all veterans the mean age at T1 was 52.62 ($SD = 4.56$), mean years of schooling was 13.94 ($SD = 3.46$). The majority were secular (61.7%), with an above-average income (35.6%).

Veterans' Wives

At T1, 223 veterans were married or had a partner. A total of 166 wives participated at T1 (52.0% response rate). Of these, 90 were ex-POWs' wives (54.2%) and 76 were controls' wives (45.8%). At T2, 250 veterans were married or had a partner. A total of 172 wives participated at T2 (68.8% response rate). Of these, 116 were ex-POWs' wives (67.4%) and 56 were controls' wives (32.6%). The wives' mean age at T1 was 50.70 ($SD = 6.36$), mean years of schooling was 14.18 ($SD = 3.18$). The majority were secular (57.9%), with an above-average income (35.0%).

Background Variables

No significant differences in sociodemographic variables between wives of ex-POWs and controls were evident at T1. These variables include country of birth, $\chi^2 (2, N = 75) = .04, p = .981$, Cramer's $V = .02$; religiosity, $\chi^2 (1, N = 69) = .081, p = .776$, Cramer's $V = .034$; number of children, $t (70) = .257, p = .798$; years of marriage/cohabitation, $t (73) = .526, p = .601$; being versus not being a second generation to Holocaust survivors, $\chi^2 (1, N = 62) = 1.92, p = .165$, Cramer's $V = .176$; and undergoing psychological treatment in the past, $\chi^2 (1, N = 67) = .00, p = .973$, Cramer's $V = .004$.

Likewise, no significant differences between ex-POWs and controls were found at T1 in terms of religiosity, $\chi^2 (1, N = 71) = .081, p = .776$, Cramer's $V = .034$; number of children, $t (72) = .028, p = .978$; years of marriage/cohabitation; $t (73) = -.562, p = .576$; years of schooling $t (72) = .312, p = .756$; and second Holocaust generation, $\chi^2 (1, N = 73) = .029, p = .864$, Cramer's $V = .020$.

Handling Missing Data

Substantial attrition, and rarely also addition, are common in longitudinal designs (Collins, Schafer, & Kam, 2001), and both occurred in the current study. To handle missing data and create the most reliable and complete data set, couples were included in the sample only if both veterans and their spouses participated and had data with regard to the study variables in at least one wave of measurement (veterans $n = 179, 187$; wives $n = 156, 160$ at T1 and T2, respectively). Overall, 16.8% to 35.5% of the data were missing across waves.

To determine whether the pattern of missing values was random or biased, we conducted analyses of differences between these groups in all of the variables, using Little's missing completely at random (MCAR) test (Collins et al., 2001). The analysis revealed that the data were missing completely at random, $\chi^2 (202) = 20.705, p = 1.000$.

Because the underlying mechanism of data absence remains unknown and there were no indications that the absence was related to the observed data, we concluded that the data were missing at random (MAR). If there is no significant proof of nonrandomness, erroneous assumption of MAR often has minor impact (Collins et al., 2001). Missing data were handled with maximum likelihood (ML) via the SPSS 22. Compared to conventional methods, such as arithmetic mean and listwise or pairwise deletion, and since the current data is longitudinal, ML represents the optimal method for handling both attrition and addition of participants over time (Collins et al., 2001), and the best means for avoiding biased data (Schafer & Graham, 2002). Longitudinal modeling by ML of missing responses is highly effective when conducted under a longitudinal model that borrows information across waves and uses them as auxiliary variables (Schafer & Graham, 2002). The procedure then takes into account all available data relevant for study for each participant, based on the assumption that missing information can be partially recovered from earlier or later waves.

This study utilized variables measured for both partners and across waves to increase the likelihood for optimal estimations of missing values. The final sample (after ML was implemented) comprised of 220 couples (128 ex-POW couples and 92 controls).

Measures

The wives' PTSS and self-disclosure, as well as the veterans' PTSS, were measured both at T1 and T2. However, the veterans were asked about self-disclosure only at T1.

PTSS and PTSD

PTSS of both partners were assessed using the PTSD Inventory (PTSD-I; Solomon et al., 1993). This is a well-validated, 17-item, self-report questionnaire. The items on

the PTSD-I correspond to the *DSM-IV-TR* (APA, 2000) criteria for PTSD, which was the standard when the study commenced. Respondents rated symptoms experienced in the previous month on a scale ranging from (0) *Not at all* to (4) *Almost always*. Wives' PTSS scores were obtained by asking wives to rate their symptoms relating to their husbands' experiences of combat or captivity in the previous month. The number of positively endorsed symptoms was calculated by counting the items in which the respondents answered 3 or 4. In addition to the PTSS score allocated for each participant, veterans' scores were also dichotomized (PTSD, no PTSD) using *DSM-IV-TR* (APA, 2000) PTSD criteria: A respondent was considered to have PTSD if he endorsed at least one intrusive, three avoidant, and two arousal symptoms. The PTSD-I has shown good psychometric properties and convergent validity in previous studies (e.g., Solomon et al., 1993). In the present study, Cronbach's alphas were .95, .96 for veterans' and .91, .91 for wives at T1 and T2, respectively.

Self-Disclosure

Self-disclosure of both partners was assessed using the Self-Disclosure Index (SDI; Miller et al., 1983). The inventory measures the extent of self-disclosure in general (the inventory does not specifically indicate the disclosure of past traumatic experiences), and consists of 10 questions that can be posed with regard to five target figures: mother, father, same-sex close friend, opposite-sex close friend, and partner. In the current study, we chose to ask only about the partner (e.g., "I tell my wife/husband my most horrifying fears"; "I tell my wife/husband about traits I like and dislike in myself"). Respondents are asked to rate the degree to which the statement is applicable to them on a scale of 1 (*Not at all*) to 6 (*Very applicable*). Each participant's score was the mean of his or her 10 ratings, and therefore the higher

the score the more self-disclosure is practiced. In the present study, Cronbach's alphas were .93 for veterans at T1, and .93, .95 for wives, at T1 and T2 respectively.

Statistical Analyses

Association between the study variables were assessed using Pearson intercorrelations analysis, and predictive attributes were assessed by utilizing stepwise hierarchical multiple regression analyses. SPSS (version 22) was utilized for all analyses.

RESULTS

Associations Between Self-Disclosure and PTSS Among Veterans and Their Wives

Pearson analysis (see Table 1) revealed a negative association between veterans' self-disclosure at T1 and their wives' total PTSS score, intrusion, avoidance, and hyperarousal symptoms at T1, as well as with total PTSS score, intrusion, and avoidance symptoms, but not hyperarousal, at T2. Analysis also revealed a negative association between veterans' self-disclosure at T1 and all of their own PTSS clusters at both measuring points. In other words, the higher the rates of veterans' self-disclosure, the fewer PTSS they and their wives exhibited.

In addition, wives' self-disclosure at T1 was negatively associated with all of their own as well as their husbands' PTSS clusters at T1, as well as with avoidance symptoms at T2. Wives' self-disclosure at T2 was significantly and negatively associated with all of their own as well as their husbands' PTSS clusters at T1, as well as with their husbands' PTSS total score and intrusion at T2. That is, the higher the wives' self-disclosure, the fewer PTSS symptoms they and their husbands displayed.

Veterans' and wives' self-disclosures were positively correlated with each other. Moreover, wives' self-disclosure at T1 and T2 were likewise positively related.

TABLE 1. Intercorrelations of Study Variables ($n = 220$)

Measure	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
1.W self-disclosure (T1)	—																		
2.W self-disclosure (T2)	.79***	—																	
3. V self-disclosure (T1)	.36***	.35***	—																
4.W PTSS total (T1)	-.24***	-.18**	-.20**	—															
5.W intrusion (T1)	-.18**	-.15*	-.20**	.82***	—														
6.W avoidance (T1)	-.25***	-.18**	-.14*	.89***	.63***	—													
7.W hyperarousal (T1)	-.19**	-.14*	-.18**	.87***	.53***	.69***	—												
8.W PTSS total (T2)	-.12	-.02	-.24***	.80***	.58***	.73***	.70***	—											
9.W intrusion (T2)	-.09	-.04	-.29***	.64***	.67***	.50***	.49***	.82***	—										
10.W avoidance (T2)	-.20**	-.08	-.26***	.63***	.43***	.70***	.49***	.85***	.54***	—									
4.W hyperarousal (T2)	-.03	.07	-.08	.71***	.38***	.65***	.78***	.87***	.56***	.62***	—								
5.V PTSS total (T1)	-.18**	-.24***	-.30***	.53***	.49***	.45***	.43***	.29***	.30***	.23***	.21**	—							
6.V intrusion (T1)	-.22**	-.29***	-.25***	.53***	.51***	.43***	.43***	.27***	.33***	.14*	.22***	.88***	—						
7.V avoidance (T1)	-.14*	-.19**	-.32***	.46***	.39***	.42***	.38***	.31***	.31***	.29***	.22***	.92***	.67***	—					
8.V hyperarousal (T1)	-.14*	-.19**	-.24***	.46***	.46***	.38***	.36***	.19*	.19*	.19*	.12	.93***	.76***	.79***	—				
9.V PTSS total (T2)	-.09	-.14*	-.23***	.56***	.54***	.43***	.49***	.41***	.41***	.27***	.36***	.84***	.74***	.77***	.78***	—			
10. V intrusion (T2)	-.12	-.17*	-.25***	.58***	.56***	.42***	.52***	.42***	.45***	.27***	.36***	.77***	.80***	.62***	.69***	.91***	—		
11.V avoidance (T2)	-.08	-.15	-.23***	.50***	.45***	.40***	.45***	.36***	.34***	.24***	.33***	.78***	.64***	.78***	.69***	.93***	.74***	—	
12.V hyperarousal (T2)	-.04	-.05	-.15*	.47**	.47***	.36***	.38***	.34***	.35***	.22***	.29***	.76***	.62***	.70***	.76***	.92***	.77***	.78***	—

Note. W = wives'; V= veterans'; T1 = time 1; T2 = time 2.

* $p < .05$; ** $p < .01$; *** $p < .001$, one tailed.

Predicting PTSS Among Veterans and Their Wives

We examined the contribution of the research variables for predicting wives' and veterans' PTSS levels at T1 and T2 via four blockwise linear regressions. Blocks were selected based on the variables' commonalities as well as chronological order. At each step, only those variables that had a significant contribution were entered. However, it is noteworthy that variables entered into the model were not excluded from the model even if they became nonsignificant in subsequent steps.

The first analysis examined wives' PTSS total score at T1 as the dependent variable (see Table 2). The analysis assessed six blocks. The first block included the sociodemographic variables of education, income, and number of years of marriage. The second block included study group (ex-POWs' wives versus controls' wives). The third block included the veterans' PTSD status (i.e., PTSD versus non-PTSD) at T1. The fourth block included the wives' self-disclosure at T1. The fifth block included the veterans' self-disclosure at T1. The sixth block included five interactions: (a) wives' self-disclosure at T1 \times study group, (b) veterans' self-disclosure at T1 \times study group, (c) veterans' self-disclosure at T1 \times wives' self-disclosure at T1, (d) wives' self-disclosure at T1 \times veterans' PTSD at T1, and (e) veterans' self-disclosure at T1 \times veterans' PTSD at T1.

The first model explained 32.0% of the variance of wives' PTSS at T1, $F(5, 165) = 15.53$, $p < .001$. The model included the variables income, study group, veterans' PTSD at T1, wives' self-disclosure at T1, and wives' self-disclosure at T1 \times veterans' PTSD at T1. However, the only significant main effects found were that of study group (ex-POWs' wives had higher PTSS at T1 compared to control wives) and veterans' PTSD at T1; and the only significant interaction found was that of wives' self-disclosure at T1 \times veterans' PTSD at T1. All other variables were found to be nonsignificant and therefore were not entered into the model.

To understand the meaning of the aforementioned interaction, a moderation model was conducted using the Hayes's (Hayes & Preacher, 2014) PROCESS computational macro. Results indicated that while the veterans' PTSD at T1 significantly predicted the wives' PTSS at T1 among wives with low self-disclosure ($\beta = .43$, $SE = .10$, $p < .001$), so that wives of veterans with PTSD had more PTSS compared to wives of veterans without PTSD; this effect of veterans' PTSD at T1 on wives' PTSS at T1 among wives with high self-disclosure was nonsignificant ($\beta = -.06$, $SE = .12$, $p = .60$).

The second analysis examined wives' PTSS total score at T2 as the dependent variable (see Table 2). The analysis assessed seven blocks. The first block included sociodemographic variables of education, income, number of years of marriage. The second block included study group (ex-POWs' wives versus controls' wives). The third block included the PTSD score of the veterans at T1. The fourth block included the wives' total of PTSS score at T1. The fifth block included the wives' self-disclosure at T1. The sixth block included the veterans' self-disclosure at T1. The seventh block included five interactions: (a) wives' self-disclosure at T1 \times study group, (b) veterans' self-disclosure at T1 \times study group, (c) veterans' self-disclosure at T1 \times wives' self-disclosure at T1, (d) wives' self-disclosure at T1 \times veterans' PTSD at T1, and (e) veterans' self-disclosure at T1 \times veterans' PTSD at T1.

The second model explained 58.1% of the variance of wives' PTSS at T2, $F(4, 166) = 57.51$, $p < .001$. The model included wives' income (the higher the income the lower the PTSS), study group (ex-POWs' wives had higher PTSS at T2 compared to control wives), wives' PTSS total score at T1 (the higher the PTSS total score at T1, the higher the PTSS total score at T2), and veterans' self-disclosure at T1 (the higher the veterans' self-disclosure at T1, the lower the wives' PTSS at T2), all of which contributed significantly to predicting wives' PTSS at T2.

TABLE 2. Regression Beta Coefficients Predicting Wives' PTSS at T1 and T2 ($n = 220$)

Time	Step	Predicting Variables	β	SE	R^2 Change
1	1	Wives' income	-.26**	.07	.07**
	2	Wives' income	-.20**	.07	
		Study group	.38***	.07	.14***
	3	Wives' income	-.14	.07	
		Study group	.26**	.09	
		Veterans' PTSD (T1)	.22*	.10	.03*
	4	Wives' income	-.12	.07	
		Study group	.27**	.09	
		Veterans' PTSD (T1)	.21*	.09	
		Wives' self-disclosure (T1)	-.16*	.07	.02*
	5	Wives' income	-.13	.07	
		Study group	.29**	.08	
		Veterans' PTSD (T1)	.18*	.09	
		Wives' self-disclosure (T1)	-.10	.07	
		Veterans' PTSD \times Wives' self-disclosure	-.25***	.06	.06***
2	1	Wives' income	-.26**	.07	.07**
	2	Wives' income	-.23**	.07	
		Study group	.23**	.07	.05**
	3	Wives' income	-.07	.05	
		Study group	-.06	.05	
		Wives' PTSS at T1	.76***	.05	.45***
	4	Wives' income	-.06	.05	
		Study group	-.08	.06	
		Wives' PTSS at T1	.75***	.05	
		Veterans' self-disclosure (T1)	-.11*	.05	.01*

Note. PTSS = post-traumatic stress symptoms; T1 = time 1; T2 = time 2.

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

All other variables were nonsignificant and therefore were not entered into the model.

The third analysis examined veterans' PTSS total score at T1 as the dependent variable (see Table 3). The analysis assessed five blocks. The first block included the sociodemographic variables of education, income, number of years of marriage. The second block included study group (ex-POWs versus controls). The third block included the veterans' self-disclosure at T1. The fourth block included the wives' self-disclosure at T1. The fifth block included three interactions: (a)

TABLE 3. Regression Beta Coefficients Predicting Veterans' PTSS at T1 and T2 ($n = 220$)

Time	Step	Predicting Variables	β	SE	R^2 Change
1	1	Veterans' income	-.39***	.07	.15***
	2	Veterans' income	-.30***	.05	
		Study group	.67***	.06	.44***
	3	Veterans' income	-.29***	.05	
		Study group	.67***	.05	
		Wives' self-disclosure at T1	-.12*	.05	.01*
2	1	Veterans' income	-.39***	.07	.15***
	2	Veterans' income	-.30***	.08	
		Veterans' education	-.18*	.08	.03*
	3	Veterans' income	-.21**	.06	
		Veterans' education	-.21**	.06	
		Study group	.62***	.06	.38***
	4	Veterans' income	-.07	.05	
		Veterans' education	-.11*	.05	
		Study group	.20**	.07	
		Veterans' PTSS at T1	.62***	.07	.15***

Note. PTSS = post-traumatic stress symptoms; T1 = time 1; T2 = time 2.

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

veterans' self-disclosure at T1 \times study group, (b) wives' self-disclosure at T1 \times study group, and (c) veterans' self-disclosure at T1 \times wives' self-disclosure at T1.

The third model explained 60.9% of the variance of veterans' PTSS at T1, $F(3, 148) = 76.83$, $p < .001$. The model included income (the higher the income, the lower the PTSS at T1), study group (ex-POWs had higher PTSS at T1 compared to controls) and wives' self-disclosure at T1 (the higher the wives' self-disclosure at T1, the lower their husbands' PTSS at T1). All other variables were found to be nonsignificant and therefore were not entered to the model.

The fourth analysis examined veterans' PTSS total score at T2 as the dependent variable (see Table 3). The analysis assessed six blocks. The first block included the sociodemographic variables of education, income, number of years of marriage. The second block included study group (ex-POWs versus controls). The third block included the veterans' PTSS at T1. The fourth block included

the veterans' self-disclosure at T1. The fifth block included the wives' self-disclosure at T1. The sixth block included five interactions: (a) veterans' self-disclosure at T1 \times study group, (b) wives' self-disclosure at T1 \times study group, (c) veterans' self-disclosure at T1 \times wives' self-disclosure at T1, (d) veterans' self-disclosure at T1 \times veterans' PTSD at T1, and (e) wives' self-disclosure at T1 \times veterans' PTSD at T1.

The fourth model explained 69.9% of the variance of veterans' PTSS at T2, $F(4, 147) = 85.55, p < .001$. The model included: veterans' income, veterans' education (higher education predicted lower PTSS), study group (ex-POWs exhibited higher levels of PTSS at T2 compared to controls), and veterans' PTSS at T1 (the higher the PTSS at T1, the higher the PTSS at T2). All other variables were found to be nonsignificant and therefore were not entered into the model.

DISCUSSION

The current study examined whether self-disclosure in couples consisting of traumatized veterans of combat and war captivity contributes to the exacerbation or amelioration of either partner's PTSS. Findings indicated that both partners' self-disclosures were consistently associated with decrements in their own and their partner's PTSS. More importantly, veterans' self-disclosure played a part in predicting subsequent decrements in their wives' PTSS. Ostensibly at least, the veterans' disclosure was more predictive of their wives' PTSS over time than other factors, such as the veterans' own PTSS or wives' self-disclosure, which were identified as significant in previous examinations of this cohort (Dekel & Solomon, 2006). Nevertheless, given the small effect size, interpreting this finding must be made with caution. Findings also suggested that the wives' disclosure possessed an ameliorative nature, though only when examined cross-sectionally. Moreover, while veterans' self-disclosure was associated with decreases in their own PTSS they did not

contribute to their prediction. Finally, although the ex-POWs and their wives exhibited greater traumatization than controls, surprisingly the groups were insignificant concerning the ameliorating effect of self-disclosure.

Consistent with former research (e.g., Dekel & Solomon, 2006; Galovski & Lyons, 2004), findings also indicated that wives of veterans with probable PTSD exhibited more PTSS than wives of veterans without. However, this was true only in cases wherein the wives demonstrated low self-disclosure. These findings suggest that wives' PTSS manifest in light of their exposure to their husbands' psychopathology rather than to the trauma, and that their own capacity to disclose distress in light of those symptoms may buffer this effect. That is, when the wife's distress is regularly disclosed, the detrimental effect of symptom severity may be nullified.

The most important finding in the current study is that not only do traumatized veterans' self-disclosure tendencies seem to pose no risk concerning the exacerbation of their wives' PTSS, but such tendencies may actually be a protective and ameliorative factor. Several explanations may be suggested. First, veterans' wives are often exposed to their husbands' combat and captivity regardless of whether their husbands share their traumatic experiences or their details. They often awaited their husbands' repatriation and were concerned for him throughout his absence. Therefore, their husbands' disclosure, if it ever occurs, is not their first encounter with his past torment. Indeed, they may have already composed mental images of the trauma that may be worse than what their husbands endured. In such cases, veterans' disclosure may actually assuage the horror of the trauma imagined by their wives and thus reduce posttraumatic reactivity. Moreover, the disclosure narrative may also include positive experiences and aspects of growth, resilience, and successful coping (e.g., Lieblich, 1994), which may counteract the devastation of the "pure terror" of the imagined traumatic scenario.

Another explanation involves the aspect of communal coping (Lyons et al., 1998). Communal coping is “the pooling of resources and efforts of several individuals (e.g., couples, families, or communities) to confront adversity” (p. 580). Whereas prior to disclosure each partner copes alone with the trauma and its aftereffects, once the trauma is disclosed and discussed some of the burden is shared, its weight subsides, and coping eases. Given that the absence of social support is a risk factor for PTSD (e.g., Brewin, Andrews, & Valentine, 2000), such communal coping may indeed be a buffer against this unfortunate eventuality (Monk & Nelson Goff, 2014; Nelson Goff et al., 2015). This explanation is supported by the finding that traumatized veterans’ and their wives’ self-disclosure tendencies were positively intercorrelated, suggesting a reciprocal sharing of emotion or silence. Such reciprocity of social sharing of emotions has been shown to be a valuable strategy for emotion regulation and coping (Rimé, 2009).

The (Failed) Longitudinal Prediction of Veterans’ PTSS

Notably, both partners’ self-disclosure tendencies failed to predict veterans’ PTSS at T2. It is very risky to make inferences based on null findings; however, we would like to cautiously suggest several provisional explanations. These explanations are based on the premise that self-disclosure indeed plays a role in symptom relief, a presupposition supported by the consistent negative association between disclosure and PTSS throughout the study. For one, the null findings may be attributed to heterogeneity of responses to disclosure both on the individual and couple level. That is, disclosure may have had beneficial long-term effects in some couples but was either detrimental or otherwise insignificant for others due to yet undetermined mediating factors (e.g., Lewis & Manusov, 2009).

Second, it may be that while the traumatized veteran’s disclosure enables his wife to discuss her own reactions to the trauma, and

thus serves to reduce her PTSS, the wife’s disclosure of her own efforts to cope, has a mixed effect on her husband (Joseph & Afifi, 2010). On one hand, he is granted the opportunity for communal coping and support; on the other, he faces the realization that his trauma has permeated his marital relationship and has burdened his wife. Thus, the wife’s disclosure is a double-edged sword for her husband, promoting both positive and negative effects that may counteract in the long run.

Another explanation may involve gender differences in disclosure tendencies as well as disclosure outcomes and communal coping. It has been suggested that there may be gender differences in the likelihood of adopting a communal coping orientation and behavior (Lewis et al., 2006). Accordingly, women may be more prone to see the situation as a mutual and shared problem that both partners now face together, while men may inhabit a masculine script whereby they must be tough and cope alone (Mahalik, Good, & Englar-Carlson, 2003). Thus, although both partners may engage in disclosure, men may retain a noncommunal orientation. Moreover, women generally disclose more to men than men do to women (Dindia & Allen, 1992), and women also engage more in disclosure of trauma-related emotions (Purves & Erwin, 2004). Hence they may benefit from disclosure more than men. Similarly, it is possible that, just as women are more susceptible to secondary traumatization (Baum et al., 2014), they are also likely to react more positively to the emotional regulation facilitated by self-disclosure (Rimé, 2009). Notwithstanding, findings concerning the relation between gender and the effects of disclosure not only are equivocal but may be inapplicable in the current study. Considering the incommensurable difference in magnitude between war and war captivity and any kind of secondary traumatization, any comparison would most likely be confounded. Indeed, a fourth explanation may be that, in extreme and complex traumatization, disclosure is not as effective and more is needed to exhibit long-term symptomatic relief (e.g., Gidron, Peri, Connolly, & Shalev, 1996).

CLINICAL IMPLICATIONS

The current study suggests that, in opposition to the therapeutic interaction wherein disclosure is pivotal in the development of therapists' secondary traumatization (e.g., Figley, 1995), as far as traumatized veterans' wives are concerned, listening to their husbands' disclosure may be of a more ameliorative nature. This realization bears important ramifications for couples wherein one partner is a traumatized veteran. Disclosure may facilitate marital satisfaction (Monk & Nelson Goff, 2014), and it may reduce wives' PTSS, thus increasing their capacity to support their spouses in times of need. Hence, its facilitation may be a clinical goal worth pursuing. Moreover, as trauma victims may refrain from disclosure in fear that it may harm their spouses, these findings may encourage them to engage in and solicit disclosure, thus breaking the circle of silence and fostering communal coping.

STUDY LIMITATIONS AND FUTURE DIRECTIONS

These findings should be acknowledged in the context of several limitations. First, the relatively small sample size, and attrition and addition inevitable in longitudinal studies (Collins et al., 2001) may restrict generalization of the findings, thus necessitating further research. Second, the study design did not pair the veterans and their wives in a full actor-partner interdependence model (Kenny, Kashy, & Cook, 2006) but rather investigated the relation between study variables within the veterans group and wives group more generally. Future research should further examine the effect of self-disclosure using such a model.

Third, the SDI (Miller et al., 1983) measures general tendencies to self-disclose rather than the disclosure of specific experiences. Our guiding notion was that a person who scores higher on self-disclosure tendencies is also more likely to disclose his or her

trauma. However, this assumption remains speculative, and several alternative possibilities may exist. For instance, it may be that the content of disclosure is not as important as the actual act of sharing, regardless of its content. Alternatively, it may be that more disclosure reflects better spousal communication, and this contributes to recovery as both partners feel less isolated. Future research should investigate the effect of more trauma-specific disclosures and target not only what has been disclosed but also how disclosures, or lack thereof, have been experienced by both partners.

Fourth, the veterans' self-disclosure in the current study was measured at one only time point. Hence, while the current study retains its longitudinal value, this limits our capacity to monitor changes in disclosure and its effects across time, and necessitates the undertaking of additional longitudinal studies to better understand such trajectories. Moreover, intervention studies are required to further establish the benefits and costs of disclosure of and for both partners. Future studies should also replicate and extend these observations to other traumatized populations and their partners.

Finally, given the limitations of a longitudinal observational study design as well as the relatively small statistical effect size, the innovative finding that veterans' self-disclosure may contribute to the amelioration rather than exacerbation of their wives' PTSS must be approached with caution and must be substantiated by further research. The current study is an important preliminary step in a much-needed direction.

REFERENCES

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: American Psychiatric Publishing.

- Baum, N., Rahav, G., & Sharon, M. (2014). Heightened susceptibility to secondary traumatization: A meta-analysis of gender differences. *American Journal of Orthopsychiatry*, 84(2), 111–122. doi:10.1037/h0099383
- Bolton, E. E., Glenn, D. M., Orsillo, S., Roemer, L., & Litz, B. T. (2003). The relationship between self-disclosure and symptoms of posttraumatic stress disorder in peacekeepers deployed to Somalia. *Journal of Traumatic Stress*, 16(3), 203–210. doi:10.1023/A:1023754820991
- Brewin, C. R., Andrews, B., & Valentine, J. D. (2000). Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *Journal of Consulting and Clinical Psychology*, 68(5), 748–766. doi:10.1037/0022-006X.68.5.748
- Collins, L. M., Schafer, J. L., & Kam, C.-M. (2001). A comparison of inclusive and restrictive strategies in modern missing data procedures. *Psychological Methods*, 6(4), 330–351. doi:10.1037/1082-989X.6.4.330
- Cummings, J. (2011). Sharing a traumatic event: The experience of the listener and the storyteller within the dyad. *Nursing Research*, 60(6), 386–392. doi:10.1097/NNR.0b013e3182348823
- Dekel, R., & Solomon, Z. (2006). Secondary traumatization among wives of Israeli POWs: The role of POWs' distress. *Social Psychiatry and Psychiatric Epidemiology*, 41(1), 27–33. doi:10.1007/s00127-005-0002-6
- Dindia, K., & Allen, M. (1992). Sex differences in self-disclosure: A meta-analysis. *Psychological Bulletin*, 112(1), 106–124. doi:10.1037/0033-2909.112.1.106
- Figley, C. R. (1995). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized*. New York, NY: Brunner/Mazel.
- Finkenauer, C., & Hazam, H. (2000). Disclosure and secrecy in marriage: Do both contribute to marital satisfaction? *Journal of Social and Personal Relationships*, 17(2), 245–263. doi:10.1177/0265407500172005
- Foa, E. B., Keane, T. M., Friedman, M. J., & Cohen, J. A. (2009). *Effective treatments for PTSD: Practice guidelines from the International Society for Traumatic Stress Studies* (2nd ed.). New York, NY: Guilford Press.
- Frattaroli, J. (2006). Experimental disclosure and its moderators: A meta-analysis. *Psychological Bulletin*, 132(6), 823–865. doi:10.1037/0033-2909.132.6.823
- Galovski, T., & Lyons, J. A. (2004). Psychological sequelae of combat violence: A review of the impact of PTSD on the veteran's family and possible interventions. *Aggression and Violent Behavior*, 9(5), 477–501. doi:10.1016/S1359-1789(03)00045-4
- Gidron, Y., Peri, T., Connolly, J. F., & Shalev, A. Y. (1996). Written disclosure in posttraumatic stress disorder: Is it beneficial for the patient? *Journal of Nervous and Mental Disease*, 184(8), 505–506. doi:10.1097/00005053-199608000-00009
- Goldenberg, J. (2002). The impact on the interviewer of Holocaust survivor narratives: Vicarious traumatization or transformation? *Traumatology*, 8(4), 215–231. doi:10.1177/153476560200800405
- Greene, T., Lahav, Y., Bronstein, I., & Solomon, Z. (2014). The role of ex-POWs' PTSD symptoms and trajectories in wives' secondary traumatization. *Journal of Family Psychology*, 28(5), 666–674. doi:10.1037/a0037848
- Hansen, J. E., & Schuldt, W. J. (1984). Marital self-disclosure and marital satisfaction. *Journal of Marriage and the Family*, 46, 923–926. doi:10.2307/352541
- Hayes, A. F., & Preacher, K. J. (2014). Statistical mediation analysis with a multicategorical independent variable. *British Journal of Mathematical and Statistical Psychology*, 67(3), 451–470. doi:10.1111/bmsp.2014.67.issue-3
- Herman, J. L. (1992). *Trauma and recovery*. New York, NY: Basic Books.
- Joseph, A. L., & Affi, T. A. (2010). Military wives' stressful disclosures to their deployed husbands: The role of protective buffering. *Journal of Applied Communication Research*, 4(38), 412–434. doi:10.1080/00909882.2010.513997
- Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

- Koenig Kellas, J., Horstman, H. K., Willer, E. K., & Carr, K. (2015). The benefits and risks of telling and listening to stories of difficulty over time: Experimentally testing the expressive writing paradigm in the context of interpersonal communication between friends. *Health Communication*, 30(9), 843–858. doi:10.1080/10410236.2013.850017
- Lewis, M. A., McBride, C. M., Pollak, K. I., Puleo, E., Butterfield, R. M., & Emmons, K. M. (2006). Understanding health behavior change among couples: An interdependence and communal coping approach. *Social Science and Medicine*, 62(6), 1369–1380. doi:10.1016/j.socscimed.2005.08.006
- Lewis, T., & Manusov, V. (2009). Listening to another's distress in everyday relationships. *Communication Quarterly*, 57(3), 282–301. doi:10.1080/01463370903107279
- Lieblich, A. (1994). *Seasons of captivity: The inner world of POWs*. New York: New York University Press.
- Lyons, R. F., Mickelson, K. D., Sullivan, M. J., & Coyne, J. C. (1998). Coping as a communal process. *Journal of Social and Personal Relationships*, 15(5), 579–605. doi:10.1177/0265407598155001
- Mahalik, J. R., Good, G. E., & Englar-Carlson, M. (2003). Masculinity scripts, presenting concerns, and help seeking: Implications for practice and training. *Professional Psychology: Research and Practice*, 34(2), 123–131. doi:10.1037/0735-7028.34.2.123
- Miller, L. C., Berg, J. H., & Archer, R. L. (1983). Openers: Individuals who elicit intimate self-disclosure. *Journal of Personality and Social Psychology*, 44(6), 1234–1244. doi:10.1037/0022-3514.44.6.1234
- Monk, J. K., & Nelson Goff, B. S. (2014). Military couples' trauma disclosure: Moderating between trauma symptoms and relationship quality. *Psychological Trauma: Theory, Research, Practice, and Policy*, 6(5), 537–545. doi:10.1037/a0036788
- Nelson Goff, B. S., Summers, K., Hartman, K., Billings, A., Chevalier, M., Hermes, A. H., & Monk, J. K. (2015). Disclosure of war deployment experiences: A qualitative study of the relationship impact on military couples. *Military Behavioral Health*, 3(3), 190–198. doi:10.1080/21635781.2015.1055865
- Purves, D. G., & Erwin, P. G. (2004). Post-traumatic stress and self-disclosure. *Journal of Psychology*, 138(1), 23–34. doi:10.3200/JRLP.138.1.23-34
- Rimé, B. (2009). Emotion elicits the social sharing of emotion: Theory and empirical review. *Emotion Review*, 1(1), 60–85. doi:10.1177/1754073908097189
- Schafer, J. L., & Graham, J. W. (2002). Missing data: Our view of the state of the art. *Psychological Methods*, 7(2), 147–177. doi:10.1037/1082-989X.7.2.147
- Shortt, J. W., & Pennebaker, J. W. (1992). Talking versus hearing about Holocaust experiences. *Basic and Applied Social Psychology*, 13(2), 165–179. doi:10.1207/s15324834basp1302_2
- Smyth, J. M., Pennebaker, J. W., & Arigo, D. (2012). What are the health effects of disclosure? In A. Baum, T. A. Revenson, & J. E. Singer (Eds.), *Handbook of health psychology* (pp. 175–205). New York, NY: Psychology Press.
- Solomon, Z., Benbenishty, R., Neria, Y., Abramowitz, G., Ginzburg, K., & Ohry, A. (1993). Assessment of PTSD: Validation of revised PTSD Inventory. *Israel Journal of Psychiatry and Related Sciences*, 30(2), 110–115.
- Solomon, Z., Horesh, D., Ein-Dor, T., & Ohry, A. (2012). Predictors of PTSD trajectories following captivity: A 35-year longitudinal study. *Psychiatry Research*, 199(3), 188–194. doi:10.1016/j.psychres.2012.03.035
- Stein, J. Y., & Tuval-Mashiach, R. (2015). Loneliness and isolation in life-stories of Israeli veterans of combat and captivity. *Psychological Trauma: Theory, Research, Practice, and Policy*, 7(2), 122–130. doi:10.1037/a0036936