

The Roles of Fathers' Posttraumatic Stress Symptoms and Adult Offspring's Differentiation of the Self in the Intergenerational Transmission of Captivity Trauma

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Objectives: This prospective study aims to assess the role of fathers' posttraumatic stress disorder (PTSD) symptoms (PTSS), the course of these symptoms over the years, and the relationship between these symptoms and their adult offspring's own PTSS and level of differentiation of self. **Method:** A sample of 123 Israeli father–child dyads (79 ex-prisoners of war [ex-POWs] dyads and a comparison group of 44 veterans' dyads) completed self-report measures. The fathers participated in 2 waves of measurements (1991 and 2008), while the offspring took part in 2013–2014. **Results:** Increase in the fathers' PTSS over the years was related to high levels of his offspring's PTSS. Among ex-POWs' offspring, self-differentiation mediated the association between the father's PTSS and offspring's PTSS. Thus, a greater increase in the ex-POWs' PTSS over time was correlated to lower levels of the offspring's self-differentiation, which in turn was correlated to higher rates of PTSS. **Conclusion:** Veterans' PTSS as well as offspring's self-differentiation are mechanisms of the intergenerational transmission of captivity trauma. © 2016 Wiley Periodicals, Inc. *J. Clin. Psychol.* 00:1–16, 2016.

Keywords: captivity; PTSD; intergenerational transmission; secondary traumatization; differentiation of self

War captivity is a traumatic event whose notorious marks remain in former prisoners of war (ex-POWs) lives long after their captivity ends. During captivity, prisoners are subjected to significant physical and emotional abuse, typically intentional, consistent, and prolonged, caused by another person (Kluznik, Speed, Van Valkenburg, & Magraw, 1986). As a result, ex-POWs are at an increased risk for premature death, deteriorated physical health, long-term mental health disorders, and profound personality changes (e.g., Zerach & Solomon, 2014). The most common and prominent outcome of war and captivity is posttraumatic stress disorder (PTSD; e.g., Meziab et al., 2014). Indeed, high rates of PTSD, ranging from 16% to 88%, have been observed in ex-POW samples (e.g., Rintamaki, Weaver, Elbaum, Klama, & Miskevics, 2009).

The implications of captivity trauma has the potential for a wide and complex influence on ex-POWs' significant others. The term secondary traumatization (ST) has been used to indicate people who come into close contact with a traumatized person and may indirectly experience emotional distress as well as display PTSD-like responses similar to those exhibited by the primary survivor (Figley, 1995). Recently, the *Diagnostic and Statistical Manual of Mental Disorders Fifth Edition* (DSM-5; American Psychiatric Association [APA], 2013) specifically noted that repeated or extreme indirect exposure to aversive details of a traumatic event—i.e., individuals experiencing ST—can potentially meet the criteria for PTSD. However, as has recently been discussed, ST or indirect PTSS can also result from exposure to a variety of other factors, some of which are unconscious, and do not necessarily involve exposure to primary victims' trauma narrative (Horesh, 2015).

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As Galovski and Lyons (2004) observed, ST is a multifaceted phenomenon, manifested in both nontrauma-specific forms of distress as well as specific PTSS. Indeed, indirect PTSD symptoms (PTSS) experienced by family members of war-related trauma survivors have been reported mainly regarding veterans' wives (Renshaw et al., 2011) and ex-POWs' wives (Zerach, Greene, & Solomon, 2015). Therefore, in the present study, we aim to explore the indirect PTSS of adult offspring of ex-POWs and veterans that is related to their fathers' traumatic war experiences.

Case studies (Rosenheck & Nathan, 1985), empirical studies (e.g., Ahmadzadeh & Malekian, 2004), literature reviews (Dekel & Goldblatt, 2008), and meta-analyses (Lambert, Holzer, & Hasbun, 2014) have exemplified the associations between parents' combat-related PTSS and children's psychological difficulties and behavioral problems. Studies conducted among Holocaust survivors' offspring have also demonstrated that parental PTSD can predict offspring psychiatric problems, including PTSD (e.g., Yehuda, Bell, Bierer, & Schmeidler, 2008).

Understandably, most studies based their conclusions on parents' reports and focused on young children and adolescents (Rosenheck & Fontana, 1998). In addition, little attention in the existing literature is given to adult offspring of ex-POWs, and existing studies focus mainly on depression and anxiety symptoms (Razavi, Razavi-Ratki, Nojomi, & Namiranian, 2012). A notable exception is a recent study by our group, which reported higher levels of PTSS among adult offspring of ex-POWs from the Yom Kippur War (1973) compared to adult offspring of combatants who were not held captive (Zerach & Aloni, 2015). While this points to a relationship between captivity trauma and PTSS among offspring, its cross-sectional design limits the possibility to understand the mechanisms of intergenerational transmission of captivity trauma. The current study aims to overcome these limitations and examine the role of fathers' PTSS and their change over the years in the development of offspring's PTSS.

Although the psychiatric literature mostly treats PTSD as a monolithic entity with prototypic symptom clusters that change in the same manner and direction, the long-term reactions to traumatic stress are highly heterogeneous and labile. To date, there is conflicting empirical evidence regarding the course of captivity-induced PTSD. While most studies point to a gradual decrease in the number of PTSS (e.g., Zeiss & Dickman, 1989), other studies have observed a fluctuating course with symptoms increasing and decreasing over time (e.g., Port, Engdahl, & Frazier, 2001). A prospective study by our team found an incline in PTSD rates over a 17-year period among Israeli ex-POWs, (Solomon, Horesh, Ein-Dor, & Ohry, 2012).

It is possible that adult offspring's current mental health status is affected by not only their father's PTSS but also the fathers' course of illness over the years. Some studies (e.g., Lambert, Engh, Hasbun, & Holzer, 2012) have found stronger effects from a trauma that occurred in the distant past rather than from a more recent one. Another possible path of transmission of these intergenerational effects is through maladaptive parenting. Indeed, extreme traumatic events such as captivity can impair the ability to provide and maintain secure attachments to their children (Solomon, Dekel, & Mikulincer, 2008). A previous study by our team indicates that the increase of ex-POWs' PTSS over the years has been related to a decline in their caring parenting practices (e.g., proximity and sensitivity to children's needs; Zerach, Greene, Ein-Dor, & Solomon, 2012). Therefore, it is assumed that the intensification of PTSS may eventually be related, among other possible adverse outcomes (e.g., depression), to higher levels of PTSS among ex-POWs' adult offspring.

The present study's conceptual framework suggests that considering offspring as passive recipients of their parents' effects is insufficient for understanding the relation between the fathers' traumatic exposure and PTSS and their offspring's distress. The offspring's personality and behavior changes, as a result of impaired parenting practices exhibited by their posttraumatic fathers, in turn play a role in the process of the intergenerational transmission of psychopathology (Jaffee, Caspi, Moffitt, & Taylor, 2004; Silverman, Kurtines, Jaccard, & Pina, 2009). The present study aims to explore the mediating role of the offspring's personality construct of differentiation of the self on the association between the fathers' PTSS and adult offspring's PTSS.

According to Bowen's Family Theory, one's capacity for differentiation is similar to the concept of emotional maturity (Bowen, 1978). Differentiation is created within one's family of origin, which allows the child to grow and become an emotionally autonomous individual while still feeling connected to others. Thus, on the interpersonal level, low differentiation

may be expressed by either an emotional fusion with others to the point of losing one's self or an emotional cutoff from others (Kerr & Bowen, 1988). Individuals with a high level of differentiation are able to better regulate their emotional arousal caused by psychological stress and hence cope better cognitively and behaviorally under stress (Skowron & Friedlander, 1998).

Empirical findings consistently point to the ability of highly differentiated individuals to manage stress adaptively and develop less psychological symptoms (e.g., Skowron, Stanley, & Shapiro, 2009). Nevertheless, only a few studies have assessed differentiation among war-related trauma survivors and their relatives. Those studies demonstrated that low differentiation was related to higher PTSS among ex-POWs (Solomon, Dekel, Zerach, & Horesh, 2009) and greater distress among spouses of posttraumatic veterans (Ben-Arzi, Solomon, & Dekel 2000) and ex-POWs (Dekel, 2010). In a recent study, the second and third generations of Holocaust survivors reported significantly lower levels of differentiation of self, which were associated with higher levels of ST (Giladi & Bell, 2013). Thus, we can assume that exposure to PTSS exhibited by significant others may affect individual's self-differentiation. However, studies examining the process of intergenerational transmission of war-related trauma through its impact on self-differentiation are still lacking.

In the absence of studies that examined the process of intergenerational transmission of war-related trauma through its impact on self-differentiation, a connection may possibly be drawn from the literature regarding effects of parental trauma on offspring's adult attachment orientations in this process (e.g., Palosarri, Punamki, Qouta, & Diab, 2013). Despite differences (e.g., the process of emotional regulation), the two constructs appear to overlap in terms of the use of dysfunctional coping strategies in interpersonal relationships by insecurely attached and poorly differentiated individuals (Hainlen, Jankowski, Paine, & Sandage, 2016). Indeed, some investigators found that low self-differentiation is associated with attachment insecurity (high avoidance and anxiety; e.g., Timm, & Keiley, 2011).

According to the family attachment network model (Riggs & Riggs, 2011), attachment and family systems are fundamental to risk and resilience among military families' members during the stress of deployment and their adjustment during the reintegration process. Thus, both the ex-POW's parenting practices and the ex-POW's offspring's attachment insecurities are viewed as risk factors that may detract from offspring's resilience and hinder their ability to cope effectively in stressful situations, which is very common among traumatized families (Bosquet Enlow, Egeland, Carlson, Blood, & Wright, 2014). For example, it is possible fathers' avoidance symptoms may contribute to offspring's feeling of lack of care (e.g., Zerach & Aloni, 2015). Offspring, then, may need to protect themselves emotionally by ensuring self-reliance and aloofness (i.e., attachment avoidance or cutoff self-differentiation). Nevertheless, such reactions may hinder receiving psychological and social support, which might then put them at risk for distress.

Over the years, a few studies have suggested that self-differentiation mediates the relationship between stress and outcomes such as distress (Krycak, Murdock, & Marszalek, 2012; Murray, Daniels, & Murray, 2006) and adjustment (Skowron, Wester, & Azen, 2004). Recently, a study by our team found that ex-POWs' offspring reported lower differentiation, which was related to high levels of PTSS. The results were explained through a mechanism in which the low differentiation expressed by the ex-POWs' offspring served as an attempt to emotionally cutoff from their fathers and protect themselves and, in fact, mediated the link between exposure to stress stemming from their father's behavior and the developing PTSS (Zerach, 2014). In spite of this study's contribution to understanding the role of the differentiation of self, it examined the exposure to fathers' stress and its results using only the offspring's self-reports. The current study will examine the mediating role of differentiation of self among ex-POWs' offspring in the link between ex-POWs' self-reported PTSS and its changes over the years and their offspring's PTSS.

In view of the above we hypothesize that (a) the severity of the father's initial PTSS and increase in symptoms over time will predict the levels of PTSS among his offspring, and these associations will be stronger among ex-POWs' offspring as compared to control veterans' offspring; (b) the severity of the father's initial PTSS and increase in symptoms over time will predict lower levels of differentiation of self among his offspring; (c) low levels of differentiation of self among offspring will in turn predict higher levels of offspring's PTSS and these associations

will be stronger among ex-POWs' offspring as compared to control veterans' offspring; and (d) offspring's levels of differentiation of self will mediate the link between severity of the father's PTSS and his offspring's PTSS

Method

Participants

This study constitutes part of a larger longitudinal study assessing the psycho-social effect of war captivity (for more details, see Solomon et al., 2012). The sample comprised 123 Israeli father-adult offspring dyads in which the father was a veteran of the Israeli Defense Forces land forces during the 1973 Yom Kippur War. The sample was divided into the following two groups: (a) 79 dyads comprising ex-POWs and their adult offspring and (b) 44 control dyads comprising fathers who fought on the same fronts as the ex-POWs but were not held captive and their adult offspring. Control participants were sampled from the Israel Defense Forces' computerized databanks. They were selected on the basis of their similarity to the ex-POWs in military background (e.g., rank) and sociodemographic status (e.g., marital status). While it is difficult to control for the subjective stressfulness of any combat experience, the sampling procedure used here ensured that soldiers in both groups were exposed to a similar level and type of objective combat stress. Data were collected from fathers at two time points: 1991 (T1), and 2008 (T2), and from adult offspring at one time point (T3; 2013–2014).

POWs' adult offspring. This group comprised 79 adult offspring, 35 (44.9%) of whom were male and 43 (55.1%) female, whose ages ranged from 22 to 53 years (mean [M] = 35.12, standard deviation [SD] = 6.49). Twenty-five participants (31.3%) were born before the war and captivity and the rest were born after the war. No differences were found between adult offspring who were born before or after the war in the main sociodemographic and outcome variables. We contacted 92 adult offspring, only one child from each family; 79 participated and 13 declined to participate. Response rate in this group was 86%.

Controls' offspring. This group comprised 44 participants of 20 (45.5%) males and 24 (54.4%) females, whose ages ranged from 21 to 47 years (M = 34.84, SD = 5.44). Twelve participants (27.2%) were born before the war and the rest were born after the war. We contacted 68 offspring of documented Yom Kippur veterans, only one child from each family. Fifty-four offspring agreed to participate (response rate of 79.4%) but because only 44 control veterans participated in the previous measurement waves, only the offspring of those 44 controls were included in the present study.

The two adult offspring groups did not differ in age, gender, birth order, marital status, and military service, level of religiosity, place of birth, employment, and income. The groups did differ in the years of education, with controls' adult offspring reporting more years of education compared to ex-POWs' adult offspring. The analyses also showed ex-POWs and control veterans did not differ at T2 in age, education, religiosity, or fathers' country of birth. Furthermore, the groups did not differ in participation in previous wars, combat exposure, and number of negative life events after the war (for full description of the sample, see Zerach, Kanat-Maymon, Aloni, & Solomon, 2015).

Measures

PTSD Inventory (Solomon et al., 1993). We assessed fathers' PTSS and adult offspring's ST, reflected through PTSS, using a self-report scale corresponding to PTSD symptoms criteria listed in the *DSM-IV-TR* (APA, 2000). Subjects were asked to indicate on a 4-point scale ranging from (1) *never* to (4) *almost always* the frequency with which they experienced the described symptom within the previous month. The symptoms were in relation to their fathers' experience of combat or captivity (e.g., "I have recurrent pictures or thoughts about my fathers' captivity"). We assessed the intensity of the offspring's PTSS by the number of positively

endorsed symptoms, calculated by the number of statements in which the respondents answered “3” or “4.” The scale was found to have good psychometric properties, including high convergent validity compared to clinical interviews based on the *Structured Clinical Interview for DSM-IV* (Solomon et al., 1993). The PTSD inventory was administered to fathers in two waves: 1991 and 2008. Reliability values for total and subscale scores were high at all assessments (Cronbach’s α : .78 to .96). The PTSD inventory reliability value for offspring’s PTSS was Cronbach’s α = .86

Differentiation of Self Inventory-Revised (DSI-R; Skowron & Friedlander, 1998). The DSI-R is a 46-item self-report inventory that assesses adults’ significant relationships and their current relations with their family of origin. It includes four subscales: Emotional Reactivity, Emotional Cutoff, Fusion with Others, and I-Position. The I-Position subscale refers to maintenance of a clearly defined sense of self. The Emotional Reactivity subscale refers to the energy directed toward the experience, expression, and intensity of feelings. The Fusion with Others subscales points to overinvolvement with others in close relationships. The Emotional Cutoff subscale refers to isolation from others as well as personal emotions when interpersonal interactions are too intense and threatening.

Participants respond to items on a 6-point Likert-type scale, ranging from 1 (*not at all true for me*) to 6 (*very true for me*). The DSI subscale scores were calculated by averaging the mean scores of the items with Emotional Reactivity, Emotional Cutoff, and Fusion with Others scores reversed. Thus, greater differentiation of self was indicated by higher scores for all four subscales. The DSI was translated into Hebrew by Peleg (2008) and has shown good predictive validity. The Cronbach’s alphas were .87 for Emotional Reactivity, .80 for I-Position, .81 for Emotional Cutoff, and .74 for Fusion with Others.

Life Events Checklist (LEC; Gray, Litz, Hsu, & Lombardo, 2004). This questionnaire comprises 17 potential traumatic events over the life of the participant that can lead to PTSD or psychological distress (e.g., work or car accident, physical or sexual assault, exposure to violent death). We used this questionnaire for the purpose of statistical control. For each item, the respondent marked whether the event happened personally (0), was witnessed (1), heard of it (2), not sure (3), or irrelevant (4). Items that were marked as happened personally (0) were encoded as “1,” while the others (1–4) were coded as “0.”

We used the sum of negative life events to which participants were personally exposed for analysis. The possible range of LEC index is 0 to 17 and the actual range in this study was 0 to 10. The LEC exhibited high convergent validity with the Traumatic Life Events Questionnaire (.55) and was positively correlated with most of the measures of psychopathology known to be associated with potentially traumatic event exposure (i.e., depression). The average reliability was Cronbach’s α = .61 (Gray et al., 2004).

Sociodemographic measurements were assessed using demographic characteristics of country of origin, location of residence in Israel, family status, religious orientation, age, gender, birth order, level of education, and years of living with the father.

Procedure

The research procedure regarding the fathers has been described thoroughly in a previous study (Solomon et al., 2012). Offspring groups were located through former contact information records of their fathers. We sent the potential participants a letter in which we introduced the present study and informed them that research assistants (graduate student psychologists) would contact them in the following days. After receiving an explanation of the aim of the present study, those who agreed to participate were offered the option of filling out research questionnaires either in their homes or at a location of their choice. Before filling out the questionnaires, each participant signed an informed consent form. Approval for this study was given by the Tel-Aviv University and Ariel University Ethics Committee.

Data Analysis

We began by creating a residual index measure to assess changes in fathers’ PTSS severity over time. The residual index was calculated by using a regression analysis that calculated the change

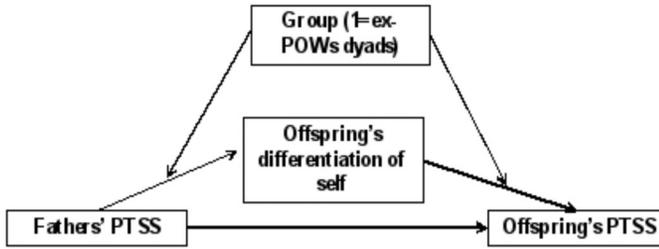


Figure 1. Schematic representation of the study's moderated mediation model.

between the first and second measurement (1991 and 2008) by using the residual component in the regression. Thus, a higher residual indicates an increased amount of symptoms. Next, we conducted a series of hierarchical regression analyses. In each regression, the data used for the first step included the measure of the father's initial PTSS severity, the residual index, and study group (0.5 = ex-POW, -0.5 = control). This step enabled us to examine the unique contribution of each variable when assessing the offspring's PTSS. At this step, we also introduced a measure of the offspring's negative life events, for the sake of statistical control.

At the second step of analysis, we added measures taking into account the interaction between being part of the study or control groups and the fathers' initial PTSS severity and its change over time. This enabled us to examine whether fathers' PTSS contribution to offspring's PTSS depended on belonging to the study group. In order to avoid multicollinearity, we centralized fathers' PTSS measures around the sample average. In the second part, we examined the assumption that offspring's differentiation of self mediated the link between fathers' PTSS and offspring's PTSS. To examine this assumption, we conducted a series of moderated mediation analyses using Hayes conditional process analyses procedure (2013; see Figure 1 for schematic representation of the model). To examine the mediation, we used Hayes's (2013) PROCESS script for conditional process analyses (Model 58).

In this analysis, 5,000 bootstrapped samples were drawn to estimate the indirect effects of each mediator. Bias corrected and accelerated 95% confidence intervals (CIs) were computed to determine statistical significance of the ab paths of each mediator. Three stages were required. First, we examined if the fathers' PTSS severity in T1 and a greater change over time (T1–T2) predicted lower levels of offspring's differentiation of self, as well as whether being part of the study group moderated these associations (Hypothesis 2). Next, we examined whether lower levels of offspring's differentiation of self predicted higher levels of offspring's PTSS while controlling for the father's PTSS (initial level and change over time). In addition, we examined whether being part of the study group moderated these associations (Hypothesis 3). In the third stage, we examined whether the mediation–moderation paths from father's PTSS via offspring differentiation to PTSS were significant (Hypothesis 4).

Overall, 9.09% of data were missing. Little's missing completely at random analysis revealed absolute random missing data, $\chi^2_{(665)} = 17.10, p = 1.00$. Accordingly, to deal with the missing data, we used the multiple imputation procedure (Rubin, 2009). In this procedure, 10 full databases were created via a statistical algorithm. Statistical analysis were conducted on each database and the final result is the average of all analyses.

Results

Associations Between Fathers' PTSS and Its Change and Adult Offspring's Differentiation of the Self and PTSS

As preliminary analysis, we examined the interrelations between fathers' PTSS (T1) and its change and adult offspring's differentiation of the self dimensions and PTSS clusters, with a Bonferroni correction to minimize type I error. As seen in Table 1, results revealed that while fathers' PTSS in T1 was not related to offspring's PTSS, fathers' PTSS change was positively

Table 1
Pearson correlation coefficients of fathers' PTSS (T1), fathers' PTSS change (T1-T2) and offspring's differentiation of self and PTSS

	Fathers' PTSS (T1)	Fathers' PTSS change (T1-T2)	Offspring's intrusion	Offspring's avoidance	Offspring's hyper-arousal	Offspring's general PTSS	Emotional Reactivity	Emotional Cutoff	Fusion with Others	I-Position
Fathers' PTSS (T1)	–									
Fathers' PTSS change (T1-T2)	.00	–								
Offspring's intrusion	-.072	.273***	–							
Offspring's avoidance	.097	.339***	.352***	–						
Offspring's hyper-arousal	.007	.405***	.409***	.646***	–					
General PTSS	.032	.425***	.598***	.874***	.901***	–				
Emotional Reactivity	-.001	-.276***	-.026	-.169	-.286***	-.230	–			
Emotional Cutoff	.048	-.264***	-.265***	-.477***	-.422***	-.496***	.356***	–		
Fusion with Others	.031	-.198	-.049	-.008	-.078	-.054	.644***	.281***	–	
I-Position	.008	-.102	.093	-.095	-.105	-.077	.535***	.403***	.594***	–
M	1.53	.00	.20	.75	.95	1.90	3.49	4.35	3.34	4.09
SD	2.832	5.46	.638	1.319	1.431	2.824	1.02	.86	.68	.75

Note. PTSS = posttraumatic stress symptoms. Increase in fathers' PTSS over the years is related to higher levels of PTSS and lower levels of differentiation of the self among their offspring.

*** $p < .00$ after Bonferroni correction.

related to offspring's intrusion, avoidance, and hyperarousal symptom clusters and general PTSS. Thus, increase in fathers' PTSS over the years is related to higher levels of offspring's PTSS symptoms. Furthermore, fathers' PTSS change was negatively related to offspring's self-differentiation dimensions of emotional reactivity, emotional cutoff, and fusion with others. Thus, increase in fathers' PTSS over the years is related to lower levels of differentiation of the self among their offspring. The results also showed negative relations between offspring's PTSS and emotional cutoff.

Father's PTSS as Predictor of Their Offspring's PTSS

Here, we examined the first hypothesis that higher levels of the father's initial PTSS (T1), and a greater increase in symptoms over time (T1-T2), will be related to his offspring's higher levels of PTSS. In addition, we assumed that these associations will be stronger among ex-POWs' offspring compared to control veterans' offspring.

To examine this assumption, we conducted a series of hierarchical regression analyses. As can be seen in Table 2, results show that the higher the increase in fathers' PTSS, regardless of their inclusion in study group (ex-POWs or control), the more severe their offspring's PTSS (intrusion, avoidance, hyperarousal, and general PTSS symptoms). The level of father's initial PTSS did not significantly contribute to the explanation of the offspring's PTSS. Moreover, the more negative life events the offspring had, the more severe was their hyperarousal and general PTSS (marginal statistical significance). We did not find evidence indicating that belonging to the study group moderated the link between fathers' PTSS and offspring's PTSS. It's worth noting that offspring's number of other negative life events was associated with higher levels of posttraumatic hyperarousal symptoms and general PTSS (approaching significance).

Offspring's Differentiation of Self as a Mediator Between Fathers' PTSS and Offspring's PTSS

In this part, we examined the assumption that offspring levels of differentiation of self (Emotional Reactivity, I-Position, Emotional Cutoff and Fusion with Others) mediated the contribution of the fathers' PTSS to the offspring's PTSS, and that these effects are moderated by the group variable (ex-POWs' vs. controls' offspring).

In accordance with our second hypothesis, and as can be seen in Table 3, results showed an inverse relationship between increasing fathers' PTSS over time and offspring's emotional reactivity and emotional cutoff (approaching statistical significance). The change in fathers' PTSS over time as a contributor to their offspring's lower emotional cutoff was dependent on being part of the study group. As shown in Figure 2, a higher increase in PTSS over time was significantly related to lower differentiation (high emotional cutoff) among ex-POWs' offspring ($b = -.28, p = .006$), as opposed to the control group ($b = .35, p = .15$).

Furthermore, as partial support for the third hypothesis and as can be seen in Table 4, emotional cutoff, but not emotional reactivity, was related to higher levels of intrusion, avoidance, hyperarousal, and general PTSS among offspring. Yet the contribution of emotional cutoff to offspring's hyperarousal (marginal statistical significance) and general PTSS levels was dependent on being part of the study group. As seen in Figure 3, results showed that the general PTSS levels were low and were not influenced by the offspring's emotional cutoff among the control group ($b = -.60, p = .19$). On the other hand, emotional cutoff was related to general PTSS ($b = -1.91, p < .001$) among ex-POW's offspring.

In addition, in accordance with our fourth hypothesis, accelerated bias-corrected bootstrap analyses showed the mediation-moderation paths from father's PTSS changes over the years via offspring's higher emotional cutoff to general PTSS (95% CI [.27, 1.54]), intrusion (95% CI [.02, .31]), hyperarousal (95% CI [.07, .55]), and avoidance symptoms (95% CI [.12, .77]) were significant. That is to say that with regard to ex-POWs' offspring- the more fathers had suffered from an increase of PTSS over the years, the more offspring reported emotional cutoff (lower self-differentiation); a greater increase in the offspring's emotional cutoff was related to higher levels of PTSS. Yet, as shown in Table 4, the change in fathers' PTSS significantly

Table 2
Two-Step Hierarchical Regression Predicting Offspring's PTSS by Father's PTSS in T1 and PTSS Change (T1-T2)

	Intrusion			Avoidance			Hyperarousal			General ST		
	B	SE	b	β	SE	b	β	SE	b	β	SE	B
Step 1												
Negative life events	.01	.04	.00	.15	.07	.13	.17*	.08	.16	.16†	.07	.13
Study group	.00	.14	.00	.02	.29	.05	-.02	.30	-.05	.00	.29	.05
Fathers' PTSS (T1)	-.11	.06	-.07	.10	.12	.14	.01	.12	.02	.03	.12	.14
PTSS change (T1-T2)	.28*	.07	.18	.32**	.14	.42	.40***	.15	.57	.41***	.14	.42
R ²	8.8%			14.9%				19.4%		20.7%		
Step 2												
Negative life events	.01	.04	.01	.15	.07	.13	.18*	.08	.17	.16†	.07	.13
Study group	.05	.18	.07	.08	.37	.23	.11	.39	.32	.11	.37	.23
Fathers' PTSS (T1)	-.08	.09	-.05	.02	.17	.02	.05	.18	.07	.02	.17	.02
PTSS change (T1-T2)	.20	.10	.13	.25	.20	.33	.23	.21	.33	.28†	.20	.33
Group X Fathers' PTSS (T1)	-.04	.17	-.05	.12	.34	.32	-.04	.36	-.13	.02	.34	.32
Group X PTSS change (T1-T2)	.09	.20	.13	.08	.39	.25	.20	.41	.66	.15	.39	.25
ΔR ²	0.4%			0.9%				1.9%		1.2%		

PTSS = posttraumatic stress symptoms; SE = standard error; ST = secondary traumatization.
† $p < .05$. * $p < .01$. *** $p < .001$.

Table 3
Unstandardized Regression Coefficients of Father's PTSS Explaining Offspring's Differentiation of Self Dimensions by Study Groups

	I-Position	Fusion with Others	Emotional Cutoff	Emotional Reactivity
Negative life events	.12**	.07 [†]	-.01	.03
Father's PTSS (T1)	-.12	-.06	-.06	-.17
PTSS change (T1-T2)	-.05	-.09	-.18 [†]	-.21 [†]
Study group	-.12	-.15	-.12	-.20
Group X Father's PTSS (T1)	.35	.22	.30	.50 [†]
Group X PTSS change (T1-T2)	-.18	-.21	-.63*	-.32
R ²	10.09%	8.94%	9.02%	11.48%

Note. PTSS = posttraumatic stress symptoms. For our purposes, differentiation of the self measure was reversed so that higher levels represent positive differentiation.

[†]*p* = .06. **p* < .05. ***p* < .01.

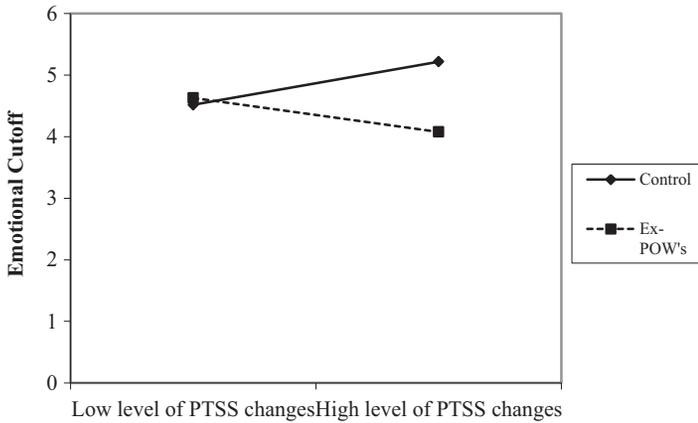


Figure 2. The role of fathers' PTSS change (T1-T2) as explanation of offspring's emotional cutoff by study groups.

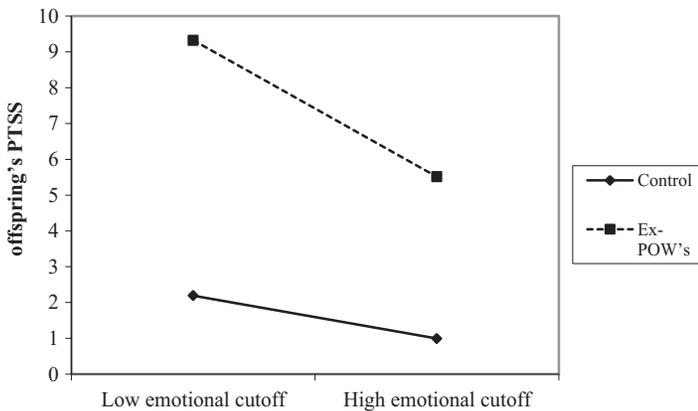


Figure 3. The role of offspring's emotional cutoff as explanation of offspring's general PTSS by study groups.

Table 4
Unstandardized Regression Coefficients of Offspring's Differentiation of Self Dimensions Explaining Their PTSS by Study Groups

	Intrusion	Avoidance	Hyperarousal	General PTSS
Emotional Reactivity	.05	-.08	-.26	-.30
Emotional Cutoff	-.20*	-.62***	-.45**	-1.27***
Fusion with Others	-.10	.25	.22	.36
I-Position	.20	.17	.22	.58
Study group	.34	2.47	2.97	5.78
Father's PTSS (T1)	-.04	.16	.05	.18
PTSS change (T1-T2)	.12	.27*	.39**	.78**
Emotional Reactivity X group	.07	.12	-.06	.14
Emotional Cutoff X group	-.21	-.45	-.58†	-1.23*
Fusion with Others X group	-.14	.47	.51	.84
I-Position X group	.20	-.60	-.48	-.89
Negative life events	-.01	.12	.15	.26
R ²	19.27%	36.97%	36.85%	42.75%

Note. PTSS = posttraumatic stress symptoms.

† $p = .06$. * $p < .05$. ** $p < .01$. *** $p < .001$.

contributed to offspring's avoidance, hyperarousal, and general PTSS, even after controlling for the differentiation of self-measures. Thus, levels of differentiation of self do not explain the entire variability in the link between fathers' PTSS and offspring's PTSS.

Discussion

In the current study, we aimed to examine the relationships between fathers' PTSS, its change over the years, and their adult offspring's PTSS. The study results show that an increase in fathers' PTSS over the years predicted higher levels of their offspring's PTSS. This finding expands our knowledge of previous studies that presented the profound role of fathers' PTSD in their offspring's distress (Leen-Feldner et al., 2013), specifically to show the positive relation between the fathers' war-related PTSS and his offspring's PTSS (Lambert et al., 2014). While most of the previous studies were based on the parents' reports, because of the offspring's young age (Rosenheck & Fontana, 1998) the current study is based on direct reports of PTSS by adult offspring as related to their fathers' own reports of PTSS. Furthermore, while other studies relate the fathers' current PTSD to his offspring's distress, the present longitudinal study pointed to the relationship between fathers' PTSS change over the years and offspring's PTSS.

Our results show that being an offspring of an ex-POW did not moderate the association between increases in fathers' PTSS over the years and offspring's PTSS. Thus, although previous studies have shown that PTSS levels are significantly higher among ex-POWs (Solomon et al, 2012) and their offspring experience higher levels of PTSS because they are exposed to greater stressors through their father's behavior (Zerach & Aloni, 2015), fathers' captivity experiences were not found to change the magnitude of associations between fathers' PTSS change over time and offspring's PTSS. Three possible explanations are suggested.

First, it can be assumed that exposure to stressful behaviors arising from fathers' captivity trauma plays only a partial role in the intergenerational transmission of distress to offspring. Fathers' PTSS, regardless of the traumatic events experienced (both combat and captivity trauma), have a prominent influence on the development of PTSS among offspring. Relational models for intergenerational transmission of trauma (e.g., Creech et al., 2014; Van Ee et al., 2015) have revealed that traumatized parents who are emotionally less available perceive their children more negatively than parents without PTSD symptoms. Specifically, avoidance and emotional numbness symptoms have entailed a reduced involvement in the lives of the traumatized veteran's offspring and limited his ability to be emotionally available for his offspring's needs (Marshall,

Turner, Lewis-Fernandez et al., 2006), which in turn can lead to low parental satisfaction. We suggest that it is not the captivity trauma that increased their difficulties with proximity to their children and sensitivity to children's needs, but the fathers' PTSD symptoms over the years (Zerach et al., 2012). This, in turn, might have been associated with higher number of indirect PTSS among offspring.

Second, the increase in fathers' PTSS over time might be so prominent due to the accelerated aging processes among ex-POWs. There is considerable evidence (e.g., Davidson & McFarlane, 2006) regarding the role of aging processes in triggering delayed-onset PTSD. In old age, one often has more opportunities to reminisce and review one's life, a process that is often accompanied by the recollection of early traumatic events. This may be compounded by events associated with aging, such as bereavement, disease, or retirement. Because accelerated aging and delayed-onset PTSD are rather prevalent in our sample of fathers (Solomon et al., 2012), in addition to other physical maladies and morbidity (Meziab et al., 2014), this combination might affect the intercorrelations with their offspring's PTSS.

Third, it is possible that captivity trauma might cause more complex, stubborn, and widespread symptoms than those expressed in the fathers' PTSS, which were assessed in the current study. The continuous abuse in captivity may even cause personality changes with major implications for one's sense of identity, sense of belonging, and the ability to maintain personal relationships in the form of complex PTSD (Herman, 1992; Zerach & Solomon, 2014). Thus, we assume that the implications for global distress stemming from captivity trauma are greater than those experienced as a result of combat trauma for ex-POWs as well as their offspring. Including additional psychiatric and personality measurements of ex-POWs, such as dissociative symptoms and emotional regulation or impulse control impairment, could emphasize to a greater extent the moderating role on ex-POWs' offspring in the proposed associations between fathers' PTSS and offspring's PTSS.

This study's results also show that ex-POW's PTSS are related to offspring's lower differentiation of self and, specifically, to high emotional reactivity and emotional cutoff dimensions. These findings match the literature pointing to emotional cutoff and emotional reactivity as closely related with stressful experience outcomes (Skowron & Friedlander, 1998). Zerach (2014) showed that ex-POWs' offspring's lower levels of differentiation are related to higher levels of PTSS. The current study extends these findings to demonstrate that an increase in PTSS reported by the father over time is associated with personality changes expressed through lower levels of differentiation. Thus, with lower differentiation levels the offspring have a reduced ability to cope with stressors and are more vulnerable to PTSS (Skowron & Friedlander, 1998). To the best of our knowledge, this is the first study to longitudinally relate ex-POWs' PTSS with the impaired differentiation of the self among their adult offspring.

One explanation for the effect of ex-POWs' trauma on offspring's self-differentiation may come from its impact on the family environment. The differentiation of self develops through prolonged encounters between offspring and their families, exposure to family values and behaviors, and their internalization (Bowen, 1976). Normative childhood development involves gradual formation of a suitable distance between the offspring and their parents during childhood and adolescence (Laible, Carlo, & Raffaelli, 2000). This distance is necessary for identity formation. Fathers who experienced significant trauma might have trouble in affect regulation (Dekel & Goldblatt, 2008), might demonstrate dominance over their family members (Dekel & Monson, 2010), and be insensitive to their offspring's needs (Zerach et al., 2012). In such a family atmosphere, offspring might have trouble forming and preserving individuality (Grotevant & Cooper, 1986) and later separate themselves from their father's trauma and PTSS. Thus, the absence of sufficient differentiation might lead ex-POWs' offspring to difficulties in regulating their psychological arousal following the fathers' PTSS that might in turn contribute to their PTSS.

Ex-POWs' offspring's limited ability to develop their own differentiation may also stem from continued exposure to parental role models with limited differentiation. A study by Solomon et al. (2009) indicated an impaired differentiation of self among both ex-POWs and their wives. It was found that ex-POWs demonstrate higher levels of emotional cutoff and higher levels of fusion (Solomon et al., 2009). The study showed that growing up with parents who experience

difficulties maintaining self-boundaries and who demonstrate high levels of emotional cutoff might make it difficult for offspring to learn and develop these capabilities by themselves. Thus, it is plausible that instead of finding well-differentiated role models outside one's home (e.g., other family members, therapist), ex-POWs' offspring might easily learn and internalized their parents difficulties in the realm of the differentiation of the self.

Limitations

The current paper has several methodological limitations. First, data were collected based on self-report questionnaires that are vulnerable to reporting biases. Second, data were collected at specific time points, which does not enable the thorough and continuous examination of intergenerational transmission processes during the gap between the war and later measurements. Third, only one offspring per family was examined in this study. There might be differences in self-differentiation between various offspring in the same family, in the way they experience the family atmosphere and their father's behavior, and the manner in which they respond to these experiences. Fourth, no attention has been paid in the current study to the possibly high-magnitude associations between self-differentiation and the construct of adult attachment (Skowron & Dendy, 2004), and their roles in the intergenerational transmission of trauma. Last, it is possible that adult offspring's personality and mental health also affects their parents' PTSS, and not only vice versa.

Conclusion

To summarize, the current study's findings demonstrate the long-term effects of war-related trauma on veterans' offspring. Even 42 years after the end of the Yom Kippur War, our results point to possible personality changes in ex-POW's offspring following exposure to the fathers' PTSS. These personality changes in the form of low differentiation of the self serve as a possible mechanism for intergenerational transmission of trauma. This understanding might be very significant in family intervention early in the child's life, in an attempt to reduce negative consequences. For example, improving fathers' personal self-differentiation, especially within their marital relationships, might serve as a model for offspring's formation of self-differentiation. Furthermore, it also reveals the need to focus on developing ex-POW's adult offspring's self-differentiation as part of the treatment, to reduce their vulnerability. Given the bidirectional effects between the posttraumatic father and his offspring, it is possible that offspring could also serve as a stable sense of self model for their fathers.

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