Journal of Anxiety Disorders 81 (2021) 102401

Contents lists available at ScienceDirect

Journal of Anxiety Disorders

journal homepage: www.elsevier.com/locate/janxdis

Event centrality and secondary traumatization among Holocaust survivors' offspring and grandchildren: A three-generation study

Lee Greenblatt-Kimron [a,*], Amit Shrira [b], Tom Rubinstein [b], Yuval Palgi [c]

[a] School of Social Work, Ariel University, Ariel, Israel
[b] Interdisciplinary Department of Social Sciences, Bar-Ilan University, Ramat Gan, Israel
[c] Department of Gerontology, University of Haifa, Haifa, Israel

ARTICLE INFO

Keywords:
Intergenerational transmission
Secondary traumatization
Event centrality
Holocaust

ABSTRACT

The present study examined the intergenerational transmission of the Holocaust trauma in relation to levels of secondary traumatization and event centrality across three generations in a cross-sectional survey. Participants included 92 Holocaust survivor-offspring-grandchild triads (Holocaust G1-G2-G3) and 67 comparison triads (Comparison G1-G2-G3). Holocaust G1 reported higher levels of post-traumatic stress disorder (PTSD) symptoms relative to Comparison G1. Holocaust G2 and G3 reported significantly higher secondary traumatization relative to Comparison G2 and G3, respectively. Holocaust G3 also reported significantly higher scores in event centrality relative to Comparison G3. In survivor families, the indirect effect of PTSD symptoms in Holocaust G1 predicted Holocaust G2's secondary traumatization, which subsequently predicted Holocaust G3's secondary traumatization. Moreover, PTSD symptoms in Holocaust G1 predicted Holocaust G3's event centrality through secondary traumatization in both Holocaust G2 and G3 and event centrality in Holocaust G2. In the comparison groups, trauma transmission was not observed in three generations. Findings elucidate unique intergenerational transmission of the Holocaust trauma in survivor families, which comprise both personal and societal constituents. Moreover, the findings show that event centrality is a distinctive mechanism in intergenerational transmission in survivor families.

1. Introduction

In the study of traumatic stress from a multigenerational perspective worldwide, Danieli (1998) asserted that multigenerational repercussions of massive trauma produce individual, family, and community public health difficulties. In line with this, a review of the literature investigating the ramifications of parental posttraumatic stress disorder (PTSD) symptoms on their children after exposure to diverse traumatic events (e.g., combat, war, and disaster) showed psychobiological vulnerability among these children, such as internalizing and behavioral problems and changed hypothalamic-pituitary-adrenal axis functioning (Leen-Feldner et al., 2013). Likewise, a meta-analysis by Lambert, Holzer, and Hasbun (2014) reported a relationship between parents' PTSD symptom severity and child distress and behavioral problems after diverse traumatic events. Moreover, the researchers found that both paternal and maternal PTSD symptoms were significantly correlated with child distress, while having a non-traumatized parent tended to moderate the effect of the other parent's PTSD compared to families in which both parents were traumatized. Another important finding was the moderating role of the type of trauma in this relationship, with a significantly larger effect size found in families with histories of interpersonal trauma (Lambert et al., 2014).

Exposure to massive traumatic events such as the Holocaust is recognized to have long-term physical and psychological effects on older adult survivors. These include higher levels of PTSD symptoms among survivors relative to comparisons without Holocaust experience (see Barel, van IJzendoorn, Sagi-Schwartz, & Bakermans-Kranenburg, 2010 for a meta-analysis). Notwithstanding, the transmission of the Holocaust trauma onto subsequent generations is debated in the literature (Bar-On et al., 1998; Hoffman & Shrira, 2019; Shmotkin, Shrira, Goldberg, & Palgi, 2011). In a sequence of meta-analyses, researchers concluded that the transmission of the Holocaust trauma did not pass on to the second and third generations (Sagi-Schwartz, van IJzendoorn, & Bakermans-Kranenburg, 2008; van IJzendoorn, Bakermans-Kranenburg,

* Corresponding author.
E-mail addresses: leegr@ariel.ac.il (L. Greenblatt-Kimron), amit.shrira@biu.ac.il (A. Shrira), tomsh1986@gmail.com (T. Rubinstein), ypalgi@research.haifa.ac.il (Y. Palgi).

https://doi.org/10.1016/j.janxdis.2021.102401
Received 19 July 2020; Received in revised form 24 March 2021; Accepted 13 April 2021
Available online 24 April 2021

& Sagi-Schwartz, 2003). In contrast, in a recent review (Dashorst, Mooren, Kleber, de Jong, & Huntjens, 2019) associations were reported between parental mental health problems, perceived parenting, the attachment nature, and parental gender with Holocaust offspring's mental health. Moreover, higher mental health problems were linked with two survivor parents rather than one survivor parent. Parents' trauma also affected Holocaust offspring cortisol levels. Additionally, specific studies found vulnerability among offspring of survivors when coping with life-threatening situations (e.g., Baider et al., 2000; Solomon, Kotler, & Mikulincer, 1988). This debate is significant on a global level, as the long-term effects of the Holocaust have implications in a broader context of survivors of modern-day catastrophes throughout the world (Kimron & Cohen, 2012). Therefore, understanding the transmission of massive trauma on subsequent generations is a relevant and important issue worldwide. Nevertheless, secondary traumatization among adult offspring of Holocaust survivors (second generation, Holocaust G2) and grandchildren of survivors (Holocaust G3) has been generally underexplored (Shrira et al., 2017), while the study of the prominence of the Holocaust (event centrality) in survivors' families has not received the needed attention. The current study, therefore, focused on the transmission of Holocaust trauma, and assessed event centrality and secondary traumatization among children and grandchildren of Holocaust survivors (Holocaust G1).

1.1. Event centrality among trauma survivors

Event centrality refers to the degree to which a traumatic event becomes a reference point for the interpretation of everyday suppositions and is perceived as a significant aspect of the person's identity (Berntsen & Rubin, 2006). According to Berntsen and Rubin (2006, 2007), PTSD symptomatology increases when traumatic experiences and memories become exceedingly integrated in one's identity and one's life story. Hence, when the traumatic event becomes the point for one's sense of identity, the distressful memories of the event are intensified, which ultimately exacerbates PTSD symptoms (Berntsen & Rubin, 2006; Brown, Antonius, Kramer, Root, & Hirst, 2010).

Confirming Berntsen and Rubin's (2006, 2007) hypothesis, cross-sectional studies have found a positive association between event centrality and PTSD symptoms. Studies include samples of trauma survivors such as Iraqi war veterans (Brown et al., 2010), adult survivors of the Oslo terrorist attack in 2011 (Blix, Solberg, & Heir, 2013), and sexual assault victims (Robinaugh & McNally, 2011). Nevertheless, it has been noted that causal deductions cannot be determined by the cross-sectional design of these studies (Boals, 2014). The few existing prospective studies have reported that event centrality predicts PTSD, for example among employees in the Norwegian Ministries who were present during the 2011 Oslo bombing at three different time points after the attack (ten months, two years, and three years) (Blix, Birkeland, Solberg, Hansen, & Heir, 2016). However, in a recent study, based on two studies, higher PTSD symptoms across time were associated with higher levels of event centrality among civilians exposed to rocket attacks (Palgi et al., 2018, Study 1). Moreover, in a convenience sample of Israelis (Palgi et al., 2018, Study 2), PTSD symptoms predicted event centrality scores a month later; however, the event centrality score did not predict succeeding PTSD symptoms. Accordingly, researchers have questioned the direction of the association between the constructs (Gehrt, Berntsen, Hoyle, & Rubin, 2018; Glad, Czajkowski, Dyb, & Hafstad, 2020). In a recent review article, Gehrt et al. (2018) recommended further research to elucidate the direction of causality. Subsequently, researchers explored the bidirectional relationship between event centrality and PTSD symptoms over time among survivors of the Utøya island massacre in 2011 (Glad et al., 2020). Survivors reported a high level of event centrality and an association between event centrality with PTSD symptoms at both time points. Furthermore, the longitudinal association determined that PTSD symptoms predicted levels of event centrality but not vice versa. The researchers concluded that the extent to which the survivors perceived the terrorist attack to be central to their identity might be an effect, instead of a cause, of their PTSD symptoms (Glad et al., 2020). The current study followed this perspective and assessed the association between Holocaust G1's PTSD and event centrality in an intergenerational perspective.

1.2. Event centrality among Holocaust survivors and subsequent generations

Event centrality, as defined by Berntsen and Rubin's (2006, 2007), has not been investigated among Holocaust G1; however, Letzter-Pouw, Shrira, Ben-Ezra, and Palgi (2014) reported that perceived transmission of emotional burden from both parents is positively associated with Holocaust G2's Holocaust salience (the degree to which the Holocaust is prominent in daily thoughts, feelings, and behaviors). Likewise, the transmission of parental emotional burden as perceived by Holocaust G2 was positively associated with Holocaust salience among Holocaust G3, mediated by transmission of parental emotional burden as perceived by the Holocaust G3 themselves (i.e., parental emotional burden emanating from Holocaust G2). Palgi, Shrira, and Ben-Ezra (2015) also reported that Holocaust G2 with strong family engagement reported higher Holocaust salience than Comparison G2. Glad and colleagues (Glad et al., 2020) suggested that being a survivor of a national trauma is perceived as central to the survivors by themselves, as well as by others. Based on this presumption, and the previously mentioned findings (Letzter-Pouw et al., 2014; Palgi et al., 2015), the current study aimed at broadening the understanding of event centrality in an intergenerational perspective of trauma transmission in Holocaust families. The next section will briefly review the transmission of G1's PTSD on the subsequent generations, specifically secondary traumatization, and the putative role of secondary traumatization in the development and maintenance of event centrality among Holocaust G2 and G3.

1.3. Secondary traumatization among Holocaust survivors' adult children

Secondary traumatization refers to symptoms of distress and behaviors that result from close or extensive contact with a traumatized individual. The symptoms mirror those of PTSD; however, they are generated from the awareness of another person's trauma, rather than from direct exposure (Figley, 1995; Motta, Hafeez, Sciancalepore, & Diaz, 2001). Although the literature on Holocaust G2 has grown rapidly and abundantly since the mid-1980s (Braga, Mello, & Fiks, 2012), secondary traumatization in Holocaust G1's families was rarely examined (Shrira, 2016). When it was investigated, Holocaust G2 reported higher secondary traumatization than Comparison G2 (Giladi & Bell, 2013; Hoffman & Shrira, 2019). However, Holocaust G2 reported lower secondary traumatization in situations of more open-verbal communication between family members (Giladi & Bell, 2013), or when parents did not flood them with their emotional burden (Letzter-Pouw et al., 2014). However, contradicting results have been found, for example, Sagi-Schwartz et al. (2003) reported no differences between Holocaust survivors' daughters and comparisons regarding attachment, anxiety, traumatic stress reactions, and maternal role to their newborns.

In general, the literature on physical and psychological morbidity of middle-aged Holocaust G2 presents conflicting results (for reviews, see Danieli, 1998; Solomon, 1998; Kellermann, 2009; Lindert et al., 2017; Shmotkin et al., 2011; van IJzendoorn et al., 2003). Therefore, it appears that intergenerational transmission of trauma should not be considered an inevitable outcome of parental exposure per se (Shrira et al., 2017). It has been suggested that rather than focus on the general inquiry of whether subsequent generations are more vulnerable, studies should explore more precise investigations that pinpoint in which families trauma transmission has higher risk to occur, and what are the mechanisms of this transmission (Danieli, Norris, & Engdahl, 2017; Kellermann, 2009).

Theories of transmission of Holocaust trauma postulate that having a

parent with PTSD symptoms may cause their offspring to be more vulnerable of developing PTSD symptoms themselves when coping with stressful or traumatic events (Baider, Goldzweig, Ever-Hadani, & Peretz, 2006; Solomon et al., 1988; Yehuda, Schmeidler, Giller, Siever, & Binder-Brynes, 1998). It has been suggested that this is the result of a preexisting biological vulnerability as well as parental traumatization, which has been associated with increased anxiety disorders among offspring (Yehuda, Bell, Bierer, & Schmeidler, 2008). Hence, an association has been noted between parental PTSD and an increased risk for pathology in their offspring (Lambert et al., 2014, Leen-Feldner et al., 2013). Accordingly, studies have shown higher PTSD symptoms among Holocaust G2 than Comparison G2 (Yehuda, Halligan, & Grossman, 2001, 2008). This is particularly so when they perceived both parents to have PTSD (Yehuda et al., 2008), or one parent to have a negative parental style such as being numb and emotionally detached (Danieli et al., 2017). In addition, Holocaust G2 who reported nonverbal communication with little information about their mother's trauma experienced more interpersonal distress than Holocaust G2 who reported informative verbal communication (Wiseman et al., 2002). Additionally, recent studies investigated successful aging among Holocaust G2, a construct that included both relatively objective and subjective indices of health (see Shrira et al., 2017). These studies demonstrated that Holocaust G2 with parental PTSD reported high secondary traumatization and lower successful aging scores than Comparison G2 (Hoffman & Shrira, 2019), whereas Holocaust G2 without parental PTSD, or Holocaust G2 with low secondary traumatization tended to report perceptions of aging similar to Comparison G2 (Shrira, 2016; Shrira et al., 2017). There is also documentation that survivors' PTSD is associated with unhealthy behaviors across generations in Holocaust families (Shrira, 2019).

1.4. Secondary traumatization among Holocaust survivors' grandchildren

It has been argued in the literature that the intergenerational transmission of the trauma of the Holocaust does not cease with Holocaust G2 (e.g., Fossion, Rejas, Servais, Pelc, & Hirsch, 2003; Wiseman & Barber, 2008). The few existing studies on Holocaust G3 reported divergent findings, however it should be noted that the focus of these studies also differed (Letzter-Pouw et al., 2014). In a meta-analysis, no differences were found between Holocaust G3 and Comparison G3 on psychological functioning and attachment patterns (Sagi-Schwartz et al., 2008). In contrast, several studies have reported an association between growing up with Holocaust G2 parents with vulnerabilities, for example, eating disorders (Zohar, Giladi, & Givati, 2007) and an ambivalent attachment pattern (Scharf, 2007). Additionally, Holocaust G3 with two Holocaust G2 parents reported more negative perceptions of their parents (e.g., perceiving them as being more overinvolved and overprotective) than Holocaust G3 with only one Holocaust G2 parent (Scharf, 2007). Other researchers postulated that despite the desire of Holocaust G2 to bring up their children differently, they often displayed analogous patterns as did their parents, resulting in Holocaust themes to be passed on to Holocaust G3 (Kellermann, 2009; Scharf & Mayseless, 2011; Wiseman & Barber, 2008). Holocaust G3 have also reported being more angry and perceiving others as more negative than Comparison G3 (Iliceto et al., 2011).

Despite the above-mentioned findings, the intergenerational association of PTSD among Holocaust G1 and secondary traumatization in subsequent generations is underexplored, as is event centrality in Holocaust families. This study aims to explore these issues.

1.5. The current study hypotheses

The study aimed to broaden the understanding of the symptoms of secondary traumatic stress and event centrality among Holocaust G2 and G3. More specifically, the study aimed to examine how secondary traumatization may mediate the relationship between Holocaust G1's PTSD and event centrality in subsequent generations. First, based on the notion that trauma may be transmitted across generations (e.g., Letzter-Pouw et al., 2014), Hypothesis 1 was that Holocaust G1 would report higher levels of PTSD than Comparison G1, and that Holocaust G2 and G3 would report higher levels of secondary traumatization and event centrality than Comparison G2 and G3. Second, based on previous findings (e.g., Hoffman & Shrira, 2019; Letzter-Pouw et al., 2014; Shrira, 2016; Shrira et al., 2017), Hypothesis 2 was that higher levels of PTSD symptoms among Holocaust G1 would be positively related to higher levels of secondary traumatization among Holocaust G2, which in turn would be positively related to higher levels of secondary traumatization among Holocaust G3. Hypothesis 3, based on a recent report that event centrality may be the outcome of PTSD symptoms and not vice versa (Glad et al., 2020), maintained that secondary traumatization would mediate the association between higher levels of PTSD among Holocaust G1 with higher levels of event centrality in subsequent generations. Finally, Hypothesis 4 maintained that the mediating role of secondary traumatization in the association between G1's PTSD with event centrality in subsequent generations would be stronger among Holocaust G1 and their offspring than among comparison families.

2. Method

2.1. Participants

The study sample included 92 Holocaust G1-G2-G3 triads (study groups) and 67 comparison triads. G1 were born before the end of World War II (before 1945) and G2 and G3 were born after World War II (after 1945). Students were requested to find potential participants who met the study criteria of the Holocaust group and comparison group through their social milieu, such as family, friends, and neighbors. World War II experiences were assessed by a questionnaire of nine items which classified and differentiated between the study groups and the comparison groups and also distinguished the survivors according to experiences during World War II (ghetto, labor camp, concentration camp, hiding, other). The questionnaire was completed only by G1. The comparison groups were of European origin, who were not living in countries who were occupied by the Nazi regime, in order to avoid bias of cultural differences between the groups. In addition, Comparison G1 did not include older adults who were married to Holocaust G1 to prevent transgenerational transmission confound of the trauma. In all triads, the familial primary care providers of G1 were selected to represent G2 and G3. If one of the triad members (G1-G2-G3) did not agree to participate, the entire triad was excluded from the study.

The sample was a convenience sample that included Jewish, Hebrew-speaking participants, 18 years and above, throughout Israel. Exclusion criteria were not being Jewish, not speaking Hebrew, being born in the Middle East or Africa opposed to being European descent, triads without blood relations, the refusal of one or more members of the family to participate in the study, or being under the age of 18. Out of 589 participants interviewed for the study only 477 (159 triads) were suitable. Several potential participants (8.3%) were excluded due to refusal by one or more family members to participate in the study. In addition, 10.6% of the participants were excluded from the study as they did not meet the study and comparison groups inclusion criteria due to the above-mentioned reasons.

Table 1 presents the background characteristics of the study and comparison groups. Holocaust G1 were slightly older than the Comparison G1. The participants of G2 had similar background characteristics. In G3, there were more female participants in the Holocaust G3 than in the Comparison G3.

2.2. Measures

2.2.1. Background characteristics

Background characteristics (Table 1) were completed by all

Table 1
Background Characteristics of Study Groups.

	Holocaust G1 (*n*=92)	Comparison G1 (*n*=67)	Difference	Holocaust G2 (*n* = 92)	Comparison G2 (*n*=67)	Difference	Holocaust G3 (*n*=92)	Comparison G3 (*n*=67)	Difference
Mean age (*SD*)	83.14 (5.70)	81.10 (6.80)		55.01 (5.58)	53.80 (5.77)		26.15 (4.87)	26.04 (3.94)	
Range	71–95	69–95	$t(157)$=-3.03*	39–67	39–66	$t(157)$=-1.32	19–40	19–35	$t(157)$=-0.15
Female (%)	66.3	67.2	$\chi^2(1,N = 159)$= 0.01	63.0	67.2	$\chi^2(1,N = 159)$= 0.03	77.2	60.6	$\chi^2(1,N = 159)$ = 5.04*
Academic education level (%)	19.8	25.8	$\chi^2(5,N = 158)$= 3.73	55.6	59.7	$\chi^2(3,N = 159)$= 6.16	50.0	46.3	$\chi^2(4,N = 158)$ = 2.97
Married / living with partner (%)	38.5	55.2	$\chi^2(3,N = 159)$= 5.83	89.1	89.4	$\chi^2(4,N = 159)$= 5.31	36.9	31.3	$\chi^2(3,N = 159)$ = 1.35
Mean no. of children (*SD*)	2.51 (0.96)	2.72 (1.09)	$t(131.16)$ =1.22	2.58 (1.09)	2.92 (1.07)	$t(158)$=0.79	0.24 (0.74)	0.22 (0.69)	$t(157)$ = 0.89
Good Economic Status (%)	37.0	32.8	$\chi^2(4,N = 159)$= 3.94	54.3	43.3	$\chi^2(3,N = 159)$= 6.38	39.1	34.3	$\chi^2(3,N = 159)$ = 3.36

* $p < 0.05$.

respondents and included age, gender, education level (rated on a scale from 1 [without formal education] to 6 [academic level education]), family status, no. of children, and financial status, rated on a scale from 1 (not good at all) to 5 (very good). Medical conditions were assessed in G1 and G2 by a sum of listed illnesses that participants reported to have been diagnosed by a physician (Shrira, Palgi, Ben-Ezra, & Shmotkin, 2011). The illnesses consisted of heart attack or any other heart problem including congestive heart failure, high blood pressure or hypertension, high blood cholesterol, a stroke or cerebrovascular disease, diabetes or high blood sugar, chronic lung disease such as chronic bronchitis or emphysema, asthma, cancer or malignant tumor, including leukemia or lymphoma, but excluding minor skin cancers, stomach or duodenal ulcer, peptic ulcer, Parkinson disease, cataracts, hip fracture, rheumatoid arthritis, osteoarthritis, or other rheumatism, and other medical conditions not listed above (the possible range was 0–15).

2.2.2. *Difficult life events*

Difficult life events were assessed by two-items and was completed by the first-generation only. The first item assessed exposure to criterion A of the PTSD diagnosis according to the DSM-5 (APA, 2013). Participants from the comparison group were asked if they had experienced or were exposed during their lives to an event that included death, significant injury, sexual assault or death threat. If respondents answered positively, they were asked to describe the event in the second item. Holocaust G1 were asked to refer to an event from the Holocaust and the Comparison G1 were asked to refer to an event that occurred during their lifetime. Traumatic events described by the Comparison G1 were grouped into four themes: bereavement (loss of a close person), life difficulties (sickness and danger of death of the respondent or close person, crisis), war and terror (injury of the respondent or of someone close during a war or terrorist event) and victimization (respondent was victimized or the witness of someone being victimized). Most Comparison G1 reported themes of life difficulties (29.9 %), bereavement (22.3 %) or war and terror (22.3 %), while the remainder reported victimization (13.4 %) or did not mention the type of event (11.9 %).

2.2.3. *PTSD symptoms*

This questionnaire was completed by the first-generation. PTSD symptoms were rated with the PTSD Checklist for DSM-5 (PCL-5, Weathers et al., 2013). The PCL-5 is a 20-item measure for PTSD symptoms as appear in the DSM-5 (APA, 2013). Participants rated on a five-point scale from 1 (not at all) to 5 (extremely) whether they experienced symptoms in the past month. Holocaust G1 were asked to refer to the Holocaust and Comparison G1 were asked to choose a significant traumatic event that they had experienced, and that the G2 and G3 knew about. Cronbach's alpha coefficient for this sample was α=0.91.

2.2.4. *Event centrality*

This questionnaire was completed by G2 and G3. Event centrality was rated by the short version of the Centrality of Event Scale (CES, Berntsen & Rubin, 2006). The short version of CES is a 7-item measure assessing the prominence of the event in the participant's life. For the purpose of the current study an adaptation of the questionnaire was made that enabled G2 and G3 to relate to the degree to which the memory of a traumatic event experienced by G1 was a reference to G2/G3's personality and gives meaning to other events in G2/G3's life. Accordingly, the instructions and the wording of two items were changed ("I believe that people whose parents haven't experienced this type of event, have a different way of looking upon themselves than I have"; "If this event had not happened to my parents, I would be a different person today"). These changes enabled G2 and G3 participants to refer to the trauma of G1 and to the degree to which the event become central in their own lives on a scale from 1 (totally disagree) to 5 (totally agree). The CES total score reflects the average of all items. Higher scores are indicative of enhanced autobiographical integration of the traumatic memory. Cronbach's alpha coefficient for G2 and G3 was α = 0.96 and 0.95, respectively.

2.2.5. *Secondary traumatization*

This questionnaire was completed by the G2 and G3. Secondary traumatization was rated by the Secondary Trauma Scale (STS, Motta et al., 2001). The STS is an 18-item measure assessing symptoms of secondary traumatization due to exposure to a close person who was traumatized, and is based on the criteria of secondary traumatization symptoms in the DSM-IV (APA, 1994) and of Figley's questionnaire (Figley, 1995). Participants rated the frequency in which they experienced symptoms on each of the scales from 1 (never or rarely) to 5 (very often). Holocaust G2 and G3 were asked to relate to the Holocaust as the traumatic event, and Comparison G2 and G3 were instructed to refer to the traumatic event G1 referred to. The final score was based on the sum of the items. Cronbach's alpha coefficient for G2 was α = 0.89 and α = 0.77 for G3.

2.3. *Procedure*

The data collection process began after receiving the approval of the Ethics Committee at the Bar-Ilan University. Participants were recruited by 24 undergraduate students who participated in a research seminar that focused on the Holocaust. Students were given specific guidance on conducting accurate interviews and guidelines regarding the selection of participants who met the research criteria. All participants signed the informed consent form before completing the questionnaire. G1 participants were interviewed by the students themselves in a face-to-face interview. The questionnaires were sent to G2 and G3 participants via

an internet link or by mail and they filled them independently. All the triads that participated entered a lottery and one triad won a voucher of $175.

2.4. Data analysis

In order to test group differences in mean scores we performed univariate and multivariate analyses of covariance controlling for age and medical conditions in the relevant generations (G1 and G2).

We next used structural equation modeling (AMOS 23) to construct our model. This model (see Fig. 1) tested a regression path from PTSD symptoms in G1 to secondary traumatization and centrality of event in both G2 and G3 (the model was performed separately for Holocaust and comparison triads). The model also included medical conditions in both G1 and G2, as these conditions were more frequent among Holocaust generations relative to comparisons.

Following the recommendations by Hu and Bentler (1999) for relatively small samples, model fit was assessed by the Chi-square value divided by degrees of freedom (χ^2/df), and by the Comparative Fit Index (CFI), root mean square error of approximation (RMSEA) and the standardized root mean squared residual (SRMR). Although there is no consensus regarding an acceptable ratio for χ^2/df, common recommendations range from as high as 3.0 to as low as 2.0 (Hooper, Coughlan, & Mullen, 2008). Scores above .95 indicate good fit for CFI, and values below .08 indicate good fit for RMSEA and SRMR (Hu & Bentler, 1999).

3. Results

Table 2 presents the descriptive statistics for the study variables. As can be seen, mean scores were higher in Holocaust generations relative to comparison generations. In line with Hypothesis 1, Holocaust G1 reported higher PTSD symptoms relative to Comparison G1, $F(1,152) = 5.23$, $p = .02$, $\eta^2 = .03$. Relative to Comparison G2, Holocaust G2 reported significantly higher secondary traumatization, $F(1,156) = 4.95$, $p = .03$, $\eta^2 = .03$, but opposing Hypothesis 1, there was no significant group difference in event centrality, $F(1,156) = 1.93$, $p = .17$. In G3, the groups significantly differed in both secondary traumatization, $F(1,156) = 7.56$, $p = .007$, $\eta^2 = .05$, and event centrality, $F(1,156) = 26.17$, $p < .0001$, $\eta^2 = .14$. Supporting Hypothesis 1, relative to Comparison G3, Holocaust G3 reported significantly higher scores in secondary traumatization and event centrality.

The correlations between the study variables separately for Holocaust and comparison families are also shown in Table 2. PTSD symptoms in Holocaust G1 showed significant positive associations with secondary traumatization in both Holocaust G2 and G3. Secondary traumatization and event centrality were positively related within generations (Holocaust G2 and G3). Among comparison families, secondary traumatization and event centrality were positively related within generations (Comparison G2 and G3). Hypothesis 2 was, therefore, supported.

Table 2
Means, SD, and Correlations for the Study Variables.

		1	2	3	4	5
M (*SD*)		18.52 (13.33)	28.05 (10.05)	2.24 (1.06)	26.31 (6.39)	2.13 (0.91)
1	PTSD symptoms G1	–	.34**	.14	.25*	.18
2	Secondary traumatization G2	.13	–	.49***	.26*	.15
3	Centrality of event G2	.13	.26*	–	.08	.25*
4	Secondary traumatization G3	.20	.05	.33**	–	.56***
5	Centrality of event G3	.21	.11	.40***	.43***	–
M (*SD*)		11.43 (9.88)	24.08 (7.14)	1.95 (1.00)	23.44 (6.03)	1.46 (0.63)

Notes. Means, *SD*, and correlations above and below the diagonal refer to Holocaust survivor families ($n = 92$) and comparison families ($n = 67$), respectively.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

We next tested the study model for Holocaust and comparison families separately. For Holocaust survivor families, the model exhibited good fit, $\chi^2/df = 1.16$ ($\chi^2 = 19.86$, $df = 17$), CFI = 0.97, RMSEA = 0.04, 90 % CIs [0.000, 0.11], SRMR = 0.08. Table 3 presents the selected parameters for that model.

Holocaust G1 medical conditions were associated with more conditions in Holocaust G2. Moreover, PTSD symptoms in Holocaust G1 were associated with higher secondary traumatization in Holocaust G2. Secondary traumatization in Holocaust G2 and G3 showed a positive relationship. Similarly, event centrality showed a positive association across generations in Holocaust G2 and G3. Finally, secondary traumatization related to higher event centrality within each generation in Holocaust G2 and G3.

To test Hypothesis 3, we further tested the indirect effect of PTSD

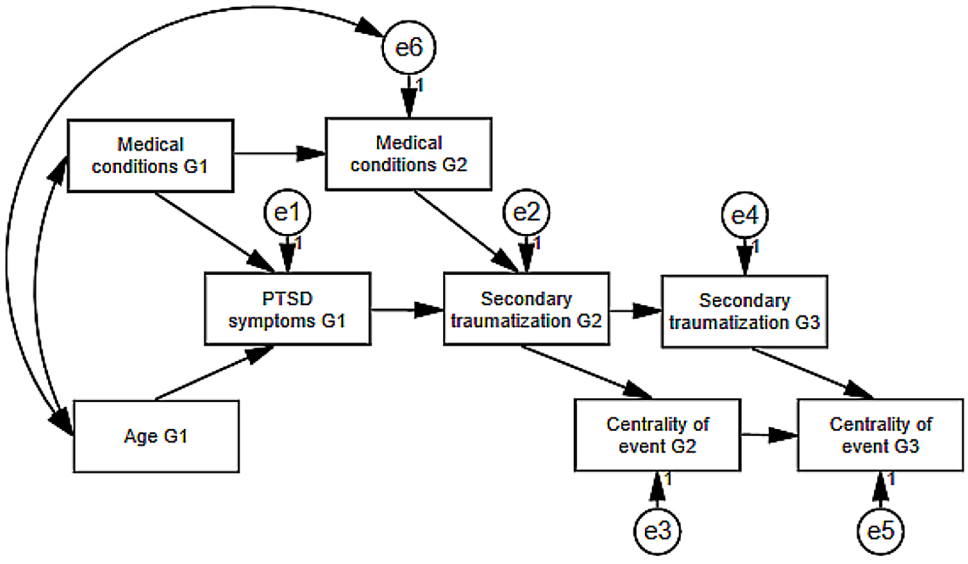

Fig. 1. The study model.

Table 3
Parameters for the Study Model: Holocaust Families.

Covariance			B	*β*	SE	LLCI	ULCI
Age G1	↔	Medical conditions G1	−.09	−.01	.85	−1.44	1.08
Age G1	↔	Medical conditions G2	1.31	.23*	.60	.48	2.39
Regression Weights							
Medical conditions G1	→	PTSD symptoms G1	1.17	.12	.93	−.44	2.57
Age G1	→	PTSD symptoms G1	.89	.39***	.22	.53	1.23
Medical conditions G1	→	Medical conditions G2	.18	.25*	.07	.01	.27
PTSD symptoms G1	→	Secondary traumatization G2	.24	.32**	.08	.12	.38
Medical conditions G2	→	Secondary traumatization G2	.68	.06	1.06	−1.37	2.31
Secondary traumatization G2	→	Secondary traumatization G3	.17	.27**	.06	.06	.31
Secondary traumatization G2	→	Centrality of event G2	.05	.50***	.01	.04	.07
Centrality of event G2	→	Centrality of event G3	.15	.17*	.07	.001	.30
Secondary traumatization G3	→	Centrality of event G3	.08	.55***	.01	.05	.10

Notes: B = unstandardized coefficient, *β*=standardized coefficient, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

symptoms in Holocaust G1 on Holocaust G3 secondary traumatization. The indirect effect was 0.09, bootstrapped 95 % CIs [0.03, 0.19], indicating the effect was significant (below the .05 level). The results revealed that Holocaust G1 PTSD symptoms predicted Holocaust G2 secondary traumatization, which subsequently predicted Holocaust G3 secondary traumatization. Moreover, the indirect effect of PTSD symptoms in Holocaust G1 on Holocaust G3 event centrality was 0.08, bootstrapped 95 % CIs [0.03, 0.15], meaning that PTSD symptoms in Holocaust G1 predicted Holocaust G3 event centrality through secondary traumatization in both Holocaust G2 and G3 and event centrality in Holocaust G2. Thus, Hypothesis 3 was supported.

For comparison families, the model exhibited poor fit, $\chi^2/df = 1.49$ ($\chi^2 = 25.30$, $df = 17$), CFI = 0.72, RMSEA = 0.09, 90 % CIs [0.000, 0.15], SRMR = 0.11. Modification indices showed that the model could be improved by connecting both Comparison G1's PTSD symptoms and Comparison G2's event centrality to Comparison G3's secondary traumatization. The revised model exhibited excellent fit, $\chi^2/df = 1.02$ ($\chi^2 = 15.25$, $df = 15$), CFI = 0.99, RMSEA = 0.02, 90 % CIs [0.000, 0.12], SRMR = 0.08. Table 4 presents the selected parameters for that model.

Event centrality in Comparison G2 was associated with both event centrality and secondary traumatization in Comparison G3. Moreover, secondary traumatization and event centrality showed a positive correlation within Comparison G3. There were no significant indirect effects (the indirect effect of G1 PTSD on G3 secondary traumatization was 0.004; 95 % CIs [−0.02, 0.07]; the indirect effect of G1 PTSD on G3 centrality of event was 0.01; 95 % CIs [−0.005, 0.06]). Therefore, Hypothesis 4 was supported.

4. Discussion

To the best of our knowledge, the current study was the first to investigate event centrality in an intergenerational perspective in Holocaust families, and in particular, the mediating role of secondary traumatization between Holocaust G1's PTSD and event centrality in subsequent generations. The current study showed that Holocaust G1 reported higher PTSD symptoms relative to Comparison G1. Similarly, Holocaust G2 reported significantly higher secondary traumatization than Comparison G2, and Holocaust G3 reported higher levels of both secondary traumatization and event centrality than Comparison G3. In testing the study model for Holocaust and comparison families separately, findings suggest that PTSD symptoms in Holocaust G1 were associated with higher secondary traumatization in Holocaust G2. Moreover, secondary traumatization in Holocaust G2 and G3 was positively related. Also, event centrality was positively associated across generations in Holocaust G2 and G3, and secondary traumatization related to higher event centrality within each generation. Holocaust G1 PTSD symptoms predicted Holocaust G3 event centrality through secondary traumatization in both Holocaust G2 and G3 and event centrality in Holocaust G2. In the comparison groups, event centrality in the Comparison G2 was associated with both event centrality and secondary traumatization in Comparison G3, and secondary traumatization and event centrality showed a positive correlation within Comparison G3. However, in contrast to Holocaust families, no significant indirect effects were found in the comparison groups. Such findings indicate a unique mechanism of intergenerational transmission of trauma in

Table 4
Parameters for the Study Model: Comparison Families.

Covariance			B	*B*	SE	LLCI	ULCI
Age G1	↔	Medical conditions G1	−.17	−.02	.91	−1.43	.89
Age G1	↔	Medical conditions G2	1.05	.32*	.44	.38	1.71
Regression Weights							
Medical conditions G1	→	PTSD symptoms G1	1.07	.12	1.07	−1.09	3.32
Age G1	→	PTSD symptoms G1	.06	.05	.17	−.18	.36
Medical conditions G1	→	Medical conditions G2	.02	.04	.06	−.07	.12
PTSD symptoms G1	→	Secondary traumatization G2	.15	.19	.10	.01	.27
Medical conditions G2	→	Secondary traumatization G2	.40	.03	1.80	−4.86	3.18
Secondary traumatization G2	→	Secondary traumatization G3	−.07	−.09	.10	−.17	.09
Secondary traumatization G2	→	Centrality of event G2	.03	.23	.02	.001	.07
Centrality of event G2	→	Centrality of event G3	.18	.29*	.07	.05	.34
Secondary traumatization G3	→	Centrality of event G3	.04	.34**	.01	.02	.07
PTSD symptoms G1	→	Secondary traumatization G3	.15	.24+	.08	−.01	.35
Centrality of event G2	→	Secondary traumatization G3	1.69	.28*	.73	.02	3.47

Notes: B = unstandardized coefficient, *β*=standardized coefficient, SE = standard error, LLCI = lower level confidence interval, ULCI = upper level confidence interval.
+ $p = .05$.
* $p < .05$.
** $p < .01$.

Holocaust families. These findings will now be discussed in detail.

The higher levels of PTSD symptoms reported by Holocaust G1 than the Comparison G1 in the current study is consistent with recent studies that examined the long-term effects of the Holocaust (Greenblatt-Kimron & Cohen, 2020; Greenblatt Kimron, Marai, Lorber, & Cohen, 2019). As hypothesized, higher levels of PTSD symptoms in Holocaust G1 were found to be positively related to higher levels of secondary traumatization in Holocaust G2 than in the comparison groups. Such findings are compatible with previous studies that reported higher PTSD symptoms among Holocaust G2 than Comparison G2 (Baider et al., 2006; Solomon et al., 1988; Yehuda et al., 2001, 2008), as well as higher levels of secondary traumatization and less successful aging among Holocaust G2 whose parents suffered from PTSD than Comparison G2 (Hoffman & Shrira, 2019). Also, and in line with the study hypotheses, higher levels of PTSD symptoms among Holocaust G1 were positively related to higher levels of secondary traumatization among Holocaust G2, which were positively related to higher levels of secondary traumatization and event centrality among Holocaust G3, which was also found to be higher than those of Comparison G3.

The current study also showed that Holocaust G1 medical conditions were associated with more medical conditions in Holocaust G2. These findings support the notion that there is a physical, as well as mental, intergenerational transmission of the trauma of the Holocaust. Such a conception was previously demonstrated by an association between Holocaust G1's PTSD symptoms and cortisol excretion in Holocaust G2 (Yehuda, Halligan, & Bierer, 2002), as well as Holocaust G2 reporting more medical problems, a higher use of medication, and increased physical symptoms than comparisons, in particular Holocaust G2's with two survivor parents (Shrira et al., 2011). The current findings, therefore, are consistent with earlier studies that highlight the concept of intergenerational transmission of the trauma of the Holocaust in subsequent generations (e.g., Letzter-Pouw et al., 2014) as well as strengthen the suggestion that despite Holocaust G2's aspiration to bring up their children in a non-Holocaust environment, Holocaust themes, nevertheless, were passed on to Holocaust G3 (Kellermann, 2009; Scharf & Mayseless, 2011). Additionally, the findings in the present study correspond with the recent study that found that negative events may remain as intrusive memories in the minds of those who indirectly encountered these events, such as the offspring of G1 World War II survivors in the Netherlands (Dashorst et al., 2020).

Nevertheless, no significant difference in event centrality was found in the G2 groups (i.e., Holocaust G2 and Comparison G2). As the present study was the first, to our knowledge, to examine event centrality among Holocaust G2 and G3, it is of importance to explore the mechanisms of this aspect in Holocaust families. According to Berntsen and Rubin (2006) event centrality reflects the extent to which individuals perceive a traumatic or stressful event as a significant aspect of their identity and life story. When contemplating this aspect in Holocaust families, early Holocaust literature indicated that many survivors remained silent regarding their Holocaust experiences while raising their children (e.g., Davidson, 1980; Nutkiewicz, 2003). Consequently, many Holocaust G2 were almost oblivious of their parents' narrative or knew only limited parts of their parents' encounters (Nutkiewicz, 2003). Moreover, many Holocaust G2 developed frightful and shameful reactions to these 'family secrets' and often formed horrifying illusions about their parents' suffering and how they survived (Davidson, 1980). Based on this, it may be understood that the difference found in secondary traumatization between Holocaust G2 and Comparison G2, yet, not in event centrality, is due to the transmission of PTSD symptoms to Holocaust G2, while the subject of the Holocaust was often an avoided topic within the family. The development of Holocaust G2's awareness that revived the dignity of Holocaust G1 originated from different sources, such as the Demjanjuk Trial in Israel in 1988 (Fogelman, 1998). It may be at this point that the Holocaust attestation shifted from only transpiring pain and death, and instead enhanced representation of continuity, personal and collective resilience, and autobiographical and communal reminiscence (Nutkiewicz, 2003). Resultingly, it appears that Holocaust G3 became proud being a part of the collective memory of the Holocaust, which has become a critical element of Israeli identity (Ariely, 2019). Additionally, intergenerational transmission is not only the result of external rituals and symbols, it is also the content transmitted within intra-family messages (for a review see Kellermann, 2001). As a result, a specific mechanism of intergenerational transmission in Holocaust families seems to have transpired in terms of event centrality, which is influenced by the social climate of the time, and which explains the similar levels of event centrality in Holocaust G2 and Comparison G2, while a higher event centrality was found among Holocaust G3 than in the Comparison G3. Therefore, it appears that event centrality in Holocaust families comprises both a personal and a societal constituent. In contrast, the memory of the traumas reported by the majority of the Comparison G1 were primarily personal traumas without the societal component, which became less defining for Comparison G3.

A further important finding in this study and confirming the mediation hypothesis, is the indirect effect of Holocaust G1's PTSD symptoms on Holocaust G3, which revealed that Holocaust G1's PTSD symptoms predicted Holocaust G2's secondary traumatization, which subsequently predicted Holocaust G3's secondary traumatization. Moreover, PTSD symptoms in Holocaust G1 predicted Holocaust G3's event centrality through secondary traumatization in both Holocaust G2 and G3 and centrality of event in Holocaust G2. These findings allude to the recent suggestion that event centrality may be the outcome of PTSD symptoms and not vice versa, as demonstrated among survivors of the Utøya island massacre in 2011 (Glad et al., 2020). The mediation pathway also highlights the crucial role PTSD symptomology in Holocaust G1 plays in the intergenerational transmission of the adverse effects of the trauma of the Holocaust to subsequent generations.

However, when addressing this pattern in the comparison group, a different picture emerged. In comparison families, secondary traumatization and event centrality were positively related within generations (i.e., G2 and G3). Moreover, event centrality in Comparison G2 was associated with both event centrality and secondary traumatization in Comparison G3. Nevertheless, in contrast to Holocaust families, there were no significant indirect effects in this group. It may be presumed that the difference between the groups may be explained by event centrality in the case of the comparison groups being on a personal level that was the result of personal traumatic events, while event centrality among the Holocaust G1 has both personal and collective dimensions.

The findings of the present study should be examined in light of the strengths and limitations of the study. First, the study is based on a convenience sample rather than a random sample. As a result, the socio-demographic heterogeneity of the sample is low; most of the respondents are middle-class and have similar socio-demographic characteristics. Nevertheless, it should be noted that it is very difficult to get a sample of triads that is random, as all three generations need to give their consent to participate. Second, this study is cross-sectional, therefore, causality cannot be determined. Finally, the type of trauma experienced by Comparison G1 was not controlled for, nor the period when the trauma occurred, as it is very difficult to control these variables. In addition, the impact of cumulative trauma throughout the participants' lives has not been examined. Exposure to multiple life traumas may increase or moderate a person's response to additional stressors. As for G2 and G3, exposure to other personal traumatic events throughout life was not examined. These events and experiences may impact the way traumatic stress is transmitted. Also, as participants in G1 have reached old age, the measure of event centrality was not given to this group in order to avoid overburdening them with questionnaires. However, the examination of event centrality in G1 is recommended in future studies. Finally, medical conditions were calculated by the sum of the diseases without relating to their severity. Although this measure has been used in previous studies (e.g., Shrira et al., 2011), it is recommended that future studies focus on specific conditions and not simple summation.

Alongside these limitations, the present study is characterized by several strengths. First, this study offered an examination of an integrative and unique model of intergenerational transmission of trauma. While previous research in the field has focused on examining a specific transmission mechanism, or finding G2 and G3 symptoms as evidence of intergenerational transmission, the present study examined an integrative model, incorporating an intergenerational mechanism that, to the best of our knowledge, has not been previously examined (i.e., event centrality). Second, this study examined three generations in Holocaust families who reported an intergenerational transmission experience. To our knowledge, such a research model is rare in the context of Holocaust trauma. Third, the sample was collected from the community and without assistance from Holocaust-related organizations (thus, a community-based sample). Finally, this study was conducted with strict control over the study and comparison groups. The participants were carefully selected, with an emphasis on the differences between families with a history of direct exposure to the Holocaust and those families who were not directly exposed to the Holocaust.

In summary, the present study is a significant pillar in the study of intergenerational transmission and in the study of Holocaust trauma by contributing to theoretical knowledge in this area. The Holocaust is a unique trauma that had devastating consequences for survivors and their families who were born after World War II ended. The findings of the study may help guide and build multi-generational interventions with Holocaust survivor families, with a focus on event centrality, as well as other populations who have experienced traumas in the past and whose effects have been transferred. Future studies should continue to examine tertiary transfer of trauma among Holocaust families as well as other traumatized populations.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Declaration of Competing Interest

The authors report no declarations of interest.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorder* (4th ed.). Washington, DC: Author. APA.

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorder* (5th ed.). Washington, DC: Author. APA.

Ariely, G. (2019). National days, national identity, and collective memory: Exploring the impact of Holocaust day in Israel. *Political Psychology, 40*, 1391–1406. https://doi.org/10.1111/pops.12595

Baider, L., Goldzweig, G., Ever-Hadani, P., & Peretz, T. (2006). Psychological distress and coping in breast cancer patients and healthy women whose parents survived the Holocaust. *Psycho-Oncology, 15*, 635–646. https://doi.org/10.1002/pon.1010

Baider, L., Peretz, T., Hadani, P. E., Perry, S., Avramov, R., & De Nour, A. K. (2000). Transmission of response to trauma? Second-generation Holocaust survivors' reaction to cancer. *American Journal of Psychiatry, 157*, 904–910. https://doi.org/10.1176/appi.ajp.157.6.904

Barel, E., van IJzendoorn, M. H., Sagi-Schwartz, A., & Bakermans-Kranenburg, M. J. (2010). Surviving the Holocaust: A meta-analysis of the long-term sequelae of a genocide. *Psychological Bulletin, 136*, 677–698. https://doi.org/10.1037/a0020339

Bar-On, D., Eland, J., Kleber, R. J., Krell, R., Moore, Y., Sagi, A., … van IJzendoorn, M. H. (1998). Multigenerational perspectives on coping with the Holocaust experience: An attachment perspective for understanding the developmental sequelae of trauma across generations. *International Journal of Behavioral Development, 22*, 315–338. https://doi.org/10.1080/016502598384397

Berntsen, D., & Rubin, D. C. (2006). Centrality of Event Scale: A measure of integrating a trauma into one's identity and its relation to post-traumatic stress disorder symptoms. *Behaviour Research and Therapy, 44*, 219–231. https://doi.org/10.1016/j.brat.2005.01.009

Berntsen, D., & Rubin, D. C. (2007). When a trauma becomes a key to identity: Enhanced integration of trauma memories predicts posttraumatic stress disorder symptoms. *Applied Cognitive Psychology, 21*, 417–431. https://doi.org/10.1002/acp.1290

Blix, I., Birkeland, M. S., Solberg, Ø., Hansen, M. B., & Heir, T. (2016). The launching and ensnaring effects of construing a traumatic event as central to one's identity and life story. *Applied Cognitive Psychology, 30*, 526–531. https://doi.org/10.1002/acp.3224

Blix, I., Solberg, Ø., & Heir, T. (2013). Centrality of event and symptoms of posttraumatic stress disorder after the 2011 Oslo bombing attack. *Applied Cognitive Psychology, 28*, 249–253. https://doi.org/10.1002/acp.2988

Boals, A. (2014). Using event centrality to predict depressive symptoms after a romantic conflict: A prospective design. *Applied Cognitive Psychology, 28*, 259–265. https://doi.org/10.1002/acp.2996

Braga, L. L., Mello, M. F., & Fiks, J. P. (2012). Transgenerational transmission of trauma and resilience: A qualitative study with Brazilian offspring of Holocaust survivors. *BMC Psychiatry, 12*, 134. https://doi.org/10.1186/1471-244X-12-134

Brown, A. D., Antonius, D., Kramer, M., Root, J. C., & Hirst, W. (2010). Trauma centrality and PTSD in veterans returning from Iraq and Afghanistan. *Journal of Traumatic Stress, 23*, 496–499. https://doi.org/10.1002/jts.20547

Danieli, Y. (1998). *International handbook of multigenerational legacies of trauma*. New York, NY: Plenum Press. https://doi.org/10.1007/978-1-4757-5567-1

Danieli, Y., Norris, F. H., & Engdahl, B. (2017). A question of who, not if: Psychological disorders in Holocaust survivors' children. *Psychological Trauma: Theory, Research, Practice, and Policy, 9*, 98–106. https://doi.org/10.1037/tra0000192

Dashorst, P., Huntjens, R. J., Mooren, T. M., Kleber, R. J., zu Eulenburg, C., & de Jong, P. J. (2020). Intrusions related to indirectly experienced events in clinical offspring of World War II survivors. *Journal of Anxiety Disorders, 71*, 1–7. https://doi.org/10.1016/j.janxdis.2020.102209

Dashorst, P., Mooren, T. M., Kleber, R. J., de Jong, P. J., & Huntjens, R. J. (2019). Intergenerational consequences of the Holocaust on offspring mental health: A systematic review of associated factors and mechanisms. *European Journal of Psychotraumatology, 10*, 1–29. https://doi.org/10.1080/20008198.2019.1654065

Davidson, S. (1980). The clinical effects of massive psychic trauma in families of Holocaust survivors. *Journal of Marital and Family Therapy, 6*, 11–21. https://doi.org/10.1111/j.1752-0606.1980.tb01700.x

Figley, C. R. (Ed.). (1995). *Compassion fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized*. New York: Brunner/Mazel.

Fogelman, E. (1998). Group belonging and mourning as factors in resilience in second generation of Holocaust survivors. *Psychoanalytic Review, 85*, 537–549.

Fossion, P., Rejas, M. C., Servais, L., Pelc, I., & Hirsch, S. (2003). Family approach with grandchildren of Holocaust survivors. *American Journal of Psychotherapy, 57*, 519–527. https://doi.org/10.1176/appi.psychotherapy.2003.57.4.519

Gehrt, T. B., Berntsen, D., Hoyle, R. H., & Rubin, D. C. (2018). Psychological and clinical correlates of the Centrality of Event Scale: A systematic review. *Clinical Psychology Review, 65*, 57–80. https://doi.org/10.1016/j.cpr.2018.07.006

Giladi, L., & Bell, T. S. (2013). Protective factors for intergenerational transmission of trauma among second and third generation Holocaust survivors. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*, 384–391. https://doi.org/10.1037/a0028455

Glad, K. A., Czajkowski, N. O., Dyb, G., & Hafstad, G. S. (2020). Cross-lagged association between symptoms of posttraumatic stress disorder and perceived centrality of a terrorist attack. *Clinical Psychological Science, 8*, 295–305. https://doi.org/10.1177%2F2167702619873590.

Greenblatt-Kimron, L., & Cohen, M. (2020). The role of cognitive processing in the relationship of posttraumatic stress symptoms and depression among older Holocaust survivors: A moderated-mediation model. *Anxiety, Stress, & Coping, 33*, 59–74. https://doi.org/10.1080/10615806.2019.1669787

Greenblatt Kimron, L., Marai, I., Lorber, A., & Cohen, M. (2019). The long-term effects of early-life trauma on psychological, physical and physiological health among the elderly: The study of Holocaust survivors. *Aging & Mental Health, 23*, 1340–1349. https://doi.org/10.1080/13607863.2018.1523880

Hoffman, Y. S. G., & Shrira, A. (2019). Variables connecting parental PTSD to offspring successful aging: Parent-child role reversal, secondary traumatization and depressive symptoms. *Frontiers in Psychiatry, 10*, 718. https://doi.org/10.3389/fpsyt.2019.00718

Hooper, D., Coughlan, J., & Mullen, M. (2008). Structural equation modelling: Guidelines for determining model fit. *Electronic Journal of Business Research Methods, 6*, 53–60.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal, 6*, 1–55. https://doi.org/10.1080/10705519909540118

Iliceto, P., Candilera, G., Funaro, D., Pompili, M., Kaplan, K. J., & Markus-Kaplan, M. (2011). Hopelessness, temperament, anger and interpersonal relationships in Holocaust (Shoah) survivors' grandchildren. *Journal of Religion and Health, 50*, 321–329. https://doi.org/10.1007/s10943-009-9301-7

Kellermann, N. P. F. (2001). Psychopathology in children of Holocaust survivors: A review of the research literature. *Israel Journal of Psychiatry and Related Sciences, 38*, 36–46.

Kellermann, N. P. F. (2009). *Holocaust trauma: Psychological effects and treatment*. New York: iUniverse.

Kimron, L., & Cohen, M. (2012). Coping and emotional distress during acute hospitalization in older persons with earlier trauma: The case of Holocaust survivors. *Quality of Life Research, 21*, 783–794. https://doi.org/10.1007/s11136-011-9984-6

Lambert, J. E., Holzer, J., & Hasbun, A. (2014). Association between parents' PTSD severity and children's psychological distress: A meta-analysis. *Journal of Traumatic Stress, 27*, 9–17. https://doi.org/10.1002/jts.21891

Leen-Feldner, E. W., Feldner, M. T., Knapp, A., Bunaciu, L., Blumenthal, H., & Amstadter, A. B. (2013). Offspring psychological and biological correlates of parental posttraumatic stress: review of the literature and research agenda. *Clinical Psychology Review, 33*, 1106–1133. https://doi.org/10.1016/j.cpr.2013.09.001

Letzter-Pouw, S. E., Shrira, A., Ben-Ezra, M., & Palgi, Y. (2014). Trauma transmission through perceived parental burden among Holocaust survivors' offspring and

grandchildren. *Psychological Trauma: Theory, Research, Practice, and Policy, 6*, 420–429. https://doi.org/10.1037/a0033741

Lindert, J., Knobler, H. Y., Kawachi, I., Bain, P. A., Abramowitz, M. Z., McKee, C., … McKee, M. (2017). Psychopathology of children of genocide survivors: a systematic review on the impact of genocide on their children's psychopathology from five countries. *International Journal of Epidemiology, 46*, 246–257. https://doi.org/10.1093/ije/dyw161

Motta, R. W., Hafeez, S., Sciancalepore, R., & Diaz, A. B. (2001). Discriminant validation of the secondary trauma scale. *Journal of Psychotherapy in Independent Practice, 24*, 17–24. https://doi.org/10.1300/J288v02n04_02

Nutkiewicz, M. (2003). Shame, guilt, and anguish in Holocaust survivor testimony. *Oral History Review, 30*, 1–22. https://doi.org/10.1300/J288v02n04_02

Palgi, Y., Avidor, S., Shrira, A., Bodner, E., Ben-Ezra, M., Zaslavsky, O., & Hoffman, Y. (2018). Perception counts: The relationships of inner perceptions of trauma and PTSD symptoms across time. *Psychiatry, 81*, 361–375. https://doi.org/10.1080/00332747.2018.1485370

Palgi, Y., Shrira, A., & Ben-Ezra, M. (2015). Family involvement and Holocaust salience among offspring and grandchildren of Holocaust survivors. *Journal of Intergenerational Relationships, 13*, 6–21. https://doi.org/10.1080/15350770.2015.992902

Robinaugh, D. J., & McNally, R. J. (2011). Trauma centrality and PTSD symptom severity in adult survivors of childhood sexual abuse. *Journal of Traumatic Stress, 24*, 483–486. https://doi.org/10.1002/jts.20656

Sagi-Schwartz, A., van IJzendoorn, M. H., & Bakermans-Kranenburg, M. J. (2008). Does intergenerational transmission of trauma skip a generation? No meta-analytic evidence for tertiary traumatization with the third generation of Holocaust survivors. *Attachment & Human Development, 10*, 105–121. https://doi.org/10.1080/14616730802113661

Sagi-Schwartz, A., van IJzendoorn, M. H., Grossmann, K. E., Joels, T., Grossmann, K., Scharf, M., … Alkalay, S. (2003). Attachment and traumatic stress in female Holocaust child survivors and their daughters. *American Journal of Psychiatry, 160*, 1086–1092. https://doi.org/10.1176/appi.ajp.160.6.1086

Scharf, M. (2007). Long-term effects of trauma: Psychosocial functioning of the second and third generation of holocaust survivors. *Development and Psychopathology, 19*, 603–622. https://doi.org/10.1017/S0954579407070290

Scharf, M., & Mayseless, O. (2011). Disorganizing experiences in second- and third generation Holocaust survivors. *Qualitative Health Research, 21*, 1539–1553. https://doi.org/10.1177/1049732310393747

Shmotkin, D., Shrira, A., Goldberg, S., & Palgi, Y. (2011). Resilience and vulnerability among aging Holocaust survivors and their families: An intergenerational overview. *Journal of Intergenerational Relationships, 9*, 7–21. https://doi.org/10.1080/15350770.2011.544202

Shrira, A. (2016). Perceptions of aging among middle-aged offspring of traumatized parents: The effects of parental Holocaust-related communication and secondary traumatization. *Aging & Mental Health, 20*, 65–73. https://doi.org/10.1080/13607863

Shrira, A. (2019). Parental PTSD, health behaviors and successful aging among offspring of Holocaust survivors. *Psychiatry Research, 271*, 265–271. https://doi.org/10.1016/j.psychres.2018.11.060

Shrira, A., Ayalon, L., Bensimon, M., Bodner, E., Rosenbloom, T., & Yadid, Y. (2017). Parental posttraumatic stress disorder symptoms is related to successful aging in offspring of Holocaust survivors. *Frontiers in Psychology, 8*, 1099. https://doi.org/10.3389/fpsyg.2017.01099

Shrira, A., Palgi, Y., Ben-Ezra, M., & Shmotkin, D. (2011). Transgenerational effects of trauma in midlife: Evidence for resilience and vulnerability in offspring of Holocaust survivors. *Psychological Trauma: Theory, Research, Practice, and Policy, 3*, 394–402. https://doi.org/10.1037/a0020608

Solomon, Z. (1998). Transgenerational effects of the Holocaust. In Y. Danieli (Ed.), *International handbook of multigenerational legacies of trauma* (pp. 69–83). Boston, MA: Springer.

Solomon, Z., Kotler, M., & Mikulincer, M. (1988). Combat-related posttraumatic stress disorder among second-generation Holocaust survivors: preliminary findings. *The American Journal of Psychiatry, 145*, 865–868. https://doi.org/10.1176/ajp.145.7.865

van IJzendoorn, M. H., Bakermans-Kranenburg, M. J., & Sagi-Schwartz, A. (2003). Are children of Holocaust survivors less well-adapted? A meta-analytic investigation of secondary traumatization. *Journal of Traumatic Stress, 16*, 459–469. https://doi.org/10.1023/A:1025706427300

Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD checklist for DSM-5 (PCL-5)*. Scale available from the National Center for PTSD at www.ptsd.va.gov.

Wiseman, H., & Barber, J. P. (2008). *Echoes of the trauma: Relational themes and emotions in children of Holocaust survivors*. New York: Cambridge University Press.

Wiseman, H., Barber, J. P., Raz, A., Yam, I., Foltz, C., & Livne-Snir, S. (2002). Parental communication of Holocaust experiences and interpersonal patterns in offspring of Holocaust survivors. *International Journal of Behavioral Development, 26*, 371–381. https://doi.org/10.1080/01650250143000346

Yehuda, R., Bell, A., Bierer, L. M., & Schmeidler, J. (2008). Maternal, not paternal, PTSD is related to increased risk for PTSD in offspring of Holocaust survivors. *Journal of Psychiatric Research, 42*, 1104–1111. https://doi.org/10.1016/j.jpsychires.2008.01.002

Yehuda, R., Halligan, S. L., & Bierer, L. M. (2002). Cortisol levels in adult offspring of Holocaust survivors: Relation to PTSD symptom severity in the parent and child. *Psychoneuroendocrinology, 27*, 171–180. https://doi.org/10.1016/S0306-4530(01)00043-9

Yehuda, R., Halligan, S. L., & Grossman, R. (2001). Childhood trauma and risk for PTSD: Relationship to intergenerational effects of trauma, parental PTSD, and cortisol excretion. *Development and Psychopathology, 13*, 733–753. https://doi.org/10.1017/S0954579401003170

Yehuda, R., Schmeidler, J., Giller, E. L., Siever, L. J., & Binder-Brynes, K. (1998). Relationship between posttraumatic stress disorder characteristics of Holocaust survivors and their adult offspring. *The American Journal of Psychiatry, 155*, 841–843. https://doi.org/10.1176/ajp.155.6.841

Zohar, A. H., Giladi, L., & Givati, T. (2007). Holocaust exposure and disordered eating: A study of multi-generational transmission. *European Eating Disorders Review, 15*, 50–57. https://doi.org/10.1002/erv.730