Sense of threat and coping strategies of Israeli older adults during a military operation

Sveta Rozenblat · Esther Iecovich

Published online: 20 October 2012
© Springer-Verlag Berlin Heidelberg 2012

Abstract To examine what levels of sense of threat functionally disabled older people experience during war and the coping strategies they use to protect themselves; to examine factors that explain their sense of threat and coping strategies. A convenience sample that included 138 respondents who were functionally disabled older adults and received homecare services. Face-to-face interviews were conducted using a structured questionnaire. The majority of respondents stayed in their homes during the military operation and used a shelter during part or all the times when there was rocket shelling. The findings showed that a variety of factors were significantly correlated with sense of threat and coping strategies; gender and education were significant in explaining sense of threat, and living arrangement was significant in explaining use of shelter; while number of children was significant in explaining frequency of staying at home during the military operation. However, Holocaust survivor status, formal and informal support, and functional status were insignificant in explaining any of the dependent variables. Holocaust survivors feel no more threat compared to those who did not experience the Holocaust. Communities should be prepared to provide emergency services to ease the sense of threat of functionally disabled older adults during wartime and to assure their use of shelter, in particular those who live alone.

Keywords Functionally disabled older people · Sense of threat · Coping strategies · War · Holocaust survivors · Israel

Introduction

During 2001 and 2007 rockets (called “Kasam”s and “Grad”s) and mortar bombs were shelled to civil settlements in the southwest region of Israel by the Palestinians in the Gaza Strip. This resulted in casualties and wounded people with many of them suffering from anxiety (Dekel and Nuttman-Shwartz 2009). In response to this, an Israeli military operation called “Cast Lead” (“Ofert Yetsuka” in Hebrew) started at the end of December 2008 and lasted for 3 weeks. During this military operation the civilian population was exposed to threats on their lives. When rockets were shot toward Israeli settlements, alarm systems were activated to tell people to run into shelters, either inside or outside their homes, to protect themselves.

There is a gap in knowledge about how older people defend themselves in life-threatening situations during wars. Most of the literature that deals with mass threats of loss of life report on unexpected natural disasters and catastrophes such as earthquakes, tsunamis, hurricanes, and floods. One of the characteristics of such traumatic events is their capacity to create fear, a sense of threat and danger that impedes the sense of physical safety. This necessitates a confrontation with feelings of helplessness and the threat of physical injury and death (Van der Kolk and McFarlane 1996).

Theoretical approaches

In order to understand how older adults cope with a mass traumatic event, several approaches are proposed in the

Responsible editor: H.-W. Wahl.

S. Rozenblat · E. Iecovich (✉)
Department of Sociology of Health and Gerontology, Faculty
of Health Sciences, Ben-Gurion University of the Negev,
84105 Beer-Sheva, Israel
e-mail: iecovich@bgu.ac.il

literature: The first asserts that older people are a more vulnerable group lacking coping resources and, therefore, are at greater risk of injury or death than younger population groups (Bleich et al. 2005; Bolin and Klenow 1982–1983; Friedsam 1960). For example, studies (Burnett et al. 2007; Chou et al. 2003; Dyer 2006; Friedsam 1960; Ticehurst et al. 1996) found that after an earthquake or other disaster older people were at greater risk of PTSD, suicide, or death. Furthermore, mobility limitations were found to be connected with less alertness and more vulnerability during disasters (Fernandez et al. 2002). Other studies (Hantman and Solomon 2007) showed that older people who were Holocaust survivors revealed more PTSD symptoms compared to those who were not Holocaust survivors when they underwent a life-threatening situation such as the Gulf War in Israel in 1991 (Solomon and Prager 1992) or the terror event on September 11 when the twin towers in New York City were bombed (Lamet et al. 2009). Also, exposure to terror attacks via TV and mass media caused people to simultaneously feel like victims of terror although they were not physically present during the event (Silver et al. 2002).

A second approach perceives older persons as more resilient and more adaptable to traumatic situations (Bleich et al. 2005; Bolin and Klenow 1982–1983). For example, a study that examined victims of an earthquake in California found that older persons who had experienced an earthquake in the past were less susceptible to depression than younger adults (Knight et al. 2000). Also, older adults who had undergone hurricanes or floods and were in military service revealed fewer psychiatric symptoms and more resilience (Brown 2008; Frueh et al. 2007; Norris and Murrell 1988). They did so by trying to change the meaning of the disaster, thinking positively, and remaining in their homes (Henderson et al. 2009).

A third approach asserts that there are no differences between older and younger people with regard to coping with mass traumas (Bleich et al. 2005; Knight et al. 2000; Ollendick and Hoffman 1982) or terror (Brennan et al. 2003; Davidson and Glisky 2006; Salerno and Nagy 2002; Wolinsky et al. 2003). Furthermore, a study that compared coping strategies in older and younger adults after train and aircraft crashes in England found that both groups used similar coping strategies and that reactions differed by type and exposure to the event rather than age. For example, cultural and social background affects reactions to mass disasters more than age differences (Chung 2003). Norris et al. (2002) examined the extent to which age interacts with culture with regard to symptoms of PTSD in older persons following three natural disasters—Hurricane Andrew in the U.S., Hurricane Paulina in Mexico, and flooding in Poland. They found no age effect, but rather that the social, economic, cultural, and historical contexts

of the disaster were significant in explaining the severity of the trauma. These inconsistent findings regarding the effect of old age on coping with mass disasters (Norris et al. 2002) necessitates more research to understand the feelings of older people and how they cope with such deleterious events.

From a lifetime course perspective there is also a gap in knowledge about reactions to trauma in late life after decades of being clinically symptom free. Yet, there are no available estimates of its prevalence (Floyd et al. 2002) except a few case studies (Pomerantz 1991; Van Dyke et al. 1985) that described this phenomenon, which has rarely been investigated (Hiskey et al. 2008). There are various explanations of the recurrence of a trauma in late life, such as when older persons begin experiencing life events that are similar to the original traumatic event; there is an emotional wound that causes victims of prior trauma to have more severe reactions to subsequent events than members of their cohort who have no history of prior trauma (Solomon and Ginzburg 1998). The likelihood and severity of recurrent PTSD symptoms are increased when the current event is similar to the original traumatic event (Solomon 1993). In addition, Macleod (1994) found that age-related losses such as loss of independence, severe physical illness, and reduced social support (Floyd et al. 2002) can trigger the recurrence of past traumas. A longitudinal study conducted by Hardy et al. (2004) examined resilience of community-living older people who experienced a stressful event; they found that resilience was not dependent on the type of event but rather on the perceived stress that stemmed from the event.

Studies that were conducted in Israel and examined reactions of Holocaust survivors to stress and traumatic events yielded inconsistent results. Several studies (Brom et al. 2002; Harel et al. 1993) found that Holocaust survivors were better in specific aspects of coping, social adjustment, and hope that their lifestyle was significantly influenced by their traumatic experiences, but they were overactive fighters. Another study (Landau and Litwin 2000) that examined differences between Holocaust survivors and older people who did not experience the Holocaust found that Holocaust survivors were more vulnerable compared with their peers in the control group. Shmotkin et al. (2003) found no significant differences between Holocaust survivors and older people who were not Holocaust survivors. Another study (Shrira et al. 2010) found that previous trauma can both sensitize and immunize, suggesting that Holocaust survivors were not only simultaneously more resilient, but also more vulnerable when confronted with additional adversity.

Studies show that older persons tend to stay in their homes during mass disasters because of their attachment to their homes (Henderson et al. 2009), to safeguard their

belongings, as well as to avoid staying in dense shelters (Arbore 2007) and to avoid interference with their daily living and losing their social networks and support systems (Burnett et al. 2007; Sanders et al. 2003).

Therefore, older persons are defined as one of the risk groups that need help and intervention during and after a mass catastrophe (Sanders et al. 2003). Those who are functionally disabled, suffer from cognitive or physical impairments, or financially and psychologically stressed are at special risk (Band-Winterstein and Koren 2010; Fernandez et al. 2002; Oriol 1999). For example, during the second war between Lebanon and Israel in 2006 many functionally disabled older adults were left without care, food, and medicines because homecare workers stayed in their homes and did not visit their care recipients (Prilutzky et al. 2007). Older people were also reluctant to be evacuated to other places out of the range of the rockets (Band-Winterstein and Koren 2010). Therefore, functionally disabled older people are at great risk because they have difficulties rushing into shelters to defend themselves. Also, because of deafness and hearing difficulties they may not hear the alarms and adhere to emergency instructions.

However, only a paucity of studies examined the impact of war and terror attacks on functionally disabled older people and what are the coping strategies they used to defend themselves. Since they might be at great risk of injury, negligence, and even death (Monahan and Lurie 2007), in addition to psychological stress and distress, more research is necessary to gain better insights and more knowledge about their specific difficulties, preferences, and needs during mass catastrophes, including war and terrorist attacks. Furthermore, no previous study has examined the coping strategies used by Holocaust survivors who are functionally disabled in cases of war, compared with those who are not Holocaust survivors.

Based on the literature review the following research model was examined (Fig. 1).

In the light of this research model, the aims of this study were twofold. First, to examine levels of sense of threat among functionally disabled older people and to identify the factors that best explain their sense of threat during a military operation. We hypothesized that those who were more vulnerable in terms of being Holocaust survivors, lived alone, had less formal and informal help during the

operation, and were more functionally disabled, experienced more sense of threat compared to their counterparts who were not Holocaust survivors, lived with somebody, had more help, and were less functionally dependent. Second, to examine the coping strategies used by functionally disabled older people and the factors that explain their coping strategies to defend themselves during this military operation. We hypothesized that those who felt more threatened, lived with somebody, were less functionally disabled, received more formal and informal support, and lived in lower floors, used shelter more often or moved to safer regions during the military operation, compared to those who felt less threatened, lived alone, were more functionally disabled, received less support, and lived on higher floors. By examining these hypotheses we can learn about the personal and social resources available to older people during mass trauma that help them to better cope with such situations and thus can elaborate the existing knowledge in this area of research.

Methods

Population

The older population in Israel aged 65 and composes over 10 % of the general population. During the 1990s after the collapse of the Soviet regime, there was a mass flow of immigrants from former Soviet Union countries to Israel. Older new immigrants make up 20 % of the general older population of Israel. About 22 % of the older population in Israel is functionally dependent and needs help with activities of daily living (ADL); 34.3 % of those who are functionally disabled are over the age of 75 (Brodsky et al. 2011).

The number of inhabitants in Ashkelon, a city that is located 21 km from the Gaza Strip and where the study was conducted, includes about 113,200 inhabitants, of whom 13.4 % are people aged 65 and over. Among the older population, 47.9 % are older immigrants who arrived in Israel during the 1990s (Israel Central Bureau of Statistics 2011). About 4,800 of the older population were functionally limited and had either a live-in or live-out homecare worker.

Sample

Respondents were recruited through a homecare agency that operates in the city and through snowballing. A convenience sample that included 150 care recipients was selected; they underwent a short mini-mental test that included 13 questions, e.g., what date is it today, what year, how old are you (Folstein et al. 1975). Those who gave three

Fig. 1 Research model

or more incorrect answers were excluded from the study. This included 12 persons who were found to be cognitively impaired; 138 care recipients were interviewed. Ninety-one respondents were recruited through the homecare agency and 47 were recruited through snowballing by asking the respondents if they knew any other people who had a homecare worker who worked for other agencies in the city. Inclusion criteria were: age 60 and over, lived in Ashkelon, were functionally physically dependent and had a homecare worker, cognitively intact, spoke either Hebrew or Russian, and gave their consent to be interviewed.

No significant differences were found between those who were recruited via the homecare agency and those recruited through snowballing in terms of gender, age, marital status, place of birth, living conditions, Holocaust survivor status, and length of stay in Israel, except for education whereby those who were recruited through the homecare agency had significantly more years of education compared to those who were recruited through snowballing (means were 9.28 [SD = 5.82] and 5.28 [SD = 5.17], respectively, $t = -3.89$, $p < .000$).

Respondents' characteristics

Table 1 presents the socio-demographic characteristics of the respondents. The findings show that the majority were over the age of 75, women, unmarried, and lived either alone or with a live-in migrant care worker. They had an average of 3.6 children (SD = 2.9), and the majority had either no formal education or only elementary schooling (57 %). About 40 % immigrated to Israel from former Soviet Union countries and about 44 % were Holocaust survivors.

Measures

Based on the back-translation method (Werner and Campbell 1970), measures used in this study were translated from Hebrew into Russian by two bilingual translators and then from Hebrew into Russian and again into Hebrew until there was agreement between the two translators that the Russian version fit the original version.

Dependent variables

Coping strategies

These included two variables relating to how the respondents defended themselves during the military operation: (a) Use of a shelter during alarms: Respondents were asked

Table 1 Respondents' characteristics, dwelling conditions, functional status, and sense of threat (percentages, means, standard deviations, and ranges) ($N = 138$)

Variable	%	Mean	SD	Range
Age		79.15	6.18	63–93
63–74	21.7			
75–79	31.2			
80–84	27.5			
85+	19.6			
Gender				
Men	27.5			
Women	72.5			
Education		7.93	5.90	0–20
No formal education	21.1			
1–8 years	35.9			
9–12 years	19.4			
13+ years	24.6			
Place of birth				
Former Soviet Union	39.9			
Europe/America	18.8			
Asia/Africa	41.3			
Marital status				
Married	33.3			
Widowed	59.4			
Divorced/never married	7.3			
Number of children		3.60	2.90	0–12
0	8.0			
1–2	41.3			
3–4	22.5			
5+	28.3			
Length of residence in Israel		39.18	21.15	3–78
Living arrangements				
Alone	45.7			
With a spouse	27.5			
With other family member	21.4			
With a live-in homecare worker	5.4			
Household size		1.67	.82	1–5
1	45.7			
2	42.0			
3	8.0			
4+	4.3			
Floor				0–10
Ground	39.9			
1–2	28.3			
3–4	16.7			
5+	15.1			
ADL index		19.56	5.22	8–32
Sense of threat		34.27	13.83	11–55

if they used any of the following types of shelter with responses 1 = yes and 0 = no for each: (1) a safety room¹ inside the respondent's home; (2) a shelter outside the home but inside the building (e.g., basement); (3) a staircase inside the residence building; and (4) a shelter outside the residence building. Responses were summed and recoded as 1 = used a shelter, 0 = did not use any shelter; (b) Place of stay during the military operation: Respondents were asked where did they stay during the military operation with scores ranging from 1 (stayed at home all the time) to 8 (moved to a safer region and did not stay at all at home during the military operation).

Independent variables

Sense of threat

Lazarus and Folkman's (1984) measure of sense of threat that was translated into Hebrew by Dekel and Nuttman-Shwartz (2009) was used. The measure includes 11 items (e.g., Is this situation difficult for you? Does it cause you to feel stressed? Does it threaten you? Does it cause you anxiety?) with scores ranging from 1 (=don't agree at all) to 5 (=definitely agree) on a Likert-type scale. The sum of scores produced an index ranging from 11 to 55 with higher scores indicating higher levels of sense of threat. Internal consistency of Cronbach's alpha was high ($\alpha = .95$).

Homecare worker's presence

The respondents were asked how many hours a week the homecare worker came to work during the military operation, with scores ranging from 5 h a week to 24 h a day (live-in workers).

Family caregiver's presence

The respondents were asked how many hours a week the family caregiver came to help during the military operation.

Availability of a shelter

Respondents were asked if there was a shelter that they could use and where was it located: A safety room inside the apartment, staircase inside the residence building, a basement inside the residence building, or a shelter outside

the residence building. For each option the respondent was asked to answer "yes" (1) or "no" (0). Scores were summed and recoded: 1 = a shelter was available and 0 = a shelter was unavailable.

Holocaust survivor status

Holocaust survivor was defined as someone who was in a country under the Nazi occupation with 1 = yes and 0 = no.

Functional status

ADL was measured using Katz et al. (1970) measure that includes eight items (washing, dressing, toileting, mobility, eating, etc.), with scores for each item ranging from 1 (no difficulty at all) to 5 (very much difficulty). The sum of scores produced an index ranging from 8 to 40. The internal consistency (Cronbach's alpha) in this study was .88.

Living conditions

Included two variables: living arrangements, coded 1 = alone and 2 = lives with somebody; residence floor—the number of the floor where the home of the respondent was located.

Co-variates

Included socio-demographic characteristics of the respondents and included age, gender, number of children, and education.

Data collection

Prior to data collection a pre-test was conducted with ten older women who met the same inclusion criteria and who volunteered to be interviewed (but were not included in the research sample) to examine the extent to which the questions in the questionnaires were clear. After analyzing the responses several modifications and revisions were made to the questionnaires.

After obtaining the list of care recipients from the homecare agency, interviewers telephoned the care recipients to ask their permission to be interviewed. An appointment was made with those who gave their consent. Data were collected through face-to-face interviews using structured questionnaires. Interviews were conducted at the care recipients' homes or at an adult day care center, according to the convenience of the respondents who were asked at the beginning of the interview to sign a consent form. Data were collected between June and December 2009.

¹ In Israel, due to the security situation and conflict with several neighboring countries, it has become mandatory since the 1980s to build a safe room in each apartment that is solid against bombing. Older buildings that were built earlier have no such rooms.

Statistical analysis

A range of descriptive analyses (percentages, means, and standard deviations) were initially performed to present the characteristics of the respondents and the dependent and independent variables. Cronbach's alphas were calculated to examine the internal reliability of the indices used in the study, such as functional status and sense of threat. In order to examine relationships between the dependent and independent variables, bivariate correlation coefficient analyses were performed. Finally, regression analyses were performed to identify the factors that best explain the sense of threat and coping strategies. Only those variables that were significant in the bivariate analyses were included in the regression analyses. Data storage and analysis were performed using SPSS software version 17.

Results

Living conditions

About 40 % lived on a ground floor, 28.3 % lived on the first or the second floors, and the remainder lived on higher floors. About 46 % lived alone; of those who lived with somebody about 46 % lived with one person, who in most cases was the respondent's spouse.

Functional status

Respondents appraised their functional status as moderate although 91 % reported they had mobility difficulties. All of them received homecare services and 4.3 % had a live-in migrant care worker.

Availability of a shelter

Only 16.7 % had a safety room in their apartment, 76.8 % mentioned a staircase inside their residence building as a safety area, and 44.5 % reported that there was a basement in their residence building. About a third (31.9 %) reported there was a shelter outside their homes, 15.2 % did not know if there was such a shelter, and the remainder said there was no shelter outside their residence building. Of those who reported that there was a shelter outside their homes, 66.7 % were unable to rush into it due to their health problems and/or the distance of the shelter from their homes (an average of 224 m).

Help received during the military operation

The majority (83.4 %) reported that the homecare workers did work all the hours they were scheduled during the

military operation. Yet, 14.5 % reported that the homecare workers worked fewer hours than they should and 2.2 % worked more hours than they should. In other words, the vast majority of homecare workers did not change their schedule due to the war, but rather continued to provide care according to the care plan (2–3 h a day). Family caregivers spent more hours with the older persons during the military operation compared with regular times ($M = 40.09$, $SD = 69.27$ and $M = 34.59$, $SD = 64.94$, respectively).

Shelter use during alarms

None of the respondents used a shelter outside their homes, while 78.2 % who had a safety room in their homes used it during alarms; 37.1 % who lived in condos used the staircase as shelter; and 41.7 % who had a shelter inside their residence building actually used it. Only 39.7 % rushed into any shelter area every time there were alarms, while 36.9 % used a shelter during part of the time, and 23.5 % did not use any shelter at all. This suggests that when there were alarms the majority did use a shelter during part or all the times either inside their homes or inside their residence building.

Sense of life threat

In general, respondents reported a moderate level of threat ($M = 34.27$, $SD = 13.83$), with scores ranging from 11 to 55.

Place of stay during the military operation

75.4 % remained in their homes during the military operation, while the remainder moved to other places for part of the time (23.2 %) or for the whole period (1.4 %). In an open question those respondents who stayed in their homes were asked why they did not move to another place away from the risk area. About 22 % said they could not move to another place because of their or their spouse's health status, 24.6 % had no place to go, 17.4 % felt safer in their own homes and felt no need to go elsewhere, and 5.8 % said they did not want to bother their families. Yet, those who remained in their homes and when a homecare worker was present during alarms, 71.9 % reported they went with the homecare worker to some kind of shelter.

Factors connected with sense of threat and coping strategies

The bivariate analyses, presented in Table 2, show that the independent variables that were significantly correlated with sense of threat were: Holocaust survivor status,

residence floor, gender, age, education, and number of children. This suggests that those who were not Holocaust survivors, lived on lower floors, women, who were younger, had more children, and who were less educated felt more threatened, compared to their counterparts who were Holocaust survivors, men, older, had more children, lived on higher floors, and had higher education. The findings show that use of shelter was more frequent when the respondent stayed in his or her home, felt higher levels of threat, was not a Holocaust survivor, lived alone, was younger, female, and had more children. Frequency of

staying at home during the military operation was higher when the respondent was a Holocaust survivor, had fewer children, and had higher education.

Table 3 presents the regression analyses that explain the sense of threat and coping strategies. The independent variables that were included in the equations were those that were significant correlates of the dependent variables in the bivariate analyses. The findings show that only gender and education were significant in explaining sense of threat, suggesting that women with lower education reported higher levels of sense of threat. The variables included in the equation explained 22 % of the variance of the outcome variable. Only living arrangement was significant in explaining use of shelter, suggesting that those who lived with somebody used shelter more often. Altogether the variables included in the equation explained 19 % of the variance of shelter use. Only number of children was significant in explaining staying at home. This suggests that those with fewer children left their homes more frequently compared to their counterparts with more children. However, the variables that were included in the equation explained 9 % of the variable of staying at home during the military operation.

Table 2 Correlation coefficients between independent and dependent variables ($N = 138$)

Variable	Sense of threat	Use of shelter	Staying at home
Use of shelter	.25**		-.44***
Stay at home	-.10	-.44***	
Sense of threat		.25**	-.10
Holocaust ^a survivor status	-.18*	-.27***	.19*
Informal care hours	-.03	.04	-.04
Formal care hours	-.09	-.10	-.14
Functional status	.06	.08	.16
Residence floor	-.19*	.05	.09
Living arrangement ^b	-.05	-.24**	.12
Age	-.23**	-.25**	-.09
Gender ^c	.40***	.18*	-.10
Number of children	.29***	.26**	-.28***
Education	-.35***	-.17	.43***

^a 1 = Holocaust survivor and 0 = not Holocaust survivor

^b 1 = lives alone and 2 = lives with somebody

^c 1 = men and 2 = women

* $p < .05$, ** $p < .01$, *** $p < .001$

Discussion

Briefly, the findings show that the majority of respondents stayed in their homes during the military operation and did not move to distant places because older people in general, and in particular when they are functionally disabled, prefer to stay in their homes even in hazardous situations (Allen and Nelson 2009; Band-Winterstein and Koren 2010; Burnett et al. 2007). Yet, it might be that because family caregivers devoted more care hours to their older

Table 3 Regression analyses of the factors explain sense of threat and coping strategies

Independent variables	Sense of threat ($N = 128$)			Use of a shelter ($N = 128$)			Staying at home ($N = 132$)		
	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β	<i>B</i>	<i>SE</i>	β
Sense of threat				.00	.00	.11			
Holocaust survivor status	2.21	3.02	.08	-.13	.07	-.18	.31	.23	.14
Residence floor	-.97	.54	-.16						
Living arrangements				-.18	.06	-.24**			
Age	-.31	.21	-.14	-.01	.01	-.14			
Gender	8.56	2.61	.28***	.05	.07	.06			
Education	-.53	.25	-.23*				-.04	.02	-.21
Number of children	.34	.47	.07	.02	.01	.15	-.12	.04	-.33***
Adj. R^2	.22			.19			.09		
<i>F</i>	6.91***			6.15***			5.38**		

* $p < .05$, ** $p < .01$, *** $p < .001$

family members during that time and since all of them had a homecare worker who visited them on a daily basis, this encouraged them to stay in their homes knowing that somebody was caring for them.

Only a minority had a safety room inside their apartment and of those who had one, most used it during the alarms. However, none of the respondents used a shelter outside of their residence building, suggesting that this type of shelter is inappropriate for older people who are functionally disabled. Yet, only a minority did not use any shelter at all when there were alarms, suggesting that when some kind of shelter was available they actually used it.

One of the interesting findings of this study is the coping strategies functionally disabled older persons used to defend themselves against rocket shelling, an issue that has been barely examined. It should be noted that a plethora of studies have focused on the psychological effects of mass disasters on older adults (e.g., Bleich et al. 2005; Frueh et al. 2007; Knight et al. 2000; Ticehurst et al. 1996), but not on how they protect themselves against the risk factors. From this point of view this study sheds light on the coping strategies that functionally disabled older people use or do not use to protect themselves against life threats.

The descriptive findings indicate that about a quarter of the respondents did not use any shelter during alarms. Several explanations can be provided for this: First, the time between the alarm and the rocket explosion is only 30 s. This time period is too short for functionally disabled older people to rush into a shelter, in particular when they did not have a safety room in their home and had mobility difficulties. Second, they did not feel high levels of threat that could cause them to rush into a shelter because rocket shelling became a regular part of citizens' lives during the past several years and they might have adapted and became more resilient after such a long experience of living under rocket attacks. This is consistent with previous studies (e.g., Brown 2008; Frueh et al. 2007; Knight et al. 2000), which showed that older people were more resilient after undergoing similar experiences in the past. In addition, some of the reasons given by the respondents for non-use of a shelter were: they believed in God, they thought that it would not help in case of an explosion on their residence building, and some of them did not fear death. As some respondents said: "At my age I'm not afraid to die" or "At my age I'm not afraid of anything." However, these reasons were given by few respondents in an open-ended question. Therefore, more research is necessary to learn more about older persons' thoughts, attitudes, and feelings toward fear of death during terror attacks or wars.

Surprisingly, the findings indicated that in bivariate analyses Holocaust survivors felt less threatened compared to those who did not undergo the Holocaust. However, in the multivariate analyses Holocaust survivor status was

insignificant in explaining sense of threat, suggesting that Holocaust survivors did not feel more threatened than their peers who did not undergo the Holocaust. This is consistent with a previous study (Shmotkin et al. 2003) that found no significant differences between Holocaust survivors and older people who were not exposed to past traumatic experiences. From this perspective, our hypothesis that Holocaust survivors are more vulnerable and susceptible to sense of threat in wartime was refuted. One explanation for this might be that although Holocaust survivors had undergone a mass trauma they are not more vulnerable but rather more resilient compared to their counterparts who were not Holocaust survivors. As one of the respondents said: "Relative to the Holocaust this was a children's game." This finding is consistent with previous studies that found that those who survived the Holocaust were more resilient in coping with mass trauma (e.g., Brown 2008; Frueh et al. 2007; Shrira et al. 2010). However, why some Holocaust survivors were less vulnerable and more resilient than others may be dependent on personality traits as well as other reasons, but this merits further investigation.

With regard to coping strategies, the findings indicate that living arrangements or number of children explained use of shelter or frequency of staying home during alarms, suggesting that sense of threat was insignificantly connected with coping behaviors during wartime. Unexpectedly, age, functional status, and amount of help received from homecare workers and family caregivers were insignificant in explaining sense of threat and coping strategies. This might be due either to lack of variability in variables or because they have no impact on sense of threat or coping strategies. Taking into account that only those who were moderately disabled were able to be interviewed and they received a similar number of weekly care hours under the Israeli long-term care insurance law (Iecovich 2012) can explain the invariability of these variables. However, our hypothesis on the factors that explain use of coping strategies was actually refuted. Further studies that will include a more varied and larger sample of respondents and include more explanatory variables may provide better insight into these issues of sense of threat that older people experience during a mass crisis and the coping strategies they use to protect themselves.

Conclusions

Several conclusions can be derived from the findings: First, taking into account the functional difficulties of functionally disabled older adults and their limited ability to use shelters outside their homes as well as their preference to stay in their homes, it is important to improve the dwelling conditions of older people to provide them with a safety room that meets the necessary guidelines of the security

authorities to enable them to protect themselves in a crisis. Second, a more supportive system that can devote more time to the care recipients who live alone and visit them during wartime can cause older people to use a shelter more often during war. Finally, community (social and health) as well as security services should be prepared to provide emergency services to ease the suffering of this vulnerable population of functionally disabled older adults before, during, and after a crisis.

Research limitations

The results of the present study should, however, be interpreted with caution. First, the sampling procedure and sample size were not randomly selected and included only 138 respondents, thus limiting the representativeness of the population. Also, the respondents were inhabitants of only one city that was under attack and did not include the entire older population living in proximity to the region of conflict. Therefore, caution is warranted in generalizing these findings.

Second, it might be that since the study was conducted 6–12 months after the military operation the intensity and memory of this experience were weakened and seemed less threatening than it was in real time. Self-reported retrospective experiences may be biased and, therefore, may reduce validity (Schwarz 2007), because older people may have difficulties in recalling events, behaviors, and feelings they experienced months ago. Subjective experiences, including the intensity of feelings, are poorly represented in memory: Once the experience ends, its characteristics can no longer be directly examined (Robinson and Clore 2002) and, therefore, respondents need to again rely on fragmentary recall. It can be concluded that if the study had been conducted in real time or immediately after the military operation the responses might have been somewhat different and more valid.

Third, the small sample of respondents and lack of variability in several variables limited the ability to include more variables in the multivariate analyses and, therefore, the study was more descriptive. Further studies that will include larger samples with different groups of older people can enable identification of predicting variables and provide a more in-depth perspective on how older people, in particular those who are more vulnerable, cope with such devastating situations. Finally, the study did not examine the extent to which the war adversely affected the well being of the older persons and how they coped with their fears and anxieties. Despite these limitations, the present study contributes to our understanding of how functionally disabled older people react and protect themselves during wartime and the means that should be taken to help them through these events.

References

- Allen PD, Nelson HW (2009) Disaster services with functionally disabled older persons: from preparation to recovery. In: Cherry KE (ed) *Lifespan perspectives on natural disasters*. Springer, New York, p 153–169
- Arbore P (2007) Why do elders resist evacuation when natural disasters strike? *Healthcare and aging*. http://www.asaging.org/asav2/han/enews/07winter/psych_issues.cfm. Accessed 25 Aug 2008
- Band-Winterstein T, Koren C (2010) We take care of the older person, who takes care of us? Professionals working with older persons in a shared war reality. *J Appl Gerontol* 29(6):772–792
- Bleich A, Gelkopf M, Melamed Y, Solomon Z (2005) Emotional impact of exposure to terrorism among young-old and old-old Israeli citizens. *Am J Geriatr Psychiatry* 13(8):705–712
- Bolin R, Klenow DJ (1982–1983) Response of the elderly to disaster: an age-stratified analysis. *Int J Aging Hum Dev* 16:283–296
- Brennan M, Horowitz A, Reinhardt J (2003) The September 11th attacks and depressive symptomatology among older adults with vision loss in New York City. *J Gerontol Soc Work* 40:55–71
- Brodsky J, Shnoor Y, Beer S (2011) The elderly in Israel: statistical abstract 2010. Brookdale Institute, Jerusalem
- Brom D, Durst N, Aghassy G (2002) The phenomenology of posttraumatic distress in older adult Holocaust survivors. *J Clin Geropsychol* 8(3):189–2001
- Brown LS (2008) *Cultural competence in trauma therapy: beyond the flashback*. American Psychological Association, Washington, DC
- Burnett J, Dyer C, Pickins S (2007) Rapid needs assessment for older adults in disasters. *Generations* 31(4):10–15
- Chou YJ, Huang N, Lee CH, Tsai SL, Tsay JH, Chen LS, Chou P (2003) Suicides after the 1999 Taiwan earthquake. *Int J Epidemiol* 32:1007–1014
- Chung I (2003) Impact of the 9/11 attacks on the elderly in NYC Chinatown: implications for culturally relevant services. *J Gerontol Soc Work* 40(4):37–53
- Davidson PSR, Glisky EL (2006) Flashbulb memories for September 11th can be preserved in older adults. *Neuropsychol Dev Cogn B* 13:196–206
- Dyer CB et al. (2006) Recommendations for best practices in the management of elderly disaster victims. A report by Baylor College of Medicine and the American Medical Association. <http://www.bcm.edu/pdf/bestpmctices.pdf>
- Dekel R, Nuttman-Shwartz O (2009) Posttraumatic stress and growth: the contribution of cognitive appraisal and sense of belonging to the country. *Health Soc Work* 34(2):87–96
- Fernandez L, Byard D, Chih LC, Barbera J (2002) Frail older persons as disaster victims: emergency management strategies. *Prehosp Disaster Med* 17:67–74
- Floyd M, Rice J, Black SR (2002) Recurrence of posttraumatic stress disorder in late life: a cognitive aging perspective. *J Clin Geropsychol* 8(4):303–311
- Folstein M, Folstein S, McHugh P (1975) Mini-mental state: a practical method for grading the cognitive state of patients for the clinician. *J Psychol Res* 12:189–198
- Friedsam HJ (1960) Older persons as disaster casualties. *J Health Hum Behav* 1(4):269–273
- Frueh BC, Grubaugh AL, Acierno R, Elhai JD, Cain G, Magruder KM (2007) Age differences in post traumatic stress disorder, psychiatric disorders, and healthcare service use among veterans in veterans affairs primary care clinics. *Am J Geriatr Psychiatry* 15(8):660–672
- Hantman S, Solomon Z (2007) Recurrent trauma: Holocaust survivors cope with aging and cancer. *Soc Psychiatry Psychiatr Epidemiol* 42(5):396–402

- Hardy S, Concato J, Gill TM (2004) Resilience of community dwelling older persons. *J Am Geriatr Soc* 52:257–262
- Harel Z, Kahana B, Kahana E (1993) Social resources and the mental health of aging Nazi Holocaust survivors and immigrants. In: Wilson JP, Raphael B (eds) *International handbook of traumatic stress syndromes*. Plenum, New York, p 241–252
- Henderson L, Roberto K, Kamo Y (2009) Older adults' responses to Hurricane Katrina: daily hassles and coping strategies. *J Appl Gerontol* 29(1):48–69
- Hiskey S, Luckie M, Davies S, Brewin CR (2008) The emergence of posttraumatic distress in later life: a review. *J Geriatr Psychiatry Neurol* 21(4):232–241. doi:10.1177/0891988708324937
- Iecovich E (2012) The long-term care insurance law in Israel: present and future. *J Aging Soc Policy* 24(1):77–92. doi:10.1080/08959420.2012.628892
- Israel Central Bureau of Statistics (2011) Annual statistics. http://www.cbs.gov.il/reader/publications/head_sub_new.htm#0. Accessed 10 Aug 2011
- Katz S, Downs TD, Cash HR, Grotz RC (1970) Index of activities of daily living. *Gerontologist* 1:20–30
- Knight BG, Gatz M, Heller K, Bengtson VL (2000) Age and emotional response to the Northridge earthquake: a longitudinal analysis. *Psychol Aging* 15(4):627–634
- Lamet A, Szuchman L, Perkel L, Walsh S (2009) Risk factors, resilience, and psychological distress among Holocaust and non Holocaust survivors in the post 9/11 environment. *Educ Gerontol* 35:32–46
- Landau R, Litwin H (2000) The effects of extreme early stress in very old age. *J Trauma Stress* 13:473–487
- Lazarus RS, Folkman S (1984) *Stress, appraisal, and coping*. Springer, New York
- Macleod AD (1994) The reactivation of post-traumatic stress disorder in later life. *Aust N Z J Psychiatry* 28:625–634
- Monahan K, Lurie A (2007) Reactions of senior citizens to 9/11: exploration and practice guidelines for social workers. *Soc Work Health Care* 45(1):33–47
- Norris FH, Murrell SA (1988) Prior experience as a moderator of disaster impact on anxiety symptoms in older adults. *Am J Commun Psychol* 16(5):665–683
- Norris FH, Kaniasty K, Conrad ML, Inman GL, Murphy AD (2002) Placing age differences in cultural context: a comparison of the effects of age on PTSD after disasters in the United States, Mexico, and Poland. *J Clin Geropsychol* 8(3):153–173
- Ollendick D, Hoffman M (1982) Assessment of psychological reactions in disaster victims. *J Community Psychol* 10:157–167
- Oriol W (1999) *Psychological issues for older adults in disasters*. U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Mental Health Services, Washington, DC
- Pomerantz AS (1991) Delayed onset PTSD: delayed recognition or latent disorder? *Am J Psychiatry* 148:1609
- Prilutsky D, Lowenstein A, Rappaport B, Haperin D (2007) Older Holocaust survivors during the second Lebanon war in Israel: needs and coping. *Gerontology* (special issue: Holocaust and ageing) 34(3):111–126 (Hebrew)
- Robinson MD, Clore GL (2002) Belief and feeling: evidence for an accessibility model of emotional self-report. *Psychol Bull* 128:934–960
- Salerno J, Nagy C (2002) Terrorism and aging. *Gerontology* 57A(9):M552–M554
- Sanders S, Bowie SL, Bowie YD (2003) Lessons learned on forced relocation of older adults: the impact of hurricane Andrew on health, mental health and social support of public housing residents. *J Gerontol Soc Work* 40:23–35
- Schwarz N (2007) Retrospective and concurrent self-reports: the rationale for real-time data capture. In: Stone AA, Shiffman SS, Atienza A, Nebeling L (eds) *The science of real-time data capture: self-reports in health research*. Oxford University Press, New York, p 11–26
- Shmotkin D, Blumstein T, Modan B (2003) Tracing long-term effects of early trauma: a broad-scope view of Holocaust survivors in late life. *J Consult Clin Psychol* 71(2):223–234. doi:10.1037/0022-006X.71.2.223
- Shrira A, Palgi Y, Ben-Ezra M, Shmotkin D (2010) Do Holocaust survivors show increased vulnerability or resilience to post-Holocaust cumulative adversity? *J Trauma Stress* 23(3):367–375
- Silver RC, Holman EA, McIntosh DN, Poulin M, Gil-Rivas V (2002) Nationwide longitudinal study of psychological responses to September 11. *J Am Med Assoc* 288(10):1235–1244
- Solomon Z (1993) *Combat stress reaction: the enduring toll of war*. Plenum, New York
- Solomon Z, Ginzburg K (1998) War trauma and the aged. In: Lomranz J (ed) *Handbook of aging and mental health: an integrative approach*. Plenum, New York, p 135–152
- Solomon Z, Prager E (1992) Elderly Israeli Holocaust survivors during the Persian Gulf War: a study of psychological distress. *Am J Psychiatry* 149(12):1707–1710
- Ticehurst S, Webster RA, Carr VJ, Lewin TJ (1996) The psychosocial impact of an earthquake on the elderly. *Int J Geriatr Psychol* 11:943–951
- Van der Kolk BA, McFarlane AC (1996) The black hole of trauma. In: Van der Kolk BA, McFarlane AC, Weisaeth L (eds) *Traumatic stress: the effects of overwhelming experience on mind, body and society*. Guilford, New York, p 3–23
- Van Dyke C, Zilberg NJ, McKinnon JA (1985) Posttraumatic stress disorder: a thirty-year delay in a World War II veteran. *Am J Psychiatry* 142:1070–1073
- Werner O, Campbell DT (1970) Translating, working through interpreters, and the problem of decentering. In: Naroll R, Cohen R (eds) *A handbook of method in cultural anthropology*. American Museum of Natural History, New York, p 398–420
- Wolinsky FD, Wyrwich KW, Kroenke K, Babu AN, Tierney WM (2003) 9–11, Personal stress, mental health, and sense of control among older adults. *J Gerontol Psychol Sci Soc Sci* 58B(3): S146–S150