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# A Relational Model for the Intergenerational Transmission of Captivity Trauma: A 23-Year Longitudinal Study

Gadi Zerach and Zahava Solomon

*Objectives:* The aversive, long-term toll of war captivity and fathers' combat-induced posttraumatic stress disorder (PTSD) on adult offspring's secondary traumatization (ST) has been recently exemplified. However, the study of potential mechanisms of the intergenerational transmission of trauma to offspring is still lacking. This prospective study aimed to assess the role of fathers' PTSD symptoms (PTSS), paternal parenting, and adult offspring's attachment insecurities in adult offspring's PTSS. *Method:* A sample of 124 Israeli father–child dyads (80 ex-POW dyads and a comparison group of 44 veteran dyads) completed self-report measures. The fathers participated in three waves of measurements following the Yom Kippur War (T1: 1991, T2: 2003, T3: 2008), while the offspring took part in T4 (2013). *Results:* Offspring of ex-POWs with PTSD at T3 reported more PTSS and higher levels of attachment insecurities than offspring of ex-POWs without PTSD and controls at T4. Fathers' proximity to the children and sensitivity to the children's needs were negatively related. Offspring's attachment insecurities were positively related to offspring's PTSS. Importantly, serial multiple mediation model results show that war captivity increased the level of the fathers' PTSD at T2 and T3, which in turn decreased the level of the fathers' parenting at T3, and thereby increased the level of offspring's attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS. *Conclusions:* The mechanisms of the intergenerational transmission of captivity-related trauma of veterans' PTSD and paternal parenting, through offspring's attachment insecurities and offspring's PTSS, was exemplified.

War captivity is one of the most severe man-made traumatic events to which an individual can be subjected. Beyond the significant risks of war, prisoners of war (POWs) endure deliberate repeated, prolonged, and interpersonal cruelty. As a result, ex-POWs may suffer from higher rates of mortality, deteriorated physical health, long-term mental health

disorders, and profound personality changes. The most common and conspicuous 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).

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Traumatic events may also entail long-term consequences not only for the direct victims but also for their significant others' psychological states in the form of secondary traumatization (ST; Rosenheck & Nathan, 1985). ST has been used to refer to people who have come in close contact with a traumatized person and may indirectly experience emotional distress and display PTSD symptoms (PTSS) similar to those exhibited by the trauma survivor (Figley, 1995). The fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5; American Psychiatric Association, 2014) specifies that indirect exposure to repeated or extreme, aversive details of the events can be considered traumatic. Therefore, the DSM-5 suggests that, in specific cases, ex-POWs' offspring with a manifestation of ST might suffer from PTSS and even potentially meet the criteria for PTSD.

Indeed, for many offspring of ex-POWs, the experience of their father's absence during captivity and the period after reintegration is not a distant memory. Rather, these experiences and memories affect the offspring into their adult life. For example, adult offspring of World War II ex-POWs retrospectively described their fathers as quick to suffer from outbursts of anger, emotionally distant, and generally unresponsive to their emotional needs (Bernstein, 1998). Importantly, ex-POWs' offspring reported a continued inner feeling of the "present-absent" experience. Thus, offspring's "ambiguous loss" (Boss, 1999)—the experience of fathers being physically present but psychologically absent—contributed to their sense that life's boundaries are unclear, a fear of change and unexpected separation, and general personal vulnerability (Hunter, 1983; Shalev & Ben-Asher, 2011). Considering the unique clinical picture of ex-POWs' offspring, it is surprising to find that empirical examination of this population is scarce.

The intergenerational transmission effect of war trauma on veterans' offspring's psychopathology has recently attracted growing interest (Maršanić, Margetić, Jukić, Matko, & Grgić, 2013). However, most studies have focused on young children and adolescents

(e.g., Rosenheck & Fontana, 1998) and have based conclusions on the parents' reports (e.g., Ruscio, Weathers, King, & King, 2002). Moreover, almost no attention has been paid to adult offspring of ex-POWs in the existing literature, which has focused mainly on depression and anxiety symptoms (Razavi, Razavi-Ratki, Nojomi, & Namirani, 2012). An exception to this rule was a recent study by our team, which reported that Israeli ex-POWs' adult offspring reported higher levels of PTSS compared to adult offspring of combatants who were not held captive (Zerach & Aloni, 2015). Although this study provided important insights regarding the effects of captivity trauma on ex-POWs' offspring's PTSS, its cross-sectional design limited our understanding of the mechanisms of the intergenerational transmission of captivity trauma. The present study sought to fill this gap by adopting the relational perspective (e.g., van Ee, Kleber, & Jongmans, 2016) and prospectively address the roles of the fathers' PTSS and paternal parenting, as well as offspring's attachment insecurities, in the adult offspring's PTSS.

The effects of parental psychopathology on children have been studied comprehensively (e.g., Beardslee, Gladstone, & O'Connor, 2011). Specifically, 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. Comparably, studies of Holocaust survivors' offspring have shown that parental PTSD predicted offspring's psychopathology, including PTSD (e.g., Yehuda, Bell, Bierer, & Schmeidler, 2008). A recent study by our team also revealed that fathers' PTSS and depressive symptom comorbidities mediated the link between captivity and offspring's PTSS (Zerach, Kanat-Maymon, Aloni, & Solomon, 2016). Nevertheless, this study's main focus on fathers' psychopathology is the first step to enable a more sophisticated understanding of the psychological mechanisms of paternal parenting and

offspring's attachment in the intergenerational transmission of captivity trauma and PTSS.

A few studies and reviews (Creech, Hadley, & Borsari, 2014) have documented the impact of military deployment and veterans' PTSS on parenting stress (Blow et al., 2013), parental alliance (Allen, Rhoades, Stanley, & Markman, 2011), and parenting practices (Gewirtz, Polusny, DeGarmo, Khaylis, & Erbes, 2010). These studies have found negative relations between PTSD severity and parent-child relationships (Ruscio et al., 2002). Furthermore, veterans with PTSD have reported negative self-perceptions of their parental abilities and have reduced satisfaction from their parental role (Cohen, Zerach, & Solomon, 2011; Samper, Taft, King, & King, 2004). In the same way, the experience of offspring within ex-POWs' families can also be affected by the low levels of positive parenting reported by ex-POWs (Zerach, Greene, Ein-Dor, & Solomon, 2012).

Several PTSD symptom clusters may be particularly relevant to the intergenerational transmission of combat-related trauma via their effect on maladaptive parenting practices. Specifically, avoidance and emotional numbness often result in a reduced involvement of the traumatized veteran in his offspring's life, or even disengagement and disconnection (e.g., Tomassetti-Long, Nicholson, Madson, & Dahlen, 2015). As such, these symptoms tend to severely undermine the father's ability to create and maintain close, meaningful and supportive interactions with his children, which in turn can lead to an experience of low paternal care and higher levels of ST by ex-POWs' offspring (Zerach & Aloni, 2015). Hyperarousal symptoms can be related to increased anger and aggression (Solomon, Dekel, & Zerach, 2008). Fathers with PTSD often have a low frustration threshold and may find it difficult to contain negative feelings toward their children. Hence, it is suggested that low levels of paternal sensitivity on one hand, and hostile parenting on the other hand, might be implicated in offspring's attachment insecurities that, in turn, pose a risk factor for PTSS.

Attachment theory (Bowlby, 1988) is one of the most promising psychological approaches to trauma that can contribute to the understanding of the intergenerational transmission of trauma. This theory emphasizes the stress-buffering function of close relationships and the importance of interpersonal experiences. According to Bowlby (1988), human beings are born with an innate psychobiological system, the attachment behavioral system, which motivates them to seek proximity to significant others (i.e., attachment figures) in times of need as a way to protect themselves from threats and to alleviate distress. Bowlby noted that when attachment figures are available and responsive in times of need, it promotes a sense of protection, safety, and security. However, when attachment figures are not available, a sense of security is not attained, and as a result negative mental representations of the self and others are formed and insecure attachment orientations are manifested (Mikulincer & Shaver, 2010). Such interactions are the source of individual differences in psychological resilience, mental health, and adjustment.

Individual differences in attachment-system functioning are highly relevant to mental health and adjustment. A sense of being loved and supported by significant others acts as a source of resilience during periods of stress and allows individuals to feel generally safe. Insecure attachment, on the other hand, is a risk factor that reduces resilience in times of stress and contributes to emotional problems and psychopathology (Bowlby, 1978). Specifically, increasing evidence suggests that attachment insecurities, especially attachment anxiety, are associated with the severity of PTSS (e.g., Besser & Neria, 2012) among war veterans and ex-POWs (e.g., Dieperink, Leskela, Thuras, & Engdahl, 2001; Mikulincer, Solomon, Shaver, & Ein-Dor, 2014).

The recent theoretical contribution of the family attachment network model (Riggs & Riggs, 2011) assumes that attachment and family systems are fundamental to the risk and resilience among military families' members during the stress of deployment and

their adjustment during the reintegration process. Thus, both ex-POWs' parenting practices and ex-POWs' 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 ex-POWs' families (Bosquet Enlow, Egeland, Carlson, Blood, & Wright, 2014). To our knowledge, no studies have examined the mediating role of attachment orientations in transmitting PTSD from ex-POWs to their offspring.

To summarize, we propose an empirical examination of intergenerational transmission of captivity trauma using a relational model in which captivity trauma increases the odds for veterans' PTSS, which may result in maladaptive paternal parenting. These disturbed patterns of caregiving by ex-POWs with PTSD may fragment offspring's experience of paternal availability, support, and protection; in turn, they may lead to the development of congruent attachment insecurities. Attachment insecurities (high levels of avoidance and anxiety) might then be implicated in the development of offspring's struggles with mental health and adjustment in the form of ST.

We hypothesize that (a) adult offspring of ex-POWs with PTSD will report more PTSS and higher levels of attachment insecurities than adult offspring of ex-POWs without PTSD and adult offspring of controls; (b) ex-POWs' PTSS in 2001 and 2008 and parenting dimensions in 2008 will be positively related to offspring's attachment insecurities and negatively related to offspring's PTSS in 2014; (c) ex-POWs' low levels of positive parenting will mediate the link between ex-POWs' PTSS in 2001 and 2008 and offspring's attachment insecurities in 2014; offspring's attachment insecurities in 2014 will mediate the link between fathers' positive parenting in 2008 and offspring's PTSS in 2014; and (d) ex-POWs' low levels of positive parenting in 2008 will mediate the link between ex-POWs' PTSS avoidance cluster in 2001 and 2008 and offspring's attachment

insecurities in 2014; offspring's attachment insecurities in 2014 will mediate the link between fathers' positive parenting in 2008 and offspring's PTSS symptoms in 2014.

## METHOD

### Participants

This study constitutes part of a larger longitudinal study assessing the psychosocial impact of war captivity (for more details, see Solomon, Horesh, Ein-Dor, & Ohry, 2012). The sample consisted of 134 Israeli father–adult offspring dyads in which the father was a veteran of the Israel Defense Forces (IDF) land force during the 1973 Yom Kippur War. The sample was divided into the following two groups: (a) 80 dyads of ex-POWs and their adult offspring and (b) 44 control dyads in which the fathers fought on the same fronts as the ex-POWs but were not held captive and their adult offspring. Control participants were selected on the basis of their similarity to the ex-POWs on relevant military and personal variables and were sampled from IDF computerized data banks. Data were collected from the fathers at three time points—1991 (T1), 2003 (T2), and 2008 (T3)—and from adult offspring at one time point—2013–2014 (T4; see Figure 1 for study flow diagram). As can be seen in Table 1, ex-POWs and controls did not differ in the latest measurement (T3) in terms of age, education, religiosity, or fathers' country of birth. Furthermore, the groups did not differ in participation in previous wars, combat exposure, or negative life events after the war.

### POWs' Adult Offspring

The POWs' adult offspring group consisted of 80 adult offspring, of whom 37 (47%) were male and 42 (53%) were female, whose ages ranged from 22 to 53 ( $M = 35.19$ ,  $SD = 6.44$ ). In this group, 25 participants (22.8%) were born before the war and captivity; the rest were born afterward. No differences were found between adult offspring that were

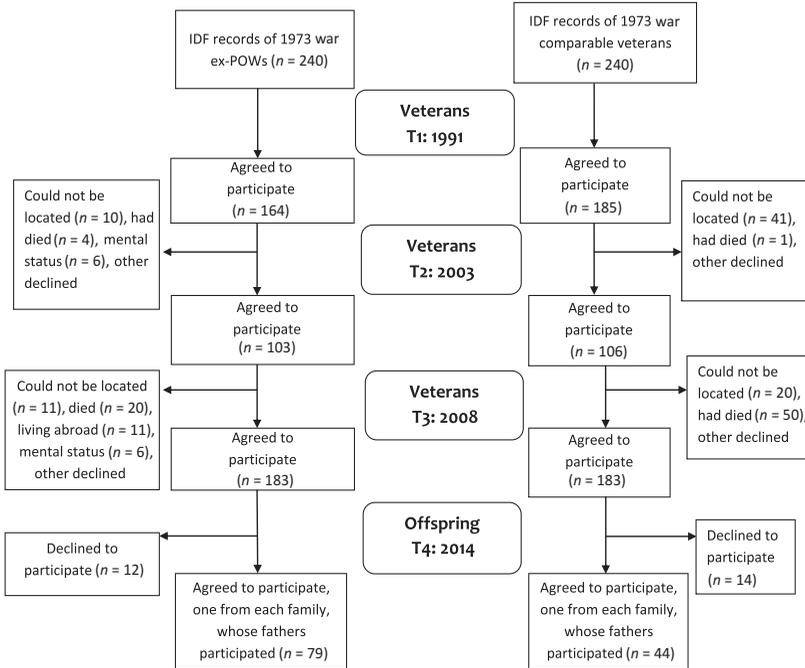


FIGURE 1. Study Flow Diagram. Note. IDF = Israel Defense Forces.

born before or after the war in the main socio-demographic and outcome variables. We contacted 92 adult offspring, only one child from each family. Of those contacted, 79 agreed to participate and 12 declined. Response rate in this group was 87%.

### Control Offspring

The control offspring group consisted of 44 participants—20 (45.5%) males and 24 (54.4%) females—whose ages ranged from 21 to 47 ( $M = 34.52.90$ ,  $SD = 5.52$ ). Of these, 12 (18.5%) participants were born before the war; the rest were born afterward. We contacted 68 offspring of Yom Kippur combat veterans, only one child from each family. Of those contacted, 54 (80.6%) offspring agreed to participate. Among them, 44 participants’ fathers participated in the previous measurement waves, and therefore those 44 were included in the present study.

The two adult offspring groups did not differ in age, gender, birth order, marital status, military service, level of religiosity, place of birth, employment, or income. As can be seen in Table 1, the groups did differ in years of education, with control adult offspring reporting more years of education compared to ex-POWs’ adult offspring.

### Measures

#### PTSD Inventory

Using the PTSD Inventory (Solomon, Benbenishty, Waysman, & Bleich, 1994), fathers’ PTSS and adult offspring’s ST reflected in PTSS were assessed with a self-report scale corresponding to PTSD symptoms criteria listed in DSM-IV-TR (American Psychiatric Association, 2000). Subjects were asked to indicate, on a 4-point scale ranging from *Never* (1) to *Almost always* (4), the frequency with which they experienced the

TABLE 1. Sociodemographic Characteristics of Ex-POWs' and Controls' Adult Offspring

Characteristics	Ex-POW Dyads ( <i>n</i> = 80)		Control Dyads ( <i>n</i> = 44)		
	<i>M</i> ( <i>SD</i> )	<i>n</i> (%)	<i>M</i> ( <i>SD</i> )	<i>n</i> (%)	
<i>Fathers' variables (T3)</i>					
Age	57.86 (6.25)		56.58 (4.16)		$t(112) = -1.14$
Education	14.04 (4.40)		14.43 (3.16)		$t(112) = .49$
Participation in previous wars	0.30 (0.72)		0.62 (1.02)		$t(119) = 1.81$
Combat exposure	1.41 (0.56)		1.68 (0.71)		$t(61) = 1.65$
Negative life events since war	7.10 (5.02)		6.74 (5.12)		$t(119) = -0.37$
Father's country of origin					
Israel		50 (68.5)		33 (84.6)	$\chi^2_{(2)} = 4.02$
United States		16 (21.9)		3 (7.7)	
Europe		7 (9.6)		3 (7.7)	
Level of religiosity					
Secular		49 (65.3)		23 (59)	$\chi^2_{(2)} = 0.80$
Traditional		20 (26.7)		11 (28.2)	
Religious		6 (8)		5 (12.8)	
<i>Offspring's variables (T4)</i>					
Age	35.12 (6.49)		34.84 (5.44)		$t(132) = -0.23$
Education (years)	14.89 (2.81)		16.42 (2.51)		$t(120) = 3.00^{**}$
Gender					
Female		43 (55.1)		20 (45.5)	$\chi^2_{(1)} = 1.05$
Male		35 (44.9)		24 (54.5)	
Birth order					
First		42 (53.8)		28 (63.6)	$\chi^2_{(4)} = 5.25$
Second		19 (24.4)		13 (29.5)	
Third		9 (11.5)		1 (2.3)	
Fourth		6 (7.7)		2 (4.5)	
Fifth		2 (2.6)		0 (0)	
Marital status					
Single		27 (34.6)		14 (31.8)	$\chi^2_{(3)} = 3.76$

Married	42 (53.8)	29 (65.9)	
Divorced	8 (10.3)	1 (2.3)	
Other	1 (1.3)	0 (0)	
Military service			$\chi^2_{(3)} = 5.40$
Complete	62 (79.5)	36 (81.8)	
Partial	4 (5.1)	4 (9.1)	
National	2 (2.5)	3 (6.8)	
Other	10 (12.8)	1 (2.3)	
Level of religiosity			$\chi^2_{(4)} = 3.96$
Secular	54 (70.1)	25 (59.5)	
Traditional	13 (16.9)	13 (31)	
Religious	8 (10.4)	3 (7.1)	
Orthodox	1 (1.3)	0 (0)	
Other	1 (1.3)	1 (2.4)	
Place of birth			$\chi^2_{(2)} = 0.18$
Israel	72 (93.5)	41 (93.2)	
United States	1 (1.3)	1 (2.3)	
Europe	4 (5.2)	2 (4.5)	
Employment			$\chi^2_{(2)} = 2.55$
Not working	4 (5.3)	0 (0)	
Part-time job	16 (21.1)	8 (18.6)	
Full-time job	56 (73.7)	35 (81.4)	
Income			$\chi^2_{(4)} = 8.77$
Well below average	4 (5.2)	6 (13.6)	
Below average	14 (18.7)	8 (18.2)	
Average	23 (30.7)	67 (13.6)	
Above average	23 (30.7)	12 (27.3)	
Well above average	11 (14.7)	12 (27.3)	

Note. Ex-POWs = former prisoners of war.  
\*  $p < .05$ ; \*\*  $p < .01$ .

described symptom in the previous month in relation to their fathers' experience of combat or captivity (e.g., "I have recurrent pictures or thoughts about my fathers' captivity"). The intensity of their PTSS was assessed by the number of positively endorsed symptoms that were calculated by counting the items in which the respondents answered 3 or 4. The scale was found to have good psychometric properties, including high convergent validity compared with clinical interviews based on the Structured Clinical Interview for DSM (SCID) (Solomon et al., 1994). The PTSD Inventory was administered to fathers in all three waves: T1, T2, and T3. Reliability values for total and subscale scores were high at all assessments (Cronbach's  $\alpha$ : .78 to .96). The PTSD Inventory reliability value for offspring's PTSS was Cronbach's  $\alpha$  = .86.

### Parenting

Parenting was assessed with a questionnaire tapping parental caregiving practices in the parent-child relationship. Positive parental caregiving reflects the parent as a caregiver and the child as worthy of being helped. This questionnaire is an adaptation of the Caregiving Questionnaire (CQ; Kuncie & Shaver, 1994) and was used in a previous study among ex-POWs (Zerach et al., 2012). The questionnaire consists of 36 items. Participants were asked to read each item and rate the extent to which each was descriptive of their general attitudes, feelings, beliefs, and motives in their relations with their adult children. Ratings were on a 7-point scale, ranging from *Not at all* (1) to *Very much* (7). It was composed of four factors: proximity to the children (both physical and emotional; e.g., "When my children are troubled or upset, I get closer to them to provide support or comfort"); sensitivity to children's needs (e.g., "I am very attentive to my children's nonverbal signals for help and support"); cooperative pattern of caring (e.g., "When I help my children, I tend to do things my way"); and overinvolved parenting (e.g., "I frequently get too 'wrapped up' in

my children's problems and needs"). The index of each factor was calculated as the average of the items. Positive parenting was defined as having high levels of proximity, sensitivity, and cooperation and lower levels of overinvolvement. Reliability values for subscale scores were moderate to high (Cronbach's  $\alpha$ : proximity = .86, sensitivity = .84, cooperation = .75, and overinvolved = .63).

### Experiences in Close Relationships Scale

The Experiences in Close Relationships Scale (ECR; Brennan, Clark, & Shaver, 1998) is a 36-item self-report measure of attachment orientations in adulthood. It measures attachment on the basis of two superordinate dimensions: anxiety and avoidance. This instrument treats anxiety and avoidance as continuous measures on the grounds that attachment is not a categorical concept. The present study used the Hebrew version of the scale translated by Mikulincer and Florian (2000). As in the original version, half the items target avoidance and half target anxiety. For each item, respondents were asked to rate the degree to which it described their feelings about close relationships on a 7-point scale (*Strongly disagree* = 1; *Strongly agree* = 7). Scores were calculated as the mean ratings for each dimension. The scale's reliability and validity have been repeatedly demonstrated (Mikulincer & Shaver, 2010). The ECR inventory reliability was  $\alpha$  = .90 for anxiety and  $\alpha$  = .88 for avoidance.

### Sociodemographics

Sociodemographic measurements were assessed using the 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 procedure for research conducted with the fathers has been described thoroughly

in a previous study (Solomon et al., 2012). Offspring groups were located through the 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, the offspring 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.

## RESULTS

### Differences Between Adult Offspring of Ex-POWs With PTSD, Without PTSD, and Controls in PTSS and Attachment Insecurities

The first aim of the current study was to examine whether offspring of ex-POWs with PTSD at T3 would report more PTSS and higher levels of attachment insecurities than offspring of ex-POWs without PTSD and offspring of controls. We performed a multivariate analysis of variance (MANOVA) for PTSS and its three clusters (intrusion, avoidance, and hyperarousal). We separated participants into three groups: offspring of ex-POWs with PTSD ( $n = 44$ ), without PTSD ( $n = 31$ ), and controls without PTSD ( $n = 39$ ). Due to the low number of participants among the control group with PTSD ( $n = 3$ ; 5.1%), the possibility to examine the interaction between research groups (ex-POWs and controls) and PTSD was limited; therefore, we removed them from this analysis. We found a significant difference between the groups with respect to adult offspring's PTSS general factor, Pillai's Trace  $F(6, 220) = 3.63$ ,  $p = .002$ , Partial  $\eta^2 = .09$ . As hypothesized and can be seen on Table 2, separate analyses of variance (ANOVA) revealed that adult offspring of ex-POWs with PTSD reported a

higher total number of PTSD, intrusion, avoidance, and hyperarousal symptoms, and higher levels of attachment anxiety, as compared to adult offspring of ex-POWs without PTSD and adult offspring of controls.

### Pattern of Associations Between Fathers' PTSS Clusters (T2 and T3), Parenting Dimensions (T3), and Offspring's Attachment Insecurities and PTSS in T4

In this section, we examined the interrelations between the study variables among groups. Specifically, we examined Pearson correlations between fathers' PTSS clusters (T1, T2, and T3), parenting dimensions (T3), and offspring's attachment insecurities and PTSS clusters (T4). Due to lack of significant correlations between fathers' PTSS in T1 and offspring's PTSS in T4, and for the sake of clarity, we present only correlations between fathers' variables in T2 and T3 and offspring's variables in T4. As seen in Table 3, results revealed significant positive relations between fathers' PTSS clusters (T2 and T3) and offspring's PTSS. Furthermore, fathers' parenting dimensions of proximity to the children and sensitivity to children's needs were negatively related to offspring's PTSS. The results also show positive relations between offspring's attachment avoidance and anxiety and offspring's PTSS. It is also worth noting the positive relations between fathers' total PTSS in T2 and PTSS clusters in T3 and offspring's attachment insecurities. In addition, father's PTSS clusters were mainly negatively related to the parenting dimensions of proximity to the children and sensitivity to children's needs which, in turn, were negatively related to attachment insecurities.

### Serial Multiple Mediation Model of the Intergenerational Transmission of Captivity Trauma

The third aim of this study was to examine the fit of a serial multiple mediation model. We used a structural equation modeling (SEM)

TABLE 2. Means and Standard Deviation Differences in Secondary Traumatization Between Adult Offspring of Ex-POWs With PTSD at T3, Adult Offspring of Ex-POWs Without PTSD, and Controls

Offspring Variables	Offspring of Ex-POWs With PTSD ( <i>n</i> = 44) <sup>a</sup>		Offspring of Ex-POWs Without PTSD ( <i>n</i> = 31) <sup>b</sup>		Offspring of Controls ( <i>n</i> = 39) <sup>c</sup>		<i>F</i> (2, 111)	Partial Eta <sup>2</sup>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		
Total number of PTSS	3.93	3.37	2.00	2.33	1.78	2.51	7.01*** (a > b > c)	.11
Intrusion symptoms	.45	.95	.06	.24	.07	.35	4.74** (a > b > c)	.08
Avoidance symptoms	1.56	1.60	.90	1.42	.78	1.35	3.31*	.06
Hyperarousal symptoms	1.90	1.72	1.03	1.30	.92	1.34	5.34*** (a > c; b > c)	.09
Attachment avoidance	3.59	1.08	3.16	1.00	3.11	.94	2.79 <sup>†</sup>	.05
Attachment anxiety	3.56	1.27	3.02	1.14	2.92	1.05	3.57* (a > b,c)	.06

Note. Ex-POWs = former prisoners of war; PTSD = posttraumatic stress disorder; PTSS = posttraumatic stress symptoms.

<sup>†</sup>*p* < .06; \**p* < .05; \*\**p* < .01; \*\*\**p* < .00.

environment to examine a model for offspring's PTSS in which we asked (a) whether war captivity (ex-POWs, controls) directly affected adult offspring's PTSS, controlling for fathers' PTSS (T2 and T3), parenting at T3, and offspring's attachment insecurities at T4; and (b) whether war captivity indirectly affected adult offspring's PTSS via fathers' PTSS (T2 or T3), parenting at T3, and offspring's attachment insecurities at T4.

To estimate the model we used Amos 21 (Arbuckle, 2012). A model has high fit to the observed data if the comparative fit index (CFI) and the Tucker-Lewis index (TLI) are greater than .95 and the root mean square error of approximation (RMSEA) is lower than .05. A model has adequate fit to the observed data if the CFI and TLI are greater than .90 and the RMSEA is lower than .10. To estimate the significance of the indirect effect we employed a bootstrapped confidence interval (CI) for the *ab* indirect effect using procedures described by Preacher and Hayes (2008). In this analysis 5,000 bootstrapped samples were drawn to estimate indirect effects of each of the mediators. Bias-corrected and accelerated 95% CIs were computed to determine statistical significance of the *ab* paths of each mediator. A CI that does not include zero provides evidence of a significant indirect effect or

significant mediation. Missing data were handled with the casewise maximum likelihood estimation. It should be noted that SEM does not prove causality but shows associations that are consistent with a causal model.

The analysis revealed that the multiple mediation model of offspring's PTSS had excellent fit to the observed data,  $\chi^2(12) = 13.69, p = .32, CFI = .99, TLI = .99, RMSEA = .030$ . As can be seen in Figure 2 and Table 4, war captivity had an indirect effect on adult offspring's PTSS through a number of indirect pathways. First, separately, war captivity increased the levels of PTSS at T2 and T3 and decreased the level of positive parenting at T3, which were related to higher levels of adult offspring's PTSS at T4. Second, via a two-step mediation process, war captivity increased the level of PTSS at T2 and T3, which decreased the level of positive parenting at T3, which in turn was related to higher levels of adult offspring's PTSS. War captivity increased the level of PTSS at T2 and T3, which increased the level of attachment anxiety at T4. War captivity increased the level of PTSS at T3, which increased the level of attachment avoidance at T4, which in turn was related to higher levels of adult offspring's PTSS. And war captivity decreased the level of parenting at T3, which increased the level of attachment avoidance at

TABLE 3. Pearson Correlation Coefficients of Fathers' PTSS Clusters at T1, T2, and T3 and Parenting Dimensions and Offspring's Attachment Insecurities and PTSS at T4

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total PTSS (T2)	—														
Intrusion symptoms (T2)	.88***	—													
Avoidance symptoms (T2)	.90***	.67***	—												
Hyperarousal symptoms (T2)	.91***	.74***	.73***	—											
Total PTSS (T3)	.80***	.71***	.72***	.71***	—										
Intrusion symptoms (T3)	.73***	.74***	.58***	.64***	.90***	—									
Hyperarousal symptoms (T3)	.72***	.59***	.73***	.58***	.91***	.72***	—								
Avoidance symptoms (T3)	.74***	.63***	.62***	.72***	.90***	.75***	.74***	—							
Proximity to the children (T3)	-.27**	-.20**	-.35***	-.15†	-.37***	-.29***	-.41***	-.29***	—						
Sensitivity to children (T3)	-.28**	-.19**	-.33***	-.20**	-.35***	-.26***	-.40***	-.28***	.65***	—					
Cooperation with children (T3)	-.08	-.07	-.04	-.10	-.32***	-.28***	-.32***	-.29***	.48***	.58***	—				
Overinvolved (T3)	.09	.14†	.01	.12	.22***	.22***	.14*	.23***	.20**	.06	-.12†	—			
Attachment avoidance (T4)	.44***	.16	.13	.14	.24*	.24**	.22**	.20*	-.12	.26**	.18	.11	—		
Attachment Anxiety (T4)	.45***	.17	.19†	.09	.24*	.24**	.17*	.25***	-.14	-.27***	-.20*	.06	.27**	—	
Offspring total PTSS (T4)	.31**	.31**	.24*	.27**	.34***	.36***	.25**	.33***	-.20*	-.21*	-.10	.18†	.45***	.45***	—
M	6.37	1.67	2.27	2.40	6.62	1.75	2.46	2.24	5.61	4.76	4.93	4.23	3.29	3.19	2.55
SD	5.74	1.94	2.39	2.04	5.79	2.00	2.39	1.97	1.24	1.22	1.05	1.01	1.02	1.14	2.80

Note. PTSS = posttraumatic stress symptoms.

† $p < .07$ ; \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

TABLE 4. Standardized Regression Coefficients for Direct and Indirect Effects and Bootstrap 95% Confidence Intervals for Predicting Offspring's PTSS by War Captivity Through PTSS Total Symptoms in T2 and T3, Parenting in T3, and Attachment Insecurities in T4

Offspring's PTSS	Bootstrap 95% CIs	Unstandardized Regression Coefficients
Direct effect of captivity	(.55, 2.14)**	1.38
Indirect via PTSS (T2)	(.56, 1.80)***	1.13
Indirect via PTSS (T3)	(.65, 1.82)***	1.19
Indirect via parenting (T3)	(.18, .87)**	.46
Indirect via attachment avoidance (T4)	(.04, .86)	.40
Indirect via attachment anxiety (T4)	(.01, .77)	.35
Indirect via PTSS (T2) and parenting (T3)	(.11, .66)**	.34
Indirect via PTSS (T2) and attachment avoidance (T4)	(-.04, .54)	.19
Indirect via PTSS (T2) and attachment anxiety (T4)	(.13, .71)**	.37
Indirect via PTSS (T3) and parenting (T3)	(.19, .85)***	.48
Indirect via PTSS (T3) and attachment avoidance (T4)	(.10, .72)**	.33
Indirect via PTSS (T3) and attachment anxiety (T4)	(.12, .62)**	.33
Indirect via parenting (T3) and attachment avoidance (T4)	(.05, .39)**	.17
Indirect via parenting (T3) and attachment anxiety (T4)	(-.02, .26)	.12
Indirect via PTSS (T2) and parenting (T3) and attachment avoidance (T4)	(.04, .29)**	.12
Indirect via PTSS (T2) and parenting (T3) and attachment anxiety (T4)	(-.01, .20)	.06
Indirect via PTSS (T3) and parenting (T3) and attachment avoidance (T4)	(.06, .38)**	.18
Indirect via PTSS (T3) and parenting (T3) and attachment anxiety (T4)	(-.02, .26)	.09
Indirect via PTSS (T2 and T3) and parenting (T3) and attachment avoidance (T4)	(.05, .33)**	.15
Indirect via PTSS (T2 and T3) and parenting (T3) and attachment anxiety (T4)	(-.02, .23)	.08

Note. CI = confidence interval; PTSS = posttraumatic stress symptoms; 95% CIs are presented in brackets. CIs that do not include 0 (null association) are significant.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

T4, which in turn was related to higher levels of adult offspring's PTSS. Third, via a three-step mediation process, war captivity increased the level of PTSS at T2 and T3, which decreased the level of parenting at T3 and in turn increased the level of attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS. Finally, via a four-step mediation process, war captivity increased the level of fathers' PTSS at T2, which increased the levels of PTSS at T3, which in turn decreased the level of parenting at T3 and consequently increased the level of attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS.

As can be seen in Figure 3, in the final model the paths that remained significant are the paths in which fathers' PTSS (T2 and T3) mediated the link between war captivity and

offspring's PTSS; war captivity increased PTSS, which increased attachment anxiety and led to offspring's PTSS. Importantly, war captivity increased the level of PTSS at T2 and T3, which in turn decreased the level of parenting in T3, and thus increased the level of attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS.

The final aim of this study was to examine the fit of a serial multiple mediation model, multistep methodology. We used an SEM environment to examine a model for offspring's PTSS in which we asked (a) whether war captivity (ex-POWs, controls) directly affected adult offspring's PTSS, controlling for fathers' PTSS clusters and parenting at T3 and offspring's attachment insecurities at T4; and (b) whether war captivity indirectly affected adult offspring's PTSS via fathers'

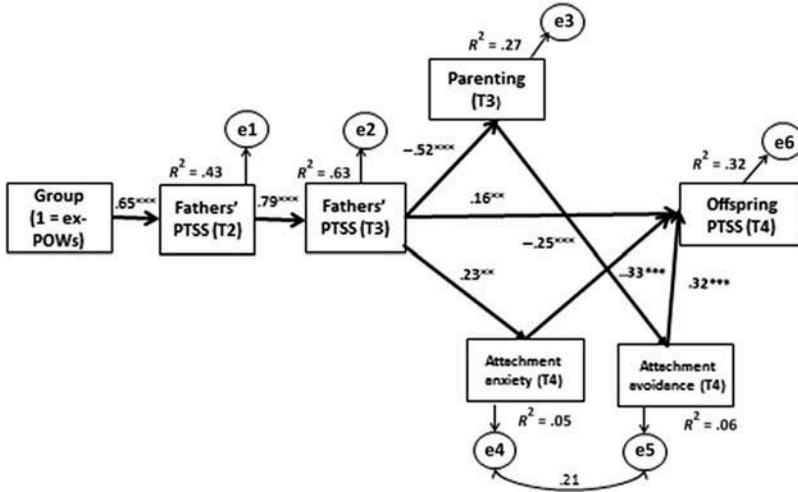


FIGURE 2. Serial Multiple Mediation Model for Offspring PTSS. Rectangles indicate measured variables. Small circles reflect residuals (e); bold numbers above or near endogenous variables represent the amount of variance explained ( $R^2$ ). Unidirectional arrows depict hypothesized directional links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. PTSS = posttraumatic stress symptoms; ex-POWs = former prisoners of war.

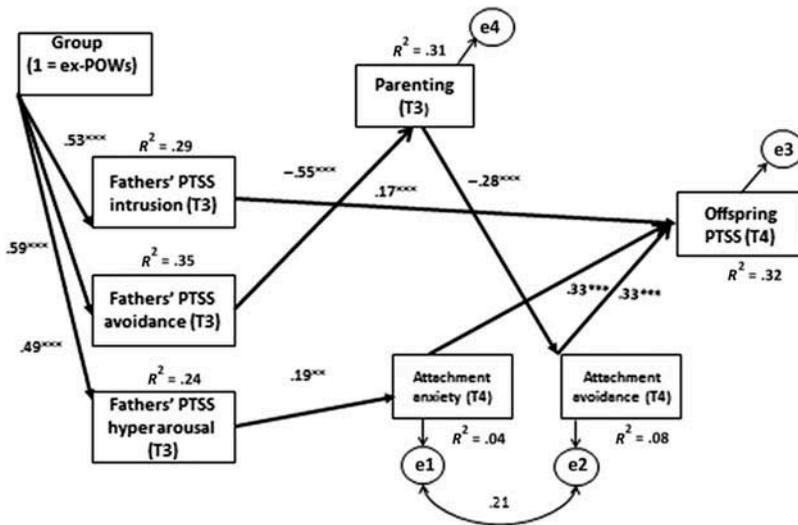


FIGURE 3. Serial Multiple Mediation Model for Offspring PTSS. Rectangles indicate measured variables. Small circles reflect residuals (e); bold numbers above or near endogenous variables represent the amount of variance explained ( $R^2$ ). Unidirectional arrows depict hypothesized directional links. Standardized maximum likelihood parameters are used. Bold estimates are statistically significant. PTSS = posttraumatic stress symptoms; ex-POWs = former prisoners of war.

PTSS clusters and parenting at T3 and offspring's attachment insecurities at T4.

The analysis revealed that the multiple mediation model of offspring's PTSS had excellent fit to the observed data,  $\chi^2(15) = 13.66$ ,  $p = 0.55$ , CFI = 1.00, TLI = 1.00, RMSEA = 0.00. As can be seen in [Figure 3](#) and [Table 5](#), war captivity had an indirect effect on adult offspring's PTSS through a number of indirect pathways. First, separately, war captivity increased the level of PTSS intrusion and avoidance at T3 and decreased the level of positive parenting at T3, which in turn was related to higher levels of adult offspring's PTSS at T4. Second, via a two-step mediation process, war captivity increased the level of PTSS intrusion and avoidance at T3, which decreased the level of positive parenting at T3, and in turn was related to higher levels of adult offspring's PTSS. War captivity increased the level of PTSS intrusion and avoidance at T3, which increased the level of attachment avoidance and anxiety at T4, which in turn was related to higher levels of adult offspring's PTSS. And war captivity decreased the level of parenting at T3, which increased the level of attachment avoidance and intrusion at T4, which in turn was related to higher levels of adult offspring's PTSS. Finally, via a three-step mediation process, war captivity increased the level of PTSS intrusion and avoidance at T3, which in turn decreased the level of parenting at T3, and thereby increased the level of attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS. War captivity also increased the level of PTSS intrusion and avoidance at T3, which decreased the level of parenting at T3, which in turn increased the level of attachment anxiety at T4, which by its own merit was related to higher levels of adult offspring's PTSS.

As can be seen in [Figure 3](#), in the final model the paths that remained significant were those in which PTSS intrusion mediated the link between war captivity and offspring's ST. War captivity increased PTSS hyperarousal, which increased attachment anxiety, which led to offspring's PTSS. Importantly, war captivity increased the level of PTSS avoidance at T3,

which decreased the level of parenting at T3, which in turn increased the level of attachment avoidance at T4, which by its own merit was related to higher levels of adult offspring's PTSS.

## DISCUSSION

In the current study we aimed to empirically examine a relational model in which we prospectively studied the roles of fathers' PTSS and paternal parenting, and offspring's attachment insecurities, in adult offspring's PTSS. Our main results indicated that offspring of ex-POWs with PTSD at T3 reported more PTSS and higher levels of attachment insecurities than offspring of ex-POWs without PTSD and controls at T4. Fathers' proximity to their children and sensitivity to their children's needs were negatively related, and offspring's attachment insecurities were positively related to offspring's PTSS. Importantly, serial multiple mediation model results showed that war captivity increased the level of fathers' PTSS at T2 and T3, which decreased the level of the fathers' parenting at T3, which in turn increased the level of attachment avoidance at T4, which was related to higher levels of adult offspring's PTSS. Thus, this study empirically exemplified a relational perspective (e.g., van Ee et al., 2016) for the intergenerational transmission of captivity trauma and pointed to the psychological mechanisms of paternal parenting and offspring's attachment to mediate this process.

Our results showed that, 40 years after their fathers fought, with some being held captive, in the Yom Kippur War, ex-POWs' adult offspring whose fathers suffered from PTSD were at a greater risk for PTSS. These results are in line with case studies (e.g., Rosenheck & Nathan, 1985), empirical studies (e.g., Ahmadzadeh & Malekian, 2004), and meta-analyses (Lambert et al., 2014) that exemplified the associations between parents' combat-related PTSS and children's psychological difficulties and behavioral

TABLE 5. Standardized Regression Coefficients for Direct and Indirect Effects and Bootstrap 95% Confidence Intervals for Predicting Offspring's PTSS by War Captivity Through PTSS Clusters and Parenting in T3 and Attachment Insecurities in T4

Offspring's PTSS	Bootstrap 95% CIs	Unstandardized Regression Coefficients
Direct effect of captivity	(-1.06, .47)	-.27
Indirect via PTSS intrusion (T3)	(.03, .51)*	.20
Indirect via PTSS avoidance (T3)	(.11, .57)***	.29
Indirect via PTSS hyperarousal (T3)	(-.12, .36)	.07
Indirect via parenting (T3)	(.23, .96)***	.55
Indirect via attachment avoidance (T4)	(-.04, .75)	.31
Indirect via attachment anxiety (T4)	(.03, .79)	.38
Indirect via PTSS intrusion and parenting (T3)	(.01, .22)*	.08
Indirect via PTSS avoidance and parenting (T3)	(.07, .34)**	.18
Indirect via PTSS hyperarousal and parenting (T3)	(-.04, .16)	.03
Indirect via PTSS intrusion (T3) and attachment avoidance (T4)	(.01, .16)	.04
Indirect via PTSS avoidance (T3) and attachment avoidance (T4)	(.02, .23)*	.09
Indirect via PTSS hyperarousal (T3) and attachment avoidance (T4)	(-.02, .14)	.02
Indirect via PTSS intrusion (T3) and attachment anxiety (T4)	(.01, .17)*	.05
Indirect via PTSS avoidance (T3) and attachment anxiety (T4)	(.01, .21)	.07
Indirect via PTSS hyperarousal (T3) and attachment anxiety (T4)	(-.02, .11)	.01
Indirect via parenting (T3) and attachment avoidance (T4)	(.12, .50)***	.26
Indirect via parenting (T3) and attachment anxiety (T4)	(.02, .38)*	.16
Indirect via PTSS intrusion and parenting (T3) and attachment avoidance (T4)	(.01, .11)*	.04
Indirect via PTSS avoidance and parenting (T3) and attachment avoidance (T4)	(.04, .18)***	.08
Indirect via PTSS hyperarousal and parenting (T3) and attachment avoidance (T4)	(-.02, .07)	.01
Indirect via PTSS intrusion and parenting (T3) and attachment anxiety (T4)	(.01, .09)*	.02
Indirect via PTSS avoidance and parenting (T3) and attachment anxiety (T4)	(.01, .14)*	.05
Indirect via PTSS hyperarousal and parenting (T3) and attachment anxiety (T4)	(-.01, .06)	.01

Note. CI = confidence interval; PTSS = posttraumatic stress symptoms; 95% CIs are presented in brackets. CIs that do not include 0 (null association) are significant.

\* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$ .

problems. However, this is the first study to document this effect among adult offspring of ex-POWs who reported on their own symptoms and were compared to a matched group of control veterans' adult offspring. Importantly, this quantitative account of offspring's relatively high levels of PTSS validates previous case studies (e.g., Hunter, 1983) and qualitative studies (e.g., Shalev & Ben-Asher, 2011) that documented ex-POWs' offspring experiences of distress in their adult lives regarding their fathers' absence during captivity and after reintegration. Specifically, exposure to either their fathers' outbursts of anger (e.g., Bernstein, 1998) or emotional distance and

unresponsiveness (e.g., Zerach & Aloni, 2015) contributed to personal vulnerability and posttraumatic distress.

Furthermore, over the years, fathers' PTSD served as a mediator between captivity and their adult offspring's PTSS. Thus, the fundamental impact of the severe, repeated, prolonged captivity trauma fuels an intrapsychic process that is reflected in ex-POWs' PTSD, with potential widespread effects for their adult offspring. It is important to note that other negative life experiences and circumstances of the offspring might play a significant role in the development of their PTSS. Thus, given that the offspring in this study are adults in their midthirties, other

developmental life events and processes may have interacted with their experiences with their fathers and should be taken into account when interpreting our results.

The trauma of captivity is also interpersonal in nature as it occurs within the relationship between the captives and their captors. The extraordinary torments of captivity are part of a planned and concerted effort to “break” the captive who is dependent on the captor for survival. This relationship between captive and captor might leave a profound imprint with considerable implications for future interpersonal relationships (Zerach & Solomon, 2014). It therefore plausible that our model proposed two additional relational paths wherein ex-POW’s PTSD indirectly affected offspring’s PTSS thorough deteriorated parenting practices and offspring’s attachment insecurities.

The first relational path showed that war captivity increased the level of the fathers’ PTSD, and specifically avoidance symptoms, which in turn decreased their level of parenting and increased their level of attachment avoidance in T4, which was related to higher levels of adult offspring’s PTSS. This relational path resembles the patterns described by Creech et al. (2014) and van Ee et al. (2016) in traumatized parents who are less emotionally available and perceive their children more negatively than parents without PTSS. Avoidance symptoms entail reduced involvement of traumatized veterans in their offspring’s lives or even disengagement and disconnection (Marshall et al., 2006). Emotional numbness can be expressed through the limited ability to be emotionally available and involved in intimate relations. In this sense, these symptoms tend to severely undermine a father’s ability to create and maintain close meaningful and supportive interactions with his children, which in turn can lead to low parental satisfaction. The present study, consequently, draws a line between fathers’ difficulties with proximity to their children and sensitivity to children’s needs and ex-POW’s offspring’s own reports about their fathers being less caring in their first 16 years (Zerach & Aloni, 2015).

Insecure patterns of caregiving (Main, Kaplan, & Cassidy, 1985), as manifested in problematic parenting practices, also affect offspring’s attachment insecurity dimension of avoidance. It is known that traumatized parents who are still affected by their trauma can mar early interactions with their children (Madigan, Moran, & Pederson, 2006). Furthermore, caregivers who provoke fear in their infants are less able to react sensitively to the infants’ cues (Goldberg, Benoit, Blokland, & Madigan, 2003). Attachment avoidance reflects the extent to which a person inhibits proximity seeking and relies on self as the sole source of protection (Brennan et al., 1998). Thus, it is possible that a traumatized veteran’s difficulty to affectionately engage and meet his responsibilities as a father over the years is in part due to his emotional numbing symptoms (Samper et al., 2004) and his own attachment insecurities (Mikulincer et al., 2014). This may leave children of ex-POW’s vulnerable to feelings of paternal rejection as well as neglect and doubts about their worthiness and lovability. They, therefore, may need to protect themselves emotionally by ensuring self-reliance and aloofness. Nevertheless, avoidance can hinder receiving psychological and social support, which might put them at risk for distress.

The second relational pattern showed that war captivity was related to higher levels of fathers’ PTSS, and specifically hyperarousal symptoms, which increased attachment anxiety, leading to offspring’s PTSS. Studies have consistently documented a positive correlation among hyperarousal symptoms, anger, and aggression (Solomon et al., 2008; Taft, Schumm, Marshall, Panuzio, & Holtzworth-Munroe, 2008). Ex-POW’s with PTSD often have a low frustration threshold and may find it difficult to contain negative feelings toward their children. Thus, children can be traumatized by their parents’ violent behavior, which may cause the parents to feel guilt and pain over their violent impulses (Rosenheck & Fontana, 1998). Attachment anxiety reflects the degree to which a person worries that a significant figure will not be available in times of need and, as a result, anxiously engages in energetic attempts to attain support

and love from this unreliable figure (Brennan et al., 1998). It is possible that paternal caregiving characterized by instability can indirectly impact offspring's ambivalent attachment behaviors as they continuously try to interpret their fathers' moods. Unfortunately, attachment anxiety is associated with severe PTSS (e.g., Besser & Neria, 2012) and might also be an internal risk factor for PTSS.

This study has several limitations. First, due to the attrition of participants between measurements, the sample may be somewhat selective. Second, the use of self-report measures, although very common in trauma studies, entails the risk of reporting bias. Future studies should make use of objective measures, such as observation of the fathers' actual functioning. Third, the parenting index should be treated with some caution, despite this questionnaire being an empirically validated adaptation of a known and validated questionnaire (Kunce & Shaver, 1994). In addition, we cannot completely ensure that PTSD Inventory (PTSD-I) avoidance and hyperarousal symptoms are directly related to the exposure to fathers' war experiences (e.g., stories) and not possibly better explained by the offspring's own exposure to trauma during their own military service and/or their daily lives, given the conflicts and danger they have been exposed to in Israel. Fourth, the lack of precombat assessment of fathers' PTSD limits our ability to infer causality. There could have been prewar antecedent vulnerabilities that actually caused the observed differences and association between fathers and offspring. Fifth, our measurements did not cover the entire span of the 40 years since the war; therefore, we were unable to monitor changes in the course of the fathers' PTSD during the gap between the war and later measurements. Sixth, the low number of participants in our study might have hindered the possibility for path significance, despite the actual association. Future studies should replicate the proposed model with larger samples. Finally, it is possible that the personality and mental health of adult offspring also affect their fathers' PTSD, and not only vice versa. Future studies should examine this assumption in prospective design studies,

possibly with the unique contribution of mothers' ST and parenting behaviors.

To conclude, the findings of this study suggest that, 40 years after the end of the Yom Kippur War, the offspring of ex-POWs who suffer from PTSD are at risk for PTSS. Furthermore, while fathers' PTSD was found to be a possible mechanism in the intergenerational transmission of captivity trauma, it is also the link in a possible chain of processes that took place in the developmental stage of their offspring's lives. In these relational processes, maladaptive parenting practices that are negatively related to attachment insecurities can put offspring at risk for PTSD symptoms. Our findings highlight the necessity to screen and treat ex-POWs' children who might be negatively impacted by their fathers' captivity and PTSD, including maladaptive parenting practices, internalized as a representation of a nonsupportive father.

Our results also call for consideration of future clinical interventions. First, clinicians should be aware of the path leading from fathers' avoidance through their low levels of positive parenting to offspring's avoidance attachment. This "vicious cycle of avoidance," following extended deployments and reintegration, points to the need for intervention that can decrease isolation between fathers and offspring. It may be particularly important to help veterans engage in activities with their offspring that are tailored for their developmental phase and have the potential to reestablish healthy attachment (Riggs & Riggs, 2011). Second, clinicians should also be aware of the link between fathers' hyperarousal symptoms and offspring anxiety attachment to offspring's PTSS. As a result of these symptoms, veterans with PTSD are known to use hostile parenting tactics (Leenfeldner et al., 2013), so counselors should focus on helping family members improve communication regarding stressful events in day-to-day life that might result in clashes. Furthermore, interventions that can build and strengthen offspring's personal boundaries and differentiation of the self can help improve their coping with their posttraumatic fathers' maladaptive parenting behaviors (Zerach, 2015).

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