

# The Sydney Holocaust Study: Posttraumatic Stress Disorder and Other Psychosocial Morbidity in an Aged Community Sample

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We investigated the psychological status and social functioning of Holocaust survivors. From 814 responses to a community survey of Jewish elders (aged 60 years or older), survivors ( $n = 100$ ), refugees who had not experienced the Holocaust ( $n = 50$ ), and Australian/English-born persons ( $n = 50$ ), were randomly selected for semistructured interview, which included Posttraumatic Stress Disorder (PTSD) assessment, ratings on the General Health Questionnaire, Brief Psychiatric Rating Scale, Impact of Event Scale, Mini-Mental Status Examination, and Instrumental Activities of Daily Living and Social Functioning. On all psychological measures, survivors were functioning worse than refugees and Australian/English-born persons. The 3 groups were similar in social and instrumental functioning. The more severe the trauma the greater the level of psychological morbidity. Despite normal social and daily functioning, psychological morbidity following massive trauma endures.

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**KEY WORDS:** holocaust; PTSD; refugee; old age.

Fifty-five years after the end of the Second World War, we examined psychological and social functioning in a group of aged holocaust survivors. Early studies of younger survivors established that posttraumatic symptoms, psychological morbidity, and poor physical health were common (Chodoff, 1963; Eitinger, 1962, 1969; Engel, 1962; Hocking, 1965; Hoppe, 1971; Krystal & Niederland, 1968; Matussek, 1975; Nathan, Eitinger, & Winnik, 1964; Tuteur, 1966). Kuch and Cox (1992), using DSM-III-R criteria, found 46% of a sample of survivors seeking restitution payments had Posttraumatic Stress Disorder (PTSD). Prevalence of PTSD reported in community samples have been 35.3% in Italy (Favaro, Rodella,

Colombo, & Santonastaso, 1999) and 48% in United States of America (Yehuda, Kahana, Southwick, & Giller, 1994). Additionally, there is weak evidence that the cognitive function in holocaust survivors may be lower than expected (Krystal & Niederland, 1968; Shanan & Shahar, 1983).

Criticisms of these studies have focused on the biased nature of the samples under investigation, the lack of accepted diagnostic criteria, and the use of nonstandardized instruments (Harel, 1995; Sadavoy, 1997). Although some of the more recent and better controlled studies document a wide range of physical and psychological impairment suffered by survivors (Eaton, Sigal, & Weinfeld, 1982; Nadler & Ben-Shushan, 1989; Silow, 1993), other studies suggest that survivors are generally well adjusted and have demonstrated strength and resiliency in overcoming numerous adversities (Leon, Butcher, & Kleinman, 1981; Shanan & Shahar, 1983). We anticipated that there could be two opposite effects of aging on psychological functioning in this group. Survivors through stress inoculation (Hantman, Solomon, & Prager, 1994) may be more

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resistant to life's vicissitudes. This effect may be exaggerated by the differential survival into old age of more resilient survivors.

Alternatively, prior extreme trauma may reduce a person's ability to withstand the additional stresses associated with aging, such as ill health, economic decline, and social losses (Rosenbloom, 1988; Steinitz, 1982). Aarts et al. (1996) reported that survivors who had previously been able to cope with their traumatic experiences were vulnerable to suffer a worsening or late onset of posttraumatic complaints during the later phases of the life cycle. The longitudinal method required to answer this question was not employed in this study.

Previous studies of survivors have largely emanated from Israel and North America; this study is the first to report systematically on a population from Australia despite the fact that Australia has the highest concentration of survivors outside Israel. Australia has a large heterogeneous population of aging Jews centered in Sydney and Melbourne. Jews began arriving in Sydney from the United Kingdom with the European settlement in Australia in 1788. In the 1930s, about 8,000 Jewish refugees, mainly from Germany and Austria, migrated to escape the impending atrocities. After the war, about 35,000 survivors of the Nazi regime, mainly eastern Europeans, arrived (Rubinstein, 1987; Rutland, 1988).

We compared the psychological, physical, and functional status in nontreatment seeking, research naive, community-dwelling age-matched samples of Jewish persons aged from 60 years who were either holocaust survivors, or were immigrant refugees who, fleeing from the Nazis, emigrated from Europe and Russia prior to 1939, or were Australian/English-born. We included a refugee control group to address a possible confound in interpreting these results in that being a refugee may have its own adverse consequences above and beyond that of the severe trauma experienced (Krupinski, Stoller, & Wallace, 1973; Whiteman, 1993).

Our goal was to reexamine psychosocial morbidity in an older community sample of holocaust survivors using appropriate comparison groups and standard well-validated instruments. Our hypotheses were that (1) holocaust survivors would have higher rates of psychological morbidity and poorer function than the refugees and Australian/English-born persons, based on the literature, on measures of psychological health, physical health, cognition, and past history of psychiatric disorder and treatment, and based on our impressions, on social interaction and instrumental function; (2) the holocaust survivors would have higher levels of PTSD and associated symptoms, and higher rates of PTSD, than the control groups; and (3) there would be a dose effect with greater trauma re-

sulting in more symptoms. This third hypothesis is based on the vulnerability model; alternatively if the resilience model proved correct we would find neither a difference between the groups nor a dose effect. We also considered whether there might be a dual effect such that very severe trauma would be devastating and lead to vulnerability but less severe trauma would be strengthening and result in resilience.

## Method

### *Participants*

A total of 2,639 survey forms were sent out via Jewish communal organizations (friendship clubs, synagogues, voluntary organizations, Sydney Jewish Museum attendees) to a convenience nonclinical sample of older Jewish individuals residing in the Sydney community. A covering letter stated that a survey was being conducted of the Jewish aging population and their current feelings about their lives, with the aim of providing the best possible services to the community. Participants were requested to return the completed surveys by reply-paid mail.

The survey was completed by 814 individuals: 309 holocaust survivors, 127 immigrant refugees, 210 Australian/English-born persons, and 168 persons who were ineligible to participate in the study because they did not meet our inclusion criteria, namely: Jewish, living in Sydney, 60 years of age or older, and willing to be interviewed. Individuals belonging to more than one community group may have received multiple copies of the survey, thus possibly inflating the apparent nonresponse rate. No information was available on the nonrespondents. Three subsamples representing 100 holocaust survivors, 50 refugees, and 50 Australian/English-born nonrefugees were selected, using a table of random numbers, for in-depth interview in their homes. Nearly all participants who were asked agreed to be interviewed (95% of holocaust survivors, 94% of refugees, and 95% of Australian/English-born persons). Participants refusing interview were replaced by randomly chosen substitutes. One refugee participant, for whom an informant had completed the survey (contrary to instructions), was found at interview to be too cognitively impaired to be assessed. He was replaced by the next randomly chosen refugee participant. Participants provided written informed consent after receiving a complete description of the study.

### *Measures*

The screening survey contained four sections: (1) demographic questions regarding age, sex, education, marital

status, family members, religious practice, and income; (2) Holocaust-related experiences—duration and type (living on Aryan papers, in hiding, ghetto, labor, and concentration camps); (3) the General Health Questionnaire (GHQ-28; Goldberg & Hillier, 1979)—a self-administered screening instrument, which is designed to detect current, diagnosable psychological morbidity and which comprises four subscales measuring somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression; and (4) self-rated health (SRH; Burvill, Mowry, & Hall, 1990)—a 5-point scale on which participants rate their physical and emotional well-being as compared to others of their own age.

Subsequently, 200 detailed interviews were conducted in participants' homes. The first part was unstructured. In the second part, the interviewer (CJ) rated participants on scales from the Australian Longitudinal Study of Aging (1992) reflecting current psychological and physical health, sleep patterns, alcohol use, current medications, family and social life, life events, life satisfaction, cognition, and memory. Participants were asked "Have you ever had trouble with nerves and depression?" and if yes "Have you ever received help with this?"; "Have you seen a counselor or psychiatrist?"; and "Have you been in a psychiatric hospital?"

Participants were asked if they had recently (defined as in the last few weeks) had any of the following somatic symptoms: headaches, dizziness, backache, exhaustion, weakness of muscles, and stomach pains. These symptoms have been reported as common in Holocaust survivors (Eaton et al., 1982; Krystal & Niederland, 1968; Kuch & Cox, 1992; Leon et al., 1981). The Impact of Event Scale (IES; Horowitz, Wilner, & Alvarez, 1979), a 15-item scale, measured intrusive or avoidance symptoms. The interviewer rated all participants on a checklist of symptoms required to meet criteria for PTSD from the *Diagnostic and Statistical Manual*, 4th edition (DSM-IV), and the Brief Psychiatric Rating Scale (BPRS; Overall & Beller, 1984; Overall & Gorham, 1962).

Cognitive and functional status were rated by the interviewer using the Mini-mental State Examination (MMSE; Folstein, Folstein, & McHugh, 1975) and Instrumental Activities of Daily Living (IADL; Lawton & Brody, 1969) scales. The severity of the Holocaust experience was rated according to the following schema by the survivor and independently by the interviewer. There was total agreement between the interviewer and the survivor except in two cases where the survivor underestimated the severity of the trauma. Three grades of Holocaust experience were determined: Mild (as experienced by 15% of Holocaust survivors)—generally removed from high risk situations such as living anonymously in the countryside

or with non-Jewish families or living on Aryan papers; Moderate (39% of Holocaust survivors)—usually in ghettos or labor camps but not in death camps, some freedom and able to forage for food; and Severe (46% of Holocaust survivors)—in concentration or death camps or in inhumane conditions hidden for months and often years, at constant risk of being discovered or killed.

Interrater reliability was calculated using the kappa statistic ( $\kappa$ ) for categorical information and intraclass correlation coefficients (ICC) for continuous data. There was perfect agreement between raters (CJ and a clinical psychologist) on PTSD diagnosis, on the number of PTSD symptom categories met, and on IADL score. There was near perfect agreement between the raters on BPRS score (ICC = 0.99,  $p < .001$ ).

### Statistical Analysis

All categorical analyses, excepting variables relating only to the Holocaust survivors, compared all three groups: the Holocaust survivors with the refugee participants and Australian/English-born participants. The chi-square test ( $\chi^2$ ) was employed for the comparison of categorical variables. Comparisons of continuous data, such as age, were made using ANOVA (MANOVA for GHQ, BPRS, and IES subscales) with planned contrasts: Contrast 1 compared Holocaust survivors and refugee groups, Contrast 2 compared Holocaust survivors and Australian/English-born groups.

A log transformation was used to normalise the BPRS total score, which was positively skewed. Transformations were unsuccessful for the GHQ and BPRS subscales, current number of medications and MMSE total score. The level of significance for all analyses was set at .05, except where multiple comparisons necessitated the use of a Bonferroni correction, for example, psychological health variables.

### Results

The mean age for the entire sample was 75.1 years ( $SD = 6.6$ ), and 59% were women. There were no significant differences between the groups on any demographic variable with the exception of the proportion of those in a married or de facto relationship who were married to a survivor (see Table 1).

Many Holocaust survivors experienced several types of persecution, for example, living in hiding and then being captured and sent to a ghetto or camp. Survivors experienced imprisonment in ghettos (60%), labor camps (52%),

**Table 1.** Demographics of Holocaust Survivors, Refugees, and Australian/English-Born Jewish Elders

Characteristic	Holocaust survivors ( <i>n</i> = 100)	Refugees ( <i>n</i> = 50)	Australian/English-born ( <i>n</i> = 50)	Statistic
Age (years)[ <i>M</i> ( <i>SD</i> )]	74.1 (6.4)	75.5 (7.0)	76.5 (6.6)	$F(2, 197) = 2.35$
Gender (% male)	41	42	40	$\chi^2(4, N = 200) = 0.04$
Marital status (%) <sup>a</sup>				
Single	2	0	2	
Separated/divorced	7	4	4	
Widowed	48	54	52	
Married/de facto	43	42	42	$\chi^2(2, N = 200) = 0.02$
Married to survivor (%) <sup>b</sup>	49	24	15	$\chi^2(2, N = 84) = 8.34^*$
Education (%)				
Primary	11	12	10	
Secondary	50	36	54	
Tertiary	39	52	36	$\chi^2(4, N = 200) = 3.90$
Attendance at Synagogue (%)				
One or more times/Week	14	20	24	
Once a month/high holidays	68	62	72	
Never	18	18	4	$\chi^2(4, N = 200) = 7.45$
Living arrangements (%) <sup>c</sup>				
Alone	54	58	56	
Spouse/partner± other/s	42	40	44	
Children	4	2	0	$\chi^2(2, N = 200) = 0.22$

<sup>a</sup>Chi-square for marital status compared married/de facto versus others.

<sup>b</sup>Percentages refer to proportion of those in married/de facto relationships married to survivors (Holocaust survivors *n* = 43, Refugees *n* = 21, Australian/English-born *n* = 21, data on married to survivor missing for one Australian/English-born person).

<sup>c</sup>Chi-square for living arrangements compared those living alone versus those living with others.

\**p* < .05.

concentration camps (46%), and/or spent time in hiding (41%), and/or living on Aryan papers (17%).

### Psychological Health

Significant differences were found between the three groups in terms of their psychiatric history: 67% of the survivors, 38% of the refugees, and 32% of the Australian/English-born group stated that they had experienced trouble with nerves or depression,  $\chi^2(2, N = 200) = 20.85$ ,  $p < .001$ . Of those with a history of nerves or depression, there was no significant difference in the proportion that sought treatment formally (medical or psychological) between the holocaust survivors (67%), refugees (84%), and Australian/English-born (75%) groups. Sixty-five percent of the holocaust survivor group rated their current emotional health as bad to fair, as did 36% of the refugee group and 22% of the Australian/English-born group (Table 2).

There were differences between the groups in their GHQ-28 scores: 58% of the holocaust survivor group scored at least 5, indicative of significant psychological morbidity, along with 29% of the refugees and 18% of the Australian/English-born group,  $\chi^2(2, N = 199) = 26.06$ ,  $p < .001$ . Forty-one percent of the holocaust survivors scored at least 11 on the GHQ-28, indicative of definite psychological morbidity, as did 14% of the refugees

and 6% of the Australian/English-born group,  $\chi^2(2, N = 199) = 25.81$ ,  $p < .001$ . The holocaust survivor group also had significantly higher scores than the other groups on each of the GHQ-28 subscales (multivariate analysis  $p < .001$  except for severe depression in the refugee group where  $p = .032$ ).

Survivors also had demonstrably higher ratings of psychiatric morbidity on total BPRS and BPRS subscale scores—withdrawn depression, agitation, and hostile suspiciousness (Table 2). Both the IES subscale scores, measuring frequency of intrusive thoughts and avoidance behaviors during the week prior to interview, were significantly higher in the holocaust survivor group than in the refugee or Australian/English-born groups.

Thirty-nine percent of the holocaust survivor group met all six PTSD criteria, as did 12% of the refugee group and 4% of the Australian/English-born group. One Australian/English-born participant with PTSD had been a war veteran and the other case had experienced the traumatic death of a close family member. All persons diagnosed with PTSD had experienced chronic symptoms (i.e., at least 3-months duration).

Regarding somatic symptoms, the holocaust survivors had significantly higher scores on the GHQ-28 somatic subscale than the other two groups (Table 3). There were high rates of specific somatic symptoms amongst holocaust survivors.

**Table 2.** Psychological Morbidity and PTSD in Holocaust Survivor, Refugee, and Australian/English-Born Groups

	Holocaust survivors ( <i>n</i> = 100)		Refugees ( <i>n</i> = 50)		Australian/English-born ( <i>n</i> = 50)		Statistic
Self-rated psychological health (%) <sup>a</sup>							
Bad	7		0		0		
Poor	22		6		2		
Fair	36		30		20		
Good	29		36		56		
Excellent	6		28		22		$\chi^2(6, N = 200) = 40.73^*$
General Health Questionnaire (28-items) and subscales (range)	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Total <sup>b</sup> (0–28)	8.3	7.2	3.6 <sub>a</sub>	5.7	2.3 <sub>b</sub>	3.4	$F(2, 197) = 20.01^*$
Somatic symptoms (0–7)	2.1	2.1	1.0 <sub>a</sub>	1.5	0.7 <sub>b</sub>	1.4	
Anxiety and insomnia (0–7)	2.9	2.5	0.8 <sub>a</sub>	1.6	0.8 <sub>b</sub>	1.5	
Social dysfunction (0–7)	2.1	1.9	1.2 <sub>a</sub>	1.7	0.8 <sub>b</sub>	1.2	
Severe depression (0–7)	1.2	1.8	0.6	1.6	0.0 <sub>b</sub>	0.2	$F(8, 388) = 6.61^*$
Brief Psychiatric Rating Scale <sup>c</sup> and subscales (range)							
Total (0–108)	16.3	8.4	9.8 <sub>a</sub>	7.4	7.9 <sub>b</sub>	5.6	$F(2, 197) = 26.17^*$
Withdrawn depression (0–24)	3.6	3.8	1.9 <sub>a</sub>	2.9	1.4 <sub>b</sub>	2.3	
Agitation (0–18)	3.9	2.3	2.4 <sub>a</sub>	1.8	2.4 <sub>b</sub>	1.6	
Cognitive dysfunction (0–12)	0.3	0.7	0.2	0.5	0.0	0.4	
Hostile suspiciousness (0–18)	3.9	2.4	2.1 <sub>a</sub>	1.9	1.4 <sub>b</sub>	1.6	
Psychotic distortion (0–12)	0.0	0.2	0.0	0.0	0.0	0.0	$F(10, 388) = 5.67^*$
Impact of Event Scale <sup>d</sup> and subscales (range)							
Total (0–75)	32.5	20.4	10.3 <sub>a</sub>	15.6	2.1 <sub>b</sub>	8.9	$F(2, 196) = 121.34^*$
Intrusion subscale (0–35) <sup>d</sup>	17.9	10.0	5.8 <sub>a</sub>	7.2	1.1 <sub>b</sub>	4.2	
Avoidance subscale (0–40)	14.4	11.4	4.5 <sub>a</sub>	8.8	1.0 <sub>b</sub>	4.8	$F(4, 392) = 42.68^*$
Percentage with PTSD	39.0		12.0		4.0		$\chi^2(2, N = 200) = 27.62^*$

Note. Contrasts comparing Holocaust survivors with refugees (denoted by subscript a) and with Australian/English-born (denoted by subscript b) were significant at  $p < .005$ .

<sup>a</sup>Bad and poor categories collapsed for analyses of self-rated psychological health.

<sup>b</sup> $n = 1$  missing for total GHQ-28 score from the refugee group.

<sup>c</sup>A log transformation successfully normalised significant positive skew for BPRS total. Significant skew in each of the BPRS subscales was unable to be normalised.

<sup>d</sup> $n = 1$  missing for total Impact of Event Scale score and for the intrusion subscale from the Holocaust survivor group.

\* $p < .006$  ( $p$  adjusted using Bonferroni correction, .05/9).

### Physical Health

There were significant differences between the groups on measures of current physical health, with 23% of the holocaust survivor group reporting poor current physical health, along with 8% of refugees and 6% of Australian/English-born participants. On average, participants were taking 5.3 medications (prescription and non-prescription; range 0–10,  $SD = 2.0$ ). Survivors consumed significantly more medications currently than the other two groups (Table 3). There were significant differences between the groups in the usage of medications. We note the higher rates of usage among the holocaust survivors of sleeping tablets (i.e., hypnotics such as temazepam) and sedatives (i.e., anxiolytics such as oxazepam) than among refugees or Australian/English-born participants, but there were no significant differences in consumption of antidepressant (nonsignificant trend) or antipsychotic medications (only two participants on antipsychotics; see Table 3). Three-quarters of survivors reported that they experienced insufficient sleep, as did 42% of the refugees and

32% of the Australian/English-born group,  $\chi^2(4, N = 200) = 32.95, p < .001$ . A large proportion (26%) of survivors, 2% of refugees, and 2% of Australian/English-born participants reported their sleep was disturbed by nightmares often or almost always,  $\chi^2(6, N = 200) = 79.47, p < .001$ . Of the holocaust survivor group, 21% reported an increase in sleep problems over the year prior to interview, as did 6% of the refugees and 16% of the Australian/English-born group; only two people, both survivors, reported a decrease in sleep problems. There were no significant differences between the three groups in terms of either frequency (31% of sample reporting nil consumption) or amount of alcohol intake (95% of sample reporting that when they did drink they consumed only one or two standard drinks).

### Cognitive and Functional Status

The mean MMSE score for the entire sample was 26.6 ( $SD = 1.8$ ; range 19–30). There was a significant

**Table 3.** Comparison of Physical Health, Somatic Symptoms, Medications, and Cognitive Function in the Three Groups

	Holocaust survivors ( <i>n</i> = 100)		Refugees ( <i>n</i> = 50)		Australian/English-born ( <i>n</i> = 50)		Statistic <sup>a</sup>
Self-rated physical health (%)							
Poor	23		8		6		$\chi^2(6, N = 200) = 12.16$
Fair	35		38		32		
Good/excellent <sup>b</sup>	42		54		62		
Somatic symptoms (%)							
Headaches	44		28		22		$\chi^2(2, N = 200) = 8.39$
Dizziness	38		12		12		$\chi^2(2, N = 200) = 18.03^*$
Backache	76		66		48		$\chi^2(2, N = 200) = 11.74^*$
Exhaustion	47		22		10		$\chi^2(2, N = 198) = 22.74^*$
Weakness of muscles	43		18		20		$\chi^2(2, N = 200) = 13.51^*$
Pains in the stomach	32		22		12		$\chi^2(2, N = 200) = 7.43$
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	
Current number of medications <sup>c</sup>	5.9	2.1	4.6 <sup>a</sup>	2.0	4.7 <sup>a</sup>	1.6	$F(2, 197) = 9.58^*$
% antidepressants	31		20		12		$\chi^2(2, N = 200) = 7.15$
% antipsychotics	1		0		2		Not applicable
% hypnotics	80		52		42		$\chi^2(2, N = 200) = 24.57^*$
% anxiolytics	39		10		8		$\chi^2(2, N = 200) = 24.73^*$
MMSE score <sup>d</sup>	26.2	1.7	26.8	2.1	27.0 <sub>b</sub>	1.4	$F(2196) = 4.06$

Note. Contrasts were performed comparing Holocaust survivors with refugees and with Australian/English-born. Significance at  $p < .001$  denoted by subscript a; significance at  $p < .01$  denoted by subscript b.

<sup>a</sup>Expected frequencies too low for valid analysis of proportions using antipsychotics and proportion scoring <24 on MMSE.

<sup>b</sup>Good and excellent self-rated physical health categories kept separate for analysis.

<sup>c</sup>Current number of medications could not be successfully transformed for significant negative skew.

<sup>d</sup>MMSE could not be successfully transformed for significant negative skew.  $n = 1$  missing for MMSE in the refugee group.

\* $p < .004$  ( $p$  adjusted using Bonferroni correction, .05/14).

difference between the groups, with the holocaust survivors performing slightly but significantly worse on the MMSE than the Australian/English-born group. The proportions of those categorized as having scores indicative of significant cognitive impairment (i.e., MMSE < 24) were too small for analysis between groups (range 0–3%). The groups did not differ on the Instrumental Activities of Daily Living score (range 1–2.4;  $M = 1.1$ ,  $SD = 0.2$ ).

### Social Interaction

There were no significant differences between the three groups in terms of frequency of involvement in social activities (e.g., formal contact such as with clubs or community centres, or casual/informal social contact such as meeting with friends). However, 23% of the holocaust survivor group reported no involvement with hobbies, as did 12% of the refugee group and 8% of the Australian/English-born group,  $\chi^2(6, N = 200) = 14.55$ ,  $p < .05$ . Perceptions of adequacy of social involvement also differed significantly, 60% of survivors rating their social lives as poor or fair, along with 44% of the refugees and 32% of the Australian/English-born group,  $\chi^2(4, N = 200) = 13.57$ ,  $p < .01$ .

### Holocaust Experience and Psychological Health

Amongst the holocaust survivor group, psychological health worsened with increased severity of holocaust experience. There were significant differences between the groups (mild, moderate, and severe global holocaust experience) on GHQ-28 total score,  $F(2, 97) = 7.94$ ,  $p < .001$ , and subscale scores,  $F(8, 190) = 3.71$ ,  $p < .001$ ; on the proportion of people meeting diagnostic criteria for PTSD,  $\chi^2(2, N = 100) = 17.56$ ,  $p < .001$ ; and on the BPRS total score,  $F(2, 97) = 9.49$ ,  $p < .001$ , but not the BPRS subscales (see Table 4).

### Discussion

The psychological effects of the Holocaust are evident more than 50 years after the event. On all indices of emotional well-being and psychological morbidity—GHQ-28, BPRS, SRH, IES—survivors were doing significantly worse than refugees and Australian/English-born participants, thus confirming our first hypothesis.

The prevalence of psychological morbidity in the HS sample was similar to that reported elsewhere (Kahana, Harel, & Kahana, 1988; Nadler & Ben-Shushan 1989;

**Table 4.** Nature of Holocaust Experience and Psychological Health

	Mild <sup>a</sup> (n = 15)		Moderate <sup>b</sup> (n = 39)		Severe <sup>c</sup> (n = 46)	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
General Health Questionnaire (28-items) and subscales (range)						
Total score (0–28)	4.0	6.1	6.7	6.5	11.0	7.1
Somatic symptoms (0–7)	1.1	1.9	1.9	2.1	2.5	2.1
Anxiety and insomnia (0–7)	1.4	1.8	2.1	2.2	4.1	2.4
Social dysfunction (0–7)	0.9	1.4	1.8	1.9	2.8	1.9
Severe depression (0–7)	0.7	1.8	0.8	1.5	1.7	2.0
Percentage with PTSD (n)	13.3(2)		23.1(9)		60.9(28)	
Brief Psychiatric Rating Scale and subscales (range)						
Total (0–108)	11.5	7.2	13.9	7.2	19.9	8.3
Withdrawn depression (0–24)	2.0	3.8	2.9	3.3	4.8	3.8
Agitation (0–18)	3.0	1.8	3.4	1.8	4.5	2.6
Cognitive dysfunction (0–12)	0.0	0.0	0.1	0.3	0.5	1.0
Hostile suspiciousness (0–18)	3.3	2.3	3.6	2.3	4.4	2.4
Psychotic distortion (0–12)	0.0	0.0	0.0	0.2	0.0	0.3

<sup>a</sup>Mild—generally removed from high risk situations such as living anonymously in the countryside or with non-Jewish families or living on Aryan papers.

<sup>b</sup>Moderate—usually in ghettos or labor camps but not in death camps, some freedom and able to forage for food.

<sup>c</sup>Severe—in concentration or death camps or in inhumane conditions hidden for months and often years, at constant risk of being discovered or killed.

Robinson et al., 1990). The 39% current point prevalence of PTSD in this sample of older Australian Jewish survivors was comparable to the 48% current PTSD found in the United States (Yehuda et al., 1994), and the 35% lifetime PTSD found in Italy (Favaro et al., 1999). All survivors with PTSD reported that this syndrome had persisted for many years. For comparison, rates of persistent PTSD among treatment-seeking veterans of combat in World War II or the Vietnam war range between 18 and 36% (Blake, Keane, Wine, & Mora, 1990; Kulka et al., 1990; Rosen, Fields, Hand, Falsett, & Van Kammen, 1989).

Survivors were suffering significant symptoms—depression, anxiety, insomnia, intrusive thoughts, nightmares, headaches, dizziness, exhaustion, backache, and weakness and were taking more anxiolytics and hypnotics. The lower scores on the MMSE in the non-Australian/English-born groups may reflect selection bias, cultural bias in the instrument, Eastern Europeans' lesser familiarity with English or the effects of their Holocaust experience. Survivors' involvement in social activities and achievement on broad indices of social functioning (marriage, education, occupational status) were similar to the two comparison groups. However, the survivors' satisfaction with their social involvement was low, suggesting that these symptoms are interfering with their enjoyment of social activities even though they are striving to preserve normal function. A competing (or complementary) possibility is that low satisfaction reflected a negative plaintive

set. In other words, it appears that despite their numerous symptoms survivors are functioning reasonably well. This may be one reason for their relative lack of psychological intervention; only 45% of all survivors had received psychological intervention.

We found support for the vulnerability hypothesis. Holocaust survivors have higher rates of morbidity, but despite all Holocaust experiences being massively traumatic, there appeared to be a dose effect, with greater severity of trauma being associated with more morbidity. On most measures, scores increased progressively with degree of trauma.

The use of a community sample and matched comparison groups, and assessment with multiple validated measures of psychological, physical, and social morbidity are strengths of this study. At least 31% of potential participants responded initially, and although the nonrespondents were members of the same community organizations and were likely to be of a similar age and social class as the respondents, we have no comparative data available. Nor do we know how representative the people surveyed were of the wider aged Jewish community. Also, selective attrition through institutionalisation or death could have the effect of underestimating the true prevalence of morbidity in survivors.

We conclude that the psychological effects of massive trauma are severe and enduring. That those symptoms do not abate with time is reconfirmed (Eitinger, 1961, 1980; Nadler & Ben-Shushan, 1989), and psychological

interventions (Dasberg, 1995) are warranted in this population, even more than 50 years later. Longitudinal studies may confirm what was anecdotally apparent to us and reported by others (Grauer, 1999)—symptoms appear to worsen with age. We should heed these lessons now for the survivors of other current genocidal atrocities such as have been occurring in Rwanda, Cambodia, Kosovo, and East Timor.

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