

Psychological Trauma: Theory, Research, Practice, and Policy

Posttraumatic Stress Symptoms and Marital Adjustment Among Israeli Combat Veterans: The Role of Loneliness and Attachment

Liat Itzhaky, Jacob Y. Stein, Yafit Levin, and Zahava Solomon

Online First Publication, February 16, 2017. <http://dx.doi.org/10.1037/tra0000259>

CITATION

Itzhaky, L., Stein, J. Y., Levin, Y., & Solomon, Z. (2017, February 16). Posttraumatic Stress Symptoms and Marital Adjustment Among Israeli Combat Veterans: The Role of Loneliness and Attachment. *Psychological Trauma: Theory, Research, Practice, and Policy*. Advance online publication. <http://dx.doi.org/10.1037/tra0000259>

Posttraumatic Stress Symptoms and Marital Adjustment Among Israeli Combat Veterans: The Role of Loneliness and Attachment

Liat Itzhaky, Jacob Y. Stein, Yafit Levin, and Zahava Solomon
Tel Aviv University

Objective: War trauma may foster ramifications for marital relationships. Veterans may feel that no one can understand them and thus impact their relationships. The current study aims to shed light on the role that posttraumatic stress symptoms (PTSS), loneliness, and attachment orientations may play in marital adjustment among combat veterans. **Method:** Participants were 504 veterans who served in the Lebanon War in 1982. **Results:** Analysis revealed that higher PTSS levels were related to lower marital adjustment and that the indirect path of this relation through loneliness was significant. Furthermore, attachment orientations moderated the direct link between PTSS and marital adjustment, but failed to moderate the indirect effect through loneliness. **Conclusions:** A sense of isolation should be addressed in therapy, as well as the interpersonal expectations of the veteran.

Keywords: marital adjustment, posttraumatic symptoms, loneliness, attachment

The stressors of war are vast and multiple, and may be extremely traumatic (e.g., Figley & Nash, 2007). A large body of research indicates that traumatic events such as war, and particularly their psychological ramifications, may impede marital relationships (Nelson Goff, Crow, Reisbig, & Hamilton, 2007; Taft, Watkins, Stafford, Street, & Monson, 2011) and at times may serve as catalysts leading to their termination (Riggs, Byrne, Weathers, & Litz, 1998). Therefore, it is paramount to understand the psychological sequelae of war trauma (i.e., acute and long-lasting posttraumatic reactions) and investigate the manners in which they might affect veterans' marital relationships.

Of particular interest are symptoms of posttraumatic stress disorder (PTSD), which have been repeatedly linked to the negative effects of trauma on marital relationships (Taft et al., 2011). Posttraumatic stress symptoms (PTSS) are divided into four clusters: intrusive memories of the trauma, avoidance of reminders of the trauma, hyperarousal, and negative alterations to mood and cognition (American Psychiatric Association [APA], 2013). Each of the various symptoms may affect the couple relationship in a different manner. Veterans' hyperarousal and irritability, for instance, may undermine the relationship as they give rise to outbursts, which generates conflict while also decreasing conflict resolution capabilities (Miller et al., 2013; Orth & Wieland, 2006). Avoidance symptoms, specifically emotional numbing, may impede intimacy and marital communication and thus facilitate disturbances in the marital relationship (Evans, McHugh, Hopwood,

& Watt, 2003; Riggs et al., 1998; Monson, Taft, & Fredman, 2009). Furthermore, as PTSD is characterized by considerable dysfunction (APA, 2013), traumatized veterans' wives may be burdened and stressed themselves as they take on the role of caregiver as well as additional roles that were formerly their husbands' (Manguno-Mire et al., 2007). Nelson Goff, and Smith (2005) identified several underlying mechanisms through which PTSD symptoms may potentially negatively impact a partner, including unmet attachment needs. These observations all culminate in the realization that trauma, and particularly PTSD, may be taxing for the marital relationship in many ways. Moreover, in light of this diversity, it is not surprising that there is considerable variation in marital adjustment among traumatized veterans, as many variables may be in play, adding to the initial impact of PTSD (Riggs, 2014). The current study set out to investigate two such variables, namely, loneliness and attachment.

Loneliness After Trauma

Loneliness arises when there is a lack of fulfillment of relational needs (e.g., intimacy, belonging, caring), and thus one feels isolated (Russell, Cutrona, McRae, & Gomez, 2012; Stein & Tuval-Mashiach, 2015b). Typically, marriage serves as a protective factor against loneliness (Stack, 1998). However, if important relational needs are unfulfilled it may be detrimental to the marital relationship and result in loneliness (Ayalon, Shiovitz-Ezra, & Palgi, 2013; Moorman, 2015; Rokach & Sha'ked, 2013). Regarding war trauma, studies have repeatedly indicated that loneliness may accompany veterans for many years (Kuwert, Knaevelsrud, & Pietrzak, 2014). As veterans return home, they may feel that they are unable to share their experiences with others and thus feel alienated (Stein & Tuval-Mashiach, 2015a). This may be exacerbated by PTSD as veterans feel that being alone with their experiences implies also being alone in coping with the war's aftermath.

The need to share one's trauma, yet being unable to do so, may impede one's sense of connection with his or her spouse—a

Liat Itzhaky, Jacob Y. Stein, Yafit Levin, and Zahava Solomon, I-Core Research Center for Mass Trauma, The Bob Shappell School of Social Work, Tel Aviv University.

Correspondence concerning this article should be addressed to Liat Itzhaky, I-Core Research Center for Mass Trauma, The Bob Shappell School of Social Work, Tel Aviv University, 69978 Tel Aviv, Israel. E-mail: liat.itzhaky@gmail.com

relationship wherein one expects to feel understood, loved, unconditionally accepted, and nurtured. Given that loneliness is often conceptualized as a discrepancy between the desired and achieved sense of relational needs (Russell et al., 2012), we hypothesize that the relation between veterans' PTSS and their levels of marital adjustment will be accounted for, at least partially, by their level of loneliness. This has been observed, for instance, among former prisoners of war (Solomon & Dekel, 2008), but has yet to be investigated among noncaptive veterans. Moreover, looking at such aspects while failing to account for more inveterate personality attributes may lead to a partial and limited understanding. Attachment theory may serve to surpass this potential pitfall.

Attachment, Relationships, and Trauma

According to attachment theory (Bowlby, 1969/1982), upon which the foundations of loneliness research was initially constituted (Weiss, 1973), the nature and quality of early interactions with primary caregivers plays a crucial role in shaping interactions in adulthood (Mikulincer & Shaver, 2007). In current attachment research, adult attachment may be best represented and measured as a two-dimensional construct: attachment-anxiety and attachment-avoidance (Brennan, Clark, & Shaver, 1998). The attachment-anxiety dimension relates to the extent one worries that his or her significant other will not be available during times of need and will not meet the desire for proximity and care. The attachment-avoidance dimension refers to the extent one does not trust the good intentions of others and wishes to keep emotionally distant (Mikulincer & Shaver, 2007). Scoring low on both dimensions indicates secure attachment.

Attachment presents a framework that may assist in understanding the impact of posttraumatic responses on marital relationships after deployment (Basham, 2008). Adults' attachment systems may be activated in the face of adversity and stress (Hazan, Gur-Yaish, & Campa, 2004), influencing the manner in which they perceive their relationships and evaluate their quality (Feeney, 2008; Grau & Doll, 2003; Hazan & Shaver, 1987). Hence, it may be hypothesized that possessing a more secure attachment when experiencing trauma reactions may help in buffering trauma's detrimental effects on marital adjustment, as well as to inhibit loneliness. From an attachment perspective, "loneliness is a form of separation distress that results from failure to have one's basic attachment needs fulfilled" (Mikulincer & Shaver, 2007, p. 280). Thus, those with attachment anxiety are more susceptible to loneliness than attachment-avoidant individuals (Mikulincer & Shaver, 2014). While the former tend to exaggerate their unsatisfied needs for proximity, increasing their loneliness, the latter deny or suppress these needs, minimizing the discrepancy between the proximity achieved and that desired. If loneliness does transpire after trauma, attachment may affect the manner in which it is perceived and managed (Mikulincer & Shaver, 2014) and thus also moderate its effects on marital adjustment. Nevertheless, the interplay of attachment and loneliness, as well as both factors' implications concerning the effect of veterans' PTSD vis-à-vis their marital adjustment, remain uninvestigated, resulting in a notable gap in the literature.

Bridging the aforementioned gaps, the current study set out to investigate the extent to which veterans' PTSS affect their marital adjustment, and whether this may be mediated by the veterans'

sense of loneliness. Furthermore, the study attempted to uncover the role attachment orientation may play in this complex relation. In light of the literature above, the following hypotheses were tested: (a) we hypothesized an indirect link between PTSS and low marital adjustment, through loneliness (Hypothesis 1). (b) We hypothesized that attachment orientation will moderate the direct link between PTSS and marital adjustment, such that a more secure attachment orientation will buffer the effect of PTSS on marital adjustment (Hypothesis 2). (c) We hypothesized that a more secure attachment orientation will moderate the indirect link through loneliness by buffering its relation to PTSS and/or by buffering its effect on marital adjustment (Hypothesis 3). Given that socioeconomic status (SES) and educational levels are related to both marital adjustment (Conger, Conger, & Martin, 2010) and PTSS (Schnurr, Lunney, & Sengupta, 2004), the hypothesized model was evaluated above these individual differences.

Method

Participants and Procedure

The current study is part of a large cohort study comprised of Israeli male combat veterans from the 1982 Lebanon War. In the current study we used data only from the fourth wave of measurement, which took place in 2002 (20 years after the war), as marital adjustment was measured only in this wave. In this wave of measurement 504 veterans participated (age; $M = 47.16$, $SD = 5.62$), of these veterans, 286 experienced a psychiatric breakdown during battle, known as combat stress reaction (CSR; Solomon, 1993) during that war. We contacted potential participants by telephone and explained the aim of the current study. Data were collected at the veterans' homes or a location of their choice. This study was approved by the Medical Corps and Tel Aviv University ethics committees.

Of the overall study population, 467 participants were married at the time of assessment, of which 29 were in their second, or third, marriage. Additionally, 23 were divorced once, three were divorced twice or more. Nine participants were single and two were widowed. For SES, 22.5% reported lower income than the average at the time of the study, 65% reported average income and 12.5% reported income rates higher than average. Nineteen percent had a primary level education, 54% completed high school, and 27% had a higher education.

Measures

Dyadic Adjustment Scale (DAS). The DAS (Spanier, 1976) was used to assess marital adjustment. The DAS consists of 32 items comprised of four factors: Consensus, Cohesion, Satisfaction, and Affection Expression. Participants were asked to indicate the extent to which each item described their current marital relationship. The dyadic adjustment score used in the current study is the sum rating of all the items, whereby high scores reflect better adjustment. The scale has very good convergent validity and discriminant validity (Heyman, Sayers, & Bellack, 1994). The scale has been widely used worldwide and with Israeli populations (Horesh & Fennig, 2000). In the present study, the DAS total score was found to have high internal consistency (Cronbach's $\alpha = .93$).

PTSD Inventory (PTSD-I). The PTSD-I (Solomon et al., 1993) was used to measure PTSS and is based on the PTSD criteria in the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM-IV*; APA, 1994), which was the standard at the time the research commenced. The questionnaire consists of 17 statements describing different expressions of the disorder with relation to the experiences during the 1982 Lebanon War. The scale, comprised of three subscales: Intrusion, Avoidance, and Arousal, was found to have high convergent validity when compared with diagnoses based on structured clinical interviews (Solomon & Horesh, 2007). Respondents were required to rate each statement according to the frequency they experienced the described content during the last month. Ratings appear on a 4-point scale ranging from 1 (*never*) to 4 (*very often*). PTSS represent the number of symptoms the participant endorsed (the presence of a symptom was determined if it was scored 3 or more). In the present study, the inventory was found to have high internal consistency (Cronbach's alpha = .89).

UCLA Loneliness Scale. The UCLA Loneliness Scale (Russell, Peplau, & Cutrona, 1980) was used to measure loneliness. The scale consists of 20 items, measuring perceived social isolation through relational contexts. Participants were asked to indicate how often they experienced the feelings mentioned in the items on a 4-point Likert scale: 1 (*not at all*) to 4 (*very often*). The total score is the sum of all 20 items after coding high scores to reflect more feelings of loneliness. The scale possesses good psychometric properties, in both its English (Russell et al., 1980) and Hebrew (Solomon & Dekel, 2008) versions. In the present study, high internal consistency was found (Cronbach's alpha = .93).

Experiences in close relationships (ECR). The ECR (Brennan et al., 1998) was used to evaluate attachment orientations. This questionnaire was adapted and translated into Hebrew by Mikulincer and Florian (2000). It includes 36 items relating to feelings concerning interpersonal relations. Eighteen of the items (even items) relate to the Anxiety dimension (e.g., "I'm concerned that my partner will leave me"), and 18 items (odd items) relate to the Avoidant dimension of intimate relationships (e.g., "I tell those close to me everything"). For each item, the participant was asked to indicate how much he agrees with the statement using a Likert scale between 1 (*very much disagree*) and 7 (*very much agree*). Israeli studies employing this questionnaire have reported high internal consistency, with Cronbach's alpha ranging between 0.88 to 0.92 for the Avoidance dimension and 0.83 to 0.94 for the Anxiety dimension (Ben-Shahar, 2006). In the current study a good internal reliability was found, both for anxious and avoidant attachments (Cronbach's alpha = .90 and .91, respectively).

Results

We examined the relations between the study variables by employing a Pearson intercorrelations analysis (see Table 1). Analysis revealed significant positive correlations between PTSS, loneliness, and attachment subscales (i.e., avoidance and anxiety), as well as a negative correlation of PTSS, loneliness and attachment subscales with marital adjustment.

The Mediating Effect of Loneliness

Calculation of power analysis to regression analysis via G^* power (Faul, Erdfelder, Lang, & Buchner, 2007), given our sample size, had the expected medium effect size of 0.7 and alpha value of 0.05, exerted medium to high power of 0.8 to 0.85.

In order to assess the mediation effect of loneliness between PTSS and marital adjustment (H_1) we used Hayes' (2012) PROCESS computational macro mediational model. Since the sample was partially comprised of veterans who suffered from CSR, executing the analysis, we controlled for CSR to avoid its potentially confounding effects. We also controlled for demographics (education level and SES). This was done by using the Preacher and Hayes (2004) model to estimate the size and significance of indirect effects. Figure 1 illustrates the unstandardized regression coefficient among all of the model's variables. The significance of this indirect effect was tested using 2,000 bootstrapped samples, and the 95% confidence interval (CI) was computed by determining the indirect effects at the 5th and 95th percentiles. The entire model was significant, $F(5, 384) = 48.7$ $p < .001$, and the variables explained 38.8% of the variance in marital adjustment. The bootstrapped unstandardized indirect effect was -1.54 ($SE = .22$), and the 95% CI ranged between -2.03 to $-.115$, revealing three paths of influence: (a) direct path between PTSS and marital adjustment, (b) a relation between loneliness and marital adjustment, and (c) an indirect effect of PTSS on marital adjustment through loneliness. According to supplementary analysis employing a hierarchical regression, the loneliness variable added 17.4% to the explained variance in the model (F change = 102.9 $p < .0001$). More importantly the kappa squared (Preacher & Kelley, 2011) derived from the PROCESS macro tool indicated a large effect size ($\kappa = .3$, $SE = .03$, 95% CI [.2388, .3603]).

Moderating Effects of Attachment Insecurities

Evaluating our second (H_2) and third (H_3) hypotheses, whether attachment-avoidance and attachment-anxiety orientations moder-

Table 1
Means, Standard Deviations, and Pearson Intercorrelations Between the Study Variables

Variable	1	2	3	4	5	<i>M</i>	<i>SD</i>
1. PTSS						4.80	4.34
2. Avoidant	.50**					3.50	1.10
3. Anxious	.53**	.34**				2.57	1.04
4. Loneliness	.66**	.72**	.50**			38.43	13.3
5. Marital adjustment	-.50**	-.49**	-.47**	-.63**		136.75	21.46

Note. PTSS = posttraumatic stress symptoms; Avoidant = avoidant attachment orientation; Anxious = anxious attachment orientation.

** $p < .01$.

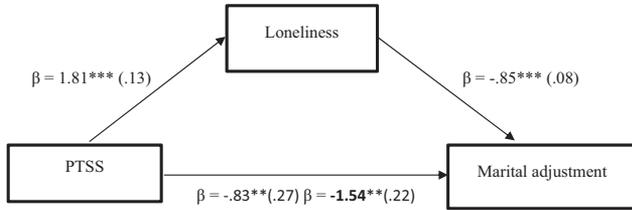


Figure 1. Statistical model of mediation model with PTSS as independent variable, loneliness as mediator, and marital adjustment as the dependent variable. ** $p < .01$. *** $p < .001$. Boldface indicates the indirect link.

ate the direct and indirect effects mentioned above, two moderation-mediation models (Models 10 and 16) analyses were conducted utilizing PROCESS macro (Hayes, 2012).

The first moderation-mediation model assessed the moderating effect of attachment-avoidance and attachment-anxiety in the link between PTSS and marital adjustment (direct effect) as well as the link between PTSS (the independent variable) and loneliness (the mediator), allowing assessment of the conditional indirect effect (Figure 2). To avoid potential confounding factors, during the analysis we controlled for CSR, SES, and educational levels. The entire model was significant, $F(8.379) = 85.3$ $p < .001$ and explained 64.3% of the variance. In this model, the direct link from PTSS to marital adjustment was not significant. Nevertheless, we found significant main effects for loneliness, $\beta = -.64$, $SE = .10$, 95% CI $[-.8482, -.4294]$, and attachment-avoidance, $\beta = -3.93$, $SE = 1.66$, 95% CI $[-7.1953, -.6651]$, both predicting worse marital adjustment. Treating the attachment insecurity variables as main effects and the interactions between them and PTSD increased the explained variance by 3.3% (F change = 4.98 $p = .001$) which point at a small to moderate effect size of the interactions. The sole significant interaction in predicting marital ad-

justment was between attachment-anxiety and PTSS, $\beta = -.41$, $SE = .20$, 95% CI $[-.8155, -.0066]$. The effect size of this interaction was relatively small (Cohen's $d = -0.2$ based on $t = -1.58$; Cohen, 1988). The interaction between PTSS and attachment-avoidance was very close to reaching significance, $\beta = .38$, $SE = .20$, 95% CI $[-.0259, .7889]$. Probing of the first interaction revealed that when attachment-anxiety was low, no effect for PTSS on marital adjustment was evident, $\beta = -.34$, $SE = .37$, 95% CI $[-1.798, .3918]$. However, under high levels of attachment-anxiety PTSS predicted lower marital adjustment, $\beta = -1.2$, $SE = .46$, 95% CI $[-2.1154, -3.021]$. Probing of the second interaction revealed that under low attachment-avoidance a negative effect was revealed, $\beta = -.77$, $SE = .36$, 95% CI $[-1.4841, -.0687]$. However under high attachment-avoidance, no significant effect was revealed, $\beta = .05$, $SE = .35$, 95% CI $[-.6538, .7608]$.

Looking at the indirect path, we found that PTSS and both attachment-anxiety and attachment-avoidance orientations predicted higher loneliness. Under all combinations of high and low attachment-avoidance and attachment-anxiety, the indirect effect was significant. When attachment-avoidance and attachment-anxiety were low, an indirect effect was found from PTSS to loneliness, which predicted marital adjustment, $\beta = .59$, $SE = .17$, 95% CI $[-.9801, -.3090]$. When both attachment insecurities were high we found this to be an indirect effect as well, $\beta = -.42$, $SE = .15$, 95% CI $[-.7887, -.1815]$. When attachment-avoidance was high and attachment-anxiety was low, $\beta = -.37$, $SE = .17$, 95% CI $[-.8009, -.0667]$, as well as when attachment-avoidance was low and attachment-anxiety was high, $\beta = -.64$, $SE = .2$, 95% CI $[-1.0798, -.3090]$, the same indirect effect was found. All kappa squared ranged from 0.23 to 0.3, indicating a small to medium effect size. This suggests that attachment orientations do not moderate the indi-

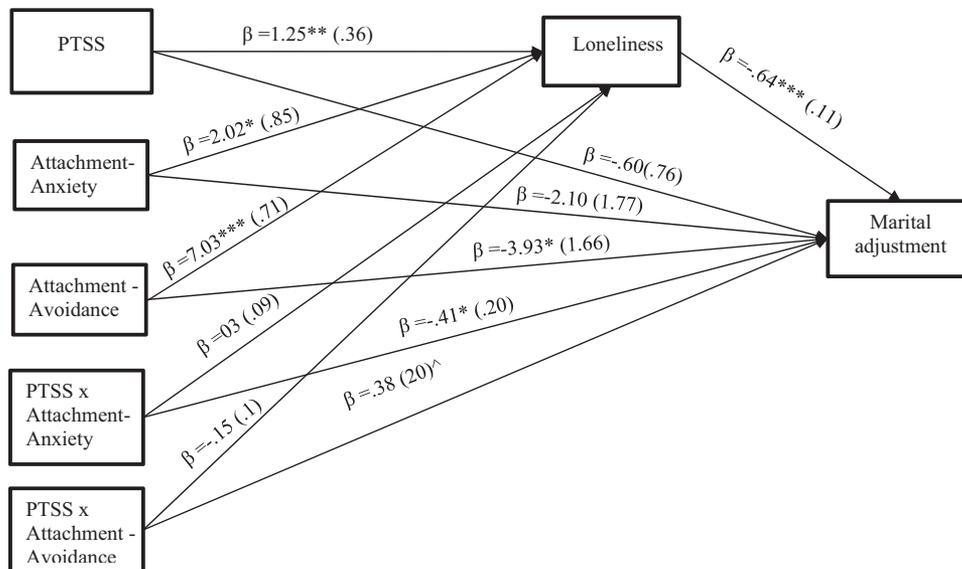


Figure 2. Statistical model of moderated mediation model (No. 10) with attachment orientations as moderators of the link between PTSS and marital adjustment, as well as the indirect link of loneliness. * $p < .05$. ** $p < .01$. *** $p < .001$. ^ trend.

rect effect of loneliness in the link between PTSS and loneliness.

In the second model (Figure 3), which was significant, $F(4, 383) = 66.8, p < .001$ and explained 41.1% of the variance, we assessed the moderating effect of attachment orientations in the link between loneliness and marital adjustment, while controlling for CSR and demographics (education and SES). When predicting loneliness, PTSS emerged as the only significant predictor, $\beta = -.64, SE = .2, 95\% CI [-1.0798, -.3090]$. However, when predicting marital adjustment, loneliness came up as the only significant main effect, $\beta = -.59, SE = .26, 95\% CI [-1.1047, -.0870]$. The interactions were nonsignificant, indicating that attachment orientations failed to moderate the indirect effect in the link between loneliness and marital adjustment.

Discussion

The current study aimed to shed light on the processes underlying the negative link between combat-induced PTSS and marital adjustment among war veterans, by investigating the role of loneliness and attachment within this relation. As hypothesized, the results not only revealed a negative effect of PTSS on marital adjustment, but more importantly, that loneliness mediated this direct effect, implying an indirect relation (H_1). Additionally, we found attachment-anxiety to have a significant role in moderating the direct link between PTSS and marital adjustment (H_2). Specifically, we found that the link between PTSS and marital adjustment existed only under high attachment-anxiety, while low attachment-anxiety buffered this link. Interestingly, we found the interaction of PTSS and attachment-avoidance in predicting mar-

ital adjustment to be on the border of significance. The effect of attachment-avoidance came up as the opposite of the effect of attachment-anxiety—the link between PTSS and marital adjustment existed only under low attachment-avoidance and high attachment-avoidance buffered the effect of PTSS on marital adjustment. Nevertheless, our third hypothesis (H_3) was not supported by the findings, as attachment orientations failed to moderate the indirect path linking PTSS and marital adjustment through loneliness.

The mediating role of loneliness found in the current study is consistent with former findings concerning the effects of loneliness in the association between trauma and psychopathology (Shevlin, McElroy, & Murphy, 2015; Solomon & Dekel, 2008; Solomon, Waysman, & Mikulincer, 1990). One way to understand this mediating effect is by considering veterans' marital relationships through the prism of homecoming theory, underscoring the alienation veterans experience upon their transition from war to civilian life (Ahern et al., 2015). Veterans' experiences on the battlefield are very different from civilian experiences, and hence, while veterans may need to share their experiences of war and its aftermath (i.e., their PTSS manifestations) with their spouses, they may feel that the latter are incapable of understanding, and thus feel isolated and lonely (Stein & Tuval-Mashiach, 2015a). This experiential gap may arise amid both the veterans' and their partners' prolonged attempts to adapt to their postwar life. On the one hand, the traumatized veteran is suffering from a confusing and difficult emotional state and is faced with increasing demands to adjust to civilian life, which challenges the relationship. On the other hand, the partner needs to adapt to having a spouse who suffers from PTSS (in many cases while suffering from secondary

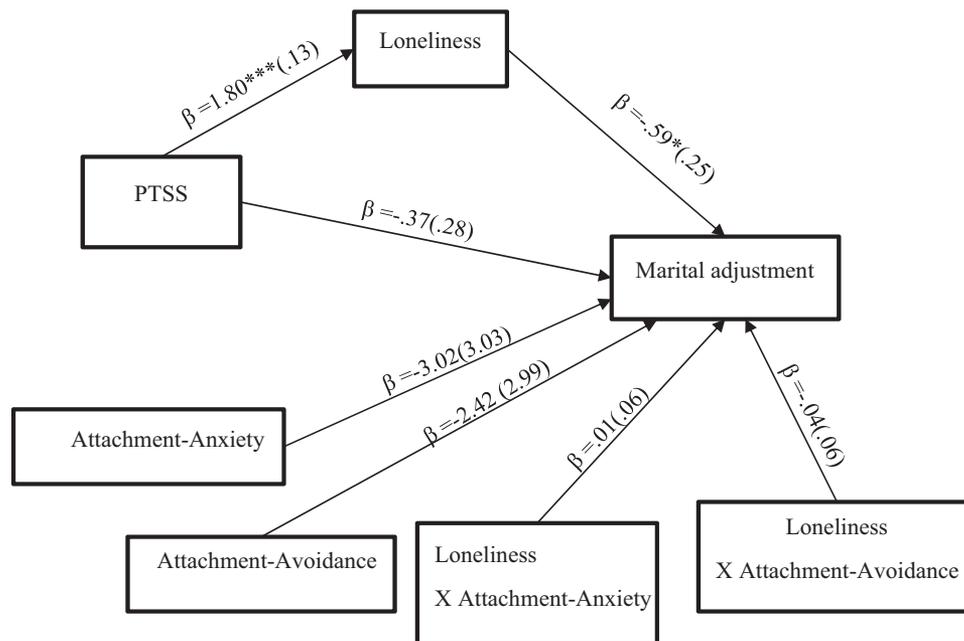


Figure 3. Statistical model of the moderated mediation model (No. 16), with attachment orientations as the moderators of the indirect link between PTSS and marital adjustment throughout loneliness. * $p < .05$. *** $p < .001$.

traumatization; e.g., Ben Arzi, Solomon, & Dekel, 2000). These cumulative challenges may impede the ability to fulfill the partner's needs. Unmet relational expectations are the bedrock of loneliness (Russell et al., 2012). It may be that veterans attribute their experience of loneliness to this gap in the marital relationship, rather than to the nature of the traumatic experience and the resulting relational intersubjective rupture (Stolorow, 2007), thereby worsening their marital adjustment.

Another explanation for the mediating role of loneliness may be rooted in the posttraumatic reaction itself. The extreme and lingering nature of the traumatic memory, manifesting in PTSS, may detach the veteran from reality as he is pulled into his traumatic experience and becomes avoidant. Such detachment then gives rise to negative cognitive and mood alterations of isolation and detachment, characteristic of PTSD (APA, 2013); as the veteran becomes convinced of his inevitable isolation he may engage in further withdrawal. Consequently, he becomes less capable of interacting with the external world and is unable to have his emotional needs met, nor can he meet the emotional needs of his partner. This withdrawal and emotional distance is experienced as loneliness and is again perceived as a reflection of the state of the marital relationship, rather than as a consequence of the trauma and its symptomatic aftermath.

Contrary to our expectations, attachment failed to moderate the mediation of loneliness in the relation between PTSS and marital adjustment. This further strengthens the understanding that the impact of loneliness is central in mediating this link. Loneliness both manifests in light of PTSS and affects marital adjustment, ostensibly regardless of variances in attachment configurations. Seeking to understand the underlying mechanisms of posttraumatic loneliness then may be paramount in future trauma research.

An important finding of the present study was the discovery of the moderating role of low attachment-anxiety in the link between PTSS and low marital adjustment. Previous empirical findings may explain this moderation. Individuals who evince low levels of attachment-anxiety are characterized by either secured attachment or dismissive avoidant (low attachment-anxiety, high attachment-avoidance). The former have been found to be more effective in general and particularly in their intimate relationships (Mikulincer & Sheffi, 2000; Sharpsteen & Kirkpatrick, 1997). They have likewise been found to have more positive expectations about others (Hazan & Shaver, 1987) and exhibit higher differentiation capacities (Moini, 2016). These capabilities may serve to protect veterans with secure attachment orientations from the detrimental effects of PTSS in that they facilitate a greater capacity to differentiate one's personal traumatic experiences from the responses offered by intimate partners. This, in turn, may allow for an internal mentalization rather than external enactment of the trauma. Moreover, as those possessing a secure attachment manage to differentiate the trauma and its aftermath from the relationship, they may retain a positive stance toward their partners, even as they continue to suffer from PTSS.

According to the moderation effect delineated above, those who possess a dismissive avoidant orientation are also likely to evince a resilience to the effect of PTSS on marital adjustment. This was also demonstrated directly, by a marginally significant effect that showed that high attachment-avoidance buffered the effect of PTSS on marital adjustment. As this effect was only marginally significant it should be interpreted with caution. This opposing

effect may be understood by realizing the essential difference between anxious and avoidant attachment orientations within relationships. While individuals with attachment-avoidance have generally lower expectations from their relationships and thus avoid them altogether, those with attachment-anxiety seek relational proximity but are prone to experience less intimacy than they desire (Bartholomew, 1990; Mikulincer & Shaver, 2014). The latter demand more from their partners and at the same time blame their partners for not satisfying their disproportionately high demands (Grau & Vogel, 1998). Indeed, in Grau and Doll's (2003), examination of the influence of attachment orientations on the experience of equity in intimate relationships, the researchers found that anxious individuals, but not secure or avoidant, tended to see themselves as deprived within their intimate relationship. We may then assume that when adversity strikes, traumatized individuals with an attachment-anxiety orientation will more readily experience their distress as originating from their partners' failure to meet their needs, thus resulting in detrimental ramifications for the marital relationships.

The current study has several limitations. First, the cross-sectional model limits our ability to draw conclusions concerning causality. Future research should assess the trajectories of loneliness and marital adjustment longitudinally. Second, taking into consideration the high correlation between loneliness and both attachment orientations, in contrast to their nonsignificance as moderators, the results should be interpreted with caution and replicated or challenged in future studies. Third, our analyses did not control for different relationship specific information (e.g., length, marriage before vs. after the war) that might be related to marital adjustment. This lacuna once again underscores the need for more longitudinal designs, which may take into account additional variables. Fourth, the data for the current study were collected 20 years after the war, and thus there is a risk for other confounds that were not included in the model.

Nevertheless, several implications for clinical practice can and should be drawn from the findings delineated above. Ostensibly, in the presence of PTSS, the emergence of feelings of loneliness is likely, and this, in turn, may lead to a negative effect on marital adjustment. Therefore, a central goal in couple's therapy, where one spouse is a traumatized veteran, should be to resolve this sense of isolation. Therapists may wish to draw veterans out of their inner traumatic world, which moves them away from their present relationships, and in so doing work to minimize their experience of loneliness. This goal may be partially addressed, for instance, by providing both partners with psychoeducational information concerning the effect of the posttraumatic experience on the emergence of loneliness, including normalization of these feelings and fine-tuning expectations within the marital relationship. This might be of assistance in decreasing the accompanying feelings of distress, confusion, and relational anxiety, and may even minimize the loneliness itself. In light of the current findings it may also be beneficial, in cases of attachment-anxiety, to bring the individual's attention to the inner working models that potentially strengthen the effect of PTSS on marital adjustment, and work to address these effects. It is also important to understand the subjective loneliness of the veteran as well as the situations that evoke it within the marital relationship. Allowing the veteran to communicate his experience to his spouse in an atmosphere of effective

emotional communication (Nelson Goff et al., 2007) may work to assuage and alleviate this unenviable sensation.

To conclude, the present study highlights the role of loneliness in the link between PTSS and marital adjustment. Furthermore, we found a buffering effect of low attachment-anxiety orientation in the link between PTSS and low marital adjustment. This study adds an important piece to the puzzle, contributing to the understanding of the effect that combat trauma may have on marital adjustment.

References

- Ahern, J., Worthen, M., Masters, J., Lippman, S. A., Ozer, E. J., & Moos, R. (2015). The challenges of Afghanistan and Iraq veterans' transition from military to civilian life and approaches to reconnection. *PLoS ONE*, *10*, e0128599. <http://dx.doi.org/10.1371/journal.pone.0128599>
- American Psychiatric Association (APA). (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.
- American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Ayalon, L., Shiovitz-Ezra, S., & Palgi, Y. (2013). Associations of loneliness in older married men and women. *Aging & Mental Health*, *17*, 33–39. <http://dx.doi.org/10.1080/13607863.2012.702725>
- Bartholomew, K. (1990). Avoidance of intimacy: An attachment perspective. *Journal of Social and Personal Relationships*, *7*, 147–178. <http://dx.doi.org/10.1177/0265407590072001>
- Basham, K. (2008). Homecoming as safe haven or the new front: Attachment and detachment in military couples. *Clinical Social Work Journal*, *36*, 83–96. <http://dx.doi.org/10.1007/s10615-007-0138-9>
- Ben Arzi, N., Solomon, Z., & Dekel, R. (2000). Secondary traumatization among wives of PTSD and post-concussion casualties: Distress, caregiver burden and psychological separation. *Brain Injury*, *14*, 725–736. <http://dx.doi.org/10.1080/026990500413759>
- Ben-Shahar, H. (2006). *Perception of fatherhood among men who suffer from posttraumatic stress disorder: The contribution of attachment orientations* (Unpublished master's thesis). Bar-Ilan University, Ramat Gan, Israel.
- Bowlby, J. (1982). *Attachment and loss* (2nd ed.). New York, NY: Basic Books. (Original work published 1969)
- Brennan, K. A., Clark, C. L., & Shaver, P. R. (1998). Self-report measurement of adult attachment: An integrative overview. In J. A. Simpson & W. S. Rholes (Eds.), *Attachment theory and close relationships* (pp. 46–76). New York, NY: Guilford Press.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Conger, R. D., Conger, K. J., & Martin, M. J. (2010). Socioeconomic status, family processes, and individual development. *Journal of Marriage and Family*, *72*, 685–704. <http://dx.doi.org/10.1111/j.1741-3737.2010.00725.x>
- Evans, L., McHugh, T., Hopwood, M., & Watt, C. (2003). Chronic post-traumatic stress disorder and family functioning of Vietnam veterans and their partners. *Australian and New Zealand Journal of Psychiatry*, *37*, 765–772. <http://dx.doi.org/10.1080/j.1440-1614.2003.01267.x>
- Faul, F., Erdfelder, E., Lang, A.-G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175–191. <http://dx.doi.org/10.3758/BF03193146>
- Feeney, J. A. (2008). Adult romantic attachment: Developments in the study of couple relationships. In J. Cassidy & P. R. Shaver (Eds.), *Handbook of attachment: Theory, research, and clinical applications* (pp. 456–481). New York, NY: Guilford Press.
- Figley, C. R., & Nash, W. P. (Eds.). (2007). *Combat stress injury: Theory, research and management*. London, UK: Routledge.
- Grau, I., & Doll, J. (2003). Effects of attachment styles on the experience of equity in heterosexual couples relationships. *Experimental Psychology*, *50*, 298–310. <http://dx.doi.org/10.1026//1618-3169.50.4.298>
- Grau, I., & Vogel, M. (September, 1998). *Nähe-Distanz-Regulierung in Partnerschaften* [Closeness-distance regulation in close relationships]. Poster presented at the 41st Congress of the Deutschen Gesellschaft für Psychologie, Dresden, Germany.
- Hayes, A. F. (2012). *PROCESS: A versatile computational tool for observed variable mediation, moderation, and conditional process modeling* [White paper]. Retrieved from <http://www.afhayes.com/public/process2012.pdf>
- Hazan, C., Gur-Yaish, N., & Campa, M. (2004). What does it mean to be attached? In S. Rholes & J. Simpson (Eds.), *Adult attachment: Theory, research and clinical implications* (pp. 55–85). New York, NY: Guilford Press.
- Hazan, C., & Shaver, P. (1987). Romantic love conceptualized as an attachment process. *Journal of Personality and Social Psychology*, *52*, 511–524. <http://dx.doi.org/10.1037/0022-3514.52.3.511>
- Heyman, R. E., Sayers, S. L., & Bellack, A. S. (1994). Global marital satisfaction versus marital adjustment: An empirical comparison of three measures. *Journal of Family Psychology*, *8*, 432–446. <http://dx.doi.org/10.1037/0893-3200.8.4.432>
- Horesh, N., & Fennig, S. (2000). Perception of spouses and relationships: A matched control study of patients with severe affective disorder in remission and their spouses. *Journal of Nervous and Mental Disease*, *188*, 463–466. <http://dx.doi.org/10.1097/00005053-200007000-00012>
- Kuwert, P., Knaevelsrud, C., & Pietrzak, R. H. (2014). Loneliness among older veterans in the United States: Results from the National Health and Resilience in Veterans Study. *The American Journal of Geriatric Psychiatry*, *22*, 564–569. <http://dx.doi.org/10.1016/j.jagp.2013.02.013>
- Manguno-Mire, G., Sautter, F., Lyons, J., Myers, L., Perry, D., Sherman, M., . . . Sullivan, G. (2007). Psychological distress and burden among female partners of combat veterans with PTSD. *Journal of Nervous and Mental Disease*, *195*, 144–151. <http://dx.doi.org/10.1097/01.nmd.0000254755.53549.69>
- Mikulincer, M., & Florian, V. (2000). Exploring individual differences in reactions to mortality salience: Does attachment style regulate terror management mechanisms? *Journal of Personality and Social Psychology*, *79*, 260–273. <http://dx.doi.org/10.1037/0022-3514.79.2.260>
- Mikulincer, M., & Shaver, P. R. (2007). *Attachment in adulthood: Structure, dynamics, and change*. New York, NY: Guilford Press.
- Mikulincer, M., & Shaver, P. R. (2014). An attachment perspective on loneliness. In R. J. Coplan & J. C. Bowler (Eds.), *The handbook of solitude: Psychological perspectives on social isolation, social withdrawal, and being alone* (pp. 34–50). Malden, MA: Wiley.
- Mikulincer, M., & Sheffi, E. (2000). Adult attachment orientation and cognitive reactions to positive affect: A test of mental categorization and creative problem solving. *Motivation and Emotion*, *24*, 149–174. <http://dx.doi.org/10.1023/A:1005606611412>
- Miller, M. W., Wolf, E. J., Reardon, A. F., Harrington, K. M., Ryabchenko, K., Castillo, D., . . . Heyman, R. E. (2013). PTSD and conflict behavior between veterans and their intimate partners. *Journal of Anxiety Disorders*, *27*, 240–251. <http://dx.doi.org/10.1016/j.janxdis.2013.02.005>
- Moini, S. (2016). *What predicts marital satisfaction? Defining marital satisfaction through attachment and differentiation* (Doctoral dissertation). Alliant International University, San Diego, California.
- Monson, C. M., Taft, C. T., & Fredman, S. J. (2009). Military-related PTSD and intimate relationships: From description to theory-driven research and intervention development. *Clinical Psychology Review*, *29*, 707–714. <http://dx.doi.org/10.1016/j.cpr.2009.09.002>
- Moorman, S. M. (2015). Dyadic perspectives on marital quality and loneliness in later life. *Journal of Social and Personal Relationships*, *33*, 600–618.

- Nelson Goff, B. S., Crow, J. R., Reisbig, A. M., & Hamilton, S. (2007). The impact of individual trauma symptoms of deployed soldiers on relationship satisfaction. *Journal of Family Psychology, 21*, 344–353. <http://dx.doi.org/10.1037/0893-3200.21.3.344>
- Nelson Goff, B. S., & Smith, D. B. (2005). Systemic traumatic stress: The couple adaptation to traumatic stress model. *Journal of Marital and Family Therapy, 31*, 145–157. <http://dx.doi.org/10.1111/j.1752-0606.2005.tb01552.x>
- Orth, U., & Wieland, E. (2006). Anger, hostility, and posttraumatic stress disorder in trauma-exposed adults: A meta-analysis. *Journal of Consulting and Clinical Psychology, 74*, 698–706. <http://dx.doi.org/10.1037/0022-006X.74.4.698>
- Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments & Computers, 36*, 717–731. <http://dx.doi.org/10.3758/BF03206553>
- Preacher, K. J., & Kelley, K. (2011). Effect size measures for mediation models: Quantitative strategies for communicating indirect effects. *Psychological Methods, 16*, 93–115. <http://dx.doi.org/10.1037/a0022658>
- Riggs, D. S. (2014). Traumatized relationships: Symptoms of posttraumatic stress disorder, fear of intimacy, and marital adjustment in dual trauma couples. *Psychological Trauma, 6*, 201–206. <http://dx.doi.org/10.1037/a0036405>
- Riggs, D. S., Byrne, C. A., Weathers, F. W., & Litz, B. T. (1998). The quality of the intimate relationships of male Vietnam veterans: Problems associated with posttraumatic stress disorder. *Journal of Traumatic Stress, 11*, 87–101. <http://dx.doi.org/10.1023/A:1024409200155>
- Rokach, A., & Sha'ked, A. (2013). *Together and lonely: Loneliness in intimate relationships—Causes and coping*. Hauppauge, NY: Nova.
- Russell, D. W., Cutrona, C. E., McRae, C., & Gomez, M. (2012). Is loneliness the same as being alone? *The Journal of Psychology: Interdisciplinary and Applied, 146*, 7–22. <http://dx.doi.org/10.1080/00223980.2011.589414>
- Russell, D., Peplau, L. A., & Cutrona, C. E. (1980). The revised UCLA Loneliness Scale: Concurrent and discriminant validity evidence. *Journal of Personality and Social Psychology, 39*, 472–480. <http://dx.doi.org/10.1037/0022-3514.39.3.472>
- Schnurr, P. P., Lunney, C. A., & Sengupta, A. (2004). Risk factors for the development versus maintenance of posttraumatic stress disorder. *Journal of Traumatic Stress, 17*, 85–95. <http://dx.doi.org/10.1023/B:JOTS.0000022614.21794.f4>
- Sharpsteen, D. J., & Kirkpatrick, L. A. (1997). Romantic jealousy and adult romantic attachment. *Journal of Personality and Social Psychology, 72*, 627–640. <http://dx.doi.org/10.1037/0022-3514.72.3.627>
- Shevlin, M., McElroy, E., & Murphy, J. (2015). Loneliness mediates the relationship between childhood trauma and adult psychopathology: Evidence from the adult psychiatric morbidity survey. *Social Psychiatry and Psychiatric Epidemiology, 50*, 591–601. <http://dx.doi.org/10.1007/s00127-014-0951-8>
- Solomon, Z. (1993). *Combat stress reaction: The enduring toll of war*. New York, NY: Springer Science + Business Media. <http://dx.doi.org/10.1007/978-1-4757-2237-6>
- Solomon, Z., Benbenishty, R., Neria, Y., Abramowitz, M., Ginzburg, K., & Ohry, A. (1993). Assessment of PTSD: Validation of the revised PTSD Inventory. *Israel Journal of Psychiatry and Related Sciences, 30*, 110–115.
- Solomon, Z., & Dekel, R. (2008). The contribution of loneliness and posttraumatic stress disorder to marital adjustment following war captivity: A longitudinal study. *Family Process, 47*, 261–275. <http://dx.doi.org/10.1111/j.1545-5300.2008.00252.x>
- Solomon, Z., & Horesh, D. (2007). Changes in diagnostic criteria of PTSD: Implications from two prospective longitudinal studies. *American Journal of Orthopsychiatry, 77*, 182–188. <http://dx.doi.org/10.1037/0002-9432.77.2.182>
- Solomon, Z., Waysman, M., & Mikulincer, M. (1990). Family functioning, perceived societal support, and combat-related psychopathology: The moderating role of loneliness. *Journal of Social and Clinical Psychology, 9*, 456–472. <http://dx.doi.org/10.1521/jscp.1990.9.4.456>
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and Family, 38*, 15–28. <http://dx.doi.org/10.2307/350547>
- Stack, S. (1998). Marriage, family and loneliness: A cross-national study. *Sociological Perspectives, 41*, 415–432. <http://dx.doi.org/10.2307/1389484>
- Stein, J. Y., & Tuval-Mashiach, R. (2015a). Loneliness and isolation in life-stories of Israeli veterans of combat and captivity. *Psychological Trauma, 7*, 122–130. <http://dx.doi.org/10.1037/a0036936>
- Stein, J. Y., & Tuval-Mashiach, R. (2015b). The social construction of loneliness: An integrative conceptualization. *Journal of Constructivist Psychology, 28*, 210–227. <http://dx.doi.org/10.1080/10720537.2014.911129>
- Stolorow, R. D. (2007). *Trauma and human existence*. New York, NY: Routledge.
- Taft, C. T., Watkins, L. E., Stafford, J., Street, A. E., & Monson, C. M. (2011). Posttraumatic stress disorder and intimate relationship problems: A meta-analysis. *Journal of Consulting and Clinical Psychology, 79*, 22–33. <http://dx.doi.org/10.1037/a0022196>
- Weiss, R. S. (Ed.), (1973). *Loneliness: The experience of emotional and social isolation*. Cambridge, MA: MIT Press.

Received March 17, 2016

Revision received November 11, 2016

Accepted January 5, 2017 ■