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# Posttraumatic Stress and Growth: The Contribution of Cognitive Appraisal and Sense of Belonging to the Country

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The study has three aims: (1) to compare the effect of the Qassam attacks in two types of communities: development town and kibbutz; (2) to examine the relationship between posttraumatic stress (PTS) and posttraumatic growth (PTG); and (3) to examine the contribution that level of exposure, cognitive appraisal, and sense of belonging to the country make to PTS and PTG. The sample consisted of 134 residents, 67 living on two kibbutzim and 67 living in the development town of Sderot. Results revealed that the development town residents reported more PTS symptoms and more PTG than did the kibbutz residents, and the association between PTS and PTG was positive. In addition, the findings show that most of the predictors contribute to either PTS or PTG, or predicted them differently. The discussion examines the results in light of the current literature on PTS and PTG.

KEY WORDS: *country; posttraumatic growth; posttraumatic stress; sense of belonging; terror*

Over the past decade, terrorism has become a worldwide problem, with people in many countries directly exposed. Studies of adults exposed to political violence in Bosnia and Croatia (Grgic, Mandic, Koic, & Knezevic, 2002), Palestine and Israel (Baker & Kevorkian, 1995; Bleich, Gelkopf, & Solomon, 2003), and the United States (for example, Galea et al., 2002; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002) revealed a range of detrimental consequences, including heightened anxiety; depression; a reduced sense of safety; an increased use of tobacco, alcohol, and drugs; and, most prevalent of all, posttraumatic stress (PTS) symptoms. These symptoms can be grouped into three main clusters. The first is persistent re-experience of the traumatic event, such as recurrent dreams and flashbacks. The second is persistent avoidance of internal or external cues associated with the trauma, such as avoiding thoughts, avoiding activities, diminished interest, detachment, restricted affect, and sense of foreshortened future. Finally, increased arousal is manifested in difficulty in sleeping, irritability, difficulty in concentrating, hypervigilance, and exaggerated startle response (American Psychiatric Association [APA], 1994).

A growing body of empirical studies reveals that many trauma survivors also experience positive psychological changes after trauma. *Posttraumatic growth* (PTG) is described as the subjective experience of positive psychological change reported by an individual as a result of the struggle with trauma. PTG relates to a variety of positive psychological changes, including increased appreciation of life, setting of new life priorities, a sense of increased personal strength, identification of new possibilities, improved closeness in intimate relationships, or positive spiritual change (Tedeschi, Park, & Calhoun, 1998). Such outcomes have been documented following a variety of traumatic events, including natural disasters (Maercker & Herrle, 2003), war (for example, Fontana & Rosenheck, 1998), and terror (Butler et al., 2005).

This study examines PTS and PTG among residents of the Western Negev area of Israel. Like other residents of Israel, they have been exposed to the deadly violence, and threat of violence, of the second Palestinian *Intifada*, the armed rebellion that started in September 2000 and has still not abated. Western Negev has been the target of Qassam rocket attacks, whose number has steadily increased over

the years. In 2007 the region saw more than 2,300 rocket attacks in all.

Qassam rockets are relatively unsophisticated weapons, with low accuracy and low deadliness. At the same time, their frequent firings, at all hours of the day and night, have introduced considerable uncertainty and anxiety into the lives of the residents of the stricken area and a heightened state of physical and emotional alert. However, since there is very little time between the firing and the landing of the missile, there is little opportunity for self-protection. People abruptly stop what they are doing, run for inadequately protected areas, and wait for the boom. Occasional Qassams have penetrated into people's homes. Although most of the damage has been to property, several people, some of them children, have been killed in direct Qassam hits.

The first aim of the study is to compare the effect of the Qassam attacks in two different types of communities in the Western Negev. One is the development town of Sderot. Like the other 28 development towns in Israel, Sderot was established in the 1950s, a few years after Israel's declaration of independence, to settle the huge masses of immigrants who poured into the country during those years and to populate its peripheral areas. Despite government efforts, most of these towns did not manage to build a strong and varied economic base and, over the years, have become pockets of deprivation and poverty (Yiftachel, 2000). Like most of these towns, Sderot is characterized by high unemployment, low education level, and a pervasive feeling among residents that they are badly neglected by the government and ignored by their wealthier, more fortunate compatriots elsewhere in the country.

The other type of community is the kibbutz. This is a uniquely Israeli community, originally established to farm and protect the land and inspired by ideals of economic and social equality and mutual help and responsibility. Until the 1980s, the kibbutzim were the centers of Israel's elite, with their members representing an extraordinarily high proportion of senior military and government posts. Since then, the economic situation of most of the kibbutzim has deteriorated, their prestige has greatly declined, and most of them have undergone major processes of privatization, with resultant inequalities of income and a loosening of the social bonds. Nonetheless, the kibbutzim are still relatively tightly knit communities, and their members retain elements of the old communal ideology and pride. Moreover, even

on the less affluent kibbutzim, the quality of life is relatively high, with lots of greenery, good schools, cultural activities, and very low crime rates.

Earlier studies indicated that kibbutz residents fared better emotionally under stressful conditions than residents of other communities (Benyamini et al., 2004). It is suggested that the kibbutz ideology and communal lifestyle provided a measure of protection against stress. However, given the changes in the kibbutz, the question is whether it still affords the psychological protection it has in the past.

The comparison is somewhat difficult to make because of the different levels of exposure to the rockets in the separate locations. Around two-thirds of the Qassams landed in Sderot; the rest landed in the various kibbutzim in the area. Given these differences, the study attempted to examine the effect of the Qassams on the two types of communities, beyond the difference in exposure.

The second aim of the study is to examine the relationship between the pathological and salutary outcomes of the attacks in the two types of communities—more specifically, to examine the association between PTS and PTG measures. Previous findings are inconsistent. Some studies suggest that distress and growth are antithetical: The more distress one experiences in the wake of a traumatic event, the less one grows from it, and vice versa (Updegraff, Taylor, Kemeny, & Wyatt, 2002). Other studies show positive correlations between the two outcomes, with the most highly distressed people likely to show the greatest psychological growth (Pargament, Smith, Koenig, & Perez, 1998; Tedeschi & Calhoun, 1996). Several studies have found a curvilinear relationship, with individuals with more PTS symptoms reporting higher growth (Butler et al., 2005). Finally, a third set of findings shows no relation between psychological distress and growth (for example, Solomon, Waysman, & Neria, 1999).

The third aim of the current study is to examine predictors of PTS and PTG in the wake of the Qassam attacks. Although many studies have been carried out on predictors of PTS, fewer have been carried out on predictors of PTG. Only a handful of studies have examined predictors of both. We examine the following predictors: exposure, cognitive appraisal of the nature of the stressor, and a sense of belonging to the country.

Level of exposure has repeatedly been found to be one of the strongest correlates of psychological distress in the wake of a wide variety of traumatic

events, including war (Dekel, Solomon, Ginzburg, & Neria, 2003) and terror (for example, Tucker, Pfefferbaum, Nixon, & Dickson, 2000). Findings on the relationship between exposure and PTG are less consistent. Some studies have found positive linear correlations between them (Maercker, & Herrle, 2003); others have not (Schnurr, Rosenberg, & Friedman, 1993).

Lazarus and Folkman (1984) argued that stressors can be perceived as either threats or challenges. The more inclined people are to perceive the stressor as a threat, the more distress they will experience; the more they perceive it as a challenge, the less distressed they will become. This claim has gained considerable empirical support in studies of people's distress following a wide variety of stressors, including battle (Solomon, Mikulincer, & Benbenishty, 1989) and terror (Piotrkowski & Brannen, 2002). Studies have also found a positive association between cognitive appraisal and growth (Armeli, Gunthert, & Cohen, 2001; Cordova, Cunningham, Carlson, & Andrykowski, 2001). These studies, however, are relatively few in number, and none of them examines the association where the stressor is terror.

Sense of belonging refers to people's feeling of being part of a collective (Newbrough & Chavis, 1986), whether the neighborhood, immediate community, nation, or any other group or place. It is characterized by mutual concern, connection, community loyalty, and trust that one's personal needs will be fulfilled by means of commitment to the group as a whole (Chavis, Hogge, McMillan, & Wandersman, 1986). Other manifestations include the wish to remain in the community and to encourage others to join it (Itzhaky, 1995). Findings show that there are lower rates of combat stress in army units that have high levels of solidarity and cohesion than in those in which the soldiers' sense of belonging is lower (Steiner & Neumann, 1978). More recent findings in Israel show an association between a high sense of belonging to the country and lower levels of distress in the wake of the ongoing terror experienced in the country (Kovatz, Kutz, Rubin, Dekel, & Shenkamm, 2006). No studies, however, have been carried out on the relationship between a sense of belonging to the country and growth.

The third aim of the study is to examine the contributions of cognitive appraisal of the stressor and of sense of belonging to the country to both PTS and PTG. The question is whether each of

these contributes similarly to the prediction of the two outcomes or uniquely to one or another.

## METHOD

### Sample and Data Collection

The sample consisted of 134 residents of Western Negev, 67 living on two kibbutzim and 67 in the development town of Sderot, who were matched in gender and age. Only those who completed the research questionnaires in full, 122 people, were included in the analysis and presentation.

Comparisons revealed no significant group differences in age, gender, country of birth, family status, number of children, or self-reported economic situation. Just over half of the participants, 53 percent, were men. The participants' ages ranged from 18 to 76 ( $M = 44.89$ ,  $SD = 13.34$ ). More than half, 55 percent, were born in Israel. Sixty percent were married, 26 percent were single, and 14 percent were divorced or widowed. Fifty-four percent of the participants reported below average income; 25 percent, above average income; and 21 percent, around average income.

Significant group differences, however, were found in education and exposure. On average, kibbutz residents reported more years of schooling ( $M = 14.23$ ,  $SD = 2.38$ ) than the Sderot residents [ $M = 12.63$ ,  $SD = 2.40$ ;  $t(120) = 3.69$ ,  $p < .001$ ]. Kibbutz residents also reported lower direct exposure to the Qassams than did the Sderot residents [ $\chi^2(4, N = 122) = 12.53$ ,  $p < .05$ ]. Thirty percent of the kibbutz sample reported that they had not been directly exposed to the rockets, compared with only 14 percent of the Sderot residents. Conversely, 12 percent of the Sderot residents reported that a rocket had fallen on or very close to their home; no kibbutz resident reported such an experience. The differences in education levels and direct exposure were taken into account in our analyses.

Data were collected between March and July 2005 by social work students trained for the task. In Sderot, the interviewers approached people in the streets and public places in the town, as well as in their homes, obtaining a random, but not representative, sample. In the kibbutzim, contact people asked the members to take part in the study. Almost all members of both kibbutzim participated. In both Sderot and the kibbutzim, prospective interviewees were told that this was a study of people's responses to and coping with the current situation, and their informed consent was obtained.

## Measures

**Sociodemographic Characteristics.** The questionnaire queried gender, age, family status, education, and economic status.

**Exposure to Qassam Rockets.** Participants were to indicate their direct exposure to the Qassam rockets on a five-point scale with 1 = no direct exposure, 2 = a Qassam fell in the adjacent neighborhood, 3 = a Qassam fell in my neighborhood, 4 = a Qassam fell close to my home, and 5 = a Qassam fell on or very close to my home.

**Cognitive Appraisal.** Cognitive appraisal of the stressor was assessed through a questionnaire based on Lazarus and Folkman's (1984) Cognitive Appraisal Questionnaire. The questionnaire used in the current study consists of 14 items tapping the participants' perceptions of the Qassam rocket attacks. Nine items tap the extent to which the participants perceived the attacks as a threat (for example, the situation can harm you). Five items tap the extent they perceived them as a challenge (for example, the situation is a chance to show your abilities). The participants rated the degree to which each item described their perception on a six-point scale ranging from 1 = not at all to 6 = strongly agree. Internal reliability for threat perception was high (.91) and for challenge perception was fair (.63).

**Sense of Belonging to the Country.** Sense of belonging to the country was measured by a 12-item scale developed by Itzhaky (1995). The items tap the respondents' sense of belonging to Israel (for example, "I feel part of the country") and their commitment to the country (for example, "I won't leave the country even if the security situation deteriorates"). For each item, respondents were asked to indicate their agreement on a four-point scale ranging from 1 = not at all to 4 = very much. The Cronbach's alpha in the current study was .87.

**Posttraumatic Stress.** Posttraumatic stress was measured on the basis of the DSM-IV (APA, 1994) diagnostic criteria. The 17 core symptoms were assessed by the Post Traumatic Stress Disorder (PTSD) Inventory, a self-report scale consisting of 17 statements corresponding to the 17 core PTSD symptoms listed in the DSM-IV (APA, 1994). Participants were asked to indicate for each statement whether they suffered from the symptom on a four-point scale ranging from 1 = not at all to 4 = very often. Distress was calculated as the mean number of symptoms endorsed as having been experienced often or very often. Cronbach's alpha among the

17 items in the current study was .89, and the scale was found to have high convergent validity when compared with diagnoses based on structured clinical interviews (Solomon et al., 1993).

### **The Posttraumatic Growth Inventory (PTGI).**

The PTGI was used to assess the salutogenic effect of living under continuous barrages of Qassam rockets (Tedeschi & Calhoun, 1996). The self-report inventory taps 21 positive changes resulting from the traumatic experiences, in five subscales: Relating to Others (improved interpersonal relations), New Possibilities (changes in aspirations and goals), Personal Strength (increased inner strength), Spiritual Change (increased spirituality), and Appreciation of Life (greater appreciation). Each item was scored on a six-point scale ranging from 0 = "I didn't experience this change" to 5 = "I experienced this change to a very large degree." An overall total growth score was calculated as the mean of all the responses. The reliability of the total scale was .97.

## RESULTS

### **Group Comparisons**

**PTS and PTG.** Two analyses of variance (ANOVAs) were conducted, one with PTS and one with PTG as the dependent variables. In each of the analyses, level of exposure and years of education served as covariates. The ANOVA for PTS revealed a significant effect of place of residence [ $F(1, 121) = 7.69, p < .01$ ], a significant effect of exposure [ $F(1, 121) = 12.44, p < .001$ ], and a nonsignificant effect of education [ $F(1, 121) = 1.23, p > .05$ ]. The ANOVA for PTG revealed a significant effect of place of residence [ $F(1, 121) = 5.69, p < .05$ ], and nonsignificant effects of exposure and education [ $F(1, 121) = 0.49$  and  $2.42$ , respectively].

The residents of Sderot reported more PTS symptoms and more PTG than the residents of the kibbutzim, even after taking into account the effect of exposure (see Table 1). At the same time, both groups reported relatively low levels of PTS symptoms.

### **Cognitive Appraisal and Belonging to the Country.**

Three ANOVAs with threat appraisal, challenge appraisal, and belonging to the country as the dependent variables were conducted. Again, level of exposure and education served as covariates. The ANOVA for threat appraisal revealed significant effects for place of residence [ $F(1, 121) = 28.56, p < .001$ ] and level of exposure [ $F(1, 121) = 15.85, p < .001$ ]. The ANOVAs for challenge appraisal and

**Table 1: Means and Standard Deviations of Study Variables, by Type of Community**

Variable	Sderot <i>M (SD)</i>	Kibbutzim <i>M (SD)</i>
PTS symptoms	3.94 (3.84)	1.60 (2.31)
PTG	1.55 (1.29)	0.81 (1.19)
Threat appraisal	4.27 (1.05)	3.00 (1.11)
Challenge appraisal	1.54 (0.68)	1.52 (0.70)
Sense of belonging to the country	3.19 (0.69)	3.23 (0.55)

Notes: PTS = posttraumatic stress. PTG = posttraumatic growth.

sense of belonging revealed no significant effects (see Table 1).

The residents of Sderot were considerably more inclined to appraise the situation as a threat than were the residents of the kibbutzim (see Table 1). The challenge appraisal of both groups, however, was similarly low. Sense of belonging to the country was similarly high (over 3 on a scale of 1 to 4) in both groups.

### Relationship between PTS and PTG

The simple correlation between PTS and PTG was positive ( $r = .44, p < .001$ ). Having more PTS symptoms was associated with higher PTG. Curve estimation regression analysis examining trauma symptom levels indicated that only the linear relationships were significant for the total PTG score [Linear:  $R^2 = .183, b_1 = 0.354, F(1, 91) = 20.35, p < .001$ ]. The quadratic relationship was not significant [Quadratic:  $R^2 = .243, b_1 = 1.603, b_2 = -0.257, F(1, 90) = 14.41, p < .001$ ].

### Predicting PTS and PTG

Finally, two regressions with PTS and PTG as dependent variables were carried out. Both regressions consisted of three steps. In the first step, place of residence, level of direct exposure, and the socio-demographic variables of gender, age, and years of schooling were entered. In the second step, threat appraisal, challenge appraisal, and sense of belonging to the country were entered. The regression on PTS also included the PTG scores in this step. In the last step, two sets of interactions were entered into both regressions: between place of residence and the other variables (threat appraisal, challenge appraisal, sense of belonging) and between sense of belonging and the two cognitive appraisal variables. In addition, the

interactions between the two appraisal variables and PTG were entered into the regression on PTS.

To maintain a proper ratio between the size of the sample and the number of variables in the regression, we acted as follows. First, we entered the variables in the first step in a stepwise manner. This did not change the pattern of results, but it did increase the degree of freedom. Second, in the last step we entered only those interactions that had been found to be significant in a preliminary regression in which all the interactions had been entered (see Table 2).

**PTS.** Together, the variables explained 54.8 percent of the variance in PTS symptoms [ $F(11, 121) = 12.15, p < .001$ ]. The first step explained 23.1 percent of the variance, with level of direct exposure, place of residence, and age making a significant contribution. Higher direct exposure was associated with higher PTS symptoms. In addition, as found earlier, the Sderot residents reported more PTS symptoms than did the kibbutz residents. Also, older people reported more PTS symptoms than did younger people. The second step explained another 21.6 percent of the variance, with the most substantial contribution made by threat appraisal and PTG and smaller contributions made by sense of belonging to the country. Higher threat appraisal and higher PTG were associated with more PTS symptoms. Conversely, a higher sense of belonging was associated with fewer PTS symptoms.

The third step added another 10.1 percent to the explanation of the variance, with four interactions making significant contributions. The interactions between sense of belonging and place of residence, threat appraisal, and challenge appraisal were significant. In addition, the interaction between threat appraisal and PTG was significant.

To understand the interaction between place of residence and sense of belonging, we calculated the b coefficients of sense of belonging predicting PTS symptoms separately for the residents of Sderot and of the kibbutzim. The calculations showed a significant negative b coefficient between sense of belonging and PTS symptoms among the kibbutz residents ( $b = -1.60$ ) and a low positive coefficient ( $b = 0.15$ ) among the Sderot residents. In other words, the association between sense of belonging to the country and PTS is different among the two places. More specifically, among the kibbutzim, higher sense of belonging to the country was associated with fewer PTS symptoms.

**Table 2: Multiple Variable Predictors of Posttraumatic Stress and Posttraumatic Growth**

Variable	Posttraumatic Growth				Posttraumatic Stress			
	B	SE	$\beta$	% R <sup>2</sup> Change	B	SE	$\beta$	% R <sup>2</sup> Change
Step 1				23.1				8.1
Exposure	0.96	0.28	0.28***					
Place of residence	-1.97	0.56	-0.29***		-0.74	0.23	-0.28***	
Age	0.05	0.02	0.18*					
Step 2				21.6				21
Exposure	0.52	0.26	0.15*					
Place of residence	-0.38	0.56	-0.06		-0.38	0.24	-0.15	
Age	0.05	0.02	0.21**					
Belonging to the country	-0.50	0.24	-0.15*		0.21	0.10	0.16*	
Threat appraisal	1.27	0.32	0.37***		0.41	0.13	0.32**	
Challenge appraisal	0.21	0.26	0.06		0.38	0.10	0.29***	
Growth	0.83	0.28	0.24**					
Step 3				10.1				
Exposure	0.42	0.25	0.12					
Place of residence	-0.06	0.52	-0.01					
Age	0.06	0.02	0.22**					
Belonging to the country	0.15	0.30	0.04					
Threat appraisal	1.70	0.30	0.50***					
Challenge appraisal	0.19	0.24	0.06					
Growth	0.53	0.27	0.15*					
Residence $\times$ Belonging	-1.74	0.58	-0.30**					
Belonging $\times$ Threat	-0.86	0.31	-0.23**					
Belonging $\times$ Challenge	0.69	0.26	0.19**					
Threat $\times$ Growth	0.97	0.27	0.24***					

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

To understand the interaction between sense of belonging and threat appraisal, we calculated the b coefficient correlation predicting PTS symptoms separately for participants with high and low sense of belonging. The findings showed that among people with high sense of belonging, the association between threat appraisal and PTS was low and positive ( $b = 0.84$ ), and that among participants with a lower sense of belonging it was higher ( $b = 2.56$ ). This finding indicates that sense of belonging moderates the relationship between threat appraisal and PTS.

To understand the interaction between sense of belonging and challenge appraisal, we calculated the b coefficient correlation separately for participants with high and low sense of belonging. The calculations showed that the association between challenge appraisal and PTS symptoms among participants with high belonging was positive ( $b = 0.88$ ) and that of the participants with lower sense

of belonging was negative ( $-0.50$ ), pointing to the moderating effect of belonging on the association between challenge appraisal and PTS.

The fourth significant interaction was between threat appraisal and PTG in predicting PTS. Calculations of the b coefficients between PTG and PTS among participants with low and high threat showed a significant positive correlation among participants with high threat appraisal ( $b = 1.51$ ) and negative correlation among participants with low threat appraisal ( $-0.45$ ). This finding points to the moderating effect of threat appraisal on the association between PTG and PTS.

**PTG.** Together, the variables explained 29.1 percent of the variance of the PTG [ $F(5, 121) = 6.96, p < .001$ ]. The first step explained 8.1 percent of the variance, with only the place of residence making a significant contribution. As found earlier, residents of the development towns reported higher PTG than did residents of the kibbutzim. The second

step explained another 21 percent of the variance, with sense of belonging, threat appraisal, and challenge appraisal all making significant contributions. Higher threat appraisal, higher challenge appraisal, and higher sense of belonging all contributed to higher PTG. None of the interactions in the third step made a significant contribution.

## DISCUSSION

The first aim of the study was to compare the levels of PTS and PTG among the two communities. The findings show both more PTS symptoms and greater PTG among the residents of Sderot, even after the effect of their greater exposure had been discounted. The finding on the differential PTS levels suggests that the kibbutz still affords its members greater protection against the psychological damage of terror than does the development town. The finding on the differential levels of PTG is consistent with the strong positive connection we found between growth and PTS, with more PTS associated with greater growth, which is discussed later.

Despite the statistical difference in the number of the PTS symptoms in the two types of communities, the level of distress was relatively low in both, considering the steady barrage of Qassams over the years. The low level of distress may have any of several explanations. One is that few of the attacks have resulted in death. Another is that the populations have become habituated to the attacks, much as the British had to the attacks of the German blitz (Rachman, 1990) and most Israelis had to the first Gulf War (Solomon, 1995) and have to the ongoing state of terror in the country (Bleich et al., 2003). It might reflect a situation in which the majority of people are resilient and cope well with the threat of terrorism, as was documented in a recent literature review (Maguen, Papa, & Litz, 2008). A third possibility is that the distress of the populations may be manifested in other ways that were not measured in this study, such as interpersonal tensions or functional impairment. The finding on the positive association between growth and distress is consistent with earlier studies among various populations (for a review, see Zoellner & Maercker, 2006). According to Calhoun and Tedeschi's (1998) theory, growth is a result of psychologically "seismic" events and of the individual's struggle to make sense of them. Since seismic events are, by nature, distressing, the claim actually views distress as a trigger of growth. Along similar lines, Butler et al. (2005) viewed the

key PTSD symptoms of intrusion and avoidance not only as markers of distress, but also as evidence of the organism's efforts to assimilate and accommodate the traumatic event. However, the findings also show that the level of threat appraisal affects the relationship between PTG and PTS. Although the relationship is positive among people with high threat appraisal, it is negative among those with low threat appraisal. This finding indicates that the relationship between PTS and PTG is more complex and that the subjective perception of the event had a moderating role on these relationships.

With respect to the predictors, the findings show that most of those examined predicted either PTS or PTG, but not both, or predicted them differently. The only variable that contributed significantly to the prediction of both, and in the same direction, was threat appraisal. The more threatening the Qassam attacks were viewed as being, the greater the PTS and the greater the PTG, which supports findings of previous studies on both PTS and PTG. This finding could be explained by Taylor's theory of cognitive adaptation to threatening events (Taylor & Armor, 1996), which regards PTG as a form of "positive illusion" with an adaptive function for psychological adjustment. Taylor's perception of PTG is one of possible self-enhancing appraisal that helps to cope with threat. Thus, a higher level of threat increases perception of growth. However, because of its delusional character, it goes hand in hand with higher distress.

Gender contributed neither to PTS nor to growth. This contrasts with most findings on PTSD, which show that women report more distress than men (for example, Bleich et al., 2003), but it is consistent with findings of some studies of PTG (for example, Polatinsky, & Esprey, 2000).

The findings that age and exposure did not contribute to the prediction of PTG are consistent with some studies but not with others. On each of these variables, previous findings are mixed. Some studies found that young people showed more PTG than did older people; others did not (for review, see Linley & Joseph, 2004). Similarly, although many studies found that the level of exposure helped to predict PTG (Maercker & Herrle, 2003), some found that there was a curvilinear relationship (Jennings, Aldwin, Levenson, & Spiro, 2006). These findings show that although PTS was predicted by both objective exposure and threat appraisal, PTG was predicted only by threat appraisal. These findings highlight the

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*The finding that sense of belonging is a resource that alleviates posttraumatic distress and increases PTG strengthens the role of social context in coping with terror.*

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role of subjective perceptions of traumatic events in predicting growth (Butler et al., 2005).

The finding that sense of belonging is a resource that alleviates posttraumatic distress and increases PTG strengthens the role of social context in coping with terror. Communities help people to cope by reducing isolation, normalizing suffering, and promoting healing disclosure. Community also makes an important contribution in the context of preparing for coping with the threat of future terrorism. A community can mobilize resources and plan for future action, which may alleviate peoples' fears (Maguen et al., 2008).

The interactive findings show that sense of belonging affected the contribution of three variables to PTS. The salutary effects of a sense of belonging were particularly strong among the kibbutz residents and among those who reported high threat appraisal. A sense of belonging mitigated PTS among kibbutz members to a greater extent than that among the residents of Sderot, and it tempered the contribution of high threat appraisal to PTS.

The particular power of a sense of belonging to mitigate PTS among kibbutz residents may reflect the relative importance of a mutual commitment to one another and the commitment to building and defending the country according to kibbutz ideology. The finding is consistent with those of an earlier study that similarly showed that a sense of belonging mitigated Israeli students' distress more than it had the distress of their Jewish American counterparts (Kovatz et al., 2006). In contrast, a high sense of belonging increased PTS among people who reported a high sense of challenge. That is to say, people with a high sense of challenge seem to have paid a price in mental health for their high sense of belonging. Why a high sense of belonging ceases to perform a protective function among people with a high sense of challenge is a question that requires further study.

### **Limitations**

The study has several limitations. The first is the sample size. The sample is small and, in the case of

Sderot, unrepresentative. It cannot be ruled out that people from Sderot with severe PTS simply did not participate in the study. The second limitation is the cross-sectional design of the study: All the data were collected at one point in time. This makes it impossible to determine the causal sequence, if any, between the outcome and predictor variables and the two outcomes themselves. Furthermore, as the threat persists and as the residents continue to be exposed to a reality that endangers their security, the study must be viewed as part of an ongoing cycle of exposure to trauma. Hence, future longitudinal investigations might examine whether students or local residents learn to adapt to the situation over time or whether their levels of distress become even higher as the situation persists.

In addition, despite the fact that there were no significant differences in several sociodemographic background variables between the two communities, the history and the development of each community is very different. This might have affected personal and social resources that were not assessed in the study, such as competency, sense of coherence, and family support, which in turn have affected the coping and adjustment of the different residents.

The study, however, contributes to our knowledge of the effect of ongoing terror on both PTS and PTG. The study was carried out during a time of ongoing attacks and is one of the relatively few to date to examine PTS and PTG simultaneously. In addition, the study takes into account both the personal resources of threat and challenge appraisal and the communal resource of a sense of belonging and the type of community.

### **Implications**

The study has several clinical implications. First, it identifies risk factors for distress. Place of residence, level of exposure, cognitive appraisal, and sense of belonging should be taken into account when reaching out to this population. In addition, the findings highlight the importance of the person-in-environment model (Karles & Wandrei, 1994) in assessing individuals' coping with traumatic stress. Beyond its direct contribution, sense of belonging was a moderating factor for stress responses. Hence, there is importance to intervening on the community level, strengthening the residents' connections and their involvement in the community. Moreover, the treatment of people who have been exposed to traumatic events has focused, for too



long, solely on the detrimental effects of traumata and has, thus, confined the understanding of trauma recovery to a deficit-oriented model. Considering PTG as a further potential outcome of coping with trauma broadens the clinical perspective (Zoellner & Maercker, 2006). It is important to raise clinicians' awareness of the possibility of growth. When the possibilities of PTG remain salient to the clinician, he or she can help the client to identify it as it emerges in sessions. **HSW**

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