
BRIEF REPORT

Is the Holocaust Implicated in Posttraumatic Growth in Second-Generation Holocaust Survivors? A Prospective Study

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With the growing interest in posttraumatic growth (PTG), and the ongoing debate on the implications of transgenerational transmission of trauma, this longitudinal study examined PTG among Holocaust survivor offspring following their own exposure to trauma. Using self-report questionnaires, we assessed PTG over time in middle aged (age: $M = 53$ years) Israeli male combat veterans of the 1973 Yom Kippur War whose parents were ($n = 43$) and were not ($n = 156$) second-generation survivors of the Nazi Holocaust at 2 time points: 30 and 35 years following the war (in 2003 and 2008). Posttraumatic stress disorder symptoms and trauma exposure were also assessed in 1991. We hypothesized that second-generation survivors would report more PTG than controls. However, repeated measures design revealed that the second-generation veterans reported less PTG than veterans who were not second generation, which was evident in the PTG domains of relations to others, personal strength, and appreciation of life. Our findings suggest that transmission of trauma from one generation to the next is possibly implicated in the offspring's propensity for growth following subsequent trauma. Future research is warranted to examine the link between transmission of trauma and positive outcomes following trauma.

The psychological outcome of trauma exposure has been widely examined in the context of posttraumatic stress and related disorders. However, in recent years the notion of positive outcomes following trauma exposure is receiving increasing attention. A commonly used term to describe positive psychological changes is posttraumatic growth (PTG; Tedeschi & Calhoun, 2004), underscoring psychological adaptation above pretrauma levels. Survivors may experience growth in several domains including new priorities, closer relations to others, increased appreciation of life, greater sense of personal strength, and spiritual change (Tedeschi & Calhoun, 2004). PTG cannot occur in the absence of a trauma, however, for the interplay between the positive and negative aspects of the trauma response is still poorly understood.

It has been suggested that psychological implications of trauma exposure can be transferred from survivors who have directly experienced the trauma to their offspring in what has been termed transgenerational transmission of trauma (Van

IJzendoorn, Bakermans-Kranenburg, & Sagi-Schwartz, 2003). The transmission of biological markers has also been examined in the context of stress related hormones such as cortisol linked to posttraumatic stress disorder (PTSD) of second-generation trauma survivors (Yehuda et al., 2000). Although hormonal alteration was observed in the offspring of trauma survivors (Yehuda et al., 2000), a meta-analytic study examining second-generation survivors of the Nazi Holocaust showed no significant transgenerational transmission of PTSD and other disorders in nonclinical samples (Van IJzendoorn et al., 2003). In accord, our recent study showed that war veterans whose parents were Holocaust survivors had relatively low rates of PTSD symptoms many years after combat (Dekel, Solomon, & Rosenstreich, 2013), possibly suggesting that protective effects (Van IJzendoorn et al., 2003) such as adaptive coping used by the parents during their struggle might have been transmitted to the next generation (Kellerman, 2008). Based on these observations, we hypothesize that trauma-related psychological growth may possibly be transmitted from Holocaust survivors to their offspring.

Deriving meaning even from the most absurd, painful, and dehumanized experience, which sets the ground for psychological growth, has been the legacy of many Holocaust survivors (Frankl, 1984). For some survivors, meaning-making fueled a strong motivation to rebuild their lives in a positive manner after the Holocaust (e.g., raise families, become involved in social activities). Moreover, there is some data that Holocaust survivors report high self-esteem, a sense of self-coherence, and

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positive core beliefs that mankind is in control (see Barel, Van IJzendoorn, Sagi-Schwartz, & Bakermans-Kranenburg, 2010), suggesting that in some cases survivors' world and self-schemas may have been positively modified following the Holocaust (Danieli, 1981). In accord with preliminary findings of PTG reported by Holocaust survivors (Lev-Wiesel & Amir, 2003), this suggests that a powerful salutogenic survival "legacy" may positively affect the second-generation survivors by enhancing their sense of self-worth (Danieli, 1981) and instilling their lives with purpose and meaning (Kellerman, 2008). This in turn may increase the second-generation capacity to derive benefits in the face of trauma as evident in PTG. To examine whether second-generation Holocaust survivors report higher PTG over time than individuals who are not second generation, we capitalized on a longitudinal study of Israeli veterans, including some offspring of Holocaust survivors, and examined PTG attributed to their war experiences.

Method

Participants

This study is part of a larger research project on veterans of the 1973 Yom Kippur War, with three measurements: 18 (Time 1: 1991), 30 (Time 2: 2003), and 35 (Time 3: 2008) years after the war (see Dekel, Ein-Dor, & Solomon, 2012). Following Israel Defense Forces (IDF) and Tel Aviv University Review Board's approval, we contacted veterans, among them former prisoners of war, enlisted in the IDF records and obtained written informed consent. The sample in follow-up assessments did not differ from the initial sample with regard to PTSD, military rank, age, and education.

The present study uses main study variables derived from the follow-up. In the original study 287 veterans participated in Time 2, among them 199 obtaining study measures took part in this study, constituting a 69% response rate. Twenty-two percent ($n = 43$) of the participants were identified as second-generation Holocaust survivors, i.e., at least one parent was a Holocaust survivor, whereas 78% ($n = 156$) were classified as non-second-generation Holocaust survivors. In Time 3, the distribution remained the same although the sample size decreased (second generation: $n = 33$; non-second generation: $n = 118$), constituting a 76% response rate. For all participants mean age at Time 2 was 53.4 years ($SD = 4.4$); their gender was male; mean years of schooling was 14.02 ($SD = 3.41$); the majority were secular (67%) with an average income (62%).

Measures

PTG was measured by the commonly used Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), listing items on a 4-point scale, comprising of five subscales: Relating to Others, New Possibilities, Personal Strength, Spiritual Change, and Appreciation of Life, anchored on the Yom Kippur War (α was .94 for total score and between .70 to .83 for subscales).

PTSD symptoms in the preceding month were assessed using the PTSD Inventory (detailed in Dekel et al., 2012) listing 17 items anchored on the Yom Kippur War reflecting DSM symptoms of PTSD according to the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed., text rev.; *DSM-IV-TR*; American Psychiatric Association, 2000) rated for frequency on a 4-point scale (1–4). The inventory is used with veterans and clinical populations and has good psychometric properties including high convergent and concurrent validity (Dekel, Mandl, & Solomon, 2011). We calculated number of responses rated at least *often* (α for total score was between .94 and .96 across measurements).

Encounters with battlefield stressors (e.g., injury and death; 23 items) during the war and participation in military operations before the war (6 items) were assessed in Time 1 by self-designed questionnaires for the larger project (see Horesh, Solomon, Zerach, & Ein-Dor, 2011). Postwar negative life events (e.g., health, family stressors) were assessed in Time 1 by Solomon and Flum's (1988) Life Events Questionnaire of 23 Items (α was .91 for total score).

Data Analysis

Group differences in demographic, PTSD, and exposure variables were analyzed using independent *t* tests. Group differences in PTG and PTG domains over time were examined using a general linear model for repeated measures design with Holocaust status as the between-subjects variable, time of measurement (Time 2 vs. Time 3) as the within-subjects variable, and PTG as the dependent variable in each analysis. PTSD, age, education, and income were entered as covariates. PTG (Time 3) predicted by study measures (Time 2) was examined using hierarchical regression analysis with PTG and PTSD entered in the first step, Holocaust status in the second and then trauma exposure variables.

Results

Second-generation and non-second-generation Holocaust survivors had no significant differences in regard to PTSD symptoms, trauma exposure, and the percentage of ex-prisoners-of-war (i.e., 47% in each group). However, the groups differed in demographic background variables that were therefore controlled for in subsequent analyses: second generation were older (second generation: $M = 51.0$, $SD = 2.0$; non-second generation: $M = 49.0$, $SD = 4.0$), $t(197) = 2.18$, $p = .030$; had more than 2 years of posthigh school education (second generation: $M = 14.81$, $SD = 2.69$; non-second generation: $M = 13.50$, $SD = 2.79$), $t(197) = 2.25$, $p = .030$, and above average income (second generation: $M = 4.0$, $SD = 1.0$; non-second generation: $M = 3.45$, $SD = 1.15$), $t(197) = 2.82$, $p = .010$ in Time 2.

Second-generation Holocaust survivors had lower PTG levels than the non-second-generation survivors across times

Table 1
Repeated Measures Analysis of Variance for Group Differences in PTG and PTG Domains Over Time

Measure	Second generation (<i>n</i> = 31)				Non-second generation (<i>n</i> = 108)				ANOVA <i>F</i> (1, 133) ^a
	T2		T3		T2		T3		
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
PTG	2.03	0.78	1.88	0.70	2.33	0.70	2.19	0.67	4.39**
Relating to others	2.00	0.81	1.69	0.75	2.17	0.75	2.07	0.75	3.93**
New possibilities	1.86	0.81	1.75	0.79	2.12	0.79	1.94	0.76	<i>ns</i>
Personal strength	2.28	0.93	2.16	0.96	2.59	0.96	2.48	0.88	3.66**
Spirituality	1.85	1.00	1.66	0.97	1.94	0.97	1.79	0.89	<i>ns</i>
Appreciation of life	2.52	1.07	2.34	1.02	2.92	2.02	2.79	1.05	3.00*

Note. PTG = posttraumatic growth; T2 = assessments in 2003; T3 = assessments in 2008; Second generation = offspring of survivors of the Nazi Holocaust.

^aGroup main effects with posttraumatic stress disorder symptoms, age, education, and income as covariates.

* $p < .05$. ** $p < .01$.

(Table 1). The analyses revealed a main effect for group, $F(1, 133) = 4.39$, $p = .044$, $\eta_p^2 = .03$, but not for time, $F(1, 133) = .96$, $p = .321$. The interaction effect was not significant, $F(1, 133) = .11$, $p = .732$. The same trend was found for PTG domains with the second-generation reporting lower levels of growth in relating to others, $F(1, 133) = 3.93$, $p = .040$, $\eta_p^2 = .03$, personal strength, $F(1, 133) = 3.66$, $p = .050$, $\eta_p^2 = .03$, and appreciation of life, $F(1, 133) = 3.0$, $p = .081$, $\eta_p^2 = .02$, than non-second generation. Other effects were not significant.

The study variables accounted for 30.4 % of the variance in predicting PTG, $F(6, 96) = 6.99$, $p = .001$ (Table 2). PTG and PTSD explained 26.6 % of the variance. Holocaust status added 3.0% of the variance, indicating its modest contribution beyond PTG and PTSD. Trauma-exposure variables did not make an additional significant contribution.

Discussion

This study is among the first to examine salutogenic outcomes following trauma in offspring of survivors. The results indicate that as long as 35 years after their participation in the Yom Kippur War, veterans whose parents were Holocaust survivors had lower PTG over time than veterans without such family history. This suggests that transgenerational transmission of trauma may be implicated in the offspring's response to trauma. However, our findings suggest that being a second-generation Holocaust survivor may have limiting effect on positive aspects.

We suggest several explanations for these findings. First, pathogenic effects of the Holocaust were transgenerationally transmitted, but rather than being expressed as distress (Van IJzendoorn et al., 2003), they were evident in other domains, such as the family system where the "conspiracy of silence"

about the Holocaust (Danieli, 1998, p.5) could affect offspring's open verbal communication and self-disclosure about their own trauma, a key facilitator of PTG. Alternatively, the second-generation survivors may reflect their parents' guilt for having survived the Holocaust while others perished (Wiseman, Metz, & Barber, 2006), and thus find it difficult to associate trauma with growth and elevated PTG, even in the absence of elevated posttraumatic stress as we show here.

Another possible explanation is that as the second-generation survivors grew up constantly exposed to their parents' trauma, they may have acquired habituation in PTG responses to subsequent trauma. This is consistent with the stress inoculation perspective that previous exposure renders some individuals more resilient to future stress (Meichenbaum, 1985) and low distress relates to low PTG (Dekel et al., 2012). Fourth, pioneering research into families of Holocaust survivors found that some of the transgenerational transmission of trauma effects involves cognitive schemas regarding the self-characterization of the families as victims or survivors (Danieli, 1981). These cognitive schemas may subsequently shape responses to trauma among offspring, among them lowered PTG. Fifth, the second-generation survivors may have found the Holocaust immersed in their lives and characterizing their identity to such an extent that it "numbs" future growth. Finally, one can argue no transgenerational transmission occurs at all. However, if this were the case, we would not expect to find any significant differences in the study groups in a number of demographic factors. Therefore, we believe the decreased PTG in second-generation Holocaust survivors found here suggests that transgenerational transmission plays a role in trauma coping.

Several study limitations should be noted: an attrition rate of around 30%, the use of self-report measures, conducting several analyses on the same data, and the time lapse

Table 2
Hierarchical Multiple Regression for PTG by Study Predictors

Variable	β	R^2 Change	R^2
Block 1		.27	.27
PTG	.38***		
PTSD	.22*		
Block 2		.03	.30
PTG	.35***		
PTSD	.22*		
Holocaust status	-.18*		
Block 3			.30
PTG	.35***		
PTSD	.22*		
Holocaust status	-.18*		
Prewar exposure	.07		
Block 4			.30
PTG	.34***		
PTSD	.21*		
Holocaust status	-.17*		
Prewar exposure	.06		
War exposure	.05		
Block 5			.30
PTG	.33***		
PTSD	.20*		
Holocaust status	-.16*		
Prewar exposure	.05		
War exposure	.06		
Postwar exposure	.04		

Note. $N = 103$. PTG = posttraumatic growth; PTSD = posttraumatic stress disorder. Predictors: Exposure refers to previous military exposure, battlefield intensity, and negative life events after the Yom Kippur War assessed in 1991. Holocaust status, i.e., veterans who were and were not offspring of survivors of the Nazi Holocaust. PTG, level and PTSD symptoms severity assessed in 2003. Outcome: PTG level assessed in 2008.

* $p < .05$. *** $p < .001$.

between the trauma and the first assessment. Although the follow-up sample did not differ from the initial one in main study variables, the large yet inevitable attrition rate between assessments should be taken into account. Also, by use of a self-report measure—though the PTGI is widely used—we may have assessed perceptions of growth instead of growth itself. Ideally, we would obtain data from the parents and conduct analysis with more statistical control.

In conclusion, this preliminary study of veterans with no psychopathology prior to the war with its focus on the implications of the Holocaust suggests that transgenerational transmission of trauma may limit offspring's positive adaptation following trauma. Hence, future studies are encouraged to adopt a multidimensional approach to untangle the interplay between negative and positive aspects of trauma and their transmission.

References

- American Psychiatric Association. (2000). *Diagnostic and statistical manual of mental disorders* (4th ed., text rev.). Washington, DC: Author.
- 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. doi:10.1037/a0020339
- Danieli, Y. E. (1981). Differing adaptational styles in families of survivors of the Nazi Holocaust. *Child Today*, *10*, 6–10.
- Danieli, Y. (Ed.) (1998). *International Handbook of Multigenerational Legacies of Trauma*. New York & London, Plenum.
- Dekel, S., Ein-Dor, T., & Solomon, Z. (2012). Posttraumatic growth and post-traumatic distress: A longitudinal study. *Psychological Trauma: Theory, Research, Practice, and Policy*, *4*, 4–101. doi:10.1037/a0021865
- Dekel, S., Mandl, C., & Solomon, Z. (2011). Shared and unique predictors of post-traumatic growth and distress. *Journal of Clinical Psychology*, *67*, 241–252. doi:10.1002/jclp.20747
- Dekel, S., Solomon, Z., & Rosenstreich, E. (2013). Secondary salutogenic effects in veteran whose parents were Holocaust survivors? *Journal of Psychiatric Research*, *47*, 266–271. doi:10.1016/j.jpsychires.2012.10.013
- Frankl, V. E. (1984). *Man's search for meaning. An introduction to logotherapy* (3rd ed., rev.) New York, NY: Simon & Schuster.
- Horesh, D., Solomon, Z., Zerach, G., & Ein-Dor, T. (2011). Delayed-onset PTSD among war veterans: The role of life events throughout the life cycle. *Social Psychiatry*, *46*, 863–870. doi:10.1007/s00127-010-0255-6
- Lev-Wiesel, R., & Amir, M. (2003). Posttraumatic growth among Holocaust child survivors. *Journal of Loss and Trauma*, *8*, 229–237. doi:10.1080/15325020305884
- Kellermann, N. P. F. (2008). Transmitted Holocaust trauma: Curse or legacy? The aggravating and mitigating factors of Holocaust transmission. *Israel Journal of Psychiatry and Related Sciences*, *45*, 263–271.
- Meichenbaum, D. (1985). *Stress inoculation training*. Elmsford, NY: Pergamon Press.
- Solomon, Z., & Flum, H. (1988). Life events, combat stress reaction and post-traumatic stress disorder. *Social Science & Medicine*, *26*, 319–325. doi:10.1016/0277-9536(88)90396-6
- Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, *9*, 455–471. doi:10.1002/jts.2490090305
- Tedeschi, R. G., & Calhoun, L. G. (2004). Posttraumatic growth: conceptual foundations and empirical evidence. *Psychological Inquiry*, *15*, 1–18. doi:10.1207/s15327965pli1501_01
- 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. doi:10.1023/A:1025706427300
- Wiseman, H., Metzl, E., & Barber, J. P. (2006). Anger, guilt, and intergenerational communication of trauma in the interpersonal narratives of second generation Holocaust survivors. *American Journal of Orthopsychiatry*, *76*, 176–184. doi:10.1037/0002-9432.76.2.176
- Yehuda, R., Bierer, L., Schmeidler, J., Aferiat, D., Breslau, I., & Dolan, S. (2000). Low cortisol and risk for PTSD in adult offspring of holocaust survivors. *American Journal of Psychiatry*, *157*, 1252–1259. doi:10.1176/appi.ajp.157.8.1252