

Financial exploitation and mental health among Holocaust survivors: the moderating role of posttraumatic symptoms

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ABSTRACT

Objectives: We examined whether anxiety and depressive symptoms associated with self-reported history of financial exploitation (FE) are more pronounced among Holocaust survivors (HS), especially those with high-level posttraumatic stress disorder (PTSD) symptoms.

Design: Self-report questionnaires completed online via Qualtrics.

Setting: An online-based survey conducted in Israel.

Participants: A community-based cohort of 137 Israeli older adults born prior to 1945 were included in the study sample. HS ($n = 61$) were participants who reported living in a European country occupied or dominated by Nazi or pro-Nazi regimes between 1939 and 1945. Groups were further subdivided into survivors with low or high levels of PTSD symptoms (≥ 31 on the PTSD Checklist; PCL-5).

Measurements: Questionnaires assessed FE history, posttraumatic symptoms (PCL-5), depressive symptoms (PHQ-9), and anxiety (GAD-7). Age, education, self-rated health, and non-Holocaust lifetime adversity were also measured and included as covariates.

Results: Hierarchical linear regression models revealed that relationships between FE and depressive and anxiety symptoms were significant only among survivors ($p = 0.005$ and $p = 0.008$, respectively). The interaction between PTSD symptom level group and FE was also significant for both depressive ($p = 0.007$) and anxiety ($p = 0.012$) symptoms, such that survivors with PTSD who reported FE had significantly greater symptoms of depression and anxiety compared to all other groups.

Conclusions: Findings suggest that the experience of FE may be particularly impactful among survivors who continue to struggle with posttraumatic symptoms related to the Holocaust. Future studies may consider examining whether findings are relevant to other groups with PTSD.

Key words: financial exploitation, HS, posttraumatic stress disorder, cumulative trauma, anxiety, depression

Introduction

Financial exploitation (FE) of older adults is associated with devastating emotional, health, and economic consequences (Burnett *et al.*, 2016; Ganzini *et al.*, 1990; Lavery *et al.*, 2020). For example, studies have reported increased depressive, anxiety, and posttraumatic stress symptoms among older adults who have experienced FE (Lavery *et al.*, 2020; Lichtenberg *et al.*, 2013; Weissberger *et al.*, 2020; Weissberger, 2022). The

negative mental health effects of FE may be particularly impactful in Holocaust survivors (HS), as the experience of FE may be reminiscent of conditions that existed during the Holocaust (Shmotkin, 2003). However, the impact of FE on HS has not been studied. Examining the psychological correlates of FE in HS will elucidate the cumulative effects of trauma and financial victimization on late-life well-being.

Prevalence studies from different parts of the world (Acierno *et al.*, 2010; Burnes *et al.*, 2017; Lowenstein *et al.*, 2009) indicate that approximately 1 in 20 adults over the age of 60 will experience FE. Psychosocial factors such as depression, anxiety, and loneliness have been identified as risk factors

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(Lichtenberg *et al.*, 2013; Lichtenberg *et al.*, 2016). In one study (Lichtenberg *et al.*, 2013), fraud prevalence increased by 226% in those with both high depression and low social-status fulfillment, suggesting that the combination of the two may be particularly dangerous. These risk factors may be especially relevant to HS, many of whom lost entire families in the Holocaust and experience depression (Trappler *et al.*, 2007), anxiety (Solomon and Prager, 1992), loneliness (Palgi *et al.*, 2021), and posttraumatic stress disorder (PTSD; Shmotkin *et al.*, 2003) many years later.

According to cumulative advantage/disadvantage theory (Dannefer, 2003), adverse experiences during childhood may increase the risk of different types of elder mistreatment, including FE (Easton and Kong, 2021). The theory posits that inequalities across cohorts of individuals develop systematically over time via the interaction of complex forces (Dannefer, 2003). With regard to HS, experiences of the Holocaust during childhood may undermine various psychosocial dimensions later in life that are associated with FE risk (e.g. social satisfaction, mental health; Easton and Kong, 2021), thereby increasing the likelihood of experiencing FE. Thus, it is possible that the unique experiences of HS both during the Holocaust and after, increase their vulnerability to FE in older age.

While symptoms of depression and anxiety have been demonstrated to increase FE risk (Lichtenberg *et al.*, 2013; Lichtenberg *et al.*, 2016), they have also been reported to result from a FE experience (Acierno *et al.*, 2019; Ganzini *et al.*, 1990). Mental health consequences of FE may be particularly impactful in HS, as the FE experience may bring to the forefront certain memories and experiences of the Holocaust. Although survivors living nowadays were young children at the time of the Holocaust, many directly witnessed the unlawful taking of their family's property, funds, and assets (Beker, 2001). As children, they experienced firsthand the consequences of these financial crimes, including extreme hunger, untreated illnesses, and dire living conditions (Hercshlag-Elkayam *et al.*, 2003). Such consequences endured for years following the end of the Holocaust as survivors rebuilt their lives in light of the unsurmountable losses that they suffered. As such, for some HS, FE may trigger reminders of such losses, further exacerbating psychological distress.

A meta-analysis showed that relative to comparisons (Jews not directly exposed to the Holocaust), HS report more PTSD symptoms and other psychopathological indications (Barel *et al.*, 2010). However, research findings among HS are mixed, with some studies finding survivors to be at heightened risk for developing both mental (Levine

et al., 2016) and physical morbidity (Keinan-Boker *et al.*, 2009), and others concluding that survivors do not suffer from increased negative mental and physical health outcomes (e.g. premature mortality, Ayalon and Covinsky, 2007). Variability in research findings may be at least partially explained by contextual factors and experiences during the lifespan (Shmotkin *et al.*, 2011b). For example, it is possible that most survivors are resilient, yet their sensitivity is triggered under stressful conditions that reverberate the original trauma. However, other studies suggest a degree of resilience among HS vis-à-vis post-Holocaust adversity (Kohn *et al.*, 2014; Shrira *et al.*, 2010). One possibility is that the negative effects of stressful events such as FE may be particularly salient amongst HS who have made unresolved attempts to cope with trauma, such as those with PTSD symptoms. This notion is consistent with the crisis resolution perspective regarding recurrent exposure to extreme stress. According to this perspective, previous exposure to extreme stress can either enhance or reduce one's capacity to cope depending on whether or not the initial traumatic experience was resolved (Hantman and Solomon, 2007). Support for this perspective was found in a study by Hantman and Solomon (2007), who demonstrated that HS who coped less well in the aftermath of the Holocaust were more likely to exhibit psychiatric symptomatology in response to cancer in comparison to other HS. In the context of the present study, PTSD symptoms may moderate the impact of FE on psychological well-being in HS.

In light of the aforementioned research, the goal of the present study was to examine the mental health correlates of FE in HS currently living in Israel. Although important in and of itself, the value of such an examination spans beyond understanding the unique experiences of HS. More broadly, it provides important insights into how individuals with PTSD experience FE, and whether a history of trauma may exacerbate psychological distress associated with FE. To the best of our knowledge, such an examination has not been done thus far. A first aim was to examine the relationship between FE and depressive and anxious symptomatology among survivors and non-survivors. We predicted that the relationship between FE and depressive and anxious symptomatology would be stronger among HS relative to comparisons (those who were not directly exposed to the Holocaust). A second aim was to examine if the stronger relationship between FE and depressive/anxious symptomatology is driven by symptoms of PTSD. We predicted that the relationship between FE and depressive/anxious symptomatology would be strongest among HS with high-level PTSD symptoms.

Methods

Participants and procedure

Data were collected online from a convenience sample of 185 Israeli older adults between October 2022 and February 2023. Recruitment criteria included being born before 1945, being Jewish and of European descent, being Hebrew-speaking, and having no known cognitive or neurological impairments. Based on these criteria, seven participants were excluded for not being of European descent and 25 were excluded for not having completed the PTSD checklist in its entirety. An additional 16 comparison participants were excluded for meeting criteria for PTSD (score of 31 or more on the PTSD checklist; Forkus *et al.*, 2022), resulting in a final sample of 137 participants (M age = 83.64, SD = 5.13, range = 78–98; 50.7% female).

HS (n = 61) consisted of participants who reported living in a European country occupied or dominated by the Nazi or pro-Nazi regimes between the years 1939 and 1945. HS were born in Poland (26.2%), Romania (19.7%), Hungary (8.2%), Germany (8.2%), France (4.9%), and various other European nations. Comparisons (n = 76) included participants who reported that they had not been under Nazi occupation or domination during WWII.

Participants were recruited by research assistants using a snowball sampling method in which participants informed research assistants about other potential participants to contact. This method allowed study researchers to maximize access to this difficult study population. Participants were provided with a Qualtrics link to complete the consent form and study questionnaires. The study received ethical approval by the IRB of Bar-Ilan University.

Materials

HISTORY OF FINANCIAL EXPLOITATION (FE)

Participants were asked two questions regarding perceived history of FE: (1) “After the age of 50, was there a situation in which you felt you were taken advantage of financially?” and (2) “After the age of 50, did someone you know feel that you were taken advantage of financially?” Participants who responded affirmatively to either of the two questions were included in the perceived FE group. Those who responded “no” to both of the questions were included in the non-FE group.

ANXIETY SYMPTOMS

Anxious symptomatology was assessed using the seven-item Generalized Anxiety Disorder scale (GAD-7; Spitzer *et al.*, 2006). The measure assesses

anxiety symptoms over the past two weeks on a scale of 0 (not at all) to 3 (nearly every day). Scores are summed, with higher scores indicating greater symptoms of anxiety. Cronbach’s alpha for this measure in the current study was 0.89.

DEPRESSIVE SYMPTOMS

Depressive symptomatology was assessed using the 9-item Patient Health Questionnaire (PHQ-9; Kroenke *et al.*, 2001). The measure assesses depressive symptoms over the past two weeks on a scale of 0 (not at all) to 3 (nearly every day). Scores are summed, with higher scores indicating greater symptoms of depression. Cronbach’s alpha for this measure in the current study was 0.83.

POST-TRAUMATIC STRESS DISORDER (PTSD) SYMPTOMS

The PTSD Checklist (PCL-5; Weathers *et al.*, 2013) adapted for the DSM-5 (American Psychiatric Association, 2013) assessed posttraumatic stress symptoms. The 20-item questionnaire asks participants to think of the most stressful event they have experienced and rate the degree to which symptoms have affected them over the past month according to a 5-point Likert scale ranging from 0 (not at all bothered) to 4 (extremely bothered). Participants who were HS were asked specifically to respond to questions regarding the Holocaust. Responses for each item are summed with scores ranging from 0 to 80. Higher scores indicate greater symptoms of PTSD. For the purposes of analyses, we subdivided the sample into participants with a high-level or low-level of PTSD symptoms based on a cutoff score of 31 on the PCL-5 (Forkus *et al.*, 2022). Comparisons with a score of 31 or greater on the PCL-5 were excluded from the study (n = 16) such that the comparison group did not have a clinical level of posttraumatic symptoms. HS were subdivided into those who scored 31 or more on the PCL-5 (n = 11) and those who scored less than 31 on the PCL-5 (n = 50). Thus, a total of three groups were considered for Aim 2 of the study: comparisons (with low-level PTSD symptoms), HS with low-level PTSD symptoms, and HS with high-level PTSD symptoms.

COVARIATES

Age, sex (male = 0, female = 1), years of education based on a scale ranging from 0 (no formal education) to 8 (doctoral degree), self-rated health based on a scale range from 1 (not at all good) to 5 (very good), and non-Holocaust adversity were included in all statistical models. Non-Holocaust adversity was calculated based on responses to five items of the Trauma Life Events Questionnaire

Table 1. Participant characteristics and scores on study measures separately by survivor group

	A. COMPARISONS (<i>N</i> = 76)		B. HS (<i>N</i> = 61)		C. GROUP DIFFERENCES
	<i>M</i> (RANGE)	<i>SD</i>	<i>M</i> (RANGE)	<i>SD</i>	
Age	82.66 (78–98)	4.47	84.87 (78–97)	5.64	$t(135) = -2.56, p = 0.012$
Sex ^a (% female)	52.00%	–	49.20%	–	n.s.
Education	4.24 (1–8)	1.74	3.51 (0–8)	2.27	$t(135) = 2.13, p = 0.035$
Self-rated health	3.18 (1–5)	1.03	2.69 (1–5)	1.07	$t(135) = 2.75, p = 0.007$
Adversity	0.55 (0–3)	0.72	0.93 (0–3)	1.00	$t(135) = -2.60, p = 0.010$
PCL-5 scores (past month)	5.26 (0–30)	6.53	15.66 (0–67)	17.50	$t(135) = -4.78, p < 0.001$
Financial exploitation (% yes)	23.70%	–	29.50%	–	n.s.
PHQ-9 sum ^b	3.63 (0–13)	3.54	5.44 (0–24)	5.20	$t(131) = -2.38, p = 0.019$
GAD-7 sum ^c	2.76 (0–19)	3.77	4.37 (0–20)	4.41	$t(129) = -2.25, p = 0.026$

Note: HS = HS; *M* = mean, *SD* = standard deviation; PCL-5 = The PTSD Checklist; PHQ-9 = 9-item Patient Health Questionnaire; GAD-7 = 7-item Generalized Anxiety Disorder scale; n.s. = non-significant; column (c) reflects independent samples *t*-tests or chi-square tests of independence for group differences in sex breakdown and history of financial exploitation.

^a*n* = 75 for comparisons.

^b*n* = 71 for comparisons; *n* = 60 for HS.

^c*n* = 57 for HS.

(Kubany *et al.*, 2000) that were chosen because they are events unrelated to the Holocaust. The five items included exposure to natural disasters, car accidents, participation in war activities or a battle, rocket fire or terror attacks, and miscarriages. Participants rated the number of times each of these events occurred in their lifetime. Any event that occurred at least once was counted such that the final adversity score ranged from 0 (none of the five events occurred) to 5 (all five events occurred).

Data analysis

Analyses were conducted using SPSS-28 software. Interactions were probed using Model 1 of the PROCESS 4.2 macro (Hayes, 2018). Four hierarchical linear regression models (HLM) were conducted to examine study hypotheses regarding anxiety and depressive symptoms. For Aim 1, the first step of each HLM model included the covariates of age, sex, education, self-rated health, and non-Holocaust adversity. The second step included main effect of Holocaust group (comparison vs. survivors), and the third step added FE group (non-FE, FE). The fourth step added the Holocaust group * FE group interaction term.

For Aim 2, the first step of each HLM included the same covariates of age, sex, education, self-rated health, and non-Holocaust adversity. In the second step, we used Effect coding, an alternative coding method for multi-categorical variables (Hayes and Montoya, 2017). Two dichotomous dummy variables were calculated: the first represents differences between comparisons and HS with low-level PTSD. The second represents the differences between

comparisons and HS with high-level PTSD. The third step added FE group (non-FE, FE), and the fourth step added the two interaction terms between the dummy variables and FE.

An a-priori power analysis for detecting an effect size of 0.10, power of 0.80, and 10 predictors yielded a required sample size of 125, indicating that the current sample was sufficient for examining the study models. Potential multicollinearity between the predicting variables was rejected, as the values of tolerance and variance inflation factor (VIF) ranged between 0.40 and 0.99 and 1.01 and 2.08, respectively.

Results

Sample characteristics

CHARACTERISTICS OF HS

Sample characteristics and scores across study measures separately by Holocaust group are reported in Table 1. Relative to comparisons, HS were older ($p = 0.012$) and less educated ($p = 0.035$) and reported poorer self-rated health ($p = 0.007$), greater non-Holocaust adversity ($p = 0.010$), more depressive symptoms ($p = 0.019$), and more anxiety symptoms ($p = 0.026$). They also significantly differed in terms of PCL-5 scores ($p < 0.001$) as a result of our decision to exclude comparisons with PCL-5 scores of 31 or more. Groups did not differ with regard to sex breakdown ($p = 0.74$). Frequency of self-reported FE experiences also did not differ ($p = 0.41$; 29.5% in survivors vs. 23.7% in comparisons). HS also reported on various experiences

related to the Holocaust. These are summarized in a supplementary file.

CHARACTERISTICS OF PTSD GROUPS

Sample characteristics and scores across study measures of interest separately by PTSD group are reported in Table 2. One-way ANOVAs, Kruskal–Wallis tests (in the case of unequal variances between groups), or Chi-square tests of independence were conducted to examine group differences across study measures. Post hoc Tukey tests or pairwise comparisons (for Kruskal–Wallis tests) examined between-group differences. Results of one-way ANOVAs indicated that groups significantly differed with regard to age ($p = 0.01$) and self-rated health ($p < 0.001$). Kruskal–Wallis tests revealed that groups also differed with regards to non-Holocaust adversity ($p = 0.023$; mean rank for comparisons = 62.98; HS with low-level PTSD = 72.81; HS with high-level PTSD = 93.27), PCL-5 scores ($p < 0.001$; mean rank for comparisons = 59.81; HS with low-level PTSD = 69.11; HS with high-level PTSD = 132.00), depressive symptoms ($p = 0.013$; mean rank for comparisons = 61.32; HS with low-level PTSD = 69.16; HS with high-level PTSD = 97.23), and anxiety symptoms ($p < 0.001$; mean rank for comparisons = 58.22; HS with low-level PTSD = 69.07; HS with high-level PTSD = 102.55). Results of post hoc between group comparisons can be viewed in Table 2. Groups did not differ with regard to sex breakdown ($p = 0.07$) or education scores ($p = 0.11$). With regard to history of perceived FE, groups did not differ ($p = 0.31$). Specifically, 23.7% of the comparison group and 26.0% of the HS with low-level PTSD symptoms group reported a perceived FE experience, while 45.5% of HS with high-level PTSD symptoms group reported a perceived FE experience.

HS with low- and high-level PTSD were compared with regard to reported frequency of three difficult WWII conditions (i.e. having been in a concentration or extermination camp, labor camp, or living in a ghetto). In this regard, groups did not differ significantly ($p = 0.26$). Specifically, 45.5% of HS with high-level PTSD reported an occurrence of at least one of these three conditions compared to 28.0% of HS with low-level PTSD.

Groups were also compared with regard to the number of traumatic events related to the Holocaust endorsed (Shrira *et al.*, 2019). In this regard, groups did not differ significantly ($p = 0.274$). Specifically, 100% of survivors with high-level PTSD reported having experienced at least one or more of seven traumatic events related to the Holocaust compared to 90.0% of survivors with low-level PTSD. When examining the frequency of each traumatic event separately, differences arose with regard to

experiencing hunger (100% HS with high-level PTSD, 66.7% HS with low-level PTSD; $\chi^2(1) = 5.03$; $p = 0.025$). Exposure to difficult living conditions (100% of HS with high-level PTSD; 76.0% of HS with low-level PTSD; $\chi^2(1) = 3.29$; $p = 0.070$), exposure to abuse (81.8% HS with high-level PTSD, 51.0% HS with low-level PTSD; $\chi^2(1) = 3.47$; $p = 0.062$), and injury to a family member (90.9% of HS with high-level PTSD, 64.6% of HS with low-level PTSD; $\chi^2(1) = 2.93$; $p = 0.087$) did not differ significantly between the groups. Differences did not arise with regard to personal injury, loss of a family member other than a parent, and being sickened by disease (all $ps \geq 0.105$).

Regression models examining differences between HS and comparisons

The regression analysis examining the effects of Holocaust group (comparisons vs. HS) and FE group (non-FE vs. FE) on depressive symptoms demonstrated that, after adjusting for covariates (Table 3a, Step 1), there were no main effects of Holocaust group (Table 3a, Step 2) or FE group (Table 3a, Step 3). The Holocaust group by FE group interaction term demonstrated a significant effect on depressive symptoms (Table 3a, Step 4). The interaction was further probed using the PROCESS 4.2 macro for SPSS (Hayes, 2018). This revealed that the effect of FE group on depressive symptoms was significant only in the Holocaust survivor group ($b = 3.43$, $SE = 1.21$, $p = 0.005$), such that those HS who reported a perceived experience of FE had significantly higher depressive symptoms than those who denied an experience of FE (Supplementary Figure 1a).

We also examined the effects of Holocaust group and FE group on anxiety symptoms. This demonstrated that, after adjusting for covariates (Table 3b, Step 1), there were no main effects of Holocaust group (Table 3b, Step 2) or FE group (Table 3b, Step 3). The Holocaust group by FE group interaction term demonstrated a significant effect on anxiety symptoms (Table 3a, Step 4). Probing the interaction using PROCESS revealed that the effect of FE group on anxiety symptoms was significant only in the HS group ($b = 3.08$, $SE = 1.14$, $p = 0.008$), such that those HS who reported a perceived experience of FE had significantly higher anxiety symptoms than those who denied an experience of FE (Supplementary Figure 1b).

Regression models examining differences between PTSD groups

To examine whether the effect of perceived FE on anxiety and depressive symptoms in HS is driven by

Table 2. Participant characteristics and scores on study measures separately by PTSD group

	A. COMPARISONS (<i>N</i> = 76)		B. HS WITH LOW-LEVEL PTSD (<i>N</i> = 50)		C. HS WITH HIGH- LEVEL PTSD (<i>N</i> = 11)		D. GROUP DIFFERENCES ^d
	<i>M</i> (RANGE)	<i>SD</i>	<i>M</i> (RANGE)	<i>SD</i>	<i>M</i> (RANGE)	<i>SD</i>	
Age	82.66 (78–98)	4.47	84.38 (78–97)	5.50	87.09 (78–97)	6.04	$F(2,134) = 4.64, p = 0.01; c > a$
Sex ^a (% female)	52.0%	–	56.0%	–	18.2%	–	n.s.
Education	4.24 (1–8)	1.74	3.54 (0–8)	2.24	3.36 (0–7)	2.50	n.s.
Self-rated health	3.18 (1–5)	1.03	2.86 (1–5)	1.01	1.91 (1–4)	1.04	$F(2, 134) = 7.86, p < 0.001; a > c; b > c$
Non-Holocaust adversity	0.55 (0–3)	0.72	0.82 (0–3)	0.92	1.45 (0–3)	1.21	$H(2) = 7.56, p = 0.023; a < c$
PCL-5 scores (past month)	5.26 (0–30)	6.53	9.12 (0–30)	10.51	45.36 (31–67)	3.17	$H(2) = 32.64, p < 0.001; a < c; b < c$
Financial exploitation (% yes)	23.7%	–	26.0%	–	45.5%	–	n.s.
PHQ-9 sum ^b	3.63 (0–13)	3.54	4.30 (0–17)	3.69	10.18 (0–24)	7.70	$H(2) = 8.68, p = 0.013; a < c$
GAD-7 sum ^c	2.76 (0–19)	3.77	3.29 (0–10)	2.97	9.18 (0–20)	6.43	$H(2) = 13.89, p < 0.001; a < c; b < c$

Note: PTSD = posttraumatic stress disorder; HS = HS; *M* = mean; *SD* = standard deviation; PCL-5 = The PTSD Checklist; PHQ-9 = 9-item Patient Health Questionnaire; GAD-7 = 7-item Generalized Anxiety Disorder scale; n.s. = non-significant; column (c) reflects one-way ANOVAs and post hoc Tukey tests to examine between group differences, or chi-square tests of independence for group differences in sex breakdown and history of financial exploitation.

^a *n* = 75 for comparisons.

^b *n* = 46 for HS with low-level PTSD.

^c *n* = 71 for comparisons; *n* = 49 for HS with high-level PTSD.

^d Group differences were examined using one-way ANOVAs, Kruskal–Wallis tests, or Chi-square tests of independence.

Table 3. Hierarchical linear regression model examining the effect of FE group, Holocaust survivor (HS) group, and their interaction on depressive (a) and anxiety (b) symptoms. Step 1 included only covariates, Step 2 entered the main effect of HS group, Step 3 added FE group, and Step 4 entered the interaction term of HS group * FE group

	A. PHQ-9						B. GAD-7					
	R^2_{ADJ}	<i>B</i>	SEM _{<i>B</i>}	β	<i>T</i>	<i>P</i> -VALUE	R^2_{ADJ}	<i>B</i>	SEM _{<i>B</i>}	β	<i>T</i>	<i>P</i> -VALUE
Step 1	0.178						0.121					
Age		0.080	0.072	0.094	1.105	0.271		0.161	0.071	0.197	2.275	0.025
Sex		0.421	0.700	0.048	0.602	0.548		-0.564	0.685	-0.068	-0.824	0.412
Education		-0.369	0.187	-0.171	-1.978	0.050		-0.233	0.183	-0.112	-1.274	0.205
Non-Holocaust Adversity		-0.142	0.404	-0.028	-0.352	0.726		0.280	0.392	0.059	0.715	0.476
Self-rated health		-1.385	0.339	-0.339	-4.082	<0.001		-0.948	0.335	-0.240	-2.835	0.005
Step 2	0.178						0.117					
Age		0.066	0.073	0.077	0.896	0.372		0.153	0.072	0.187	2.110	0.037
Sex		0.435	0.699	0.050	0.622	0.535		-0.549	0.687	-0.066	-0.798	0.426
Education		-0.358	0.187	-0.166	-1.916	0.058		-0.225	0.184	-0.108	-1.221	0.224
Non-Holocaust Adversity		-0.244	0.415	-0.048	-0.588	0.558		0.224	0.402	0.047	0.556	0.579
Self-rated health		-1.323	0.344	-0.324	-3.843	<0.001		-0.905	0.342	-0.229	-2.644	0.009
HS group (HS = 1)		0.803	0.758	0.091	1.058	0.292		0.473	0.744	0.057	0.636	0.526
Step 3	0.181						0.127					
Age		0.073	0.074	0.086	0.998	0.320		0.161	0.072	0.196	2.226	0.028
Sex		0.616	0.716	0.070	0.861	0.391		-0.290	0.703	-0.035	-0.413	0.681
Education		-0.319	0.189	-0.148	-1.683	0.095		-0.172	0.186	-0.083	-0.923	0.358
Non-Holocaust Adversity		-0.173	0.419	-0.034	-0.413	0.680		0.330	0.406	0.070	0.814	0.417
Self-rated health		-1.279	0.346	-0.313	-3.699	<0.001		-0.830	0.344	-0.210	-2.417	0.017
HS group (HS = 1)		0.772	0.758	0.087	1.019	0.310		0.443	0.740	0.054	0.599	0.550
FE group (FE = 1)		0.979	0.842	0.098	1.163	0.247		1.270	0.812	0.138	1.563	0.121
Step 4	0.223						0.155					
Age		0.095	0.072	0.111	1.312	0.192		0.178	0.071	0.218	2.496	0.014
Sex		0.464	0.699	0.053	0.663	0.509		-0.422	0.694	-0.051	-0.608	0.544
Education		-0.266	0.186	-0.123	-1.431	0.155		-0.132	0.184	-0.063	-0.716	0.475
Non-Holocaust Adversity		-0.151	0.408	-0.030	-0.371	0.712		0.357	0.400	0.076	0.893	0.373
Self-rated health		-1.155	0.340	-0.283	-3.397	<0.001		-0.717	0.342	-0.181	-2.095	0.038
HS group (HS = 1)		-0.352	0.842	-0.040	-0.418	0.677		-0.485	0.839	-0.059	-0.578	0.565
FE group (FE = 1)		-0.969	1.080	-0.097	-0.897	0.372		-0.332	1.076	-0.036	-0.308	0.759
HS group * FE group		4.398	1.587	0.327	2.771	0.006		3.411	1.534	0.286	2.224	0.028

Note: PHQ-9 = 9-item Patient Health Questionnaire; GAD-7 = 7-item Generalized Anxiety Disorder scale; *b* = unstandardized regression coefficient; SEM_{*b*} = standard error of the unstandardized regression coefficient; HS = HS; FE = financial exploitation.

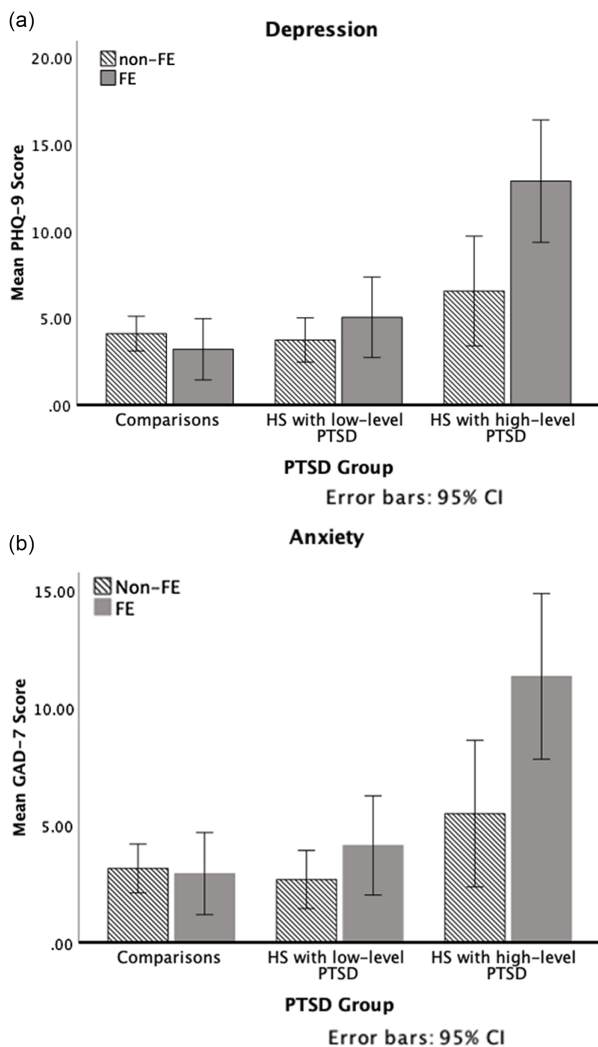


Figure 1. Mean values of depressive symptoms (a) and anxiety symptoms (b) for comparisons, HS (HS) with low-level PTSD, and HS with high-level PTSD with or without a history of FE. Error bars reflect 95% confidence intervals.

PTSD symptoms, we conducted two additional regression models. These models examined the main effects of FE group (FE, non-FE) and PTSD group (comparisons, HS with low-level PTSD, and HS with high-level PTSD) on anxiety and depressive symptoms, and whether PTSD group interacted with FE group to predict symptoms. With regard to depressive symptoms, after adjusting for covariates (Table 4a, Step 1), main effects of PTSD group were found (Table 4a, Step 2), but there was no main effect of FE group (Table 4a, Step 3). The interaction between PTSD group (comparisons vs. HS with high-level PTSD) and FE group was significant (Table 4a, Step 4). Further probing of the significant interaction using PROCESS revealed that the effect of FE group on depressive symptoms was only significant for HS with high-level PTSD ($b = 6.35$, $SE = 2.31$, $p = 0.007$), such that HS with

high-level PTSD who reported a perceived FE experience had significantly greater symptoms of depression compared to all other groups (Figure 1a).

With regard to anxiety symptoms, after adjusting for covariates (Table 4b, Step 1), there were main effects of PTSD group on anxiety symptoms (Table 4b, Step 2), but no main effect of FE group (Table 4b, Step 3). The interaction between PTSD group (comparisons vs. survivors with high-level PTSD) and FE group was significant (Table 4b, Step 4). Probing of the interaction using PROCESS revealed that the effect of FE group on anxiety symptoms was only significant for HS with high-level PTSD ($b = 5.86$, $SE = 2.29$, $p = 0.012$), such that HS with high-level PTSD who reported a perceived FE experience had significantly greater symptoms of anxiety compared to all other groups (Figure 1b).

Discussion

This cross-sectional study examined the mental health correlates of FE among HS. Consistent with our first hypothesis, there was a significant interaction of FE and survivor group, such that the effect of FE on anxiety and depressive symptoms was significant only for HS. To interpret the effect size, we standardized the GAD-7 and PHQ-9 scores and re-ran the regression analyses. This revealed that the effect of FE on GAD-7 and PHQ-9 scores was especially strong in HS. Specifically, within the HS group, there was a 0.78 standard deviation increase in scores on the PHQ-9 and a 0.74 standard deviation increase in scores on the GAD-7 when comparing those who did not experience FE to those who did. To investigate whether PTSD symptoms may be driving this effect, we further examined whether the strength of the association between FE and mental health symptoms differs among HS with low- and high-level PTSD symptoms based on well-established cutoffs (Forkus *et al.*, 2022). Consistent with our second hypothesis, we found that the relationship between FE and anxiety and depressive symptoms was only significant among HS with high-level PTSD symptoms. Notably, the effect of FE on PHQ-9 and GAD-7 scores was much stronger for HS with high-level PTSD. Specifically, within this subgroup (HS with high-level PTSD), there was a 1.44 standard deviation increase in PHQ-9 scores and a 1.42 standard deviation increase in GAD-7 scores when comparing those who did not experience FE to those who did.

Findings suggest that HS are especially vulnerable to the negative effects of FE on mental health. Research indicates that the experience of FE can be

Table 4. Hierarchical linear regression model examining the effect of FE group, PTSD group (comparisons, survivors with low-level PTSD, and survivors with high-level PTSD), and their interaction on depressive (a) and anxiety (b) symptoms. Step 1 included only covariates, Step 2 entered the main effects of PTSD group, Step 3 added FE group, and Step 4 entered the interaction terms of PTSD group * FE group

	A. PHQ-9						B. GAD-7					
	R^2_{ADJ}	<i>B</i>	SEM_ <i>B</i>	β	<i>T</i>	<i>P</i> -VALUE	R^2_{ADJ}	<i>B</i>	SEM_ <i>B</i>	β	<i>T</i>	<i>P</i> -VALUE
Step 1	0.178						0.121					
Age		0.080	0.072	0.094	1.105	0.271		0.161	0.071	0.197	2.275	0.025
Sex		0.421	0.700	0.048	0.602	0.548		-0.564	0.685	-0.068	-0.824	0.412
Education		-0.369	0.187	-0.171	-1.978	0.050		-0.233	0.183	-0.112	-1.274	0.205
Non-Holocaust adversity		-0.142	0.404	-0.028	-0.352	0.726		0.280	0.392	0.059	0.715	0.476
Self-rated health		-1.385	0.339	-0.339	-4.082	<0.001		-0.948	0.335	-0.240	-2.835	0.005
Step 2	0.264						0.202					
Age		0.032	0.070	0.038	0.461	0.646		0.111	0.070	0.136	1.592	0.114
Sex		0.899	0.672	0.102	1.337	0.184		-0.057	0.667	-0.007	-0.085	0.933
Education		-0.405	0.177	-0.188	-2.284	0.024		-0.263	0.175	-0.127	-1.501	0.136
Non-Holocaust adversity		-0.549	0.400	-0.108	-1.372	0.172		-0.056	0.390	-0.012	-0.144	0.886
Self-rated health		-1.004	0.336	-0.246	-2.991	0.003		-0.584	0.337	-0.148	-1.735	0.085
PTSD Group ^a (0, 1)		-1.758	0.566	-0.374	-3.109	0.002		-1.698	0.549	-0.388	-3.092	0.002
PTSD Group ^a (0, 2)		3.636	0.885	0.535	4.108	<0.001		3.318	0.877	0.519	3.784	<0.001
Step 3	0.262						0.207					
Age		0.038	0.070	0.045	0.540	0.590		0.119	0.070	0.145	1.701	0.091
Sex		1.008	0.687	0.115	1.468	0.145		0.141	0.681	0.017	0.207	0.836
Education		-0.378	0.180	-0.175	-2.094	0.038		-0.219	0.178	-0.105	-1.229	0.221
Non-Holocaust adversity		-0.496	0.406	-0.098	-1.220	0.225		0.039	0.395	0.008	0.100	0.921
Self-rated health		-0.982	0.337	-0.240	-2.912	0.004		-0.532	0.338	-0.135	-1.575	0.118
PTSD Group (0, 1)		-1.720	0.568	-0.366	-3.026	0.003		-1.652	0.548	-0.378	-3.013	0.003
PTSD Group (0, 2)		3.554	0.892	0.523	3.984	<0.001		3.219	0.877	0.504	3.669	<0.001
FE group		0.646	0.804	0.064	0.803	0.423		1.041	0.777	0.113	1.339	0.183
Step 4	0.301						0.234					
Age		0.014	0.073	0.016	0.189	0.850		0.095	0.073	0.117	1.303	0.195
Sex		0.823	0.672	0.094	1.225	0.223		-0.006	0.673	-0.001	-0.010	0.992
Education		-0.375	0.179	-0.174	-2.099	0.038		-0.216	0.177	-0.104	-1.223	0.224
Non-Holocaust adversity		-0.401	0.397	-0.079	-1.012	0.313		0.119	0.390	0.025	0.306	0.760
Self-rated health		-0.922	0.330	-0.226	-2.796	0.006		-0.468	0.334	-0.118	-1.400	0.164
PTSD Group (0, 1)		-1.068	0.696	-0.227	-1.535	0.127		-1.094	0.683	-0.250	-1.602	0.112
PTSD Group (0, 2)		1.764	1.110	0.260	1.590	0.115		1.714	1.096	0.268	1.565	0.120
FE Group (FE = 1)		2.254	0.957	0.225	2.356	0.020		2.361	0.939	0.256	2.513	0.013
PTSD Group (0,1) * FE Group		-0.938	1.261	-0.100	-0.744	0.458		-0.911	1.203	-0.107	-0.757	0.451
PTSD Group (0, 2) * FE Group		4.098	1.657	0.379	2.473	0.015		3.496	1.626	0.346	2.151	0.034

Note: PHQ-9 = 9-item Patient Health Questionnaire; GAD-7 = 7-item Generalized Anxiety Disorder scale; *b* = unstandardized regression coefficient; SEM_*b* = standard error of the unstandardized regression coefficient; PTSD = posttraumatic stress disorder; FE = financial exploitation.

^aPTSD Group was dummy coded such that comparisons were coded as 0, survivors with low-level PTSD were coded as 1, and survivors with high-level PTSD were coded as 2. Comparisons were included as the reference group such that main effects were examined between comparisons vs. survivors with low-level PTSD (0 vs. 1) and between comparisons vs. survivors with high-level PTSD (0 vs. 2).

traumatic for some individuals (Lavery *et al.*, 2020). In survivors, the experience of FE may trigger memories of events that occurred during the Holocaust, such as the unlawful taking of family property, funds, and assets. This may in turn increase the psychological distress experienced as a result of the FE experience. A body of research indicates that cumulative trauma over the lifespan is associated with negative mental health outcomes (Kraaij and De Wilde, 2001; Krause, 2004; Maschi *et al.*, 2013 for review). Research also suggests that cumulative trauma among older adults operates in a dose–response fashion to predict poorer outcomes, such that the more traumas one is exposed to over the lifetime the more severe the outcomes (Kraaij and De Wilde, 2001; Ogle *et al.*, 2014). Thus, adding an experience of FE to a history of Holocaust-related trauma may contribute to more pronounced mental health symptoms, as was seen in the present study. Of note, only a longitudinal study can confirm directionality of these relationships, and it is possible that more pronounced mental health symptoms in HS increases the risk of FE, thereby explaining the observed association.

The effects of FE on depressive and anxiety symptoms were strongest among HS who reported high-level PTSD symptoms associated with events from the Holocaust, suggesting that the effect of cumulative trauma may be moderated by PTSD symptoms. Findings are consistent with the crisis resolution perspective of re-exposure to trauma which argues that coping capacities are either enhanced or reduced by previous traumas depending on whether the traumatic experience was resolved (Hantman and Solomon, 2007). In the case of HS with PTSD symptoms, it can be concluded that the traumatic experience of the Holocaust remains unresolved. Thus, their capacity to cope with future stressors such as FE is reduced. Relatedly, posttraumatic symptoms may reduce the resiliency often observed in HS in the face of stress and adversity (Kohn *et al.*, 2014; Shmotkin *et al.*, 2011a; Shrira *et al.*, 2010). Consistent with this, Shmotkin *et al.* (2011a) discuss in a review that while most survivors are able to compartmentalize their trauma and function well within their families, survivors suffering from chronic and severe posttraumatic reactions do not exhibit the same level of resiliency. For example, they are more likely to transmit the trauma to their spouses and children. Thus, it is possible that HS with high-level PTSD are less resilient to negative effects of FE and therefore exhibit increased symptoms of anxiety and depression as a result of the FE experience.

The severity of traumatic events during the Holocaust reported by survivors with high-level

PTSD symptoms may also contribute to an increase in the likelihood that reminders of such events (e.g. via an FE experience), will lead to psychological distress. Survivors with high-level PTSD in the present study reported a higher frequency of Holocaust-related traumas compared to survivors with low-level PTSD, including hunger (100% vs. 67%), difficult living conditions (100% vs. 76%), exposure to abuse (82% vs. 51%), and injury to a family member (91% vs. 65%). An experience of FE may bring up memories of these specific traumas, given that often times FE results in significant financial hardships to the victims (Nguyen *et al.*, 2021; Wood and Lichtenberg, 2017), some of which may parallel hardships experienced during the Holocaust. Thus, the experience of FE may be particularly impactful for individuals who have not successfully resolved attempts to cope with the traumas experienced during the Holocaust.

Due to the cross-sectional nature of this study, directionality of observed relationships cannot be determined. Although we interpret our findings from the perspective of FE contributing to increased mental health symptoms, it is also possible that increased anxiety and depressive symptoms amongst the survivors with high-level PTSD increased risk of this group experiencing FE, thereby contributing to the observed interaction between FE and PTSD group. PTSD symptoms are associated with increased symptoms of anxiety and depression (Averill and Beck, 2000), and research has demonstrated that these symptoms are not only consequences of FE but also can increase risk of FE (Lichtenberg *et al.*, 2013; Lichtenberg *et al.*, 2016). Consistent with this, we found a higher rate of FE in the survivors with high-level PTSD group compared to the other two groups (survivors with low-level PTSD, and comparisons), although this difference was not statistically significant.

In this study, a main effect of FE on anxiety and depressive symptoms was not found. This diverges from studies which have reported a relationship between anxiety and/or depressive symptoms and FE (Ganzini *et al.*, 1990; Lichtenberg *et al.*, 2013; Lichtenberg *et al.*, 2016; Weissberger *et al.*, 2020; Weissberger, 2022). The lack of a main effect in this sample may be due to the heterogeneity of the sample, in that we excluded comparisons with high-level PTSD and included survivors with low- and high-level PTSD. It appears, at least in the present study's sample, that PTSD symptoms are really the determining factor in whether or not FE is associated with anxiety and depressive symptoms. This sheds light on the importance of considering contextual factors (e.g. trauma history) when examining antecedents and consequences of FE, as they may modify relationships.

The present study has several noteworthy limitations. First, the study is prone to sampling bias. This was a convenience sample of older adult volunteers with computer literacy who self-selected to participate in the study. Such factors may limit the representativeness of the study sample. For example, it may be the case that only high functioning HS participated in the study and findings may or may not apply to HS who are functionally dependent. Additionally, it should be noted that the sample size was relatively small, especially when considering subgroups such as HS with high-level PTSD. Future studies may consider expanding the sample size and collecting data using a methodology that does not require computer literacy. Along these lines, we excluded a number of participants who did not complete the PCL-5. This may introduce bias as it is possible that those who did not complete the PCL-5 share a common characteristic that may impact findings (e.g. high levels of PTSD). Another limitation relates to the cross-sectional nature of the study, which precludes us from making definitive conclusions regarding directionality and causality of relationships. For example, while we speculate that FE may have caused increased psychological distress in HS, and especially those with PTSD, it is impossible to confirm causality. It is possible that a third unidentified variable increases both mental health symptoms and FE risk in HS. Finally, measures were based on self-report which is prone to response and recall bias. In this context, the validity of FE claims could not be confirmed and some participants may incorrectly believe that they have been exploited while others may incorrectly believe that they have not. Importantly, findings reflect perceived FE experiences, which can also have important implications on the well-being of older adults (Weissberger *et al.*, 2020).

Nevertheless, the present study is novel in that it is the first to our knowledge to consider the effects of FE in HS and also the first to consider how cumulative trauma may impact the relationship between FE and psychological distress. Findings suggest that the experience of FE may be particularly impactful among individuals who have suffered from a traumatic past and who continue to struggle with posttraumatic symptoms related to their past traumas. In this context, the study has important clinical implications. First, coping with FE may prove more difficult for certain HS who have unresolved trauma stemming from the Holocaust, and they may benefit from targeted mental health care following a FE experience. Findings also have broader clinical implications for victims of FE in that they suggest that mental health services may prove especially useful for individuals who have a traumatic past that remains unresolved, such as those with PTSD. As such, future studies may consider examining whether

findings are relevant to other survivor groups with PTSD, and investigating mechanisms that may explain the interactive effect between PTSD symptoms and FE on anxiety and depressive symptoms. This will allow for identification of those most vulnerable to the negative consequences of FE so that mental health services and other support mechanisms can be effectively implemented.

Conflicts of interest

The authors have no conflicts of interest to disclose.

Description of authors' roles

G. Weissberger designed the study, supervised the data collection, carried out statistical analyses, and wrote the paper. M. Bensimon designed the study and assisted with writing the article. A. Shrira was responsible for designing the study, the statistical design of the study, and assisted with writing the paper.

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Supplementary material

To view supplementary material for this article, please visit <https://doi.org/10.1017/S104161023000625>.

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