

The mental health impact of terrorism in Israel: A repeat cross-sectional study of Arabs and Jews

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Objective: Since September 2000 Israeli society has been subjected to numerous deadly terror attacks. Few studies have studied the comparative mental health vulnerability of minorities and majorities to continuous terror attacks.

Method: Two telephone surveys ($N = 512$ and 501) on two distinct representative samples of the Israeli population after 19 months and after 44 months of terror. The Arab minority and Jewish majority were compared on measures of exposure to terrorism, posttraumatic stress symptomatology, feeling depressed, coping, sense of safety, future orientation, and previous traumatic experiences.

Results: After 19 months of terrorist attacks Arab Israelis and Jewish Israelis reacted roughly similarly to the situation, however after 44 months of terror, posttraumatic symptom disorder in the Arab population increased three-fold, posttraumatic symptomatology doubled and resiliency almost disappeared.

Conclusion: We suggest that certain conditions inherent to political conflict situations may potentially put minorities at risk and may only be observable as terrorism-related stressors become chronic.

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Key words: terrorism; trauma; posttraumatic symptom disorder; cross-cultural comparison; minority groups

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Significant outcomes

- Terrorism has had a significant impact on the civilian Israeli population.
- Compared to civilian reactions after 19 months of terrorism, after 44 months some of the symptomatology worsened, some remained the same and some improved.
- After 44 months of terror the Arab minority was more symptomatic than the Jewish majority.

Limitations

- Repeat cross-sectional study, not a longitudinal, thus limiting assessment of causality.
- The Arab sample was under-represented in both samples.

Introduction

Since the 'Second Intifada' started in September 2000, Israel has experienced repeated deadly terror attacks that have claimed many civilian casualties, disrupted daily life and the economy and created an atmosphere of fear and insecurity. By May

2004, 1030 persons were killed and 5788 injured in more than 13 000 terrorist attacks (1). Current Israeli society has therefore become a test-case for the assessment of the effects of ongoing terror-induced stress.

Terrorism takes a significant toll on mental health, and may be expressed in posttraumatic

symptomatology (2), depression (3), pessimism (4), low sense of safety (5), functional problems (6), low resiliency (7) and distress that may require treatment (8).

At the height of the Intifada after 10 months of escalating hostilities against civilians in Israel Shalev et al. (9) found that 9.6% of directly exposed Jewish residents and 6.7% of indirectly exposed citizens in Jerusalem met posttraumatic symptom disorder (PTSD) criteria – including significant distress and functional impairment. A national representative survey 19 months after the beginning of the intifada (10), found 9.6% to have symptom criteria for PTSD, at the same period Gidron (11), found 10.1% of a Jewish convenience street recruited sample across five major cities to have PTSD. A further nationally representative survey 44 months after the beginning of the entifada (4) found 9% of participants with a symptom criteria for PTSD.

Variability in response to terror is great. Factors negatively impacting mental health after a terrorist attack include female gender (12), severity of exposure (2), reactivation of previous traumas (13), stressful life-events (14) ineffective coping (15), lack of optimism (16), low sense of security (17) and close time proximity to the terrorist attack (2).

Studies on the impact of the Intifada showed that a number of risk factors are associated with mental health symptomatology in adults, namely female gender (18), avoidant coping (19), a sense of insecurity (10, 20), immigrant status (4) disruption of daily routines (9) and resource loss (21).

One additional factor that may account for variability in reaction to disasters is minority status.

A number of reviews (22, 23) observed that belonging to an ethnic minority increased the likelihood for developing adverse outcomes following a disaster. Brewin, Andrews, and Valentine (24) in a meta-analysis found 22 studies with 8165 subjects that confirmed minority status as a risk factor for PTSD after major disasters. In studies assessing the impact of the 9/11 terrorist attacks, Stein et al. (6) reported in a longitudinal study more persistent distress in non-whites. Ford, Adams, and Daily (8) and Chu et al. (25) found Hispanic ethnicity to be a risk factor for reporting psychological problems. Rubin, Brewin, Greenberg, Simpson and Wesseley (26) found that being non-white as well as Muslim predicted substantial distress after the 2005 bombing in London.

A number of studies have also found that being part of the Arab minority in Israel during times of ongoing terrorism is a risk factor. Compared to Jews, Mussalem, Ginzburg, Lev-Shalem, and

Solomon (27) found more distress in Arab-Israeli students; Somer, Maguen, Or-Chen, and Litz (28) found more PTSD and depression in Arabs in ethnically mixed towns, and Hobfoll et al. (20) found more posttraumatic symptomatology in a large sample of urban Arabs compared to Jews.

A number of reasons have been heralded as to why minorities are more at risk for mental health sequelae following traumatic exposure. Objective exposure-related factors have been cited. For example, minorities often have higher exposure rates (29) and live in at-risk areas (30). They often have high mortality, morbidity and injury rates (21) and less healthcare following disasters (8).

Psychological factors have also been cited. Empirical studies suggest that minorities may have higher risk perceptions (31), more emotion-focused coping (25), less behavioral adaptation to terror (32) and less psychological resources (20), all conducive to more distress.

Economic and social-political factors such as less education and economic resources (33), closed and overburdened social networks (34), acculturation stress (35), racism (36) and political stress (37) may also compound the burden on these populations.

Israeli independence in 1948 was a major collective traumatic event for the Arab population (38), following which they became a minority, and subjectively experienced a disintegration of society and culture (39). The aftermath of Israeli statehood led to traumatic situations for many Israeli Arabs, (e.g. the separation and relocation of families, refugee situations, loss of livelihood, land and lives).

The 1 350 000 Arab Israelis that make up 19.5% of the population reside within the internationally recognized borders of Israel generally have less education and a lower income due to political, cultural and historical reasons beyond the scope of this paper (40).

Arab resiliency may also be affected by ‘acculturative stress’ (41) felt when the traditional paternalistic Arab society faces the predominant Jewish culture and western democratic institutions.

Arab Israelis are citizens of the State of Israel with equal protection under the law, and full rights of due process. But nevertheless, there are feelings of discrimination and racism which may increase the likelihood of adverse reactions (41, 42). In October 2000, the police aggressively suppressed violent Arab demonstrations. This exacerbated the Arab feelings of alienation, discrimination, repression and loss of power (43).

Furthermore Arab-Israelis often have first-and second-degree relatives in the war-ridden

West-Bank and Gaza making them prone to secondary traumatization. They also identify with the Palestinian uprising (44) creating a stressful dilemma of dual allegiance at personal and community related levels.

Arabs also undergo daily inconveniences and hassles, as they may be scrutinized more thoroughly during routine security checks and may be considered as potential terrorists. Additionally, Arabs may fear being targets of hostile reprisals by Jews should they be caught in the vicinity of a terror attack (27).

Studies have suggested that lack of a coherent and empowering narrative in facing traumatic situations effects resiliency (45). While terrorism corroborates the narrative in which Jews are fighting for their survival, threats or victimization by Palestinian terrorism is difficult to inscribe meaningfully within the Arab Israeli narrative.

On the other hand, some factors may be relatively protective of Arabs. Mass terrorism in Israel has never been targeted towards Arabs. Arab society is also known to have strong close-knit social ties that provide support in times of need. Additionally, most are religious, and may find solace in religious practices, that may be efficient in buffering terrorism-related stress (46).

Aims of the study

The present study aimed to assess the psychological and psychiatric effects of exposure to terror on Jews and Arabs and assess a number of contributing factors over a period of 2 years. More specifically, we sought to assess the unique and cumulative contribution of social (e.g. minority status, income, education) and psychological (e.g. sense of safety, coping, optimism) resources to the development of posttraumatic symptomatology. Furthermore, we sought to assess change in posttraumatic symptomatology in the two communities over time.

Material and methods

Background

This was a two-wave cross-sectional telephone survey performed by a polling institute at a 2-year interval assessing the mental health impact of terrorism on two independent representative samples of the Israeli population.

Sampling

The samples were obtained using a within-strata random-sampling method (47).

In the first wave 902 individuals were randomly phoned, 742 reached (82% contact rate) and 512 (69%) agreed to participate.

In the second wave 828 were called, 702 reached (84.8% contact rate) and 501 (71.4%) agreed to participate.

Both waves yielded representative samples of the adult Israeli population with a maximum sampling error of 4.5%. Strata were identified by address, immigration status, religious status, ethnic belonging, age, and gender. The size of each stratum was based on information drawn from the Israel Central Bureau of Statistics. Demographics comparing the Jewish and Arab populations for both waves of the study are presented in Table 1.

Data collection and timing

Structured telephone interviews were conducted in Hebrew, Russian or Arabic. Interviews were carried out on April 30, 2002 for the first wave by which time Israelis had suffered 19 months of terror, and on May 5, 2004 for the second wave of the study, after 44 months of terror. During the period between September 2000 and May 2002 there were roughly twice the amount of victims (4318 vs. 2002) compared to the period between May 2002 and May 2004, although more people died during the second period (472 in the first period vs. 558). The reduced amount of attacks was due to improved security measures, but the increase in deaths was due to the increased number of suicide bombers.

The interviewers were telephone-survey professionals with at least 1 year of experience who received training by a psychologist (MG) and a graduate psychologist with experience in conducting telephone surveys. Ongoing in-listening was performed during the interviews and feedback was provided to the interviewers. A pilot study was carried out to choose from the pool of interviewers the best suited for this kind of study based upon their interview performance during the pilot study.

Questionnaire

The research instruments were two structured questionnaires. Participants were asked to reply to the questions with respect to the time that had elapsed since the beginning of the Intifada.

Demographic factors. Gender, age, years of education, ethnic background (Jewish/Arab), religiosity, area of residence (urban/non-urban), place of birth (Israel/elsewhere), and income were recorded.

Table 1. Demographics, exposure to terror and past exposure to traumatic situations in the Arab and Jewish population in wave 1 and wave 2

	Wave 1: April 2002			Wave 2: May 2004		
	Arabs (<i>n</i> = 68), <i>N</i> (%)	Jews (<i>n</i> = 444), <i>N</i> (%)	Statistics	Arabs (<i>n</i> = 71), <i>N</i> (%)	Jews (<i>n</i> = 430), <i>N</i> (%)	Statistics
Women	35 (51.5)	227 (51.1)	$\chi^2 = 0.003$	38 (53.5)	221 (51.4)	$\chi^2 = 0.10$
Age (range 18–92)	31.5 (10.5)	43.6 (15.9)	$t = 24.4^{***}$	32.4 (12.8)	46.8 (16.8)	$t = 6.9^{***}$
Education						
0–8 years	7 (10.4)	17 (3.9)	$\chi^2 = 12.0^{***}$	10 (14.6)	19 (4.4)	$\chi^2 = 25.3^{***}$
9–12 years	39 (58.2)	196 (45.1)		43 (60.6)	177 (41.2)	
13+	21 (31.3)	222 (51.0)		18 (25.4)	234 (54.4)	
Income						
Under average	42 (62.7)	137 (35.2)	$\chi^2 = 15.5^{***}$	39 (57.4)	150 (37.6)	$\chi^2 = 10.3^{**}$
Average	15 (22.4)	130 (33.4)		11 (16.2)	121 (30.3)	
Above average	10 (14.9)	122 (31.4)		18 (26.5)	128 (32.1)	
Exposure						
No exposure	55 (80.9)	226 (51.2)	$\chi^2 = 22.6^{***}$	51 (71.8)	293 (68.1)	$\chi^2 = 2.26$
Direct	5 (7.4)	139 (31.5)		10 (14.1)	91 (21.1)	
Indirect	8 (11.8)	76 (17.2)		10 (14.1)	46 (10.7)	
Objective risk						
Urban	0 (0)	406 (87.7)	$\chi^2 = 296.1^{***}$	0 (0)	382 (88.8)	$\chi^2 = 265.5^{***}$
Non-Urban	68 (100)	57 (12.3)		71 (100)	48 (11.2)	

All *n* are as indicated except for education for the first wave (*n* = 503), and income for the first wave (*n* = 456) and income in the second wave (*n* = 467).

P* < 0.01, *P* < 0.001.

Exposure. Subjects were asked i) whether they had been exposed to a terrorist attack, ii) whether they had a friend or family member who had been exposed, and iii) whether they or their friends or family members were physically injured in the attack. Based on these questions, the responses to the questions were aggregated to form three distinct exposure groups: i) no exposure, ii) friend/family (indirect) exposure (injured and non-injured), and iii) direct exposure (including personal physical injury).

Posttraumatic stress related symptomatology. Traumatic stress related symptoms (TSRS), probable PTSD and Traumatic Stress Resiliency were measured using a modified version of the Stanford Acute Stress Reaction Questionnaire [SASRQ; (48)]. The questionnaire consists of five groups of questions representing the five PTSD clusters as defined by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (DSM-IV) criteria. It includes 23 statements, each referring to a particular stress-related symptom or behavior. We used four persistent re-experiencing items (Cluster B), six avoidance/numbing items (Cluster C), six hyperarousal items (Cluster D), four dissociative items, two impairment-cluster items (one work-related, and one social-related), and one distress item. The present questionnaire was used rather than a PTSD questionnaire due to the ongoing nature of the terrorist threat. Responses were on a 5-point Likert-scale (0 = disagree, to 4-totally agree). Duration of symptoms was also recorded: i) less than 1 month, ii) more than

1 month. The questionnaire showed an alpha Cronbach of 0.91 (10). Cutoff for TSRS and probable PTSD was determined by a score of ≥ 2 and a duration or more than 1 month. TSRS was defined by the sum of items reaching cutoff. The ≥ 2 cutoff was used as suggested by the author of the questionnaire (48) and as applied in Silver et al.'s (49) groundbreaking study on the impact of 9/11 because we considered the answer 'somewhat agree' significant, especially if the duration was more than 1 month. DSM IV criteria were used to assess probable PTSD, including functional impairment. A telephone pilot study using a student sample (*n* = 30) showed good test-retest properties over 2 weeks (Pearson *r* = 0.85).

TS resiliency was defined as having no TSRS symptoms. A similar approach to assessing the absence of stress related symptomatology was proposed by Bonnanno et al. (7) and Galea et al. (50).

Feeling depressed. The item: 'I feel depressed or gloomy' evaluated depressive mood. A response of two or more on the 5-point Likert scale from ['not true at all' (0) to 'very true' (4)] noted depression. Two-week test-retest on a sample of 30 students was *r* = 0.81 (10).

Future orientation

Two items were used, modified from the Future Orientation Scale (51), tapping the respondents' optimism about their personal and the State of Israel's future. Responses were on a 6-point Likert scale ranging from (1) very much agree to (6) don't

agree at all; a score of 3 or less indicated a positive response. Two-week test–retest on a sample of 30 students was found to be 0.90 and 0.92 respectively (10).

Sense of safety

This was tapped by two items which queried respondents' sense of threat to themselves and their relatives. Responses were on a 5 point Likert scale from 'not at all' (0) to 'very much' (4). The score > 1 indicated a positive response. Two-week test–retest on 30 students was 0.93 and 0.90 respectively (17).

Help-seeking

Respondents were asked whether they currently felt a need for psychological or psychiatric treatment and whether they were currently in psychological or psychiatric treatment (yes/no).

Coping

Ten questions were taken and adapted from the COPE (52) questionnaire, each referring to a different means of coping partly based upon the original factor structure: emotional social support/venting of emotions, instrumental social support, faith in god, acceptance, mental disengagement, denial, use of alcohol and cigarettes, use of tranquilizers, humor and engaging in activities. The full Questionnaire was first administered by phone to a student sample ($n = 30$). Items with the lowest test–retest reliability were removed, then specific questions were amalgamated to reduce the number of questions. Three questions related to coping in the immediate aftermath of a terrorist attack were added, namely whether the respondents had checked on the safety of relatives and/or friends, whether they avoided TV and radio news broadcasts, and whether they sought help from friends or family. Responses indicating frequency of coping methods employed were on a 5 point scale, ranging from 'not at all used' (0) to 'used a great deal' (4). A pilot study using a student sample showed good test–retest properties for the final questionnaire over 2 weeks [Pearson $r = 0.79$ – 0.98 ; $n = 30$; (10)]. This questionnaire was only administered in the first wave of the study.

A principal component analysis with an Eigenvalue above 1 and absolute values above 0.5 for each question brought a 4 factor solution composed of 'social action' (talking about feelings; talking about the situation and what can be done; checking on friends and family; support from family and friends; information gathering), 'avoid-

ance' (avoiding media; self-distraction through activity); 'disengagement' (coming to terms with the situation; having faith in God) and 'detached coping (trying to ignore the situation; using humor). 'Cigarette/alcohol and tranquillizer use' was added as a separate *a priori* factor in the analyses. This factor structure partially reproduces Lyne and Roger's (53) radial parcel analysis and Roger et al.'s (54) factor analysis of the original questionnaire.

Previous traumatic experiences

Five yes/no questions were asked: whether the individual was ever in a life threatening situation, whether a close family member was ever in a life threatening situation, whether he/she ever suffered from a serious economic downfall, whether he/she ever suffered from ethnic discrimination and whether the individual went through a personal major stressful life event during the past year. This questionnaire was only administered in the second part of the study.

In the first part of the study, we also queried whether the current events reminded the respondents of the Holocaust, or previous wars.

Analysis of non-participants

Non-participants ($n = 200$) in the first study did not differ on sex, income, residence, immigration status, religion from participants. Non-participants were significantly younger [mean age 35.7 (SD, 15.4)] than participants [mean age 38.2 (SD, 14.2) years; t_{740} ; $P = 0.04$]. In the second study, non-participants ($n = 201$) had slightly lower income [Mean score 2.6 (SD, 1.3) vs. 2.8 (SD, 1.3); $t_{700} = 2.0$; $P = 0.05$] and were younger than participants [Mean age 42.0 years (SD, 17.1) vs. 44.8 (SD, 17.1); $t_{700} = 2.0$; $P = 0.05$].

Ethics

Both waves were separately reviewed and approved by the Lev-Hasharon Mental Health Center Helsinki committee.

Statistical analyses

Binomial tests were performed comparing Arabs and Jews on all the variables. We further assessed the binomial relationship between probable PTSD, TSRS, and TS Resiliency and all the independent variables available in each of the studies. The variables significantly related with the aforementioned outcome variables were entered in one

forward stepwise linear regression for TSRS and two forward conditional logistic regressions for probable PTSD and TS Resiliency in each wave.

Results

Demographic, exposure and previous life events differences between Jews and Arabs

Table 1 shows that the Arab population was younger and had lower levels of education and income. Table 1 also shows that after 19 months of Intifada Jews were more exposed to terrorism but after 44 months this difference was not observed.

In the first wave, we observed that there were no differences between Jewish and Arab populations concerning whether the terrorism situation reminded them of the holocaust or previous wars [Arabs: $n = 14$ (20.6%), Jews: $n = 121$ (27.4%); $\chi^2 = 1.4, P = ns$].

In the second wave of the study, we observed that Jewish Israelis were more directly [Arabs: $n = 15$ (21.4%), Jews: $n = 164$ (38.2%); $\chi^2 = 7.4, P < 0.01$] and indirectly [Arabs: $n = 24$ (34.3%), Jews: $n = 229$ (53.4%); $\chi^2 = 8.8, P < 0.01$] exposed to life-threatening situations. Jews reported more economic downfalls [Arabs: $n = 36$ (51.4%), Jews: $n = 289$ (67.2%); $\chi^2 = 6.6, P < 0.01$] and Arabs reported more ethnic discrimination [Arabs: $n = 22$ (31.4%), Jews: $n = 48$ (11.2%); $\chi^2 = 20.5, P < 0.01$]. No differences were observed in major life events for the previous year [Arabs: $n = 46$ (66.7%), Jews: $n = 242$ (56.3%); $\chi^2 = 2.6, P = ns$].

Differences between Arabs and Jews in posttraumatic and related symptomatology

Results are presented in Table 2. In wave 1 Jews had about twice more probable PTSD than Arabs, but this difference was not significant. In wave 2 Arabs had significantly more often probable PTSD than Jews. This same pattern is true for the severity of TSRS. After 19 months of terror, significantly more Arabs were TS resilient and had less functional impairment, while after 44 months the trend reversed and only very few Arabs were TS resilient and they had more functional impairment. In wave 2 more Arabs had feelings of depression.

Optimism concerning one’s personal future was found to be higher for the Arabs in wave 2, and their level of presumed threat to family and friends remained lower for the two waves.

No differences were observed between both population in either wave 1 or wave 2 in whether the individual was in treatment [Wave 1, Arabs: $n = 1$ (1.6%), Jews: $n = 10$ (2.3%), $\chi^2 = 0.1, P = ns$. Wave 2, Arabs: $n = 2$ (2.9%), Jews: $n = 16$ (3.7%), $\chi^2 = 0.1, P = ns$] or felt the need for treatment [Wave 1, Arabs: $n = 4$ (6.2%), Jews: $n = 22$ (5.0%), $\chi^2 = 0.2, P = ns$. Wave 2, Arabs: $n = 7$ (10%), Jews: $n = 41$ (9.6%), $\chi^2 = 0.1, P = ns$] following the terrorist incidents.

Coping differences between Jews and Arabs (wave 1 only)

Jews used more Social Activities [$M = 9.2, SD = 3.7$ vs. Arabs: $M = 4.6, SD = 3.8; t(508) = 9.42, P < 0.001$], ‘detachment’ [$M = 2.4, SD = 2.0$, vs. Arabs: $M = 1.8, SD = 1.8; t(507) = 2.38$,

Table 2. Arab and Jewish posttraumatic symptomatology, feelings of depression, optimism, sense of security and treatment needs in wave 1 and wave 2

	Wave 1: April 2002			Wave 2: May 2004		
	Arabs	Jews	Statistics	Arabs	Jews	Statistics
Posttraumatic symptomatology						
Probable PTSD	4 (5.9)	45 (10.2)	$\chi^2 = 1.2$	12 (16.9)	32 (7.4)	$\chi^2 = 6.8^{**}$
Traumatic stress Resilient (no TSRS symptoms)	25 (37.3)	94 (21.3)	$\chi^2 = 8.4^{**}$	3 (4.2)	69 (16.0)	$\chi^2 = 6.9^{**}$
TSRS (Mean, SD)	3.5 (4.0)	4.1 (4.5)	$t = 1.0$	6.4 (4.6)	4.8 (4.5)	$t = 2.8^{**}$
At least one intrusive symptom	21 (30.9)	168 (38.0)	$\chi^2 = 1.3$	33 (46.5)	147 (34.2)	$\chi^2 = 4.0$
At least one avoidance symptom	28 (41.8)	254 (57.5)	$\chi^2 = 5.8^{**}$	15 (21.1)	57 (13.3)	$\chi^2 = 3.1$
At least one hyper-arousal symptom	35 (13.9)	217 (49.1)	$\chi^2 = 0.13$	31 (43.7)	117 (27.2)	$\chi^2 = 7.9^{**}$
Functional impairment	14 (20.6)	222 (50.2)	$\chi^2 = 20.8^{***}$	46 (64.8)	190 (44.2)	$\chi^2 = 10.4^{***}$
At least one dissociation symptom	22 (32.8)	115 (26.0)	$\chi^2 = 1.4$	18 (25.4)	118 (27.4)	$\chi^2 = 0.1$
Feelings of depression	43 (64.2)	255 (57.7)	$\chi^2 = 1.0$	28 (39.4)	120 (28.0)	$\chi^2 = 3.8^*$
Optimism						
Optimistic about your personal future	57 (87.1)	361 (81.7)	$\chi^2 = 0.5$	66 (93.0)	343 (80.1)	$\chi^2 = 6.7^{**}$
Optimistic about the country’s future	43 (64.2)	294 (67)	$\chi^2 = 0.2$	35 (50)	244 (57.5)	$\chi^2 = 1.3$
Sense of threat						
Threat to your own life	37 (54.4)	270 (51.5)	$\chi^2 = 1.2$	30 (42.3)	205 (47.8)	$\chi^2 = 0.75$
Threat to the lives of those close to you	38 (55.9)	306 (69.9)	$\chi^2 = 5.3^*$	30 (42.3)	239 (55.8)	$\chi^2 = 3.7^*$

PTSD, posttraumatic stress disorder; TSRS, traumatic stress related symptoms.

* $P < 0.05$, ** $P < 0.01$, *** $P < 0.001$.

$P < 0.01$] and ‘alcohol, cigarettes or tranquilizers’ [$M = 0.3$, $SD = 0.9$, vs. Arabs: $M = 0.1$, $SD = 0.6$, vs. Jews: $M = 0.1$, $SD = 0.6$; $t(507)$, $P < 0.05$] while Arabs used more ‘avoidance’ [$M = 2.4$, $SD = 2.3$; vs. Jews: $M = 1.6$, $SD = 1.9$; $t(507)$, $P < 0.002$] and ‘disengagement’ [$M = 5.4$, $SD = 2.1$, vs. Jews: $M = 3.6$, $SD = 2.3$; $t(507) = 6.10$, $P < 0.001$].

Arabs also reported using fewer ($M = 5.2$, $SD = 2.2$) coping modes compared to Jews [$M = 6.5$; $SD = 1.8$; $t(508) = 5.4$, $P = 0.001$].

Independent variables correlated with PTSD-related symptoms

Table 3 for wave 1 and Table 4 for wave 2 present the independent variables significantly associated with at least one of the PTSD-related measures. Female gender, absence of optimism concerning oneself and the future of the state, a sense of threat

Table 3. Association of gender, income, education, place of birth, religion, place of residence, optimism, sense of threat, to probable PTSD, TSRS and TS Resiliency in wave 1

Variables	Wave 1: April 2002		
	PTSD, <i>N</i> (%)	TS Resilient, <i>N</i> (%)	TSRS, Mean (SD)
Gender			
Female	42 (16.2)	42 (16.1)	5.16 (5.03)
Male	6 (2.4)***	77 (30.9)***	2.18 (3.45)***
Income			
Lower	23 (12.8)	38 (21.1)	4.67 (5.19)
Average	17 (10.4)	43 (29.7)	3.71 (4.57)
Higher	9 (6.8)	27 (20.5)	3.75 (7.81)
Education			
1–8 years	1 (4.2)	7 (29.2)	2.69 (3.34)
9–12 years	25 (10.6)	55 (23.3)	4.41 (5.09)
> 12 years	23 (9.4)	57 (23.4)	3.80 (3.94)
Place of birth			
Israel	29 (9.1)	89 (28.1)	3.67 (4.42)
Outside of Israel	19 (9.8)	30 (15.6)***	4.58 (4.51)*
Religion			
Not religious	182 (77.4)	20 (8.5)	3.58 (4.02)
Religious	162 (79.8)	24 (11.8)	4.70 (5.07)**
Place of residence			
Urban	8 (7.5)	77 (19.1)	4.16 (4.45)
Non-Urban	41 (10.1)	42 (40.0)***	3.46 (4.56)
Optimism about self			
Optimist	31 (7.4)	113 (27.0)	3.59 (4.12)
Not optimist	18 (19.6)***	6 (6.6)***	5.95 (5.50)***
Optimism about state			
Optimist	22 (6.5)	97 (28.7)	3.39 (3.87)
Not optimist	26 (15.4)***	22 (13.0)***	5.27 (5.32)***
Threat to self			
Threatened	7 (3.5)	63 (31.5)	5.02 (4.91)
Not threatened	40 (13.0)***	55 (18.0)***	2.37 (2.95)***
Threat to relatives			
Threatened	4 (2.5)	58 (35.8)	4.84 (4.71)
Not threatened	43 (12.5)***	59 (17.2)***	2.16 (2.99)***

PTSD, posttraumatic stress disorder; TS Resilient, traumatic stress resilient; TSRS, traumatic stress reaction symptoms. * <0.05 , ** <0.01 , *** <0.001 .

regarding oneself and regarding family and friends were positively related to all three PTSD related measures in both waves.

Immigrant status was related to the absence of TS resiliency and to TSRS in both waves. Low income was related to more TSRS in the second study only. More rural residents were found to be TS resilient in the first study. Being religious was

Table 4. Association of gender, income, education, place of birth, religion, place of residence, optimism, sense of threat, life threatening event, racism, major life event and substantial income loss to probable PTSD, TSRS and TS resiliency in wave 2

Variables	Wave 2: May 2004		
	PTSD, <i>N</i> (%)	TS Resilient, <i>N</i> (%)	TSRS, Mean (SD)
Gender			
Female	34 (13.1)	15 (5.8)	6.33 (4.60)
Male	11 (4.5)***	57 (23.6)***	3.58 (4.05)***
Income			
Lower	21 (11.1)	18 (9.5)	5.70 (4.65)
Average	5 (3.8)	21 (15.9)	4.77 (4.35)
Higher	13 (8.9)	29 (19.9)*	4.08 (4.32)**
Education			
1–8 years	5 (17.2)	2 (6.9)	7.31 (5.45)
9–12 years	18 (9.3)	24 (12.4)	5.36 (4.77)
> 12 years	22 (7.9)	46 (16.5)	4.51 (4.20)***
Place of birth			
Israel	30 (9.8)	54 (17.6)	4.09 (4.35)
Outside of Israel	15 (3.9)	17 (8.9)**	5.66 (4.55)***
Religion			
Not religious	17 (7.1)	43 (17.9)	4.40 (4.17)
Religious	16 (8.6)	26 (14.0)	5.27 (4.90)*
Place of residence			
Urban	31 (8.1)	58 (15.2)	4.85 (4.50)
Non-urban	14 (12.5)	14 (11.2)	5.49 (4.70)
Optimism about self			
Optimist	32 (7.8)	65 (15.9)	6.66 (5.07)
Not optimist	13 (14.4)*	7 (7.8)*	4.63 (4.35)***
Optimism about state			
Optimist	17 (6.1)	54 (19.4)	4.32 (4.10)
Not optimist	28 (13.0)**	17 (7.9)***	5.86 (4.95)***
Threat to self			
Threatened	33 (14.0)	11 (4.7)	6.86 (4.74)
Not threatened	12 (4.5)***	61 (23.0)***	3.35 (3.67)***
Threat to relatives			
Threatened	35 (13.0)	17 (6.3)	6.42 (4.69)
Not threatened	10 (4.4)***	55 (24.0)***	3.32 (3.73)***
Life threatening event			
With	15 (8.4)	29 (16.2)	4.46 (4.36)
Without	30 (9.4)	43 (13.4)	5.31 (4.64)*
Victim of ethnic discrimination			
With	9 (12.9)	5 (7.1)	6.14 (3.89)
Without	36 (8.4)	67 (15.6)	4.82 (4.63)*
Major life event			
With	26 (12.3)	23 (10.9)	5.71 (4.75)
Without	19 (6.6)*	49 (17.8)*	4.49 (4.35)**
Substantial income loss			
With	27 (15.4)	14 (8.0)	6.10 (4.78)
Without	18 (5.5)***	58 (17.8)***	4.42 (4.32)***

PTSD, posttraumatic stress disorder; TS Resilient, traumatic stress resilient; TSRS, traumatic stress reaction symptoms. * <0.05 , ** <0.01 , *** <0.001 .

related to more TSRS in both waves. Racism was related to greater TSRS. Significant stressful events during the past year and substantial income loss was significantly related to all the PTSD measures in the second study. Age was not found to be related to any of the outcome measures.

Regarding coping styles factors, those with probable PTSD used significantly more ‘social activities’; (M = 10.44, SD = 4.15) than individuals without probable PTSD (M = 8.37, SD = 3.93), $t(508) = 3.55, P < 0.001$; more ‘avoidance’ (M = 2.71, SD = 1.96) compared to individuals without probable PTSD (M = 1.54, SD = 1.93), $t(508) = 4.08, P < 0.001$; and more ‘cigarettes, alcohol or tranquilizers’ (M = 1.00, SD = 1.77) compared to individuals without probable PTSD (M = 0.18, SD = 0.69), $t(508) = 6.31, P < 0.001$. Individuals with TS resiliency used less ‘social activities’ (M = 6.99, SD = 3.46) compared to those with no TS resiliency (M = 9.06, SD = 4.03), $t(508) = 5.07, P < 0.001$; they used less ‘avoidance’ (M = 0.95, SD = 1.46) compared to those without TS Resiliency (M = 1.87, SD = 2.05), $t(508) = 4.54, P < 0.001$; and less ‘use of cigarettes and alcohol’ (M = 0.01, SD = 0.10) compared to those without TS Resiliency (M = 0.34, SD = 1.01), $t(508) = 6.27, P < 0.001$.

Pearson correlations showed a significant positive relationship between TSRS and ‘social activities’ ($r = 0.27; P < 0.001$), the use of ‘avoidance’ ($r = 0.26, P < 0.001$) the use of ‘disengagement’ ($r = 0.11, P < 0.02$) and the use of ‘cigarettes, alcohol or tranquilizers’ ($r = 0.40, P < 0.001$). The use of ‘detachment’ was found to be related to less TSRS ($r = 0.14, P = 0.002$).

Exposure to terrorism, events reminiscent of the Holocaust and previous wars, and the need for treatment were not significantly related to the dependent variables.

Regression analyses

The summaries of the regression models are presented in Table 5 for wave 1 and in Table 6 for wave 2. The final models only are presented.

Probable PTSD and TSRS in the first wave were associated with female gender, low sense of safety, avoidance coping and coping via the use of alcohol, cigarettes and tranquilizers. Low optimism concerning the future of the state, low sense of personal safety, coping through social action, and coping through disengagement were also related to higher TSRS. Detachment coping was related to lower TSRS scores. Not being TS resilient was related to being Jewish, living in

Table 5. Summary of Hierarchical Regression Analysis (TSRS) and Logistic regression Analysis (probable PTSD and TS resiliency) for wave 1

	Wave 1: April 2002		
	Probable PTSD, OR (95% CI)	Not TS resilient, OR (95% CI)	TSRS standard, B (SE)
Female	6.42 (2.0–20.7)	NA	-0.79 (0.35)
Jewish/Arab ethnicity	NS	2.79 (1.0–7.5)	NS
Urban	NS	1.85 (0.07–35)	NS
Low optimism about self	NS	1.4 (1.1–1.8)	NS
Low optimism vs. the future of the state	NS	1.2 (1.0–1.5)	0.10 (0.12)
Sense of threat vs. self	NS	NS	0.13 (0.19)
Sense of threat vs. family/friends	1.67 (1.0–2.8)	NS	0.12 (0.20)
Coping through social action	NS	1.24 (1.0–1.2)	0.12 (0.05)
Avoidance coping	1.24 (1.0–1.5)	1.27 (1.1–1.5)	0.12 ((0.09)
Disengagement coping	NS	NS	0.07 (0.07)
Detachment coping	NS	NS	-0.09 (0.09)
Use of alcohol, cigarettes, tranquilizers	2.03 (1.5–2.8)	NS	0.30 (0.19)

In the first wave the total R^2 for variables predicting TSR symptoms = 36.3. Respondents meeting symptom criteria for probable PTSD = 49/512 (9.6%); TS resilient respondents = 119/512 (23.2%). $P < 0.05$ for all variables. NS, not significant; PTSD, posttraumatic stress disorder; Not TS Resilient, not traumatic stress resilient; TSRS, traumatic stress-related symptoms.

Table 6. Summary of hierarchical regression analysis (TSRS) and logistic regression analysis (probable PTSD and TS resiliency) for wave 2

	Wave 2: May 2004		
	Probable PTSD, OR (95% CI)	Not TS Resilient, OR (95% CI)	TSRS Standard, B (SE)
Female	2.82 (1.8–6.2)	4.16 (1.9–7.4)	-0.16 (0.37)
Jewish/Arab ethnicity	2.26 (1.0–5.2)	5.32 (1.4–20.4)	-0.12 (0.58)
Born outside of Israel	NS	0.4 (0.2–0.8)	-0.11 (0.40)
Less education	NS	NS	0.10 (0.05)
Low optimism vs. the future of the state	NS	1.4 (1.1–1.7)	NS
Sense of threat vs. self	NS	1.7 (1.1–2.6)	0.20 (0.20)
Sense of threat vs. family/friends	NS	NS	0.21 (0.21)
Substantial loss of income in the past	0.38 (0.2–0.8)	NS	0.09 (0.38)

In the second wave total R^2 for variables predicting TSR symptoms = 33.6. Respondents meeting symptom criteria for PTSD = 45/501 (9%); TS resilient respondents = 71/501 (14.4%). $P < 0.05$ for all variables. NS, not significant; PTSD, posttraumatic stress disorder; Not TS Resilient, not traumatic stress resilient; TSRS, traumatic stress-related symptoms.

cities, endorsing low personal optimism, low optimism concerning the future of the state, coping through social action and avoidance coping.

The second wave revealed that being female and being Arab contributed significantly to reporting probable PTSD, having more TSRS, and not being TS resilient. Being born in Israel (compared to being born outside of Israel), optimism about the

future of the State of Israel contributed to being TS resilient. Less education contributed to more TSRS; sense of personal safety contributed to TS resilience and less TSRS, low sense of safety concerning close relatives contributed to TSRS, and a substantial loss of income in the past contributed to meeting symptom criteria for probable PTSD and to more TSRS.

Discussion

After 19 months of terrorism Arab Israelis and Jewish Israelis reacted similarly. This is in line with a number of previous studies that have also found no (55) or only minor differences in the way most minorities reacted in the aftermath of the 9/11 events (56). One might assume a 'equalizing' mechanism whereby a 'national' or 'community' stress impacts in a way that overshadows certain risk factors usually closely associated to traumatic reactions such as exposure (57) ethnicity, education (58) and socio-economic status (59).

This situation changed over 44 months of terror, and as for the Jewish population some symptoms worsened, some remained unchanged and others improved, for the Arab population outcome measures worsened significantly. PTSD symptoms increased threefold, TSRS nearly doubled and resiliency almost disappeared.

What are the reasons for this change for the Arab population? The results suggest that traumatic events may impact over time differentially in minorities and majorities (60). Resilience eroding factors such as dual allegiance, feelings of political and social oppression, internal pressure to actively support terrorist activities may have elevated the level of stress felt by the Arab population to a point where available material, societal and psychological resources become inadequate to meet the threat of terror. This approach is in line with the conservation of resources (COR) theory description of loss cycles (61) that posits that after initial mobilization of resources, resource deterioration may ensue, leaving vulnerable groups and individuals less resistant to stress and trauma. Furthermore, when the stress surrounding a traumatic situation grows, more serious negative sequelae may occur in rapid loss cycles (58) that may not have been observed at lower levels of stress.

A complementary explanation may lie in the way people and societies prepare for potential disasters. Resource theories (62, 63) assert that individuals adapt pro-actively by attempting to foster their resources and attempt to change their life circumstances in order to be less vulnerable. Such

adaptation is difficult to engage in when feeling depressed, when economic means are limited and when feelings of discrimination and socio-cultural factors do not facilitate pro-active adaptation. Indeed Kirschenbaum (32) found that Israeli Arabs made less future plans when contemplating future potential disasters.

The implementation of protective actions such as having armed guards posted at shops, malls, pubs and restaurants, the planning of a protective wall, active reprisal measures by the army and the ensuing less successful terrorist attacks, may have halted, and sometimes reversed the powerlessness felt by Jews. For Arabs most of these measures may have had an opposite effect of adding to feelings of marginalization, harassment, political stress and confrontation with issues of dual allegiance. Many Arabs did not consider these measures a 'national effort' to curb terrorism, but rather an additional burden.

Ethnic differences in distress may also be related to the relative effectiveness of coping strategies used in handling the terrorist threat. Compared to Arabs, Jews used more 'social activities' and 'detachment'. Arabs used more 'avoidance', which includes avoiding the media and distracting oneself through activity, as well as 'disengagement', that includes coming to terms with the situation and putting one's faith in God. Studies have suggested that 'avoidance', may initially result in reduced distress but over time increase distress (64, 65). A tendency for media avoidance may also reflect a growing feeling of alienation Arabs feel towards society. Together with the use of religion for coping this may lead to within-group confinement and being in touch with more activist elements within Arabic society that may exacerbate already existing dual allegiance conflicts.

Additionally, the traditional 'collectivism' and 'familism' (66) characterized by strong within-group ties found in Arab culture may lead to less help-seeking outside of the traditional family and kin-circle leading to increased stress due to familial obligations exceeding help giving capacities (67).

The repeated exposure to trauma of close kin living in the Palestinian territories, may also potentially be a significant source of secondary traumatization. This is compounded by the fact that Arab ethnicity is sometimes assumed to be synonymous with being pro-terrorist. This may cause not only significant distress but make it even more difficult for this population to express their cultural heritage, belonging and political views, that may be sympathetic to the Palestinian cause, without being accused of being the enemy. Indeed studies among Vietnam veterans of Asian American origin found

PTSD to be associated with feeling of being culturally identified with the enemy (36).

A final but important point to consider, is that we have used the terminology of resilience, but in parallel we may also assume that what has been eroded is not so much the resilience of the Arab population, but its resistance (68). Further studies will have to elucidate this point.

Distinct from our focus on minority status, a number of additional interesting findings were observed.

First as we have noticed before, for the Jewish population some symptoms worsened, some remained unchanged and others improved, possibly due to interactive processes of stress accumulation, the ability to compartmentalize stresses and habituation. The level of TSRS worsened by 14.6%, the number of resilient individuals dropped by 5.3%. Less Jews were optimistic about the countries' future (from 67% to 57.5%) and more felt the need for treatment (from 5% to 9.6%). This pattern seems to reflect an accumulation of stress and erosion of resiliency after years of ongoing terror. On the other hand, the percentage of respondents who met probable PTSD criteria remained roughly the same, as well as the scores on the intrusive and dissociation symptom clusters and functional disruption. These results suggest an ability to compartmentalize stresses so that even though the level of stress remained significant it remained relatively under control. Finally a number of measures point to an apparent reduction in distress for the Jewish population, namely less individuals with avoidance and hyper-arousal symptoms, less feelings of depression and sense of threat for family and relatives. This seems to point to a process of habituation, although it cannot be ruled out that the changes may stem from a reduction in the number and scope of terrorist attacks over the 2-year interval, and/or from the increased visibility of preventive measures in urban centers and offensive actions by the Israeli Army.

Second, supporting findings from previous studies, female gender (12), lack of optimism (16) and sense of threat (17) were found to be risk factors for the development of posttraumatic symptomatology.

Third, we observed that less education was marginally related to higher TSRS and that a substantial loss of income in the past predicted PTSD and TSRS in the second wave. This is in line with the previously described findings suggesting that certain risk factors may only become prominent in their influence as stress becomes chronic and resources are depleted. We also found that immigrant status affected TSRS and resiliency

negatively in the second wave. This could suggest that immigrants may in times of existential crises be reminded of traumatic memories relating to the immigration process (69). Furthermore, *post hoc* analysis of our sample shows that most immigrants live in urban communities, have lower incomes and are older. For this group also, the impact of stress may only become symptomatic over time as resources become depleted.

Fourth, living in a city was a factor that affected resiliency negatively only in wave 1 and not in wave 2. A reason for this change may be that as the Intifada progressed more attacks were perpetrated in kibbutzim and villages resulting in feelings of lack of security across the population.

Relating to coping modes we found that avoidance, disengagement and the use of alcohol, cigarettes and tranquilizers were indicators of unhelpful coping. Interestingly, we found that coping through different means of social action was also not helpful while detached coping seemed to buffer distress. This suggests that in situations of chronic uncontrollable stress, social actions may exacerbate stress, and that a certain positive 'detachment' might be a positive means of coping with chronic stressors. Furthermore the results also suggest that in times of traumatic stress people in distress use many coping modes.

Repeated terrorist attacks and their threat may thus impact different populations differentially and certain conditions, often inherent to political conflict situations may put minorities at risk. Furthermore, this impact may only be observable over time.

Study limitations

Results should be considered cautiously as the Arab Israeli samples were small and under-sampled, making up for 13.7% of the two samples, compared to 19.5% of the general population. We must also take into account that this is a cross-sectional study on independent samples, and not a longitudinal study and that therefore questions about attitude and coping may be artifactually related to posttraumatic symptomatology due to state-dependent responding, and that we thus cannot assume causality. Some of the measures we used were also one-item questions whose validity can be questioned. Furthermore, it is also possible that certain cultural differences were overlooked in the expression of traumatic distress.

Implications for mental health policy

It is important that agencies helping the Arab community cope with terrorism understand that

even though exposure levels are low, posttraumatic distress is relatively elevated. Efforts should be made to develop local infrastructures to support this minority and to avoid further alienation and exacerbation of already existing conflicts. We also recommend therapeutic orientations that take into consideration feelings of oppression, dual-allegiance, secondary traumatization and the victim-status found in the Arab narrative as well as being sensitive to this specific culture. It is also important that both within-group resources as well as ties with the State be strengthened. Indeed approaches geared at strengthening racial-ethnic self-schemas incorporating both in-group empowerment as well as strengthening ties with society as a whole may be the most potent approach to strengthen resiliency of vulnerable minorities (70).

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References

1. MINISTRY OF FOREIGN AFFAIRS (2006) <http://www.mfa.gov.il/MFA/Terrorism-%20Obstacle%20to%20Peace/Palestinian%20terror%20since%202000/Victims%20of%20Palestinian%20Violence%20and%20Terrorism%20sinc> Accessed September 15, 2007.
2. COHEN SILVER R, HOLMAN A, MCINTOSH DN, POULIN M, GIL-RIVAS V. Nationwide longitudinal study of psychological responses to September 11. *J Am Med Assoc* 2002;**288**: 1235–1244.
3. PERSON C, TRACY M, GALEA S. Risk factors for depression after a disaster. *J Nerv Ment Dis* 2006;**194**:659–666.
4. BLEICH A, GELKOPF M, MELAMED Y, SOLOMON Z. Mental health and resiliency in Israeli society following 4 years of terrorism. *BMC Med* 2006;**4**:21.
5. GRIEGER TA, FULELRTON CS, URSANO RJ. Posttraumatic stress disorder, depression and perceived safety 13 months after September 11. *Psychiatr Serv* 2004;**55**:1061–1063.
6. STEIN BD, ELLIOTT MN, JAYCOX LH et al. A national longitudinal study of the psychological consequences of the September 11, 2001 terrorist attacks: reactions, impairment, and self-help. *Psychiatry* 2004;**67**:105–117.
7. BONNANNO GA, GALEA S, BUCCIARELLI A, VLAHOV D. Psychological resilience after disaster: New York city in the aftermath of the September 11th terrorist attack. *Psychol Sci* 2006;**17**:181–186.
8. FORD JD, ADAMS ML, DAILY WF. Factors associated with receiving help and risk factors for disaster-related distress among Connecticut adults 5-15 months after the September 11th terrorist incident. *Soc Psychiatry Psychiatr Epidemiol* 2005;**40**:1–10.
9. SHALEV AY, TUVAL R, FRENKIEL-FISHMAN S, HADAR H, ETH S. Psychological responses to continuous terror: a study of two communities in Israel. *Am J Psychiatry* 2006;**163**:667–673.
10. BLEICH A, GELKOPF M, SOLOMON Z. Exposure to terrorism, stress-related mental health symptoms, and coping

- behaviors among a nationally representative sample in Israel. *J Am Med Assoc* 2003;**290**:612–620.
11. GIDRON Y. Posttraumatic stress disorder after terrorist attacks: a review. *J Nerv Ment Dis* 2002;**190**:118–121.
12. TOLIN DF, FOA EB. Sex differences in trauma and post-traumatic stress disorder: a quantitative review of 25 years of research. *Psychol Bull* 2006;**132**:959–992.
13. KINZIE DJ, BOEHNLEIN JK, RILEY C, SPARR L. The effects of September 11 on traumatized refugees: reactivation of posttraumatic stress disorder. *J Nerv Ment Dis* 2002;**190**:437–441.
14. ADAMS RE, BOSCARINO JA. Predictors of PTSD and delayed PTSD after disaster: the impact of exposure and psychosocial resources. *J Nerv Ment Dis* 2006;**194**:485–493.
15. SCHUSTER MA, STEIN BD, JAYCOX L et al. A national survey of stress reactions after the September 11, 2001, terrorist attacks. *N Engl J Med* 2001;**345**:1507–1512.
16. AI A, EVANS-CAMPBELL T, SANTANGELO LK, CASCIO T. The traumatic impact of the September 11, 2001, terrorist attacks and the potential protection of optimism. *J Interpers Violence* 2006;**21**:689–700.
17. HOLMAN EA, COHEN-SILVER R. Future-oriented thinking and adjustment in a nationwide longitudinal study following the September 11th terrorist attacks. *Motiv Emot* 2005;**29**:389–410.
18. SOLOMON Z, GELKOPF M, BLEICH A. Is terror gender-blind? Gender differences in reaction to terror events. *Soc Psychiatry Psychiatr Epidemiol* 2005;**40**:947–954.
19. GIL S. Evaluation of premorbid personality factors and pre-event posttraumatic stress symptoms in the development of posttraumatic stress symptoms associated with a bus explosion in Israel. *J Trauma Stress* 2005;**18**:563–567.
20. ZEIDNER M. Individual differences in psychological reactions to terror attack. *Pers Individ Dif* 2006;**40**:771–781.
21. HOBFOLL SE, CANETTI-NISIM D, JOHNSON RJ. Exposure to terrorism, stress-related mental health symptoms, and defensive coping among Jews and Arabs in Israel. *J Consult Clin Psychol* 2006;**74**:207–218.
22. FOTHERGILL A, MAESTAS EGM, DE ROUEN J. Race, ethnicity and disasters in the United States: a review of the literature. *Disasters* 1999;**23**:156–173.
23. NORRIS FH, FRIEDMAN MJ, WATSON PJ, BYRNE CM, DIAZ E, KANIASTY K. 60000 disaster victims speak: part I and II. An empirical review of the empirical literature, 1981-2001. *Psychiatry* 2002;**65**:207–260.
24. BREWIN CR, ANDREWS B, VALENTINE JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol* 2000;**68**:748–766.
25. CHU TQ, SEERY MD, ENCE WA, HOLMAN A, COHEN-SILVER R. Ethnicity and gender in the face of a terrorist attack: a national longitudinal study of immediate responses and outcomes two years after September 11. *Basic Appl Soc Psych* 2006;**28**:200–224.
26. RUBIN J, BREWIN CR, GREENBERG N, SIMPSON J, WESSELEY S. Psychological and behavioural reactions to the bombings in London on 7 July 2005: cross sectional survey of a representative sample of Londoners. *Br Med J* 2005;**331**:606–613.
27. MUSSALAM N, GINZBURG K, LEV-SHALEM L, SOLOMON Z. The psychological effects of Intifada Al Aqsa: acute stress disorder and distress in Palestinian-Israeli Students. *Isr J Psychiatry Relat Sci* 2005;**42**:96–105.
28. SOMER E, MAGUEN S, OR-CHEN K, LITZ BT. Managing terror: differences between Jews and Arabs in Israel. *Int J Psychol* 2007;**42**:1–9.

29. BEALS J, MANSON SM, SHORE JH et al. The prevalence of posttraumatic stress disorder among American Indian Vietnam veterans: disparities and context. *J Trauma Stress* 2002;**15**:89–97.
30. QUARANTELLI E. Future disaster trends and policy implications for developing countries. Newark, DE: Disaster Research Center, 1994.
31. BLANCHARD-BOEHM D. Risk communication in Southern California: ethnic and gender. Responses to 1995, Revised, Upgraded Earthquake Probabilities. Research Report. Boulder, CO: Natural Hazards Research and Application Information Center, 1997.
32. KIRSCHENBAUM A. "Terror, adaptation and preparedness: a trilogy for survival". *J Homeland Secur Emerg Manage* 2006;**3**:1, Article 3.
33. GOLTZ JD, RUSSEL LA, BOURQUE LB. Initial behavioral response to a rapid onset. Disaster: a case study. *Int J Mass Emerg Disasters* 1992;**10**:43–69.
34. KANIASTY K, NORRIS F. A test of the support deterioration model in the context of natural disaster. *J Pers Soc Psychol* 1993;**64**:395–408.
35. PERILLA JL, NORRIS FH, LAVIZZO EA. Ethnicity, culture and disaster response: identifying and explaining ethnic differences in PTSD six months after Hurricane Andrew. *J Soc Clin Psychol* 2002;**21**:20–45.
36. LOO CM, FAIRBANK JA, CHEMTOB C. Adverse Race-related events as a risk factor for posttraumatic stress disorder in Asian American Vietnam Veterans. *J Nerv Ment Dis* 2005;**193**:455–463.
37. MONTIEL C. Political trauma and recovery in a protracted conflict: understanding contextual effects. *J Peace Psychol* 2000;**6**:93–111.
38. PASTOR LH. Culture as examining the causes and consequences of collective trauma. *Psychiatr Ann* 2004;**34**:616–622.
39. SA'ADI AH. Catastrophe, memory and identity: Al-Nakbah as a component of Palestinian identity. *Isr Stud* 2002;**7**:175–198.
40. ABU-SAAD I. Separate and unequal: the role of the State Educational System in maintaining the subordination of Israel's Palestinian Arab Citizens. Social identities. *J Stud Race Nation Cult* 2004;**10**:101–127.
41. ANDERSON L. Acculturative stress: a theory of relevance to black Americans. *Clin Psychol Rev* 1991;**11**:685–702.
42. BURHIS RY, DAYAN J. Acculturation orientations towards Israeli Arabs and Jewish immigrants in Israel. *Int J Psychol* 2004;**39**:118–131.
43. OR COMMISSION. Official investigative commission to investigate the clashes between the security forces and Israeli citizens during October 2000. Jerusalem. 2003 <http://www.7th-day.co.il/medina/vadat-or.htm> [Hebrew], Accessed September 15, 2007.
44. BEN MEIR E. Israeli Arabs: to whom do they pledge allegiance? *Nativ; J Politics Arts* 2002;**15**:85.
45. EID J, JOHNSON BN, SAUS ER. Trauma narratives and emotional processing. *Scand J Psychol* 2005;**46**:503–510.
46. AL-KRENAWI A. Socio-political aspects of mental health practice with Arabs in the Israeli context. *Isr J Psychiatry Relat Sci* 2005;**42**:126–136.
47. GOODMAN R, KISH L. Controlled Selection: a technique in probability sampling. *J Am Stat Assoc* 1950;**45**:350–372.
48. CARDENA E, KOOPMAN C, CLASSEN C, WAELDE LC, SPIEGEL D. Psychometric properties of the Stanford acute stress reaction questionnaire (SASRQ). *J Trauma Stress* 2000;**13**:719–734.
49. SILVER-COHEN R, HOLMAN EA, MCINTOSCH DN, POULIN M, GIL-RIVAS V. Nationwide longitudinal study of responses to September 11. *J Am Med Assoc* 2002;**288**:1235–1244.
50. GALEA S, AHERN J, RESNICK H et al. Psychological sequelae of the September 11 terrorist attacks in New York City. *N Engl J Med* 2002;**346**:982–987.
51. SAIGH PA. The children's future orientation scale. New York: City University of New York Graduate School, 1997.
52. CARVER CS, SCHEIER MF, WEINTRAUB JK. Assessing coping strategies: a theoretical based approach. *J Pers Soc Psychol* 1989;**56**:267–283.
53. LYNN K, ROGER D. A psychometric re-assessment of the COPE questionnaire. *Pers Individ Diff* 2000;**29**:331–335.
54. ROGER D, JARVIS G, NAJARIAN B. Detachment and coping: the construction and validation of a new scale for measuring coping strategies. *Pers Individ Diff* 1993;**15**:619–626.
55. ADAMS RE, BOSCARINO JA. Differences in mental health outcomes among whites, African Americans, and Hispanics Following a Community Disaster. *Psychiatry* 2005;**68**:250–265.
56. GALEA S, VLAHOV D, RESNICK H et al. Trends of probable post-traumatic stress disorder in New York City after the September 11 terrorist attacks. *Am J Epidemiol* 2003;**158**:514–524.
57. SOMER E, RUVIO A, SOREFF E, SEVER E. Terrorism, distress and coping: high versus low impact regions and direct versus indirect civilian exposure. *Anxiety Stress Coping* 2005;**18**:165–182.
58. LEWIN TJ, CARR VJ, WEBSTER RA. Recovery from post-earthquake psychological morbidity: who suffers and who recovers? *Aust N Z J Psychiatry* 1998;**32**:15–20.
59. KANIASTY K, NORRIS F. In search of altruistic community: patterns of social support mobilization following Hurricane Hugo. *Am J Community Psychol* 1995;**23**:447–477.
60. PALINKAS LA, PETERSON JS, RUSSEL JC, DOWNS MA. Ethnic differences in symptoms of post-traumatic stress after the Exxon Valdez oil spill. *Prehosp Disaster Med* 2004;**19**:102–112.
61. HOBFOLL SE. Social and psychological resources and adaptation. *Rev Gen Psychol* 2002;**6**:307–324.
62. BALTES PB. On the incomplete architecture of human ontogeny: selection, optimization, and compensation as foundation of development theory. *Am Psychol* 1997;**52**:366–380.
63. ASPINALL LG, TAYLOR SE. A stitch in time: self-regulation and proactive coping. *Psychol Bull* 1997;**121**:417–436.
64. GROSS JJ, LEVENSON RW. Hiding feelings: the acute effects of inhibiting negative and positive emotions. *J Abnorm Psychol* 1997;**106**:95–103.
65. SHIPHERD JC, BECK JG. The effects of suppressing trauma-related thoughts on women with rape-related PTSD. *Behav Res Ther* 1999;**37**:99–112.
66. TRIANDIS H. Some dimensions of intercultural variations and their implications for community psychology. *J Comp Psychol* 1983;**1**:285–301.
67. MIROWSKY J, ROSS C. Mexican culture and its emotional contradictions. *J Health Soc Behav* 1984;**25**:2–13.
68. LAYNE CM, WARREN JS, WATSON P, SHALEV A. Risk, vulnerability, resistance, and resilience: towards an integrative conceptualization of posttraumatic adaptation. In FRIEDMAN MJ, KEAN TM, RESICK PA, eds. *PTSD: science & practice; a comprehensive handbook*. New York: Guilford, 2007:497–521.
69. RITSNER M, PONIZOVSKY A. Psychological symptoms among an immigrant population: a prevalence study. *Compr Psychiatry* 1998;**39**:21–27.
70. OYSERMAN D, KEMMELMEIER M, FRYBERG S, BROSH H, HART-JOHNSON T. Racial-ethnic self-schemas. *Soc Psychol Q* 2003;**66**:333–347.