Early childhood holocaust survivial and the influence on well-being in later life

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CHAPTER 4

Sense of Coherence Moderates Late Effects of Early Childhood Holocaust Exposure

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Abstract

In this study on child Holocaust survivors who are now in their sixties and seventies potential protective factors facilitating participants' adaptation to post-Holocaust life have been emphasized. We examined Antonovsky's (1979, 1987) salutogenic paradigm, testing the mediating and moderating effect of participants' Sense of Coherence (SOC) on the association between early childhood deprivation due to Holocaust persecution and post-traumatic stress later in life. In a non-clinical sample, 203 child Holocaust survivors born between 1935 and 1944 completed questionnaires on Holocaust survival exposure, inventories on current health, post-traumatic stress, and Sense of Coherence. SOC moderates the association between traumatic experiences during the war and post-traumatic stress. SOC acts as a protective factor, buffering the impact of traumatic Holocaust experiences on child survivors in old age. Survivors with a less coherent perspective on the meaning of their life showed greater vulnerability for post-traumatic complaints. The moderating role of the SOC may suggest promising avenues of therapeutic interventions for child Holocaust survivors and other adults with early childhood trauma.

Introduction

In the past few decades the study of trauma survivors has been dominated by a 'pathogenic' approach, emphasizing the cumulation of risk factors leading to symptoms of post-traumatic stress and lack of well-being. In this study on child Holocaust survivors who are now in their sixties and seventies we emphasize potential protective factors facilitating participants' adaptation to post-Holocaust life. We used Antonovsky's (1979, 1987) 'salutogenic' paradigm that addresses the crucial question of how some people succumb under the pressure of their traumatic experiences whereas others appear to cope surprisingly well. In search for the origins of physical and psychological health ('salutogenesis': Antonovsky, 1991), the salutogenic paradigm tries to elucidate the 'salutory' factors that promote health and well-being even when people are faced with inevitable traumatic events. The central concept of the salutogenic paradigm is 'Sense of Coherence' (SOC), a generalized orientation toward the world which perceives it as less or more comprehensible, manageable and meaningful. In the our study we test the mediating and moderating effect of participants' Sense of Coherence (SOC) on the association between early childhood deprivation due to Holocaust persecution and post-traumatic stress later in life.

The current study is concerned with the long-term effects of persecution on the youngest child survivors of the Nazi Holocaust, now living in Israel. Born several years before or during the Second World War, they survived the persecution with losses, separations, mental and physical constraints, neglect and starvation during their first, most formative years (Dasberg, 1992; Kestenberg & Brenner, 1996). From earliest age on, they were confronted with their parents' efforts to prevent annihilation, and were witness to their helplessness in providing basic protection and safety. Many of these children survived by being separated from their parents, and by being put in the care of strangers. Some found safety and stability while staying with one care provider, others were moved around from one place to another (Flim, 2004; Fogelman, 1994; Meijer, 2001).

After the war they faced further separations: Surviving parents who had suddenly disappeared during the war now returned to reclaim the children from caretakers who had led them through the most dangerous moments (Evers-Emden & Flim, 1995). Many parents, physically and mentally exhausted, and forced to start building a new life, were not able to take proper care of their surviving children, and opted for putting them (again) into the care of others (Evers-Emden, 1994). Children who had become orphans were dependent on the mercy of strangers and had often to suffer custody arrangements not always chosen for their best interests (Dasberg, 2001; Keilson, 1992; Verhey, 1991). All were confronted with the havoc the Holocaust had wreaked on family, social and cultural structures (Kestenberg &

Gampel, 1983). Some of them had to adjust to even more separations and changing circumstances when being moved from country to country, before immigrating to Israel (Lev-Wiesel & Amir, 2000).

Now in their sixties to early seventies, these child Holocaust survivors had to deal with the stresses of war and terrorism over the years (Brodsky & DellaPergola, 2005). Nevertheless, many showed remarkable ability to live apparently normal lives (Tauber, 1996; Van der Hart, Nijenhuis, Steele, & Brown, 2004); others, unable to escape the past, were less successful in coping with the demands of daily life (Kellermann, 2001; Kestenberg & Brenner, 1996; Kestenberg & Gampel, 1983; Krell, 1985; Tauber & Van der Hal, 1997). Krell (1985) was the first to suggest a differentiation between late effects of the Holocaust on those who, as children or adolescents (born 1927-1945), had to endure persecution and fear of annihilation during crucial developmental stages, and other survivors. Later-life influences of the Holocaust on child survivors of all ages have been extensively studied in Israel and abroad (see Dasberg, 2001, for a review). In controlled studies, psychological functioning of child survivors, when compared with that of matched peers who had not experienced the Holocaust, has recently been the focus of a number of studies (Amir & Lev-Wiesel, 2003; Brom, Durst, & Aghassy, 2002; Cohen, Dekel, & Solomon, 2002; Cohen, Brom, & Dasberg, 2001; Sagi-Schwartz, Van IJzendoorn, Grossmann, Joels, Grossmann, et al., 2003; Sagi, Van IJzendoorn, Joels, & Scharf, 2002). Results consistently show that child Holocaust survivors suffer significantly more from post-traumatic stress disorders than their non-Holocaust-exposed peers. Even higher levels of post-traumatic distress have been found in studies of child survivors who applied for treatment (Brom et al., 2002; Cohen et al., 2002). In our own study of 203 child survivors, we found 36% of the respondents to be suffering from current post-traumatic functional impairments, while 63% did not report symptoms of post-traumatic stress (Van der Hal-van Raalte, Bakermans-Kranenburg, & Van IJzendoorn, 2007; Van der Hal-van Raalte, Van IJzendoorn, & Bakermans-Kranenburg, in press). During the last decade practitioners and researchers have observed Holocaust survivors become increasingly vulnerable to post-traumatic stress in old age (Aarts & Op den Velde, 1996; Cohen et al., 2001; Dasberg, 1992; Ruskin & Talbott, 1996). Therefore, we were interested in explaining differences in stress vulnerability in old age for the participants of our study, who suffered from the Holocaust during early childhood, and who are increasingly confronted with the uncertainties of old age. We examined why some Holocaust survivors show more vulnerability to post-traumatic stress than others, who show less or none (Krell, 1993; Schnurr, Lunney, & Sengupta, 2004).

Lomranz (2000), touching on Antonovsky's (1979, 1987) concept of salutogenesis, pointedly observed that in Holocaust-related post-traumatic stress

research, "….we know much about posttraumatic illness, but little about posttraumatic health and adjustment ..."(p. 49). Antonovsky was drawn to the concept of salutogenesis, defining health as a continuum from ease to disease, by the results of an epidemiological study on menopausal complaints among women of five different Israeli sub-cultures (Antonovsky, Maoz, Dowty & Wijsenbeek, 1971). In one of the groups, consisting of immigrants from Central Europe, 77 of the 287 participants were Holocaust concentration camp survivors; the other 210 had left Europe before the Holocaust. While data showed that as a group the camp survivors suffered significantly more menopausal distress than pre-war immigrants, at the same time 40 percent of these concentration camp survivors were found to be in good physical health, and 29 percent showed adaptive emotional functioning. Antonovsky tried to answer the question of why some women, subjected to the most destructive experiences conceivable, were able to lead well-adapted lives (Antonovsky, 1991). He proposed that three factors were important: (1) the ability to comprehend what happens around oneself (2) the ability to manage a given situation alone or with the help of others, and (3) the ability to find some meaning for what is happening. It is Antonovsky's opinion that these factors may emerge from genetic, constitutional, psycho-social, and socio-economic resources (Antonovsky, 1987; Lindstrom & Eriksson, 2005-a). The three factors together constitute what he defined as a sense of coherence (SOC), an orientation to life which enables one to draw upon internal and external resources to manage stress in a health-promoting way, and to make effective use of coping mechanisms (Eriksson & Lindstrom, 2006).

The results of a review of 458 salutogenic publications and 13 doctoral theses between the years 1992-2003 (Eriksson & Lindstrom, 2005), support the conclusion that SOC is apparently a health resource that promotes resilience and a positive subjective state of health, particularly mental health. Different from other efficacy and adaptation concepts like 'hardening', 'coping' or 'resilience' (Bonanno, 2004), and 'positive change following trauma' (Linley & Joseph, 2004), SOC is seen as an orientation to life that develops over the years and is consistently geared to adaptation and problem-solving (Lindstrom & Eriksson, 2005-b). The "Orientation to Life" Questionnaire, constructed to assess SOC (Antonovsky, 1993), has been used in numerous studies over the last two decades, and has shown main, moderating and mediating effects of SOC on both physical and mental health (Eriksson & Lindstrom, 2005; Hogh & Mikkelsen, 2005). For example, Jorgensen, Frankowski, & Carey et al. (1999) demonstrated the moderating effect of the SOC in a study of 116 undergraduates. They assessed self-reported health status, and psychological distress on two later occasions with a two-month interval. Assessment of SOC took place at time-one. At time 2 negative life events were assessed that had occurred during the past year. More SOC was associated with less

negative life events and with less reported psychological symptoms at both times of assessment. More negative life events were associated with more physical disorders reported on both occasions but only among students with a weak SOC. This association remained significant after accounting for the relation between psychological and physical symptoms.

In the current study we assessed how early childhood deprivation due to severe traumatic experiences during the Holocaust was related to post-traumatic stress at later age, and we examined how SOC affected this association. Based on the work of Keilson (1992), and on the results of our previous studies (Van der Hal-van Raalte et al., in press; Van der Hal-van Raalte et al., 2007), indicators chosen for severity of Holocaust survival exposure included: (1) time of exposure to persecution, (2) number of transitions during the Holocaust, each of which potentially increased life threat, and the anxiety for, and repetition of, the original separation trauma, and (3) loss of parents as a result of the Holocaust. We tested whether the association between Holocaust experiences and post-traumatic stress was mediated by SOC (with more severe Holocaust experiences leading to a lower SOC, and lower SOC associated with more post-traumatic stress symptoms), or whether SOC moderated the impact of Holocaust experiences on post-traumatic stress symptoms. We hypothesized that in the moderating model high SOC would act as a protective factor (Rutter, 1987), buffering the impact of traumatic Holocaust experiences on child survivors in old age.

Method

Participants

Participants were 203 Holocaust child survivors, born between 1935 and 1944 in countries occupied by the Nazi regime, and having immigrated to Israel after 1945. A non-convenience sample was created by recruiting through demographic information provided by the Israel Ministry of Interior Affairs, including name, year and country of birth, and date of immigration into Israel. The sample is a non-convenience sample in that we did use a Holocaust-independent registry to recruit our sample, in contrast with Holocaust-related sources such as support groups for Holocaust survivors. Israeli laws concerning protection of privacy were followed. Research team members signed guarantees of confidentiality. Invitations to participate in the study were sent to 410 addresses by regular mail. In follow-up telephone calls we were able to reach 293 survivors who met our criteria. Forty-nine survivors refused to participate. Non-participants explained their refusal as a need to let the past rest, or as not having the strength to relate to the past. Forty-one candidates were not available for participation during

the time frame of the study. Participants indicated that their decision to volunteer in the research project had been motivated by their approval of its aims. They signed a form of informed consent after receiving an explanation concerning nature and purpose of the study. Participation consisted of completing self-report questionnaires. The procedure took one and a half hours on average. Research assistants supervised the procedure, which following the participants' preference took place at their home or at the research office..

The survivors were on average 65 years old (mean age 64.64; SD 2.76), and 63% were female. Their socio-economic status as derived from educational level was middle class, and homogeneous. They were generally well-educated, at college level or higher. One-third of the participants (n = 67) indicated that they had received psychotherapy. For the purpose of analysis, the sample was divided in three age groups: born 1935-1937 (n = 60), 1938-1940 (n = 70), and 1941-1944 (n = 73). This division reflects the progressively diminishing safety in which they were born, first before, and later during Nazi persecution. Twenty-seven child survivors (13%) had lost both their parents during the Holocaust, 46 had lost one parent (23%), and in the remaining group (64%) both parents survived.

Instruments

Holocaust survival exposure questionnaire. This questionnaire consists of demographic and specific Holocaust survival-related questions. In the current study we focused on questions pertaining to the severity of Holocaust exposure as expressed in the number of times that participants were exposed to the stress of escaping persecution, the number of geographical and relational transitions they experienced (e.g. in order to evade arrest and deportation), and the loss of parents, which resulted in dependency on alternate caregivers after the war. Since the distribution of number of transitions was skewed, we used the logarithmic transformation of the variable in the analyses (Tabachnik & Fidell, 2001).

Physical health status. Physical health status was assessed with a self-report questionnaire developed by the Herczeg Institute on Aging (Tel-Aviv University), listing 18 chronic physical illnesses. Respondents were asked to indicate which, if any, illness they had suffered during the last month. This questionnaire is widely used in Israel for socio-demographic research on the aged.

Post-traumatic stress. We used the Post-traumatic stress diagnostic scale, devised by Foa (Foa, Riggs, Dancu & Rothbaum, 1993). PTSD was assessed by means of the total score on the PDS. This 49-item self-report scale assesses DMS-IV symptoms of PTSD. It provides a categorical diagnosis of PTSD, as well as an overall measurement of symptom severity. The instrument showed good internal consistency and test-retest reliability (Foa, Riggs, Dancu & Rothbaum, 1993). The test items correspond to DSM-IV (American Psychiatric Association, 1994)

diagnostic criteria for PTSD, indicating satisfactory convergent validity and concurrent validity assessed by self-report measures of depression and anxiety (Foa, Cashman, Jaycox & Perry, 1997). The instrument in its Hebrew translation is widely used in Israel. In the current study we assessed the PTSD criteria B, C, and D: *re-experiencing*, consisting of five items, *avoidance*, 7 items, and *arousal*, 5 items. Each item was answered on a scale of 0 to 3 (0: least; 3: most). The total score of 17 items showed a high consistency (alpha .92, n = 184), and the consistencies of the subscales were adequate as well (re-experiencing, alpha .85, n = 195; avoidance, alpha .84, n = 188; arousal, alpha .85, n = 198).

"Orientation to Life" questionnaire. The "Orientation to Life" questionnaire (OLQ, Antonovsky, 1993) was developed to assess SOC, and has been used widely over the past two decades. The Hebrew version has been used in Israel since its composition. The short version used in this study consists of 13 items (the original version contains 29 items). The items are rated on a 7-point rating scale, with higher scores indicating more SOC. The Cronbach's alpha values in 127 studies using this version range from 0.70 to 0.92 (Erikson & Lindström, 2005). Test-retest correlation shows stability, and ranges from 0.69 to 0.78 (1 year), 0.64 (3 years), 0.42 to 0.45 (4 years), 0.59 to 0.67 (five years) to 0.54 (ten years). The means range from 35.39 (SD 0.10) to 77.60 (SD 13.80). The OLQ showed adequate consistency in our sample (alpha .79, n = 203).

Results

Preliminary analyses

Male participants were somewhat older than female participants, but they reported significantly fewer physical illnesses (see Table 1). There were no differences between males and females on any of the other variables including Holocaust experiences, SOC, and post-traumatic stress indices.

Bivariate associations

Age (taken as an interval scale) was associated with number of transitions. Older participants reported to have experienced a larger number of transitions during the Holocaust, and more often lost one or both of their parents; not unexpectedly, age was also related to the length of the persecution period: older participants reported to have experienced a significantly longer period of persecution. On most post-traumatic stress indices we found no association with age, except for a small but significant association with the PDS subscale for re-experiencing. Older participants reported to somewhat more often re-experience their past traumas. SOC was not related to age (see Table 2). Participants with more physical illnesses also reported more post-traumatic stress and displayed a

lower SOC. Participants who reported more parental losses and more transitions displayed more traumatic stress symptoms. Lastly, participants with a higher SOC reported fewer post-traumatic stress symptoms in all domains of the PDS (see Table 2).

Multivariate analyses

We conducted a hierarchical multiple regression analysis predicting current post-traumatic stress (PDS total) from physical illnesses (first step), loss of parents during the war, number of transitions, and period of persecution (second step). The beta weights for the separate predictors in both steps are based on the final regression equation including all predictors (see Table 3). The number of physical illnesses significantly contributed to the prediction of post-traumatic stress, but controlling for physical illnesses (*beta* .28, p <.01), the number of transitions (*beta* .16, p = .03), and the loss of parents (*beta* .15, p = .03) also significantly predicted post-traumatic stress symptoms. More physical illnesses, more transitions, and higher parental losses predicted more post-traumatic stress, see Table 3. Similar results were found for the PDS domain of arousal. For the PDS domains of re-experience and avoidance only physical illnesses appeared to be a significant predictor (see Table 3).

In order to examine the role of SOC in predicting post-traumatic stress, we repeated the hierarchical multiple repression predicting current post-traumatic stress (PDS total) from physical illnesses (first step), SOC (second step), and loss of parents during the war, number of transitions, and period of persecution (third step). SOC contributed significantly to the regression (*beta* -.36, p < .01). Greater SOC predicted fewer post-traumatic stress symptoms (see Table 4). Similar results were found for the three PDS domains of re-experiencing, avoidance and arousal. Greater SOC independently predicted less post-traumatic stress in each of the three domains.

Table 1. Descriptives

Gender	**Females**	**Males**	**Total**	***t***	**Effect size d**
	M (SD) N	*M (SD) N*	*M (SD) N*		
Age	64.3 (2.77) 127	65.1 (2.72) 76	64.6 (2.77) 203	-2.08*	0.30
Physical illnesses	2.47 (2.21) 127	1.75 (1.65) 76	2.2 (2.04) 203	2.47*	0.36
Loss of parents during war	0.47 (0.69) 127	0.54 (0.77) 76	0.50 (0.72) 203	-0.64	0.09
No. of transitions during war[1]	2.8 (2.11) 126	2.8 (2.03) 76	2.8 (2.07) 202	0.24	0.03
Period of persecution	2.8 (1.53) 124	2.9 (1.52) 75	2.8 (1.52) 199	-0.35	0.05
PDS total	8.09 (10.08) 126	6.66 (9.06) 76	7.55 (9.71) 202	1.01	0.15
re-experience	2.86 (3.74) 121	2.32 (3.68) 74	2.66 (3.71) 195	0.98	0.14
avoidance	2.46 (3.86) 118	2.49 (4.37) 70	2.47 (4.05) 188	-0.05	0.01
arousal	2.61 (3.89) 124	1.70 (2.72) 74	2.27 (3.52) 198	1.77	0.26
Sense of coherence	61.38 (11.83) 127	64.07 (9.52) 76	62.39 (11.08) 203	-1.68	0.24

[1] untransformed * $p < .05$

Table 2. Associations among background variables, Holocaust experiences, post- traumatic stress indices, and sense of coherence.

	age	physi-cal illness	loss of parents during war	number of transi-tions	period of perse-cution	---------- PDS ----------			
						total	re-expe-rience	avoi-dance	arou-sal
age	--								
physical illnesses	.12	--							
loss of parents during war	.15*	.05	--						
number of transitions during war	.21**	.12	.12	--					
period of persecution	.34**	.06	.18**	.32**	--				
PDS						--			
total	.09	.31**	.20**	.23**	.16*				
re-expe-rience	.15*	.23**	.18*	.18*	.18*	.87**	--		
avoidance	-.00	.20**	.15*	.17*	.14	.90**	.64**	--	
arousal	.06	.35**	.17*	.23**	.13	.87**	.66**	.71**	--
sense of coherence	-.03	-.24**	-.01	-.13	-.05	-.43**	-.29**	-.41**	-.43**

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

Table 3. Regression Analysis predicting PDS total and the PDS subscales from age, physical illnesses, and war experiences

	R	R^2	R^2Ch	*F*	*df*	*Beta*[1]	*p*
PDS total							
Step 1	.31	.09	.09	20.15	(1,196)		<.01
Physical illnesses						.27	<.01
Step 2	.41	.17	.08	9.78	(4,193)		<.01
Loss of parents during war						.16	.02
Number of transitions						.18	<.01
Period of persecution						.06	.38
PDS re-experience							
Step 1	.23	.05	.05	10.54	(1,189)		<.01
Physical illnesses						.20	<.01
Step 2	.34	.12	.07	6.22	(4,186)		<.01
Loss of parents during war						.14	.05
Number of transitions						.14	.05
Period of persecution						.10	.19
PDS avoidance							
Step 1	.20	.04	.04	7.85	(1,182)		<.01
Physical illnesses						.17	.02
Step 2	.30	.09	.05	4.53	(4,179)		<.01
Loss of parents during war						.12	.11
Number of transitions						.15	.04
Period of persecution						.06	.44
PDS arousal							
Step 1	.35	.12	.12	26.36	(1,192)		<.01
Physical illnesses						.31	<.01
Step 2	.42	.18	.06	10.37	(4,189)		<.01
Loss of parents during war						.13	.05
Number of transitions						.18	<.01
Period of persecution						.02	.73

[1] The betas are derived from the final block of the regression model

Table 4. Regression Analysis predicting PDS total from age, physical illnesses, war experiences, and sense of coherence

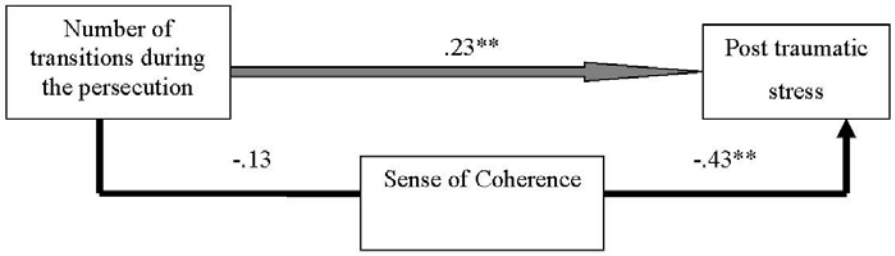
	R	R^2	R^2Ch	*F*	*df*	*Beta*[1]	*p*
PDS total							
Step 1	.31	.09	.09	20.15	(1,196)		<.01
Physical illnesses						.19	<.01
Step 2	.48	.23	.14	28.83	(2,195)		<.01
Sense of Coherence						-.36	<.01
Step 3	.54	.29	.06	15.48	(5,192)		<.01
Loss of parents during war						.16	.01
Number of transitions						.13	.04
Period of persecution						.06	.34

[1] The betas are derived from the final block of the regression model

Does SOC mediate the association between Holocaust experiences and PDS?

We tested whether the association between Holocaust surviving experiences, in particular number of transitions during the persecution, which showed the highest association with PDS (see Table 3), and post traumatic stress was mediated by SOC. Empirical support for mediation requires four steps (Baron & Kenny, 1986): (1) number of transitions is significantly associated with SOC, (2) number of transitions is significantly associated with post-traumatic stress, (3) SOC is significantly associated with post-traumatic stress, and (4) once SOC is added to the equation, the relation between number of transitions and post-traumatic stress is no longer statistically significant. Examining these associations, we found that transitions were significantly related to post-traumatic stress ($r = .23$, $p < .01$), and SOC was also significantly related to post-traumatic stress ($r = -.43$, $p < .01$), but number of transitions was not significantly associated with SOC ($r = -.13$, $p = .06$). One of the requirements for mediation (Step 1) was thus not met. By implication the association between number of transitions during the persecution and post-traumatic stress was not mediated by SOC.

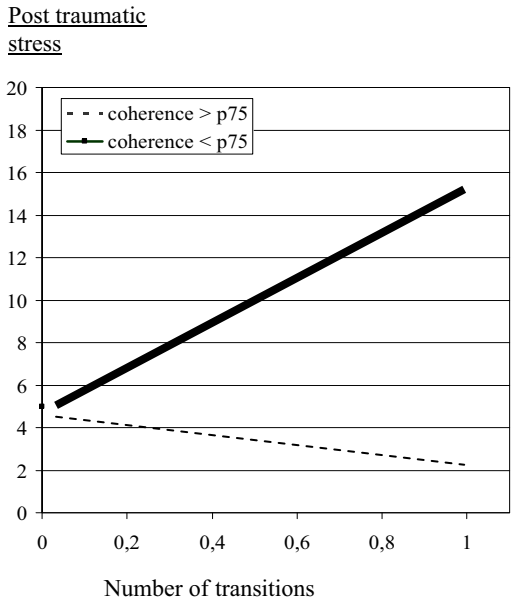
Figure 1. Sense of Coherence does not Mediate the Association between Number of Transitions during the War and Post Traumatic Stress



Does SOC moderate the association between Holocaust experiences and PDS?

Since high scores on SOC might be necessary to affect the association between Holocaust experiences and PDS, participants were divided into two groups, scoring higher (>percentile 75) or lower (<percentile 75) on SOC. The group of participants with high scores on SOC did not differ from the other participants on age (t (201) = 0.90, p = .37), gender (X^2 (1, N = 203) = 0.19, p = .67) and physical illnesses (t (201) = 1.29, p = .20), loss of parents during the Holocaust (t (201) = -0.03, p = .98), number of transitions and period of persecution (t (95.39, unequal variances) = 0.65, p = .52). They had lower scores on the PDS (M = 3.84, SD = 6.32) than the other group (M = 8.77, SD = 10.32), t (138.23, unequal variances) = 4.03, p <.01. We conducted a multivariate hierarchical regression on PDS, with SOC and the number of transitions as predictors in the first step, and the interaction between these variables (centred before their product was computed) in the second step. The overall regression was significant, F (3, 197) = 8.64, p < .01. All three predictors contributed significantly to the regression equation, SOC (*beta* = -.22, p < .01), number of transitions (*beta* = .19, p < .01), and the interaction between SOC and number of transitions (*beta* = -.15, p = .03). Post-hoc analyses for the highly coherent subgroup and the less coherent subgroup were conducted to clarify the interpretation of the significant interaction effect (Aiken & West, 1991; Dearing & Hamilton, 2006). For the highly coherent subgroup, we found a non-significant correlation of r (49) = -.11 (p = .43) between number of transitions and PDS total, whereas for the less coherent subgroup the correlation was significant, r (152) = .28 (p <.01). These correlations differed significantly (Z_{diff} = 2.36, p = .02). SOC reduced the impact of number of transitions during the war on the PDS, confirming the moderating model (see Figure 2).

Figure 2. Sense of Coherence Moderates the Association between Number of Transitions during the War (log-transformed) and Post Traumatic Stress



Discussion

The results of our study show that, even six decades after the end of the war, for child survivors who endured the most severe Holocaust survival exposure their sense of coherence moderates the association between traumatic experiences during the war and post-traumatic stress. Sense of coherence acts as a protective factor (Rutter, 1987), buffering the impact of traumatic Holocaust experiences on child survivors in old age, whereas survivors with a weak SOC are left more vulnerable for present-day post-traumatic complaints.

To the best of our knowledge no other study has so far investigated a moderating or mediating role of the SOC on later psychological well-being after childhood adversity. The results of a Canadian study based on data from the national population health survey of 1994/1995 (N = 14,500, aged 12 and older) showed that childhood trauma was strongly associated with the SOC in the expected direction, but did not expand to find moderating or mediating properties (Stephens, Dulberg, & Joubert, 1999). However in a convenience sample of 193 French adults (average age 54.24 years), the SOC was found to have a mediating

role between adversity and stress (measured by anxiety, worry and stressful experiences scales), and psychological well-being; and also a moderating role, in that adversity and stress had a significant effect on the well-being of respondents with a weaker SOC, while they did not affect those with a stronger SOC (Kamel, 2001).

Antonovsky (1987) considered a (weak or strong) SOC to be an overall behavioral response to stress, acquired over the years. Several findings support this view (Breslin, Hepburn, Ibrahim, & Cole, 2006; Flannery & Flannery, 1990; Schnyder, Büchi, Sensky, & Klaghofer, 2000; Szymona, 2005). The SOC seems to maintain active, developmental qualities while only after years acquiring stable, trait-like characteristics. Considering SOC as a trait (Schnyder et al., 2000), we may interpret its moderating role as a protective mechanism against the negative consequences of the Holocaust experiences in older age. Survivors with a strong sense of coherence may be less preoccupied by the traumatic consequences of their Holocaust experiences. Through their strong SOC they may have made sense of the Holocaust survival and –in retrospection—of their own active role in coping with the Holocaust.

A somewhat different but not incompatible view seems to be implied in the findings of Sagy and Antonovsky (2000). In their study of semi-structured life-history interviews among Israeli retirees they found that "participation in shaping outcomes" was the most relevant childhood experience related to adult level of SOC. If SOC would especially have been shaped during the life-threatening circumstances of the Holocaust, this SOC would be as much a consequence of the Holocaust as it would be a cause for a specific type of coping with the Holocaust experiences. For survivors who actively participated in their own rescue, this might have led to a stronger salutogenic orientation. Even small children had been observed by their caregivers in hiding places and in concentration camps to participate in shaping positive outcomes at critically dangerous moments. For example, adult witnesses reported how persecuted infants and toddlers "knew" not to move or to make any noise when their hiding place was searched by the Nazis, even when they were hidden under the floor, under layers of blankets, or in dark cupboards (Evers-Emden, 1994; Kestenberg & Brenner, 1996). However, child survivors who had to passively endure exposure to ever-changing dangers, may have developed a weak SOC and as a consequence might have become more vulnerable to post-traumatic stress symptoms (Bar-On, Eland, Kleber, Krell, Moore et al., 1998; Van der Hal & Brom, 2007). Lack of options to participate in shaping outcomes has been identified by Keilson (1992) as a cumulative traumatizing experience, when during the post-Holocaust era war orphans became the victims of disputed guardianships and of decisions on their upbringing that were not always in their best interest. On the basis of the current, retrospective and

correlational design it is impossible to decide what developmental origins SOC may have and how it is rooted in the early Holocaust surviving experiences. Our findings, however, document the protective, buffering role of a high SOC in the lives of child Holocaust survivors, and support its moderating role in older age – whatever its developmental roots.

Besides the equivocal causal role of SOC in the current, basically correlational study, another limitation of this study is the possible under-reporting of Holocaust traumatic experiences by survivors who were too young to remember what had happened to them. Many of them had to rely on information given to them by third parties after the fact, and autobiographical memory might have inadvertently re-constructed data and events of more than sixty years ago, and thus impacted the reliability of self reported experiences with transitions and other traumatic events. This study is also limited in not having included the traumatic experiences our respondents could have been exposed to in the years after the Holocaust. Such exposure may have influenced both PDS and SOC outcomes in either positive or negative ways (see Brewin, Andrews, & Valentine, 2000).

The current study suggests a potential protective role of SOC for child Holocaust survivors. Higher levels of SOC seem to buffer the negative impact of the Holocaust experiences on feelings of well-being and of post-traumatic stress. During the last decade aging child Holocaust survivors are seeking psychotherapeutic help in increasing numbers (Dasberg, 2001; Durst, 2003). The moderating role of SOC may generate fruitful hypotheses about promising avenues for therapeutic interventions. This study confirms today's prevailing insights on the necessity of establishing stabilization, and of assessing intrapersonal and inter-relational resources before the implementation of more explorative psychotherapy with survivors of extreme trauma (Herman, 1992; Rothschild, 2000, Van der Kolk, Van der Hart, & Burbridge, 1995). Strengthening the SOC may be given precedence over directly dealing with the Holocaust experience and other severe childhood traumas *per se*. More sense of coherence may contribute to better coping with those experiences.