

COMORBIDITY OF DEPRESSION AND ANXIETY IN PALESTINIAN CHILDREN VICTIMS OF WAR ON GAZA

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Abstract

Aim: The aim of this study was to investigate the impact of war on children with depression and anxiety.

Methods: The study was conducted in the entire Gaza Strip two weeks after the end of the War on Gaza that lasted for 23 days. The study sample included 374 children aged 6 to 17 years. Children completed measures of experience of traumatic events (Gaza Traumatic Checklist-War on Gaza), Birlson Depression Inventory, and Child Revised Manifest Anxiety Scale.

Results: Palestinian children experienced a variety of traumatic events: 93.9% heard shelling of the area by artillery, 93.9% heard the sonic sounds of the jetfighters, 69% left home for a safer place, and 24.5% were exposed to burn by bombs. Each child reported 12.80 traumatic events. The study showed that mean traumatic events was 13.8: 33.5% of children reported low traumatic level, 51.2% reported moderate level, and 15.3% reported high level of traumatic events.

No gender differences in depression scores, and no statistical association between total trauma and depression scores. However, total depression scores were positively predicted by being forced to leave home under threat of war and being threatened with shooting, while physical injury due to bombardment of their home negatively predicted depression.

Mean anxiety score was 11.05. No gender differences were found in the level of anxiety. Total anxiety scores were negatively associated with shooting by bullets, rockets, or bombs, witnessing a friend's home be demolished and witnessing one's own home demolished, while witnessing the killing of friend was positively correlated with anxiety.

The results showed that 237 of children had no anxiety or depression (63.5%), 95 children had either depression or anxiety (25.5%), and 41 children had comorbidity of depression and anxiety (11%).

Conclusions: This study revealed that children living in areas of conflict and war are the main group at risk of developing depression and anxiety, and the international laws must protect the civilians during the conflict, establishing safe havens for children and their families to decrease the effect of war on children. Also, we recommended doing more follow-up studies of the same sample after 6 months to evaluate the effect of continuous trauma on children's mental health problems. More intervention programs such as expressive writing therapy, mind body, school basis crisis intervention, group's intervention, and cognitive behaviour methods should be applied and evaluated for its efficacy in developing better coping strategies with similar traumatic events.

Introduction

On 27th December 2008 a new chapter of the conflict in the Middle East between the Israelis and Palestinians started to be written in which a new wave of violence erupted where at least 1,330 Palestinians were killed and 5,500 were injured in the Gaza Strip. This war on Gaza continued for 23 days. According to new data that emerged from people working in the field, changes in the types of psychological symptoms were observed such as excessive fears, panic attacks, amnesia, helplessness, hopelessness, uncertainty of the current situation and the future

psychological disorders and exposure to political and military violence in the area. Review of the literature on the relationship between showed that anxiety, psychosomatic, and depression symptoms seem to be shared by most children who were subjected to political or military violence irrespective of their ethnic or cultural background.

Previous studies showed that PTSD is not the only reaction to trauma, but children reported depression, anxiety, and ADHD symptoms. Thabet and Vostanis (1998) in a study of social adversities and anxiety disorders in Palestinian children showed

that 21.5% of children showed anxiety problems. Anxiety disorders varied from study to study according to the type of traumatic event and sample size. Papageorgiou et al. (2000) in a study of 95 children between 8 and 13 years old who had experienced war in Bosnia found that the rate of anxiety was 23.0%; Scholte et al. (2004) in a study of a sample of 1,011 respondents aged 15 years or older conducted in the Nangarhar province found that 38.5% had anxiety disorders. Also, depression was one of the common psychological disorders found in children exposed to political violence. Papageorgiou et al. (2000) described the pattern of psychopathology in a sample of 95 children between 8 and 13 years old who had experienced war in Bosnia. The study found that 47% scored within the clinical range on the Depression Self-Rating Scale for Children. Thabet et al (2004) in a study of comorbidity of PTSD and depression among refugee children during war conflict in the Gaza Strip Exposure to traumatic events, strongly predicted MFQ scores: 23.9% of children scores were within PTSD range. In another study, Scholte et al. (2004) aimed to determine the rate of exposure to traumatic events; estimated prevalence rates of symptoms of PTSD, depression, and anxiety found that high rates of symptoms of depression were reported by 391 respondents (38.5%); anxiety, 524 (51.8%); and PTSD, 207 (20.4%). Thabet et al. (2007) in a study of 420 children in the Gaza Strip showed that 25.4% reported anxiety scores within the clinical range, 268 children (65.5%) were rated within the clinical PTSD range, and 203 children (49.6%) were rated within the range for likely clinical morbidity according to SDQ-parents. Previous studies in the area showed that there were differences in level of PTSD, depression, and anxiety in children at risk. Other researchers tried to find the effect of trauma on mental health problems, Elbedour et al (2007) in a study of 229 Palestinian adolescents living in refugee camps of Rafah and Khan-Younis in the southern region of the Gaza Strip showed that 68.9% of the sample was classified as having developed PTSD, 40% of the participants reported moderate or severe levels of depression, 94.9% of the sample was classified as having severe anxiety levels. In another study Thabet and Vostanis (2007) showed that 65.5% of children were rated within the clinical PTSD range. Also, 25.4% of children reported anxiety scores within the clinical range and 49.6% were rated within the likely clinical range, according to the previous SDQ by parents. Also, Thabet et al (2008a) in a study of 200 families from North Gaza and East Gaza showed that 70.1% of children were likely to have PTSD, 33.9% were rated as having anxiety symptoms of likely clinical significance, and 42.7% were rated as having significant mental health morbidity by their parents. Similarly, Khamis (2008) in a study aimed to assess the occurrence of PTSD and psychiatric disorders (i.e., anxiety and depression) in Palestinian adolescents following intifada-related injuries found that 137 adolescents (76.5%) in the sample met full criteria for PTSD diagnosis after they had been injured by live ammunition. About 41 (29.9%) of the cases had a delayed onset – that is, the onset of symptoms occurred more than six months after the trauma. In regard to depression and anxiety, significant differences were found between PTSD and non- PTSD adolescents on the depression and anxiety scales. Adolescents who exhibited PTSD symptoms were more likely to report higher levels of depression and anxiety.

In a study of the effect of shelling the Gaza area, Thabet et al. (2008) in a sample of 200 families and children found that 33.9% were rated as having anxiety symptoms of likely clinical significance, and 42.7% of children were rated as having significant mental health morbidity by their parents.

Not only was the effect of violence on children studied, but so was a group of children that were considered children at risk, such as children who lost their parents due to sudden death, children living in orphanages, labour children, and children with physical disabilities. Thabet et al. (2007) in a study to establish the level of emotional problems among 115 orphaned children in the Gaza Strip found that 39.3% reported PTSD, 49.0% reported depression, and 28.5% reported anxiety. Mater et al. (2007) conducted a study that aimed to identify the impact of labor on children's general mental health and anxiety. The study showed that 79.2% of children were rating themselves as psychiatric cases, 33.9% of children reported hyperactivity; 38% reported emotion problems, 56.3% reported conduct disorder, 79.1% had good peer relationships. Also, 20.6% reported obsessive compulsive problems, 18% reported social phobia, 17.7% had generalized anxiety, 17.7% had panic and agoraphobia, 10.7% had physical injury, and 15.3% had separation anxiety.

The aim of this study was to investigate the impact of war on children depression and anxiety and comorbidity of the two disorders.

Methods

Setting and Sample

The Gaza Strip is a narrow elongated piece of land, bordering the Mediterranean Sea between Israel and Egypt, and covers 360 km². It has a high population density. About 17% of the population lives in the north of the Gaza Strip, 51% in the middle, and 32% in the south area. There is high unemployment, socioeconomic deprivation, family overcrowding, and short life expectancy. Nearly two-thirds of the population 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, resulting in at least 200 deaths and many more injuries in the last six months alone.

The study population included 374 children living in areas that were exposed to war that lasted for 23 days including the entire Gaza Strip. The total sample was selected using EPI 6 in which the total sample was 380 children. We added 20 children to the sample for missing interviews. Children were selected randomly from families from the five areas of the Gaza Strip. One street was selected in each area, and every third household that fulfilled the selection criteria. In larger buildings, one flat from each floor was selected.

The data collection was carried out by eight trained professionals under the supervision of the Dr. Thabet. The data was collected during February 2008. Children were interviewed in their homes after getting written consent from parents to participate in the study. One of the difficulties of this study was that, throughout the interviews, there were strong feelings of hostility, anger, and intolerance to interview in the selected areas, for which reason the interviews had to be discontinued with some children and to be repeated later on.

Measures

Demographic Characteristics

Demographic information about the participants was obtained using a survey developed by the authors. This questionnaire included gender, age, number of children, and education level.

Traumatic Events

Traumatic events were assessed by checklists that reflected the nature of violence, trauma and losses during the war on Gaza. Israeli military violence was assessed by the Gaza Traumatic Events Checklist for Israeli Violence (Thabet, Abdulla, El Helou, and Vostanis, 2006) consisting of 30 items covering three domains of events typical for the Israeli siege: (1) personally witnessing acts of violence (e.g. killing of relatives, home demolition, bombardment, and injuries); (2) having experiences of loss, injury and destruction of family and/or other close persons; and (3) being the target of violence (e.g., being shot, injured, or beaten by the soldiers). In the checklist, children were asked whether they had been exposed to each of these events: (0) no, (1) yes during the 23 days of war. The internal consistency of the scale calculated using Cronbach's alpha, was $\alpha=0.90$ and split half was 0.81.

The Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds C, & Richmond B., 1978, 1987)

This is a standardised 37-item self-report questionnaire for children between 6 and 19 years of age (Reynolds C, & Richmond B, 1978). It measures the presence or absence of anxiety-related symptoms ('yes/'no' answers) in 28 anxiety items and 9 lie items. A cut-off total score of 19 has been found to predict the presence of anxiety disorder (Thabet and Vostanis, 1998). The internal consistency of the scale calculated using Cronbach's alpha, was $\alpha=0.89$ and split half was 0.89.

Birleson Depression Inventory (BDI: Birleson, 1981)

This self-completed inventory, also known as the Depression Self Rating Scale for Children, consists of 18 items. The scale has been found to differentiate between depressed and nondepressed British children. A cut-off score of 15 is 6 times more likely to be associated with a diagnosis of depression and provides acceptable specificity and sensitivity (Birleson, Hudson, Buchanan, & Wolff, 1987). The scale has been used with children aged 7 to 18 years and normative data on 250 school children aged 11 to 15 years has been reported (Firth & Chaplin, 1987; Yule, 1992). The internal consistency of the scale calculated using Cronbach's alpha, was $\alpha=0.67$ and split half was 0.57.

Statistics analyses

Cross tables with Pearson χ^2 -statistics were applied to analyse the associations between demographic factors, trauma, psychiatric symptoms, and gender differences in exposure to traumatic events, depression and anxiety. T-tests were applied to analyse gender differences in trauma, and psychiatric symptoms. To analyse the predictive role of traumatic experiences by children, depression and anxiety, we used hierarchical multiple regression analyses with main and interaction effects. The estimated main effects indicate direct associations between trauma and psychiatric symptoms. The dependent variables were depressive and anxiety symptoms, and the independent variables were 30 traumatic experiences. Also, children who were rated as having both depression and anxiety were rated, and a prediction of comorbidity by traumatic events was evaluated using multiple regression analysis.

Results

Sociodemographic characteristics of study population (N = 374)

The sample consisted of 374 children, 197 were males (52.7%) and 177 were females 47.3%. The age ranged from 6 to 17 years with a mean age of 11.09 (SD = 2.9). According to place of residence, 34.2% were from North Gaza, 24.9% were from Gaza city, 15.8% were from middle area, 7.8% from Khan Younis, and 17.4% were from Rafah area. According to type of living, 44% live in cities, 20.9% live in villages, and 34.8% live in refugee camps. According to family monthly income, 60.9% had less than 300 US \$ monthly, 26.0% had 301-650 US \$ monthly, and 13.1% had 651 US \$ and above.

Table 1 : Sociodemographic characteristics of study population (N = 374)

Characteristics	#	%
1. Gender		
Male	197	52.7
Female	177	47.3
Mean = (SD = 7.48)		
2. Place of residence		
North Gaza	128	34.2
Gaza	93	24.9
Middle area	59	15.8
Khan Younis	29	7.8
Rafah area	65	17.4
3. Type of residence		
City	166	44.4
Village	78	20.9
Camp	130	34.8
4. No of siblings		
Less than 4	99	26.5
5-7 siblings	172	46.0
8 and more	103	27.5
5. Family monthly income		
Less than 300 US \$	190	60.9
301-650 \$	81	26.0
651\$ and more	41	13.1
6. Father's job		
Unemployed	109	36.8
Simple worker	54	18.2
Skilled worker	39	13.2
Employee	72	24.3
Merchant	11	3.7
Others	11	3.7
7. Mother's job		
Housewife	296	90.2
Simple worker	10	3.0
Employee	12	3.7
Others	10	3.0

Types of traumatic events

Palestinians children experienced a variety of traumatic events: 93.9% heard shelling of the area by artillery, 93.9% heard the sonic sounds of the jetfighters, 91.4% witnessed the signs of shelling on the ground, 94.9% watched mutilated bodies on TV, 73% were deprived from water or electricity during the war, and 69% said they left home for a safer place.

Types of traumatic events	#	%
1. Watched mutilated bodies in TV	335	94.9
2. Heard shelling of the area by heavy artillery	351	93.9
3. Heard the sonic sounds of the jetfighters	351	93.9
4. Witnessed the signs of shelling on the ground	342	91.4
5. Deprivation from water, food, or electricity during the war	273	73
6. Forced to move from home to a safer place during the war	258	69
7. Witnessed firing by tanks and heavy artillery at neighbours homes	239	63.9
8. Witnessed the shelling and destruction of another's home	225	60.2
9. Witnessed assassination of people by rockets	203	54.3
10. Were detained at home during incursion	198	52.9
11. Heard killing of a non relative	177	47.3
12. Heard killing of a relative	167	44.7
13. Heard the arrest of someone or a friend	157	42
14. Threatened by shooting	150	40.1
14. Destruction of personal belongings during the war	133	35.6
15. Witnessed firing by tanks and heavy artillery at own home	127	34
16. Witnessed shelling and destruction of own home	124	32.2
17. Deprivation of going to the toilet and leaving the room at home because of the firing and shelling in the area	101	27
18. Witnessed shooting of a friend	89	23.8
19. Witnessed killing non relative	86	23
20. Witnessed shooting of a relative	85	22.7
21. Exposure to burn by bombs and phosphorous bombs	84	22.5
22. Witnessed killing of a relative	81	21.7
23. Beaten and humiliated by the army during the war	72	19.3
24. Threatened with a family member being killed	69	18.4
25. Shot by bullets, rocket, or bombs	61	16.3
26. Threatened with being killed	61	16.3
27. Physical injury due to bombardment of your home	58	15.5
28. Threatened with death by being used as human shield by the army to move from home to home	54	14.4
29. Detained for hours during the war	49	13.1

Table 2: The most common traumatic events

Mean of traumatic events

The study showed that the mean traumatic events was 13.8 (SD =6.1). The results showed that the mean traumatic events reported by males was 13.032 (SD =6.46) compared to mean in female =12.50 (SD = 6.64). No significant differences between males and females in reporting traumatic events ($t=0.78, p = 0.44$).

Level of traumatic events

In order to find the severity of traumatic events, 30 items were recoded into 0-9 low level traumatic events, 10-19 moderate level, and 20 and above severe level. The results showed that 33.5% of children reported low level, 51.2% reported moderate level, and 15.3% reported high level of traumatic events.

Table 3: Level of traumatic events

Traumatic events	#	%
Low level	125	33.5
Moderate level	191	51.2
High level	57	15.3

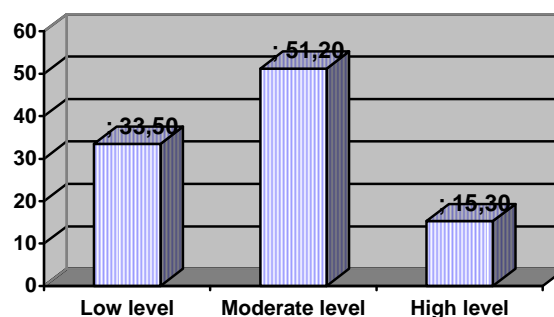


Figure 1: Level of traumatic events

Depression symptoms according to Birleson depression scale

Palestinian children reported a variety of depression symptoms: 51.5 % said they did not enjoy the things they do as much as they used to, 58.7% said they have no energy, and 44.9% said they do not sleep very well. The child mean depression score was 18.77 (SD =4.7).

Table 4: Depression symptoms according to Birleson depression scale

	Always	Sometimes	No
I enjoy the things I do as much as I used to	9.4	39.1	51.4
I have lots of energy	10.9	30.4	58.7
I get tummy aches	12.3	48.6	39.1
I sleep very well	13.8	41.3	44.9
I am good at the things I do	13.8	61.6	24.6
I feel so sad I can hardly stand it	13.8	48.6	37.7
I am easily cheered up	14.5	52.2	33.3
I enjoy my food	16.7	45.7	37.7
I look forward to things as much as I used to	17.4	47.8	34.8
I feel very lonely	19.6	44.2	36.2
I think life isn't worth living	22.5	49.3	28.3

I feel very bored	24.6	60.1	15.2
I feel like running away	26.8	38.4	34.8
I feel like crying	27.5	53.6	18.8
I like to go out to play	32.6	38.4	29
I have bad dreams	34.1	48.6	17.4
I can stick up for myself	34.3	42.3	23.4
I like talking with my family	49.3	41.3	9.4

The independent test was done to find gender differences in mean depression scores. The results showed that mean depression in boys was 18.6 (SD = 4.91) compared to 18.93 (SD = 4.57) in girls. There was no significant differences between boys and girls in total depression scores ($t = -0.56, p = 0.32$). Also, age of children was recoded into two groups (6-12 years, and 13 years and above). There were no significant differences in depression according to age group of children.

Pearson correlation test was done to find the relationship between total traumatic events and depression. The results showed no statistical association between depression scores and total trauma.

One way ANOVA was performed to find differences between depression as dependent variable and place of residence, type of residence, and family monthly income. The results showed no statistically significant differences in total depression scores and other sociodemographic variables.

Determinants of depression scores and traumatic events

In order to find out the predictive effect of traumatic events on psychological symptoms, total depression was entered as a dependent variable in a multiple regression model, with traumatic events as the independent variables. The results showed that the total depression score was positively associated with being forced to leave home under threat of war ($B = .13, p < 0.02$) and threat of shooting ($B = .11, p < 0.03$), while physical injury due to bombardment of their home was negatively associated with depression ($B = -.14, p < 0.009$).

Table 4: Linear Regression analysis of depression and traumatic events

	Unstandardized Coefficients		Standardized Coefficients	t	p
	B	Std. Error	Beta		
(Constant)	17.700	.459		38.560	.000
30. Forced to leave home during the war	1.337	.528	.130	2.531	.012
18. Physical injury due to bombardment of home	-1.864	.707	-.142	-2.636	.009
22. Threatened with shooting	1.148	.528	.118	2.176	.030

F = 5.2, p < 0.05, R² = 0.04

Anxiety symptoms according to RCMAS

The study showed that 88.1% said they get nervous when things do not go the right way for them, 80.5% said they were worried about what is going to happen, 75.4% afraid of a lot of things, 74.4% said their feelings get hurt easily when they are fussed at, 72.9% worry about what their parents will say to me, and 71.6% said it is hard to get to sleep at night. The mean anxiety score was 11.05 (SD = 6.8). Using a cut-off point of 18

and more as anxiety, 64 children (17.2%) reported themselves as having anxiety and 309 children (82.8%) reported no anxiety.

Table 5: Anxiety symptoms according to RCMAS

	#	%
I get nervous when things do not go the right way for me	118	88.1
I worry about what is going to happen	107	80.5
I am afraid of a lot of things	101	75.4
My feelings get hurt easily when I am fussed at	99	74.4
I worry about what my parents will say to me	97	72.9
It is hard to get to sleep at night	96	71.6
I often worry about something bad happening to me	96	72.2
I wiggle in my seat a lot	92	69.7
I worry a lot of the time	91	67.9
I get mad easily	91	67.9
Others seem to do things easier than I can	90	67.2
I wake up scared some of the time	90	67.7
I worry when I go to bed at night	90	67.7
It is hard to keep my mind on my school work	86	64.7
Other children are happier than I	85	63.9
My feelings get hurt easily	84	63.2
I am nervous	84	63.2
I have bad dreams	80	60.2
I have trouble making up my mind	79	59
I worry about what other people think about me	79	59.4
I feel someone will tell me I do things the wrong way	73	54.9
Often I have trouble getting my breath	62	46.3
I am tired a lot	62	46.6
My hands feel sweaty	56	42.1
I feel that others do not like the way I do things	54	40.3
I feel alone even when there are people with me	47	35.1
Often I feel sick in my stomach	39	29.1
A lot of people are against me	38	28.6

Determinants of anxiety scores and traumatic events

In order to find out the predictive effect of traumatic events on psychological symptoms, total anxiety symptoms were entered as a dependent variable in a multiple regression model, with traumatic events as the independent variables. The results showed that the total anxiety scores were negatively associated with shooting by bullets, rockets, or bombs ($B = -.14, p < 0.006$), witnessing a friend's home be demolished ($B = -.14, p < 0.008$), and witnessing one's own home be demolished ($B = .15, p < 0.005$), while witnessing the killing of a friend was positively correlated with anxiety ($B = .15, p < 0.02$).

Table 6: Linear Regression analysis of anxiety and traumatic events

	Unstandardized Coefficients		Standardized Coefficients	t	P
	B	Std. Error	Beta		
(Constant)	13.771	.685		20.095	.000
30. Forced to leave your home during the war	-2.104	.756	-.144	-2.784	.006
11. Witnessing of a friend home demolition	-2.028	.760	-.147	-2.669	.008

6. Witnessing killing of a friend	2.417	.865	.151	2.795	.005
10. Witnessing of own home demolition	1.948	.834	-.135	2.335	.020

F = 9.3, p < 0.05, R² = 0.09

Comorbidity of depression and anxiety

In order to find the comorbidity of depression in children, children who scored above 19 on the anxiety scale and 17 in Birlson Depression Inventory were computed and the frequency of depression, anxiety, and comorbidity was calculated. The results showed that 242 of children had no anxiety or depression (64.9%), 95 children had either depression or anxiety (25.5%), and 41 children had comorbidity of depression and anxiety (11%).

Table 7: Comorbidity of depression and anxiety

	#	%
No disorder	237	63.5
Depression or anxiety	95	25.5
Depression and anxiety	41	11.0
Total	373	100.0

Discussion

This study tried to investigate the effect of war trauma on children's anxiety, depression, and comorbidity of the two disorders. This study showed that 94.9% watched mutilated bodies on TV, 93.9% of children heard shelling of the area by artillery, 93.9% heard the sonic sounds of the jetfighters, 91.4% witnessed signs of shelling on the ground, 73% were deprived from water or electricity during the war, 69% said they moved from home to a safer place, and 24.5% were exposed to burn by bombs. These findings were consistent with most of our previous studies in the area (Thabet et al. 2006; Thabet et al. 2007; Thabet et al. 2008).

Our study showed that 17.2% of children had anxiety problems. The rate of anxiety disorder in this study is inconsistent with a higher rate than previous studies which showed a high rate of anxiety. The reported prevalence of 'any anxiety disorder' varied substantially between studies. The lowest rate that was reported was 2.6% in the American 11 year olds in the study by Costello et al. (2003), and the highest was 41.2% in the Japanese 7 to 9 year olds reported by Sugawara et al. (1999). These study findings were consistent with similar studies done in the same period after war: Khahlout and Thabet (2009 in Press) in a study of Palestinian children exposed to political violence showed that 20.8% reported anxiety problems. The prevalence of anxiety appears to be less than the previous study by Thabet and Vostains (1998) of Palestinian children in the Gaza Strip: similar instruments showed that 21.5% of children reported anxiety disorders. Also, lower than the rate of anxiety in children from Bosnia, Papageorgiou et al. (2000), in a study of 95 children, between 8 and 13 years who had experienced war in Bosnia, found that the rate of anxiety was 23.0%. Results of anxiety rates were lower than that found in Scholte et al. 2004's study of children in Nangarhar province, which found that 38.5% had anxiety disorders. Also, the rate of anxiety in this time is lower than the previous study by Thabet et al. (2007) which aimed to determine the prevalence of PTSD, anxiety, behavioural and emotional problems of Palestinian

children in relation to traumatic events and other socioeconomic status, and found that the rate of anxiety disorder was 33.9%. The lower rate of anxiety could be explained by the facts that this study was done immediately after the war on Gaza when children were in state of denial and disbelief about what happened to them and their families. Also, chronic adversities, including non-improvement of the socioeconomic situation, the siege of the Gaza Strip, and uncertainty of the post-war situation, increase children's other mental health problems rather than their anxiety.

Depression was one of the common psychological disorders found in children exposed to political violence. Our study showed that 69.5% of children scored above the cut-off point on the depression scale. Our study results for the prevalence of depression were higher than the rate of depression in other studies. Papageorgiou et al. (2000) in a study of children who experienced war in Bosnia found that 47% of children scored within the clinical range on the Depression Self-Rating Scale for Children. Scholte et al. (2004) in a study aimed to determine the rate of exposure to traumatic events, and to estimate prevalence rates of symptoms of PTSD, depression, and anxiety found high rates of symptoms of depression were reported by 391 respondents (38.5%) and anxiety (51.8%).

Our explanation of the high rate of depression in this study is that depression is a result of other chronic adversities and not due to traumatic events, and children in Gaza Strip are living under siege for the last two years with high rates of unemployment among parents, restriction of movements, big families, over-crowdedness, domestic violence, and community violence. This is consistent with a previous study of refugee children in the same area (Thabet et al., 2004). Comorbidity of depression and anxiety was 9.9%.

Other issues and limitations

This study was cross sectional. Cross sectional studies can only ever provide a snapshot of disorder prevalence over one period of time; and it has been argued, therefore, that they might underestimate psychopathology. In order to estimate the full burden of mental health throughout childhood, it has been argued that longitudinal studies are required.

Implications

It appears that traumatic events, anxiety, depression, and other emotional and behavioural problems are common disorders of children living in areas of war and conflict. At present, however, it is not clear how many of these children will have an anxiety disorder that is more than a transient phase, or that will develop into another, equally problematic disorder. Although very few studies have yet reported on the persistence of DSM-III-Rⁱⁱ or DSM-IVⁱⁱⁱ disorders from this early part of childhood, there is evidence to suggest that anxiety can be persistent. Research is now clearly needed to investigate the continuity of anxiety, depression, and other mental health problems in children. What are the consequences of this for children, their families, and for society as a whole?

Also, do we need new types of intervention in a wide-scale approach to dealing with increasing numbers of Palestinian children affected by war and trauma? Are the needs for more psycho-education for parents to enable them to recognize their own reactions to war and trauma and their children normal and abnormal reactions to war? Do we have to do more work with

professionals working in community-based organizations and increase their capacity of early detection of children with mental health problems, giving them the clinical skills to deal with children in community and schools? Also, another question raised, are the scales used in this study and other studies valid for diagnosing children with depression, anxiety, and other mental health problems, or do we need to evaluate the child's function in schools, homes, streets, and their lives.

We recommend doing a follow-up study of the same sample after six months to evaluate the effect of continuous trauma on children mental health problems. More intervention programs such as expressive writing therapy, mind body, school basis crisis intervention, group's intervention, and cognitive behaviour methods should be applied and evaluated for its efficacy in developing better coping strategies with similar traumatic events.

References

- Birlleson, P. (1981). The validity of depressive disorder in childhood and the development of a self rating scale. *Journal of Child Psychology and Psychiatry*, 22, 73-88.
- Birlleson, P., Hudson, I., Buchanan, D. G., & Wolff, S. (1987). Clinical evaluation of a self-rating scale for depressive disorder in childhood (Depression Self-Rating Scale). *Journal of Child Psychology and Psychiatry*, 28, 43-60.
- Elbedour, S., Onwuegbuzie, A. J., Ghannam, J., Whitcomed, J. A., Abu Hein, F. (2007). Post-traumatic stress disorder, depression, and anxiety among Gaza Strip adolescents in the wake of the second Uprising (Intifada), *Child Abuse & Neglect*, 31, 719-729.
- Firth, M. A., & Chaplin, L. (1987). Research note: The use of the Birlleson depression scale with a nonclinical sample of boys. *Journal of Child Psychology and Psychiatry*, 28, 43+60.
- Khahlout, A., Thabet, AA. (2009 in press). Impact of Political violence on adolescents mental health in the Gaza Strip.
- Khamis, V. (2008), "Post-traumatic stress and psychiatric disorders in Palestinian adolescents following Intifada-related injuries, *Social Science & Medicine*, 67, 1199-1207.
- Mater, S., Thabet A. A., Vostanis P. (2008), Mental Health problems among labour children in the Gaza Strip, *Arabpsych E Journal*, 18-19, 177-189.
- Papageorgiou, V., Frangou-Garunovic, A., Iordanidou, R., Yule, W., Smith, P., & Vostanis, P. (2000). War trauma and psychopathology in Bosnian refugee children. *European Child and Adolescent Psychiatry*, 9, 84-90.
- Reynolds C, & Richmond B. (1978). What I Think and Feel: a measure of children's manifest anxiety. *J Abn Child Psychology*, 6, 271-80.
- Reynolds C, & Richmond B. (1987). What I Think and Feel: a revised measure of children's

manifest anxiety. *Journal of Abnormal Child Psychology*, 25, 15-20.

- Scholte, W.F., Olf, M.; Ventevogel, P., de Vries, G.J., Jansveld, E., Cardozo, B. L., & Crawford, C. A. (2004). Mental health symptoms following war and repression in eastern Afghanistan. *JAMA*. 4;292(5):626-8.

- 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, 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

- Thabet, A. A., Abdulla, T., El Helou, M., & Vostanis, P. (2006). *Effect of trauma on children mental health in the Gaza Strip and West Bank* (Chapter in a Book, (Eds.) Greenbaum, C. W., Veerman, P., Bacon-Shnoor, N. (2006). Protection of Children During Armed Political Conflict .A Multidisciplinary Perspective. Pp 123-138.

- Thabet, A.A., Abu Tawahina, A., El Sarraj, E , & Vostanis, P (2007) Children Exposed to Political Conflict: Implications for Health Policy. *Harvard Health Policy Review*, 8), 47-57.

- Thabet, L., Thabet, AA, Vostanis, P.(2007). Mental health problems among Orphanage children in the Gaza Strip. *Adoption and Fostering Journal*. 31, 2, 54-62.

- ⁱ posttraumatic stress disorder
- ⁱⁱ Diagnostic and Statistical Manual of Mental Disorder, Third edition, Revised
- ⁱⁱⁱ Diagnostic and Statistical Manual of Mental Disorder, Forth edition

