Who Are the Resilient Children in Conditions of Military Violence? Family- and Child-Related Factors in a Palestinian Community Sample

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The prevalence of resilience in the presence of military violence and the role of child and family characteristics fostering that resilience were analyzed in a Palestinian community sample using a person-based approach. The participants consisted of a random sample of 640 Palestinian children and adolescents, their parents, and their teachers, all living on the Gaza Strip. A medical examination of the children and adolescents was conducted to assess health

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status on somatic, sensory, and cognitive domains. The results revealed an equal share of resilient (21%; high level of trauma and low level of disorders) and traumatized (23%; high level of trauma and high level of disorders) children. As hypothesized, characteristics of the resilient group were good parental mental health, supportive parenting practices, good school performance, superior cognitive functioning, good physical health, high body weight, and normal birth weight. Variable-based analyses revealed no support for the hypothesis that these family- and child-related factors protect child mental health, although their direct association was confirmed. The discussion focuses on mechanisms fostering child resilience in war zones.

Attempts to win wars are not accomplished by using superior high-tech weaponry, military arms, and personnel alone. The social and psychological destruction of targeted communities are increasingly prevalent in modern warfare. Children and their families are becoming direct targets in armed conflicts, and what was usually regretted as “collateral damage” has, in some cases, become accepted war doctrine. For instance, the Dahia doctrine, endorsed by the Israeli Defense Force, uses indiscriminate and disproportionate power to cause immense damage and destruction to the adversary’s residential areas (United Nations [UN], 2009). Therefore, individual and community resiliency in the face of war trauma becomes paramount for survival. Resilient children are those who, despite exposure to severe adverse and traumatic experiences, do not suffer from significant mental health problems. Some of these children may even show high developmental competence and even become emotionally stronger following the trauma (Luthar, Cicchetti, & Becker, 2000; Masten & Coatsworth, 1998; Rutter, 2000). Heroism and self-sacrifice are highly valued in war, and anecdotes about “war children’s” impressive endurance are common. However, there is scant empirical evidence about the prevalence of and factors contributing to resilience in a war context. This study focuses on the prevalence of resilience and on family- and child-related factors that foster resilience among Palestinians living in the midst of armed conflict.

**NATURE OF RESILIENCE**

Resilience as a dynamic link between adverse conditions and psychosocial adjustment has been conceptualized either as a category—individuals who, despite exposure to severe adversity, show relatively high competence—or as a buffering factor that protects child health and developmental competence from the negative impact of trauma (Shaffer, Burt, Obradovic,
Herbers, & Masten, 2009). We could not find studies applying a categorical approach to child resilience in armed conflict, although increasing research is available on protective processes. One study identified resilience trajectories among adult survivors of terrorist attacks in Israel (Hobfoll et al., 2009), documenting the resilience rate to be 13%. Other studies have conceptualized war-related resilience as a lack of expected posttraumatic stress disorder (PTSD). For example, one study documented that 63% of survivors of a terrorist attack were resilient as measured by the absence of psychiatric disorders (Bonnano, 2004). Similarly, resilience among children in armed conflicts is commonly described as those children who show competence and a lack of mental health problems (Stichick Betancourt & Khan, 2008).

Several researchers have attempted to apply multiple criteria of resilience, including social, academic, and mental health domains, depending on the adaptation skills related to the particular traumatic stress (Luthar & Cushing, 1999; Masten, 2007). Children living in armed conflict situations have the dual challenge of securing both their physical and emotional survival while trying to accomplish normative development. The evidence is clear that accumulation of severe war trauma increases the likelihood of children’s mental health problems, including PTSD, depression, anxiety, excessive fear, and aggression (Barenbaum, Ruchkin, & Schwab-Stone, 2004; Vostanis, 2004; Yule, 2000). Consequently, it is legitimate to define resilient children in armed conflict as those who are exposed to severe loss, atrocity, and destruction, and yet lack psychiatric disorders. In other types of traumatic situations, different criteria for resilience may be emphasized. For instance, social competence and emotion regulation capacities are considered salient in family violence because these children may more easily find compensatory social experiences and extra-familial safety (Zucker, Wong, Puttler, & Fitzgerald, 2003). Resilience in the academic domain may be significant for children living in poor, violent, and deprived communities because successful school performance can lead to new, positive opportunities for those children (Fergusson & Horwood, 2003; Garmezy, 1990).

In our study of children on the Gaza Strip, we applied a classification of resilience suggested by Werner and Smith (1982), depicting the balance between the severity of trauma and emergence of mental health problems. A 2 × 2 grid was created to categorize children according to the severity of their personal exposure to military trauma (high or low) and the presence or absence of emotional and conduct disorders. This resulted in four groups of children: resilient (high trauma exposure and absence of disorders), traumatized (both high exposure and presence of disorders), vulnerable (low trauma exposure, but presence of disorders), and spared (both low exposure and absence of disorders). The resilience classification is presented in Table 1.
Child resilience has been attributed to compensating social and individual factors related to community, family, and the children themselves. Empirical evidence elucidates explanatory factors for resilience among children living in poverty (Fergusson & Horwood, 2003; Garmezy, 1990), family violence and maltreatment (Bolger & Patterson, 2003; Cicchetti, Rogosch, Lynch, & Holt, 1993), and community violence (Luthar, Doernberger, & Ziegler, 1993; O’Donnell, Schwab-Stone, & Muyeed, 2002). Child resilience is possible in communities that appreciate human rights and provide equal opportunities for education. Resilient children go to schools that typically have a respectful and stimulating learning atmosphere, with families characterized by high cohesion, secure bonding, and authoritative and supportive parenting styles (Masten & Coatsworth, 1998; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). Resilient children themselves are able to process stressful and traumatic experiences by seeking realistic causal explanations without being overwhelmed by guilt and fear (Beardslee & Podorefsky, 1988). Also, they show curiosity, prosocial attitudes, and a willingness to create novel, flexible solutions to problems (Masten et al., 1988; Zucker et al., 2003).

Despite observations of resilience among children living in armed conflicts, relatively few studies have empirically examined factors that may explain their unique resilience. Evidence is available on family and individual characteristics fostering resilience, based on analyses of protective factors moderating between severe trauma and mental health problems such as PTSD and depression (Bonnano, 2004). Stichick Betancourt and Khan (2008) identified multiple ecological layers of protective processes in the lives of war-affected children in acute and post-war settings. Social and

### TABLE 1

Conceptualization of Resiliency as a $2 \times 2$ Classification of Trauma and Psychiatric Disorders

<table>
<thead>
<tr>
<th>Exposure to traumatic events</th>
<th>Absence of disorders (none of the 3)</th>
<th>Presence of disorders (1 to 3)</th>
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<tbody>
<tr>
<td>Low exposure (2–5 events)</td>
<td>Spared children</td>
<td>Vulnerable children</td>
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<tr>
<td>High exposure (6–18 events)</td>
<td>Resilient children</td>
<td>Traumatized children</td>
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### RESILIENCE-FOSTERING FACTORS

Child resilience has been attributed to compensating social and individual factors related to community, family, and the children themselves. Empirical evidence elucidates explanatory factors for resilience among children living in poverty (Fergusson & Horwood, 2003; Garmezy, 1990), family violence and maltreatment (Bolger & Patterson, 2003; Cicchetti, Rogosch, Lynch, & Holt, 1993), and community violence (Luthar, Doernberger, & Ziegler, 1993; O’Donnell, Schwab-Stone, & Muyeed, 2002). Child resilience is possible in communities that appreciate human rights and provide equal opportunities for education. Resilient children go to schools that typically have a respectful and stimulating learning atmosphere, with families characterized by high cohesion, secure bonding, and authoritative and supportive parenting styles (Masten & Coatsworth, 1998; Olsson, Bond, Burns, Vella-Brodrick, & Sawyer, 2003). Resilient children themselves are able to process stressful and traumatic experiences by seeking realistic causal explanations without being overwhelmed by guilt and fear (Beardslee & Podorefsky, 1988). Also, they show curiosity, prosocial attitudes, and a willingness to create novel, flexible solutions to problems (Masten et al., 1988; Zucker et al., 2003).

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family-related factors fostering resilience include secure attachment relationships, appropriate peer support, and good caregiver mental health. Empirically, loving and accepting parenting has been found to buffer Palestinian children from depressive (Barber, 2001) and aggressive (Qouta, Punamäki, Miller, & El-Sarraj, 2008) symptoms in life-endangering conditions of military occupation. Loving and supportive parenting was further associated with children’s creativity and cognitive capacity, which, in turn, contributed to good psychological adjustment, despite severe trauma exposure (Punamäki, Qouta, & El-Sarraj, 2001), suggesting that motivational and cognitive-emotional functioning might be the mechanisms through which good parenting fosters resilience. One study confirmed that social support and optimal caregiver relationships promoted resilience among refugee children fleeing armed conflict (Hodes, Jagdev, Chandra, & Cunniff, 2008). Intact maternal mental health has been documented as one of the main “secrets of resilience” in many wars, including in former Yugoslavia (Smith, Perrin, Yule, Hacam, & Stuvland, 2002) and the Middle East (Qouta, Punamäki, & El-Sarraj, 2005). Finally, a sensitive mother–child relationship that enhances secure attachment can protect the offspring across their lifespan (Kanninen, Salo, & Punamäki, 2000; Mikulincer, Horesh, Eilati, & Kotler, 1999).

Individual characteristics and protective factors that may predict child resilience in armed conflicts are pre-trauma strengths and resources such as constitutional health and temperamental characteristics of curiosity and balanced emotionality, flexible and creative cognitive-emotional processing of trauma, and active and constructive coping strategies (Bonnano, 2004; Bonnano, Rennicke, & Dekel, 2005; Yule, 2000). Good cognitive capacity, involving high intelligence and self-efficacy, is considered to promote resilience both in general (Cicchetti et al., 1993; Luthar et al., 2000) and in armed conflicts and wars. A Lebanese study showed that children with sophisticated problem-solving skills, high self-efficacy, and high intelligence were at lower risk of PTSD, despite high exposure to war violence (Saigh, Yasik, Oberfield, Halamandaris, & Bremner, 2006). Flexible cognitive style involving accurate attention, learning, and making sense of experiences protected Palestinian children’s mental health from negative trauma impacts (Qouta, Punamäki, & El-Sarraj, 2001), and predicted low PTSD and depression in adolescence (Punamäki, Qouta, Montgomery, & El-Sarraj, 2007).

The classic studies on resilience focused on children with early neurobiological risks living in social-economic adversity (Garmezy, 1990; Werner, 1993) and in families where parents had mental disorders (Anthony, 1974; Hammen, 2003). Contemporary developmental research emphasizes the role of early optimal caregiving relations in fostering resilient development, despite adverse conditions, as they provide compensatory effects on
neurobiological deficiencies (Bradley et al., 1994; Curtis & Nelson, 2003). Pregnancy- and birth-related risks predict long-term developmental and health problems in children, especially when they face stress and adversity (Allen, Lewinsohn, & Seeley, 1998; Stelmach, Kallas, Pisarev, & Talvik, 2004; Strathearn, Gray, O’Callaghan, & Wood, 2001). There is evidence of impacts of famine during pregnancy on children’s future vulnerability to obstetric problems and various somatic illnesses (Susser, Brown, & Matte, 1999), and traumatic exposure to the 9/11 terrorist attacks has been found to have negative impacts on pregnancy outcomes (Mulherin Engel, Berkowitz, Wolff, & Yehuda, 2005; Yehuda & McEwen, 2004). Resilience research in armed conflict has, however, ignored good somatic health and optimal constitutional and neuropsychological functioning as possible contributors to resilient child development.

STUDY OF RESILIENT CHILDREN

Aims of the Study

The aims of this study are to examine the prevalence of resilience among children who live under conditions of war and military violence, and to analyze which family- and child-related factors foster the resilience. The resilience is defined in Table 1. First, we hypothesize that the resilient children (high trauma exposure and absence of disorders), compared to the traumatized and vulnerable children, have higher socioeconomic status and higher parental education, and the parents have better mental health and use more supportive and non-punitive parenting practices. The resilient group is expected not to differ from the spared children (low exposure and absence of disorders) in these family characteristics. Second, compared to the traumatized group, we hypothesize that the resilient group of children do better at school and, third, have better early and current health status (i.e., less ante- and perinatal complications such as low birth weight and current high body weight and good health). Fourth, we hypothesize that the resilient group demonstrates more optimal cognitive-emotional functioning (e.g., memory, problem solving, and regulation capacities) than traumatized children. The resilient children are expected not to differ from the spared group in these individual characteristics.

Furthermore, we examine whether the role of resilience-fostering family- and child-related factors differs in regard to (a) gender, (b) developmental stages (middle childhood, early adolescence, and adolescence), (c) age, (d) place of residence, and (e) family size.
METHOD

Participants

This study utilized the dataset collected on 640 children from the Gaza Child Health Survey (GCHS) conducted in Gaza in 1996 (Miller, El-Masri, & Qouta, 2000). Of the participants, 54.7% were girls and 45.3% were boys. The participants ranged from 6 to 16 years of age. The majority of participants (64.5%) were in middle childhood (6–11 years), 12.6% were in early adolescence (12–13 years), and 20.9% were adolescents (14–16 years). There were no gender differences in age groups: $\chi^2(2, N = 640) = 3.44, p = ns$. Information about children’s mental health, family issues, and traumatic experience was collected using in-depth questionnaires completed by the youth group (age 12 and up) themselves and by the children’s and youths’ parents and teachers. Also, a physical health examination was conducted on 622 children.

The original survey sample size in the GCHS was 704 children and adolescents and 669 parents. The non-completion rate was, thus, 5%, as 35 families were not reached or parents refused to participate. Only 622 children completed the physical examination because of the practical difficulty of reaching them during the occupation.

The random sample reflects the social status distribution on the Gaza Strip during the Palestinian Authority rule after the Oslo Agreement. With respect to parent education, no formal education was reported in 13.8% of mothers and 8.6% of fathers, and 20.3% of mothers and 25.2% of fathers had an elementary education (Grades 1–6). About one-fourth of both mothers (24.7%) and fathers (22.6%) had completed preparatory school (Grades 7–9), and about one-third of mothers (38.6%) and fathers (32.1%) had completed secondary education with a diploma. Finally, university education was more common among fathers (12.5%) than mothers (2.6%). The mean number of people living in each household was 9.70 (±2.95), and the mean number of children per household under the age of 16 was 6.0 (±2.4). Almost one-half (46.3%) lived in urban areas, one-fourth (24.6%) in refugee camps, one-fifth (20.6%) in villages, and 8.5% in resettled areas that are extensions of refugee camps.

The father was reported to be the main income earner in the majority (89.9%) of the families. The brother and the mother comprised the remaining main income earners in 4.3% and 2.7% of the families, respectively. Household income levels were determined by asking the respondent to indicate the job category of the main income earner and the number of months that person had worked full time in the past 1 year. This income level distribution in the sample was divided into upper (professionals,
19.6%), middle (skilled laborers 30.8%), and lower (unskilled laborers, 49.6%) social classes. Estimates of income level were utilized instead of direct inquiry, which was not considered proper.

Study Design

A two-stage random sampling design was applied. In the first stage, a list of all schools on the Gaza Strip was created. From that list, schools were stratified based on geographic location (town, refugee camp, village, or resettled area). Second, a list was prepared that included all of the pupils in those schools. That list was stratified according to gender and age, and the allocated number of students from each geographic location was randomly selected from that school list. The address of the student was obtained from the school, and the interviewers then met the parent or main caregiver of the student to obtain consent to participate in the survey. At that time, an introductory letter was presented to the parents or main caregiver describing the purpose of the survey and requirements of the research. Consent was obtained by verbal approval from the parents or main caregiver for the child participating in interviews and physical health examinations.

Eight fieldworkers administrated the questionnaires to children and parents at their homes and to the principal teacher of the child at the school. Seven of the eight fieldworkers were women. The mother was the informant in the majority of cases (76.0%). The father reported in 16.1% of cases; and in 7.9% of cases, the informer was another family member (aunt, uncle, etc.). A female pediatrician and a female nurse conducted the physical health examination in the school buildings. An authorization letter obtained from the Palestinian Authority Minister of Education facilitated the researchers’ access to the schools.

Translation of the questionnaire was conducted by members of the Palestinian research team, who are all fluent in English and Arabic. The questionnaire was translated from English to Arabic, and then independently back-translated to English. Comparison of wordings and concepts were discussed among the research team, and any differences were resolved by consensus. Special attention was paid to ensure that key phrases were expressed in colloquial Arabic specific to Gaza. The questionnaire was pilot tested in 30 randomly selected households, and the results were used to modify questions, words, and concepts that turned out to be difficult to comprehend and answer. Furthermore, test–retest reliabilities were conducted on the main instruments in the survey in 25 households. The questionnaires were administered 1 week apart. The intraclass correlation of each of the instruments ranged between 0.77 (Parent Form for Emotional Disorder) and 0.89 (Teacher Form for Emotional Disorder).
Measures

**Demographics.** Demographic factors included the father’s and mother’s education (no education, preparatory and primary school, secondary education, and university), family income status (high, middle, or low), place of residency (refugee camp, town, village, and resettled area), and family size.

**Traumatic events.** The exposure to military violence was assessed by an 18-event list modified from the War Trauma Questionnaire by Macksoud and Aber (1996). It covers events of direct physical violence targeted at the child (e.g., beaten, chased by soldiers, and bullet wounds) or indirect or witnessed events to a close person (e.g., witnessing killing or wounding of a family member or friend), psychological violence (e.g., verbal threats or preventing access to health services), material losses (e.g., home demolition), and arrest and detention of the child or family members. The parents and the child were asked whether the child had been exposed to each of these events during the First Intifada ($0 = \text{no}$ and $1 = \text{yes}$). If the answer was yes, then they were also asked to estimate how many times that exposure had occurred during the child’s or adolescent’s lifetime. A sum variable was constructed by accounting for the occurrences of the traumatic events, ranging between 2 and 18 in this sample. Unfortunately, there were no children with zero exposure, and constructing a dichotomous variable for a $2 \times 2$ grid for resilience classification is problematic. The traumatic events variable was dichotomized to indicate low (2–5 events) and high (6–18) levels of traumatic events, using the median split as a cutting point. The mean score was 5.6 ($\pm 2.38$) in the sample. The decision of the cutoff point is based on both empirical statistics and contextual analyses of the phenomenon (Luthar & Cushing, 1999). Earlier research among Palestinian children has shown a threshold, rather than a dose-effect, of trauma impact on mental health problems, the critical accumulation being five to six events (Garbarino & Kostelny, 1996).

**Emotional and conduct disorders.** These were measured using the Ontario Child Health Scale, which was applied as an interviewer-administered checklist for parents and teachers (Boyle & Pickles, 1997). The scale uses *Diagnostic and Statistical Manual of Mental Disorders* (3rd ed.; American Psychiatric Association, 1980) criteria, and consists of 34 questions that measure three mental health disorders: conduct disorder, emotional disorder, and attention deficit hyperactivity disorder. The parents and teachers were asked to rate how well the items describe the child’s
behavior on a 3-point Likert scale now or within the past 6 months; the scale ranged from 0 (never true), 1 (sometimes or somewhat true), to 2 (often or very true). The cutoff value for the resilience classification was absence or presence of disorders, and a dichotomized variable was accounted for: values were 0 = absence of disorder indicating no conduct, emotional, and hyperactivity disorders (55.5% of children) and 1 = presence of disorder indicating any of the three disorders. One-third (30.6%) had one disorder, 9.2% had two disorders, and 4.8% had all three disorders. In addition, three sum variables were constructed to indicate emotional, conduct, and total disorders by combining parents’ and teachers’ linear scores.

**Resilience classification.** This was constructed according to Werner and Smith (1982) and Fergusson and Horwood (2003), referring to children who had been exposed to severe trauma, but show absence of psychopathology. The cross-tabulation of the dichotomized variables of traumatic events and psychiatric disorders resulted in four groups (see Table 1): spared children (low exposure to traumatic events and absence of psychiatric disorder), vulnerable children (low exposure to traumatic events and presence of psychiatric disorder), resilient children (high exposure to traumatic events and absence of psychiatric disorder), and traumatized children (high exposure to traumatic events and presence of psychiatric disorder).

**Parental mental health.** This was assessed using five questions concerning the mother’s and father’s mental health during the past year. The parents responded, for both themselves and their spouses, regarding whether they had the following experiences in the past year (yes = 1 and no = 0): seeking help for nervous or emotional problems, being often sad or depressed, feeling incapable to cope with stress, receiving medication for emotional problems, and hospitalization for psychological problems. Separate sum variables were formed for mothers and fathers, ranging between zero and five.

**Parenting practices.** These were assessed by a nine-item scale (Barber, 2001) indicating parents’ approaches to discipline in a situation where the child has broken a rule. The parenting dimensions included punitive practices (e.g., from making threats to punishment), controlling practices (e.g., telling the child how to behave), and guidance and negotiation (e.g., calmly discussing the problem). Parents evaluated their own behavior toward the child, and youth separately reported their mother’s and father’s behavior toward them on a 3-point Likert scale ranging from 1 (never or rarely), 2 (sometimes), to 3 (often or always). A sum variable indicating the quality of parenting practices was constructed, which had moderate reliability
(Cronbach’s \( \alpha = .64 \) for parents’ reports and \( \alpha = .69 \) for children’s reports). The low score indicates a negative (punitive) disciplining style, and the high score indicates a positive (negotiating) style; negative items were reverse coded. For this analysis, parents’ and children’s scores were combined (\( r = .33, p < .0001 \)).

**School performance.** This was assessed using three questions for teachers: the target child’s overall grade directly scored from school assessment (scores of 1–5), grade repetition (1 = no, and 2 = yes), and the number of times of repeating the class.

**Physical health and cognitive-emotional functioning.** A female pediatrician and a female nurse conducted a standard medical examination of children’s health status and functioning. The Health Utilities Index Mark 2 (Feeny, Furlong, Boyle, & Torrance, 1995) is a standardized questionnaire that evaluates child health on six domains: sensation, mobility, cognition, emotional-behavioral, pains and complaints, and general physical health. Each domain is estimated on a 4-point scale ranging from 1 (absence of a health problem) to 4 (presence of a severe problem). The instrument has frequently been used as a global measurement of children’s physical health, and has been found valid to screen children with severe somatic illnesses and risks (Feeny et al., 1995). We formed two averaged sum variables based on exploratory factors: physical health (pains and complaints and general physical health) and cognitive-emotional functioning (cognitive and emotional-behavioral). Information on sensation and mobility was omitted due to little variation and non-importance for the hypotheses. A measure of the body mass index—the relation between child length and weight—was determined by the pediatric team.

**Ante- and perinatal problems.** These were assessed by questions to the parent: occurrence of pregnancy complications (yes or no) and their nature (e.g., blood pressure, sugar, or bleeding), gestation term, normal delivery (yes or no), birth weight (in kilograms; low is <2.500, and normal is >2.500), and health problems of the newborn (yes or no) and the nature of these problems (e.g., infection, breathing problems, or unconsciousness).

**Statistics Analyses**

The associations between demographic factors and the ante- and perinatal information and resilience category (resilient, traumatized, vulnerable, and spared children) were analyzed by cross-tables with Pearson’s chi-square statistics. To analyze the family- and child-related factors in association with
the type of resilience, one-way analyses of covariance (ANCOVAs) with Sheffe’s post hoc tests were conducted. The hypothesized predisposing variables were parental mental health, parenting practices, child school performance, physical health, and cognitive-emotional functioning; and the between-subject variable was the resilience classification. The associations between child age and family size and resilience classification was similarly analyzed by using ANCOVAs.

The linear total score of traumatic events served as a covariant because there was a possibility that the resilient group would have a lower level of traumatic events than traumatized children, although both belong to the same category of high exposure. Pretesting showed, indeed, that the traumatized group (6.64 ± 15.00) had a higher average level of traumatic events than the resilient group (5.86 ± 15.00), Sheffe’s test = 3.73, $p < .004$. No differences were found between spared and vulnerable groups in the level of traumatic events. In case the covariant turned out to be significant, we retested the hypothesized differences between resilient, traumatized, and spared groups by applying difference method contrasts to ensure the sustainability of the hypothesized associations between the resilience classification and family- and child-related factors.

The hypotheses for the family- and child-related factors fostering children’s resilience were substantiated when there were significant differences (Sheffe’s post hoc tests, $p < .01$) between the resilient and traumatized groups, and no differences (nonsignificant post hoc values) between the resilience and spared children’s groups. This logic is based on the definition of the groups: Both resilient and traumatized groups have been exposed to a high level of traumatic events, but only the latter suffers from emotional and conduct disorders. Similar to spared children, resilient children lack disorders, despite their high levels of exposure to trauma.

To analyze the role of gender and developmental stage in resilience-fostering factors, further 4 (Resilience Classification) × 2 (Gender) × 3 (Age: 6–11, 12–13, and 14–16) ANCOVAs on family factors (parental mental health and parenting practices) and child characteristics (school performance, physical health, and cognitive-emotional functioning) were performed.

RESULTS

Descriptive Statistics

Table 2 presents the means and standard deviations of traumatic events, family factors and child’s health, cognitive-emotional functioning, and
psychiatric disorders among girls and boys. No gender differences were found in the exposure to traumatic events, school performance, or physical health. Girls’ mothers and fathers reported, however, higher levels of mental health problems than boys’ parents, and parenting practices were more supportive of girls and more punitive for boys. Boys had poorer cognitive-emotional functioning than girls.

The Prevalence of Resilient Children

The results reveal a rather identical distribution of the resilience categories: 21% of children were classified as resilient, 23% as traumatized, 23% as vulnerable, and 33% as spared from both trauma and psychological disorders. Table 3 shows gender differences in the resilient and spared groups, but not
in the traumatized group. In this sample, 27% of boys and 19% of girls were resilient, and 38% of the girls and 28% of the boys were spared. Children from villages were less resilient (10.5%) than children from refugee camps, towns, or resettled areas (23.0%–27.5%). Children from refugee camps belonged more often to the traumatized group (33%) than other children (14%–22%), whereas children from villages and resettled areas were more often spared from both high trauma exposure and disorders.
Resilience Fostering Factors

**Family-related factors.** Contrary to the hypothesis, the resilient children did not typically come from families with high socioeconomic or educational status, as indicated by nonsignificant group differences in family income and mother’s education. In fact, as shown in Table 3, in the resilient group, fathers had significantly less education than in the other groups. Of the resilient children’s fathers, 12% were without formal education, and only 6% had university education, whereas the corresponding percentages were 7% and 21% among spared children, respectively. Also among traumatized children, only 4% of fathers were without education, although the university education was as rare as in the resilience group.

As hypothesized, both mothers and fathers of the resilient children had lower levels of mental health problems than parents in the traumatized groups, whereas parental mental health did not differ between the resilient and spared children (see Table 4). Also as hypothesized, supportive parenting practices were more common in the resilient than in the traumatized group, and there were no differences between the resilient and spared children. The size of extended family was not associated with child resilience; and, although the number of siblings had a significant main ANCOVA effect ($p > .05$), Sheffe’s post hoc tests did not show significant group differences.

Traumatic events turned out to be a significant covariant for maternal and paternal mental health. Difference method contrasts confirmed the earlier result that maternal and paternal mental health was significantly better in the resilient than in the traumatized group ($p < .002$ for mothers’ and $p < .003$ for fathers’ mental health) and similar or as good ($p = ns$) between the resilient and spared children.

**Child-related factors.** As hypothesized, resilience was associated with good school performance, good physical health, and optimal cognitive-emotional functioning (see Table 4). The overall school grades were higher among both resilient and spared pupils than among traumatized ones, and traumatized pupils had more often repeated classes than both resilient and spared children. Resilient children had better physical health and cognitive-emotional functioning than the traumatized group, and were at a similar level with the spared children. Resilient children had a higher body mass index than all other children’s groups. Traumatic events were a significant covariant on body mass index; and similar to Sheffe’s post hoc tests, the difference method contrasts showed that resilient children had higher body mass indexes than the traumatized group ($p < .001$); however, it also was higher compared to spared children ($p < .01$).
### TABLE 4
Means, Standard Deviations and ANCOVA Statistics of Family- and Child-Related Fostering Factors According to the Resilience Classification

<table>
<thead>
<tr>
<th>Predictors</th>
<th>Spared children</th>
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<th>Resilient children</th>
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<th>Vulnerable children</th>
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<td><strong>Family factors</strong></td>
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<tr>
<td>Mother’s mental health</td>
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<td>0.10</td>
<td>0.64&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.11</td>
<td>1.20&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.10</td>
<td>10.55&lt;sup&gt;***&lt;/sup&gt;</td>
<td>.05</td>
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<td>21.28&lt;sub&gt;a&lt;/sub&gt;</td>
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<td>19.99&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.24</td>
<td>20.21&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.24</td>
<td>9.09&lt;sup&gt;***&lt;/sup&gt;</td>
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<td>0.21</td>
<td>9.76</td>
<td>0.25</td>
<td>9.32</td>
<td>0.26</td>
<td>10.21</td>
<td>0.25</td>
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<td>.01</td>
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<td>Number of siblings</td>
<td>5.80</td>
<td>0.17</td>
<td>5.68</td>
<td>0.21</td>
<td>6.38</td>
<td>0.20</td>
<td>6.39</td>
<td>0.20</td>
<td>3.63&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.02</td>
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<tr>
<td><strong>Child characteristics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Age</td>
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<td>0.25</td>
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<td>10.90&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.24</td>
<td>15.92&lt;sup&gt;***&lt;/sup&gt;</td>
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<td>2.93&lt;sub&gt;a&lt;/sub&gt;</td>
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<td>2.63&lt;sub&gt;a,b&lt;/sub&gt;</td>
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<td>2.43&lt;sub&gt;b&lt;/sub&gt;</td>
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<td>Body mass index</td>
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<td>0.32</td>
<td>16.21&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.33</td>
<td>16.79&lt;sub&gt;a&lt;/sub&gt;</td>
<td>0.31</td>
<td>6.06&lt;sup&gt;**&lt;/sup&gt;</td>
<td>.03</td>
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<td>4.12&lt;sup&gt;*&lt;/sup&gt;</td>
<td>.02</td>
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<td>Cognitive-emotional functioning</td>
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<td>2.01&lt;sub&gt;b&lt;/sub&gt;</td>
<td>0.58</td>
<td>10.56&lt;sup&gt;***&lt;/sup&gt;</td>
<td>.05</td>
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**Note.** Scores with different subscripts indicate differences at the p < .01 significance level by Sheffe’s post hoc analyses.

<sup>a</sup>F values and size effects (η²) refer to the analyses of covariance, which included the main effect of the resilience classification, with traumatic events as a covariant.

<sup>b</sup>The parental mental health problems scale ranges from 0 (low) to 5 (high).

<sup>c</sup>The parenting practices scale, combining both parent and child reports, ranges from 1 (low) to 27 (high) regarding supportive practices.

<sup>d</sup>Overall school grade ranges from 1 to 5, as reported by the teacher.

<sup>e</sup>Dichotomous variable: 1 = yes and 2 = no.

<sup>f</sup>All health status scales range between 1 (low) and 4 (high) regarding problems and complaints.

<sup>*</sup>p < .01. **p < .001. ***p < .0001.
Concerning children’s early, antenatal, and perinatal health, the resilient children’s group had less antenatal maternal complications—\( \chi^2(3, N = 616) = 9.62, \ p < .02 \)—than traumatized children. In the traumatized group, 5% of mothers reported pregnancy complications (e.g., high blood pressure, sugar level, or bleeding), whereas no complications were reported in the resilient group. Resilient children also had more normal birth weight than other groups, but only among younger children of 6 to 11 years of age. The younger child group generally had significantly lower birth weight than early adolescents and adolescents, \( F(2, 616) = 5.01, \ p < .007 \); and the younger resilient children less often had low (<2.500 kg) birth weight compared to the younger traumatized children (3.6% and 18.4%, respectively). The corresponding percentages were 10.9% in the younger spared and 13.0% in the younger vulnerable children’s groups. Among early adolescents and adolescents, normal birth weight was not associated with resilience.

Gender and Developmental Age in Resilience

There were less girls than boys in the resilient group, whereas the genders did not differ in traumatization. The resilience classification significantly differed according to age, \( F(3, 605) = 15.92, \ p < .0001 \ (\eta^2 = .07) \). Children were older in the resilient group \( (M = 11.82 ± 0.25) \) than in other groups (e.g., traumatized, \( M = 10.90 ± 0.24 \) and spared, \( M = 10.17 ± 0.20 \)).

Significant interactions between resilience classification and gender specified that mothers’, \( F(3, 601) = 3.55, \ p < .01 \ (\eta^2 = .02) \), and fathers’, \( F(3, 617) = 4.68, \ p < .01 \ (\eta^2 = .02) \), mental health and extended family size, \( F(3, 601) = 2.49, \ p < .05 \ (\eta^2 = .01) \) were differently associated with the children’s resilience. Mothers and fathers had especially high levels of mental health problems when the daughter was traumatized, whereas there were no gender differences in other groups (see Figure 1 for fathers’ mental health). In the resilient group, girls had a larger extended family \( (M = 10.02 ± 0.37) \) than boys \( (M = 9.56 ± 0.36) \), whereas in the traumatized group, boys \( (M = 10.67 ± 0.38) \) had larger extended families than girls \( (M = 9.87 ± 0.36) \). Further, the body mass index was especially high among girls in the resilient group, as compared to boys and both genders in the other groups, \( F(3, 601) = 2.70, \ p < .05 \ (\eta^2 = .01) \). The developmental stage played a minor role in determining the role of resilience-fostering factors, as the Resilience Classification × Age interaction was significant only concerning the number of siblings, \( F(6, 593) = 2.23, \ p < .05 \ (\eta^2 = .02) \). Large family size was especially typical among adolescents in the vulnerable group, whereas age had no impact in other groups.
DISCUSSION

Despite the great burdens that war and violence place on child development, some children triumph over hardships and enjoy good mental health. We lack knowledge about how common children’s resilience is in wars and armed conflict; and consequently, our estimations are often divided. War-affected children are regarded as either “surprisingly” resilient and invulnerable or as utterly traumatized and even lost. Child resilience in war is an emotionally loaded topic, often evoking guilt in parents and adults as they witness children struggle in the face of horror and violence, and the emergence of resilience often means great relief for us, the adults.

Our results suggest that about one-fifth (21%) of children could be defined as resilient in conditions of armed conflict involving long-lasting military occupation and life-threatening trauma exposure. This percentage is lower than is generally reported among war survivors, especially those exposed to terrorist attacks. There is an estimation that more than one-half of the survivors of terrorism show resilience (Bonanno & Mancini, 2008). Of Israeli adolescents, “only” 13% showed PTSD after personally experiencing a terrorist attack, and the others were considered resilient (Pat-Horenczyk et al., 2007). Applying the classification approach to the study of resilience provides us with a more nuanced view of children who are struggling with the consequences of trauma than solely regarding them as either resilient or traumatized. A follow-up study among American children with chronic family stress and adversities documented the prevalence of 22% resilient, 7% vulnerable, 13% traumatized, and 58% spared children (Zucker et al.,
Here, it is interesting to note that the percentage of traumatized children in this study corresponds with this study and the percentage of traumatized children in the Israeli study by Pat-Horenczyk et al. In our sample, less than one-fourth (23%) of children belonged to the traumatized group (i.e., both exposed to a high level of war trauma and suffering severe psychiatric disorders). This contradicts the view, sometimes expressed in media, that whole generations living in war zones are considered traumatized, with the definition based implicitly only on the exposure to trauma.

Factors Fostering Resilience

**Family characteristics.** Researchers agree about the nature of factors fostering resilience among children exposed to various kinds of adversity. The “short list” reported among children suffering parental maltreatment, family violence, poverty, and trauma in peaceful societies includes good and loving family relationships, intact parental mental health, and socioeconomic prosperity, as well as normal cognitive development and emotional regulation (Luthar et al., 2000; Masten, 2007; Olsson et al., 2003). Our results generally concur, except for the nonsignificance of family socioeconomic status. As hypothesized, the resilient children enjoyed supportive and non-punitive parenting, and had mentally healthy mothers and fathers. The resilient children themselves were good at school, and showed high cognitive-emotional functioning. Also, they lacked somatic symptoms like excessive physical pain, and had good physical health and normal pre- and postnatal histories.

We argue that the factors fostering resilience share common cultural characteristics, as family support and developmental achievements contributed to resilience not only in the aforementioned research but in this study in the context of armed conflict and Arab Islamic culture. Masten (2007) suggested that the secret of children’s resilience simply lies in the optimal operation of ordinary human adaptation systems involving collective, familial, and individual domains. She referred to these fostering forces as “ordinary magic.” On the other hand, although similar family- and child-related factors enhance resilience in adversity both in peaceful and war-torn societies, there are also decisive differences in their content and meaning. The significance of optimal parental mental health and parenting practices may serve as an example. The existence of “ordinary magic” in extraordinary and life-endangering conditions demands remarkable balancing, buffering, and protective efforts, as this example of a family we interviewed illustrates:

... a group of Israeli soldiers entered by force one Palestinian home in which a family of seven was living. The soldiers destroyed the furniture, threw the
kitchen tools and urinated inside those tools. They kept all the family in one closed room, not allowing the children to move anywhere, not even to toilet. When the children cried, the army officer opened the door and started to shout. . . . The siege continued for five days. The mother did her best to calm the children by telling stories and fairytales to them, and asking them to draw topics such as their recent picnics to the sea [italics added]. Yet, the mother felt as failing in the task of protecting her children because, as she said, the youngest children till now believe that the soldiers are still in the house, and they still are clinging to parents, are afraid and fear sleeping alone.

This example offers a glimpse of the mother’s insightful parenting practices aimed at buffering her children’s psychological stability by distracting their attention from danger, focusing their memories in safe places, recalling joyful events, and simply trying to soothe their distress. Mentally healthy and competent parents are probably more capable of regulating their own fears and providing a safe family atmosphere, despite the threats they face. Therefore, they can succeed in calming the frightened children and providing assurance of hope, safety, and recovery. A similar buffering process by mothers has been documented among Israeli families in the midst of shelling during the first Gulf War, which, in turn, predicted children’s successful recovery from PTSD (Laor, Wolmer, & Cohen, 2001).

The previous illustration also reveals that the mother expressed feelings of failure and despair, although, undeniably, she had made her best efforts, which were extraordinary and insightful. Her guilt feelings were due to the fact that she had not been successful in preventing her children from experiencing the stressful events. There was no possibility for her children to be invulnerable, but she could enhance their recovery, which can be considered resilience (Hobfoll et al., 2009). The feelings of guilt are similar to those observed in Israeli families (Lieblich, 1978). Although good parenting practice attenuates children’s fear and suffering, parents tend to blame themselves for letting their children grow up in dangerous and hateful environments, and they feel an overwhelming responsibility for the negative impact of war. Research confirms that restricting, anxious, and punitive parenting styles are more common in trauma-affected families, reflecting both parental concern as well as diminished energy or capacity to care (Barber, 2001; Punamäki, Qouta, & El-Sarraj, 1997).

Contrary to our hypothesis, child resilience was not dependent on the family’s socioeconomic status, indicated by parental education and economic status. On the contrary, in the resilient group there were more fathers without formal education than in the traumatized group. This is unexpected because it is generally agreed that families with high socioeconomic status and well-educated parents possess resources and knowledge that enables
optimal child development (Conger & Elder, 1994). Safety, security and sense of trust, and parental availability are the primary sources of child well-being, and their role becomes especially important in life-endangering conditions of war and military violence. These mental, intimate, and spiritual characteristics do not necessarily depend on economic status, although educated parents are expected to share more knowledge about children’s needs. Similarly, an earlier study among Palestinian families found that uneducated mothers were especially able to protect their children’s mental health in extreme life danger (Qouta et al., 2005). The authors speculated that higher parental, especially maternal, education can also bring negative elements to parent–child relationships, such as absence from home and the presence of work stress, which may interfere with the development of children’s resilience.

Children’s characteristics. We found evidence that good health and constitutional functioning were important for child resilience in military violence and armed conflict. As hypothesized, resilient children were characterized by superior cognitive functioning, involving good capacity for memory, problem-solving skills, and learning abilities. They also managed to regulate their emotions, be compliant and attentive during task performance, and showed no disruptive behavior. These results are important for two reasons: their academic success and recovery from war trauma.

Good academic performance is accepted both as a decisive determinant and consequence of child resilience. Our results concur with the findings on American children living in a violent, neglectful, and discriminating environment (Fergusson & Horwood, 2003; Garmezy, 1990) and in adverse family conditions involving violence and alcohol abuse (Zucker et al., 2003). The reason for academic success enhancing resilience is that it creates new social opportunities, increases self-esteem, allows compensatory experiences, and invites encouragement from significant adults (Pagani, Boulerice, Vitaro, & Trebley, 1999). Military violence and national struggle may increase the importance of education and academic success. In the Palestinian society, high educational attainment can compensate for the parents’ political and national losses and humiliations (Garbarino & Kostelny, 1996). Well-performing children are likely to receive encouragement and admiration, which, in turn, can contribute to resilience.

Enriching and balancing cognitive-emotional processing of traumatic experiences is a core element of interventions provided to children in armed conflicts. Cognitive-behavioral therapy (CBT) has been found to be effective in reducing PTSD and other anxiety disorders and depression among traumatized children in peaceful (Taylor & Chemtob, 2004) and war-time societies (Peltonen & Punamäki, 2010). CBT facilitates cognitive-emotional and
symbolic processes and narrative capacities, and invites new and flexible attributions and explanations of the effects of war-related stress. Resilience research can contribute to the optimal choice and tailoring of the intervention methods.

As hypothesized, the resilient children had both better current health and more optimal ante- and perinatal health. As compared to traumatized children, they were free of excessive pain, discomfort, and exhaustion; and they lacked general health problems. Currently, the Gaza Strip has been under internationally supported Israeli siege and economic blockade since 2007, and there is an increased concern about the severe health consequences due to the shortage of medicine and food and the contamination of water supplies (UN Office for the Coordination of Humanitarian Affairs, 2009). Our results contribute to that worry, as they show how important physical health and sufficient nutrition are for children’s mental well-being and resilience. Sufficient body weight was especially salient among resilient girls, who apparently need comprehensive mental and physiological resources during their transition from childhood to adolescence. This result underscores the urgency for integrating nutritional, developmental, and general mental health research, especially in armed conflicts that have lasted over generations, such as this one in the Middle East.

Our findings suggest that early biological and constitutional strengths (i.e., non-problematic pregnancy and normal birth weight) were characteristic of resilient children, whereas traumatized and vulnerable children had had more risky pre- and perinatal history. This result coincides with other research showing that maternal prenatal stress and anxiety can result in obstetric and neonatal problems that can amplify the vulnerability of infants (Caspi et al., 2002; Plomin, Asbury, & Dunn, 2001). In our study, we did not collect data about maternal mood and distress during the pregnancy; however, younger children (6–11 years) did more often have non-normative birth weights, which, although speculative, may be explained by the fact that their mothers were pregnant during the very violent years of the First Intifada.

Concurring with general research on child gender and development, our results suggest that it was easier for boys to be resilient, whereas girls can be more vulnerable when falling victim to severe trauma (Schaal, Elbert, & Neuner, 2009). Yet, unlike the gender differences found in other studies of children under war conditions (Durakovic-Belko, Kulenovic, & Dapic, 2003), Palestinian boys and girls were equally represented in the group of traumatized children. Parental mental health problems were especially high among traumatized girls, which again may reflect their greater sensitivity when facing both military trauma and family adversity. Our findings concur with research on adults that unanimously regards women as more
vulnerable to PTSD and depression (Breslau, 2004). Finally, our results showed relatively few gender-specific factors related to resilience either for families or for children.

Concerning other demographic factors, older children were more often resilient than younger children. Village children were less often resilient and more often vulnerable than children from towns, refugee camps, and resettled areas. This result may reflect the fact that Palestinian children living in Gaza villages lack the social structure and ideological support that is characteristic of life in towns and especially in refugee camps. High vulnerability may also refer to village children’s infrequent access to health care under conditions of military siege and restricted movement. Because vulnerable children are easily forgotten in conditions of war and violence, we need to know more about the specific needs of vulnerable and traumatized groups to be more effective in tailoring the assistance they receive.

Limitations of Our Research

Categorizing resilience as a typology is open to criticism due to the ambiguity about choosing cutoff points of exposure to traumatic events. As there were no children with zero exposure, we followed statistical and empirical knowledge for choosing the cutoff points. Concerning psychiatric symptoms, clinically critical thresholds were available, as there was a sufficient subgroup of children without emotional and conduct disorders. The use of regression models with interaction terms is often recommended when analyzing protective, buffering, and moderating effects of variables (Baron & Kenny, 1986). This maintains linearity and is especially warranted when dealing with imprecise categorization. Following that advice, we conducted a variable-based analysis of resilience. Yet, no hypothesized protective effect indicating resilience was found, although the main effects concurred with the results of the person-based analyses. Our choice of a person-focused approach may also be criticized for not adequately depicting the phenomenon of resilience. Resilience is likely not an either/or phenomenon, but children may be resilient to varying degrees and in different domains of development. Further, in our “natural laboratory of danger and threat,” traumatized children may have been exposed to a higher level of traumatic events than the resilient group. Accordingly, we used traumatic events scores as covariants, which have moderated the problems caused by the typology method.

Our conceptualization of resilience as the absence of psychiatric disorders also is open to criticism. Theoretically, resilience in traumatic conditions does not only mean keeping one’s head above water, but also possibly blossoming and finding positive experiences amid the chaos (Luthar et al., 2000). The next step in understanding preconditions of resilience in war should,
therefore, include positive emotions, happiness, posttraumatic growth, and empowerment as outcome variables.

Unfortunately, we had no possibility of following these Palestinian children longitudinally, and lack knowledge of how stable their resilient or traumatized statuses are. Our cross-sectional procedure also prevents us from analyzing how future developmental and traumatic experience would affect the different groups. A final criticism of our study is its very setting, which allowed us to look only for individual and family characteristics of resilience. We need to move toward a more comprehensive analysis of psycho-physiological, emotional, cognitive, and social processes that may explain resilience in a variety of extremely burdensome and dangerous situations such as war.

Contribution to Peace Psychology

An important question is whether children’s mental health in armed conflict is associated with their ability and willingness for reconciliation and empathy toward the enemy. War trauma is caused by the enemy, and it has been suggested that such suffering increases children’s aggressiveness and desire for revenge. We could trace, however, only two studies confirming that severe exposure to war trauma was associated with increased aggressive behavior among Croatian (Kerestes, 2006) and Palestinian (Qouta et al., 2008) children. Yet, the latter study revealed that loving and supportive parenting practices could moderate the link between trauma and aggression. On the other hand, we have evidence that suffering and being a victim can also lead to peaceful activities and increased empathy. Historically, the Hibakusha movement provides an example; and in the Middle East, there are a number of active peace groups composed of people on both sides of the conflict, such as families who lost their children in war or individuals who have served as soldiers or been political prisoners (Abuelaish, 2011; see also http://cfpeace.org/). Empirical evidence is scarce on how personal exposure to war trauma and its mental health consequences are affecting children’s intergroup beliefs and attitudes toward peace. Thus, it is important that we extend the scope of resilience studies to cover victims’ moral development, social psychological group dynamics, and political responses to armed conflict.

BIOGRAPHICAL NOTES

Raija-Leena Punamäki is a professor of psychology at the University of Tampere and the University of Helsinki, Finland. Her research focuses on preventive interventions among trauma-affected children and infant development.
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Eyad El-Sarraj is a psychiatrist and human right activist. He is the founder of the Gaza Community Mental Health Program, Palestine. His research specializes in impacts of war, military violence, and human rights abuse on human development and well-being.

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