Frequency of Post Traumatic Stress Disorder in Children in Gaza Strip

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ABSTRACT

Objective: To determine the frequency of post traumatic stress disorder in children in Gaza strip attending the psychiatry clinic of the Jordanian field hospital one year after the exposure to the latest acts of war.

Methods: This study was conducted using a structured psychiatric interview based on Diagnostic and Statistical Manual -Fourth Edition- Text Revised for post traumatic stress disorder, in order to assess post traumatic stress disorder in children referred to psychiatric clinic from pediatric and family medicine clinics with abnormal behavior.

Results: In the selected age group of children between (5-14), a total of 827 children were found to have visited the pediatric and family medicine clinics during the two months study period. Out of the total, 196 children (23.7%) were referred to psychiatric clinic with abnormal behavior, out of which 173 children (20.9%) of the whole sample and (88.27%) of the referred children were found to have post traumatic stress disorder.

Conclusion: The area of Gaza strip suffered to a massive extent over the past years which led to a serious frequency of post traumatic stress disorder amongst its children. In view of the persistent threats, siege, and lack of social and medical support, chances are little of having a decline in the symptoms of post traumatic stress disorder, as well as a decrease in the number of new post traumatic stress disorder cases.

Key words: Children and Parents, Gaza, Post traumatic stress disorder, Trauma, War.

JRMS September 2011; 18(3): 52-58

Introduction

The Gaza Strip is a narrow elongated piece of land, bordering the Mediterranean Sea between Israel and Egypt, and covers 360 km^2. It has a high population density of 1,416,543 according to Palestinian central statistics bureau in 2007. About 17% of the population lives in the north of the Gaza Strip, 51% in the middle, and 32% in the south area. There are high unemployment, socio-economic deprivation, family overcrowding, and a short life expectancy. Nearly two-thirds of the populations are refugees, with approximately 55% living in eight crowded refugee camps. The remainder lives in villages and towns.

Since September 2005, the population of the Gaza Strip has been exposed to regular incursions and shelling.[1] The areas which suffered the most aggressive military action during the one month long war which started on 27th December 2008 were in the northern regions, namely Bait Lahia, Bait Hanoun and Jabalia, but other areas also suffered to varying degrees.

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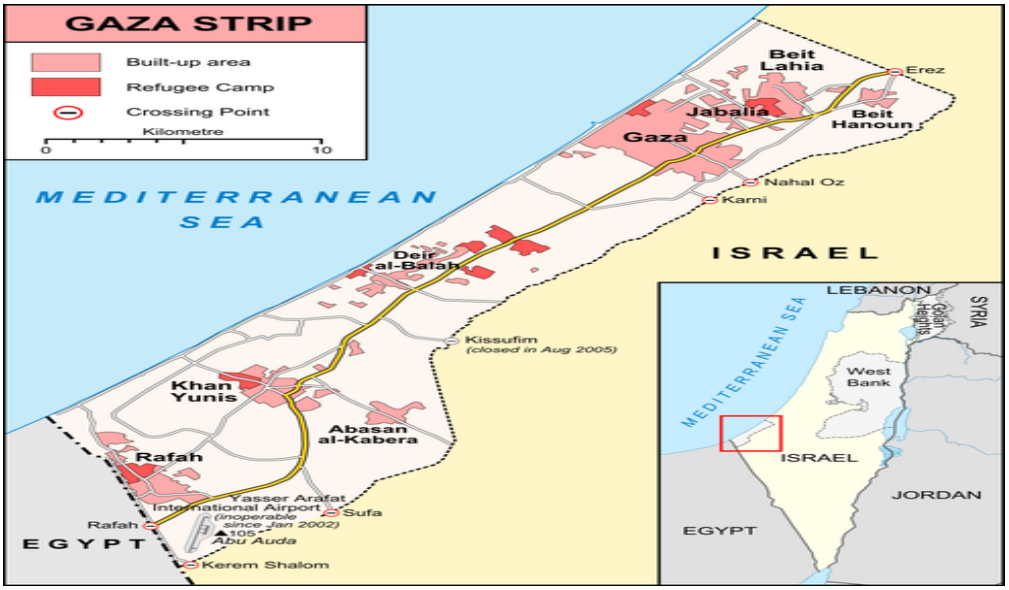
Manuscript received February 28, 2010. Accepted June 17, 2010



Map of Gaza from Google

The effect of war on children's mental health is well established.

Investigators, mainly from the Middle East and the former Yugoslavia, have recorded high rates of post-traumatic stress disorders and other mental health problems and disorders. For example, after the Gulf war, high rates of post-traumatic stress disorders were recorded in Kuwaiti and Kurdish children.[2,3,4] These rates were especially prominent in children who had been displaced from their community, such as in the conflicts in Croatia, [5] and Bosnia.[6,7,8]

Children who are directly or indirectly exposed to war conflict experience a variety of stressors, and many develop both short-term and long-term post-traumatic stress reactions.[9]

Living in a refugee camp outside home, living under conditions of war, being on the run, witnessing bombing, changing residence due to war, taking shelter from bombing, witnessing street shooting, witnessing house search, father detained, separated from father more than one month, death in the family, father tortured, witnessing torture, killing or intimidation of other than family members and witnessing arrest of family member.[10]

In his review, Vernberg (1999) suggests that children are at greater risk of post traumatic stress disorder (PTSD) than adolescents because they have not only a more limited understanding of the surrounding world, but also have fewer coping skills and less opportunity to participate in community systems that help people cope with the disaster.[11]

No matter how sophisticated the diagnostic instrument, nothing can replace a thorough, well-conducted clinical interview. It is essential in the assessment of pediatric PTSD that clinicians utilize multiple informants and undertake careful histories while searching for complicating co-morbid conditions. No single instrument will serve all clinicians.[12]

Gender can be a factor in how children react to stress of any magnitude. Boys tend to react with more aggression and acting-out behaviors and girls tend to respond more inwardly, their sadness and anxiety are less observable.[13]

Diagnostic and Statistical Manual (DSM) is widely used around the world both for adults and children in the assessment and diagnosis of PTSD symptoms. DSM IV-TR[14] defines PTSD into three symptom clusters (i.e., intrusion, avoidance/numbing, and arousal). In DSM, re-experiencing includes recurrent and intrusive thoughts about the trauma, dreaming or flashbacks of the traumatic event, and intense psychological distress caused by internal or external stimuli, which is symbolized by or associated with the traumatic event.[14, 15]

In children and adolescents, repetitive plays and re-enactments may be observed.

Avoidance/numbing includes avoidance of conversations, places, and feelings associated with the traumatic event (in children, there may/may not be obvious link to the original trauma), amnesia for aspects of the trauma, detachment from others,

Table I. Distribution of referred children by age:

Age	Number	%
5 -9 years	84	42.86
10-14 years	112	57.14
Total	196	100

Table II. Distribution of referred children by gender:

Gender	Number	%
Male	131	66.84
Female	65	33.16
Total	196	100

Table III. Distribution of Children with PTSD by age:

Age	Number	%
5 -9 years	76	43.93
10-14 years	97	56.07
Total	173	100

Table IV. Distribution of PTSD children by gender:

Gender	Number	%
Male	111	64.16
Female	62	35.84
Total	173	100

Table V. Children aged 5 to 14 years Referred then found to have PTSD, comparison between genders:

PTSD-By age	Male	Female	Male as % of total	Female as % of total
5 years	7	4	4.05	2.31
6 years	8	5	4.62	2.89
7 years	12	9	6.94	5.20
8 years	9	3	5.20	1.73
9 years	12	7	6.94	4.05
10 years	11	5	6.36	2.89
11 years	11	6	6.36	3.47
12 years	16	9	9.25	5.20
13 years	12	6	6.94	3.47
14 years	13	8	7.51	4.62
Total	111	62	64.16	35.84

withdrawal, or decreased interest in usual activities.

In children, this may take the form of loss of previously acquired developmental skills such as toilet training.[14, 15, 16]

Increased arousal includes sleep disturbances, irritability, increased startle response, and concentration problems. In children, increased arousal may be observed when a child is exposed to situations associated with the traumatic event.[15,16] Appendix 1[10] summarizes the symptom list of PTSD.

Although the definition of PTSD in DSM-IV does consider symptomatology in children it is still adult focused.[17]

Gaza area has been in a state of war for around 60 years. The background of the present study was the war in Gaza that started in December 2008 with quite intensive bombing causing loss of lives, homes and other resources. This war also had a strong influence on the psychological and social functioning of Palestinians living in the affected area.

Methods

This study was conducted at the Jordanian field hospital located in Gaza city, during the period between 26th December 2009 and 25th February 2010 where data was collected 12 months after the start of the latest war acts in the area.

We included children aged 5-14 years, who were subdivided into two categories; the first 5-9 years and the second 10-14 years. Participants were from different places in Gaza strip.

Data were collected from the sample by means of a well structured clinical psychiatric interview with children and their parents; based on (DSM IV-TR) for PTSD, we used the interview of the National Center for PTSD from United states veteran affairs (Appendix 2). History included details about the trauma and course of the illness.

A total of 196 children were interviewed.

Results

A total of 827 children between the ages of 5-14 years, being 425 males (51.39%) and 402 females (48.61%), visited the pediatric and family medicine clinics at our hospital for all sorts of medical problems during the study period.

Out of these children, 196 children were referred to the psychiatry clinic with abnormal behavior being 23.7% of the total studied children.

Table I shows the age distribution of the referred children where those 10-14 years constitutes about 57% of all participants; these ages were combined into two major groups.

The first group (5-9 years) was 84 children (42.86%), while the second group (10-14 years) was 112 children (57.14%) Table I.

The distribution of the referred children according to gender was 131 males (66.84%) and 65 females (33.16%) as shown in table II

PTSD was found in 173 children being (20.9%) of the whole study sample and (88.27%) of the referred children.

Table III presents the PTSD which was found in 76 children (43.93%) of the first age group, and in 97 children (56.07%) of the second age group. Males formed 64.16% of cases, and females 35.84% Table IV.

Statistical analysis showed the average males age to be 9.98 years, and the average females age 9.90 years.

The number of samples, n1=111, n2=62, variance s1 was 0.66 for males, s2 was 2.81 for females.

Discussion

Our study revealed a high level of PTSD among children in Gaza, this is reflected by the fact that (20.9%) of all children visiting our hospital in the 5-14 years age range suffer from PTSD symptoms.

We could not find data describing PTSD symptoms included in table 5 in Gaza children prior to December 2008.

This percentage corresponds with the levels of PTSD in other studies i.e. the Lebanese[18] study (27%) and the Israeli study (22-25%) [3] but lower than that reported in other studies like a previous Palestinian study (59%),[19] a Turkish study (60%),[20] an Iraqi study (84 %),[21] and an Iranian study.[22] Our percentage was higher than the Kuwaiti study (4%).[23]

Studies which have high prevalence rates of PTSD relate this to various factors, including lack of care and treatment to this age group, lack of social support, and also that the military threat and aggression is long standing and continuous with sporadic aggressions from time to time.

These contributing factors are all existed in Gaza at the time of the current study.

The difference in percentage of PTSD in different studies could be due to the difference in the threshold of tolerance at various parts of the world as well as due to the difference in severity of the insult causing the psychological trauma.

In previous studies in Gaza during previous conflicts in years 2003,[24] and 2004[25] the most common traumatic events reported by Palestinian children were seeing victims' pictures on television, and witnessing bombardment and shelling; with between one-third and half of the children in different samples fulfilling criteria for PTSD.[24,25] They were also likely to present with high rates of anxiety or depressive disorders.[25,26]

Another contributing factor for the problem in Gaza is the severe social and economic consequences of the war, which includes home destruction and imprisonment of many family members of the affected homes.

Our observation is that the majority of children who were found to have PTSD was directly exposed to military violence due to the fact that they reside in the hottest border fronts in the north of Gaza strip, namely Jabalia, Bait Lahia, and Bait Hanoon. Many of these children's houses were demolished.

This is in contrast to children living in non-bombarded areas where symptoms were more likely to be anticipatory anxiety symptoms.

These results are consistent with other studies.[19, 27, 28]

We noticed no obvious decline in the severity and persistence of symptoms in the affected children in spite of the long period since the latest major military actions, this is probably due to the still existing military threat, in addition to the seize being imposed on Gaza, with its financial and social difficulties.

The frequency of PTSD in children may vary according to gender; most of the studies reported that females are more liable to develop symptoms of PTSD, for example,[21,29-31] while in some other studies there were no differences in the occurrence of PTSD among both genders[19,32,33] but in our study we found that symptoms of PTSD are more prevalent among males rather than female patients, similar to other studies.[34, 35]

Our explanation for male predominance for PTSD in our study is the feeling of the local population of shame towards bringing a female to hospital, especially to a psychiatry clinic, this is because of fear of getting the social stigmata of being sick with a 'psychiatric problem' which may affect future marriage proposals.

Research shows contradictory results regarding the association between child's age and PTSD: some studies have higher prevalence in younger children[36,37,38] who have been found to be vulnerable in war situations. While in other studies young children have been suggested to be protected due to their less accurate perception and

understanding of trauma[39,40] while others argue that young children are more vulnerable due to their less effective coping capacities.[36,41]

In our study we found that the older age group 10-14 years had more frequent PTSD (Table IV).

Children who were less likely to recover from PTSD symptoms over time were those with exposure to stronger short-term posttraumatic stress reactions, those with higher eyewitness exposure to war violence and more use of expressive coping, and less social support as has been found in a study from Croatia.[42]

The most frequent PTSD symptoms we encountered in this area were those of lack of concentration causing academic impairment, suffering from nightmares, getting easily upset and angry, and even bed wetting.[43, 44]

Bed wetting could be the most disturbing symptom to most of the families we have interviewed during our study.

Further studies with a broader area and perhaps longer follow up periods than this study to elicit the true size of the problem of PTSD among children in the area of Gaza are needed.

Conclusion

The Gaza strip area suffered to a massive extent over the past years which led to a serious frequency of post traumatic stress disorder amongst its children. In view of the persistent threats, siege, and lack of social and medical support, chances are little of having a decline in the symptoms of post traumatic stress disorder as well as a decrease in the number of new post traumatic stress disorder cases.

References

1. **Thabet AA, Abu Tawahina A, El Sarraj E, *et al.*** Exposure to war trauma and PTSD among parents and children in the Gaza strip. *European Child Adolescent Psychiatry* 2008 Jun; 17(4):191-199.
2. **Nader K, Pynoos R, Fairbanks L, *et al.*** A preliminary study of PTSD and grief among the children of Kuwait following the Gulf crisis. *Br J Clin Psychol* 1993; 32: 407–416.
3. **Laor N, Wolmer L, Mayes L**, ***et al.*** Israeli pre-school children under scuds: a 30-month follow-up. *J Am Acad Child Adolesc Psychiatry* 1997; 36: 349–356.
4. **Ahmad A, Sofi MA, Sundelin-Wahlsten V, *et al.*** Posttraumatic stress disorder in children after the military operation "Anfal"in Iraqi Kurdistan. *Eur Child Adolesc Psychiatry* 2000; 9: 235–243.
5. **Kuterovac G, Dyregrov A, Stuvland R.** Children in war: a silent majority under stress. *Br J Med Psychol* 1994; 67: 363–375.
6. **Ajdukovic M**. Displaced adolescents in Croatia: sources of stress and post traumatic stress reaction. *Adolescence* 1998; 33: 209–217.
7. **Papageorgiou V, Frangou-Garunovic A, Iodanidou R, *et al.*** War trauma and psychopathology in Bosnian refugee children. *Eur Child Adolesc Psychiatry* 2000; 8: 84–90.
8. **Smith P, Perrin S, Yule W, *et al.*** War exposure and maternal reactions in the psychosocial adjustment of children from Bosnia-Herzegovina. *J Child Psychol Psychiatry* 2001; 42: 395–404.
9. **Barenbaum J, Ruchin V, Schwab-Stone M**. The psychosocial aspects of children exposed to war: practice and policy initiatives. *J Child Psychol Psychiatry* 2004; 45:41–62
10. **Montogmery E, Foldspan A.** Validity of PTSD in a sample of refugee children: can a separate diagnostic entity be justified? *Internation Journal of Methods in Psychiatric Research* 2006; 15(2):64-74.
11. **Vernberg EM.** Children responses to disaster: Family and system approaches. In R. Gist & B. Lubin (Eds.), Response to disaster: Psychological, community and ecological approaches (Washington, DC: Taylor & Francis. 1999; 193–209.
12. **Donnelly CL, Amaya-Jackson L.** Post-traumatic stress disorder in children and adolescents: epidemiology, diagnosis and treatment options. *Paediatr Drugs* 2002; 4(3):159-170.
13. **Monahon C.** Children and trauma: parents guide to helping children heal. Toronto: Maxwell Macmillan. 1993.
14. American Psychiatric Association Diagnostic and statistical manual of mental health disorders: text revision, 4th edn. Author, Washington 2000.
15. **Keppel-Benson JM, Ollendick TH.** Post-traumatic stress disorder in children and adolescents. In: Saylor JF (ed) Children and disasters. Plenum, NewYork 1993; 29–44
16. **Cohen JA**. Practice parameters for the assessment and treatment of children adolescents with posttraumatic stress disorder. *Am Acad Child Adolesc Psychiatry* 1998; 37:4S–26S
17. **Sundlin-Wahlesten V, *et al.*** Traumatic experiences and post-traumatic stress reactions in children from Kurdistan and Sweden. *Act Paediatr* 2001; 90:563- 568.
18. **Saigh PA.** The development of posttraumatic stress disorder following four different types of traumatization. *Behav Res Therapy* 1991; 29:213–216.
19. **Thabet AA, Abed Y, Vostanis P.** Emotional problems in Palestinian children living in a war

zone: a cross-sectional study. *Lancet* 2002; 359(9320):1801-1804.
20. **Bal A, Jensen B.** Post-traumatic stress disorder symptom clusters in Turkish child and adolescent trauma survivors. *European Child & Adolescent Psychiatry* 2007; 16(7): 449-457.
21. **Dyregrov A, Gjestad R, Raundalen M.** Children exposed to warfare: a longitudinal study. *J Traumat Stress* (2002) 15: 59-68.
22. **Mahmoud M, Mohammadi MR, Mohammad BA.** Post-traumatic stress disorder symptoms of children following the occurrence of tehran city park disaster. *The Journal of Psychology: Interdisciplinary and Applied* 2006; 140(3): 181 – 186
23. **Hadi FA, Llabre MM.** The Gulf crisis experience of Kuwaiti children: Psychological and cognitive factors. *Journal of Traumatic Stress* 1998; 11: 45-56.
24. **Qouta S, Punamaki R, El Sarraj E.** Prevalence and determinants of PTSD among Palestinian children exposed to military violence. *Eur Child Adol Psychiatry* 2003; 12:265–272
25. **Thabet AA, Abed Y, Vostanis P.** Comorbidity of post-traumatic stress disorder and depression among refugee children during war conflict. *J Child Psychol Psychiatry* 2004; 45:533–542
26. **Thabet AA, Abed Y, Vostanis P.** Emotional problems in Palestinian children living in a war zone: a crosssectional study. *Lancet* 2002; 359:1801–1804
27. **Lonigan C, Shannon M. Taylor C, Finch J, Sallee F.** Children exposed to disaswter: II, Risk factors for the development of post traumatic syptomatology. *J Am Acad Child Adol Psychiatry* 1994; 33:94-105
28. **Qouta S, Punamaki R, El Sarraj E.** House demolishion and mental health: Victims and witnesses. *J Soc Distress Homless* 1997; 6:203-211
29. **Smith P, Perrin S, Yule W, Hacam B, Stuvland R**. War exposure among, children from Bosnia-Herzegovina: psychological adjustment in a community sample. *J Traumat Stress* 2002; 15: 147–156
30. **Pfefferbaum B.** Posttraumatic stress disorder in children: a review of the past 10 years. *J Am Acad Child Adoles Psychiatry* 1997; 36:1503–1511
31. **Chieko, *et al*.** Prevalence of post-traumatic stress disorder in incarcerated juvenile delinquents in Japan Psychiatry and Clinical Neurosciences. 2004; 58(4): 383-388.
32. **Steiner H, Garcia IG, Matthews Z.** Posttraumatic stress disorder in incarcerated juvenile delinquents. *J Am Acad Child Adolesc Psychiatry* 1997; 36: 357–365.
33. **Cauffman E, Feldman SS, Waterman J, *et al.*** Posttraumatic stress disorder among female juvenile offenders. *J Am Acad Child Adolesc Psychiatry* 1998; 37: 1209–1216.
34. **Heptinstall E, Vaheshta S, Eric T.** PTSD and depression in refugee children, associations with pre-migration trauma and post-migration stress. *Eur Child adolesc Psychiatry* 2004; 13: 373-380
35. **Habimana TME, Biron C.** The qubec adolescent refugee project: Psycopathology and family variables in a sample from 35 nations. *J Acad Child Adolesc Psychiatry* 1999; 38: 1426-1432.
36. **Weisenberg M, Schwarzwald J, Waysman M, *et al.*** Coping of school-age children in the sealed room during scud missile bombardment and postwar stress reactions. *J Consult Clin Psychol* 1993; 61:462–467
37. **Nader KO, Pynoos RS.** The children of Kuwait after the Gulf crisis. In: Leavitt LA, Fox NA (eds) The psychological effects of war and violence on children. Lawrence Erlbaum, New Jersey, London. 1993; 181–195
38. **Sack WH, Clarke GN, Seeley J.** Posttraumatic stress disorder across two generations of Cambodian refugees. *J Am Acad Child and Adoles Psychiatry* 1995; 34:1160–1166
39. **Jensen PS, Shaw J.** Children as victims of war: current knowledge and future research needs. *J Am Acad Child & Adoles Psychiatry* 1993; 32:697–708
40. **Pfefferbaum B.** Posttraumatic stress disorder in children: a review of the past 10 years. *J Am Acad Child Adoles Psychiatry* 1997; 36:1503–1511
41. **Punamaki RL, Puhakka T.** Determinants and effectiveness of children's coping with traumatic experiences. *Intern J Dev Behav* 1997; 21:349-370.
42. **Kuterovac-Jagodić G.** Posttraumatic stress symptoms in Croatian children exposed to war: a prospective study. *J Clin Psychol* 2003 Jan; 59(1):9
43. Eidlitz M, Shuper A, Amir J. Secondary enuresis: post-traumatic stress disorder in children after car accidents. *Israel Medical Army Journal* 2000; 2:135–137
44. **Albano AM, Miller PP, Zarate R, *et al.*** Behavioral assessment and treatment of PTSD in prepubertal children: Attention to developmental factors and innovative strategies in the case study of a family. *Cognitive and Behavioral Practice* 1997; 4(2): 245-262

Appendix 1:

Symptoms list:[10]

Re-experience	Dreams about traumatic events
	Speaks about traumatic events
	Suffers from nightmares
	Gets scared when hearing shooting
Avoidance	Does not play with other children
	Has lost previous interests
	Avoids talking about traumatic events
	Feels hopeless about the future
Arousal	Has problems falling asleep
	Has problems staying asleep
	Is easily upset and angry
	Is easily aroused
	Lacks concentration – when watching TV or when told a story

Appendix 2

The Childhood PTSD Interview is a 95-item semi-structured interview that assesses DSM-IV PTSD diagnosis and associated symptoms. It includes a description of the event(s), 63 symptom items (3-6 items for each DSM-IV symptom), and 32 associated symptom items (2-5 for each of 11 associated symptoms). Each item is rated dichotomously as being present or absent (i.e., “yes” or “no”). The Childhood PTSD Interview yields a categorical score of PTSD diagnosis as well as a continuous severity score obtained by adding all endorsed items. The questions are written at the third-grade reading level, but it has been used with younger children. There is also a Parent Form that assesses the same dimensions as the Child Form using language appropriate for adults in which a parent answers the questions with respect to the child’s symptoms.