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### Self- and other-oriented potential lifetime traumatic events as predictors of loneliness in the second half of life

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## Self- and other-oriented potential lifetime traumatic events as predictors of loneliness in the second half of life

Yuval Palgi<sup>a\*</sup>, Amit Shrira<sup>b</sup>, Menachem Ben-Ezra<sup>c</sup>, Sharon Shiovitz-Ezra<sup>d</sup> and Liat Ayalon<sup>e</sup>

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**Objectives:** This study examined the relationship between self- and other-oriented potential lifetime traumatic events (PLTE) and loneliness at the second half of life.

**Method:** The sample was comprised of 7446 respondents who completed the Health and Retirement Study (HRS) 2006 psychosocial questionnaire. PLTE were classified into self-oriented PLTE, defined as traumatic events that primarily inflict the self (e.g., being abused by parents) and other-oriented PLTE, defined as events that affect the self by primarily targeting others (e.g., death of one's child). We evaluated the role of self- and other-oriented PLTE as predictors of loneliness, as evaluated by the short R-UCLA. Analyses were stratified by age at which trauma happened categorized into four life periods (0–17, 18–30, 31–49, 50+).

**Results:** The results showed that PLTE is positively related to loneliness. Moreover, the number of other-oriented PLTE, and even more pronouncedly self-oriented PLTE, that happened up until adulthood were the strongest predictors of loneliness at the second half of life.

**Conclusion:** The study suggests that self- and other-oriented PLTE reported to have occurred early in life are associated with perceived loneliness in the second half of life.

**Keywords:** cumulative trauma; lifetime trauma; loneliness; other-oriented events; self-oriented events

### Introduction

Loneliness is the subjective experience of social isolation. It has been defined as an unpleasant subjective state of sensing a discrepancy between the desired amount of companionship or emotional support and between the amounts available in the person's environment (Blazer, 2002). Loneliness is a major social and public health problem (Cacioppo & Patrick, 2008) that tends to accelerate from middle age (Cohen-Mansfield, Shmotkin, & Goldberg, 2009). It was estimated that between 10% (Pinquart & Sorensen, 2003) to 32% (De Jong, Gierveld, & Van Tilburg, 1999) of older adults report feeling lonely.

A relatively unexplored question is how potential lifetime traumatic events (PLTE) relate to late-life loneliness. Major life events and traumatic events are known for their long lasting effects on one's social functioning. In fact, disturbance in social functioning is part of criterion F for the diagnosis of posttraumatic stress disorder (PTSD) in the diagnostic and statistical manual of mental disorders IV-TR (American Psychiatric Association, 2000). PLTE may include the loss of close and loved people or the direct infliction of trauma by others. Therefore, it is expected that PLTE influence one's sense of loneliness.

The noxious effects of trauma on loneliness may be especially strong when it comes to lifetime trauma (Hawthorne, 2008). Research has shown that people

who lost their loved ones or who were hurt by others may find it harder to trust and rebuild new relations with others. The cumulative effects of several traumatic events can make the traumatic experience even more profound (Cloitre et al., 2009; Keinan, Shrira, & Shmotkin, in press), and its effects on social relations even stronger. One study that examined the association between lifetime trauma and loneliness found that lifetime trauma significantly elevated the chance for perceived social isolation, but only when depressive symptoms were omitted from the equation (Hawthorne, 2008). Beyond the relationship between PLTE and loneliness, it is also important to delineate whether events of different types or that occurred in different life periods show distinct associations with loneliness. Therefore, this study aimed to perform a more detailed exploration of the PLTE-loneliness relationship by accounting for the primary focus of adversity and its timing.

When referring to the primary focus of adversity, one possible differentiation is between self- and other-oriented PLTE. The distinction has gained more relevance since the DSM-IV (American Psychiatric Association, 1994) defined a traumatic event in a wider scope, providing more options of 'witnessing' or 'learning about' stressors that may evoke trauma. Self-oriented PLTE refers to traumatic inflictions that primarily target the self (e.g., being a victim of a

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serious physical attack or assault; being abused by parents), whereas other-oriented PLTE refers to events that affect the self by primarily targeting others (e.g., learning about the death of one's child; having family members who suffer from life-threatening illness). Although prior studies differentiated between various types of adversity, the 'self or others' distinction was largely overlooked. Recently, several studies have addressed the distinction between self- and other-oriented PLTE (Keinan et al., in press; Shmotkin & Litwin, 2009; Shrira, Shmotkin, & Litwin, in press). These various studies found self- but not other-oriented PLTE, to be related to negative outcomes in late life. None of these studies, however, has evaluated the association of self- and other-oriented PLTE with loneliness. Therefore, it is still left to examine which primary focus of adversity: self- or other-oriented is more associated with loneliness.

When referring to the life period in which adversity took place there is no conclusive evidence as to the potential impact of these factors. Whereas some report that early (childhood) trauma is related to higher levels of symptom complexity (Briere, Kaltman, & Green, 2008; Cloitre et al., 2009), others found that adversity that happened in adulthood (Dulin & Passmore, 2010; Krause, 2004), or mid-life and old age (Shrira et al., in press), has the largest effect on functioning. According to the object relation and attachment theories, the need for interpersonal contact is essential (Mitchell & Black, 1995). Early traumas can harm basic trust and lead to later internalization of perceived unstable relations and even sense of loneliness. From a different perspective, it can be assumed that different kinds of losses in the selective close and strong relations that characterize old age (see Carstensen, Isaacowitz, & Charles, 1999) may especially enhance these feelings of loss and in turn accelerate loneliness. To sum, one question that still remained unanswered is what kind of adversity is most associated with loneliness: early-life or late-life adversity?

Based on the above literature, we formulated three hypotheses. Our first hypothesis suggests that the number of PLTE would be positively associated with loneliness. In view of previous studies showing a stronger detrimental effect for self-oriented PLTE (Keinan et al., in press; Shmotkin & Litwin, 2009; Shrira et al., in press), our second hypothesis is that self-oriented PLTE would have a stronger association with loneliness relative to other-oriented events. Our third hypothesis deals with the age at which the trauma took place. As mentioned earlier, findings are still inconclusive. On the one hand, loneliness can be influenced by internalizations of early childhood relations with the world. On the other hand, late traumas and especially those that are related to the loss of close relations may cause direct social loneliness and therefore, may be more influential. As most studies found childhood and young-adulthood adversity to have a stronger effect on functioning (Briere et al., 2008; Cloitre et al., 2009; Krause, 2004), our third hypothesis

suggests that early-life adversity would have a stronger association with loneliness. As the assumed influence of early traumas is mostly based on harmed internalized interpersonal contact associated more closely with self-oriented PLTE and only to a lesser extent with other-oriented events, it is expected that early self- and to a lesser extent early other-oriented PLTE would have stronger associations with loneliness than self- and other-oriented PLTE that happened from adult life and later.

## Method

### *Participants and procedure*

The current study used data from the Health and Retirement Study (HRS). HRS is a nationally representative sample of individuals 50 years and older, residing in the United States (<http://hrsonline.isr.umich.edu/>). The HRS is sponsored by the National Institute of Aging and is conducted by the University of Michigan. The study is reviewed and approved by the University of Michigan's Health Sciences IRB. Participants take part in a biennial interview that covers a range of topics including income, wealth, work, retirement, health, health care utilization, etc.

Baseline data for this study were collected in 2006. Overall, 18,469 individuals responded to the 2006 HRS questionnaire. Of these, 8899 were randomly chosen to receive the self-report psychosocial questionnaire 'Leave-Behind Participant Life Style Questionnaire' (see, Clarke, Fisher, House, & Weir, 2007 for further information) and 8568 were found eligible to complete it (DeLeire & Kalil, 2010).

The analytic sample for this study is comprised of 7446 participants, who completed the self-report psychosocial questionnaire, were 50 or older, and responded to at least one item in the loneliness questionnaire.

The participants' mean age was  $M = 68.3$ ,  $SD = 10.1$  (range = 50–104); 58.2% of the sample were women ( $n = 4335$ ); 64.8% were married ( $n = 4826$ ); and only 21.7% had higher education ( $n = 1613$ ).

### *Measures*

*Background characteristics* included age, gender, education level (coded by six categories ranked from no schooling to graduate academic degree), and marital status (dichotomized into currently married and unmarried).

### *Depressive symptoms*

Adapted eight-item version of the CES-D (see Turvey, Wallace, & Herzog, 1999) was used to control for the potential contribution of depression, which might account for the relationship between traumatic events and loneliness (Hawthorne, 2008). To ensure loneliness

and depressive symptoms do not overlap, we omitted the item 'you felt lonely' prior to calculating the total modified CES-D score. Participants had to report each item on a dichotomized scale of 0 ('no') and 1 ('yes') to describe their depressive symptoms over the last week. Two items tapping positive affect were reverse coded, and the sum of the 'yes' responses served as the participants' CES-D score that was dichotomized according to four acceptable 'yes'-responses into upper 10 percentile of depressive symptoms versus the lower 90%. Although we have only seven (and not the acceptable eight) items, we decided to stick with the four acceptable 'yes'-responses as a cut-off (Turvey et al., 1999). The alpha coefficient for depressive symptoms was 0.77.

### Loneliness

Loneliness was assessed using the short R-UCLA, three-item scale (Hughes, Waite, Hawkey, & Cacioppo, 2004) designed to gauge feelings of loneliness in large-scale surveys within the constraints of a short telephone interview. The scale consists of three questions (How often do you feel: 'You lack companionship?'; 'Left out?'; 'Isolated from others?'), reversed coded on a three-point scale: 1 (*often*), 2 (*some of the time*), and 3 (*hardly ever or never*). Responses were averaged across all cases if more than one item was answered according to the guidelines for this measure (Clarke et al., 2007). Only 18 respondents answered one item only whereas all other participants had at least two filled items. The alpha coefficient for loneliness was 0.88. The participants were divided into two groups: highest loneliness (the 10% who scored the highest on the loneliness scale) ( $n=858$ ) and lower loneliness ( $n=6588$ ). No significant age differences were found between the highest loneliness group ( $M=67.73$ ;  $SD=10.9$ , range 50–95) and the lower loneliness group ( $M=68.37$ ;  $SD=10.0$ , range 50–104;  $t=3.05$ ;  $p=0.08$ ). The highest loneliness group had a significantly higher percentage of women (64.8%) compared to the lower loneliness group (57.4%;  $\chi^2=17.28$ ;  $p<0.0001$ ). The higher loneliness group had a higher level of education ( $t=7.69$ ;  $p<0.0001$ ) relative to the lower loneliness group, and a lower percentage of the higher loneliness group were married (43.1% compared to 67.6% respectively;  $\chi^2=200.23$ ;  $p<0.0001$ ).

### Potential lifetime traumatic events

PLTE was measured by an adapted version of 10 items from the 22-item lifetime trauma list (Krause, Shaw, & Cairney, 2004). Although Krause's (2004) definition of the questionnaire as measuring 'lifetime exposure to traumatic events' we prefer to use the acronym PLTE that represent exposure to adversities that has *potential* for becoming traumatic events (see, Bonanno, Westphal, & Mancini, 2011). Respondents were asked whether they have ever experienced any of the

10 potentially traumatic events in their lifetime. If they indicated they had been exposed to an event, they were then asked to report the age at which they first encountered the traumatic event. Three out of 10 traumatic items targeted early events that happened before the age of 18 (and for these three events the age in which the event has occurred was not requested from the respondents). A sum of the total number of traumatic events reported to have occurred was computed from these data to represent the overall number of traumatic events. In addition to the total overall trauma score, we calculated two other trauma variables: (a) self- versus other-oriented PLTE and (b) time at which the traumatic event occurred. The creation of these two variables is outlined in the following.

*Self-oriented lifetime PLTE* was computed from four items that described traumatic events that primarily target the self. *Other-oriented PLTE* was computed from an additional four items that affect the self by primarily targeting others (see Table 1). As self-oriented PLTE originally had six items and in order to have an equal number of events in both scales (from 0 to 4 traumas), two items were not included in the current analyses concerning self- versus other-oriented PLTE. The first item that was omitted was 'Before you were 18 years old, did you have to do a year of school over again?' This item was deleted because it is not considered a definite case of trauma according to criterion A in the DSM IV-TR (American Psychiatric Association, 2000). In addition, because we also wanted to evaluate whether time of occurrence of the traumatic event is associated with loneliness, it deemed important to balance the time of events in 'other-' versus 'self-' oriented PLTE. Therefore, we omitted one of the two early exposure items in the 'self-oriented' PLTE category, to balance it with the 'other-oriented' early PLTE category. Given these considerations, the second item deleted was 'Have you ever fired a weapon in combat or been fired upon in combat?' This item was deleted as the majority of participants acknowledged experiencing it at a younger age and, as a result, it demonstrated a narrower range of years during which the event was experienced.

Time at which traumatic event took place was divided into four age periods categorized according to age at the time of the trauma (0–17, 18–30, 31–50, 50 and older). A similar division was made in previous studies (Krause et al., 2004; Shrira et al., in press). See Table 1.

### Data analysis

Descriptive analyses were conducted first. The two loneliness groups (low vs. high) were compared on age, gender, marital status, education, and depressive symptoms, using  $t$  tests, and chi-square tests. In order to test our first hypothesis concerning the

Table 1. Potential lifetime traumatic events and loneliness; occurrence and percentages.

Theme and event	Age <i>M</i> ( <i>SD</i> )	<i>N</i>	Low loneliness, <i>n</i> (%)	High loneliness, <i>n</i> (%)	Experience trauma, <i>n</i> (%)
Has a child of yours ever died? (O)	46.85 (19.27)	7303	1038 (16.0)	168 (20.2)	1206 (16.5)
Have you ever been in a major fire, flood, earthquake, or other natural disaster? (S)	41.02 (20.28)	7325	1194 (18.4)	150 (17.9)	1344 (18.3)
Has your spouse, partner, or child ever been addicted to drugs or alcohol? (O)	50.15 (13.71)	7298	1139 (17.6)	212 (25.6)	1351 (18.5)
Were you the victim of a serious physical attack or assault in your life? (S)	34.02 (16.90)	7338	367 (5.6)	116 (13.9)	483 (6.6)
Did you ever have a life-threatening illness or accident? (S)	50.80 (20.27)	7306	1744 (27.0)	265 (31.7)	2009 (27.5)
Did your spouse or a child of yours ever have a life-threatening illness or accident? (O)	53.22 (15.42)	7253	1886 (29.3)	268 (32.5)	2154 (29.7)
Before you were 18 years old, did either of your parents drink or use drugs so often that it caused problems in the family? (O)		7341	907 (13.9)	162 (19.4)	1069 (14.6)
Before you were 18 years old, were you ever physically abused by either of your parents? (S)		7358	321 (4.9)	100 (11.9)	421 (5.7)
Number of PLTE ( <i>N</i> = 7446)					
0		7446	2138 (32.5)	203 (23.7)	2341 (31.4)
1	50.08 (18.56)	7446	2012 (30.5)	231 (26.9)	2243 (30.1)
2	48.78 (16.27)	7446	1324 (20.1)	202 (23.5)	1526 (20.5)
3	47.85 (14.68)	7446	696 (10.6)	130 (15.2)	826 (11.1)
4	45.25 (13.66)	7446	280 (4.3)	56 (6.5)	336 (4.5)
5	43.59 (13.77)	7446	103 (1.6)	24 (2.8)	127 (1.7)
6 or more	41.12 (11.65)	7446	35 (0.5)	12 (1.4)	47 (0.6)
Self and other PLTE					
Self PLTE	46.27 (19.86)	7380	2774 (42.5)	430 (50.8)	3204 (43.4)
Other PLTE	50.59 (15.78)	7379	3399 (52.0)	535 (63.2)	3934 (53.3)

Notes: S = self-oriented PLTE, O = other-oriented PLTE. Age *M* and age *SD* were computed only for items and participants that had details on age at the time of trauma.

association between the number of PLTE and loneliness, a logistic regression analysis was conducted. In the first step, the number of PLTE (0 events served as the reference category) was entered as the predictor. In the second step, demographic variables (age, gender, marital status and education) and depressive symptoms (using cutoff of 4 or above) were entered. In order to test our second hypothesis concerning the association between self- and other-oriented PLTE and loneliness, logistic regression analyses were conducted with loneliness as the dependent variable. PLTE (divided into self- and other-oriented PLTE) was entered in the first step, and demographic variables and depressive symptoms (divided to 4 or above as a cutoff) were entered in the second step, serving as predictors. In the same way, in order to test our third hypothesis concerning the association between the age at the time of trauma and loneliness we enter at the first step the number of self- and other-oriented PLTE divided into the age periods in which trauma happened, and in the second step we entered the demographic variables (gender, marital status, and education) and the depressive symptoms. All analyses were conducted using SPSS program (SPSS, version 17.0, Chicago, IL).

## Results

### *Descriptive statistics of PLTE and loneliness*

The average number of traumas reported was  $M = 1.35$ ;  $SD = 1.30$  for all traumas,  $M = 0.58$ ;  $SD = 0.77$  for self-oriented PLTE, and  $M = 0.79$ ;  $SD = 0.89$  for other-oriented traumas self- and other-oriented PLTE where only partially compatible. The correlation between self- and other-oriented PLTE was low and significant ( $r = 0.24$ ;  $p < 0.001$ ). There were 1901 respondents who reported other-oriented PLTE without reporting self-oriented PLTE, 1171 who reported self-oriented PLTE without reporting other-oriented PLTE, and 2033 respondents who reported both self- and other-oriented PLTE. The average number of traumas was significantly lower among the low loneliness group in comparison to the high loneliness group ( $M = 1.31$ ,  $SD = 1.28$ ;  $M = 1.68$ ,  $SD = 1.43$ ;  $t = -8.02$ ;  $p < 0.001$  respectively). The average number of self-oriented PLTE was significantly lower among the low loneliness group in comparison to the high loneliness group ( $M = 0.56$ ,  $SD = 0.75$ ;  $M = 0.75$ ,  $SD = 0.89$ ;  $t = -6.84$ ;  $p < 0.0001$ , respectively). The average number of other-oriented traumas was significantly lower among the low loneliness group in comparison to the high loneliness

Table 2. Hierarchical logistic regressions predicting loneliness by the number of potential lifetime traumatic events (PLTE).

Variable	Model 1, Unadjusted			Model 2, Adjusted		
	B	OR (Exp B)	95% CI for Exp B	B	OR (Exp B)	95% CI for Exp B
PLTE						
1 PLTE	0.245	1.278*	1.030–1.586	0.177	1.193	0.952–1.495
2 PLTE	0.441	1.554***	1.243–1.943	0.377	1.458**	1.154–1.842
3 PLTE	0.714	2.042***	1.601–2.605	0.562	1.755***	1.357–2.268
4 PLTE	0.640	1.896***	1.383–2.598	0.516	1.676**	1.202–2.336
5 or more PLTE	1.091	2.978***	2.130–4.162	0.728	2.071***	1.439–2.981
Age				–0.016	0.984***	0.976–0.991
Gender <sup>a</sup>				–0.013	0.987	0.836–1.164
Marital status <sup>b</sup>				–0.918	0.399***	0.340–0.469
Education <sup>c</sup>				–0.111	0.895***	0.847–0.945
Depressive symptoms <sup>d</sup>				1.601	4.960***	4.156–5.919

Notes:  $N = 7446$ . OR = Odd ratio; CI = Confidence Interval. <sup>a</sup>Coded 1 = man, 2 = woman. <sup>b</sup>Marital status was coded by 1 = married, 2 = not married (include single, divorce and widow). <sup>c</sup>Coded by six categories ranked from no schooling to graduate academic degree. <sup>d</sup>Depressive symptoms was coded by 1 = low depressive symptoms, 2 = high depressive symptoms. We used the original 10 PLTE for this analysis.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

group ( $M = 0.76$ ,  $SD = 0.88$ ;  $M = 0.96$ ,  $SD = 0.92$ ;  $t = -6.19$ ;  $p < 0.0001$  respectively). In addition, the highest loneliness group had a significantly high percentage of respondents above the cut-off point for depressive symptoms (38.4%) compared to the low loneliness group (9.0%;  $\chi^2 = 592.74$ ;  $p < 0.0001$ )

*Hypothesis 1: The number of PLTE as predictors of loneliness.*

In line with the first hypothesis the results show that an elevated number of PLTE increases the chance for higher level of loneliness (1 PLTE compared to no PLTE:  $B = 0.18$ ,  $OR = 1.193$ ,  $95\% CI = 0.952–1.495$ , *n.s.*; 5 or more PLTE compared to no PLTE:  $B = 0.73$ ,  $OR = 2.071$ ,  $95\% CI = 1.439–2.981$   $p < 0.001$ ). For more details see Table 2.

*Hypothesis 2: Self- and other-oriented lifetime traumas as predictors of loneliness.*

Self- and other-oriented PLTE were significantly associated with loneliness even after adjusting for age, gender, marital status, education, and depressive symptoms (self-oriented PLTE:  $B = 0.20$ ,  $OR = 1.221$ ,  $95\% CI = 1.110–1.342$ ,  $p < 0.0001$ ; other-oriented PLTE:  $B = 0.113$ ,  $OR = 1.119$ ,  $95\% CI = 1.028–1.219$   $p < 0.01$ ).

*Hypothesis 3: Self- and other-oriented lifetime traumas as predictors of loneliness with regard to age at the time of trauma.*

According to the second hypothesis, self and other oriented PLTE were examined as predictors of loneliness with regard to the age at which the potential trauma took place. Early-life self- and other-oriented PLTE were stronger predictors of loneliness than later PLTE. Self-oriented PLTE exposed to at the ages

of 0–17 and 18–30 and other-oriented PLTE exposed to at ages 0–17, entered on the first step, significantly increased the chance for higher loneliness level even after adjusting for demographic variables and depressive symptoms ( $B = 0.34$ ,  $OR = 1.399$ ,  $95\% CI = 1.149–1.704$ ,  $p < 0.01$ ;  $B = 0.28$ ,  $OR = 1.326$ ,  $95\% CI = 1.037–1.695$   $p < 0.05$ ;  $B = 0.21$ ,  $OR = 1.238$ ,  $95\% CI = 1.006–1.522$   $p < 0.05$ , respectively). For more details see Table 3.

To sum, the results revealed that both self- and other-oriented PLTE were associated with loneliness, and that earlier exposures to traumatic events are more strongly associated with loneliness in the second half of life than do later exposures.

## Discussion

This study examined the association between PLTE and loneliness. Our main goal was to examine this question with regard to the primary focus of adversity (i.e., self or other), and the time the trauma took place.

In line with our first hypothesis an elevated number of PLTE was associated with an increased chance of loneliness. This result is in line with previous findings suggesting that an elevated number of PLTE is related to negative outcomes (Krause, 2004; Krause et al., 2004; Shrira et al., in press).

Contrary to our second hypothesis, self- and other-oriented PLTE showed similar associations with loneliness at later life. In line with our third hypothesis, the results suggest that self-oriented PLTE that took place up until adulthood, and other-oriented traumas that took place up until late adolescence, predicted loneliness in old age. We now discuss these results from two viewpoints, the perspective of PLTE and that of loneliness.

Table 3. Hierarchical logistic regressions predicting loneliness by self and other-oriented lifetime traumas in different age periods.

Variable	Model 1, Unadjusted			Model 2, Adjusted <sup>e</sup>		
	B	OR (Exp B)	95% CI for Exp B	B	OR (Exp B)	95% CI for Exp B
Step 1: PLTE						
Self-oriented PLTE ages 0–17	0.408	1.504***	1.256–1.801	0.336	1.399**	1.149–1.704
Other-oriented PLTE ages 0–17	0.261	1.298**	1.073–1.570	0.213	1.238*	1.006–1.522
Self-oriented PLTE ages 18–30	0.337	1.401**	1.120–1.751	0.282	1.326*	1.037–1.695
other-oriented PLTE ages 18–30	0.287	1.333*	1.070–1.661	0.165	1.179	0.929–1.496
Self-oriented PLTE ages 31–49	0.077	1.080	0.879–1.326	0.058	1.060	0.850–1.320
Other-oriented PLTE ages 31–49	0.103	1.108	0.938–1.309	0.116	1.123	0.943–1.339
Self-oriented PLTE ages 50–104	0.088	1.092	0.931–1.280	0.123	1.131	0.955–1.338
Other-oriented PLTE ages 50–104	–0.001	0.999	0.876–1.138	–0.067	0.936	0.814–1.076
Step 2: Background characteristics						
Age				–0.013	0.987**	0.979–0.995
Gender <sup>a</sup>				–0.022	0.979	0.829–1.155
Marital status <sup>b</sup>				–0.905	0.405***	0.344–0.475
Education <sup>c</sup>				–0.102	0.903***	0.855–0.954
Depressive symptoms <sup>d</sup>				1.629	5.100***	4.296–6.056

Notes:  $N = 7302$ . OR = Odd ratio; CI = Confidence Interval. <sup>a</sup>Coded 1 = man, 2 = woman. <sup>b</sup>Marital status was coded by 1 = married, 2 = not married (include single, divorce and widow). <sup>c</sup>Coded by six categories ranked from no schooling to graduate academic degree. <sup>d</sup>Depressive symptoms was coded by 1 = low depressive symptoms, 2 = high depressive symptoms. <sup>e</sup>Adjusted for age, gender, education, marital status and depression.

\* $p < 0.05$ , \*\* $p < 0.01$ , \*\*\* $p < 0.001$ .

### The PLTE perspective

The results from the first hypothesis suggested that a higher number of PLTE is associated with a higher level of loneliness. Possibly, an elevated number of PLTE may be associated with problems of trust and bonding (Kira et al., 2008). On the other hand, evolutionary, people are social species and as such they do not fare well when forced to live solitary lives (Cacioppo, Fowler, & Christakis, 2009). Therefore, it is possible that the number of PLTE is related to higher loneliness and consequently leads to other negative outcomes. Our finding from the second hypothesis revealed that similarly to previous studies that found the detrimental effects of self-oriented PLTE (Shmotkin & Litwin, 2009; Shrira et al., in press), self-oriented PLTE was significantly associated with loneliness. Contrary to this hypothesis, other-oriented trauma also had a negative effect, as it was also significantly associated with loneliness. Although other-oriented adversity is generally found to have a smaller effect on mental health in general, this study shows that it affects loneliness similarly as self-oriented PLTE. Although expected, it is still intriguing to find in our third hypothesis, that early rather than late-life traumas are associated with perceived loneliness, even when evaluated in late-life. This finding taps on the profound effects of cumulative trauma that happened during early personality and identity development. It underscores the prolong effects caused by the overall number of traumas that took place during this period of consolidation. Similar findings were found in

previous studies where the effect of trauma at young age (Briere et al., 2008; Cloitre et al., 2009; Mullet-Hume, Anshel, Guevara, & Cloitre, 2008) or at early adulthood (Krause, 2005) has a profound effect on one's functioning in adulthood and late-life. This finding also corresponds with the life-course perspective (Elder, 1998), which postulates that early traumatic periods that synchronize one's personal life-course with the socio-historical experiences strongly impact the developmental outcomes in old and old-old age (Elder & Johnson, 2002).

As mentioned by the third hypothesis in this study, self-oriented PLTE that happened up until adulthood, where associated with loneliness. Other-oriented traumas that happened up until late adolescence also were associated with loneliness. It seems that from the end of adolescence and during adulthood when people become more independent, this association between loneliness and potential trauma is related more dominantly to direct potential traumas related to the self and less so to PLTE that are related to others.

In addition, the rich literature suggests that emotional numbing and feelings of detachment from others are essential parts in the PTSD phenomenology (American Psychiatric Association, 2000). It can be assumed that the relationship between PLTE and loneliness can be also related to the detachment that is included in PTSD symptoms. It is possible therefore, that exposure early in life to self- as well as to other-oriented PLTE results in higher loneliness in late life due to impairment in the attachment relations. Further studies may examine this assumption.

### The loneliness perspective

The present finding raises the question as to whether the accelerating loneliness at the second half of life is associated, at least partially, with the changes in self-oriented and other-oriented PLTE. Consistently, according to the induction hypothesis, emotional, cognitive, and behavioral consequences of loneliness may contribute to the induction of loneliness on others (Cacioppo et al., 2009). In line with the present findings, it is possible that the spread of loneliness at the second half of life is faster due to its association with other-oriented sources. Meaning, stronger emotional relations (see Carstensen et al., 1999), make every loss more influential, and in turn increase the sense of loneliness. Moreover, these close relations with individuals who feel lonely, spread loneliness even faster due to their emotional intimate nature.

### Limitations, strengths, and conclusions

Limitations of the study include the cross-sectional nature of the study. Therefore, it was impossible to examine whether sense of loneliness was situational or chronic in nature (see Shiovitz-Ezra & Ayalon, 2010), and to examine the contribution of self-oriented and/or other-oriented PLTE to situational or chronic loneliness at later life. Additionally, the PLTE measure used in this study includes a relatively small number of items. Future studies still need to examine the variance shared by the primary focus of adversity (i.e., self or other) and the subjective perception of adversity's severity.

To sum, this study is one of very few studies to examine the differential aspects of the relationship between exposure to PLTE and loneliness. Early-life self- and other-oriented PLTE were found to be factors in the understanding of loneliness at the second half of life. The results can have potential implications for practitioners by directing their attention to the relation between early trauma and perceived loneliness at old age. In line with this idea, information concerning early trauma can serve as an indicator for potential loneliness and vice versa.

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### References

American Psychiatric Association (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

American Psychiatric Association (2000). *Diagnostic and statistical manual of mental disorders* (Rev. 4th ed.). Washington, DC: Author.

Blazer, D.G. (2002). Self-efficacy and depression in late life: A primary prevention proposal. *Aging and Mental Health*, 6, 315–324.

Briere, J., Kaltman, S., & Green, B.L. (2008). Accumulated childhood trauma and symptom complexity. *Journal of Traumatic Stress*, 21, 223–226.

Bonanno, G.A., Westphal, M., & Mancini, A.D. (2011). Resilience to loss and potential trauma. *Annual Review of Clinical Psychology*, 7, 511–535.

Cacioppo, J.T., Fowler, J.H., & Christakis, N.A. (2009). Alone in the crowd: The structure and spread of loneliness in a large social network. *Journal of Personality and Social Psychology*, 97, 977–991.

Cacioppo, J.T., & Patrick, B. (2008). *Loneliness: Human nature and the need for social connection*. New York: W.W. Norton & Company.

Carstensen, L.L., Isaacowitz, D.M., & Charles, S.T. (1999). Taking time seriously: A theory of socioemotional selectivity. *American Psychologist*, 54, 165–181.

Clarke, P., Fisher, G., House, J., & Weir, D. (2007). *Guide to content of the HRS Psychosocial Leave-Behind Participant Lifestyle Questionnaires: 2004 & 2006*. University of Michigan, Survey Research Center. Retrieved from <http://hrsonline.isr.umich.edu/index.php?p=userg>

Cloitre, M., Stolbach, B.C., Herman, J.L., van der Kolk, B., Pynoos, R., Wang, J., & Petkova, E. (2009). A developmental approach to complex PTSD: Childhood and adult cumulative trauma as predictors of symptom complexity. *Journal of Traumatic Stress*, 22, 399–408.

Cohen-Mansfield, J., Shmotkin, D., & Goldberg, S. (2009). Loneliness in old age: Longitudinal changes and their determinants in an Israeli sample. *International Psychogeriatrics*, 21, 1160–1170.

De Jong Gierveld, J., & van Tilburg, T. (1999). Living arrangements of older adults in the Netherlands and Italy: Co-residence values and behavior and their consequences for loneliness. *Journal of Cross-Cultural Gerontology*, 14(1), 1–24.

DeLeire, T., & Kalil, A. (2010). Does consumption buy happiness? Evidence from the United States. *International Review of Economics*, 57, 163–176.

Dulin, P.L., & Passmore, T. (2010). Avoidance of potentially traumatic stimuli mediates the relationship between accumulated lifetime trauma and late-life depression and anxiety. *Journal of Traumatic Stress*, 23, 296–299.

Elder Jr, G.H. (1998). The life course as developmental theory. *Child Development*, 69(1), 1–12.

Elder Jr, G.H., & Johnson, M.K. (2002). The life course and aging: Challenges, lessons, and new directions. In R.A. Settersten Jr (Ed.), *Invitation to the life course: Toward new understanding of later life* (pp. 49–81). Amityville, NY: Baywood.

Hawthorne, G. (2008). Perceived social isolation in a community sample: Its prevalence and correlates with aspects of peoples' lives. *Social Psychiatry and Psychiatric Epidemiology*, 43, 140–150.

Hughes, M.E., Waite, L.J., Hawkey, L.C., & Cacioppo, J.T. (2004). A short scale for measuring loneliness in large surveys: Results from two population-based studies. *Research on Aging*, 26, 655–672.

Keinan, G., Shrira, A., & Shmotkin, D. (in press). The association between cumulative adversity and mental health: Considering dose and primary focus of adversity. *Quality of Life Research*, DOI 10.1007/s11136-011-0035-0.

- Kira, I.A., Lewandowski, L., Templin, T., Ramaswamy, V., Ozkan, B., & Mohanesh, J. (2008). Measuring cumulative trauma dose, types, and profiles using a development-based taxonomy of trauma. *Traumatology, 14*, 62–87.
- Krause, N. (2004). Lifetime trauma, emotional support, and life satisfaction among older adults. *The Gerontologist, 44*, 615–623.
- Krause, N. (2005). Traumatic events and meaning in life: Exploring variations in three age cohorts. *Ageing and Society, 25*, 501–524.
- Krause, N., Shaw, B.A., & Cairney, J. (2004). A descriptive epidemiology of lifetime trauma and the physical health status of older adults. *Psychology and Aging, 19*, 637–648.
- Mitchell, S.A., & Black, M.J. (1995). *Freud and beyond: A history of modern psychoanalytic thought*. New York: Basic Books.
- Mullett-Hume, E., Anshel, D., Guevara, V., & Cloitre, M. (2008). Cumulative trauma and posttraumatic stress disorder among children exposed to the 9/11 World Trade Center attack. *American Journal of Orthopsychiatry, 78*, 103–108.
- Pinquart, M., & Sorensen, S. (2003). Risk factors for loneliness in adulthood and old age – A meta-analysis. In S. Shohov (Ed.), *Advances in psychology research* (Vol. 19, pp. 111–143). Hauppauge, NY: Nova Science.
- Shiovitz-Ezra, S., & Ayalon, L. (2010). Situational versus chronic loneliness as risk factors for all-cause mortality. *International Psychogeriatrics, 22*, 455–462.
- Shmotkin, D., & Litwin, H. (2009). Cumulative adversity and depressive symptoms among older adults in Israel: The differential roles of self-oriented versus other-oriented events of potential trauma. *Social Psychiatry and Psychiatric Epidemiology, 44*, 989–997.
- Shrira, A., Shmotkin, D., & Litwin, H. (in press). Potentially traumatic events at different points in the life span and mental health: Findings from SHARE-Israel. *American Journal of Orthopsychiatry*.
- Turvey, C.L., Wallace, R.B., & Herzog, R. (1999). A revised CES-D measure of depressive symptoms and a DSM-based measure of major depressive episodes in the elderly. *International Journal of Psychogeriatrics, 11*, 139–148.