

The Psychological Impact of Impending Forced Settler Disengagement in Gaza: Trauma and Posttraumatic Growth

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The Israeli government's decision to remove settlers in the Gaza Strip forcibly produced a situation of traumatic stress, resulting from confrontation and conflict for settlers. The authors examined the effects of the Gaza disengagement, that occurred following prolonged terrorist exposure, on rates of probable major depressive disorder (MDD) and posttraumatic stress disorder (PTSD) diagnosis in a representative sample of Gaza settlers (N = 190). Predictors of probable MDD in multivariate models were being female, and experiencing greater economic and psychosocial resource loss. Predictors of probable PTSD were being older and experiencing greater psychosocial resource loss. Posttraumatic growth was significantly related to a reduction in the odds of having probable PTSD. This latter finding is interpreted within our conceptualization of action-focused growth.

With the rise of war, conflict, and terrorism worldwide, there has been increased interest in studying their effects on civilian populations. Posttraumatic stress disorder (PTSD) has been found to be a product of direct exposure, proximity to an attack, knowing someone injured or killed, or having concern that a loved one might have been hurt or killed (Bleich, Gelkopf, & Solomon, 2003; Galea et al., 2002; Hobfoll, Canetti-Nisim, & Johnson, 2006; Silver, Holman, McIntosh, Poulin, & Gil-Rivas, 2002).

We examined rates of probable PTSD and MDD among Israeli settlers who, after having been exposed to ongoing terrorism, were forced to evacuate their homes and in many cases their livelihoods due to political exigencies. Settlers moved to Gaza, in part, for economic recompense, but largely to fulfill their ideological and biblical purpose of expanding the Israeli state by settling "Greater Israel." Settlers lived in fenced areas patrolled by armed guards. Travel required armored vehicles, traveling in caravans, and being

armed with automatic weapons. During the period of the Al Aqsa Intifada from September 2000 to the time of the evacuation, settlements in Gaza were attacked on 15,057 occasions (Intelligence and Terrorism Information Center, 2005).

We used Conservation of Resources (COR) theory as an organizing model for this study (Hobfoll, 1989; 1998). According to COR theory, stress occurs when people's psychosocial or material resources are threatened with loss, are actually lost, or when individuals must invest resources without obtaining reasonable resource gain. Under periods of major or traumatic stress, a spiral of loss often develops, as resource loss begets further resource loss (Benight et al., 1999; Hobfoll, 1989; Norris & Kaniasty, 1996).

Studies of terrorism and other mass casualty events have found resource loss to be a principle predictor of PTSD and depression (Benight et al., 1999; Galea et al., 2002; Hobfoll et al., 2006; Ironson et al., 1997). Janoff-Bulman (1992) suggested that trauma

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is exacerbated if it results in shattered assumptions about people's worldview. According to her model, individuals hold three basic assumptions: the benevolence of the world, the meaningfulness of the world, and a sense of self-worth. Integrating COR theory with Janoff-Bulman's (1992) concept of shattered assumptions leads to the prediction that trauma exposure and resultant resource loss would lead to PTSD and depression if these circumstantial losses also contributed to loss of people's way of life. This applies to the settlers because they faced terrorism and armed conflict for an extended period of time, but also experienced events that resulted in shattering their world view. In their view, they were forced to leave their homes, livelihoods, friends, and the land that they were dedicated to settling.

People may also perceive benefits from their traumatic experience, termed *posttraumatic growth* (PTG; Tedeschi & Calhoun, 1996). Posttraumatic growth has been conceptualized as positive psychological changes in self-perception, interpersonal relationships, and philosophy of life. However, PTG has been found to be independent of psychological distress (Tedeschi & Calhoun, 1998), to lead to an amelioration of psychological distress (Ai, Cascio, Santangelo, & Evans-Campbell, 2005; McMillen, Smith, & Fisher, 1997), or to relate to increased posttraumatic symptomatology (Hall, Hobfoll, Johnson, Canetti-Nisim, & Galea, 2007; Hobfoll et al., 2006; Park, Cohen, & Murch, 1996; Tomich & Helgeson, 2004; Wild & Paivio, 2003). The mixture of findings on PTG suggests a need to examine this construct further and its potential as a salutogenic process, and, in particular, the need to focus on the context and timing of benefit cognitions (Helgeson, Reynolds, & Tomich, 2006; Zoellner & Maercker, 2006).

One contextual distinction that may help clarify this issue is whether individuals who find benefits link these cognitions to actions. Benefit-related cognitions may, in part, reflect ruminative attempts to cope that are related to increased psychopathology and poorer coping (Zoellner & Maercker, 2006). This may explain why PTG was related to greater PTSD and depression in our prior studies of terrorism in the general Israeli population, as most individuals can do little to counteract the threats they experience from terrorism (Hobfoll et al., 2006). In contrast, benefit-related cognitions that are linked to actions may be more closely linked with problem-focused coping. These cognitions are more likely to relate to successful outcomes in terms of both functioning and psychological distress (Penley, Tomaka, & Wiebe, 2002), because they represent behavioral activation of cognitive-behavioral interventions (Jacobson, Martell, & Dimidjian, 2001) and because they promote self-regulation to achieve goals (Carver, 2004). Social support was also included in this study as it has been shown to be a protective factor against PTSD and MDD (Hobfoll et al., 2006; Ozer & Weiss, 2004).

Within the context of the current study, the settlers uniformly and in their entirety took action in the face of the forthcoming evacuation by participating in the campaign against the disengagement along with their families (Newman, 2005). They did

their best to keep things as usual, and renovated their homes and invested in their local businesses up until the time they were forced to leave (Hirschberger & Ein-Dor, 2006). We postulate that settlers who believed they were deriving gains in meaning and closeness with others were doing so in the context of taking part in collective actions against disengagement. As they were all doing this, we see all of them as involved in active coping that was paired with their belief system. This led us to believe that in this context, their benefit finding would be associated with less psychological distress.

The following hypotheses were made: (1) Settlers exposed to traumatic events related to terrorism and the process of disengagement will report higher levels of PTSD and depression compared to settlers exposed to these to a lesser degree; (2) settlers who experienced greater psychosocial and economic resource loss due to terrorism-related exposure during the period leading up to forced evacuation will be more likely to develop PTSD and depression than settlers who experienced less psychosocial and economic resource loss; and (3) settlers who reported PTG will be less likely to develop PTSD and depression than settlers who do not derive PTG from their experience.

METHOD

Participants

Data were collected from a representative sample of Israeli settlers during the week prior to the government-imposed deadline to leave Gaza. Few individuals had left the area prior to the forced evacuation, suggesting that we were approaching the full sample of settlers (Israeli Defense Forces, 2006). Telephone (land lines) interviews were conducted in Hebrew or Russian by fluent speakers. Surveys were translated and back-translated and used in prior research where they demonstrated good reliability and construct validity (Hobfoll et al., 2006). The institutional review boards of the University of Haifa and Kent State University approved the study, and oral informed consent was obtained from study participants.

We attempted to contact 462 persons, calling back up to 15 times. The final interviewed sample included 190 individuals, yielding a final participation rate of 41% (56% women). Ages ranged from 18 to 90 years with a mean age of 36.8 ($SD = 13.3$). With regard to education, 40% had a college education, 29.5% had some post-high school education, 30% reported high school as the highest level of educational attainment, and 0.5% had less than a high school education. In terms of religiosity, 8.6% considered themselves secular, 21.4% considered themselves traditional (following some practices), 70% considered themselves religious. With regard to income, the sample was evenly distributed, with 34.7% reporting being below average, 22.6% being average, and 33.2% having an above average income.

Measures

A structured questionnaire, approximately 25 minutes in length, was administered, assessing demographics, traumatic event exposure, symptoms of PTSD and major depression, psychological and economic resource loss, PTG, and social support. Demographic information was obtained regarding participants' age in years, gender, income, educational attainment, and religiosity.

We assessed whether, in the context of terrorism or the evacuation, participants experienced (a) personal injury, (b) injury to a family member or friend, (c) a family member or friend killed, (d) a period of uncertainty if a loved one was killed or injured, and (e) being located at a place where a violent event had occurred. Traumatic event exposure was grouped into four categories: no exposure, exposure to one event, exposure to two events, and exposure to three or more events.

Probable PTSD diagnosis was assessed using the 17-item PTSD Symptom Scale (PSS; Foa, Riggs, Dancu, & Rothbaum, 1993), for symptoms present for at least one month related to exposure to traumatic events during the one-year period of Gaza disengagement. Items were answered on a 4-point Likert scale from 0 *not at all* to 3 *very much*. Current probable PTSD was indicated when individuals reported exposure to a terrorism- or evacuation-related event, significant impairment in functioning, and the following symptoms at moderate or severe levels: at least one reexperiencing symptom, three avoidance symptoms, and two symptoms of hyperarousal.

Probable major depressive disorder (MDD) was measured using the 9-item Patient Health Questionnaire-9 (PHQ-9; Kroenke & Spitzer, 2002). Item responses ranged from 0 *not at all* to 3 *all of the time* ($\alpha = .87$). To receive a probable MDD diagnosis, individuals endorsed experiencing five of the nine symptoms of major depression for more than half of the days in the past 2 weeks and endorsed a significant consequent impairment in routine functioning. It was also required to endorse either a lack of interest or pleasure in activities or depressed mood.

We assessed psychological resource loss due to the disengagement in the past year using 7-items based on COR theory that were previously used in studies of terrorism (Hobfoll et al., 2006; Norris, 2001), rated from 0 *no loss* to 3 *a great deal of loss* (e.g., "There is at least one person whom you know that you like less than you used to because of things that occurred between you;" "You became less confident in your own abilities to cope with major crises"). Items were summed to represent a total loss score. Cronbach's alpha for the scale is not reported as one type of loss does not necessarily portend another. Two items, answered yes or no, assessed economic loss during the Gaza disengagement (e.g., "As a result of the disengagement, have you suffered economically?" . . . have you suffered property damage?") were summed.

Posttraumatic growth (PTG) was measured by six items, rated from 0 *not at all* to 3 *extremely* from the COR-Evaluation (Hobfoll et al., 2006). Items were prefaced with "As a result of the

disengagement process I have greater . . ." ("closeness with one or more family members;" "closeness with at least one friend;" "feeling that my life has meaning/purpose"). These items closely overlap with those used for intimacy and meaning by Tedeschi and Calhoun (1996) in a format amenable to phone interviews. Items were summed to represent total growth experienced ($\alpha = .66$). The alpha was lower than the .75 and above values that we obtained in a large sample ($n = 1020$) of Israeli Jews and Arabs, and likely indicates that the process of growth was in flux at this time. By applying the Spearman-Brown formula (Nunnally, 1970) we found that had we included two additional conceptually relevant items to our scale (i.e., increase the item pool to eight), the scale reliability would have been .73.

Social support satisfaction was assessed by summing three items from the Support Satisfaction Questionnaire (SSQ-5; Sarason, Sarason, Shearin, & Pierce, 1987), rated from 0 *not at all satisfied* to 3 *very satisfied*, e.g., "How satisfied are you with the social support you receive from your: (spouse/partner, family, friends)?" Cronbach's alpha was .71, which is acceptable for such a brief scale.

Data Analysis

We first conducted chi-square tests and *t* tests to identify significant bivariate relationships with PTSD and MDD symptoms. Covariates were then included in two separate multivariate logistic regression analyses to ascertain the degree to which each variable contributed to the prediction of probable PTSD and MDD. Logistic regression is appropriate for assessing the relative contribution of independent risk factors for a dichotomous outcome such as probable PTSD and MDD (Galea et al., 2002).

Chi-square analyses were conducted on nominal categorical variables and *t* tests were conducted on continuous variables as well as ordinal variables that could be treated as continuous (see Tables 1 and 2). Scatter plots and curve estimation procedures were employed to examine the relationship between age and PTSD symptoms in the sample. The relationship was linear, so age was used as a continuous level variable in subsequent analyses.

RESULTS

Means and standard deviation of the study variables appear in Table 3. The majority of the sample was exposed to two or more traumatic events (56.3%); few participants reporting not being exposed to any traumatic events (15.3%).

Prevalence of Probable Posttraumatic Stress Disorder and Depression

The prevalence of current probable PTSD was 26.3% and the rate of probable depression was 16.8%. When the base rates of

Table 1. Bivariate Associations Between Characteristics of the Respondents and Current Probable Posttraumatic Stress Disorder (PTSD; $N = 190$)

Variable	Probable PTSD		χ^2		
	%	n			
Gender			1.23		
Male	22.6	84			
Female	29.8	104			
Religiosity			8.76*		
Secular	25.0	16			
Traditional	45.0	40			
Religious	21.4	131			
	Probable PTSD		No PTSD		$t(df)$
	M	SD	M	SD	
Age	40.74	12.37	35.44	13.46	-2.44(185)*
Income	2.92	1.22	2.90	1.32	<1
Education	2.02	0.82	2.13	0.85	<1
Trauma exposure	1.94	1.25	1.84	1.26	<1
Economic loss	1.55	0.65	1.20	0.78	-2.80(180)**
Psychosocial loss	14.06	4.08	9.01	4.31	-7.20(186)***
Posttraumatic growth	8.98	4.26	10.54	4.69	2.05(183)*
Social support	7.58	1.89	8.08	1.59	1.81(186)

Note. Numbers within categories may not add up to total for some variables due to missing data. * $p < .05$. ** $p < .01$. *** $p < .001$.

probable PTSD and MDD in the current sample are compared (see Table 4) to settlers living in the occupied territories and citizens of Israel during the Al Aqsa Intifada (Bleich et al., 2003; Hobfoll & Canetti-Nisim, 2004), rates of probable PTSD during the Gaza disengagement range from nearly 3 times greater to over 4 times greater. Rates of probable MDD are over 5 times greater.¹

The likelihood of probable PTSD was significantly greater among those who were older, those who reported traditional religious practices versus secular or religious practices, those who experienced greater economic, and psychosocial loss, and those who experienced less PTG. The likelihood of probable MDD was greater among women, those with traditional religious practices versus secular or religious practices, those with less social sup-

port, those with greater economic loss, and those with greater psychosocial loss (Table 2).

Multivariate Analysis

The multivariate logistic regression for probable PTSD (see Table 5) indicated a significant increase in odds for each year increase in age and for each point increase in psychosocial resource loss. In addition, PTG was related to lower odds of PTSD, with each point increase on the scale decreasing the odds of probable PTSD. As these odd ratios represent continuous level predictors, some explanation is required. Hence, with a mean age of 36.8 years ($SD = 13.33$), average aged individuals were over 2 times more likely to be diagnosed with probable PTSD than those who were 18 years of age. Each standard deviation increase in age increased the relative odds by more than 1½ times. The mean of psychosocial resource loss was 10.31 ($SD = 4.82$) so an increase in score from one standard deviation below the mean to one standard deviation above the mean increased the relative odds of probable PTSD diagnosis by over 13-fold. For PTG ($M = 10.11$, $SD = 4.62$), each standard deviation increase in score on the PTG scale decreased the relative odds by 39%.

¹ The sample (Hobfoll & Canetti-Nisim, 2004) was very similar to the current sample. It consisted of 15 men and 16 women. Ages ranged from 18 to 74 years with a mean age of 43 ($SD = 14.88$). With regard to education, 45% had a college education, 13% had some post-high school, 39% reported high school as the highest level of educational attainment, and 3.2% had less than a high school education. In terms of religiosity, 36% considered themselves secular, 16% considered themselves traditional, 48% considered themselves religious. With regard to income, 21% reported being below average, 21% being average, and 59% having an above average income.

Table 2. Bivariate Associations Between Characteristics of the Respondents and Current Probable Major Depressive Disorder (MDD; $N = 190$)

Variable	Probable MDD		χ^2		
	%	n			
Gender			4.16*		
Male	10.7	84			
Female	21.9	105			
Religiosity			7.60*		
Secular	25.0	16			
Traditional	30.0	40			
Religious	12.2	131			
	Probable PTSD		No PTSD		$t(df)$
	M	SD	M	SD	
Age	38.59	10.98	36.45	13.76	<1
Income	2.93	1.11	2.91	1.33	<1
Education	2.00	0.91	2.11	0.82	<1
Trauma exposure	1.96	1.03	1.84	1.29	<1
Economic loss	1.62	0.60	1.21	0.77	-2.79(181)**
Psychosocial loss	14.96	4.13	9.36	4.38	-6.65(187)***
Posttraumatic growth	8.71	4.73	10.40	4.55	1.89(184)
Social support	7.20	2.15	8.10	1.52	2.82(187)**

Note. Numbers within categories may not add up to total for some variables due to missing data.

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

In the multivariate logistic-regression model for probable MDD, significant predictors were gender, with women having

Table 3. Table of Percentages, Means, and Standard Deviations of Study Variables ($N = 190$)

Variable	n	%	M	SD
Trauma exposure				
None	29	15.3		
1 Event	53	27.9		
2 Events	45	23.7		
3 or more events	62	32.6		
Economic resource loss				
None	34	17.9		
One loss	62	32.6		
Two losses	87	45.8		
Social support			7.95	1.68
Psychosocial resource loss			10.31	4.81
Posttraumatic growth			10.11	4.61

Note. Numbers within categories may not add up to total for some variables due to missing data.

3.58 times the risk of having probable MDD than men and experiencing a higher degree of economic and psychological resource loss. For psychosocial resource loss, individuals scoring at the mean were over $9\frac{1}{2}$ times more likely to be diagnosed with probable MDD than those at the bottom of the scale. Each standard deviation increase in score on the scale of psychosocial resource loss increased the relative odds by nearly 3 times.

DISCUSSION

Israeli settlers who experienced forced evacuation reported dramatically heightened rates of probable PTSD and MDD when compared to rates reported previously among settler groups and much higher than the general Israeli population (Bleich et al., 2003; Hobfoll & Canetti-Nisim, 2004). These rates are similar to initially high rates of PTSD among people experiencing discrete traumatic event exposure (Galea et al., 2002; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992; Shalev, 2001). Considering the course and trajectory of the rates of PTSD within these studies, one might expect that the rates of PTSD within this settler population will decline in magnitude in the months following evacuation. However, COR theory would predict that settlers may experience

Table 4. A Comparison of Rates of Probable PTSD and Major Depression Within the Settlement Areas Before and During the Gaza Disengagement and in the General Israeli Population

Population	Source	% of (n) with probable PTSD	% of (n) with probable MDD
Gaza during disengagement	Current study	26.3 (189)	16.8 (190)
Occupied territories before disengagement	Hobfoll, unpublished data	6.5 (31)	3.2 (31)
General population of Israel ^a	Bleich et al., 2003	9.4 (48)	n/a
General population of Israel ^b	Bleich et al., 2003	2.7 (14)	n/a

Note. PTSD = probable posttraumatic stress disorder; MDD = probable major depression.

^aRates are based on mild to severe symptom endorsement.

^bRates are based on moderate to severe symptom endorsement.

protracted posttraumatic stress reactions owing to the continued spiral of loss that will likely follow (Hobfoll, 1989, 1998). These individuals have lost their homes, their way of life, and given the current state of affairs in the Middle East, may not find safe moorings onto which they can reestablish their lives for an extended period.

Our first hypothesis was not directly supported. Trauma exposure was not a significant predictor of probable PTSD or MDD diagnoses when controlling for the effect of other predictors. Previous studies also failed to demonstrate this relationship within Israeli populations (e.g., Bleich et al., 2003). We do not interpret this to mean that exposure to terrorism and civil violence is not a relevant predictor of PTSD; individuals were reporting symptoms bound to their terrorism-related experiences. Rather, this finding is likely owing to the ubiquity of terrorism exposure within this sample (85% were exposed), and resultant lack of variance in this predictor. Other explanations include the effect of vicarious

traumatization that can occur through media channels, and the proximity to terrorist threat (Silver et al., 2002).

In accordance with Hypothesis 2, psychosocial resource loss and economic resource loss were strong predictors of probable MDD and psychosocial resource loss was a strong predictor of PTSD. These results were indicated over and above the influence of sex, age, and social support. These findings add to the growing body of evidence that draws a link between resource loss and traumatic event-related psychopathology (Galea et al., 2002; Hobfoll et al., 2006; Hobfoll, Tracy, & Galea, 2006; Ironson et al., 1997). Integrating this finding within the framework of Janoff-Bulman's (1992) shattered assumptions model, we suggest that the shattering of assumptions about how the settlers constructed their world view may have contributed to the development of posttraumatic symptomatology. This may be particularly relevant for other displaced and refugee populations, as such events are particularly salient experiences of shattering of assumptions that people can live, thrive, and raise their families in a predictable environment that allows them to place roots.

In partial support of Hypothesis 3, PTG was related to a lower likelihood of probable PTSD, but not probable MDD. We interpret this effect within our theoretical conceptualization that when PTG that occurs in the context of taking action is likely to relate to lower levels of psychological distress. These findings give preliminary support for the idea that PTG may prove salutogenic when individuals actualize their benefit-finding cognitions. Again, this is in striking contrast to our prior studies using the same and similar questionnaires on other samples exposed to terrorism that found PTG was related to greater PTSD (Hobfoll, Canetti-Nisim, et al., 2006; Hobfoll, Tracy, et al., 2006).

Limitations include small sample size and the cross-sectional design, which precludes causal inferences. We may be underestimating the rates of PTSD and MDD because the most impaired group may have been less willing to respond or may not have had access to phones. Although few left the areas early, it is possible that families sheltered loved ones who were not doing well by sending them to a safer area to avoid the inevitable conflict. Given the situation, the response rate was reasonable,

Table 5. Multivariate Associations Between Characteristics of the Respondents and Current Probable PTSD and Current Probable MDD

Predictor	Probable PTSD		Probable MDD	
	OR	CI	OR	CI
Gender				
Male			1.00	
Female			3.58*	1.30–9.87
Religiosity	1.03	0.56–1.87	0.53	0.27–1.02
Age	1.04*	1.00–1.07		
Economic loss	1.68	0.91–3.10	2.46*	1.14–5.30
Psychosocial loss	1.31**	1.18–1.44	1.33**	1.18–1.52
Posttraumatic growth	0.89*	0.81–0.98		
Social support			0.83	0.66–1.06

Note. PTSD = posttraumatic stress disorder; MDD = major depressive disorder.

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

but does not negate potential bias. Furthermore, the differential effects of direct versus indirect terrorism exposure cannot be examined. Findings presented in the current study should also be interpreted in light of recent meta-analytic work (Helgeson et al., 2006) that points to time since event as a significant moderator of effect of the relationship between PTG and psychological distress.

Our interpretations rest on two important assumptions about the study's context. First, we assumed that being forced to evacuate from a territory and home is de facto an event that shatters a major aspect of people's assumptive world. This is especially true when considering that this land was promised by the very government that is now calling for this evacuation. All accounts of this event and interviews with the respondents support this assumption (Newman, 2005). Second, we assume that the act of staying and en masse resisting evacuation indicates the placing of beliefs into actions. We believe these assumptions are reasonable and that they help explain our results that radically differ from our prior findings on several key points we raised.

In light of the consistency and strength of the findings for loss of valued resources following terrorism (Galea et al., 2002; Hobfoll, Canetti-Nisim, et al., 2006; Hobfoll, Tracy, et al., 2006) and natural disaster (Ironson et al., 1997), and upon the recommendation of the American Psychological Association Task Force on Resiliency in Response to Terrorism following September 11th (Butler, Hobfoll, & Keane, 2004), we encourage future research and intervention work to focus on the protective nature of preserving and restoring psychosocial and material resources in the prevention and treatment of PTSD and MDD following mass trauma. Finally, we offer that the positive influence of PTG may depend not on the cognitive process as it was initially framed, but rather as a coupling of cognitions with actual behavioral change in response to trauma.

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