## Stress-Related Responses After 3 Years of Exposure to Terror in Israel: Are Ideological-Religious Factors Associated With Resilience?

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**Background:** The inhabitants of 3 different types of population centers in Israel were assessed as to stress-related symptomatology during 2003 and 2004. These centers have been exposed to 2 distinct forms of violence—sporadic, largescale terror attacks in the metropolitan areas in the heart of Israel and daily "war-zone" conditions in the settlements beyond the 1967 borders of Israel.

*Method:* A semistructured interview and questionnaire survey of a random sample of 314 inhabitants of a suburb of Tel-Aviv, a settlement in the West Bank (Kiryat-Arba), and the Gush-Katif settlement cluster in the Gaza Strip was performed. Symptoms of acute stress and chronic (posttraumatic) stress as well as symptoms of general psychopathology and distress were assessed.

**Results:** The inhabitants of Gush-Katif, in spite of firsthand daily exposure to violent attacks, reported the fewest and least severe symptoms of stress-related complaints, the least sense of personal threat, and the highest level of functioning of all 3 samples. The most severely symptomatic and functionally compromised were the inhabitants of the Tel-Aviv suburb, who were the least frequently and least directly affected by exposure to violent attacks. Because the Gush-Katif population is exclusively religious, the data were reassessed according to religiousness. The religious inhabitants of Kiryat-Arba had almost the same symptom profile as the Gush-Katif population, whereas secular inhabitants of Kirvat-Arba reported faring worse than did either population in the Tel-Aviv suburb.

*Conclusion:* Deeply held belief systems affecting life-views may impart significant resilience to developing stress-related problems, even under extreme conditions. Religiousness combined with common ideological convictions and social cohesion was associated with substantial resilience as compared to a secular metropolitan urban population.

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E xposure of the individual to stressful conditions disrupts the homeostatic resting state and engenders a state of flux, triggering a series of responses intended to enable the organism to adjust to the (altered) prevailing conditions and reestablish homeostasis. These allostatic responses are generally adaptive in the short run, but can lead to a state of chronic dysregulation and psycho-physiologic imbalance. In humans these states include acute stress disorder (ASD) and posttraumatic stress disorder (PTSD), in keeping with the time span they occupy.

In the first hours to days following the experience, the vast majority of individuals exposed to an acute extreme event will demonstrate, to a varying degree, the same symptoms that characterize the traumatic stress–related disorders and may have trouble functioning in their usual manner for awhile. Of the individuals exposed to an event fulfilling criterion A of the DSM-IV-TR diagnostic guide-lines, about 15% to 35% will go on to develop a significant degree of dysfunction and distress for significant lengths of time.<sup>1</sup>

The marked discrepancy between the proportion of the general population exposed to potentially traumatizing events and the proportion that fulfill criteria for PTSD is a challenging aspect of the study of stress-related disorders. The potential implications stemming from the identification of factors increasing the vulnerability of individuals on the one hand and this resilience on the other are extremely wide ranging.

Much appears to hinge on individual factors, including prior exposure, some form of genetic and/or physiologic vulnerability, age, and developmental stage at exposure, through to what has been termed "dose," i.e., intensity

Table 1. Vu Disorder	ılnerabil	ity Fac	tors for	r Posttraumatic Str	ess
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Prior exposure to traumatic experiences Possible genetic/constitutional predisposition Age/developmental stage Intensity and duration of stressor Type of stressor Subjective meaning and context

and duration of different types of trauma, and poorly quantifiable subjective variables such as context and meaning.<sup>2</sup> Following exposure to major stressors, certainly psychosocial and societal factors also play influential rules in determining the course of events (Table 1).

During the years of Al-Aqsa Intifada (2000 onward), the civilian populations on both the Israeli and the Palestinian sides of the conflict have been frequently exposed to situations of extreme violence. On the Palestinian side, these have involved "policing actions," "targeted killings," and a constant military presence. On the Israeli side, these have taken the form of terror attacks directed against both the civilian population and military targets. In the cities in those areas of Israel that are bounded by the Green Line (i.e., conform to Israel's borders on the eve of the Six-Day War in 1967), the terror attacks have characteristically taken place in crowded public venues, with shootings and suicide bomb attacks on buses and in markets, shops, and discotheques. In the areas of maximal contact between the Palestinians and the Israelisthe West Bank, the Gaza Strip, and Jerusalem-the atmosphere is even more one of a war zone. The constant military/paramilitary presence on both sides, the roadblocks, the sound of gunfire by day and nightly mortar shelling, all create a very different atmosphere to that within the Green Line. Within the Green Line, the attacks are less frequent, unexpected, and often on a larger scale, i.e., more costly in terms of casualties. The events are immediately, extensively, and vividly (some claim luridly) reported in real time in all of the media. Many citizens in Israel have been personally affected, directly or indirectly, by these attacks, and their relatives or friends have numbered among the casualties or the dead. Almost everyone follows the events closely in the media, and many report a vicarious form of intense emotional involvement in the events.

After 3 years of high-intensity violence and large numbers of casualties and deaths of civilians and fighters on both the Israeli and the Palestinian sides, we hypothesized that the people living in areas of daily threat and firsthand exposure would have a higher incidence of acute and chronic traumatic stress–related complaints than the inhabitants of a suburb of Tel-Aviv, exposed to a more infrequent and sporadic form of threat.

The aim of this study was to assess the extent and severity of traumatic stress-related symptomatology of

Israeli citizens of the Jewish faith in 3 distinct areas of Israel after 3 years of escalating conditions of war and terrorism and to assess factors contributing to a sense of vulnerability on the one hand and resilience on the other.

### METHOD

## **Data Collection and Sample**

The areas selected for study included a peaceful suburb of metropolitan Tel-Aviv well within the Green Line; the widely dispersed group of small, almost uniformly religious, largely agricultural community settlements of the Gush-Katif Regional Authority in the Gaza Strip (20 settlements, totaling about 8000 in population); and the regional capital for the Jewish settlements in the Hebron area, Kiryat-Arba, an urban settlement of 55,000 inhabitants, consisting of a mixture of secular and religious Jewish families and new immigrants and longtime Israelis.

Three hundred eighty-seven people between the ages of 18 and 65 years were canvassed door-to-door in 2003 and 2004, and 346 agreed to complete the series of questionnaires (see below) presented as "a survey of how you feel and your emotional reaction to present conditions in Israel." Data from 314 participants were analyzed, after the data for 32 of the participants were rejected due to questionnaires being incorrectly or incompletely filled out or persons having a personal or family history of major psychiatric disorders (schizophrenia or bipolar disorders).

The study underwent the standard procedure for approval by the Helsinki Ethics Committee of the Ben-Gurion University of the Negev. Participants who gave their voluntary consent after having received detailed information regarding the study were asked to fill out the questionnaires in the presence of an investigator, who answered questions and assisted where needed.

## **Study Instruments**

The questionnaires were filled out in the presence of an interviewer, and subjects were assisted in answering the questions if needed. Each interviewer ensured that all subjects clearly understood the content of each item and the different aspects of the various component questions. All subjects completed the following questionnaires:

• A demographics and background questionnaire specifying participants' personal background, marital status, place of birth, education, place of residence, and the types of trauma, if any, experienced in the past: The participants were asked to specify exposure to traumatic events in general versus exposure to terrorist attacks, being directly and personally exposed to an event versus otherwise, having had a family member or a friend who had been exposed to an attack, and whether they or their family members or friends were injured or died in the attack.

- Post Traumatic Stress Disorder Scale (PTSDscale): The PTSD-scale is a psychometrically reliable self-report measure of PTSD severity according to DSM-III-R (Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised) criteria, adapted from Horowitz et al.,<sup>3</sup> which has been validated in Hebrew. The scale contains 17 items that pertain to PTSD. Each item is rated on a 4-point scale as to the degree to which each symptom has bothered the subject in the past month (0 = not at all and 3 = almost always). This measure yields a total score as well as subscores for the reexperiencing/intrusive symptoms, avoidance, and hyperarousal symptom clusters. To obtain a DSM-compatible diagnosis of PTSD from the scale, the following are required: at least 1 reexperiencing symptom (criterion B), at least 3 avoidance symptoms (criterion C), and at least 2 arousal symptoms (criterion D) must be present with a score of 1 or above. Higher scores indicate more severe PTSD symptoms. The internal consistency (Cronbach alpha) for this group was high overall (0.91). Internal consistency for the items in criterion B was 0.915; criterion C, 0.81; and criterion D, 0.831.
- Symptom Checklist-90 (SCL-90): The SCL-90<sup>4</sup> comprises 90 items measuring symptoms in 9 clinical subscales. The SCL-90 was developed as a measure of general psychiatric symptom severity and as a descriptive measure of psychopathology and has been found to be useful in the assessment of neurotic symptoms.5 The clinical subscales include the following: somatization (12 items), obsession-compulsion (10 items), interpersonal sensitivity (9 items), depression (13 items), anxiety (10 items), hostility (6 items), phobic anxiety (7 items), paranoid ideation (6 items), and psychoticism (10 items). The SCL-90 has been extensively used and validated in Hebrew.<sup>6</sup> Subjects are required to rate specific complaints on a 5-point Likert scale running from 0 = never to 4 = frequently. A higher score indicates more distress. The Cronbach alpha values for the scales of somatization, depression, anxiety, and hostility in this study were 0.90, 0.92, 0.89, and 0.91, respectively.
- <u>Stanford Acute Stress Reaction Questionnaire</u> (<u>SASRQ</u>): The SASRQ was designed by Cardena et al.<sup>7</sup> to measure peritraumatic anxiety, dissociation, and acute stress response during or after a stressful event and consists of a 30-item selfreport instrument that includes subscales representing 4 symptom clusters matching the criteria

for a diagnosis of ASD: dissociation (9 items, e.g., "I experienced myself as though I were a stranger"); hyperarousal (5 items, e.g., "I felt hypervigilant or on edge"); reexperiencing/intrusive symptoms (6 items, e.g., "I had repeated and unwanted memories of the shootings"); and avoidance (2 items, e.g., "I tried to avoid activities or situations that reminded me of the shootings"). Participants are asked to rate their agreement with each item on a 5-point Likert scale (0 = disagree and 4 = agree completely) and to report how long they have felt or behaved in the stated manner. A higher score indicates acute stress reaction symptoms of greater severity.

The diagnosis is considered relevant if the individual had at least 3 dissociative symptoms and 1 symptom each of reexperiencing trauma, avoidance, and marked anxiety/arousal for at least 1 month. Internal consistency for this sample, based on Cronbach alpha, was high overall (0.91).

#### **Data Analysis**

Means, standard deviations, and frequencies were computed to summarize the distribution of values for each variable. Age, number of years of education, family status, number of years of marriage, immigrant/longtime resident status, and number of years in Israel were analyzed as continuous data and compared by 1-way analysis of variance (ANOVA). The Sheffé post hoc test was used to examine pairwise differences between the groups. Chisquare tests were used for categorical data such as sex, place of birth, and religion.

Because individuals could have had stress-related symptomatology resulting from other traumatic events, such as motor vehicle accidents or abuses, besides terror/ military events, the cases of traumatic events unrelated to military events (during the 3 years of the Al-Aqsa Intifada) were excluded from our analysis.

#### RESULTS

#### **Demographic Data**

The demographic characteristics of the survey participants are summarized in Table 2. The overall sample consisted of 314 participants: 107 from the Gush-Katif Settlements, 103 from the Tel-Aviv suburb, and 104 from Kiryat-Arba. The 3 samples did not differ significantly in age, gender, origin, number of years in Israel, marital status, or number of years of marriage. The overall mean number of years of education tended to be quite high, with 40% of the population having completed high school and about 59% having at least partially completed studies for academic degrees, without statistical difference between the samples.

	GKS	STA	KA	Statistical
Characteristic	$(N = 107)^{a}$	$(N = 103)^{a}$	$(N = 104)^{a}$	Analysis
Sex				
Male	51 (47.7)	52 (50.5)	53 (51.0)	
Female	56 (52.3)	51 (49.5)	51 (49.0)	NS
Age, y				
Mean ± SD	$35.8 \pm 12.5$	$32.1 \pm 13.2$	$34.2 \pm 11.1$	
Range	17-62	18-63	21-65	NS
Origin				
Longtime	79 (73.8)	92 (89.3)	79 (76.0)	
Israeli/citizen				
Immigrant	28 (26.2)	11 (10.7)	25 (24.0)	NS
Time in Israel,				
mean ± SD, y	$14.4 \pm 5.9$	$18.6 \pm 6.7$	$14.6 \pm 7.7$	NS
Religiousness				
Secular	0 (0)	78 (75.7)	36 (34.6)	$\chi^2 = 130.3$ ,
				df = 6,
				p < .0001
Religious	107 (100)	25 (24.3)	68 (65.4)	
Marital status				
Married	88 (82.2)	80 (77.7)	74 (71.2)	
Unmarried	19 (17.8)	23 (22.3)	30 (28.8)	NS
Time married,				
mean ± SD, y	$11.4 \pm 8.8$	$12.9 \pm 12.5$	$15.8 \pm 10.6$	NS
Education				
8 y	4 (3.7)	2(1.9)	3 (2.9)	NS
12 y	36 (33.6)	44 (42.7)	34 (32.7)	NS
University	67 (62.6)	57 (55.3)	67 (64.4)	NS

Table 2. Demographic Characteristics of Survey	Participants
From 3 Population Centers in Israel	

NS = not significant, STA = suburb of Tel-Aviv.

There were significant differences between the 3 samples regarding religiousness. In the Gush-Katif Settlements, all of the participants were religious, i.e., Observant or Orthodox Jews (100%). In the suburb of Tel-Aviv, about a quarter of the participants were religious, whereas in Kiryat-Arba about two thirds of the participants were religious. The population of the religious inhabitants in the suburb of Tel-Aviv is the most closely representative of the general population of Israel.

#### **Stress-Related Characteristics**

The subjective stress-related characteristics of the survey participants are summarized in Table 3. About 60% to 65% of the population reported that they generally felt that their life was in danger during the years of the Intifada without statistical difference between the samples. About 16% to 19% of the participants reported that they felt helplessness during the Intifada without statistical difference between the samples.

The Gush-Katif Settlements sample reported significantly more direct involvement in the consequences of terror in the form of family members and/or neighbors injured or killed during the preceding 3 years of the Intifada, as compared to the other samples. Ten individuals (9.3%) from the Gush-Katif Settlements sample reported that a family member had been a casualty during the Intifada, and a further 11 (10.3%) had lost family members. In the suburb of Tel-Aviv, only 2.0% of the sample population had a family member who was wounded and 2.9% were related to or closely acquainted with someone who was killed, while the percentages in the Kiryat-Arba sample were 10.6% and 8.7%, respectively. Over half of the population from the Gush-Katif Settlements reported that they had a neighbor or acquaintance (35.6%) who was harmed/ injured and 40.2% had one who was killed, as compared to 39.4% and 51.9%, respectively, in Kiryat-Arba and to 8.7% and 11.6%, respectively, in the suburb of Tel-Aviv.

### **Exposure to Acts of Terror**

Rates of exposure to acts of terror are summarized in Table 4. There were no significant differences between the participants' reports regarding their intensity of the trauma or the influence of the trauma.

There were no statistically significant differences between the participants' reports regarding their functioning during the traumatic event.

## Acute and Chronic (Posttraumatic) Stress–Related Symptoms

Acute stress–related and posttraumatic symptoms are summarized in Table 5. The prevalence of acute stress reaction was found to be significantly higher for the suburb of Tel-Aviv (75.7%) relative to the Gush-Katif Settlements sample (51.4%).

The individual symptom clusters related to dissociative symptoms were less severe for the Gush-Katif Settlements than for the other areas (F = 6.6, df = 2,194; p < .002). The intrusive (F = 7.6, df = 2,194; p < .001) and avoid-ance (F = 10.1, df = 2,194; p < .0001) symptoms were more severe for the suburb of Kiryat-Arba than for the other 2 areas.

The overall prevalence of PTSD was not significantly different for the 3 samples and was commensurate with general incidence data for PTSD, numbering about 9% to 10% of the participants—although again the sample from the Gush-Katif Settlements reported a lesser degree of severity of avoidance than the other 2 groups.

It was noteworthy that gender did not influence PTSD prevalence or intensity of the stress-related symptoms. Similarly, other demographic variables such as age, marital status, education, and employment background were not associated with incidence of stress-related or PTSD symptoms.

## **SCL-90 Symptomatic Profile**

Psychiatric symptoms, including hostility, interpersonal sensitivity, somatization, depression, anxiety, phobia, obsession-compulsion, paranoid ideation, and psychoticism, are presented in Figure 1. The subscales of anxiety and depression displayed significant differences between the samples. The participants from the Gush-Katif Settlements sample had significantly lower mean

	GKS (	GKS (N = 107)		STA(N = 103)		N = 104)		
Characteristic	N	%	Ν	%	Ν	%	Statistical Analysis	
Feeling that one's life is in danger	65	60.7	67	65.0	63	60.6	NS	
Feelings of helplessness	17	15.9	17	16.5	20	19.2	NS	
Family harmed	10	9.3	2	1.9	11	10.6	GKS vs STA ( $\chi^2 = 5.4$ , df = 1, p < .03),	
-							STA vs KA ( $\chi^2 = 6.6$ , df = 1, p < .001)	
Neighbor harmed	38	35.5	9	8.7	41	39.4	GKS vs STA ( $\chi^2 = 21.9$ , df = 1, p < .0001).	
							STA vs KA ( $\chi^2 = 26.9$ , df = 1, p < .0001	
Family killed	11	10.3	3	2.9	9	8.7	GKS vs STA ( $\chi^2 = 4.7$ , df = 1, p < .003)	
Neighbor killed	43	40.2	12	11.7	54	51.9	GKS vs STA ( $\chi^2 = 22.1$ , df = 1, p < .0001).	
							STA vs KA ( $\chi^2$ = 38.6, df = 1, p < .0001	
Repeated exposure to traumatic	23	21.5	2	1.9	39	37.5	GKS vs STA ( $\chi^2 = 19.1$ , df = 1, p < .0001).	
events in the past 3 y							STA vs KA ( $\chi^2 = 41.2$ , df = 1, p < .0001	
Abbreviations: GKS = Gush-Katif S	ettlemen	ts, KA = Ki	ryat-Arb	a, NS = not	significa	ant, STA =	suburb of Tel-Aviv.	

Table 4. Rates and Effects of Exposure to Acts of Terror Among Survey Participants From 3 Population Centers in Israel								
Variable	GKS $(N = 107)^{a}$	STA $(N = 103)^{a}$	$KA (N = 104)^{a}$	Statistical Analysis				
At least 1 traumatic event in the past	28 (26.2)	14 (13.6)	31 (29.8)	GKS vs STA ( $\chi^2 = 5.2$ , df = 1, p < .03),				
3 years related to acts of terror, N (%)				STA vs KA ( $\chi^2 = 8.0$ , df = 1, p < .005)				
Intensity of the trauma <sup>b</sup>	$5.1 \pm 3.0$	$5.5 \pm 2.5$	$8.4 \pm 1.6$	NS				
Current influence of the trauma <sup>b</sup>	$2.3 \pm 2.8$	$2.9 \pm 2.7$	$5.2 \pm 1.5$	NS				
Functioning during the event <sup>b</sup>	$7.6 \pm 2.5$	$4.8 \pm 3.6$	$7.5 \pm 3.0$	NS				
<sup>a</sup> Values shown as mean $\pm$ SD unless other	wise noted.							

<sup>b</sup>On a scale from 1 to 10, with 10 = maximum.

Abbreviations: GKS = Gush-Katif Settlements, KA = Kiryat-Arba, NS = not significant, STA = suburb of Tel-Aviv.

scores on the depression and anxiety items as compared to the other samples. Scores on the anxiety item were significantly higher in the sample from suburb of Tel-Aviv than in others. Items with no significant differences between the groups included interpersonal sensitivity, somatization, and paranoid ideation. Somatization scores were significantly higher (p < .001) for all samples, as compared to the other items of the scale except for the anxiety score for the suburb of Tel-Aviv sample.

## Acute Stress- and PTSD-Related Symptoms According to Religious vs. Secular Status

Acute stress–related and PTSD symptoms in relation to religious versus secular belief system are presented in Table 6. Once the population of Kiryat-Arba was reexamined according to religious conviction, the data for the more religious study respondents became almost identical with the data for the Gush-Katif Settlements inhabitants (which indicated that respondents were very mildly disturbed), whereas the data for the secular inhabitants of Kiryat-Arba showed that these respondents were more severely disturbed than the secular inhabitants of the suburb of Tel-Aviv. In Kiryat-Arba, 19.4% of the secular inhabitants reported symptoms concomitant with a diagnosis of PTSD, as compared with 5.9% in the religious population.

# SCL-90 Symptomatic Profile According to Religious vs. Secular Status

Comparison of symptom profiles of each sample according to religiousness demonstrates a difference between religious and secular populations overall, and in Kiryat-Arba specifically. The entirely religious Gush-Katif Settlements population reported minimal levels of depression and/or anxiety, whereas in the mixed (part Orthodox and part secular) Kiryat-Arba population, the religious subpopulation reported levels identical to those of the Gush-Katif Settlements population and the secular subpopulation reported higher levels of depression and similar levels of anxiety as compared to those for the secular population of the suburb of Tel-Aviv. The data for the Tel-Aviv suburb population demonstrate greater anxiety and fewer overall depressive complaints for both the secular majority and the religious minority.

## DISCUSSION

It is possible to distinguish roughly between 2 forms of exposure of the Israeli civilian population to the violence of the Palestinian-Israeli conflict over the years of the Al-Aqsa Intifada. One form is that of unexpected terror attacks on a large scale and costly in terms of casualties, which have occurred in metropolitan Tel-Aviv, Jerusalem, and Haifa, in the form of suicide bombing attacks. A different form of constant daily violent conflict is experienced in the settlements and cities of the West Bank and in the Gush-Katif Settlements in the Gaza Strip. These are areas of daily threat and firsthand exposure to a constant warlike atmosphere, interspersed with frequent terrorist acts (sharpshooter, grenade, mortar, and missile attacks; roadside bombs) with a massive constant

5 I opulation centers in 13	s i optiation centers in israel								
Variable <sup>a</sup>	GKS (N = 107)	STA (N = 103)	KA(N = 104)	Statistical Analysis					
Acute stress reaction <sup>b</sup>									
Prevalence, N (%)	55 (51.4)	78 (75.7)	64 (61.5)	GKS vs STA ( $\chi^2 = 13.4$ , df = 1, p < .004)					
Symptoms									
Dissociative symptoms	$7.3 \pm 6.6$	$12.0 \pm 10.5$	$12.9 \pm 8.8$	GKS vs STA, KA (F = 6.6, df = 2,194; p < .002)					
Intrusive symptoms	$7.6 \pm 7.3$	$7.8 \pm 7.3$	$11.9 \pm 6.9$	KA vs GKS, STA (F = 7.6, df = 2,194; p < .001)					
Avoidance	$5.9 \pm 5.5$	$7.8 \pm 7.1$	$11.6 \pm 8.0$	KA vs GKS, STA (F = 10.1, df = 2,194; p < .0001)					
Functioning problems	$1.6 \pm 2.0$	$2.9 \pm 3.0$	$2.4 \pm 2.5$	GKS vs STA (F = $3.5$ , df = $2,194$ ; p < $.04$ )					
PTSD <sup>c</sup>									
Prevalence, N (%)	10 (9.3)	10 (9.7)	11 (10.6)	NS					
Symptoms									
Intrusive symptoms	$9.7 \pm 4.9$	$11.5 \pm 2.6$	$16.0 \pm 9.2$	NS					
Avoidance	$12.3 \pm 6.4$	$21.6 \pm 4.9$	$16.3 \pm 8.6$	GKS vs STA (F = 4.6, df = 2,28; p < .02)					
Hyperarousal	$18.6 \pm 13.5$	$20.7 \pm 8.4$	$15.5 \pm 8.9$	NS					
Total scale	$40.6 \pm 23.9$	$53.8 \pm 13.8$	$47.8 \pm 25.3$	NS					

Table 5. Prevalence of Acute Stress Reactions and PTSD	and Severity of Individual Symptoms in Survey Participants From
3 Population Centers in Israel	

<sup>a</sup>Values shown as mean ± SD scores unless otherwise noted.

<sup>b</sup>Acute stress reaction measured using the Stanford Acute Stress Reaction Questionnaire.

°PTSD measured using the PTSD-scale.

Abbreviations: GKS = Gush-Katif Settlements, KA = Kiryat-Arba, NS = not significant, PTSD = posttraumatic stress disorder,

STA = suburb of Tel-Aviv.





<sup>a</sup>Results are expressed as mean ± SEM.

<sup>b</sup>As measured using SCL-90 subscale scores (range, 0–4; 0 = "never," 4 = "frequently").

 $^{c}F = 4.4, df = 2,311; p < .002.$ 

 $^{d}F = 28.8, df = 2,311; p < .0001.$ 

\*p < .05 vs. suburb of Tel-Aviv and Kirvat-Arba.

\*\*p < .05 vs. Gush-Katif Settlements and Kiryat-Arba.</p>
\*\*\*p < .001 vs. all other items of the scale for all groups except for the anxiety score for the suburb of Tel-Aviv sample.</p>

Abbreviation: SCL-90 = Symptom Checklist-90.

military presence (troops and troop carriers, roadblocks and patrols, tanks and helicopter gunships), i.e., areas that have assumed the qualities of war zones.

The overall incidence of symptoms of acute stress among the inhabitants of all 3 areas was high. According to the responses on the scales used in the study, many individuals would have fulfilled criteria for ASD, were it not for the diagnostic requirement for direct exposure to the triggering event in criterion A of DSM-IV-TR.

Contrary to our expectations, the prevalence of acute stress symptoms was markedly higher for both the metropolitan suburb of Tel-Aviv and for Kiryat-Arba than for the small, widely dispersed Gush-Katif Settlements, whose overall incidence of violent events is the highest of the 3 sites chosen for study. The severity of the individual symptom clusters related to acute stress (dissociative, intrusive, and avoidance symptoms) was also greater for these 2 populations, and their level of daily functioning was reportedly worse. Certain symptom clusters were significantly more severe among inhabitants of Kiryat-Arba than for both of the other areas-namely, the intrusive and avoidance symptoms. The scores on the somatization subscale of the SCL-90 were high, a measure commonly related to distress and often reported to be predictive of subsequent anxiety and depression,<sup>8,9</sup> without significant differences between the populations.

The subjective sense of threat and impending danger seems to affect the lives of the inhabitants of the quiet

	GKS		ST	STA		А	
	1 (Religious,	2 (Secular,	1 (Religious,	2 (Secular,	1 (Religious,	2 (Secular,	
Variable <sup>a</sup>	N = 107)	$\mathbf{N} = 0$	N = 25)	N = 78)	N = 68)	N = 36)	Statistical Analysis
Acute stress reaction <sup>b</sup>							
Prevalence, N (%)	55 (51.4)	0 (0)	20 (80.0)	58 (74.4)	35 (51.5)	29 (80.6) <sup>c</sup>	NS
Symptoms							
Dissociative symptoms	$7.3 \pm 6.6$		$11.4 \pm 11.7$	$12.2 \pm 10.1$	$8.8 \pm 7.4$	$18.0 \pm 7.7^{d}$	KA2 vs GKS1, STA1, KA1 <sup>e</sup>
Intrusive symptoms	$7.6 \pm 7.3$		$7.3 \pm 7.8$	$7.9 \pm 7.2$	$9.0 \pm 6.0$	$15.5 \pm 6.4^{d}$	KA2 vs GKS1, STA1, STA2, KA1 <sup>f</sup>
Avoidance	$5.9 \pm 5.5$		$6.3 \pm 7.1$	$8.3 \pm 7.1$	$6.9 \pm 6.0$	$17.2 \pm 6.4^{d}$	KA2 vs GKS1, STA1, STA2, KA1 <sup>g</sup>
Functioning problems	$1.6 \pm 2.0$		$2.4 \pm 3.4$	$3.0 \pm 3.0$	$2.5 \pm 2.0$	$2.3 \pm 3.0$	NS
PTSD <sup>h</sup>							
Prevalence, N (%)	10 (9.3)	0 (0)	2 (8.0)	8 (10.3)	4 (5.9)	7 (19.4) <sup>i</sup>	NS
Symptoms							
Intrusive symptoms	9.7 ± 4.9		$12.5 \pm 2.5$	$11.3 \pm 0.9$	$11.5 \pm 7.5$	$18.6 \pm 3.6$	NS
Avoidance	$12.3 \pm 6.4$		$23.0 \pm 2.0$	$21.3 \pm 1.9$	$10.0 \pm 5.4$	$19.9 \pm 3.1$	NS
Hyperarousal	$18.6 \pm 13.5$		$26.5 \pm 6.5$	$19.3 \pm 2.9$	$9.5 \pm 7.2$	$19.0 \pm 3.1$	NS
Total scale	$40.6 \pm 23.9$		$62.0 \pm 7.0$	$51.8 \pm 5.1$	$31.0 \pm 17.6$	$57.4 \pm 9.4$	NS

Table 6. Prevalence of Acute Stress Reactions and PTSD and Severity of Individual Symptoms in Individuals With Religious vs. Secular Belief Systems From 3 Population Centers in Israel

<sup>a</sup>Values shown as mean ± SEM unless otherwise noted.

<sup>b</sup>Acute stress reaction measured using the Stanford Acute Stress Reaction Questionnaire.

<sup>c</sup>Within-group comparison of religious vs. secular:  $\chi^2 = 8.4$ , df = 1, p < .004.

<sup>d</sup>Within-group comparison of religious vs. secular, analysis of variance: p < .05.

 ${}^{e}F = 24.2, df = 1,62; p < .0001.$ 

 $^{f}F = 16.9, df = 1,62; p < .0001.$ 

 ${}^{g}F = 43.9, df = 1,62; p < .0001.$ 

<sup>h</sup>PTSD measured using the PTSD-scale.

<sup>i</sup>Within-group comparison of religious vs. secular:  $\chi^2 = 4.6$ , df = 1, p = .0035.

Abbreviations: GKS = Gush-Katif Settlements, KA = Kiryat-Arba, NS = not significant, PTSD = posttraumatic stress disorder,

STA = suburb of Tel-Aviv.

suburb of metropolitan Tel-Aviv to a greater degree than the other areas. Despite the fact that the populations of the Gush-Katif Settlements and Kiryat-Arba are physically more constantly exposed and more frequently directly subjected to terrorist activities, the data show that the incidence of stress-related problems is greatest in the suburb of Tel-Aviv, where 65% expressed the feeling that their lives were in danger, whereas about 14% had in fact been personally involved in or affected by acts of terror during the Intifada. Seventy-six percent of the suburban sample reported symptoms suggestive of acute stress, including nearly half of those never directly involved in terror. High scores on scales assessing anxiety, depression, and hostility accompanied the subjective sense of distress expressed by the population of the suburb of Tel-Aviv, and they reported that their level of functioning was lowest of all groups.

The data for the 2 high-exposure areas (Gush-Katif Settlements and Kiryat-Arba) differ greatly. In Kiryat-Arba, there is a direct correlation between prior exposure to terror-related trauma and reported symptoms of distress and ASD, as reflected by the high scores on the scales measuring intrusive and avoidant symptoms, anxiety, depression, and hostility. The data for the Gush-Katif settlements reflect the fewest symptoms and the best coping of all areas under study, in spite of the intense and daily direct exposure, i.e., the correlation is practically the reverse of that seen for Kiryat-Arba.

Although acute symptoms appeared to be not uncommon, the responses characteristic of more chronic PTSD

symptoms were far less common. The overall prevalence of PTSD was not significantly different for the 3 samples, although the sample from the Gush-Katif Settlements reported a lesser degree of severity of most symptom clusters than the other 2 groups. Since these areas appear to have adopted many of the more threatening characteristics of battle zones, this finding is quite important. Previous research has found high rates of psychiatric disorders among veterans with war zone-related PTSD.<sup>10</sup> However, one excellent longer-term retrospective study in Northern Ireland revealed that the population as individuals and as a group, and society as a whole, had withstood the extremely violent 1970s and early 1980s with much less overt "damage" than one may have expected.<sup>11</sup> The reaction of the civilian population to terrorism and civil violence may be different than that of military populations, and thus our expectations have been biased, as had been previously proposed in the above study.<sup>11</sup> Both the pattern of symptoms and the areas of dysfunction may be vastly different for civilian versus military populations.12

In light of the disparity between the null hypothesis and the data, a reassessment according to a series of demographic variables previously reported to be potentially associated with risk for ASD and PTSD and/or resilience to trauma seemed to be in order. These included sex, new immigrant versus longtime resident status, prior exposure to a traumatic event and the type of such an event, and religious versus secular belief systems. Prior exposure to a traumatic event involved different types of events for the suburb of Tel-Aviv population as compared to the populations of the Gush-Katif Settlements and Kiryat-Arba in that the former reported more vehicle accidents as their index trauma, whereas the latter reported terror-related trauma. None of the demographic variables resulted in significant differences between the 3 population samples, except for the religiousness variable.

Once the symptom scales were reexamined according to the religious belief variable, it became apparent that the data for the religious respondents among the population of Kiryat-Arba were comparable to the data for the Gush-Katif Settlements population, which is composed almost exclusively of religious Jews. These data reflected significantly less severe symptoms and a significantly lower incidence of acute or chronic trauma–related concerns than in the secular population of Kiryat-Arba or the population of the largely secular suburb of Tel-Aviv.

The data for the secular inhabitants of Kiryat-Arba indicated more severe disturbances than those for the suburb of Tel-Aviv population. Approximately 19% of the secular inhabitants of Kiryat-Arba reported symptoms concomitant with a diagnosis of PTSD, as compared with approximately 6% in the religious population.

The stress-related responses would seem conceptually more likely to occur in people directly exposed to recurrent traumatizing events on a regular basis, as is required by DSM criteria. The phenomenon of stressrelated symptoms after intense yet indirect exposure has, however, been highlighted recently after traumatic events of a national or international magnitude. Possibly the best example of this is the September 11, 2001, terrorist attack on the World Trade Center, after which people of all ages reported substantial symptoms of stress across the United States and beyond.<sup>13–17</sup>

In attempting to interpret the more severe responses in the less constantly exposed population, one must also consider the powerful reinforcing potential of unpredictable, yet constantly expected, sporadic negative experiences, in the form of horrific terror attacks. In our study, the population that reported the fewest symptoms is the population that is most regularly exposed to the greatest danger. It is a well-established fact that not all exposure to traumatic events leads irrevocably to ASD or PTSD. Moreover, a significant proportion of painful events that people are exposed to throughout their lives require or even encourage one to learn, readjust, develop, and grow. Resilience and posttraumatic growth appear to be strongly associated with a positive, optimistic, and active adjusting/reworking attitude of the individual to life events, a willingness to reassess and positively reframe the meaning of even the most trying experiences.

A major factor that has come to light is one of belief system and ideological convictions. For example, intrinsic religiousness, in which the individuals see themselves as active partners of their god in controlling their fate, appears to be a valuable protective factor. Active, positively oriented use of amenable social support networks is of similar importance.<sup>18</sup>

The belief system of the religious population of the small and close-knit community settlements beyond the Green Line involves a close alliance between religious and nationalistic ideological elements. Ideology and ideological commitment imbue the ongoing condition of conflict and threat with existential meaning.

The importance of ideological and religious commitment on the improvement of adjustment and coping of individuals on both sides of the present conflict has been demonstrated in a variety of reports. Studies of Jewish settlers emphasize the focal role of their commitment in attributing meaning and enabling cognitive coping processes in the face of personal sacrifices. Similarly, studies of Palestinian children and youths,<sup>19</sup> and specifically of suicide bombers,<sup>20,21</sup> demonstrated the vast reinforcement and resilience that social, religious, and nationalistic/ ideological commitment lend the individual.

Social support and a strong communal sense of mutual commitment and responsibility<sup>22</sup> provide a strong support system based on empathy and common goals. This communal sharing influences the subjective interpretation of experiences and events, the meaning attributed to them (on a personal and social level), and hence the personal and communal responses.

In general among religious Jews, the social support system afforded by the community to its members is renowned for its extensive and constant nature.<sup>23</sup> This communal factor may be at the source of the distinction between the religious and secular inhabitants of Kiryat-Arba, no less than intrinsic factors related to belief system and ideological factors. It may well also be a major component in the resilience of the inhabitants of the small, close-knit community settlements of the Gush-Katif area vis-à-vis the more urban Kiryat-Arba and the suburb of metropolitan Tel-Aviv.

Another possibly influential factor is the sociopolitical context. The settlements in the West Bank and Gaza Strip are sociopolitically highly volatile; the frequently stark polarization of Israeli public opinion regarding these settlements may serve to further the social and ideological cohesion.

The study does, however, reveal distinct trends, patterns, and characteristics among populations exposed to extreme degrees of conflict, uncertainty, and constant pressure. It raises the possibility that sociopsychological, socioreligious, and ideological factors may possess buffering qualities in the face of stress. It will be important to follow up the sequelae of future events and to reassess the impact of religious and ideological factors on the longterm prognosis of these populations.

#### LIMITATIONS

The findings, although interesting and different from those we had expected to find, must be interpreted with care. Factors such as the small sample size and sparseness of data from before the beginning of the Intifada must be taken into consideration. The naturalistic design, however, also imparts an advantage to the study, in that each respondent was approached and accompanied individually throughout the process of filling out the questionnaires, rather than being canvassed by mail or telephone. The data revealed significant degrees of resilience and personal growth, possibly determined to a great extent by religious, ideological, and social factors. These factors would have to be examined in greater detail by means of specifically focused assessment tools, such as the Connor-Davidson Resilience Scale,<sup>24</sup> the Stress-Related Growth Scale,<sup>25</sup> and the Religious Coping Scale.<sup>26</sup>

## CONCLUSION

The distinct patterns of response seen in the inhabitants of the Jewish settlements beyond the Green Line, who are presently living under virtual war-zone conditions, and the inhabitants of suburban Tel-Aviv, who are exposed to the risk of infrequent, sporadic suicide bombings, appear to be clearly associated with religious and ideological belief systems, as well as social cohesion. These factors appear to afford a statistically significant degree of resilience to the deleterious effects of stress, certainly in the short term (acute stress reaction/ASD), and possibly also in the longer term (PTSD). The results have also reaffirmed that indirect (vicarious) exposure to traumatizing experiences can have pathogenic effects worthy of clinical consideration.

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