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# Living in a Continuous Traumatic Reality: Impact on Elderly Persons Residing in Urban and Rural Communities

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This study is an exploration of the contribution of exposure to the continuous threat of Qassam rocket attacks to PTSD among elderly residents of urban and rural communities. Specifically, we examined the contribution of sociodemographic variables, psychological resources, and perceived social support to PTSD, and whether this relationship is mediated by cognitive appraisals. The sample consisted of 298 residents of 2 different communities: urban ( $n = 190$ ), and rural ( $n = 108$ ). We examined the main research question by calculating the correlations of the sociodemographic variables, the psychological resource (self-esteem), social support, and cognitive appraisals with the dependent variable (PTSD). Our model explained the variance in PTSD (53% for urban residents, and 56% for rural residents). Higher levels of PTSD were found among the urban residents. Most of the predictors contributed to PTSD, but differences were found between each type of community with regard to the combination of components. Results indicated that the type of community is related degree of protection against stress-related triggers such as Qassam rockets. The psychological resource (self-esteem) and cognitive appraisal variables were found to be important for older people facing a continuous threat, and can serve as a basis for professional intervention.

Comparative studies conducted among people of different age groups have revealed conflicting findings regarding the responses of the elderly population to traumatic situations. Research has indicated that elderly people are more vulnerable, and that they have relatively few economic and social resources, rendering them at high risk for posttraumatic stress disorder (PTSD) and depression (Carballo et al., 2004), yet it has been also found that elderly people are more resilient to symptoms of illness following traumatic events, and are less afraid, desperate, and worried than younger people (Norris et al., 2002). Other researchers argued that the responses of the aging population are no different from the responses of other populations (Bleich, Gekkopf, & Solomon, 2003; Kohn, Levav, Garcia, Machuca, & Tamashiro, 2005), although epidemiological studies conducted in the United States (Pietrzak, Goldstein, Southwick, & Grant, 2011, 2012) and Australia (Creamer & Parslow, 2008) revealed that the prevalence (or levels) of PTSD declined with age, and that there were fewer posttraumatic symptoms among older groups than other groups. However, older people also show symptoms through somatization, and report fewer traumatic events in their lives or interpret events in their lives as less traumatic (Thorp, Sones, &

Cook, 2011). Among elderly persons who have experienced PTSD in their lifetime, findings have revealed high rates of health and functional problems (Pietrzak et al., 2012). These contradictory finding clearly indicate the need for more empirical research on PTSD among older persons, mainly on those who live in a continuous traumatic reality.

## A Continuous Threat Situation and Personal and Environmental Resources

Hobfoll's (1998) Conservation of Resources theory is among the main approaches to explaining individual responses to continuous stress situations. Hobfoll linked psychological stress reactions and the experience of threat to various types of resources: sociodemographic resources (health, economic situation, education), psychological resources, and social resources. Existing studies on the relationship between personal resources—such as self-esteem—and PTSD in situations of stress and trauma have shown that high self-esteem facilitates active coping and reduces PTSD following traumatic events (Sumer, Karanci, Berument, & Gunes, 2005; Kashdan, Uswatte, Steger, & Julian, 2006); low self-esteem can predict a higher prevalence of pathological symptoms such as depression in response to stressful life events. People with low self-esteem are more vulnerable to these situations, they do not cope as well with trauma, and their problem-solving ability and sense of identity are impaired (Kashdan et al., 2006).

*Perceived social support* is another resource that is known to contribute significantly to moderating PTSD in continuous stress situations. In addition to acting as a buffer zone in times of threat,

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social support is of great importance in coping with the challenges of aging. Research has revealed that social support contributes to higher life satisfaction and mitigates the effects of stress situations (Breckenridge & James, 2012; Henrich & Shahar, 2008; Litwin, 2005); elderly persons who lack social support or have negative social relationships will be more vulnerable to the negative effects of continuous stress situations (Acierno et al., 2010).

In the present context, the continuous terror/war threat disrupts people's daily lives and creates an atmosphere of fear and insecurity, creating "a secondary stressor of 'unknown effects'" (Nuttman-Shwartz, 2014, p. 266). In addition, continuous exposure to a security threat represents a change in the relationship between individuals and their environment. It affects one's sense of physical and emotional security, and can cause difficulties in adjustment (Bayer-Topilsky, Itzhaky, Dekel, & Marmor, 2013; Bleich, Gelkopf, Melamed, & Solomon, 2006).

Research findings indicate that all of these resources usually contribute to better coping with continuous threat situations (Mancini, Prati, & Black, 2011).

However, the findings regarding the contribution of these resources in old age, particularly among elderly people in continuous threat situations, are partial and inconsistent (Dekel, Mandl, & Solomon, 2011).

### Trauma and Stress Theory

In addition to sociodemographic, psychological, and social resources, findings have revealed that cognitive appraisals of events also affect PTSD in situations of continuous threat. According to the stress transactional theory (Lazarus & Folkman, 1984), individuals use cognitive appraisals as a basis for examining the gaps between the demands of the traumatic situation and the resources at their disposal (Lazarus, 1999). Cognitive appraisals have three dimensions: threat, challenge, and self-efficacy. *Threat* is when individuals perceive the demands presented by their situation as being greater than their resources. *Challenge* is when individuals assess their resources as being sufficient to facing the situation, and *self-efficacy* is individuals' assessment of their own capabilities to manage stressful events (Gibbons, Shafer, Aramanda, Hickling, & Benedek, 2014; Harvey, Nathens, Bandiera, & LeBlanc, 2010).

The more individuals appraise an event as a threat, the higher their level of PTSD; the more they appraise the event as a challenge and the higher their appraisals of their self-efficacy, the better they will cope with stressful events. Moreover, some researchers have supported the argument that the associations of sociodemographic, psychological, and social resources with PTSD are related to cognitive appraisals of stressful events and can help individuals cope with those events (Braun-Lewensohn, Celestin-Westreich, Celestin, Verté, & Ponjaert-Kristoffersen, 2009; Hobfoll, Mancini, Hall, Canetti, & Bonanno, 2011). However, very few studies have dealt with the relationship between elderly people's cognitive appraisals of continuous stress situations and their levels of PTSD.

### The Context of the Current Research

Since 2001, Israel's western border with the Palestinian Authority, which Israelis refer to as the Western Negev, has been the

target of more than 10,000 Qassam rocket and mortar attacks. From 2004 to 2014, most of the damage was to property, but there were casualties as well—26 Israeli civilians, four of whom were children, were killed in direct Qassam hits (Btselem, 2014). The interval between the time the missile is fired and the time it lands is very short, offering little chance of finding shelter. Under such ongoing circumstances, there is a need to deal not only with the physical and emotional damage in the immediate aftermath of the attack, but also with the long-term stress evoked by the constantly looming threat (Braun-Lewensohn et al., 2009; Nuttman-Shwartz, 2014).

In the Western Negev, most of the population, including the elderly, lives in two types of communities: urban and rural. The urban community is the city of Sderot, which was founded in 1951 as a home for new immigrants, and as a means of populating the peripheral region of the country. The rural community is represented by kibbutzim, most of which were established by young people who espoused the ideology of social and economic equality. The personal characteristics of elderly residents of these two types of communities are different. Whereas the elderly residents of Sderot are a traditional, low-SES population with few social and economic resources, the elderly residents of kibbutzim represent a modern society that emphasizes socioeconomic equality and cooperation (Abramitzky, 2011).

Previous studies have revealed that residents of rural communities are better able to cope emotionally with continuous traumatic situations than residents of urban communities (Braun-Lewensohn & Sagy, 2014; Dekel & Nuttman-Shwartz, 2009; Gelkopf, Berger, Bleich, & Silver, 2012). Studies conducted a few years after the attacks began have indicated that 26% to 27% of the residents of the urban community (Sderot) have reported experiencing PTSD symptoms, compared with 6% of the residents of rural communities in the area (Besser & Neria, 2009; Nuttman-Shwartz & Dekel, 2009). Moreover, these studies have found that the kibbutz provides better psychological protection against continuous threat situations and missile attacks than do urban communities due to the sense of belonging and solidarity among the residents of rural communities, and have led to the assumption presented in the present article that differences in levels of PTSD will be found among the elderly population in both types of community. However, an important change is taking place in kibbutzim—privatization. Although a financial act, it has wide-ranging effects on the concept of cooperation and mutual responsibility, which has had a detrimental impact on the sense of security and solidarity among the kibbutz residents, and mainly among the elderly population. The impact of privatization, an ongoing process, was not taken into consideration in the present study.

Thus far, only a few studies have focused specifically on the elderly population of urban and rural communities in ongoing threat situations (Ruffle & Sosis, 2002). Recent studies (Gelkopf et al., 2012; Palgi, Shrira, & Shmotkin, 2015) have shown that elderly people are able to deal effectively with a one-time or short-term traumatic event, but find it more difficult to do so under conditions of ongoing stress. This difficulty is a result of their diminishing personal resources such as social support. These studies also found that continuous exposure is positively related to PTSD symptoms, and the effects of direct exposure are exacerbated by distress brought about by fear of future exposure (Dia-

mond, Lipsitz, Fajerman, & Rozenblat, 2010). It should also be noted that these two types of communities differ with regard to exposure to the threat of rockets (the extent of exposure and the number of the rockets). Thus, in the current study we related to the participants' levels of exposure through their subjective perceptions, which previous research in this field has found to be important (e.g., Nuttman-Shwartz, 2014). Specifically, we took into account the participants' subjective estimation of their proximity to the missiles.

### Purpose of the Study

The study was designed for the purpose of investigating the variables that contribute to explaining PTSD among elderly residents of two types of communities (urban and rural). The issues examined were whether there are differences in levels of PTSD among residents of the two types of communities, and what factors explain those differences. The research model is presented in Figure 1.

### Research Hypotheses

Three hypotheses were examined in this study:

1. Elderly residents of urban and rural communities will have different levels of PTSD.
2. The level of exposure to missile attacks (proximity of the missile) will be related to levels of PTSD.
3. The sociodemographic characteristics of the elderly persons, that is, the personal resource (self-esteem) and perceived social support, as well as the cognitive variables will contribute to explaining the differences in levels of PTSD among elderly persons in the two types of communities.

### Method

#### Sample and Data Collection

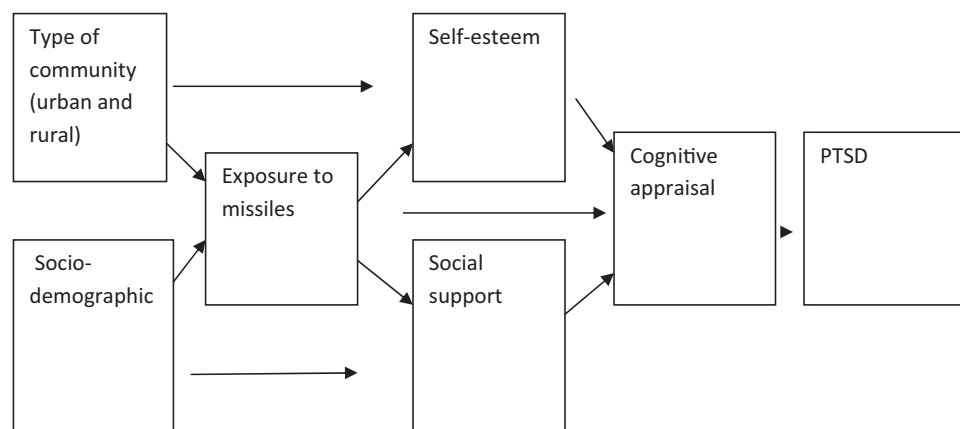
Data were collected from 320 elderly people aged 65 and over in 2009 and 2010, when hundreds of Qassam rockets fell in the

Western Negev. The participants resided in the two types of communities described earlier: 190 (64%) were from an urban community, and 108 (36%) were from rural communities (kibbutzim) in the region. Participants were sampled randomly, from the database of the Municipality of Sderot, and from the secretariats of the kibbutzim, and initial contact was made by telephone. We approached 358 elderly persons living in both of those communities. Of those, 38 refused to be interviewed, primarily because of illness. Face-to-face interviews were conducted by trained students at the participants' homes. The students had attended a special training course before conducting the interviews, which were based on a structured questionnaire. Of the 320 participants interviewed in the study, 298 (93%) responded to the entire questionnaire, and their responses were included in the statistical analyses.

Most of the participants (about 65%) were women, with differences between the two communities in age –  $t(296) = 5.37, p < .001$ , and in number of children –  $t(296) = 3.87, p < .001$ . Specifically, the residents of Sderot were older than the residents of the kibbutzim ( $M = 77.18, SD = 6.14$ , and  $M = 73.38, SD = 5.39$ , respectively), and the residents of the urban community had more children than the residents of rural community ( $M = 5.09, SD = 3.43$ , and  $M = 3.73, SD = 1.72$ , respectively). As for the sociodemographic resources of the participants from the two communities, the urban residents were less educated, had a lower income, and their self-assessed health was poorer than that of the residents of the rural community. Specifically, only 41.1% of the urban residents had post-primary education, compared with 88.9% of the rural residents ( $\chi^2 = 65.81, p < .001$ ). Moreover, only 14.2% of the elderly urban residents assessed their economic situation as good, compared with 39.8% of those residing on rural communities ( $\chi^2 = 32.80, p < .001$ ). Regarding health status, 57% of the urban elderly assessed their health status as very poor compared with 6.5% of those living on rural communities ( $\chi^2 = 107.54, p < .001$ ).

#### Data Analysis

A one-way MANOVA was conducted to examine the differences in levels of PTSD among residents of the two communities, and a  $\chi^2$  test was conducted to examine differences in PTSD



**Figure 1.** Tested variables and their contribution to explaining PTSD among elderly residents of urban and rural communities.

symptoms. In addition, an ANCOVA was conducted in which exposure was entered as a covariate to examine whether the differences in PTSD levels were related to exposure. Furthermore, MANOVAs were conducted to examine the differences between the groups in the personal variable (self-esteem), social support, and cognitive variables. Pearson's correlations were conducted to examine the relationships between the variables, as well as hierarchical regressions to explain the variance in PTSD.

## Instruments

Posttraumatic stress disorder (PTSD) was examined on the basis of a self-report PTSD questionnaire which has been used in numerous studies on trauma in Israel (e.g., Dekel, Solomon, Ginzburg, & Neria, 2003). The instrument consists of 17 statements, which describe posttraumatic stress symptoms that correspond with the *DSM-IV-TR* (American Psychiatric Association, 2000). Responses were measured on a 3-point Likert scale (1 – *not at all*, 3 – *to a great extent*). One overall score was assigned, which reflected the total number of symptoms and/or the diagnosis of symptoms according to the DSM criteria. Cronbach's alpha reliability of the questionnaire used in the present study was .93.

Exposure to rockets was examined by the following questions: Had the participants been exposed to rockets and how close were they to the rockets? This continuous variable was measured on a 5-point scale (1 – *no rockets fell*, 5 – *a rocket hit my home or fell very close*).

The Self-Esteem Scale was developed by Rosenberg (1965) and translated into Hebrew by Hobfoll and Walfisch (1984). The questionnaire consists of 10 items (e.g., "I feel that I am a person of worth"). Responses were measured on a 5-point Likert scale (1 – *strongly agree*, 5 – *strongly disagree*). One overall score was derived by computing the mean of the responses to the 10 items: the higher the score, the higher the participant's self-esteem. Cronbach's alpha reliability of the questionnaire used in the present study was .83.

Perceived social support was measured on the basis of the Multidimensional Scale of Perceived Social Support, which is a self-report questionnaire that examines the subjective perceptions of individuals regarding the extent of social support received from three sources: family, friends, and significant others (Zimet, Dahlem, Zimet, & Farley, 1988). The scale consists of 12 statements, and participants were asked to indicate the extent to which they agree with each statement on a 7-point Likert scale (1 – *strongly agree*, 7 – *strongly disagree*). The scale has been used in numerous studies in Israel and throughout the world (e.g., Kulik & Kronfeld, 2005). Cronbach's alpha reliability of the questionnaire used in the present study was high (.95).

Cognitive appraisals of the stressors were assessed via a questionnaire based on Lazarus and Folkman's (1984) Cognitive Appraisal Questionnaire. The questionnaire used in the present study consisted of 17 items tapping the participants' perceptions of the rocket attacks. Based on factor analysis, the items were grouped into three categories of appraisal: *challenge* (e.g., "To what extent do you consider exposure to Qassam rockets as a challenge to your ability to cope in stress situations?"); *threat* (e.g., "To what extent do you consider exposure to Qassam rockets as a threat to your health?"); and *self-efficacy* (e.g., "To what extent do you think you can perform essential daily tasks despite the exposure to Qassam

rockets?"). Responses were measured on a 5-point Likert scale (1 – *to a great extent*, 5 – *not at all*). The first category consisted of six items, which indicated the extent to which the participants perceive an event as a challenge; the second category consisted of seven items, which indicated the extent to which the participants perceive the event as a threat; and the third category consisted of four items, which reflect the participants' sense of self-efficacy and their perceived ability to cope with the event. Cronbach's alpha internal consistency for each of the three categories was high (.90, .79, and .77 for challenge, threat, and self-efficacy, respectively).

## Sociodemographic Characteristics

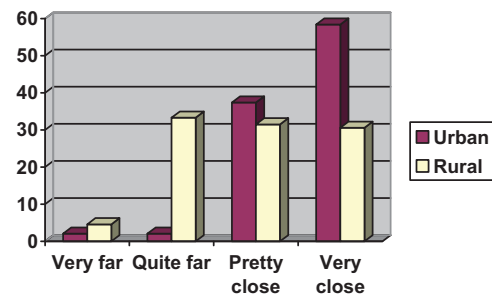
The questionnaire contained questions relating to the participants' age, gender, health status, marital status, level of education, economic situation, and type of community of residence (place of residence).

## Results

PTSD symptoms were found among 33.7% of the participants residing in the urban community, as opposed to 5.6% of those residing in the rural communities. To examine whether there were differences in diagnosed PTSD, we conducted a  $\chi^2$  test. The results revealed significant differences between the two types of communities with regard to the number of participants who had been diagnosed with PTSD:  $\chi^2 = 30.32$ ,  $p < .001$ . In the same vein, a significant difference was found in the level of PTSD symptoms among participants from urban versus rural communities:  $F(1, 296) = 76.31$ ,  $p < .001$ ,  $\eta^2 = .21$ . That is, the number of PTSD symptoms among the residents of urban communities ( $M = 20.98$ ,  $SD = 11.65$ ) was higher than the number of PTSD symptoms among the residents of rural communities ( $M = 9.78$ ,  $SD = 8.55$ ); and  $M = 3.19$ ,  $SD = 1.31$ ).

Regarding the level of exposure to Qassam rocket attacks, we conducted a  $\chi^2$  test:  $\chi^2 = 63.22$ ,  $p < .001$ . The results revealed significant differences between the urban and rural participants.

Figure 2 presents the probability distribution of the different communities, by their proximity to the missiles, and indicates that exposure to rocket attacks among elderly residents of the urban community was more intensive than for the residents of the rural community. To examine whether the differences in PTSD derived



**Figure 2.** Distribution of proximity of rockets falling among elderly urban residents and elderly rural residents. See the online article for the color version of this figure.



from differences in levels of exposure among participants in the two communities, an ANCOVA was conducted, and levels of exposure were entered as a covariate. The results yielded a significant result:  $F(1, 295) = 57.74, p < .001, \eta^2 = .16$ . That is, the effect size decreased by 5%, but was still high. In addition, we conducted MANCOVAs to examine the extent to which sociodemographic resources (education, economic situation, and health status) explained the differences in PTSD. The results revealed a significant difference between the two communities:  $F(1, 293) = 9.05, p < .01, \eta^2 = .03$ . The  $\eta^2$  size indicates that the difference between the two communities in levels of PTSD declined by 18% when level of exposure was added.

To examine whether there were differences between the elderly residents of urban versus rural communities with regard to self-esteem, perceived social support, and cognitive appraisals, one-way MANOVAs were carried out. The results revealed significant differences between residents of the two types of communities:  $F(5, 292) = 33.99, p < .001, \eta^2 = .37$ . Table 1 shows the means and standard deviations of the various indices, as well as the results of univariate ANOVAs for each measure.

The results revealed significant differences between residents of the two types of communities in all of the indices. These findings indicate that the elderly residents of rural communities had more resources than did their counterparts in the urban community. The effect size ( $\eta^2$  value) was significant and high for all of the measures except challenge. Based on the means, it appears that the elderly residents of rural communities had more personal and social resources as well as higher cognitive assessments in the dimensions of challenge and self-efficacy than did their counterparts living in the urban community. However, the elderly residents of the urban community had higher cognitive assessments of threat.

The participants from the two communities also differed with regard to their sociodemographic characteristics (education level, health status, and economic situation). To examine the extent to which the above-mentioned differences in other variables (self-esteem, perceived social support, and cognitive appraisals) derived from the different sociodemographic characteristics of the residents of these communities, ANCOVAs were carried out, with education level and economic situation as covariates. The results of this analysis revealed a significant, although trivial, difference between the two communities:  $F(5, 289) = 7.40, p < .001, \eta^2 = .11$ . A comparison with the results of the analysis conducted

without covariates reveals that the effect size declined from .37 to .11. Nonetheless, the difference between the participants in the two communities remained significant. That is, the sociodemographic resources explained a substantial share of the differences between the elderly residents of the two communities.

Pearson's correlations were conducted to test Hypothesis 3, which posited that participant's self-esteem, perceived social support, and cognitive appraisals would correlate with PTSD. The correlations for the entire research population are presented below (see Table 2), followed by comparative data on the correlations for participants in rural versus urban communities (see Table 3).

The data in Table 2 reveal high negative correlations between the participants' self-esteem and levels of PTSD, with the exception of perceiving the situation as a challenge. The findings indicate that a high level of exposure is related to a high level of PTSD, while a high self-image, strong social support, and a high sense of self-efficacy are related to low levels of PTSD.

To examine differences between these correlations among elderly residents of rural versus urban communities, Fisher Z tests were conducted. The results of those tests revealed significant differences between the two groups with regard to the correlations of self-efficacy and several of the other research variables. The findings show significant differences between the elderly residents of the two communities in the correlations between self-efficacy and self-esteem:  $z = 2.13; p < .05$ , as well as in the correlations between appraisals of self-efficacy and appraisals of threat:  $z = 3.20; p < .001$ . Differences between the two groups were also found in the correlations between appraisals of self-efficacy and PTSD:  $z = 5.08; p < .001$ . Apparently, appraisals of self-efficacy had a beneficial effect only on elderly residents of the urban community. Among that group of participants, high appraisals of self-efficacy correlated with higher self-esteem, lower appraisals of threat, and lower levels of PTSD. These findings were supported by the results of regression analyses, and will be discussed in detail in the Discussion section.

Finally, a hierarchical regression analysis with the dependent variable PTSD was carried out in five steps. In the first step, the sociodemographic resources (health, economic situation, and education) were entered. In the second step, the variable representing exposure to missile attacks was entered. In the third step, self-esteem and perceived social support were entered; and in the fourth step, the measures of cognitive appraisals were added (challenge, threat, and self-efficacy). In the fifth step, the interactions between sociodemographic resources, self-esteem, perceived social support, and cognitive appraisals were entered. In the first four steps, these variables were forced into the regression equation. However, in the fifth step, the interactions were entered according to the significance of their contribution to explaining the variance in PTSD. Essentially, because only two interactions contributed significantly to explaining that variance, these were the only variables entered in the fifth step (see Table 3).

The regression analyses presented in Table 3 show that the percentages of explained variance in PTSD were high for participants from both types of communities (52% for urban residents, and 53% for rural residents). In the first step, the sociodemographic resources variables contributed substantially to explaining PTSD among the elderly residents of rural communities (9% among the urban residents, compared with 26% among the rural residents). Further analysis of the findings indicates that health

**Table 1.** Means, Standard Deviations, and Analyses of Variance in Psychological and Social Resources and Cognitive Appraisals

Measure	Type of community				$F(1, 294)$	$\eta^2$
	Urban		Rural			
	$M$	$SD$	$M$	$SD$		
Self-esteem	2.91	.49	3.35	.35	68.87***	.19
Social support	4.22	1.50	5.56	1.20	62.60***	.17
Cognitive appraisals						
Threat	2.78	.87	1.99	.88	56.35***	.20
Challenge	2.48	.88	2.83	1.20	7.87***	.03
Self-efficacy	2.65	.79	3.53	.92	56.35***	.16

\*\*\*  $p < .001$ .

**Table 2.** Pearson's Correlations Between Exposure to Qassam Rockets, Self-Esteem, Social Support, Cognitive Appraisals, and PTSD for the Entire Research Population ( $N = 298$ )

Indices	Self esteem	Social support	Challenge	Threat	Efficacy	PTSD
Exposure	-.18**	-.21***	-.26***	.15**	-.26***	.24***
Self-esteem		.33***	.01	-.43***	.46***	-.51***
Social support			.20***	-.22***	.35***	-.26***
Challenge				.25***	.37***	.05
Threat					-.31***	.66***
Efficacy						-.45***

\*\*  $p < .01$ . \*\*\*  $p < .001$ .

status contributed most substantially to explaining PTSD among the urban residents, whereas economic situation contributed most substantially among the rural residents. Among the rural residents, economic instability increased the risk of PTSD in the face of continuous rocket attacks.

In the second step, the contribution of exposure to missile attacks to explaining the variance in PTSD in both types of communities was not significant (only 1%); and in the third step, self-esteem and perceived social support contributed an additional 8% to explaining the variance in PTSD among the residents of rural communities, and 11% among the urban residents. Whereas positive self-esteem contributed substantially to explaining the variance in PTSD among the urban residents, an adverse economic situation continued to be the main contributing variable among the rural residents.

Substantial differences between the two groups were found in the fourth step, when the cognitive appraisal variables were entered (challenge, threat, and self-efficacy). Among the elderly residents of the urban community, the addition of these variables contributed substantially (31%) to explaining the variance in PTSD, whereas those variables contributed 9% to explaining the variance in PTSD among the elderly residents of rural communities. Examination of the findings indicates that among the urban residents, cognitive appraisals of threat and appraisals of self-efficacy contributed most significantly to explaining the variance in PTSD. Specifically, the more the participants in this group appraised the situation as a threat, the higher their levels of PTSD were. In contrast, when the variables threat and self-efficacy were entered in the fourth step, the beta coefficients of the urban residents declined. Specifically, the beta coefficients for self-esteem declined from  $\beta = -.34, p < .001$  to  $\beta = -.08, p < .05$ . This finding suggests that there was a mediating effect. In fact, the results of Sobel analyses, which were conducted to examine the significance of the mediating effect, revealed that appraisals of self-efficacy and appraisals of threat mediated in the relationship between self-esteem and PTSD:  $Z = 4.34, p < .001$ , and  $Z = 6.71, p < .001$ , respectively. That is, participants with higher self-esteem had higher appraisals of self-efficacy and lower appraisals of threat. In turn, participants with higher appraisals of self-efficacy and lower appraisals of threat had lower levels of PTSD.

As mentioned, the interactions that might moderate PTSD were entered in the fifth step, when we examined whether sociodemographic variables, self-esteem, social support, and cognitive appraisals moderate PTSD. The interactions between economic situation and appraisals of threat and between self-efficacy and threat were found to contribute significantly to moderating PTSD only among the rural residents.

Figures 3 and 4 present the interactions, which added 8% to the explained variance over and above the variables entered in the previous steps. Thus, among rural residents who assessed their economic situation as bad, there was a positive correlation between appraisals of threat and levels of PTSD ( $\beta = -.31, p < .001$ ): the more they appraised the situation of stress as a threat, the higher their levels of PTSD were. The additional interaction found between self-efficacy and appraisals of the situation as a threat indicates that for the participants who reported low levels of self-efficacy, the contribution of the threat was greater:  $\beta = -.26, p < .05$ .

## Discussion

The findings indicate that levels of PTSD were higher among the elderly residents of the urban community than among their counterparts living in the rural communities. As shown in the literature review, elderly residents of kibbutzim in Israel have more social and economic resources, which they can rely on at times of threat and stress. These differences were still evident after partialing out the effect of sociodemographic variables in the two communities. Although the differences between the two communities might be attributed to the higher levels of exposure to threat among the urban residents, this explanation was not supported by our findings, as the differences remained significant even after levels of exposure to continuous threat were taken into account. This finding is consistent with the results of studies that highlight the importance of supportive environments which enable individuals to attain social, physical, and cultural resources and create an optimal background for coping with the life changes and challenges that characterize late adulthood (Itzhaky & Ha'Israeli, 1998; Ungar, 2011). One possible explanation for these differences is that the rural lifestyle of kibbutzim benefits elderly residents, because the environment buffers the impact of threatening situations such as continuous rocket attacks. Another possibility is that the specific characteristics of elderly persons in rural localities contribute to their ability to cope with the stressful situation. This explanation is also consistent with previous findings (e.g., Blumstein et al., 2004; Braun-Lewensohn & Sagy, 2014).

The research hypothesis addressed the contribution of sociodemographic resources, personal resources (self-esteem), and perceived social support to helping elderly people cope with the continuous traumatic situation of rocket attacks. In the regression analysis, two sociodemographic resources—economic situation and health status—were found to explain the variance in PTSD. The findings showed that among elderly participants in rural

**Table 3.** Hierarchical Regression Coefficients to Explain the Variance in PTSD Among Elderly Residents of Urban ( $N = 190$ ) Versus Elderly Residents of Rural Communities ( $n = 108$ )

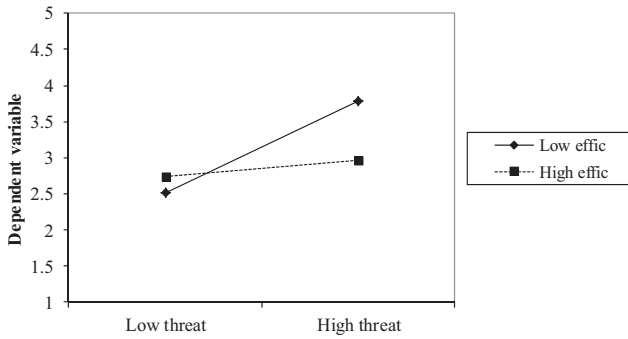
Variable	Urban				Rural			
	<i>B</i>	<i>SE</i>	$\beta$	$R^2$ change	<i>B</i>	<i>SE</i>	$\beta$	$R^2$ change
Step 1				9%				26%
Education	-.72	.55	-.09		-.82	.61	-.12	
Health	-3.20	.89	-.25***		-2.10	.94	-.19*	
Economic situation	-1.86	1.35	-.10		-5.67	1.30	-.39***	
Step 2				1%				1%
Education	-.64	.55	-.08		-.82	.61	-.12	
Health	-2.90	.91	-.23***		-2.13	.95	-.20*	
Economic situation	-1.92	1.35	-.10		-5.67	1.30	-.37***	
Exposure Qassam	1.08	.76	.10		.15	.56	.02	
Step 3				11%				8%
Education	-.48	.53	-.06		-.47	.59	-.07	
Health	-2.33	.93	-.18*		-2.30	.91	-.21*	
Economic situation	-.96	1.29	-.05		-4.87	1.26	-.33***	
Exposure Qassam	1.11	.73	.10		.46	.55	.07	
Self-esteem	-8.08	1.66	-.34***		-6.33	2.10	-.26**	
Social-support	.80	.56	.10		-.86	.61	-.12	
Step 4				31%				9%
Education	-.79	.42	-.10		-.36	.56	-.05	
Health	-1.57	.75	-.12*		-1.99	.87	-.18*	
Economic situation	-.47	1.03	-.02		-3.03	1.30	-.21*	
Exposure Qassam	.19	.58	.02		.65	.54	.10	
Self-esteem	-1.93	1.49	-.08*		-5.85	2.03	-.36**	
Social-support	.62	.46	.08		-.60	.58	-.08	
Challenge	-.03	.82	-.00		.75	.74	.10	
Threat	6.67	.81	.50***		2.57	1.02	.26**	
Self-efficacy	-3.86	.99	-.26***		.46	.83	.05	
Step 5								8%
Education					.17	.54	.02	
Health					-1.94	.81	-.18*	
Economic situation					-5.23	1.38	-.36***	
Exposure Qassam					1.09	.51	.17*	
Self-esteem					-5.89	1.90	-.23**	
Social-support					-.77	.57	-.11	
Challenge					1.10	.70	.15	
Threat					3.55	1.05	.36**	
Self-efficacy					-1.35	1.22	-.15	
Economic situation $\times$ Threat					-2.44	.75	-.31***	
Threat $\times$ Efficacy					-1.74	.84	-.26*	

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

communities, a difficult economic situation was associated with greater PTSD, and explained 25% of the variance in that variable. In contrast, for the urban participants, whose economic situation was lower than that of their rural counterparts, this variable did not contribute significantly to explaining their levels of PTSD. However, it is important to note that the feeling of economic insecurity among kibbutz members was not necessarily related to the ongoing hostilities but to a change in the kibbutz culture. With many products and services no longer supplied by the collective, but coming out of each members allowance or wages, the traditional sense of security which had been part of the personality makeup of the elderly members was eroding, possibly leaving them with a sense of uncertainty about the future of their lives and about the potential harm to their well-being (Blumstein et al., 2004).

Health was the main sociodemographic resource that explained levels of PTSD among this group of participants, with higher levels of PTSD found among the urban residents who assessed their health status as poor. This finding is not surprising, and is consistent with the results of previous studies that have associated illness with negative psychological consequences, and lower quality of life among elderly people (Reinhardt, 1996). In addition, the association of psychological reactions and actual or potential loss of resources in situations of threat is consistent with Hobfoll's (1998) Conservation of Resources theory. Moreover, poor health impedes the functioning of elderly persons when there are air raid sirens. The sirens allow about a minute-and-a-half to arrive at a sheltered area, which is an impossible task for most elderly people.





**Figure 3.** The interactions between appraisals self-efficacy and threat.

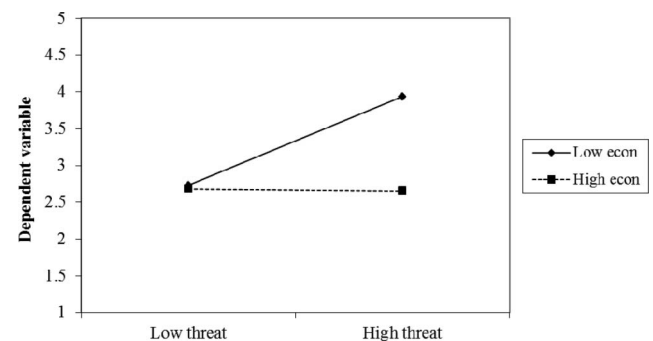
Hypothesis 3 also addressed the contribution of self-esteem to explaining PTSD. Research findings regarding the directions of this correlation and the contribution of self-esteem to PTSD are inconsistent. Some studies have revealed that high self-esteem can moderate the impact of traumatic events (Hobfoll et al., 2011), whereas others have not found evidence of a relationship between self-esteem and psychological responses as a consequence of exposure to trauma (Mak et al., 2010). Comparison of the results for the residents of urban versus rural communities reveals high and significant correlations between self-esteem and PTSD in the face of threat: high self-esteem correlated with low levels of PTSD among the elderly residents of both types of communities. This finding is consistent with the approaches which argue that high self-esteem plays an important role throughout the individual's life, and particularly in late adulthood, when other personal and social resources decline (Besser & Priel, 2010). The finding also provides insights into the psychological resources of elderly persons and the contribution of high self-esteem to coping with continuous threat.

The contribution of perceived social support to explaining levels of PTSD was also examined in Hypothesis 3. The negligible contribution of this social resource to explaining PTSD deserves special attention. Contrary to the literature (Brewin, Andrews, & Valentine, 2000; Reinhardt, 1996), when perceived social support was entered in the third step of the regression, it did not contribute at all to explaining levels of PTSD among the elderly participants from both types of communities. One possible explanation for this surprising finding derives from the unique nature of the stress situation, in which the younger family members are concerned with protecting themselves and the elderly residents often have to cope with the rocket attacks on their own. Another possible explanation is that the elderly residents are those who support their family members—often, the distress of family members who must care for small children diverts attention to them, so that the older generation becomes a source of support and strength rather than needing support. Notably, the urban locality of Sderot is a traditional community, in which older members are a source of authority, wisdom, and support. Additionally, it is possible that when social support was included in the same step as self-esteem, the latter captured most of the variance explained by the former (i.e., self-esteem mediated the relationship between social support and PTSD).

The argument that cognitive appraisals play a major role in shaping the impact of traumatic events and emotional responses to those events (Braun-Lewensohn, Sagy, & Roth, 2011) was also confirmed in the present study. The findings revealed that among elderly resi-

dents of both communities, cognitive appraisals were related to levels of PTSD. However, a more comprehensive examination reveals differences with regard to the combination of components that are related to PTSD in each type of community. Specifically, cognitive appraisals of threat contributed significantly to explaining the variance in PTSD among all of the participants, so that appraisals of the attacks as a threat were related to symptoms of depression and anxiety (Nuttman-Shwartz, 2014). Nonetheless, the percentages of explained variance in this dimension were considerably higher among the residents of the urban community than among the residents of the rural communities (31% vs. 9%, respectively). The significance of cognitive appraisals of threat for urban residents highlights the importance of a supportive environment and the need to adopt a cognitive orientation toward intervention with the urban population in situations of continuous threat.

Contrary to the findings of previous studies, appraisals of the continuous threat situation as a challenge did not contribute significantly to explaining the variance in PTSD. It is possible that when elderly people are exposed to rocket attacks, they have difficulty viewing the situation as a challenge. A significant correlation was found between self-efficacy and levels of PTSD only among the urban residents: the higher their appraisals of self-efficacy, the lower their levels of PTSD. Self-efficacy was found to reduce symptoms of PTS as results of the threatening situations, and is apparently a valuable cognitive mechanism for elderly people living in urban communities. Among the rural participants, self-efficacy did not significantly explain PTSD. It is possible that the abundant services and protection in rural communities reduced the necessity for elderly residents to develop a sense of self-efficacy because their instrumental and personal needs were taken care of. Moreover, the ideology of these communities placed more emphasis on the value of the collective and less emphasis on personal efficacy. Another possible explanation is that age-related changes in physiological functioning and health impair the feeling of self-efficacy (Maurer, 2001). Notably, when the interactions between economic situation and appraisals of threat were entered in the fifth step of the regression, it was found that economic resources were more significant for the rural residents than for the urban residents. This finding supports the above-mentioned argument that for the elderly residents of kibbutzim in Israel, the uncertainty of their economic situation due to the ideological changes in those communities is a major factor that explains their PTSD. Moreover, an interaction between self-efficacy and appraisals of the situation as a threat was found only among the elderly residents of



**Figure 4.** The interactions between economic situation and appraisals as threat.

rural communities. It is possible that the urban residents, who lived in a more traditional community, believed more in an external locus of control than in an internal locus of control. Therefore, their self-efficacy did not affect their appraisals of threat in the face of continuous rocket attacks. Although levels of distress were lower among the rural residents than among the urban residents, the findings suggest that social changes have adversely affected their ability to cope.

Before concluding, several limitations of the study should be addressed. Although the results contribute to existing knowledge about the responses of elderly persons in situations of continuous threat, it is important to bear in mind that the sample of participants was drawn from two unique communities. Hence, caution should be exercised in generalizing the findings to other contexts. In addition, because the residents of the two communities examined in the study differed in terms of their sociodemographic resources, caution should be exercised in generalizing the findings. Finally, although the study dealt with a continuous threat, the PTSD diagnosis was based on only self-report and the sample was based on a cross-sectional design and did not include complementary tools and a longitudinal follow-up of the participants.

Despite these limitations, the findings highlight the importance of an environment (type of community) that is able to provide resources to people in situations of tension and threat, as well as the contribution of the environment to the cognitive appraisals of elderly persons in situations of continuous threat. Drastic personal changes as well as changes in the environment and community that limit the resources available to older persons (e.g., poor health and economic uncertainty) place this population at greater risk for PTSD.

Hence, interventions at the community level can play an important role in strengthening the residents' connections and involvement with the community. The findings are also relevant to researchers examining communities in transition versus more traditional communities. Moreover, the study provides a basis for identifying populations at risk, and offers directions for intervention in these cases. Notably, psychological resources were found to be important in old age, when other resources such as health and social resources diminish. The substantial contribution of cognitive appraisals can also serve as a basis for professional intervention with elderly persons in situations of continuous threat. Interventions aimed at enhancing self-efficacy (e.g., direct or vicarious learning) can instill more confidence in older people and enhance their ability to cope with these situations (Maurer, 2001).

In sum, the findings of the study can be useful to professionals and community leaders in developing interventions that can enhance self-efficacy and reduce the sense of threat. Furthermore, the study can serve as a basis for future research on the topic, which might examine additional aspects such as coping styles, sense of well-being, and characteristics of social networks.

**Keywords:** cognitive appraisals; continuous threat; PTSD

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