Effect of trauma on the mental health of Palestinian children and mothers in the Gaza Strip

A.A. Thabet,[1] Y. Abed[1] and P. Vostanis[2]

أثر الرضوح على الصحة النفسية لدى الأطفال الفلسطينيين وأمهاتهم في قطاع غزة

عبد العزيز ثابت، ويحيى عابد، وبانوس فوستانيس

خلاصة: أجريت دراسة مقطعية على 286 طفلاً فلسطينياً تتراوح أعمارهم بين 9–18 عاماً وعلى أمهاتهم في قطاع غزة. وقد تم استقصاء الأحداث التي أدت إلى الرضوح لدى الأطفال الذين يعيشون في مناطق الصراع ومعدل انتشار التفاعلات الكربية التالية للرضوح والعلاقة بين صحة الأطفال النفسية وصحة الأمهات النفسية. وقد استخدم لقياس الحصيلة سلم قياس تأثير الرضوح والقائمة التفقدية لحصر الأحداث الراضحة في غزة، واستبيان الصحة العامة. وقد تبين أن الأطفال قد عانوا من عدد من الأحداث الراضحة يصل في المتوسط إلى أربعة وأن ثلث هؤلاء الأطفال قد أبلغ عن إصابته بدرجة خطيرة من التفاعلات الكربية التالية للرضح. وقد كانت نتائج النُقَط على سلم قياس تأثير الرضوح أعلى بين الإناث وبين الأمهات اللواتي تم استقصاؤهن باستخدام استبيان الصحة العامة مما يشير إلى مدى أهمية تلك النُقَط في توقع ما يصيب الأطفال من الكروب.

ABSTRACT A cross-sectional study was conducted among 286 Palestinian children 9–18 years of age and their mothers in the Gaza Strip. Traumatic events recollected by children living in areas of conflict, the prevalence of post-traumatic stress reactions and the relationship between children's and mothers' mental health were investigated. The Gaza Traumatic Events Checklist, Impact of Event Scale (IES) and General Health Questionnaire (GHQ) were used to measure outcome. Children experienced on average four traumatic events; one-third reported significant post-traumatic stress reactions. IES scores were higher among girls and mothers' GHQ scores significantly predicted children's IES scores.

Effet des traumatismes sur la santé mentale des mères et des enfants palestiniens dans la Bande de Gaza

RESUME Une étude transversale a été réalisée chez 286 enfants palestiniens âgés de 9 à 18 ans et leurs mères dans la Bande de Gaza. Les évènements traumatiques dont se souviennent les enfants qui vivent en zone de conflit, la prévalence des réactions de stress post-traumatique et la relation entre la santé mentale des enfants et des mères ont été examinés. La liste récapitulative des évènements traumatiques de Gaza, l'Echelle d'impact de l'évènement (IES) et le Questionnaire général sur la santé ont été utilisés pour mesurer le résultat. Les enfants ont eu en moyenne quatre évènements traumatiques ; un tiers d'entre eux signalaient d'importantes réactions de stress post-traumatique. Les scores IES étaient supérieurs chez les filles et les scores du Questionnaire général sur la santé pour les mères prédisaient de manière significative les scores IES des enfants.

[1]*School of Public Health, Al-Quds University, Gaza, Palestine.*
[2]*University of Leicester, Greenwood Institute of Child Health, Leicester, United Kingdom.*

Introduction

Exposure to traumatic experiences has been well established as a cause of post-traumatic stress disorders (PTSD) and other types of psychopathology among children and adults. This has been found in many cross-sectional and longitudinal studies from war zones such as Lebanon [*1*], Kuwait [*2*], Croatia [*3*], Bosnia [*4,5*] and Sudan [*6*].

Rates of mental health problems in children exposed to traumatic experiences have been reported to be as high as 40%–50% [*7*], depending on measures used and diagnostic criteria. Some studies have established a link between severity of mental health problems and exposure to war trauma, such as witnessing death, injury or torture [*4*]. Important mediating factors have been displacement of the family from its community and support network [*3*] and socioeconomic adversity, particularly among refugees [*7*]. Mental health problems, particularly PTSD, may have enduring effects, both following migration to another country [*8*] and in later life [*9*].

In a previous study [*10*], we investigated the impact of long-standing armed conflict [(the *intifada*), between 1987 and the Oslo peace treaty in 1993] on Palestinian children. A high proportion (41%) reported moderate to severe PTSD reactions and high rates of general mental health problems (26.8%). Baker established a high prevalence of behavioural and emotional disorders during the same period of political and military violence [*11*]. Despite the lack of intervention, as the peace process was consolidated, children's PTSD reactions had decreased to 10% at a 1-year follow-up. However, a substantial proportion (21% as rated by parents and 32% as rated by teachers) still presented with general mental health problems, which were best predicted by the number of violent events experienced in earlier life [*12*]. Qouta et al. also found a reduction in emotional problems and increase in self-esteem among children aged 11–12 years following the peace treaty [*13*].

During September 2000, the Al-Aqsa *intifada* erupted. Within 9 months, 560 Palestinians had been killed, 141 of them children under 18 years, and 26 258 were wounded, approximately 4000 with permanent handicaps 437 of whom were children [*14*]. Children and families have since been exposed to a variety of traumatic events, ranging from hearing of killing to bombardment by helicopters in the Gaza Strip. The current conflict differs from the previous *intifada*, in which events such as night and day raids were common occurrences.

In this study we investigated the nature of traumatic events recollected by children; the impact of war trauma on the mental health status of Palestinian children living in the Gaza Strip; and the relationship between the mental health of children and mothers.

Methods

Ideally, we would have liked to reassess the sample of our previous studies [*10,12*]. However, because of the political situation, it was not possible to access all areas in the Gaza Strip, especially in the south, because of curfews and blockades. Therefore, a new stratified random sample was selected. Stratification was made according to localities. Two of eight camps in the Gaza Strip, one of eight villages, and one of six cities were selected.

The study sample comprised children between 9 years and 18 years of age. The population pyramid of the Gaza Strip, which is representative of the age and sex

distribution of the area, shows that 50.2% of the population is under 15 years of age. The 0–4 years age group still constitutes the largest proportion of the population (18.6%), followed by the 5–9 years age group (15.6%), the 10–14 years age group (12.7%) and the 15–19 years age group (10.4%) [*15*].

Data were collected between November and December 2000 during the Al-Aqsa *intifada*. A sample of 286 Palestinian children living in the Gaza Strip aged 9–18 years (mean age 13.9 years) and their mothers participated in the study.

Written informed consent was obtained from the mothers and children following a description of the study. There were 156 (54.5%) boys and 130 (45.5%) girls, of whom 93 (32.5%) came from the Maghazi refugee camp, 77 (26.9%) from the Nusirate refugee camp, 68 (23.8%) from Gaza city and 48 (16.8%) from the village of Zawaida. Of the children, 75 (26.2%) were in elementary school (9–12 years), 107 (37.4%) in primary school (13–15 years) and 104 (36.4%) in secondary school (16–18 years) (Table 1).

Table 1 **Demographic characteristics of the children**

Characteristic	No.	%
Sex		
Male	156	54.5
Female	130	45.5
Area of residence		
Refugee camp	170	59.4
City	68	23.8
Village	48	16.8
Level of education		
Elementary	75	26.2
Primary	107	37.4
Secondary	104	36.4
Total	286	

The mean age of the children was 13.8 years, age range 9–18 years.

The Gaza Traumatic Event Checklist is a checklist in which 10 events that commonly occur during times of political and military violence in the Gaza Strip are rated by children as a dichotomy, "no" or "yes". Children who reported four events or less were classified as "low exposure", those who reported five or more events were classified as "high exposure". The split half reliability of the scale was high ($r = 0.76$). Internal consistency of the scale, calculated as Chronbach alpha, was also high ($\alpha = 0.74$).

The Impact of Event Scale (IES) [*16*] is widely used in the study of PTSD in children. This 15-item scale was developed to measure the two most characteristic aspects of post-traumatic psychopathology, namely the strength of unpleasant, intrusive thoughts and the energy spent in trying to block them out of consciousness [*17*]. The intrusive subscale of IES measures the signs and symptoms of intrusion, i.e. invading or disturbing cognition and affects. The avoidance subscale of the IES measures avoidance behaviours, i.e. denial or the blocking of thoughts and images. Items are rated as "never" (0), "rarely" (1), "sometimes" (3) or "often" (5). Yule and Udwin [*18*] estimated a cut-off point of 40 or above for the presence of PTSD according to DSM-III diagnostic criteria. In the current study, the split half reliability of the scale was high ($r = 0.57$). Internal consistency of the scale, calculated as Chronbach alpha, was also high ($\alpha = 0.60$).

The 28 items of the General Health Questionnaire (GHQ) [*19*] were completed by mothers. This questionnaire was administered to mothers only because we were looking for relationships between mother's and child's mental health. This is a standardized self-reported measure of psychi-

atric morbidity in adults, with established norms in the general population (4/5 cut-off point in most populations). It includes four scales of somatic symptoms, anxiety, social dysfunction and depression. Questionnaires were administered by eight fieldworkers from the Education Psychology Department on the same day as the interviews of the children. The fieldworkers had received child and family mental health training at the Child and Family Counselling and Training Centre and training in the use of the child interview and other instruments by the first author. Instructions and questionnaires were administered in Arabic. These instruments have been widely used in different cultures. In this study, the split half reliability of the scale was high (r = 0.89). Internal consistency of the scale, calculated as Chronbach alpha, was also high ($\alpha = 0.91$).

Descriptive statistics were used to present the characteristics of the sample. Chi-squared, the Student t-test or the non-parametric Mann–Whitney U test were used for differences between groups. Within-group associations between continuous variables were evaluated by either Pearson or Spearman correlation coefficient depending on the distribution of the data (traumatic events and IES scores were normally distributed, but GHQ scores were not). Logistic regression analyses were used to investigate the association between independent (experience of trauma and sociodemographic variables) and dependent variables (child or maternal psychiatric caseness).

Results

The mean number of traumatic events experienced by children during the *intifada* was 4 [standard deviation (SD) = 2.2], with a range of 0–10 events. Furthermore,

Table 2 **Children's exposure to trauma (n = 286) by sex, age and residence**

Characteristic	Low exposure (4 events or fewer) No.	%	High exposure (5 events or more) No.	%	χ^2
Sex					
Male	87	55.8	69	44.2	$df = 1$
Female	90	69.2	40	30.8	5.4*
Age (years)					
9–12	59	61.5	37	38.5	$df = 2$
13–15	43	50.6	42	49.4	8.6*
16–18	75	71.4	30	28.6	
Place of residence					
Gaza city	27	39.7	41	60.3	$df = 3$
Maghazi camp	75	80.6	18	19.4	31.1***
Nusirate camp	41	53.2	36	46.8	
Zawaida village	34	70.8	14	29.2	

*Significant at P < 0.05.
***Significant at P < 0.001.
df = degrees of freedom.

177 children (61 9%) had low exposure levels (4 or fewer events) and 109 (38.1%) had high exposure levels (5 or more events). Boys were significantly more exposed to high trauma than girls ($\chi_1^2 = 4.89$, $P = 0.027$). Age was not significantly correlated with the total number of traumatic events (Pearson correlation $r = 0.055$, $P = 0.36$). Children from primary school classes (13–15 years of age), however, had significantly higher exposure levels than children in elementary and secondary classes ($\chi_2^2 = 8.6$, $P = 0.01$). Children living in the urban area were significantly more likely to have high exposure levels than children living in the two refugee camps or in the rural area ($\chi_3^2 = 32.1$, $P = 0.000$) (Table 2).

The most common type of traumatic event was seeing victims' pictures on television (264, 92.3%), followed by witnessing bombardment and shelling (239, 83.6%). The least common type of traumatic event was being shot with rubber/plastic or real bullets (37, 12.9%) (Table 3).

The most common PTSD reactions, i.e. items rated as occurring most or all of the time, were waves of strong feelings about the event (49%), being distressed when thinking about the event (40.9%) and reminders of the event (40.9%) (Table 4). Mean IES scores were: total, 35.03 (SD = 10.7); intrusion, 19.6 (SD = 7.5); and avoidance, 15.4 (SD = 6.9). Girls had significantly higher total IES scores than boys (mean scores 36.8 and 33.5 respectively) ($t = 2.6$, $P = 0.010$). Also, girls had higher intrusion scores (mean scores 20.8 and 18.6 respectively) ($t = 2.5$, $P = 0.015$). There was no association between age and IES scores. Total IES scores were significantly correlated with both intrusion ($r = 0.77$, $P < 0.000$) and avoidance scores ($r = 0.72$, $P < 0.000$). The total number of traumatic events was significantly correlated with IES avoidance subscale scores ($r = 0.14$, $P = 0.02$). Using Yule and Udwin's

Table 3 **Traumatic events experienced by the 286 children**

Traumatic event	No.	%
Watching pictures of mutilated people and martyrs	264	92.3
Witnessing bombardment of people and houses	239	83.6
Tear gas inhalation	103	36.0
Hearing of the killing of a friend	99	34.6
Witnessing the shooting of a friend	91	31.8
Hearing of the killing of a close relative	80	28.0
Witnessing the killing of a friend	73	25.5
Witnessing the killing of a close relative	64	22.4
Witnessing the shooting of a close relative by rubber/plastic or real bullets	61	21.3
Being shot by rubber/plastic or real bullets	37	12.9

Table 4 **Responses of the 286 children using the Impact of Event Scale**

Item	Never %	Rarely %	Sometimes %	Always %
1. I thought about it when I did not mean to	18.2	18.2	32.9	30.8
2. I avoided letting myself get upset when I thought about it or was reminded of it	11.9	15.0	32.2	40.9
3. I tried to remove it from memory	35.8	14.0	31.2	18.9
4. I had trouble falling asleep or staying asleep because of pictures or thoughts about it that came into my head	29.0	20.6	30.4	19.9
5. I had waves of strong feelings about it	10.5	14.3	26.2	49.0
6. I had dreams about it	24.5	21.3	32.2	22.0
7. I stayed away from reminders of it	40.2	18.9	25.9	15.0
8. I felt as if it had not happened or it was not real	49.0	16.4	19.6	15.0
9. I tried not to talk about it	40.2	21.3	22.0	16.4
10. Pictures about it popped into my mind	11.2	18.9	31.5	38.5
11. Other things kept making me think about it	8.7	14.7	35.7	40.9
12. I was aware that I still had a lot of feelings about it, but I did not deal with them	19.9	22.0	25.5	32.5
13. I tried not to think about it	39.5	22.4	23.8	14.3
14. Any reminder brought back feelings about it	14.0	16.1	40.9	29.0
15. My feelings about it were kind of numb	64.7	12.9	10.5	11.9

cut-off score of 40 or above for PTSD [*17*], 98 children (34.3%) met the criteria. Children with PTSD came mainly from urban areas (Gaza city: $\chi^2_3 = 31.1$, $P < 0.000$).

The mean GHQ score was 10.8 (SD = 7.2). Using the 4/5 cut-off score [*18*], 218 mothers (76.2%) scored within the clinical range of general psychiatric morbidity. Significantly, mothers with mental health problems were mothers of children with PTSD; 159 of the mothers who rated with caseness according to GHQ scores (72.9%) were mothers of children who reported PTSD, whereas 59 of non-case mothers (21.1%) had children who reported PTSD ($\chi^2_1 = 13.9$, $P < 0.0000$) (Table 5).

All IES and GHQ scales were significantly correlated. For example, total GHQ scores were associated with total IES (Spearman rank correlation, $r = 0.33$; $P < 0.000$), intrusion ($r = 0.24$, $P < 0.000$) and avoidance scores ($r = 0.27$, $P < 0.000$). Total GHQ scores for the mothers were significantly correlated with the total number of traumatic events experienced by their children ($r = 0.22$, $P < 0.000$).

The relationship between traumatic events and maternal and child psychopa-

Table 5 **Child's post-traumatic stress disorder (PTSD) and mother's mental health**

GHQ assessment of mother	Child with PTSD (IES ≥ 40) No.	%	Child without PTSD (IES ≤ 39) No.	%	Statistical data
Caseness	159	72.9	33	48.5	$\chi^2 = 13.9$****
Non-case	59	27.1	35	51.5	

****Significant at P < 0.0001.*
GHQ = General Health Questionnaire.
IES = Impact of Event Scale.

thology was also investigated with a series of multiple logistic regression analyses. Caseness on the GHQ (cut-off score = 4/5) was initially entered as the dependent variable in a step-wise logistic regression, with demographic variables, total number of traumatic events, and children's IES scores as the covariates. Having a male child (β = 1.41, $P < 0.000$) and the number of traumatic events experienced by the child (β = 0.23, $P = 0.003$) were the strongest predictors of presence of maternal psychopathology, or caseness. A logistic regression included the presence of children's PTSD as the dependent variable, with demographic variables, total number of traumatic events and mothers' GHQ scores as the covariates. Presence of PTSD was best predicted by living in Gaza city (β = 1.47, $P = 0.001$) and by the maternal total GHQ score ($\beta = 0.098$, $P < 0.000$).

Discussion

Our findings suggest that the impact of political and armed conflict on Palestinian children is both severe and widespread. This appears to have happened within a brief period with the outbreak of violence in the area. In addition to witnessing bombardment or other violent acts, the vast majority experienced indirect trauma through watching television or hearing of killings through adults. These mechanisms, which traumatize children, have previously received little attention.

Compared to other types of conflict in war zones, events were not as acute and did not result in the displacement of children. For example, studies in Croatia and Bosnia described events such as death or injury of a family member and friend, exposure to enemy attacks such as shelling, witnessing violent acts, being in a shelter, loss of home, loss of personal belongings, separation from family members, being held in detention, sustaining injuries, damage to property and missing school, with children often recollecting a mixture of events [*3,5,20,21*]. These were usually combined with chronic or subsequent socioeconomic adversities. Despite these differences in the nature of the military and political violence and the maintenance of family and social support networks in the Gaza Strip, the impact on children was found to be as high as in previous studies of children of war. Mean total IES scores of 35.05 for Palestinian children compare with 33.3 among non-displaced and 41.5 among displaced Croatian children [*3*], 36.9 among Bosnian children [*22*] and 33.2 among Bosnian children placed with foster families after the war [*5*].

The rate of significant PTSD reactions, in comparison to previous cut-off scores, was also high (34.3%). Although boys were more exposed to conflict, girls were more likely to experience PTSD reactions, which is also consistent with previous findings [3, 22]. The high exposure of pre-adolescent children (13–15 years of age) to trauma was consistent with previous studies [11].

Mothers' psychopathology was a strong predictor of children's PTSD symptoms, while the opposite was not found. This association has been established in both the general population and families exposed to violence [23]. Traumatized mothers are at risk of transferring their fears, anxiety and other symptoms to their children, which in turn make them vulnerable to developing further mental health problems. This mechanism can sustain such problems in the future [24] and indicates the need for interventions aimed at children and their parents.

Our study has methodological limitations, such as the lack of psychiatric interviews or the measurement of PTSD reactions in mothers. Also, there is a potential cultural bias in the psychiatric questionnaires [25], although both the IES and the GHQ have been widely used with different cultural groups.

The high level of mental health needs of children in armed conflicts has attracted attention from organizations such as the United Nations Children's Fund and has led to calls for the development of a United Nations force to protect them [26]. Identification of children most at risk of developing PTSD and other psychiatric disorders can be achieved through the collection of information about their experiences during the conflict and their appraisal of events, as well as screening methods for high-risk communities. Interventions should preferably target schools and community groups as an integral component of psychosocial support [27] rather than conventional psychiatric treatment, which is more appropriate for selected cases.

References

1. Macksoud M, Aber L. The war experiences and psychosocial development of children in Lebanon. *Child development*, 1996, 67:70–88.
2. Nader K et al. Preliminary study of PTSD and grief among the children of Kuwait following the Gulf Crisis. *British journal of clinical psychology*, 1993, 32:307–16.
3. Kuterovac G, Dyregrov A, Stuvland R. Children in war: a silent majority under stress. *British journal of medical psychology*, 1994, 67:363–75.
4. Goldstein R, Wampler NS, Wise P. War experiences and distress symptoms of Bosnian children. *Pediatrics*, 1997, 100:873–8.
5. Papageorgiou V et al. War trauma and psychopathology in Bosnian refugee children. *European child and adolescent psychiatry*, 2000, 8:84–90.
6. Paardekooper B, De Jong J, Hermanns J. The psychological impact of war and the refugee situation on south Sudanese children in refugee camps in northern Uganda. *Journal of child psychology and psychiatry*, 1999, 40:529–36.
7. Hodes M. Refugee children may need a lot of psychiatric help. *British medical journal*, 1998, 316:793–4.
8. Almqvist K, Brandell-Forsberg M. Refugee children in Sweden: post-traumatic

stress disorder in Iranian preschool children exposed to organized violence. *Child abuse and neglect*, 1997, 21:351–66.

9. Savin D et al. The Khmer adolescent project. III. A study of trauma from Thailand's site II refugee camp. *Journal of the American Academy of Child and Adolescent Psychiatry*, 1996, 35:384–91.
10. Thabet AA, Vostanis P. Post-traumatic stress reactions in children of war. *Journal of child psychology and psychiatry*, 1999, 40:385–91.
11. Baker A. The psychological impact of the *intifada* on Palestinian children in the occupied West Bank and Gaza. *American journal of orthopsychiatry*, 1990, 60:496–505.
12. Thabet AA, Vostanis P. Post-traumatic stress disorder reactions in children of war: a longitudinal study. *Child abuse and neglect*, 2000, 24:291–8.
13. Qouta S, Punamaki RL, El-Sarraj E. The impact of the peace treaty on psychological well-being; a follow-up study of Palestinian children. *Child abuse and neglect*, 1995, 19:1197–208.
14. *Impact of al-Aqsa intifada on health* [press report]. Gaza, Ministry of Health, Palestinian National Authority, June 2001.
15. *The status of health in Palestine. Annual Report 1999*. Gaza, Ministry of Health, Palestinian National Authority, 1999.
16. Horowitz M, Wilner N, Alvapez W. Impact of event scale: a measure of subjective stress. *Psychosomatic medicine*, 1979, 41:209–18.
17. Dyregrov A, Kuterovac G, Barath A. Factor analysis of the impact of event scale with children in war. *Scandinavian journal of psychology*, 1996, 37:339–50.
18. Yule W, Udwin O. Screening child survivors for PTSD: experience from the 'Jupiter' sinking. *British journal of clinical psychology*, 1991, 30:131–8.
19. Goldberg D. *Manual of the general health questionnaire*. Windsor, nferNelson, 1978.
20. Macksoud M. Assessing war trauma in children: a case study of Lebanese children. *Journal of refugee studies*, 1992, 5:1–15.
21. Ajdukovic M. Displaced adolescents in Croatia: sources of stress and post-traumatic stress reaction. *Adolescence*, 1998, 33:209–17.
22. Hussain SA et al. Stress reactions of children and adolescents in war and siege conditions. *American journal of psychiatry*, 1998, 155:1718–9.
23. Ajdukovic M, Ajdukovic D. Psychological well-being of refugee children. *Child abuse and neglect*, 1993, 17:843–54.
24. Laor N et al. Israeli preschool children under scuds: a 30-month follow-up. *Journal of American Academy of Child Adolescent Psychiatry*, 1997, 36:349–56.
25. Thabet AA, Stretch D, Vostanis P. Child mental health problems in Arab children: application of the Strengths and Difficulties Questionnaire. *International journal of social psychiatry*, 2000, 46:266–80.
26. Southall D, Abbasi K. Protecting children from armed conflict: the UN convention needs an enforcing arm. *British medical journal*, 1998, 316:1549–50.
27. Yule W. From pogroms to "ethnic cleansing": meeting the needs of war affected children. *Journal of child psychology and psychiatry*, 2000, 6:695–702.