

EFFECT OF TRAUMA ON PALESTINIAN CHILDREN'S MENTAL HEALTH IN THE GAZA STRIP AND WEST BANK

ABDEL AZIZ MOUSA THABET*

Assistant Professor of Child and Adolescent Psychiatry, Al Quads University, School of Public Health, Gaza PO Box 5314.

TAISIR ABDULLA

Associate Professor of Psychology, Dean of Research Al Quads University

MOHAMMED-WAFAIE A. ELHELOU

Professor of Educational Psychology, Faculty of Education, Islamic University, Gaza. P.O. Box 108

PANOS VOSTANIS

Professor of Child and Adolescent Psychiatry, University of Leicester, Greenwood Institute of Child Health, Westcotes House, Westcotes Drive, Leicester LE3 0QU, UK

INTRODUCTION

A number of studies have attempted to understand the psychological mental health status of Palestinian children by examining their coping with trauma within a socio-political context. In a study by Qouta, Punamaki, & El Sarraj (1997) of Gazan children during and after the first Intifada, levels of neuroticism and self esteem following personal trauma were studied in relation to personal resources and in a political context. Following the signing of The Oslo Accords in 1993, a reduction of these levels of neuroticism and self esteem was observed. Active participation in the Intifada was also shown to increase self-esteem. These observations were in agreement with

* Correspondent.

previous studies in Palestinian children where political activity during the Intifada increased children's self-esteem (Baker, 1990).

A detailed examination of the mental health status of Palestinian children in the Gaza Strip was described by Thabet & Vostanis (1998) where the prevalence of anxiety problems was 21.5% and teachers reported even higher rates of mental health problems (43.4%). In another study, a high prevalence of post traumatic stress disorder (PTSD) as well as conduct and deficit hyperactivity disorders were observed. In Gaza, the prevalence of moderate/severe PTSD reactions was (41%), psychiatric cases on the Rutter A2 scale were detected in (26.8%), which correlated with detection of PTSD reactions, but not with teacher-detected psychiatric cases (Thabet & Vostanis, 1999).

One-year later, the rate of children who reported moderate to severe PTSD reactions had decreased to 10.0%. Forty-nine children (20.9%) were rated above the cut-off for mental health problems on the Rutter A2 (parent) Scales, and 74 children (31.8%) were above the cut-off on the Rutter B2 (teacher) (Thabet & Vostanis, 2000). In our study, a decrease in the rates and severity of PTSD and in general mental health problems relative to their rates during the first Intifada was observed.

Using several psychometric tools, Miller, El-Masri, Allodi, & Qouta, (1999) in a study of Palestinian children in the Gaza Strip reported a high prevalence of emotional (36.3%) and behavioural (34.9%) problems, while the prevalence of moderate-to-severe PTSD was 39.5%. There is a relative scarcity of studies comparing the psychological mental health of children in the West Bank to those in the Gaza Strip. Baker (1990), comparing the mental health of children in the West Bank and Gaza, revealed that the prevalence of specific psychological and behavioral problems (e.g. fighting, feeling depressed) was higher among children from the West Bank than those of Gaza. Also, Zakrisson, Shahan, Mortaja & Hamel (2004) in a study of prevalence of psychological morbidity among Palestinian children living in the southern Bethlehem District of the West Bank during July 2000, using the Rutter A2 (parent) Scale filled out by a parent of each of the 206 subject children (ages 6 to 13 years) found a rate of psychological morbidity of 42.3% among Palestinian children.

Studies were conducted of children in other conflict areas, i.e. Rwandan children more than a year after the genocide which revealed that 79% of the children interviewed had a score of 17 or higher on the revised IES measure (Impact of Events Scale, (Horowitz, 1979); (Dyregrov, Gupta, Gjestad, & Mukanoheli (2000). In a study of 2,976 Bosnian children between the ages of 9 and 14 years, Smith, Perrin, Yule, Hacam, & Stuvland (2002) found that 52% were diagnosed with PTSD according to IES-13 items scale using 17 cut-off points.

Studies of West Bank children which revealed high levels of psychological distress were conducted during the previous Intifada. There is a need to study children in the present Al Aqsa Intifada to determine the effect of trauma on the psychological morbidity of Palestinian children who continue to live under the difficult conditions of military occupation.

We, therefore, specifically focused on prevalence of exposure to trauma, PTSD, and the relationship of these disorders to other mental health problems.

The following research questions will be tested:

1. What is the prevalence of trauma, PTSD, and mental health problems in children living in the Gaza Strip and West Bank?
2. Are there differences between children living in the Gaza Strip and the West Bank in sociodemographic characteristics due to violence, trauma, PTSD, and other mental health problems?
3. Is there an association between trauma due to exposure to violence and PTSD?
4. Is there an association between trauma and mental health problems?
5. Is there an association between PTSD and mental health problems?
6. What are the predictors of PTSD and mental health problems?

METHODS

SAMPLE

A multi-stage random sample design was followed in order to answer the research questions. A random sample of 200 children from 15 UNRWA schools in Gaza (United Nations Refugee and Work Agencies, 1999) and 150 children from 8 schools from Bethlehem and East Jerusalem participated in the research. Permission of the education department of UNRWA to enter the schools to collect data was granted prior to administration of the questionnaires. Within the 23 schools, an additional 16 children were randomly selected and questionnaires for approximately 350 children between the ages of 6-15 years old were completed by the children and teachers in the schools and by the parents at home. Table 1 presents background data for the subjects in the study.

Children from the Gaza area range in age between 6-13 years old (Mean=9.49, SD=2.2) whereas the children in the West Bank were between 9-15 years old (Mean=10.05, SD=1.6). The sample of children consisted of 199 children from Gaza: 102 males (51.3%) and 97 (48.7%) females, and 150 children from the West Bank, 77 (51.7%) males and 73 (48.3%) females.

Abdel Aziz Mousa Thabet, Taisir Abdulla, Mohammed-Wafaie
A. Elhelou, Panos Vostanis

Data collection was done by a team of professionals, who held BA degrees in psychology and sociology and had been trained to do this research. A parent (the mother in all cases) signed a consent form that was read to them, outlining the purpose of the study and questionnaire. The data were collected between February and March 2003 during the Al Aqsa Intifada.

Place of residence showed that the sample from Gaza lived in the following areas: North Gaza 19.1%, Gaza town 23.6% central Gaza 29.6%, Khan Younis 16.1%, and 11.6% from Rafah area In the West Bank 65.3% came from Bethlehem and 34.7% from East Jerusalem. Families in the Gaza Strip were significantly larger in family size (having 8 and more children) than those in the West Bank (25.6% vs. 14%).

Unemployment was higher among fathers in the Gaza Strip than in the West Bank (29.1% vs. 17.3%), however, there were more fathers working as civil employees in the Gaza Strip (53.8% vs. 35.3%). There were differences in family income between the two sites; there were more families with low income from the Gaza Strip (52.8%) than from the West Bank (41.1%).

Table 1. Sociodemographic characteristics of the study population (N=349)

Item	Gaza (N=199)		West Bank (N= 150)	
	No.	%	No.	%
<i>Age in years</i>				
6	22	11.1		
7	28	14.1		
8	23	11.6		
9	21	10.6	4	2.7
10	31	15.6	29	19.3
11	28	14.1	26	17.3
12	29	14.6	34	22.7
13	17	8.5	22	14.7
14	0	0	24	16.0
15	0	0	11	7.3
<i>Mean age (SD)</i>	9.5 (1.2)		12.05 (2.2)	
<i>Sex</i>				
Male	102	51.3	77	51.7
Female	97	48.7	73	48.3
<i>Place of residence</i>				
North Gaza	38	19.1		

Effect of Trauma on Palestinian Children's Mental Health
in the Gaza Strip and West Bank

Item	Gaza (N=199)		West Bank (N= 150)	
	No.	%	No.	%
Gaza	47	23.6		
Central Gaza	59	29.6		
Khan Younis	32	16.1		
Rafah	23	11.6		
Bethlehem			98	65.3
East Jerusalem			51	34.7
<i>Paternal job</i>				
Unemployed	47	29.1	26	17.3
Simple worker	19	9.5	40	26.7
Professional worker	8	4.0	14	9.3
Employee	106	53.8	52	35.3
Merchant	19	8.5	18	11.3
<i>Paternal education</i>				
Illiterate	3	1.5	5	3.3
Preliminary	9	4.5	11	7.3
Primary	29	14.6	25	16.7
Secondary	48	24.1	40	26.7
Diploma	42	21.1	32	21.3
University degree	52	26.1	25	16.7
Graduate degree	16	8.0	12	8.0
<i>Maternal job</i>				
House wife	166	83.4	117	78.0
Employee	3	1.5	6	4.0
Simple worker	26	13.1	26	17.3
Merchant	4	2.0	1	0.7
<i>Maternal education</i>				
Illiterate	10	5.0	5	3.3
Elementary	7	3.5	15	10.0
Primary	20	10.1	25	16.7
Secondary	88	44.2	49	32.7
Diploma	55	27.6	27	18.0
University degree	19	8.5	29	17.3
High education	2	1.0	3	2.0

Abdel Aziz Mousa Thabet, Taisir Abdulla, Mohammed-Wafaie
A. Elhelou, Panos Vostanis

Item	Gaza (N=199)		West Bank (N= 150)	
	No.	%	No.	%
<i>Number of siblings</i>				
4 and less	52	26.1	57	38.0
5-7 siblings	96	48.2	72	48.0
8 and more siblings	51	25.6	21	14.0
<i>Family monthly income</i>				
Low (Less than 300 US\$)	104	52.8	62	41.1
Middle (301-750 US\$)	74	37.2	60	40.0
High (751-1000 US\$)	18	9.0	19	13.3
Very high (1001 US\$ and above)	3	1.0	9	5.3

MEASURES

Gaza Socioeconomic status Questionnaire (Thabet & Vostanis, 1998)

The socio-economic data presented in Table 1 were collected using the Gaza Socio-economic status Questionnaire, to screen for families' income, number of siblings, paternal and maternal occupation. This questionnaire was used in previous studies in the same area (Zakrison et al, 2004).

Gaza Traumatic Event Checklist (GTEC, Thabet and Vostanis, 1999)

The Gaza Traumatic Event Checklist consists of 19 items covering different types of traumatic events that a child may have been exposed to in the particular circumstances of the regional conflict, which differ from those of traditional war conflicts. This checklist can be completed by children of 6-16 years ('yes' or 'no' statements). The internal consistency of the scale, calculated using Cronbach's alpha was $\alpha=0.72$. Children were asked about the events they had experienced in the preceding 24 months, i.e. since the onset of the current uprising – the second Intifada (also called the Al Aqsa Intifada). The GTEC has been used in previous studies of Palestinian children (Thabet, Abed, & Vostanis, 2001, 2002, 2004).

Impact of Event Scale (IES, Horowitz, 1979)

The IES is widely used in the assessment of trauma reactions 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 (Dyregrov & Raundalen, 1996) (Dyregrov, Gjestead & Raundalen, 2002). The Intrusive sub-scale of the Impact of Event Scale draws upon the signs and symptoms of intrusive (invading, disturbing) cognition and affects. The avoidance sub-scale of the IES draws upon avoidance behaviour, denial or the blocking of thoughts and image. Each question is answered on a 4-point scale (*Not at all, Rarely, Sometimes, Often*), scored 0, 1, 3, 5 with no reversed items. The total score thus ranges from 0 to 75 on this 15-item scale. Yule and Udwin (1991) set a cut-off point of 40 or above on the IES as indicative of PTSD. Concurrent validity of this scale was supported by low to moderate correlations for the IES with measures of anxiety and depression. The overall moderate, rather than high, correlations suggest that the IES assesses a construct that was similar to anxiety and depression, but also has a distinct component, consistent with the concept of PTSD. There is some support for discriminate validity. IES scores have differentiated between British girls who had and had not been traumatized (Yule and Udwin, 1991), between adolescent Cambodian refugees with and without PTSD (Sack, Seely, Him, & Clark, 1998), between Cambodian refugees living in the United States and living in refugee camps (Savin, Sack, Clark, Meas, & Richart, 1996), and among French children with varying levels of exposure to an industrial disaster (Vila, Witowski, Tondini, Perez-Diaz, Mouren-Simeoni, & Jouvent, 2001). The IES shows moderate sensitivity and specificity for a diagnosis of PTSD based on a structured diagnostic interview (Sack et al., 1998). In our previous study, the split half reliability of the scale was ($r = .57$) and Cronbach's alpha was ($\alpha = .60$) (Thabet et al., 2001). In this study the internal consistency of the scale, calculated using Cronbach's alpha was ($\alpha = .60$).

Strengths and Difficulties Questionnaire (SDQ – Goodman, 1997)

The questionnaire is one of the most commonly used scales in the assessment of children's strengths and difficulties in child psychiatry (Goodman, 1997, (Goodman, Meltzer & Bailey, 1998) , (Goodman & Scott, 1999).

It consists of 25 items, 14 describe perceived difficulties, 10 perceived strengths and one is neutral ('gets on better with adults than with other children'). Each perceived difficulties item is scored on a 0-2 scale (not true, somewhat true, certainly true). Each perceived strengths item is scored in the reverse manner, i.e. 2: not true, 1: somewhat true, 0: certainly true. There are two versions of this questionnaire, one for parents and one for children. The internal consistency of the parents' version, calculated using Cronbach's alpha, was $\alpha=0.50$. The internal consistency of the teachers' version, calculated using Cronbach's alpha, was $\alpha=0.58$. The 25 SDQ items are divided into scales of Hyperactivity, Emotional Problems, Conduct Problems, Peer Problems and Prosocial Scale (five items per scale). A score is calculated for each scale (range 0-10) and a total difficulties score for the four scales (excluding prosocial behaviour, which

was considered different from psychological difficulties), i.e. a range of 0-40. The SDQ has been previously used in the Palestinian culture (Thabet & Vostanis, 2000, 2004).

STATISTICAL ANALYSIS

Descriptive statistics were used to present the characteristics of the sample. Chi-square, t-test, or non-parametric Mann-Whitney U, and Kruskal-Wallis test was used for between-group differences. Within-group associations between continuous variables were assessed by Spearman correlations. Logistic regression analyses were conducted to investigate the association between independent variables (experience of trauma and sociodemographic variables) and dependent variables (child or mental health problems).

RESULTS

PREVALENCE OF EXPOSURE TO TRAUMATIC EVENTS IN CHILDREN LIVING IN THE GAZA STRIP AND WEST BANK

The results of the GTEC indicated that Palestinian children in the Gaza Strip and the West Bank had been exposed to a variety of traumatic events. The most common traumatic events in the Gaza Strip were: watching mutilated bodies and wounded people on TV (95%), witnessing bombardment of other homes by airplanes and helicopters (82.4%), and witnessing firing by tanks and heavy artillery on a neighbour's home (50.8%). Similarly children in the West Bank reported commonly the following traumatic events: watching mutilated bodies and wounded people on TV (91.3%), witnessing bombardment of other homes by airplanes and helicopters (89.3%), tear gas inhalation (72.7%), and witnessing firing by tanks and heavy artillery on a neighbour's home (68%).

Table 2: Place of residence distribution and traumatic experiences (Traumatic Events Checklist) (N = 349)

Traumatic events	Gaza (N = 199)		West Bank (N=150)		χ^2
	N	%	N	%	
Witnessing beating of close relative	10	5.1	71	47.3	84.9**
Witnessing beating of a friend	23	11.6	24	16.7	ns
Witnessing of killing of close relative	23	11.6	68	45.3	50.6**
Hearing about killing of a friend	59	29.6	55	36.7	ns

Effect of Trauma on Palestinian Children's Mental Health
in the Gaza Strip and West Bank

Traumatic events	Gaza (N = 199)		West Bank (N=150)		χ^2
	N	%	N	%	
Hearing about killing of close relative	61	30.7	109	72.7	60.2**
Witnessing shooting of a close relative	88	44.2	50	33.3	4.2*
Witnessing shooting of a friend	189	95	137	91.3	ns
Tear gas inhalation	68	34.3	55	36.7	ns
Witnessing a night raid	18	9	42	28	21.5**
Witnessing a day raid	32	16.1	49	32.7	13.2**
Witnessing home demolition of a friend	24	12.1	23	15.3	ns
Witnessing demolition of your home	19	9.5	39	26	16.7**
Witnessing firing by tanks and heavy artillery on your home	164	82.4	134	89.3	ns
Witnessing firing by tanks and heavy artillery of neighbour's home	30	14.1	62	41.3	30.3**
Witnessing bombardment of other homes by airplanes and helicopters	101	50.8	102	68	10.4**
Watching mutilated bodies and wounded people on TV	16	8	20	13.3	ns
Witnessing arrest of a close relative	17	8.5	28	18.7	7.8**
Witnessing arrest of a friend	53	26.6	37	24.7	ns

* p = 0.05, **p = 0.01, *** p = 0.001

NUMBER OF TRAUMATIC EXPERIENCES

Palestinian children were exposed to a large number of traumatic experiences during the Intifada. Of a total of nineteen possible exposures, the scores ranged between 0 and 15. The mean number of traumatic experiences in the Gaza Strip was 5.1 (SD = 3.4) and in the West Bank was 7.5 (SD = 4.7). This difference is significant ($t_{(256)} = -5.4, p = 0.001$).

DIFFERENCES IN TRAUMATIC EVENTS

In comparing frequency of traumatic experiences according to place of residence, 49.3% of Gaza children experienced few traumatic events (0-4 events), 44.7% experienced a moderate number of traumatic events (5-9 events), and 6% experienced many traumatic events (10 and more events). Similarly, 43.6% of West Bank children experienced few traumatic events, 40.7% experienced a moderate number of traumatic

events, and 24.7% experienced many traumatic events. Children from the West Bank reported disturbance in a larger number of traumatic events than the children from the Gaza Strip ($\chi^2 = 25.7$, $d.f = 2$, $p < .001$).

PREVALENCE OF POST TRAUMATIC STRESS REACTIONS

Children's post traumatic stress reactions scores on the IES ranged between 0 and 61.

Eighty-seven (39.2%) of children from the Gaza Strip reported post traumatic stress disorder (40 and above in IES) compared to 51 (34%) of children from the West Bank. The mean IES score for the Gaza Strip children was similar to that for the West Bank children.

RELATIONSHIPS BETWEEN TRAUMA AND PTSD

In comparing level of traumatic experiences and PTSD (scoring 40 and more in Impact of Events Scale), 35.7% of children with PTSD reported mild trauma (0-4 events), 41.1% reported moderate trauma (5-10 events), and 23.2% reported many traumatic events (11 and more events).

The association between exposure to traumatic events and PTSD symptoms was investigated. IES scores were significantly associated with the total number of experienced traumatic events (Spearman rank correlation coefficient: $r=0.24$, $p=0.001$). The same applied to each IES subscale: intrusion ($r=.29$, $p = 0.000$) and avoidance ($r=0.11$, $p=0.03$). Children scoring within the likely clinical PTSD range had experienced significantly more traumatic events (Mann-Whitney U test: $z=-3.3$, $p=0.001$).

In order to test the predictive value of specific traumatic events on PTSD symptoms, total IES scores were entered as the dependent variable in linear multiple regressions, with the 19 types of traumatic events as the covariates. The event that was significantly associated with IES scores was witnessing the beating of a close relative ($B=9.20$, $SE=2.9$, $Beta=0.21$, $t=3.15$, $p=0.002$), witnessing the killing of a close relative ($B=-17.050$, $SE=3.2$, $Beta=-.35$, $t=-5.17$, $p=0.000$), hearing about the killing of a friend ($B=-5.49$, $SE=1.9$, $Beta=-0.17$, $t=-2.8$, $p=0.005$), day raids by soldiers ($B=5.03$, $SE=2.5$, $Beta=0.14$, $t=2.0$, $p=0.04$), and witnessing home demolition of a friend ($B= 6.5$, $SE=1.9$, $Beta=0.21$, $t=3.4$, $p=0.001$).

As the effect of traumatic events on PTSD symptoms might have been mediated by sociodemographic variables, in a subsequent linear regression, IES scores were again

entered as the dependent variable, with sociodemographic variables and the total number of traumatic events as the predictors. The total number of traumatic events remained the strongest predictor ($B=0.95$, $SE=0.19$, $B=0.27$, $t=4.9$, $p=0.001$) followed by low family income ($B=-8.7$, $SE=-0.04$, $B=0.14$, $t=-2.14$, $p=0.03$).

PREVALENCE OF GENERAL MENTAL HEALTH PROBLEMS USING SDQ

Using SDQ for parents and teachers, 72 children (36.9%) from Gaza were rated as having caseness (were considered as having a problem) by parents using (17-40) cut-off points compared to 44 (29.3%) from the West Bank. There were statistically significant differences between the two sites in which children from the Gaza Strip showed more mental health problems according to their parents ($\chi^2 = 10.7$, $d.f = 2$, $p < .005$).

Seventy two children (38.5%) from Gaza were rated as having caseness by teachers using (16-40) cut-off points compared to 46 (30.7%) from the West Bank. There were statistically significant differences between the two sites in which children from the Gaza Strip showed more mental health problems according to their teachers ($\chi^2 = 8.5$, $d.f = 2$, $p < .01$).

Regarding hyperactivity, 38 children (19.4%) from the Gaza sample were considered hyperactive by their parents compared to 13 (8.7%) from the West Bank. ($\chi^2 = 11.7$, $d.f = 2$, $p < .002$). According to their teachers, 28 (14.7%) of children from the Gaza strip were hyperactive compared to 19 (12.7%) from the West Bank ($\chi^2 = 5.5$, $d.f = 2$, $p < .05$). Also, parents of children from the Gaza Strip significantly reported more conduct symptoms according to SDQ than in the West Bank (34.7% vs. 25.3%). ($\chi^2 = 10$, $d.f = 2$, $p < .007$). Significantly, teachers of children from the Gaza Strip reported more conduct symptoms (33.3%) more than those from the West Bank (21.3%) ($\chi^2 = 11.7$, $d.f = 2$, $p < .002$).

Children from the Gaza Strip were not different from those in the West Bank in emotional subscale symptoms reported by parents (20.5% vs. 25.3%) ($\chi^2 = 3.9$, $d.f = 2$, $p < .13$). There were no differences found on the emotional subscale symptoms reported by parents and teachers of children from the Gaza Strip and children in the West Bank (17.5% vs. 18.7%) ($\chi^2 = 3.5$, $d.f = 2$, $p < .16$).

Table 3. General mental health problems rated by teachers and parents

	Gaza		West Bank		χ^2
	NO.	%	NO.	%	
SDQ caseness according to parents	72	36.9	44	29.3	10.7**
SDQ caseness according to teachers	72	38.5	46	30.7	8.5*
Hyperactivity rated by parents	38	19.4	13	8.7	11.7**
Hyperactivity rated by teachers	28	14.7	19	12.7	5.5*
Conduct problems rated by parents	68	34.7	38	25.3	10.0**
Conduct problems rated by teachers	63	33.3	32	21.3	11.7**
Emotional problems rated by parents	40	20.5	38	25.3	
Emotional problems rated by teachers	33	17.5	28	18.7	

Total difficulties scores of children as rated by parents and teachers were significantly correlated (Spearman rank correlation coefficient: $r=0.43$, $p=0.000$). The ratings by these two informants were also significantly correlated for all three clinical subscales, i.e.: hyperactivity $r=0.38$, $p=0.001$; conduct problems $r=0.34$, $p=0.003$; emotional problems $r=0.32$, $p=0.001$). Among the sociodemographic variables, the period of father's unemployment was the strongest predictor of psychiatric cases on the SDQ according to parental ratings (stepwise logistic regression: $B=0.15$, $p=0.05$). Females were rated significantly higher by parents on emotional problems than males within both the 11- and 16-year-old band (Mann Whitney U test: age 11, $z=2.40$, $p=0.016$; age 16, $z=3.14$, $p=0.002$). No significant sex differences were detected in the younger age bands.

TRAUMA AND CHILDREN'S GENERAL MENTAL HEALTH PROBLEMS

Forty three of the children reported as psychiatric cases according to SDQ parents (37.1%) reported mild traumatic events, while 42 of them (36.7%) reported moderate traumatic events, and 31 of them (28.8%) reported many traumatic events. Thirty-six of children (30.5%) rated as psychiatric case by teachers reported mild traumatic events, 56 of them (46.5%) reported moderate traumatic events, 26 of them (22%) reported many traumatic events.

Table 4. Severity of traumatic events and child mental health problems (N=349)

	Few		Moderate		Many		χ^2
	No	%	No	%	No	%	
Caseness according to SDQ parents	43	37.1	42	36.2	31	26.7	28.8***
Caseness according to SDQ teachers	36	30.5	56	47.5	26	22	22.3***
Hyperactivity rated by teachers	15	31.9	15	31.9	17	36.2	23.8***
Hyperactivity rated by parents	19	37.3	19	37.3	13	25.4	6.6
Conduct problems rated by parents	36	34	50	47.2	20	18.9	8.5
Conduct problems rated by teachers	34	35.8	42	44.2	19	20	21.1**
Emotional problems rated by parents	25	32.1	34	43.6	19	24.4	19.4**
Emotional problems rated by teachers	8	13.1	40	65.6	13	21.3	51.4***

* p = 0.05, **p = 0.01, *** p = 0.001

There was a significant difference in SDQ parent's scores between levels of traumatic events. Children with many traumatic events showed higher scores of SDQ according to by parents (Kruskal-Wallis test: $\chi^2 = 10.7$, d.f = 2, p<.005) and teachers. (Kruskal-Wallis test: $\chi^2 = 20.7$, d.f = 2, p<.000).

PTSD AND GENERAL MENTAL HEALTH PROBLEMS

In order to investigate the relationship between children with PTSD and rating by teachers and parents, a Chi square test was conducted. Sixty-seven (57.8%) of children who fulfilled PTSD criteria were rated as having morbidity by parents, while 47 (39.8%) of children who fulfilled PTSD criteria were rated as having morbidity by teachers. There was a statistically significant relationship between children with PTSD and children rated as having morbidity by parents ($\chi^2 = 35.3$, df = 3, p < 0.001).

Table 5. PTSD and child mental health problems (N=349)

	PTSD		No PTSD		χ^2
	No	%	No	%	
Morbidity according to SDQ parents	67	57.8	49	42.2	35.3***
Morbidity according to SDQ teachers	47	39.8	71	60.2	1.2
Hyperactivity rated by parents	18	38.3	29	61.7	2.4
Hyperactivity rated by teachers	27	52.9	24	47.1	6.2*
Conduct problems rated by parents	55	51.9	51	49.1	15.3***
Conduct problems rated by teachers	44	46.3	51	53.7	6.5*
Emotional problems rated by parents	48	59	32	41	30.0***
Emotional problems rated by teachers	29	47.5	32	52.5	6.2

* p = 0.05, **p = 0.01, *** p = 0.001

In order to investigate the relationships between PTSD and general mental health problems rated by teachers or parents a t-test for independent samples was performed. The mean SDQ scores by parents for children with PTSD was 17.2 (SD =6.1) and for children with no PTSD mean =13.5 (SD = 5.7). Children reporting PTSD showed more general health problems according to parents (t = -6.7, p = 0.000), but not according to teachers.

Children who fulfilled PTSD criteria were not significantly hyperactive according to the parents' reports than children who did not fulfilled PTSD criteria. For children with PTSD (mean =4.3, SD=2.8, mean =4.4, SD =4.01) (t=.19, p = .84). For children who reported PTSD, teachers rated them as hyperactive (mean = 4.9, SD =1.9, mean =4.3, SD=2.3) (t=-2.4, p= .02). Children who fulfilled PTSD criteria showed more conduct problems as rated by parents compared to non PTSD (mean =3.3, SD=1.9 vs. mean =2.4, SD= 1.3) (t=-4.7, p =0.000); while, children reported PTSD showed more conduct problems as rated by teachers compared to non PTSD (mean =2.8, SD=2.2 vs. mean =2.2, SD= 2) (t=-2.4, p =0.01). Also, children reported PTSD were rated as more emotionally disturbed according to parents compared to non PTSD (mean =3.8, SD=3.3 vs. mean =2.3, SD= 2.5) (t=-4.6, p =0.000); this was also true for children with PTSD; they were rated emotionally disturbed by teachers (mean =3.5, SD=2.7 vs. mean =2.9, SD= 2.2) (t=-1.2, p =0.02).

In order to test the predictive value of general mental health problems rated by parents and teachers on PTSD symptoms, total IES scores were entered as the dependent variable in a linear multiple regression, with the total scores of SDQ by parents and teachers as the covariates. Total scores of SDQ by parents and teachers remained the strongest predictor of PTSD (B=0.58, SE=0.30, B=0.23, t=1.94, p=0.05) and (B=-.83, SE=0.35, B=-0.39, t=-2.3, p=0.02)

DISCUSSION

The results of our research showed that children living in the Gaza Strip and the West Bank experienced a variety of traumatic events. The most common traumatic events for children in both sites were the watching of pictures of mutilated bodies on TV and the bombardment of houses by helicopters and tanks. These results were consistent with our previous research (Thabet et al., 2001, 2002, 2004). Children living in the West Bank reported more inhalation of tear gas than children in the Gaza Strip. We suggest that this phenomenon was the result of direct confrontation between children and soldiers in the cities and at checkpoints. This finding was similar to findings in the previous Intifada (Thabet & Vostanis 1999), (Thabet, Stretch & Vostanis, 2000).

The children in the West Bank experienced more traumatic events than children in the Gaza Strip. We infer that West Bank children experienced repeated incursions of the area by the military forces and reoccupation of the entire West Bank. Children in the Gaza Strip were diagnosed as PTSD (40 and more in IES) more than children living in the West Bank. This finding of fewer traumatic events in the Gaza Strip children and higher PTSD than among West Bank children could be the result of other risk factors such as: the hardship of the Gaza Strip families due to unemployment of the father, large family size and overcrowdedness. This conclusion is based on the finding that the strong predictors of PTSD were the presence of traumatic events and being part of a family with low income. This finding is congruent with a previous study in the Gaza Strip (Thabet & Vostanis, 1998).

The established strong association between traumatic events and severity of PTSD reactions support the linear relationship between trauma and PTSD in children. Our findings were congruent with those of previous studies (Lonigan, Shannon, Finch, Daugherty, & Tylor, 1991; Pynoos, Coenjian, Tashjian, Karakashian, Manjikian, Manoukian, Steinberg, & Fairbanks, 1993; Goenjian, Najarian, Pynoos, Steinberg, Manoukian, Tavosian & Fairbanks, 1994; Shaw, 1996; Mollica, Poole, Son, Murray, & Tor, 1997; Vila, Porche, Mouren, & Marie, 1999; Smith, Perrin, Yule, & Rabe-Hesketh, 2001). The development of PTSD may be a result of a relationship such as a) directly witnessing violence, terror, being exposed physically to trauma (Pynoos, 1987 & 1993; Laor, Wolmer, & Cohen, 2001), or b) indirectly through observing and/or anticipating adults' reactions to stress (Smith et al, 2001).

Our results showed that the prevalence of mental health problems as rated by parents was 36.9% for children in the Gaza Strip. This rate was less for children in the West Bank (29.3%). The differences between the two sites may be explained by the hardship of the socioeconomic situation of the Palestinian families in the Gaza Strip with the unemployment level of father reaching 60% (Palestinian Central Bureau of Statistics, PCBS, 2002). Also some of the reported mental health problems could be a reaction to traumatic events. This result was similar to that of teacher ratings for whom 38.5%

of children in the Gaza Strip had mental health problems compared to 30.7% in the West Bank.

Our results showed that the mental health problems found in Palestinian children are greater than was found previously in other studies where there is no conflict. Fombonne (1994) found prevalence of mental health problems in 12.4% of French 8-11 year-olds. In a previous epidemiological study in the Gaza strip, the authors used the SDQ in a sample of 3-16 year-old-children and found lower prevalence rates, in early and middle childhood, the established rates of psychiatric cases (10.9% at age 3, 11.1% at age 6, and 16.3% at age 11) (Thabet et al, 2001). Also, Thompson et al, (Thompson, Stevenson, Sonuga-Barke, Nott, Bhatti, Price, & Hudswell, 1996) estimated prevalence rates of 13.2% for mental health problems. Differences among the studies may reflect differences in the optimal cut-off points and differences in method of investigation. Child mental health problems were predicted by socioeconomic deprivation, in addition to previous experiences of war trauma and related loss (Thabet & Vostanis, 1998).

Our finding that teachers and parents reported similar rate of child psychopathology is not congruent with those of previous studies. Teachers reported more psychopathology among child survivors of the ship 'Jupiter' sinking than did parents, but both reported far less than did the children themselves (Yule, 1989). In Bosnia, parents reported more behavioural problems than teachers (Zivcic, 1993), while other studies found that mothers reported more externalizing symptoms than teachers or the child (Briggs-Gowan, Carter, & Schwab-Stone, 1996). This pattern suggests that children may exhibit more problem behaviours in the home and family contexts than they do within the view of their teachers.

Overall, parents and teachers provide information of roughly equal predictive value, although the predictive value of the information depends on the type of problem exhibited by the child. Thus information from parents (and particularly information from the children themselves) is slightly more useful for detecting emotional disorders, while information from teachers may be equally or even more useful than that of teachers for detecting conduct and hyperactivity disorders (Goodman, Ford, Simmons, Gatward & Meltzer, 2000).

The comorbidity between PTSD and behavioural and emotional problems reported by other informants was clear. Children rated as likely clinical cases by parents were more vulnerable to developing post traumatic stress reactions. A high proportion of conduct and emotional problems observed during the Al Aqsa Intifada period might have developed in response to earlier traumatic experiences. This brings us to the concept of comorbidity of PTSD with other psychiatric disorders such as depression,

anxiety, dissociative, hyperactivity, and conduct disorders. A number of studies have shown a lack of association between PTSD and other psychiatric disorders.

In conclusion, we suggest that the impact of traumatic events should be studied in the context of the environment in which the children live. Children in the West Bank and Gaza are exposed to a large number of traumatic events. Children in the Gaza Strip are living in a very adverse social environment in which trauma itself is not the only risk factor for children. Other factors such as low family income due to high rate of unemployment, large size families may play a role in developing PTSD and other general mental health problems.

CLINICAL IMPLICATIONS

Our findings highlight the need for improving the socioeconomic conditions in Palestinian society. There is need for establishing outreach child mental health clinics with multidisciplinary staff at primary health centers to assess and treat children referred from community agencies and schools after exposure to traumatic events. Inservice training programmes need to be conducted by child mental health professionals for primary health physicians and nurses. Such programmes would enable professionals to detect children with PTSD and other psychiatric disorders, and to manage the less complex cases of childhood disorder at a primary care level.

REFERENCES

- Baker, A. M. (1990). 'The psychological impact of the Intifada on Palestinian children in the occupied West Bank and Gaza: an exploratory study'. *American Journal of Orthopsychiatry* 60, 496-505.
- Briggs-Gowan, M., Carter, A. & Schwab-Stone, M. (1996). 'Discrepancies among mother, child, and teacher reports: Examining the contributions of maternal depression and anxiety'. *Journal of Abnormal Child Psychology*, 24, 749-765.
- Dyregrov, A. & Raundalen, M. (1996). 'Children and war in the contemporary world'. *International Child Health*, 7, 45-52.
- Dyregrov, A., Gjestad, R., & Raundalen, M (2002) 'Children exposed to warfare: a longitudinal study'. *Journal of Traumatic Stress*, 15, 59-68.
- Dyregrov, A., Gupta, L., Gjestad, R., & Mukanoheli, E. (2000). 'Trauma exposure and psychological reactions to genocide among Rwandan children'. *Journal of Traumatic Stress*, 13, 3-21.
- Fombonne, E. (1994). 'The Charters study: I. Prevalence of psychiatric disorders among French school-aged children'. *British Journal of Psychiatry*, 164, 69-79.

- Goenjian, A. K., Najarian, L. M., Pynoos, R.S., Steinberg, A. M., Manoukian, G., Tavosian, A. & Fairbanks, L. A. (1994). 'Posttraumatic stress disorder in elderly and younger adults after the 1988 earthquake in Armenia'. *American Journal of Psychiatry*, 151, 895-901
- Goodman, R. (1997). 'The Strengths and Difficulties Questionnaire'. *Journal of Child Psychology and Psychiatry*, 38, 581-586.
- Goodman, R., Meltzer, H., & Bailey, V. (1998). 'The Strengths and Difficulties Questionnaire: a pilot study on the validity of the self-report version'. *European Child and Adolescent Psychiatry*, 7, 125-130.
- Goodman, R. & Scott, S. (1999). 'Comparing the Strengths and Difficulties Questionnaire and the Child Behaviour Checklist: is small beautiful?', *Journal of Abnormal Child Psychology*, 27, 17-24.
- Goodman, R., Ford, T., Simmons, H., Gatward, R. & Meltzer, H. (2000). 'Using the Strengths and Difficulties Questionnaire to screen for child psychiatric disorders in a community sample'. *The British Journal of Psychiatry*, 177, 534-539.
- Horowitz, M. J. (1979). 'Psychological response to serious life events'. In V. Hamilton & D.M. Warburton (Eds.), *Human stress and cognition: An information processing approach*. Chichester: Wiley.
- Laor, N., Wolmer, L., & Cohen. D. (2001). 'Mothers' functioning and children's symptoms 5 years after a SCUD missile attack'. *The American Journal of Psychiatry*, 158, 1020-1226.
- Lonigan, C. J., Shannon, M. P., Finch, A. J., Daugherty, T. K. & Tylor, C.M. (1991). 'Children's reaction to natural disaster, symptom severity and degree of exposure'. *Advances in Behaviour Research and Therapy*, 13, 135-154.
- Miller, T., El-Masri, M. , Allodi, F. , & Qouta S. (1999). 'Emotional and behavioural problems and trauma exposure of school-aged Palestinian children in Gaza: some preliminary findings'. *Medicine, Conflict and Survival*, 15, 368-378.
- Mollica, R., Poole, C., Son, L., Murray, C. & Tor, S. (1997). 'Effects of war trauma on Cambodian refugee adolescents' functional health and mental health status'. *Journal of American Academy of Child and Adolescent Psychiatry*, 36, 1098-1106.
- Pynoos, R., Frederick, C. & Nader, K. (1987). 'Life threat and posttraumatic stress in school-age children'. *Archives of General Psychiatry*, 44, 1057-1063.
- Pynoos, R., Coenjian, A., Tashjian, M., Karakashian, M., Manjikian, A., Manoukian, G., Steiner, A. M. & Fairbanks, L.A. (1993). 'Post traumatic stress reactions in children after the 1988 Armenian earthquake'. *British Journal of Psychiatry*, 163, 239-247.
- Qouta, S., Punamaki, R. L. & El Sarraj, E. (1997). 'Trauma, violence and children, impact of the home-demolition on children's behaviour'. *Journal of Psychological and Educational Measurement and Evaluation*, 3, 1-11.

- Sack WH, Seeley JR, Him C, Clarke GN (1998), 'Psychometric properties of the Impact of Events Scale in traumatized Cambodian refugee youth'. *Personality and Individual Differences* 25:57-67.
- Savin D, Sack WH, Clarke GN, Meas N, Richart I (1996), '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*, 35, 384-391
- Shaw, J. A., Applegate, B. & Schorr, C. (1996). 'Twenty-one-month follow-up study of school-age children exposed to Hurricane Andrew'. *Journal of the American Academy of Child and Adolescent Psychiatry*, 35, 359-364.
- Smith, P., Perrin, S, Yule, W. & Rabe-Hesketh, S. (2001). 'War exposure and maternal reactions in the psychosocial adjustment of children from Bosnia-Herzegovina'. *Journal of Child Psychiatry and Psychology*, 42, 395-304.
- Smith, P., Perrin, S., Yule, W., Hacam, B., & Stuvland, R. (2002). 'War exposure among children from Bosnia-Herzegovina: Psychological adjustment in a community sample'. *Journal of Traumatic Stress*, 15, 147-156.
- Thabet, A. A. & Vostanis, P. (1998). 'Social adversities and anxiety disorders in the Gaza Strip'. *Archives of Childhood Diseases*, 78, 439-442.
- Thabet, A.A. and Vostanis, P. (1999). 'Posttraumatic stress reactions in children of war'. *Journal of Child Psychology and Psychiatry*, 40, 385-391.
- Thabet, A.A. and Vostanis, P. (2000). 'Post traumatic stress disorder reactions in children of war: a longitudinal study'. *Child Abuse and Neglect*, 24, 291-298.
- Thabet, A.A., Stretch, D. and Vostanis, P. (2000). 'Child mental health problems in Arab children: application of the Strengths and Difficulties Questionnaire'. *International Journal of Social Psychiatry*, 46, 266-280.
- Thabet, A.A., Abed, Y. & Vostanis, P. (2001). 'The effect of trauma on Palestinian children and mothers mental health in the Gaza Strip'. *Eastern Mediterranean Public Health Journal*, 7, 314-321.
- Thabet A.A., Abed, Y., & Vostanis, P. (2002). 'Emotional problems in Palestinian children living in war zones'. *Lancet*, 359, 1801-1804.
- Thabet, A. A., Abed, Y., & Vostanis, P. (2004). 'Comorbidity of post-traumatic stress disorder and depression among refugee children during war conflict'. *Journal of Child Psychology and Psychiatry*, 45, 533-542
- Thompson, M., Stevenson, J., Sonuga-Barke, E., Nott, P., Bhatti, Z., Price, A., & Hudswell, M. (1996). 'Mental health of pre-school children and their mothers in a mixed urban/rural population. I. Prevalence and ecological factors'. *British Journal of Psychiatry*, 168, 16-20.
- United Nations for Relief and Work Agency. (1999). *Facts and figures: the situation in the Gaza Strip and the West Bank*. United Nations: Gaza.
- Vila, G., Porche, L., Mouren., S. & Marie, C. (1999). 'An 18-month longitudinal study of posttraumatic disorders in children who were taken hostage in their school'. *American Psychosomatic Society*, 61, 746-750.

Abdel Aziz Mousa Thabet, Taisir Abdulla, Mohammed-Wafaie
A. Elhelou, Panos Vostanis

- Vila, G., Witkowski, P., Tondini, M. C., Perez-Diaz, F., Mouren-Simeoni, M. C., & Jouvent, R. (2001). 'A study of posttraumatic disorders in children who experienced an industrial disaster in the Briey region'. *European Child and Adolescent Psychiatry*, 10, 10-18
- Yule, W. (1989). 'The effects of disasters on children'. *Association for Child Psychology and Psychiatry, Newsletter*, 11, 3-6.
- Yule, W., & Udwin, O. (1991). 'Screening child survivors for post-traumatic stress disorders: experiences from the "Jupiter" sinking'. *British Journal of Clinical Psychology*, 30,131-138.
- Zakrison, T. L., Shahen, A., Mortaja, S., & Hamel, P. A. (2004). 'The prevalence of psychological morbidity in West Bank Palestinian children'. *Canadian Journal of Psychiatry*, 49, 60-63.
- Zivcic, I. (1993). 'Emotional reactions of children to war stress in Croatia'. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 709-713.