Prevalence of PTSD and ADHD among Palestinian Children

in the Gaza Strip and West Bank

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Abstract

Background: This study aims was to identify the prevalence of trauma, PTSD, and ADHD in children living in area of war and conflict in Gaza Strip and West Bank and relationship between trauma, ADHD, and PTSD.

Method: A random sample of 200 children from 15 UNRWA schools in Gaza (United Nations Refugee and Work Agencies) and 150 children from 8 schools from Bethlehem and East Jerusalem were selected. The age of children was ranged between 6-15 years. The age of children in Gaza range between 6-13 years old (Mean =9.49, SD = 2.2) and in west bank between 9-15 years old (Mean =10.05, SD =1.6).

Children were asked to fill the following questionnaires: Gaza Traumatic Events Checklist, Impact of Event Scale, while parents and teachers filled the Structured Clinical Interview of mothers and fathers for DSM-IV diagnosis of ADHD.

Results: The mean of traumatic experiences in Gaza Strip was 5.1 (SD = 3.4) and in West Bank were 7.5 (SD = 4.7). IES scores were significantly associated with the total number of experienced traumatic events. Eighty-seven (39.2%) of children from Gaza Strip reported post traumatic stress disorder (40 and above in IES) compared to 51 (34%) of children from West Bank.

The event that was significantly associated with IES scores was day raids of their home, nigh raids at their home, tear gas inhalation, witnessing arrest of a friend , and witnessing bombardment of other homes by airplanes and helicopters. According to parents, 16 children (8.4%) of children from Gaza fulfilled the full criteria of ADHD combined type compared to 4 (2.7%) from West Bank. According to teachers, Ten children (5.2%) from Gaza fulfilled the full criteria of combined ADHD type compared to 5 (3.3%) children from West Bank. Children with many traumatic events were rated as having ADHD by parents and teachers. Total IES scores were significantly associated with total inattention and hyperactivity scores by parent. Intrusion was significantly associated with total inattention scores by parents, and teachers; and hyperactivity scores by parents. Avoidance was significantly associated with total scores of inattention and hyperactivity scores by teachers.

Conclusion: Palestinian children are still experiencing a variety of traumatic events which lead to psychological symptoms including PTSD and ADHD.

A need for a programme to deal with children who were diagnosed as having ADHD due to environmental stressors and trauma is needed. A public awareness campaign of the effect of trauma on children well being must be enhance targeting schools, community, and youth clubs.

Key words: Trauma, PTSD, ADHD, Gaza Strip and West bank

Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a common disorder in children characterized by problems in attentive and/or hyperactive behaviour frequently leading to educational and vocational failure. Estimated prevalence rates vary considerably, with some reports as low as 3% and others estimated to be as high as 9% (Kadesjo et al, 2001).

The relationship between trauma and attention-deficit hyperactivity disorder (ADHD) has been a source of controversy and debate for a long time (Cuffe et al., 1994). Numerous studies have suggested a relationship between ADHD and trauma or posttraumatic stress disorder (PTSD) (Famularo, 1996; Glod, 1997; Glod and Teicher, 1996; Merry and Andrews, 1994; Riggs et al., 1995). However, despite the obvious importance of this issue, the relationship between ADHD and trauma has not been systematically examined, and few studies have addressed the temporal sequencing of PTSD or trauma and comorbid conditions (Pfefferbaum, 1997). The high comorbidity with other emotional disorders, particularly anxiety and depression, has already been highlighted from epidemiological studies (Thabet and Vostanis, 2004). What has been less researched is the comorbidity with other psychiatric disorders. Contrary to earlier perceptions that aggressive and offending behaviour are not related to emotional disorders, such as PTSD, recent studies point to the contrary. This is probably due to early traumatic and abusive experiences in the youth offenders' childhood. This was not applicable in others studies. Wozniak et al (1999) in his study of traumatized children, found that ADHD was familially indistinguishable in traumatized and nontraumatized children with ADHD argues against the hypothesis of etiological associations between ADHD and trauma.

This study aims was to identify the prevalence of trauma, PTSD, and ADHD in children living in area of war and conflict in Gaza Strip and West Bank and relationship between trauma, ADHD, and PTSD.

The following research questions will be tested:

1. What is the prevalence of trauma, PTSD, and ADHD in children living in the Gaza Strip and West Bank?

2. Is there any differences between children living in Gaza Strip and West Bank in sociodemographic characteristics, trauma, PTSD, ADHD?

3. What are the predictors of PTSD and ADHD?

Methods

• The area

The population of the Gaza Strip is 2000 was 1,138,126 forming about 36.1% of the total population in Palestine out of which 573,853 (50.4%) are males and 564.273 (49.6%) are females (NMIS, 2000). More than 17% of the population resides in the north of Gaza, 51% in the middle area, and 32% in the southern area. The Gaza Strip considered one of the highest overall growth rates and population densities in the world (PCBS, 2001). According to PCBS, it is estimated that 3161 persons live in every square kilometer in Gaza (PCBS, 2001). The GNP per capita in Palestine is decreased from 1,938 US $ in 1998 to 1.771 US $ in 2000 (HMIS, 2001). The West Bank area is 5,800km'2. It is a hilly region comprised of three ranges: the Nablus Mountains in the North, the Jerusalem Mountains in the centre and the Hebron mountains in the South. The estimated population of West Bank in 1997 was 2,422,084..Around Forty three per cent of the population resides in the northern section, 29%t in the central section and 28% in the Southern area of the West Bank. 40% of the total population is registered refugees, and 15% of them are living in UNRWA refugee camps.

• Subjects

Sampling

A multi-stage random sample design was followed. A random sample of 200 children from 15 UNRWA schools in Gaza (United Nations Refugee and Work Agencies) and 150 children from 8 schools from Bethlehem and East Jerusalem were selected. Permission of the education Department (UNRWA) to enter the schools to collect data was granted prior to administration of the questionnaires. Within the 23 schools 15 children were again randomly selected and questionnaires for approximately 350 children between the ages of 6-15 years old were completed. 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 was collected between February and March 2003 during the Al Aqsa Intifada.

The age of children was ranged between 6-15 years. The age of children in Gaza range between 6-13 years old (Mean =9.49, SD = 2.2) and in west bank between 9-15 years old (Mean =10.05, SD =1.6). The sample of children consisted of 199 children, 102 males (%51.3) and 97 (48.7%) females (for Gaza sample), where 150 children were selected from West Bank, 77 (51.7%) males and 73 (48.3%) females for West Bank sample.

Place of residence showed that the sample of Gaza derived from north Gaza 19.1%, Gaza 23.6% middle area 29.6%, Khan Younis 16.1%, and Rafah. While, in West Bank 65.3% came from Bethlehem and 34.7% from East Jerusalem. Families in Gaza Strip were significantly have 8 and more children than in West Bank

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

Item	Gaza (199)		West Bank (N= 150)	
	No.	%	No.	%
Age in years				
6	22	11.1	0	0
7	28	14.1	0	0
8	23	11.6	0	0
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
Mean (SD)	9.5 (1.2)		12.05 (2.2)	
Sex				
Male	102	51.3	77	51.7
Female	97	48.7	73	48.3
Place of residence				
North Gaza	38	19.1	0	0
Gaza	47	23.6	0	0
Middle area	59	29.6	0	0
Khan Younis	32	16.1	0	0
Rafah	23	11.6	0	0
Bethlehem	0	0	98	65.3
East Jerusalem	0	0	51	34.7
Paternal job				
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
Paternal education				
Illiterate	3	1.5	5	3.3
Elementary	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
Higher degree	16	8.0	12	8.0
Maternal job				
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
Maternal education				
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
Number of siblings				
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
Family in come				
Low	104	52.8	62	41.1
Middle	74	37.2	60	40.0
High	18	9.0	19	13.3
Very high	3	1.0	9	5.3

■ Instruments

- **Gaza Traumatic Event Checklist (Thabet and Vostanis, 1999)**

The checklist consisted 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). In this study, the split half reliability of the scale was r=0.73. The internal consistency of the scale, calculated using Chronbach's alpha, was α=0.72. Children were asked about the events they had experienced in the preceding 24 months, i.e. since the onset of the conflict (Al Aqsa Intifada, or uprising in Palestinian areas).

- **Impact of Event Scale (IES, Horowitz, 1979)**

The IES 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 (Dyregrov et al, 1996, 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. Items are rated as 'never' (0), 'rarely' (1), 'sometimes' (3), or 'often' (5). Yule and Udwin (1991) estimated a cut-off of 40 or above for the presence of PTSD. In our study, Internal consistency of the scale, calculated using Chronbach's alpha was (α =.82). The split half reliability of the scale was .76.

- **Structured Clinical Interview of mothers and fathers for DSM-IV diagnosis of ADHD (APA, 1994)**

The Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994), defines three subtypes of ADHD; predominantly inattentive, predominantly hyperactive, and combined.

Diagnostic interviews of mothers and fathers were used. Diagnoses were considered positive if, on the basis of the interview results, DSM-IV criteria were unequivocally met.

This interview consisted of 18 items questionnaire, based on DSM-IV diagnostic criteria for ADHD in children. Children scored 6 and above in inattentive 9 items are considered as inattentive; children reported 6 and more in hyperactivity-impulsive 9 items are considered hyperactive-impulsive. The combined type is rate by summing both inattentive and hyperactive-impulsive scores. The Arabic version of this scale was used in which the translation and back translation had been conducted and the Arabic Version was send to panel of expert for validity. The five experts agreed on all items and no changes were done. In our study, for parents scale, internal consistency of the scale, calculated using Chronbach's alpha was also high (α =. 84); the split half reliability of the scale was .79. While, for teachers, internal consistency of the scale, calculated using Chronbach's alpha was (α =. 87); the split half reliability of the scale was .84.

■ Results

- **Prevalence of trauma, PTSD, and ADHD in children living in the Gaza Strip and West Bank**

To answer the first question. Frequencies and percentages were calculated. The results indicated that Palestinian children in Gaza Strip and West Bank had been exposed to a variety of traumatic events. The most common traumatic events in Gaza Strip were: watching mutilated bodies and wounded people on TV (82.4%), witnessing bombardment of other homes by airplanes and helicopters (50.8%), and witnessing shooting of a close relative (44.4%). Similarly children in West Bank reported commonly the following traumatic events: watching mutilated bodies and wounded people on TV (89.3%), witnessing day raids at their homes (72.7%), and witnessing bombardment of other homes by airplanes and helicopters (68%),

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

Traumatic events	Gaza (N = 199)		West Bank (N=150)		
	N	%	N	%	χ2
Watching mutilated bodies and wounded people on TV	164	82.4	134	89.3	3.2
Day raids of your home	61	30.9	109	72.7	60.4***
Witnessing bombardment of other homes by airplanes and helicopters	101	50.8	102	68	10.4**
Witnessing own home demolition	10	5.1	71	47.3	84.9***
Nigh raids of your home	23	11.6	68	45.3	50.6***
Witnessing firing by tanks and heavy artillery at neighbors home	30	15.1	62	41.3	30.3***
Hearing killing of a close relative	59	29.6	55	36.7	1.9
Witnessing firing by tanks and heavy artillery at own home	68	34.2	55	36.7	0.23
Witnessing shooting of a close relative	88	44.2	50	33.3	4.2
Witnessing arrest of a friend	32	16.1	29	32.7	13.2**
Witnessing beating of a friend	19	9.5	39	26	16.7*
Witnessing shooting of a friend	53	26.6	37	24.7	0.17
Witnessing neighbors home demolition	17	8.5	28	18.7	7.8**
Hearing killing of a friend	23	11.6	25	16.7	1.8
Witnessing beating of a close relative	24	12.1	23	15.3	0.78
Tear gas inhalation	27	13.6	21	14	0.01
Witnessing killing of a close relative	16	8	20	13.3	2.5
Witnessing arrest of close relative	10	5	13	8.7	1.8

Percentage from the area sample only.
* p = 0.05, **p = 0.01, *** p = 0.001

There were significant differences in reporting traumatic events between children living in Gaza Strip and West Bank. Children in West Bank reported more the following events than children in the Gaza Strip: witnessing day raids ($\chi2$ = 60.4, d.f = 1, p <. 001), tear gas inhalation ($\chi2$ = 60.2, d.f = 1, p <. 001), night raids ($\chi2$ = 50.6, d.f =1, p <. 001), witnessing own home demolition ($\chi2$ = 84.9, d.f = 1, p<.001), witnessing of neigbours home demolition ($\chi2$ = 7.8, d.f = 1, p <. 005), witnessing firing by tanks and heavy artillery at neighbours home (χ^2= 30.3, d.f = 1, p <.001), witnessing bombardment of other homes by airplanes and helicopters(χ^2 = 10.4, d.f = 1, p <.001), and arrest of a friend (χ^2 = 13.2, d.f = 1, p <.001). While the only traumatic event reported significantly by Gaza children waswitnessing shooting of a close relative (χ^2 = 7.8, d.f = 1, p <. 03).

- **Number of traumatic experiences**

Palestinian children were exposed to a wide range of traumatic experiences during the Intifada. Of the nineteen possible

exposures, the children experienced between no traumat event and fifteen traumatic events. The mean of traumat experiences in Gaza Strip was 5.1 (SD = 3.4) and in West Ba were 7.5 (SD = 4.7). There was statistically significant differenc in number of traumatic events between the two sites in whi children living in West Bank reported more traumatic events th those in Gaza Strip (t = -5.4, d.f = 256 , p = 0.001).

- **Differences in traumatic events**

The number of traumatic experiences was classified as few traumatic experiences (0-4), moderate traumatic experiences(5-9) and many traumatic experiences (10 or more). In comparing frequency of traumatic experiences according to place of residence, 49.3% of Gaza children experienced few traumatic events, 44.7% experienced moderate traumatic events, and 6% experienced many traumatic events. Similarly, 43.6% of West Bank children experienced few traumatic events, 40.7% experienced moderate traumatic events, and 24.7% experienced many traumatic events. Significantly children from West Bank reported more severe traumatic events than children from Gaza Strip (χ^2 = 25.7, d.f = 2, p <.001).

- **Comparison between PTSD and trauma**

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, 41.1% reported moderate, and 23.2% reported many traumatic events.

In order to find the difference between number of traumatic events and PTSD, significantly children with PTSD reported more severe traumatic events than children from non-PTSD (39 and less in IES) (t = -3.2, df = 246, p -=0.001).

Table 3: Severity of traumatic experiences and site of living, PTSD, and ADHD

	Mild		Moderate		Severe	
	No	%	No	%	No	%
West Bank	52	34.7	61	40.7	37	24.6
Gaza	98	49.2	89	44.8	12	6
PTSD	46	35.7	53	41.1	30	23.2
Inattention by parents	25	59.5	13	31	4	9.5
Hyperactivity-impulsivity by parents	15	31.4	25	49	10	19.6
ADHD by parents	9	45	7	35	4	25
Inattention by parents	28	35	24	30	28	35
Hyperactivity-impulsivity by teachers	26	40.6	18	28.1	20	31.3
ADHD by teachers	5	33.3	5	33.3	5	33.3

In comparing level of traumatic experiences and ADHD by parents, 45% of children with ADHD reported mild trauma, 35% reported moderate, and 20% reported many traumatic events.

In order to test the differences between trauma and ADHD reported by parents, One-Way analysis of variance was performed. The results indicated that their were a significant difference between level of traumatic events and ADHD by parents F= 8.34 (2,346), p=0.001. Tukey post hoc test was performed, the result showed that there was difference between children reported many traumatic events (Mean = 15.0, SD= 8.7) and those reported moderate traumatic events (Mean 11.01, SD= 6.4) - children with many traumatic events were rated as having ADHD by parents.

In comparing level of traumatic experiences and ADHD by teachers, 33.3% of children with ADHD reported mild trauma, 33.3% reported moderate, and 33.3% reported many traumatic events.

In order to test the differences between trauma and ADHD reported by teachers, One-Way analysis of variance was performed. The results indicated that their were a significant difference between level of traumatic events and ADHD by parents F= 13 (2,346), p=0.001. Tukey post hoc test was performed, the result showed that there was difference between children reported many traumatic events (Mean = 9.2, SD= 6.5) and those reported moderate traumatic events (Mean = 5.7, SD= 3.8) - children with many traumatic events were rated as having ADHD by teachers.

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 (Pearson correlation coefficient: r=0.24, N = 349; p=0.001).

Table 4: Differences in trauma, PTSD, and ADHD in Gaza Strip and West Bank

	Gaza Strip		West Bank		χ2
	NO.	%	NO.	%	
Mild trauma (4 and less events)	98	49.2	52	34.7	25.7***
Moderate (5-9 events)	89	44.7	61	40.7	
Many (10 and more events)	12	6	37	24.6	
PTSD according to IES	78	39.2	51	34.0	.99
Inattention-impulsive according to parents	29	14.7	13	8.7	2.8

Inattention-impulsive according to teachers	53	27.7	27	18.0	4.4*
Hyperactivity according to parents	34	17.3	17	11.3	2.3
Hyperactivity according to teachers	36	18.8	28	18.7	0.00
ADHD- parents	16	8.4	4	2.7	5.01*
ADHD teachers	10	5.2	5	3.3	.72

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

- **Prevalence of post traumatic stress reactions**

The most common PTSD reactions in children in the Gaza Strip were: Children's post traumatic stress reactions scores ranged between 0 and 61.

Eighty-seven (39.2%) of children from Gaza Strip reported post traumatic stress disorder (40 and above in IES) compared to 51 (34%) of children from West Bank. In comparing mean of IES, children from Gaza Strip mean was 34.4 (SD = 14.1) and from West Bank mean was 33.7 (SD = 15.8). There was no significant statistically differences between the two sites (T independent test: t =.37, df= p = ns). In comparing the subscales of IES, intrusion subscale scores of children from Gaza Strip mean was 17.2 (SD =8.4) and from West Bank mean was 15.7 (SD= 8.9), while avoidance mean from children from Gaza Strip was 17.3 (SD =7.6) and from children from West Bank mean was 18.02, SD =8.5). There were no statistically differences between the two sites in IES subscales.

Table 5: Means and standard deviations of trauma, PTSD, and ADHD by teachers and parents

	Gaza Strip		West Bank		t	p
	Mean	SD.	Mean	SD		
Total trauma	5.1	3.4	7.5	4.8	-5.2	0.001
Total IES	34.4	14.1	33.8	15.8	.31	.71
Intrusion (IES)	17.2	8.3	15.8	8.9	1.5	.19
Avoidance (IES)	17.4	7.6	18	8.5	-.73	.43
Inattention by parents	2.6	2.5	2.2	2.4	1.3	.17
Inattention by teachers	3.3	3.1	3	2.9	1.1	.26
Hyperactivity-impulsivity by parents	3.02	2.5	2.5	2.5	.30	.07
Hyperactivity-impulsivity by teachers	3.08	2.6	2.8	2.5	.66	.50

In order to test the predictive value of specific traumatic events on PTSD symptoms, total IES scores were entered as the dependent variable in a linear multiple regressions, with the 19 types of traumatic events as the covariates. The event that was significantly associated with IES scores was day raids of their home (Beta=0.12, p=0.03), nigh raids at their home (Beta=-3.5, p=0.001), tear gas inhalation (Beta=0.86, p=0.02), witnessing arrest of a friend (Beta=0.66, p=0.04), and witnessing bombardment of other homes by airplanes and helicopters (Beta=1.6, 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 covariates. The latter remained the strongest predictor (B=0.17, SE=0.04, B=0.24, t=3.2, p=0.001).

In comparing children scoring 40 and above in IES (possible PTSD), 16 children (12.5%) were scored inattentive by parents, 36 (28.6%) by teachers.

Children rated as hyperactive by parents and being PTSD were 30 (23.4%). There was statistically significant relationship toward PTSD (χ^2 = 12.3, p<0.001). While 27 (21.1%) of children rated as hyperactivity by teachers had PTSD.

Table 6: Comparison of PTSD and ADHD subtypes by parents and teachers

	PTSD		No PTSD		
	N	%	N	%	χ2
Inattention by parents	16	61.9	26	39.1	0.03
Hyperactivity by parent	30	58.8	21	41.2	12.3**
ADHD by parents	10	50	10	50	1.5
Inattention by teachers	36	45	44	55	2.9
Hyperactivity-impulsivity by teachers	27	42.2	37	57.8	.96
ADHD by teachers	12	80	3	20	12.4**

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

The relationship between PTSD and ADHD symptoms was examined through Spearman rank correlation test. Total IES scores were significantly associated with total inattention (r=0.20, p<0.001) and hyperactivity scores by parents (r=0.15, p<0.005). Also, IES subscale: intrusion was significantly associated with total inattention scores by parents (r=0.23, p<0.001), and teachers (r=0.11, p<0.03), and hyperactivity scores by parents (r=0.20, p<0.001). Avoidance was significantly associated with total scores of inattention by teachers (r=0.13, p<0.01) and hyperactivity scores by teachers (r=0.12, p<0.02).

■ Prevalence of combined ADHD according to parents and teachers

• Prevalence of combined ADHD according to parents

Twenty nine children (14.7%) from Gaza Strip met the DSM-IV criteria for inattentive type compared to 13 (8.7%) in the West Bank. While, 34 (17.3%) of children from Gaza Strip were impulsive compared to 17 (11.3%) from West Bank. No statistically significant differences between the two sites.

Sixteen children (8.4%) of children from Gaza fulfilled the full criteria of ADHD combined type compared to 4 (2.7%) from West Bank. Children in Gaza Strip significantly were differ from those in West Bank in combined ADHD (χ^2 = 5.01 d.f = 1, p <.02).

• Prevalence of combined ADHD according to teachers

Fifty-three children (27.7%) from Gaza Strip met the DSM-IV criteria for inattentive type compared to 27 (18%) in the West Bank. Children in Gaza Strip were significantly more inattentive that those in the West Bank (χ^2 = 4.4, d.f = 1, p <.03). While, 36 (18.8%) of children from Gaza Strip were rated as impulsive compared to 28 (18.7%) from West Bank.

Ten children (5.2%) from Gaza fulfilled the full criteria of combined ADHD type compared to 5 (3.3%) children from West Bank.

In order to investigate discrepancies between teachers and parents in detecting ADHD children, Wilcoxon signed ranks test was performed; there was discrepancy between parents and teachers in detecting children with ADHD (z=-14.79, p = 0.001).

In order to investigate discrepancies between teachers and parents in detecting inattentive children, Wilcoxon signed ranks test was performed; there was no discrepancy between parents and teachers in detecting children with hyperactivity-impulsivity (z=-1.5, p = .12).

■ Discussion

The results showed that children experienced watching mutilated bodies in TV, bombardment of houses by helicopters and tanks which consisted with previous research in the same area (Thabet et al, 2001, 2002, 2003 Press). But, children in West Bank reported inhalation tear gas much more than children in the Gaza Strip, which was a result of direct confrontation of children with soldiers in the cities and checkpoints. However, children in West Bank had reported more traumatic events (Mean =7.5) than those in Gaza Strip (Mean= 5); this difference was a result of incursion and reoccupation of the most major cities in the West Bank, while children exposure in Gaza Strip was not so intensive as it was in West Bank. However, children in Gaza Strip reported more PTSD (39%) compared to 34% in West Bank. Higher percentage of PTSD in children living in the Gaza Strip may be due to other risk factors rather than the trauma alone, such factors are large family size, overcrowdness, unemployment of the father, and low socioeconomic status of families livening in the Gaza Strip. So, trauma is not the only reason for developing PTSD in Gaza Strip children. Previous studies in the area showed that social adversities could add more risk factor on children living in the area (Thabet et al, 1998). The dose-linear relationship between trauma and PTSD was obvious in both sites, children who experienced more traumatic events reported more PTSD. This result is congruent with other studies (Pynoos et al, 1993; Goenjian et al, 1995; Slone et al, 1998; Thabet et al, 1999, 2000; McClosky et al, 2000). Moreover, this dose-linear relationship may not apply to all trauma-related circumstances and young populations (McFarlane, 1988; Yule et al, 1990).

The result showed that prevalence of combined ADHD type was low in children if the children were rated by their teachers in our society, however, the rate is similar to other studies (3%) (Kadesjo et al, 2001). Parents are reporting more ADHD children compared to teachers (5-8%). Children in the Gaza Strip were reported to be more hyperactive than in the West Bank, which could be due other risk factors such as low family income, overcrowding due to large families.

Because traumatized children frequently are agitated and inattentive, they may present with ADHD-like behaviours, raising important clinical questions as to whether they have ADHD or trauma-associated phenomena. The presence of PTSD symptoms of increased arousal, such as poor concentration and exaggerated startle response, may mimic ADHD, leading to the potential misdiagnosis of ADHD in these children. Recent work by our group and others has documented that ADHD is a highly familial disorder (Biederman et al, 1992). Thus, if ADHD symptoms in traumatized children represented a reaction to trauma and not "true" ADHD, we would expect to see an absence of familiarity of ADHD in such children. However, if traumatized children with ADHD-like features have ADHD, it should be associated with a familial pattern similar to that of other cases of nontraumatized children with ADHD.

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