

# Risk and Protective Factors Mediating Psychological Symptoms and Ideological Commitment of Adolescents Facing Continuous Terrorism

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**Abstract:** This study evaluated symptoms, risk, and protective factors of adolescents from six Israeli schools exposed to continuous terrorism. All children in the grades selected at each school (7, 9, and 11) were administered anonymous assessment materials measuring posttraumatic, grief, and dissociative symptoms, as well as traumatic exposure, personal resilience, and family factors. A high number of risk factors increased the likelihood of negative symptoms. Perceived personal resilience served as a protective factor against symptom development, perhaps enforced by ideology. Girls living on the West Bank had less severe posttrauma and were more willing to make personal sacrifices for their country. Proactive interventions aimed at enhancing a child's personal resilience and ability to cope with continuous stress may help protect against later symptomatology following traumatic events. Facing terrorism, political ideology may serve a double edge sword: protecting against symptom development as well as contributing to the toxic cycle of violence.

**Key Words:** Adolescents, trauma, terrorism, ideology, resilience.

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Throughout the past 4 years, Israeli children have been growing in a chronically stressful environment due to the proliferation of terrorist attacks. Life has been compromised by increased security measures, news and media coverage of attacks, and the injury or even death of loved ones. Studies that examined the impact of long-term exposure to violence on children found that repeated experiences with violence have numerous detrimental effects: depression, posttraumatic symptoms, anger, hostility, and frequent recourse to violence

and fighting to resolve interpersonal conflicts (Baker, 1990; Chimienti et al., 1989).

The effects of chronic violence may not always be overtly apparent, as children, as well as adults, have remarkable coping mechanisms for dealing with adversity. Habituation and repression seem to be paramount to a child's ability to live under unbearable conditions, and, particularly at moderate levels of exposure, some children seem to activate such defenses to the point that they may not feel deprived at all (Jensen and Shaw, 1993; Rosenthal and Levy-Shiff, 1993). When Israeli adolescents from a border town that was intermittently shelled for many years were compared with adolescents from a similar unshelled town, the former were found to report fewer daydreams about the enemy, were more compromising in their attitudes toward the Arabs, fell asleep more quickly at night, and had fewer nightmares (Rofe and Lewin, 1982). Overall, however, it is clear that living under violent conditions for extended periods of time may have a profoundly negative effect.

## RISK AND RESILIENCE FACTORS

There are various characteristics of children themselves, their environments, and their traumatic exposure that increase the likelihood of symptom development after traumatic events (risk), whereas other characteristics play a protective role, mitigating symptom development and facilitating positive adaptation in the face of adversity (resilience).

### Predisaster Vulnerability Factors

Gender (female), young age, prior psychiatric pathology, and predisaster traumatic experiences, such as home violence, divorce, or surgery, place children at higher risk for symptom development (Asarnow et al., 1999; La Greca, 2000; Laor and Wolmer, 2002; Lonigan et al., 1994; Udwin et al., 2000).

### Exposure

The most obvious correlate of symptom development following traumatic exposure is emotional (loss of relatives and friends), temporal, or physical proximity to the event (Asarnow et al., 1999; Pfefferbaum, 1997; Vogel and Verberg, 1993). Multiple exposure (being injured, seeing blood, exposure to disturbing scenes, witnessing death, and level of life threat; Green et al., 1991; Nader et al., 1990; Pynoos et

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al., 1987; Vernberg et al., 1996) predicts more severe symptoms. Displacement due to home destruction accounted for greater symptom severity in a number of studies (Chimienti et al., 1989; Laor et al., 1996, 2001), but not in a study of children with high exposure to an earthquake (Najararian et al., 1996).

### Social Support

The collapse of the community and social network is identified as a major risk factor, whereas support from parents, teachers, and classmates serves as a protective factor against the development of symptoms (La Greca, 2000; Laor and Wolmer, 2002; Seifer et al., 1992; Vernberg et al., 1996). Community involvement plays the supplementary yet important role of giving meaning to an event: it sets the parameters for expression and defines the collective or cultural significance (Laor and Wolmer, 2002).

### Family Functioning

Family climate, family functioning, and parent symptomatology greatly influence a child's long-term adjustment, severity of symptoms, and coping reactions (Green et al., 1991; Laor et al., 1996, 2001; Pfefferbaum, 1997). A mother's initial psychiatric distress and poor psychiatric functioning are associated with greater symptom severity in her children (Laor et al., 1996; 1997; Rosenthal and Levy-Shiff, 1993) and may better predict posttraumatic symptoms than direct exposure itself (McFarlane, 1987a; 1987b).

### Ideology

Ideologies held during a traumatic event can influence symptom development afterward, and experiencing a traumatic event can alter those ideologies held by the victim. In an early study on Nazi concentration camp prisoners, Bettelheim (1943) found that those individuals demonstrating the greatest degree of psychological shock and antisocial behavior were the nonpolitical middle-class prisoners who had no consistent philosophy with which to protect their integrity. Similarly, American soldiers in Vietnam who supported the war and did not express sympathetic feelings towards the Vietnamese people were less likely to have emotional disturbances following abusive violence (Yager et al., 1984).

In a study of Palestinian school children, ideological commitment protected against anxiety, insecurity, depression, and feelings of failure. Furthermore, the more political hardships they were exposed to, the more favorable their attitudes toward war and the national struggle (Punamaki, 1996). Israeli children from frequently shelled areas exhibited stronger locale patriotism and attachment to their homes and a greater appreciation for the personality trait of courage (Ziv et al., 1974). More severe posttraumatic symptoms in Israeli children were associated with a lower belief in a chance for peace, a lack of trust in Arabs, and extremely negative emotions toward Arabs (Laor et al., 2004).

This study examined a group of adolescents from six schools in Tel Aviv-Jaffa and the West Bank. We evaluated them by symptoms, personal resilience, risk factors, ideological willingness to sacrifice for the country, and family involvement to obtain information regarding the severity of

symptomatology, and both protective and risk factors. We expect to find a negative association between level of personal resilience and symptoms. We also expect that the West Bank schools will display more severe symptoms and that symptoms will increase with the addition of risk factors.

## METHODS

### Participants

The study's sample consisted of 1105 Israeli adolescents (45.6% boys, age range 12–16, mean  $\pm$  SD = 14.6  $\pm$  1.3) from six schools, four in Tel Aviv-Jaffa and two Jewish schools located in West Bank religious settlements (WB-B, a boys school, and WB-G, a girls school). Both locations, but particularly the West Bank, have been exposed to severe and frequent terrorist attacks. The sample included all students in the grades selected at each school (7, 9, and 11). TA1 is a Jewish-Arab school with children of low socioeconomic status (SES). The other schools are characterized by mixed average to high SES.

### Measures

Participants completed the following instruments in Hebrew:

1. The Traumatic Dissociation and Grief Scale (TDGS; Laor et al., 2002) consisting of 23 items measuring dissociation and grief reactions rated on a 3-point scale (1 = absent, 2 = sometimes present, 3 = often present). The authors identified four factors with acceptable internal consistency and good validity: two significantly correlated factors reflected the grief aspect of the reaction, namely irritability (e.g., I feel depressed or am in an irritable mood) and guilt/anhedonia (e.g., I feel very guilty). The other two factors, also highly correlated, represented the dissociative aspect of the response, namely body/self distortions (e.g., I find myself in places without knowing how I got there) and perceptual distortions (e.g., I feel like I'm in a movie and not in real life). Results are presented here with respect to the mean of the two factors in each domain. The internal consistency (Cronbach  $\alpha$ ) of the two domains within the Tel Aviv and the West Bank schools was satisfactory: Dissociation (0.80 and 0.72) and Grief (0.82 in both groups).
2. The Child Posttraumatic Stress Disorder Reaction Index (CPTSD-RI; Pynoos et al., 1987; Laor et al., 2001) covering 20 reactions to the traumatic event (intrusion, avoidance, numbing, and hyperarousal). Pynoos et al. (1987) classified scores as doubtful, mild, moderate, severe, or very severe. The internal consistency of the CPTSD-RI within the Tel Aviv and the West Bank schools was adequate (0.84 and 0.85, respectively). Higher scores in the TDGS and the CPTSD-RI reflect greater symptoms.
3. The Personal Resilience Scale (Laor, 2003), consisting of eight items describing expressions of personal resilience (e.g., confidence in my ability to direct my life; optimism concerning my future; ability to cope with continuous stress), rated on a 3-point scale (1 = little, 3 = a lot). The scale showed acceptable internal consistency in the Tel

- Aviv schools ( $\alpha = 0.71$ ) and slightly lower in the West Bank schools ( $\alpha = 0.66$ ).
- Participants reported stressful/traumatic experiences in the past (e.g., relocation, losses, hospitalization, divorce, birth of siblings, and so forth) as well as exposure to trauma (e.g., terrorist attack, personal injury, seeing death or severe injuries, loss of friends and relatives). A Risk Index summed up the risk factors reported by each participant. In a different study, this index was associated with more severe symptoms (Wolmer et al., 2003).
  - Participants filled out four questions concerning the extent to which their family talked about terrorist attacks, their desire to speak more/less about the issue at home, whether their parents increased or decreased their anxiety, and the level of parental involvement in their life. For each question, participants chose one out of four or five given answers.
  - Finally, participants reported their overall willingness to make sacrifices for the country (low-moderate-high) at two time points: last year and the present. A change score was computed by subtracting the two values.

**Procedure**

After obtaining permission from the Ministry of Education and parental consent, all children in those classes selected for the study filled out the questionnaires in group settings, supervised by experienced clinical and school psychologists. The meeting (January 2004) took place in the classroom and lasted about 60 minutes. To guarantee confidentiality, participants were asked to complete the questionnaires anonymously.

**Statistical Analyses**

School, age, gender, risk, family involvement and willingness to sacrifice differences on symptoms and resilience were analyzed using multivariate ANOVA followed by Duncan post hoc tests.  $\chi^2$  studied the proportion of posttrauma severity category in each school. Stepwise regression analyses were used to assess the statistical prediction of symptom domains by risk and protective factors.

**RESULTS**

**School Differences**

According to multivariate ANOVA, schools differed in the severity of symptoms reported by the students ( $F[15, 3132] = 2.74, p < 0.001$ ; Table 1). Univariate analyses followed by Duncan post hoc tests yielded significant differences for the three symptom domains: posttrauma ( $p < 0.05$ ), grief ( $p < 0.005$ ), and dissociation ( $p < 0.01$ ). Two schools reported the fewest symptoms: a Tel-Aviv school characterized by high SES (TA3), and the boys' school in the West Bank (WB-B). Students in the mixed Arab-Jewish school (TA1) reported the most severe symptoms. We found no significant school by gender interaction ( $F[9, 3108] = 0.49, p > 0.05$ ).

The two schools in the West Bank displayed the highest (10.6%, WB-B, boys' school) and the lowest (6.9%, WB-G, girls' school) percentage of children with severe posttraumatic symptoms, whereas the rates in the schools in Tel-Aviv ranged from 7.9% to 9.4% ( $\chi^2 = 37.56, df = 15, p < 0.001$ ). On the other hand, WB-B also had the highest percentage of children in the less severe symptom category (doubtful, 30.3%) compared with the other schools (14–22%). The two schools in the West Bank and the mixed Arab-Jewish school showed the highest Risk Index ( $F[5, 1099] = 9.08, p < 0.001$ ; Table 1).

A marginally significant difference concerning Personal Resilience ( $F[5, 961] = 2.05, p = 0.069$ ) followed by Duncan post hoc test ( $p < 0.05$ ) revealed that students of WB-G reported a higher level of personal resilience compared with those of WB-B and the three Jewish schools in Tel-Aviv (Table 1).

**Age and Gender**

Comparison of the various age groups (12–16 years old) on the symptom scales yielded significant multivariate differences ( $F[6, 2080] = 4.34, p < 0.001$ ). Univariate analyses were significant for Grief ( $F[2, 1044] = 6.24, p < 0.003$ ). According to Duncan post hoc tests, children in the

**TABLE 1.** Age, Risk, Symptoms and Personal Resilience According to School

	School							F	p
	Tel-Aviv				West Bank				
	TA1	TA2	TA3	TA4	WB-Boys	WB-Girls	Total		
N	199	191	138	259	150	168	1105		
% Boys	47%	50.5%	41.9%	40.9%	100%	0%	45.6%		
Age	14.6 ± 1.3	14.8 ± 1.3	14.4 ± 1.4	14.3 ± 1.3	14.0 ± 1.4	13.5 ± 1.1	14.3 ± 1.3	11.31	0.001
Risk Index	1.87 ± 1.5 <sup>a,e</sup>	1.68 ± 1.2 <sup>b,h</sup>	1.31 ± 1.2 <sup>a,b,c,d</sup>	1.44 ± 1.1 <sup>e,f,g</sup>	2.05 ± 1.3 <sup>c,f,h</sup>	1.9 ± 1.3 <sup>d,g</sup>	1.70 ± 1.3	9.08	0.000
TDGS-G	1.73 ± .53 <sup>a,b,c,d</sup>	1.62 ± .44 <sup>a</sup>	1.56 ± .44 <sup>b,e</sup>	1.68 ± .51 <sup>e,f,g</sup>	1.55 ± .53 <sup>c,f</sup>	1.57 ± .47 <sup>d,g</sup>	1.63 ± .50	4.35	0.001
TDGS-D	1.51 ± .59 <sup>a,b,c</sup>	1.35 ± .49 <sup>a</sup>	1.32 ± .43 <sup>b</sup>	1.41 ± .50	1.37 ± .53 <sup>c</sup>	1.39 ± .46	1.40 ± .50	3.13	0.008
CPTSD-RI	24.4 ± 12.6 <sup>a,b</sup>	22.7 ± 10.2	21.0 ± 11.6 <sup>a</sup>	21.9 ± 11.5	20.4 ± 12.6 <sup>b</sup>	22.5 ± 11.5	22.3 ± 11.7	2.58	0.025
Severe PS	9.1%	7.9%	9.4%	8.1%	10.6%	6.9%	8.5%		
PRS	18.1 ± 3.5	17.9 ± 3.2 <sup>a</sup>	17.6 ± 3.3 <sup>b</sup>	17.7 ± 3.2 <sup>c</sup>	17.6 ± 3.3 <sup>d</sup>	18.7 ± 3.1 <sup>a,b,c,d</sup>	17.9 ± 3.3	2.05	0.069

PRS, Personal Resilience Scale; PS, posttraumatic symptoms; TDGS-G, Traumatic Dissociation and Grief Scales–Grief; TDGS-D, Traumatic Dissociation and Grief Scales–Dissociation.

<sup>a-h</sup>Groups with same letter are significantly different according to Duncan post hoc test.

**TABLE 2.** Symptom Domains According to Risk Index Category (Means and SDs)

	Number of Risk Factors							F(6, 1076)
	0 N = 210	1 N = 296	2 N = 297	3 N = 179	4 N = 75	5 N = 14	6 N = 6	
TDGS-G	1.50 ± 0.38 <sup>a,e,g</sup>	1.55 ± 0.46 <sup>b,f</sup>	1.68 ± 0.53 <sup>c</sup>	1.71 ± 0.54 <sup>d</sup>	1.82 ± 0.48 <sup>g</sup>	1.94 ± 0.67 <sup>e,f</sup>	2.08 ± 0.39 <sup>a,b,c,d</sup>	9.13, <i>p</i> < 0.001
TDGS-D	1.27 ± 0.35 <sup>a,d</sup>	1.36 ± 0.48 <sup>b,e</sup>	1.44 ± 0.51 <sup>c</sup>	1.46 ± 0.59	1.54 ± 0.52	1.70 ± 0.92 <sup>d,e</sup>	1.75 ± 0.62 <sup>a,b,c</sup>	5.81, <i>p</i> < 0.001
CPTSD-RI	19.1 ± 9.8 <sup>a,g,k</sup>	20.9 ± 11.2 <sup>b,h</sup>	23.3 ± 12.2 <sup>c,i</sup>	23.4 ± 11.8 <sup>d,j</sup>	26.2 ± 11.2 <sup>e,k</sup>	31.6 ± 15.7 <sup>f,g,h,i,j</sup>	39.7 ± 13.8 <sup>a,b,c,d,e,f</sup>	9.36, <i>p</i> < 0.001
PRS	18.3 ± 3.0 <sup>a</sup>	18.3 ± 3.2 <sup>b</sup>	17.3 ± 3.4	18.1 ± 3.2	18.0 ± 3.7	16.1 ± 3.1 <sup>a,b</sup>	16.3 ± 3.3	3.59, <i>p</i> < 0.005

PRS, Personal Resilience Scale; TDGS-G, Traumatic Dissociation and Grief Scales–Grief; TDGS-D, Traumatic Dissociation and Grief Scales–Dissociation.

<sup>a–k</sup>Groups with same letter are significantly different according to Duncan post hoc test.

youngest age group reported the lowest level of symptoms. Perceived resilience was comparable across all age groups ( $F[4, 961] = 1.32, p > 0.05$ ).

Girls reported more severe symptoms than boys (multivariate  $F[3, 1034] = 4.41, p < 0.005$ ). Means and SDs for boys and girls respectively were as follows: grief ( $1.59 \pm 0.50$  and  $1.67 \pm 0.49$ ), dissociation ( $1.37 \pm 0.49$  and  $1.43 \pm 0.52$ ), and posttrauma ( $20.85 \pm 11.48$  and  $23.48 \pm 11.72$ ). Boys and girls were comparable regarding their level of perceived resilience ( $F[1, 952] = 1.08, p > 0.05$ ).

## Risk

Multivariate ANOVA yielded significant differences among the Risk Index subgroups regarding symptom severity ( $F[18, 3129] = 4.14, p < 0.001$ ). Univariate analyses followed by Duncan post hoc tests revealed that the three symptom domains reached statistical significance (all  $p < 0.001$ ). As Table 2 indicates, there is a consistent pattern of increased symptoms with the addition of risk factors and, having five or more risk factors is associated with significantly more severe symptoms than having two or fewer risk factors.

In addition, the proportion of adolescents reporting moderate or severe posttraumatic symptoms significantly increases with each increase in the Risk Index, as follows: zero risk factors (RFs) = 24.3%; one RF = 31.7%; two RFs = 41.7%; three RFs = 37.4%; four RFs = 57.3%; five RFs = 64.3%; and six RFs = 100% ( $\chi^2 = 81.99, df = 18, p < 0.001$ ).

The risk groups were also significantly different with regard to perceived resilience ( $F[6, 960] = 3.59, p < 0.005$ ), which decreased notably after four risk factors.

## Family Involvement

Using multivariate ANOVA followed by Duncan post hoc tests, we compared severity of symptoms and perceived

resilience to four dimensions of family involvement. (1) Having a lot of family discussions about issues related to terrorism and danger was associated with more severe symptoms ( $F[9, 3063] = 6.40, p < 0.001$ ; three symptom domains  $p < 0.001$ ). Personal resilience was not associated with the level of family discussions about such issues ( $F[3, 946] = 1.70, p > 0.05$ ). (2) Adolescents who would like much more family discussion of terrorism and danger had more severe symptoms (three domains,  $p < 0.001$ ) than participants who expressed a wish to discuss them less or the same ( $F[12, 3054] = 4.86, p < 0.001$ ). This domain was not related to perceived resilience ( $F[4, 944] = 1.44, p > 0.05$ ). (3) Adolescents who claimed that their parents raised their anxiety reported more severe symptoms (three domains,  $p < 0.001$ ) compared with those claiming that parents either helped them decrease or did not affect their level of anxiety ( $F[12, 3051] = 6.27, p < 0.001$ ). Adolescents who claimed that their parents decreased their level of anxiety reported higher personal resilience ( $F[4, 943] = 5.48, p < 0.001$ ). (4) Adolescents whose parents were overinvolved in their lives reported more severe grief and dissociative symptoms ( $p < 0.001$ ) than children who described involvement as proper. The latter also reported a higher personal resilience than the other two subgroups ( $F[2, 940] = 11.3, p < 0.001$ ).

## Integrative Analyses

Three stepwise regression analyses were conducted with each of the symptom domains as the dependent variable and with the following variables as predictors: age, gender, Risk Index, witnessing a terrorist attack, and perceived resilience (Table 3). All the predictors had significant additions to the explained variance of the dependent variables, except age, which did not enter the regression equation for Dissociation. Adolescents who reported more severe symptoms tended to

**TABLE 3.** Stepwise Regression Analyses of Four Symptom Domains

Dependent Variable	Variables Entered into the Equation	R	df	F	p
TDGD-G	Gender, age, terrorist attack, risk index, resilience	.348	5,952	26.25	0.001
TDGS-D	Gender, terrorist attack, risk index, resilience	.286	4,955	21.20	0.001
PSQ	Gender, age, terrorist attack, risk index, resilience	.349	5,945	26.16	0.001
CPTSD-RI	Gender, age, terrorist attack, risk index, resilience	.337	5,954	24.46	0.001

TDGS-G, Traumatic Dissociation and Grief Scales–Grief; TDGS-D, Traumatic Dissociation and Grief Scales–Dissociation.

be female and older, were present in terrorist attacks, had more risk factors, and reported lower personal resilience.

### Ideology: Willingness to Sacrifice Among the West Bank Children

Due to their continuous exposure to the threat of terrorist attacks and as part of their ideology, children living in the West Bank are requested to make daily sacrifices, sometimes involving their own and their family's lives. We investigated the association between the increase in the willingness to sacrifice (IWTS) during the last year and the children's level of risk, symptoms, and perceived resilience. In boys, IWTS was associated with more severe posttraumatic symptoms ( $r = 0.21, p < 0.05$ ), whereas in girls, IWTS was associated with less resilience ( $r = -0.23, p < 0.05$ ) and with more symptoms of posttrauma ( $r = 0.23, p < 0.01$ ) and grief ( $r = 0.28, p < 0.001$ ).

Next we performed two-way ANOVAs with gender and symptom/risk/resilience as between-subject variables and IWTS as the dependent variable followed by post hoc tests. Categories of perceived resilience and grief were defined by agreement by two judges to maintain content (magnitude) meaningfulness as follows: Perceived Resilience: lowest <15, low 15 to 16, moderate 17 to 18, high 19 to 20, highest >21; TDGS-Grief: lowest <1.25, low 1.25 to 1.50, moderate 1.51 to 1.75, high 1.76 to 2.25, highest >2.26 (Table 4).

Increase in the willingness to sacrifice was higher among girls ( $F[1, 245] = 2.25, p < 0.05$ ). The Gender by Risk Index interaction was not significant ( $p > 0.05$ ), but Duncan post hoc tests ( $p < 0.05$ ) showed that IWTS of girls who reported four or more risk factors was higher than that of girls reporting no risk factors.

A marginal interaction between gender and resilience ( $F[4, 212] = 2.02, p = 0.09$ ) followed by Duncan post hoc tests revealed that for girls, IWTS was higher among those with the lowest resilience compared with girls with the highest resilience, whereas for boys, a more significant IWTS was reported by those with the highest resilience compared with boys with moderate resilience (both  $p < 0.05$ ).

The IWTS of both boys and girls in the severe category of posttraumatic symptoms was greater than that of children in the least severe categories ( $F[3, 240] = 4.79, p < 0.005$ ). The same pattern was found for girls (but not for boys) regarding severity of grief symptoms ( $F[4, 131] = 2.60, p < 0.05$ ).

### DISCUSSION

The main goal of this study was to identify those factors influencing symptomatology in adolescents living in communities exposed to continuous terrorism. We found differences relating to school, risk factors, age, gender, and family factors.

Contrary to our expectation, it was the low SES Arab-Jewish school (19% Arab students), rather than the West Bank schools, that displayed the highest symptom means. One Tel Aviv school and the West Bank boy's school reported the fewest. However, the West Bank boy's school also showed the highest percentage of children reporting

**TABLE 4.** Change in Willingness to Sacrifice in the West Bank According to Gender and Risk, Resilience and Symptom Severity (N in Parentheses)

	Boys (N = 111) <sup>1</sup>					Girls (N = 139)					F Interaction/F Category	
	Lowest	Low	Moderate	High	Highest	Lowest	Low	Moderate	High	Highest		
Risk Index												
M	-.11 (9)	.10 (29)	.07 (29)	.21 (28)	.23 (13)	.15 <sup>a</sup> (19)	.34 (32)	.23 (43)	.27 (30)	.57 <sup>a</sup> (13)	$F_{\text{Inter}}(4, 236) = 0.31, p > 0.05$	
SD	.78	.72	.75	.74	.60	.37	.60	.57	.58	.65	$F_{\text{Risk}}(4, 236) = 1.30, p > 0.05$	
Perceived Resilience												
M	.17 (18)	.00 (15)	-.30 <sup>ab</sup> (20)	.22 <sup>ab</sup> (27)	.20 <sup>b</sup> (15)	.58 <sup>a</sup> (12)	.28 (18)	.35 (20)	.31 (32)	.17 <sup>a</sup> (35)	$F_{\text{Inter}}(4, 212) = 2.02, p = 0.09$	
SD	.86	.53	.86	.58	.41	.67	.57	.49	.59	.45	$F_{\text{Resil}}(4, 212) = 1.69, p > 0.05$	
TDGS-Grief												
M	.09 (35)	.18 (28)	.15 (13)	.10 (20)	.17 (12)	.18 <sup>a</sup> (40)	.23 <sup>b</sup> (30)	.31 <sup>c</sup> (29)	.24 <sup>d</sup> (21)	.69 <sup>a-d</sup> (16)	$F_{\text{Inter}}(4, 234) = 0.69, p > 0.05$	
SD	.51	.55	.99	.79	1.19	.38	.50	.71	.44	.79	$F_{\text{Grief}}(4, 234) = 4.67, p < 0.05$	
CPTSD-RI												
M	.13 <sup>a</sup> (32)	.02 <sup>b</sup> (46)	.18 (17)	.58 <sup>ab</sup> (12)	—	.08 <sup>a</sup> (26)	.31 <sup>b</sup> (58)	.29 <sup>c</sup> (38)	.73 <sup>a-c</sup> (11)	—	$F_{\text{Inter}}(3, 232) = 0.94, p > 0.05$	
SD	.61	.58	.88	.90	—	.39	.50	.65	.79	—	$F_{\text{PTSD}}(3, 232) = 4.79, p < 0.005$	

Superscript numbers represent pairs of groups (within each gender) significantly different according to Duncan post hoc tests ( $p < 0.05$ ).

severe symptoms. The West Bank girl's school showed the lowest percentage of severe cases and the highest percentage in the less severe category. Both West Bank schools and the Arab-Jewish school had the highest Risk Index, and the West Bank girl's school had significantly higher levels of personal resilience.

The study of personal resilience in trauma victims is an important addition to the traditional emphasis on risk and vulnerability factors. The results concerning the internal consistency and content validity (correlations with symptom severity, cumulative risk, parents' protection, and proper involvement) of our resilience scale for adolescents are encouraging first steps in its development. Furthermore, they join the recent effort by Connor et al. (2003) to examine this domain in adult trauma survivors.

Having five or more risk factors was associated with significantly more severe symptoms than two or less, as hypothesized, and there was a significant increase in moderate and severe symptoms with each increase on the Risk Index. This finding replicates a previous one reported after the 1999 earthquake in Turkey (Wolmer et al., 2003). Furthermore, personal resilience decreased markedly after four risk factors.

Having an adult around both during and after a traumatic event, and postdisaster family functioning, mitigate symptom development (Laor and Wolmer, 2002; Masten et al., 1990). In this study, family factors seem to regulate symptom development. Children who reported having lots of family discussion about issues related to terrorism had more severe symptoms, as did those who wanted their family to talk much more, or reported overinvolvement. Adolescents who claimed their parents decreased their anxiety and those who reported their parents' level of involvement to be proper showed higher levels of resilience.

The youngest age group (12-year-olds) had the less severe symptoms, and girls reported more severe symptoms than boys but were comparable regarding perceived resilience. A tentative profile of adolescents most likely to display severe symptoms may be an older female directly exposed to terrorist attacks with more risk factors and lower personal resilience. The gender results should be considered cautiously because in most cultures, boys are more reluctant to report symptoms (Laor and Wolmer, 2002).

Proximity and exposure are well documented as key factors influencing symptom development. As expected, our study found that children with many risk factors display more severe symptoms and lower personal resilience. This study supports the evidence that unrelated accumulated stress such as divorce, moving, or violence in the home increase a child's vulnerability (Laor and Wolmer, 2002; Laor et al., 2001; Udwin et al., 2000). Interestingly, the school reporting the most severe symptoms had two main characteristics: low SES and a mixed Arab-Jewish population. The mixed population may affect social support and unity and convey mixed messages regarding the meaning assigned to terrorism.

The association between risk and symptom level would suggest that children living in the West Bank have high levels of symptoms and low levels of personal resilience, as their

Risk Index was particularly high. Furthermore, since girls consistently report more severe symptoms than boys, the West Bank girls' school would be expected to have the highest percentage of children reporting severe symptoms. Nonetheless, these girls display the lowest percentage of severe symptoms of any school and the highest level of personal resilience. Pat-Horenczyk (2005) recently reported on lower rates of PTSD among Jewish adolescents living in the West Bank compared with adolescents living in Jerusalem. She suggests this finding relates to differences in community cohesiveness and ideology.

There is a paucity of empirical data on the relationship between ideology and the effects of traumatic exposure. Dawes (1990) notes an ideological belief structure to be integral to defense against clinical disturbance in trauma victims, and religious activities and intrinsic religiousness were found to be associated with positive coping following trauma (Linley and Joseph, 2004). Ideology is an important component of a group's social capital, particularly in groups who experience continuous existential threat. Ideology constitutes a set of ideas governing (regulating) the viable functioning of a living group of people, their basic and moral existence, and their historical evolution as mindful individuals. This definition is functionalist and, therefore, remains neutral to content and lends itself to empirical research.

The increase in willingness to sacrifice in the West Bank, a marker of ideological commitment, was higher among girls, particularly those reporting four or more risk factors, lowest resilience, and highest levels of grief and posttraumatic symptoms. Among boys, IWTS was associated with the highest reported resilience and severe posttraumatic symptoms. These results suggest a different pattern explaining the increase in willingness to sacrifice for adolescent boys and girls exposed to continuous threat. The IWTS of boys is explained by either protective (high resilience) or vulnerability factors (severe symptoms). Girls' IWTS, on the other hand, is found in those who report the highest risk, posttrauma, and grief symptoms, and the lowest resilience.

These results suggest that both high and low resilience may lead the boys to make sacrifices either justified by reference to ideology (the former) and/or as a result of vulnerability associated with high posttraumatic symptoms (the latter). For girls living in the West Bank, ideology may play a dual role. On the one hand, it can be protective: they display the lowest percentage of severe posttraumatic cases. On the other hand, it can be risk-generating: they display the highest IWTS. Girls reporting the highest resilience had the lowest IWTS, and those reporting the lowest resilience (and the most severe risk and symptoms) had the highest IWTS. Moreover, unlike boys, girls' IWTS was associated not only with risk and posttraumatic symptoms but also with grief.

Elsewhere we have shown that symptomatic children may develop a negatively distorted image of the enemy (Laor et al., 2004). Clearly, the combination of a distorted image of the enemy and the increased willingness to sacrifice may create a toxic cycle of violence. One may expect loss and grief to be associated with less willingness to sacrifice, particularly on the part of females who are less overtly

involved with enactments of violence. Our results may suggest that the combination of an existential threat in the presence of what is perceived as a justified ideology, and the need to be avenged, may lead girls to higher risk taking and acceptance of future loss. Ideology may provide adolescent girls with meaning and sense of purpose that may serve a protective function, increasing their level of personal resilience, which in turn protects against severe symptom development.

### Limitations

A major limitation of this study is the lack of a control group from areas free of terrorism. Ideally, measures would have been obtained before and after exposure to properly compare the effects of terrorism. This, however, would be virtually impossible.

All measures were obtained from the children's own reports. External informants (parent or teacher) confirming the self-reports, and the addition of validated scales would lend more validity to the findings.

Even indirect exposure seems to have an effect on the development of posttraumatic symptoms. For example, television exposure to descriptions and images of trauma are associated with later level of posttraumatic symptoms (Najarian et al., 1996; Pfefferbaum, 1997). Media exposure was not considered in this study as a factor influencing risk. Finally, a more elaborated measure of willingness to sacrifice rather than a global scale would have improved the validity of the construct.

### Clinical Implications

Nonetheless, much can be learned from our results. The study looks at many groups representative of an important segment of Israeli society and assesses their comparative propensities to pathology resulting from the conflict. The wide range of factors included by covering such a broad and large group may allow for generalization to adolescents in most places in the world—particularly important in this day and age. Information regarding risk factors and attributes of those most severely affected facilitates effective interventions. It enables those who are already suffering to be more easily identified and treated and further identifies protective factors (e.g., proper family involvement), that can be used to form effective preventative training and interventions.

Most importantly, this study identifies the significance of personal resilience in protecting children against symptom development. This can be used to direct proactive intervention programs aimed at enhancing the attributes of resilience (e.g., stress management, support, confidence, and optimism) and thereby protecting children against future symptom development. Further research integrating these findings with existing intervention and prevention techniques would be invaluable.

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