An Investigation of Potential Holocaust-Related Secondary Trauma in the Third Generation

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Abstract
The study assessed for the presence of Holocaust-related trauma characteristics in ultra-Orthodox grandchildren of Holocaust survivors. Measures included the Secondary Trauma Scale (STS; Motta, Hafeez, Sciancalepore, & Diaz, 2001), the Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997), the A-Trait Scale of the State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983), and the Modified Stroop procedure. Participants included ultra-Orthodox grandchildren of two or more Holocaust survivors (n = 58), ultra-Orthodox grandchildren of non-Holocaust survivors (n = 51), and non-Jewish grandchildren of non-Holocaust survivors (n = 41). Results indicated that ultra-Orthodox participants, regardless of their grandparents’ Holocaust survivorship status, showed response latencies for color-naming Holocaust-related stimuli on the Modified Stroop procedure. The findings suggest that the transfer of Holocaust trauma is not generated by the experience of being a grandchild of Holocaust survivors, but rather from the experience of being a member of the ultra-Orthodox community.

Keywords
assessment and diagnosis, consequences of trauma, culture, race, ethnicity, human-caused

Estimates of exposure to traumatic events range from 37 to 92% of respondents reporting exposure to one or more events that meet the Diagnostic and Statistical Manual of Mental Disorders (4th ed., text rev.; DSM-IV-TR; American Psychiatric Association [APA], 2000) “objective” criteria (AI) for trauma (Cahill & Foa, 2007). Though significant, these statistics say nothing about the scores of individuals who are exposed to traumatized individuals and meet diagnostic criteria for secondary trauma. The Holocaust may be considered the most dramatic and systematic victimization against a specific group (Sigal & Weinfeld, 1989). Thus, one may assume that if the transmission of transgenerational trauma was to be observed in the second and third generation, it would be observed in children and grandchildren of Holocaust survivors.

References to posttraumatic stress disorder (PTSD) have characterized the literature on war and catastrophe for centuries (van der Kolk, 2007). However, the actual diagnosis of PTSD did not enter the compendium of psychological diagnoses until 1980, when it was added to the third edition of the DSM (DSM-III; APA, 1980) as an anxiety disorder. PTSD may develop as a result of directly experiencing, or exposure to, a traumatic event that involves actual or threatened death or serious injury. PTSD criteria include intrusive thoughts, attempts to physically or psychologically avoid all reminders of the trauma, cognitive or memory disturbances, and heightened physiological arousal (APA, 2000).

Following World War II, trauma research expanded to accommodate the long-term effects of trauma in concentration camp survivors. In the absence of a formal diagnosis, clinicians developed terms such as Buchenwald syndrome (Friedman, 1948), survivor syndrome (Chodoff, 1975; Niederland, 1968), and concentration camp syndrome (Hocking, 1970) to explain the consistent trauma reactions and maladaptive behavior patterns exhibited by Holocaust survivors.

PTSD and Survivors of the Holocaust
Between the years of 1939 and 1945, six million Jews, one third of world Jewry, were killed as part of the Nazis’ methodical plan to obliterate all traces of Jewish life and culture (Weber, 2000). Virtually no Jewish family remained intact.

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intact. Numerous survivors, many of whom remained the sole survivor of their pre-Holocaust families, attempted to rebuild their lives and reestablish families. The determination of Holocaust survivors to recreate families and communities in the aftermath of the largest genocide against modern-day Jewry may explain why the world, including the mental health community, initially took little notice of this generation. With the exception of Friedman (1948, 1949) who, under the instruction of the American Joint Distribution Committee, assessed the psychological health of Jewish displaced persons, there was little recognition of, or attention given to, the psychological needs of Holocaust survivors.

At first, the literature on the Holocaust and its psychological effects was largely limited to testimonials of survivors and historical accounts of life and death in ghettos or concentration camps (e.g., Bettelheim, 1943; Frankl, 1963; Wiesel, 1972) and clinical observations of Holocaust survivors (Chodoff, 1970, 1975; de Graaf, 1975; Ettinger, 1961, 1962; Krystal, 1968; Krystal & Niederland, 1968; Niederland, 1964, 1968). Many Holocaust survivors were diagnosed with and treated for depression. However, the severe display of increased levels of social withdrawal and suspiciousness (Krystal, 1968), chronic anxiety (Chodoff, 1970; de Graaf, 1975; Levav & Abramson, 1984), and intense feelings of guilt (Chodoff, 1975) prompted clinicians to question the accuracy of the diagnosis of depression (Niederland, 1988). The display of symptoms is now generally recognized as meeting DSM-IV-TR (APA, 2000) diagnostic criteria for PTSD.

Clinical observations of post-Holocaust effects were followed by a growing body of progressively empirical Holocaust-related research (e.g., Kuch & Cox, 1992; Landau & Litwin, 2000; Levav & Abramson, 1984; Nadler & Ben-Shushan, 1989; Sigal & Weinfeld, 1989; Yehuda et al., 1995). Holocaust survivors, particularly male survivors (Landau & Litwin, 2000) were found to exhibit elevated symptoms of DSM diagnostic criteria for PTSD, with the most common symptoms being those of sleep disturbances, recurrent nightmares, and extreme distress over reminders of the Holocaust (Kuch & Cox, 1992).

Secondary Trauma and Children of Holocaust Survivors

Secondary trauma refers to the experience of negative emotions and consequent behaviors that result from close or extended contact with a traumatized individual (Figley, 1995; Motta, 2008). The symptoms of secondary trauma nearly parallel those of PTSD; however, secondary trauma symptoms differ in that they are generated from the knowledge of a traumatic event that occurred to a significant other, rather than from the direct experience of the traumatic event (Figley, 1995). Secondary trauma symptoms are also similar to, but not as severe as, those experienced in PTSD (Motta, Kefer, Hertz, & Hafeez, 1999; Suozzi & Motta, 2004). Secondary trauma symptoms include anger, anxiety, depression, emotional exhaustion, difficulty concentrating, intrusive and unwanted thoughts, low self-esteem, body aches, sleep disturbances, changes in eating patterns, increased addictive behavior, and social withdrawal (Motta, 2008; Motta, Chirachella, Maus, & Lombardo, 2004).

A history of exposure to psychological stress has been shown to affect the development and severity of PTSD (Bremner, Southwick, & Charney, 1995; Yehuda et al., 1995) and secondary trauma (Figley, 1995; Kassam-Adams, 1995). Solomon, Kotler, and Mikulincer (1988) assessed the impact of the Holocaust on the development of PTSD among second-generation Holocaust survivor Israeli combat soldiers who sustained combat stress reactions following the 1982 Lebanon War. Solomon et al. (1988) compared 96 soldiers whose parents were Holocaust survivors to soldiers with no Holocaust family history. Results revealed that, compared with their counterparts who had no Holocaust background, second-generation Holocaust survivor soldiers and reported a larger average number of PTSD symptoms. The study is particularly significant as all participants were reported to be physically and psychologically healthy prior to their combat participation. Thus, the severity of second-generation Holocaust survivors’ PTSD may be a reactivation of a latent trauma that was suffered as a result of parental Holocaust experiences.

Since the publication of the first article (Rakoff, Sigal, & Epstein, 1966) which suggested a transmission of Holocaust trauma to children of Holocaust survivors (COS), the field has produced a rich body of psychological research with almost 400 publications (Felson, 1998; Kellerman, 2001). In his review of transgenerational transmission of Holocaust trauma research, Kellerman (2001) delineated four overlapping and somewhat arbitrary stages that characterized four decades of COS research. The 1960s’ COS literature was primarily limited to observational and descriptive clinical data (e.g., Rakoff et al., 1966). The 1970s’ COS research saw a gradual shift toward initial empirical research, which was later criticized for its various methodological flaws (Solkoff, 1981). The 1980s produced the largest body of empirically based COS studies which, through the use of improved sampling methods, yielded a more valid representation of the overall COS population and consequently produced some generalizable results (Solkoff, 1992). Finally, the 1990s’ COS literature gave way to a series of comprehensive reviews that attempted to identify and synthesize well-constructed COS literature in order to draw scientific conclusions from the cumulative research (Felson, 1998).

Recently, researchers examined the effects of intrafamilial patterns of Holocaust communication on COS psychological well-being (Solkoff, 1992; Sorscher & Cohen, 1997; Wiseman et al., 2002). Sorscher and Coehn (1997) compared 40 COS to 38 children of American Jews to ascertain maladaptive Holocaust effects (e.g., elevated Holocaust
ideation), along with potentially adaptive responses (e.g., ethnic identification). Measures included the Brenner Scale of Jewish Identification (Brenner, 1961); the Communication Questionnaire (Lichtman, 1983), a measure of parental communication of war time experiences; and, the Scale of Holocaust-Related Imagery (Sorscher, 1991), a measure of the rate of Holocaust-related thoughts, associations, fantasies, dreams, and symptoms. When compared to children of American Jews, COS demonstrated significantly greater Holocaust-related imagery, with increased prevalence of Holocaust related dreams, Holocaust-related thoughts, and Holocaust-associated places. Furthermore, adaptive communication styles were significantly correlated with overall ethnic identification, but not with Holocaust ideation, suggesting affective parental communications about the Holocaust may facilitate the development of adaptive coping mechanisms. Finally, no difference in overall Jewish identity between the two groups was found; thus, past persecution had not weakened present religious identification.

Rose and Ganske (1987) investigated COS levels of adjustment in relation to family environmental factors. COS (n = 20) were compared to three control groups who were matched for age and education. In addition to two control groups of children of Jewish native-born Americans (n = 20) and children of non-Jewish, native-born Americans (n = 16), Rose and Ganske included a third control group of children of non-Jewish immigrants (n = 17) in order to control for an immigration effect. Maladjustment measures included the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983) and the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). Family environment was evaluated via the Moos Family Environment Scale (FES; Moos & Moos, 1981). Though no differences among the groups were found across the maladjustment measures, COS FES scores indicated that they exhibited significantly lower feelings of independence and self-sufficiency when compared to the other groups. Rose and Ganske suggest that the survivors’ disrupted opportunities to differentiate fully, and separate naturally, from their own parents renders them unable to separate easily from their children.

Aligned with Rose and Ganske (1987), Weiss, O’Connell, and Sitter (1986) conducted a comparative study to determine whether COS symptomology was, at least in part, due to the immigration effect. COS (n = 25) were compared to second generation European immigrants (4% Jewish, 96% Non-Jewish) who immigrated to the United States during or after World War II, and descendants of American-born parents (4% Jewish, 96% Non-Jewish). Participants completed a modified Nettler Alienation Scale (NAS; Nettler, 1957), the Guilt Inventory (GI) of the Buss and Durkee (1957) Hostility-Guilt Inventory, and the Brief Mental Health Index (BMHI; Gunderson & Arthur, 1969). Demographic information on parental Holocaust experiences, immigration status, and background information was also obtained. No significant differences were found between COS and second generation immigrants across the measures of alienation, feelings of guilt, and mental health. Weiss et al. (1986) conclude that COS, having had experiences similar to those of other immigrant groups, may present reactionary symptoms to their parents’ immigration status rather than to their parents’ Holocaust experience.

Siegel and Weinfeld (1989) overcame major methodological flaws that characterized much of the previous COS literature through the use of random sampling methods, control groups, and an unusually large sample size. Siegel and Weinfeld compared 242 COS to 209 children of Canadian-born Jewish parents and 76 children of non-Holocaust survivor Jewish immigrants. Unlike previous findings (e.g., Sigal, Silver, Rakoff, & Ellin, 1973), no difference between COS and control groups were found across the scales on the Psychological Epidemiological Research Instrument (PERI; Dohrenwend, Shrut, Egri, & Mendelsohn, 1980), a measure of personality and affective dysfunction, and demographic questions that probed for the experience of anxiety or depression within the previous 12 months. Sigal and Weinfeld’s study suggests that if a latent form of transgenerational transmission of Holocaust trauma exists among the second generation, it does not appear to significantly encroach on COS’s daily functioning.

In an effort to further expand the boundaries of intergenerational transmission of trauma, Rubenstein, Cutter, and Templer (1990) examined Holocaust-related trauma effects in children and grandchildren of Holocaust survivors (GOS). The study consisted of three groups that included one group in which both spouses were COS (15 families), one group in which only one spouse was a child of a survivor (25 families), and a control group of non-COS participants (12 families). Participants completed Templer’s Death Anxiety Scale (Templer, 1970) and the Kincannon’s Mini-Mult (Kincannon, 1968), a shortened version of the MMPI which consists of three scales: Depression, Psychasthenia, and Hypochondriasis. The Kincannon’s Mini-Mult (Kincannon, 1968) was selected for its assessment of the three most frequently reported Holocaust survivor symptoms, that is, depression, anxiety, and excessive somatic concern. Third generation emotional, behavioral, and interpersonal psychopathology was assessed via the parent rating form of the Louisville Behavior Checklist (Miller, 1967). When compared with controls, COS demonstrated greater psychopathology on the Kincannon’s Mini-Mult (Kincannon, 1968), signaling some level of intergenerational transmission of Holocaust trauma. COS displayed above-average levels of death anxiety, though their scores did not differ significantly from the non-COS group. Parental ratings for grandchildren of Holocaust survivors indicated that the children were more fearful, displayed neurotic behaviors, aggressive tendencies, social withdrawal, inhibition, and depressed affect. These ratings, consistent with clinical impression-based observations that COS (Zilberfein, 1996) and their children (Scharf, 2007) tend to exhibit social withdrawal, depression, anxiety, and
reduced self-esteem, suggest a level of transmission of Holocaust trauma to the third generation.

To date, few attempts have been made to clarify the presence of Holocaust-related trauma characteristics in the third generation. The objectives of the study were to bolster the current knowledge concerning the long-term effects of inter-generational trauma and to overcome the methodological limitations of COS and GOS literature through the use of improved sampling procedures, increased sample size, a well-matched control group, and psychometrically reliable and valid measures of secondary trauma.

First, the study utilized the Modified Stroop procedure, a strong measure of intrusive symptoms (McNally, 1995), which has demonstrated acute sensitivity in detecting trauma symptoms that other, more subjective measures were unable to detect (Motta, Joseph, Rose, Suozzi, & Leiderman, 1997). Only one study (Kassai & Motta, 2006) has utilized the Modified Stroop procedure in the study of transgenerational transmission of Holocaust trauma. The Modified Stroop procedure has been shown to discriminate between adults with PTSD and those without PTSD (McNally, English, & Lipke, 1993; McNally, Kaspi, Riemann, & Zeitlin, 1990) and to characterize child survivors of sexual abuse (Dubner & Motta, 1999) and adult survivors of rape (Cassidy, McNally, & Zeitlin, 1992; Foa, Feske, Murdock, Kozac, & McCarty, 1991).

Second, the study utilized the Secondary Trauma Scale (STS; Motta et al., 2001) which, unlike other paper-and-pencil measures of secondary trauma, presents cutoff scores (Motta et al., 2004). The study further utilized the Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997), a measure of PTSD symptoms, and the Trait Scale of the State-Trait Anxiety Inventory (STAI; Spielberger et al., 1983), a measure of overall anxiety, which has been shown to characterize Holocaust survivors (Niederland, 1981) and their children (Lichtman, 1984; Rubenstein et al., 1990; Zilberfein, 1996).

Finally, the study examined the relationship between ultra-Orthodox affiliation and transmission of Holocaust trauma characteristics. The variety of reactions to the Holocaust, such as viewing the Holocaust as God’s punishment (Marcus & Rosenberg, 1988), may itself be a source of trauma among ultra-Orthodox Jews. The study explored whether the ultra-Orthodox community’s strong emphasis on the past (Heilman, 1992, 2006) perpetuates Holocaust exposure and transmission of Holocaust trauma characteristics to the third generation. Moreover, ultra-Orthodox sects restrict exposure to secular influences and media outlets, a factor that may clarify whether elevations in secondary trauma characteristics result from the inter-generational transmission of trauma, rather than from exposure to media reports of the Holocaust.

Method

Participants

Participants included 150 grandchildren who were selected based on their grandparents’ status during the Second World War. The first group consisted of ultra-Orthodox grandchildren of two or more Holocaust survivors (n = 58). Ultra-Orthodox membership was assessed through a self-affiliation question on a demographic questionnaire. Holocaust survivor status was determined via the latest eligibility criteria set by the conference of Jewish Material Claims Against Germany, Inc. (Claims Conference, 2009) for allocation of Holocaust compensation and restitution payments. The second group, and the first comparison group, consisted of ultra-Orthodox grandchildren of non-Holocaust survivors (n = 51). The third group, and the second comparison group, consisted of non-Jewish grandchildren of non-Holocaust survivors (n = 41). The number of participants was recruited based on Cohen’s (1992) recommendations for a medium effect size (0.5). The age range of the sample was between 18 and 41 years of age. The gender distribution of the sample was unevenly divided between males (40%, n = 63) and females (60%, n = 87). The participants were overwhelmingly White (86%) with the remaining sample of African American (5%), Asian American (2%), and Hispanic (3%) extraction. Predictably, the sample was overwhelmingly Jewish (70%).

Procedure and Measures

The participants were recruited from synagogues and college campuses throughout the New York and New Jersey area. Participants were told that the study would involve an investigation of Holocaust-effects and that their responses would be confidential. Individuals who were color-blind were asked not to participate in the study, as it involved a color naming task. Upon volunteering, participants were asked to read and sign an informed consent form that assured their right to withdraw from the study at any time. After signing the informed consent form, participants completed the following measures:

Demographic Questionnaire. Participants were asked to complete a questionnaire which provided information on age, gender, religion, relationship of the grandparent involved in the Holocaust (i.e., maternal vs. paternal), grandparent residential status during the Holocaust, year of grandparent immigration to the United States, grandparent countries of origin, and amount of past/current contact with the participants’ grandparents. For Jewish participants, the questionnaire included a religious-affiliation questionnaire that assessed for membership of ultra-Orthodox communities.

Modified Stroop procedure. The Modified Stroop procedure is an objective measure of attentional bias and intrusive cognitions, which are characteristics of PTSD (Dubner & Motta, 1999; McNally et al., 1990). In line with the traditional Stroop paradigm (Stroop, 1935), participants are shown words of varying affective significance and asked to name the colors in which the words are printed while ignoring the meaning of the words (Mathews & MacLeod, 1985). Delays in color-naming (i.e., Stroop interference) occur when the meaning of the word automatically activates the
The Modified Stroop procedure is a reliable and valid index of intrusive cognitions (McNally et al., 1993). Test-retest reliability for color naming latencies for PTSD words was reported to be \( r (22) = .80, p < .001 \) (McNally et al., 1993). Furthermore, Cassiday, McNally, and Zeitlin (1992) found a significant correlation \( r = .41 \) between the Modified Stroop procedure and the intrusive subscale of the IES-R (Weiss & Marmar, 1997). The Modified Stroop procedure is superior to structured interviews (McNally et al., 1993) and self-report measures (Lubliner, 2008; Motta et al., 1997), which are vulnerable to demand characteristics and social desirability influences (Motta, 2008). The Modified Stroop procedure has been shown to successfully distinguish between genuine and fictitious depression (Lubliner, 2008).

Participants were shown control stimuli, which consisted of colored zeroes, and two target-word categories, that is, neutral stimuli and PTSD-related stimuli. Neutral stimuli (i.e., mix, pen, input, paper, and, planet) were obtained from a previous study (Kassai & Motta, 2006) of transgenerational transmission of Holocaust trauma. PTSD-related stimuli were selected via a pilot study that included 20 ultra-Orthodox grandchildren of non-Holocaust survivors. Participants were given ten words, thought to be relevant to the trauma of the Holocaust, and asked to rate each word on: (a) the estimate of word frequency in conjunction with the Holocaust, and (b) the degree of threat the word represented. The participants responded on a scale of 0 (not very frequent or threatening) to 5 (very frequent or threatening). The following words were rated highest for frequency and threat, and comprised the PTSD word category of the study’s Modified Stroop paradigm: Auschwitz, Hitler, Nazi, concentration camp, and six million.

Participants in the study were presented with three Stroop cards, which were constructed from white sheets of paper, with words in varying colors (i.e., red, yellow, blue, black, and green). The three stimulus cards were presented in the same order (i.e., control, neutral, and PTSD-related stimuli) to each participant. Participants were instructed to name the colors of the stimuli from left to right, top to bottom of the given stimulus card. Participants were told to ignore the words themselves and to name the colors of the stimuli instead. Participants were cautioned to make as few errors as possible, and to work quickly and accurately. A stopwatch was used to record the time taken to complete the color naming on each card to the tenth of a second. Timing began with the first color named aloud and ended with the last color named on the card. To control for differences in color-naming speed, Stroop scores were computed by subtracting the time to complete the control card from the time to complete each of the remaining cards. The dependent variables were the differences between the mean response latency for color-naming the control stimuli and the mean response latency for color-naming the PTSD-related stimuli.

Prior to testing the hypotheses, the variable of single- and compound word status of the Holocaust-related stimuli and control stimuli were statistically compared in order to evaluate the necessity of including it as a possible confounding variable in the final analyses. Participants \( (n = 20) \) who had not previously participated in the study were presented with two Stroop stimulus cards. Consistent with the amount of single- and compound words displayed on the Holocaust-related Stroop stimulus card, the first Stroop stimulus card consisted of three neutral single words and two neutral compound words (i.e., input, planet, paper, gas ember, and helicopter pad). The second Stroop stimulus card contained the original neutral stimuli utilized in this study (i.e., mix, pen, input, paper, and planet). Overall, no differences were found in response times across the two stimulus cards.

**Secondary Trauma Scale.** The Secondary Trauma Scale (STS; Motta, Hafeez, Sciancalepore, & Diaz, 2001) is an 18-item self-report measure that assesses for secondary trauma related distress. The STS is completed on a one (rarely/never) to five (very often) scale. The STS is derived from the six criteria for PTSD cited in the DSM-IV (APA, 1994) and from the Compassion Fatigue Self-Test for Psychotherapists (Figley, 1995). Examples of items include the following: “I experience troubling dreams similar to his/her problems;” “I have felt on edge and distressed and this may be related to thoughts about his/her problem,” and so forth. The possible range of scores is 18 to 90. The STS has strong psychometric properties, such as strong internal consistency with a coefficient alpha of .82 and good concurrent, content, and discriminant validity (Motta et al., 1999; Motta et al., 2001), as indicated by its significant correlation with the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the Modified PTSD Symptoms Scale-Self Report (Resnick, Falsitti, Resnick, & Kilpatrick, 1991), and the Impact of Events Scale (IES; Horowitz, Wilner, & Alvarez, 1979; \( r \) ranged from .33 to .56, \( p < .01 \)). The STS has been validated with samples involving members of the community, practicing therapists, and students. Reliability estimates of the STS have been reported to range from .8 to .9 for college students and mental health workers (Motta et al., 1999, 2001). The STS (Motta et al., 2001) remains the only scale measuring secondary trauma that has cutoff scores associated with clinically significant levels of distress (Motta, 2008). STS scores at or above 38 suggest mild to moderate anxiety and depression, while scores at or above 45 suggest moderate to severe anxiety. Similarly, scores of 49 or higher are associated with moderate to severe depression (Motta et al., 2004).

**Impact of Events Scale-Revised.** The Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997) is a 22-item self-report measure that assesses for the impact of a traumatic event. Since the original IES (Horowitz et al., 1979) was created prior to the addition of PTSD into the DSM-III (APA, 1980), it originally assessed for only intrusion and avoidance, two of the three DSM-IV-TR (APA, 2000) diagnostic criteria for PTSD. The IES-R expanded to include a...
hyperarousal subscale, and thus offers a more valid assessment tool for PTSD. Intrusion (Mean of Items 1, 2, 3, 6, 9, 14, 16, and 20), Hyperarousal (Mean of Items 4, 10, 15, 18, 19, and 21), and Avoidance (Mean of Items 5, 7, 8, 11, 12, 13, 17, and 22) are accessed via a Likert-type scale. Respondents rate each item on a scale of 0 (not at all), 1 (a little bit), 2 (moderately), 3 (quite a bit) and 4 (extremely) according to the past seven days. Participants are asked to report a stressful event they experienced in the past two to three weeks and respond to the 22 items based on how they felt in the past seven days. The mean item response is calculated for each subscale, and the three clinical subscale scores sum to form the IES-R total score. The IES-R has strong internal consistency with intrusion, avoidance, and hyperarousal subscale alphas ranging from .79 to .90 (Weiss & Marnar, 1997). Test-retest reliability for the three subscales was reported to be .94, .89 and .92 respectively.

**State-Trait Anxiety Inventory (Form Y2/A-Trait Scale).** The State-Trait Anxiety Inventory (STAI; Form Y; Spielberger et al., 1983) is a 20-item self report scale that assesses for A-State and A-Trait. State anxiety (A-State) is defined as a transitory emotional state that varies in intensity and fluctuates over time. Conversely, trait anxiety (A-Trait) denotes relatively stable individual differences in anxiety proneness and refers to a general tendency to respond with anxiety to perceived threats in the environment (Spielberger et al., 1983). The A-State scale requires participants to indicate the intensity of their feelings of anxiety at a particular moment in time; the A-Trait scale requires participants to describe how they generally feel in terms of the frequency with which they typically experience specific symptoms of anxiety. Given the purpose of this study, only aspects of A-Trait anxiety were explored; therefore, only the A-Trait scale was administered (i.e., STAI; Form Y2; Spielberger et al., 1983).

The STAI Form Y features high rates of content and construct validity (Spielberger & Vagg, 1984). The A-State scale has coefficients ranging from .86 to .94, while the A-Trait scale has coefficients ranging from .86 to .92 (Spielberger, Vagg, Barker, Donham, & Westberry, 1980). Predictably, only the A-Trait scale has high test-retest reliability (.73-.86), as the A-State is expected to vary across different stress situations. The T-Anxiety (Spielberger et al., 1983) has strong construct validity, as demonstrated by the significantly higher scores exhibited by neuropsychiatric patient groups, when compared to typical participants. The STAI has been shown to demonstrate an ability to discriminate between typical and psychiatric patients for whom anxiety is a major symptom (Spielberger et al., 1983).

**Results**

The current study assessed for potential transgenerational transmission of Holocaust trauma to grandchildren of Holocaust survivors. Prior to the main data analysis, a Levene’s test (Levene, 1960) was conducted to assess for homogeneity of the variance with respect to gender among the three experimental groups. The percentage of genders represented across the three subgroups was unequal, $F(2, 147) = 4.44$, $p < .05$. As a result, an independent samples t test was conducted in order to assess the effect of gender on the participants’ mean latency response (in seconds) for color-naming Holocaust-related stimuli on the Modified Stroop procedure. Overall, there was no significant difference between the response latencies exhibited by males ($M = 4.60, SD = .83$) and females ($M = 6.41, SD = .62, t(123) = -1.75, p > .05$). Moreover, a one-way analysis of variance (ANOVA) was conducted in order to analyze the impact of age on the participants’ response latency in color-naming the Holocaust-related Stroop stimulus card. The ANOVAs yielded no statistically significant differences among the three age groups, $F(2, 147) = 3.25, p > .05$. Finally, the potential impact of ethnicity on the participants’ response latency in color-naming the Holocaust-related stimuli was analyzed. The ANOVA revealed no significant differences among the ethnic groups, $F(2, 147) = 1.45, p > .05$. The lack of significant intergroup differences among the remaining measures rendered it unnecessary to further analyze any potential impact age, gender, or ethnicity may have had on the overall scores.

It was predicted that ultra-Orthodox participants, regardless of grandparent Holocaust survivorship status, would exhibit significantly longer response latencies (in seconds) for PTSD words consisting of Holocaust-related stimuli on the Modified Stroop procedure, as compared to response latencies for neutral stimuli. The hypothesis predicted no such difference among non-Jewish participants. The hypothesis was confirmed. A one-way analysis of variance confirmed the significant difference between response latencies in color-naming Holocaust-related stimuli, compared with the response latencies for color-naming neutral stimuli in ultra-Orthodox participants, $F(2, 147) = 7.29, p < .05$. In fact, ultra-Orthodox grandchildren of Holocaust survivors displayed significantly longer response latencies for color-naming Holocaust-related stimuli ($M = 7.14, SD = 6.63$), when compared to neutral stimuli ($M = 2.57, SD = 3.76, p < .05$). Similarly, ultra-Orthodox grandchildren of non-Holocaust survivors exhibited significantly increased response latencies when color-naming Holocaust-related stimuli ($M = 6.35, SD = 4.93$) as compared to neutral stimuli ($M = 2.45, SD = 2.89, p < .05$). Conversely, non-Jewish participants exhibited no significant difference in response latencies for color-naming Holocaust-related stimuli ($M = 2.68, SD = 6.05$) and neutral stimuli ($M = 1.61, SD = 3.36, p > .05$). Table 1 presents the analyses of participant mean differences in Stroop reaction times.

It was further predicted that compared to ultra-Orthodox grandchildren of non-Holocaust survivors, ultra-Orthodox grandchildren of Holocaust survivors would exhibit significantly longer response latencies (in seconds) for color-naming
Holocaust-related stimuli on the Modified Stroop procedure. The hypothesis was not confirmed. An independent samples t test revealed no statistical difference in overall response latencies between ultra-Orthodox grandchildren of Holocaust survivors and ultra-Orthodox grandchildren of non-Holocaust survivors, t(107) = .71, p > .05.

Moreover, it was predicted that ultra-Orthodox grandchildren of Holocaust survivors would score significantly higher on the Secondary Trauma Scale (Motta et al., 2001), the Impact of Events Scale-Revised (Weiss & Marmar, 1997), and the Trait Scale of the State-Trait Anxiety Inventory (Spielberger et al., 1983), as compared to the comparison groups. The hypothesis was not supported.

The overall F test indicated no significant differences in mean STS (Motta et al., 2001) scores among the three groups of participants, F(2, 147) = .45, p > .05. The mean secondary trauma score for grandchildren of Holocaust survivors (M = 28.84, SD = 8.99) did not differ significantly from that of ultra-Orthodox grandchildren of non-Holocaust survivors (M = 28.65, SD = 7.79, p > .05) or that of non-Jewish participants (M = 27.10, SD = 12.04, p > .05).

Moreover, comparisons between mean avoidance, hyperarousal, and, intrusive sores on the IES-R (Weiss & Marmar, 1997) were analyzed via three, one-way analyses of variance. The overall F tests conducted were statistically nonsignificant for avoidance, F(2, 147) = .22, p > .05, hyperarousal, F(2, 147) = 1.96, p > .05, and intrusion, F(2, 147) = .93, p > .05. The mean avoidance score for grandchildren of Holocaust survivors (M = 0.63, SD = 0.76) did not differ significantly from that of ultra-Orthodox grandchildren of non-Holocaust survivors (M = 0.54, SD = 0.63, p > .05) or non-Jewish participants (M = 0.65, SD = 1.14, p > .05). Similarly, grandchildren of Holocaust survivors did not differ in their hyperarousal subscale scores (M = .32, SD = .53), when compared to ultra-Orthodox grandchildren of non-Holocaust survivors (M = 0.26, SD = 0.43, p > .05), or non-Jewish participants (M = .53, SD = 1.04, p > .05). With respect to intrusion, there were no significant mean differences between grandchildren of Holocaust survivors (M = 0.47, SD = 0.47) and ultra-Orthodox grandchildren of non-Holocaust survivors (M = 0.57, SD = 0.61, p > .05) or non-Jewish participants (M = 0.67, SD = 0.70, p > .05).

Finally, analysis of the standardized trait anxiety (A-Trait) scores on the State Trait Anxiety Inventory (Spielberger et al., 1983) revealed no overall differences in mean trait anxiety scores across the three groups, F(2, 147) = 2.80, p > .05. Specifically, mean A-Trait scores of grandchildren of Holocaust survivors (M = 38.28, SD = 8.40) did not differ significantly from those of ultra-Orthodox grandchildren of non-Holocaust survivors (M = 39.51, SD = 8.26, p > .05), nor from those of non-Jewish participants (M = 35.27, SD = 9.63, p > .05). Though the means reported for the trait anxiety scales are based on raw scores, the analysis was repeated using the standardized trait anxiety (A-Trait) scores. The results were the same.

An additional analysis was conducted to further assess for symptoms of secondary trauma in grandchildren of Holocaust survivors. A one-way analysis of variance was conducted across the three groups in order to analyze the scores of those participants exhibiting high STS scores, i.e. above 37. The overall F test indicated a significant difference in high STS scores across the three groups, F(2, 14) = 6.15, p < .05. Interestingly, a greater number of grandchildren of Holocaust survivors (17.2%, n = 10) exhibited elevated levels of STS scores that exceeded its cutoff score (M = 44.30, SD = 7.30) when compared to ultra-Orthodox grandchildren of non-Holocaust survivors (7.8%, n = 4; M = 49.75, SD = 9.57) and non-Jewish participants (7.3%, n = 3; M = 63.00, SD = 9.17). Pearson’s chi-square test was conducted to assess whether the number of participants who exhibited high STS scores represented a significant portion of any of the three subgroups that comprised the study’s sample. There was a nonsignificant association between group membership status and high STS scores, χ²(26) = 30.03, p > .05.

### Table 1. Mean Differences in Stroop Reaction Times (in Seconds) by Third Generation Group.

<table>
<thead>
<tr>
<th></th>
<th>Ultra-Orthodox Holocaust Grandchildren</th>
<th>Ultra-Orthodox, Nonholocaust Grandchildren</th>
<th>Non-Jewish Grandchildren</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Diff ¹</td>
<td>SD</td>
<td>DF</td>
</tr>
<tr>
<td>Holocaust stimulus card vs. Neutral stimulus card</td>
<td>4.57</td>
<td>5.73</td>
<td>57</td>
</tr>
</tbody>
</table>

Note: Mean response times are calculated by subtracting response time to a given card from the control card. *Diff refers to the difference in the mean response times on the two stimulus cards being compared.
Discussion

The study examined the presence of Holocaust-related trauma characteristics in ultra-Orthodox grandchildren of Holocaust survivors. It is well documented that the variables of ultra-Orthodoxy and religiosity have had a compelling effect on some Holocaust survivors (Frankl, 1963) and an adverse effect on others (Wiesel, 1972). The obvious impact of ultra-Orthodoxy on the survivors’ phenomenological experiences solidified the inclusion of the variable of ultra-Orthodoxy in the investigation of transgenerational transmission of Holocaust trauma.

A latent form of transgenerational Holocaust trauma was confirmed in the study. Ultra-Orthodox grandchildren of Holocaust survivors and ultra-Orthodox grandchildren of non-Holocaust survivors were found to exhibit response latencies for color-naming Holocaust-related stimuli on the Modified Stroop procedure. The finding that residual trauma affects members of ultra-Orthodox participants, regardless of their grandparents’ Holocaust survivorship status, suggests that the residual psychological effects of the Holocaust has succeeded in effectively altering the collective psyche of the ultra-Orthodox community. The fact that ultra-Orthodox grandchildren, independent of their grandparents’ war experiences, exhibited increased levels of Holocaust trauma is not unreasonable given the collective conscious of ultra-Orthodox communities and the sensitive nature of the Holocaust. Moreover, ultra-Orthodox communities seek to preserve and restore the past in the present (Heilman, 1992, 2006), and in so doing, may inadvertently perpetuate the memories of the Holocaust in an effort to preserve its victims.

Interestingly, past findings (Kassai & Motta, 2006) indicate an equal level of latent Holocaust trauma in modern-Orthodox grandchildren of Holocaust survivors, modern-Orthodox American-born grandparents, and non-Jewish grandchildren of immigrants. When assessed with the modified Stroop procedure, the three groups exhibited increased response latency for color-naming Holocaust-related stimuli. Kassai and Motta (2006) speculated that the delay in response times were due to the increased level of Holocaust exposure n the post-Holocaust era, i.e., the influence of the Holocaust in the movie industry and other media outlets. The implication of the media’s role in perpetuating Holocaust exposure further clarifies the role of Jewish identity, specifically ultra-Orthodox identity, in transmitting Holocaust-trauma in ultra-Orthodox communities. Ultra-Orthodox communities attempt to stem the flow of outside influences, particularly those of media outlets (Heilman, 1992, 2006). Thus, ultra-Orthodox participants’ response latency for color-naming Holocaust-related stimuli appears to result from the trauma of the Holocaust itself, rather than that of the media’s perpetuation of Holocaust-material exposure.

Overall, ultra-Orthodox grandchildren of Holocaust survivors did not exhibit significantly higher levels of secondary trauma symptoms on STS (Motta et al., 2001), the IES-R (Weiss & Marmar, 1997), and the A-Trait scale of the STAI (Spielberger et al., 1983). The finding is not surprising given the subtle nature of secondary trauma assessment. Secondary trauma symptoms are similar to, but not as severe as, those experienced in PTSD (Motta et al., 1999; Suozzi & Motta, 2004). Thus, it would stand to reason that a more precise form of secondary trauma assessment, e.g., the Modified Stroop procedure, would detect the presence of such symptoms, while less precise measures, e.g., the STS (Motta et al., 2001), the IES-R (Weiss & Marmar, 1997), and the STAI (Spielberger et al., 1983), would not.

Moreover, it must be noted that a substantially high percentage of ultra-Orthodox grandchildren of Holocaust survivors (17%, n = 10) exhibited STS scores that exceeded its cut-off score. Though the sample does not represent a significant percentage of ultra-Orthodox grandchildren of Holocaust survivors, the increased level of high STS scores presents further evidence of their propensity to develop symptoms of secondary trauma.

It appears that the transfer of Holocaust trauma is not generated by the experience of being a grandchild of Holocaust survivors, but rather from the experience of being a member of the ultra-Orthodox community. Ultra-Orthodox communities’ cognitive internalization of the Holocaust resembles the trauma victim’s tendency to keep the trauma in the forefront of consciousness, and in doing so, reinforce and guard against future danger. The Holocaust has assimilated itself into the cognitive schema of the ultra-Orthodox community, a factor that must be considered in the treatment of anxiety-related disorders in the population.

Methodological Strengths and Limitations

The study has advanced the reserve of Holocaust-related empirical data through its use of improved sampling procedures, an increased sample size, a well-matched control group, and, most importantly, the utilization of psychometrically reliable and valid measures of secondary trauma, i.e., the Modified Stroop procedure, a strong measure of current levels of intrusive symptoms (McNally, 1995) and the STS (Motta et al., 2001). However, several weaknesses in the study cannot be ignored. Participants were volunteers; thus, it is possible that many of their item responses on the self-report measures, most of which were in the normal range, were understated due to volunteer bias and social desirability effects. Moreover, the study did not address the plausible link between participant educational background and the transfer of trauma to the third generation. Educational background has been shown to mediate the severity of stress levels and impact coping styles in victimized populations (Ford, 2012), a relationship that could not be explored in the study.
Furthermore, since it was not possible to locate a sample of ultra-Orthodox grandchildre whose four grandparents experienced the Holocaust, the study adopted the criterion used by a previous study (Kassai & Motta, 2006), and required that a participant have two or more grandparent Holocaust survivors. The lack of significant differences in secondary trauma symptoms exhibited by ultra-Orthodox grandchildren of Holocaust survivors and ultra-Orthodox grandchildren of non-Holocaust survivors may be, at least in part, due to the diluted PTSD impact which may have resulted from having one or more grandparents who did not suffer the trauma of the Holocaust.

Finally, the fact that so many Holocaust survivors have passed away in the 65 years since the Holocaust may have further diluted the impact their Holocaust survival experiences may have had on their grandchildren. Though the demographic questionnaire probed for the amount of time spent with all four grandparents, the question did not specify past or current time spent with the grandparents. Thus, it was not possible to obtain an estimate of current time spent with the grandparents. Therefore, it is possible that, despite having spent time with their Holocaust survivor grandparents, ultra-Orthodox grandchildren of Holocaust survivors’ levels of transgenerational transmission of Holocaust trauma may have lessened due to their grandparents’ death and their lack of contact with their grandparents.

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References


