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Trauma, PTSD, Anxiety and Coping Strategies among Palestinians Adolescents Exposed to War in Gaza

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الصدمات النفسية الناتجة عن الحرب على غزة وعلاقتها بالقلق و كرب ما بعد الصدمة، و طرق التأقلم لدى المراهقين الفلسطينين

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Abstract

Aim: The present study investigated types of traumatic events experienced by Palestinian adolescents exposed to war in Gaza in relation to PTSD, anxiety and coping strategies. **Methods:** The sample comprised 358 adolescents aged 15 to 18 years; 158 boys (44.1%) and 200 girls (55.9%). Self-administrated questionnaires included Gaza Traumatic Events Checklist, Spence Children's Anxiety Scale, Posttraumatic Stress Disorder according to DSM-IV scale, and the Adolescent-Coping Orientation for Problem experiences Scale. **Results:** The mean number of traumatic events reported by adolescents was 13.34 with 90.8% witnessing mutilated bodies on TV, 88.5% exposed to heavy artillery shelling, 86.6% seeing evidence of shelling, and 86.0% hearing sonic sounds from jetfighters. The mean total anxiety was 41.18, obsessive compulsive subscale was 8.90, generalized anxiety subscale was 4.46, social phobia was 6.99, separation anxiety was 6.16, physical injury fears was 5.48, and panic/Agoraphobia was 5.4. Girls reported more anxiety problems than boys; 11.8% of all participants reported no PTSD while 24.2% reported fewer than two symptom clusters. Criterion for partial PTSD was met by 34.31% while 29.8% reported symptoms meeting DSM-IV-TR criteria for full PTSD. Girls also reported more PTSD symptoms than boys. Participants reported coping by developing social support, investing in close friends, and/or engaging in demanding activities. Those reporting traumatic experiences developed less social support and requested more professional support while participants with PTSD coped by ventilating feelings, developing social support, avoiding problems. Participants with fewer PTSD symptoms tended towards solving their family problems while those with anxiety reported ventilating feelings, developing social support, and engaging in demanding activities. Participants with less anxiety sought more spiritual support.

Key words: Trauma, Gaza war, adolescents, anxiety, PTSD, coping

Declaration of interest: None

Introduction

Studies have reported that children and adolescents living in war and conflict areas are at high risk for developing mental health problems, such as post-traumatic stress disorder (PTSD), depression, and anxiety[1, 2].

On Saturday 27th December 2008, there was a new wave of violence between Israel and Palestinians in the Gaza Strip. The Israeli air force bombarded the security positions in the Gaza Strip leaving hundreds dead and more than a thousand injured. The war continued for 23 days leaving 1330 dead and 5500 injured.[3]

Several studies have highlighted the influence of exposure to war on children's physical health and daily functioning as well as their mental health. Thabet et al. (2004, 2008)[1,2] in studies of Palestinian children in the Gaza Strip found that children experienced a variety of traumatic events, including witnessing relatives being killed, demolition of homes, bombardment, and arrest of relatives. These were associated with PTSD, anxiety, and depression. Such traumatic experiences severely deteriorate children's sleep and cause uncontrollable fears among babies and children, causing anxiety, panic attacks, and poor concentration. Military trauma in middle childhood and stressful life-events in early adolescence were risk factors for PTSD and depressive symptoms and decreased satisfaction with the quality of life during adolescence.[4] In a similar study, which aimed to examine the impact of the level of exposure to political violence on the psychological symptomatology of Palestinian adolescents in the West Bank, 21.3% of the variance of psychological symptomatology could be explained by the domestic violence, exposure to political violence events, and family socio-economic status[5]. Moreover, a study of Palestinian adolescents in West Bank schools found that collective and individual exposure to violence negatively affected adolescents' mental health. There was a higher prevalence of depressive-like symptoms among girls compared with boys and in adolescents living in Palestinian refugee camps compared with those living in cities, towns and villages.[6]

Furthermore, in a study on the experiences of Palestinian children (aged 1-15 years) residing in the West Bank,

witnessing traumatic events such as murder, physical abuse, destruction of property, and threats were all associated with PTSD symptoms[7]. A study sample of 600 Palestinian youths (8-14 years) in the West Bank and Gaza Strip found a majority exposed to a variety of political conflicts and violence, 73% were witness to actual political violence, and 99% witnessed political violence through media reports. A significant predictor of PTSD symptoms was exposure to political conflict and violence. Gender and age also did not interact with exposure to political violence when predicting PTS symptoms with other types of exposure.[8]

A study of 386 Palestinian children and adolescents from Gaza exposed to stressors due to siege and other political violence found that 12.4% (n=48) of participants reported probable PTSD with 22.37% (n=86) fulfilling the two criteria for partial PTSD and 26.7% (n=103) meeting one criteria for partial PTSD (re-experiencing or avoidance or hyperarousal). More than a third (38.4%, n=149) did not have PTSD.[9]

In another area of war and conflict, a high number of somatic complaints and memory problems were found among children (aged 10–14 years) exposed to war in Sri Lanka.[10] A study of children in Kuwait reported an association between exposure to war-related trauma and poor subjective ratings of health and sleep quality among children aged 9 to 12 years.[11]

Coping is one critical psychological process that concerns individuals' responses to stressors and life hassles.[12] As such, coping has gained considerable empirical attention because of its mediating role in the relationship between stress and trauma and psychological well-being of child and adolescent victims of war and conflict. Coping has been conceptualized as a multidimensional construct with at least two broad categories: problem-focused and emotion-focused coping.[12] Problem-focused coping strategies involve efforts by an individual to obtain information and mobilize actions with the intention of changing the reality of the person's environment interaction.[13] These problem-focused actions may be directed at either the environment (e.g., planning, taking control of the situation) or the self (e.g., changing the meaning of an event, recognizing personal resources or strengths).[14] By contrast, emotion-focused strategies are aimed at regulating one's emotional responses to stressful situations without changing the realities of the stressful situation. Children coping after Hurricane Floyd were found to have used six coping strategies: wishful thinking, cognitive restructuring, social support, distraction, emotional regulation, and problem solving. Girls used more social support than boys as a coping strategy.[15] Similarly, a study of coping strategies and behavioral/emotional problems among Chinese adolescents suggested they focused on positive aspects, tried to improve the situation, stayed away from people, felt depressed, and suppressed problems from their mind.[16] Palestinian children and adolescents used normative adaptive defense mechanisms to overcome their problems and used coping strategies to develop positive thinking and behavior.[17] A study examining the effect of traumatic events experienced and coping strategies by 250 children who lost their fathers in the Gaza Strip found that the most common strategy was religious coping (86.4%). The least common strategy was substance use (30.3%). There were significant differences between positive reinterpretation and growth, and religious coping according to gender in favor of girls. There were significant differences between the means of positive reinterpretation and growth, mental disengagement, focus on and venting of emotion, use of instrumental social support, active coping, religious coping, restraint, and planning according to trauma levels in favor of severe traumatic events.[18] Furthermore, a study of adjustment among youth in military families in the USA found that children reporting effortful control had fewer emotional symptoms and fewer conduct problems while child reporting avoidant coping strategies had higher levels of emotional symptoms.[19] Children reporting support seeking behaviors had higher levels of emotional symptoms. Interestingly, effortful control was not correlated significantly with any of the coping strategies. Similarly, in a study on the effect of violence on Chicago's Southside, African American adolescents living and coping with community violence found that adolescents used coping styles ranging from "getting through," which included both an acceptance of community conditions; "getting along," which included self-defense techniques; "getting away," which included avoidance coping strategies; and "getting back," which consisted of confrontational coping strategies. Boys reported more confrontational coping styles than did girls who utilized more avoidance approaches. Widespread school-based interventions are warranted given the high prevalence of community violence exposure among these youth and may provide important supports for coping with such trauma.[20]

The present study investigated types of traumatic events arising from the war on Gaza experienced by Palestinian adolescents in relation to PTSD and anxiety and coping strategies as mediating factor.

Methods

Participants and procedure

The study sample consisted of 358 adolescents. The age ranged from 15 to 18 years with mean age of 16.7 years (SD=0.80). The sample of adolescents was randomly selected from 10 schools in the Gaza Strip (two schools from each of the governorates of the Gaza Strip - one boys' and one girls' school). From each school three classes were selected randomly (10th, 11th, 12th class) and again we selected randomly the sample from each class. At the end of the selection process, the sample consisted of 158 boys (44.1%) and 200 (55.9%) girls.

Study procedure

In order to conduct the study, five mental health professionals (1 man and 4 women) received four hours training for data collection. The aim of the study was explained as was the sample, questionnaires and ways of interviewing the adolescents. Before starting data collection an approval letter was obtained from the Palestinian Ministry of Health Ethical Committee together with an official letter from the General Director of the Ministry of Education in order to conduct the study in governmental secondary schools and facilitate the process of data collection. All study participants received a letter explaining the aim of the study and assuring that information was for research purposes only and would be kept confidential. A similar letter was sent to the participants' parents. All parents who consented were asked to provide written permission for their adolescent's participation. Data collection took place in the participants' classrooms. Data collection was in April 2009 three months after war on Gaza.

Measures

Sociodemographic status

This was gathered from adolescents by questionnaire which included gender, age, place of residence, number of siblings and rooms, parents' education, parents' employment, family income, etc.

Gaza Traumatic Event Checklist (GTECL) [2]

The Gaza Traumatic Checklist was originally developed by the Gaza Community Mental Health Program to assess level of trauma exposure typical for the Palestinian population in Gaza.[2] It was updated after the most recent war on Gaza in 2008-2009 and lists 30 events relevant to the Israeli attacks, which participants indicate having experienced by answering yes or no; for example, "Hearing about the killing of a close relative" and "Hearing the sounds of the fighter planes." The total composite score (0–30) provides an indication of the amount and type of war exposure the respondent has experienced during the war. Reliability of the Gaza Traumatic Events Checklist was calculated by using split half method (part 1 = 9 items & part 2 = 9 items); where the Pearson's correlation coefficient was (R1= 0.66) and by using Spearman-Brawn equation to modify the length of the scale. The reliability coefficient was (R2 = 0.66).

Spence Children's Anxiety Scale (SCAS) [22]

The SCAS was developed to assess anxiety symptoms in children in the general population. The SCAS has 38 items on a 0 (never) to 3 (always) scale and consists of six subscales: panic attack and agoraphobia (9 items), separation anxiety disorder (6 items), social phobia (6 items), physical injury fears (5 items), obsessive compulsive disorder (6 items), and generalized anxiety disorder (6 items). The SCAS showed high internal consistency, not only for the total scale, but also for each subscale.[22] The scale was used previously with children in the Gaza Strip and showed that the internal consistency calculated using Cronbach's alpha, was α=0.85. The split half reliability of the scale was =0.86.[23] In the present study, the reliability of the scale using Cronbach's alpha was 0.88 and the split half was 0.83.

UCLA PTSD Index for DSM-IV: Adolescent Version[24]

The items of the UCLA PTSD indices are keyed to DSM-IV criteria and can provide preliminary PTSD diagnostic information. Self-reports for children and adolescents exist as well as a parent report of PTSD symptoms. The adolescent version (for adolescents aged 13 years and older) contains a total of 22 questions and has been administered in classroom settings. A 5-point Likert scale from 0 (none of the time) to 4 (most all the time) is used to rate PTSD symptoms. The structure of the measure facilitates scoring. The first 18 questions on the child and adolescent version, and the first 19 questions on the parent version, assess for DSM-IV PTSD Criterion B, C, and D symptoms. Three separate scores were computed from these 20 items for intrusive symptoms (Criterion B), avoidance symptoms (Criterion C), and hyperarousal symptoms (Criterion D). Questions 13-19 assess Criterion A1, and 20-22 assess for Criterion A2. The internal consistency of the Arabic version of the PTSD Adolescent Reaction Index was highly satisfactory (Cronbach's alpha = 0.88) and the split half was 0.82. In the present study the reliability of the scale using Cronbach's alpha was 0.85 and split half was 0.82.

A-COPE Adolescent-Coping Orientation for Problem experiences[25, 17]

The A-COPE is a self-report questionnaire consisting of 54 specific coping behaviors which adolescents may use to manage and adapt to stressful situations. Subjects

reported on a 5-point scale (1 = Never; 5= Most of the time) to indicate how often they use each a particular coping strategy when feeling tense or facing a problem or difficulty. Others used the factor analyses for the A-COPE questionnaire and reported 12 subscales.[25] The scale was translated into Arabic and validated for the culture.[17] In the present study, the split half reliability technique of the scale was high (r =.80). Internal consistency of the scale, calculated using Chronbach's alpha, was (α= .84).

Statistical analysis

Data was entered and analyzed using the Statistical Package for Social Science version 13 (SPSS v13) for data entry and analysis. The SPSS statistical program has a variety of options for optimal use in such studies. Other statistical analysis was used to clarify the differences between the groups, such as frequencies, *t*- independent test, comparing means and correlation coefficient test for relationship with different variables. Multiple regression analysis used trauma as the dependent variable, PTSD and anxiety as independent variables and coping strategies as covariant.

Results

Demographic characteristics of the study sample

The sample consisted of 358 adolescents: 158 boys (44.1%) and 200 girls (55.9%), aged between 15-18 years (Mean=16.7; SD=0.82). Adolescents coming from North Gaza were (19.6%), from Gaza city (29.4%), from the middle area (17.3%), from Khan Younis city (18.9%), and from Rafah city (14.9%). In terms of number of siblings, 19% of participants had four or fewer siblings, 48.3% had five to seven siblings, and 32.7% had eight or more siblings. In terms of place of residence, 66.2% of the study sample lived in cities, 26.0% lived in camps, and 7.8% lived in villages. In terms of family monthly income, 21.8% had family income less than $150 US, 28.5% had family income from $151-300US, 17.2% had from $301-500 US, 10.9% had from $501-750 US, and 19.6% had from more than $751 US.

Table 1: Demographic and personal characteristics of the study participants (N = 358)

	N	%
Gender		
Boys	158	44.1
Girls	200	55.9
Place of residence		
North Gaza	70	19.6
Gaza	123	29.4
Middle zone	69	17.3
Khan Younis	75	18.9
Rafah	21	14.9
Type of residence		
City	237	66.2
Camp	94	26
Village	27	7.8
Number of siblings		
4 or fewer	68	19
5 to 7 siblings	172	48.3
8 or more	118	32.7
Family income by US $		
$150 US and less	109	30.4
$151- 300 US	78	21.8
$301 – 500 US	62	17.3
$501 – 750 US	39	10.9
More than $751 US	70	19.6

Types of traumatic events

Among the most common traumatic events identified in the present study, 90.8% of participants reported seeing mutilated bodies on TV, 88.5% heard shelling of the area by artillery, 86.6% witnessed signs of shelling on the ground, and 86.0% heard the sonic sounds of jetfighters. Traumatic events were reported as follows: physical injury due to bombardment of own home (21.8%), being arrested during the ground incursion (22.9%), being shot by bullets, rocket, or bombs (24.0%), and (24.3%) reported feeling threatened to death when the army used them as human shields to arrest neighbors.

Frequencies of traumatic events

Participants in the present study reported from 2 – 30 traumatic events with a mean total of 13.34 (SD =7.37) traumatic events.

Traumatic experiences and sociodemographic variables

In order to find the differences in traumatic experiences reported by adolescents according to other socioeconomic variables such as gender and type of residence, a *t*- independent test was performed to find the gender differences in total traumatic events. Results showed significant differences in traumatic events arising from the Gaza War according to gender in favor of boys (t =3.48, p =0.001).

Using One Way ANOVA to find differences between total traumatic events and types of residence, results showed a significant difference in traumatic events according to type of residence of the study sample in favor of living in village rather than city or camp (F= 7.41 p = 0.001).

Table 2: Frequency of traumatic events of the study sample (N=358)

No	Traumatic events	Yes	%
1.	Watching mutilated bodies on TV	325	90.8
2.	Hearing shelling of the area by artillery	317	88.5
3.	Witnessing the signs of shelling on the ground	310	86.6
4.	Hearing the sonic sounds of jetfighters	308	86
5.	Witnessing people being killed by rockets	240	67
6.	Deprivation from water or electricity during detention at home	226	63.1
7.	Hearing about the killing of a close relative	217	60.6
8.	Hearing about the killing of a friend	215	60.1
9.	Hearing about the arrest of a someone or a friend	199	55.6
10.	Witnessing firing by tanks and heavy artillery at neighbors homes	187	52.2
11.	Being detained at home during incursion	180	50.3
12.	Forced to leave home during the war	175	48.9
13.	Threatened by shooting	165	46.1
14.	Witnessing a friend's home being demolished	158	44.1
15.	Having personal belongings destroyed during incursion	117	32.7
16.	Witnessing shooting of a friend	113	31.6
17.	Having a family member being threatened or killed	108	30.2
18.	Exposure to burns by bombs and phosphorous bombs	108	30.2
19.	Witnessing the killing of a friend	107	29.9
20.	Deprivation from going to toilet and leaving the room at home	102	28.5
21.	Witnessing firing by tanks and heavy artillery at own home	99	27.7
22.	Witnessing shooting of a close relative	98	27.4
23.	Witnessing killing of a close relative	95	26.5
24.	Witnessing of own home demolition	93	26
25.	Beating and humiliation by the army	93	26
26.	Threatened to death when being used as human shield to arrest neighbors	89	24.9
27.	Threats of being killed	87	24.3
28.	Shooting by bullets, rocket, or bombs	86	24
29.	Being arrested during the last incursion	82	22.9
30.	Physical injury due to bombardment of home	78	21.8

Frequency of Anxiety scale items

The present study showed that adolescents commonly reported the following anxiety symptoms: I have to do some things over and over again (like washing my hands, cleaning or putting things) (65.9%) and when the participant had a problem, his / her heart beats really fast (62%), she / he felt scared when having to take a test (50.2%).

Means and SD of anxiety and subscales

Results showed that the mean for total anxiety was 41.18 (SD = 18.32), mean obsessive compulsive subscale was 8.90 (SD= 3.39), mean generalized anxiety subscale was 4.46 (SD =3.42), social phobia subscale mean was 6.99 (SD=3.69), separation anxiety subscale mean was 6.16 (SD= 3.69), physical injury fears subscale mean was 5.48 (SD =3.99), and mean panic/Agoraphobia subscale was 5.41 (SD= 4.58).

Differences in anxiety according to gender

Results demonstrated that girls reported more total anxiety and other anxiety subtypes (panic/agoraphobia, separation anxiety, physical injury fears, social phobia, obsessive compulsive disorder, generalized anxiety) than boys.

Table 3: *t*-independent test comparing mean of anxiety according to gender (N=358)

Variables	Gender	No	Mean	SD	*t* –value	Significant level
Panic/Agoraphobia	Male	158	3.93	3.64	-5.66	0.001
	Female	198	6.58	4.91		
Separation anxiety	Male	158	3.58	3.13	-11.70	0.001
	Female	198	8.20	4.09		
Physical injury fears	Male	158	3.44	2.42	-15.10	0.001
	Female	200	8.07	3.19		
Social phobia	Male	158	5.25	3.31	-8.65	0.001
	Female	200	8.35	3.39		
Obsessive compulsive	Male	158	7.99	3.15	-4.63	0.001
	Female	200	9.62	3.41		
Generalized anxiety	Male	158	6.14	2.91	-10.76	0.001
	Female	198	9.93	3.58		
Total anxiety	Male	158	41.31	13.76	-12.43	0.001
	Female	196	61.53	16.29		

Prediction of traumatic experiences by anxiety

In a univariate linear regression analysis, each traumatic event was entered as an independent variable in a multiple regression model with total anxiety scores as the dependent variable. Four traumatic events were significantly associated with total anxiety symptoms: hearing shelling of the area by artillery (B=0.16, p=0.007); hearing the sonic sounds of jetfighters (B= 0.12, p=0.03); being forced to leave home during the war (B= 0.15, p=0.003); hearing about the arrest of someone or a friend (B= 0.11, p = 0.02).

Prevalence of PTSD

Results showed 11.8% of participants reported no PTSD; 24.2% reported fewer than two clusters of symptoms, and 34.31% reported symptoms meeting criteria for partial PTSD while 29.8% reported symptoms meeting criteria for full PTSD according to DSM-IV-TR. The results showed that girls reported more PTSD than boys (t = - 4.14, p = 0.001).

Table 4: Prevalence of PTSD level of the study sample (N=358)

PTSD	No	%
No PTSD	42	**11.8**
One symptom	86	**24.2**
Partial PTSD	122	**34.3**
Full PTSD	106	**29.8**

Differences in PTSD according to genders

Results showed that there were significant differences in PTSD according to gender (t = -4.14, p =0.001) in that girls suffered from PTSD more than boys. Results also showed significant differences in PTSD subscales (re-experiencing and hyperarousal) in favor to girls while

there were no significant differences in the PTSD subscale for avoidance on the basis of gender (t = -1.83; df =358; p =0.06).

In a univariate linear regression analysis, each traumatic event was entered as an independent variable with total PTSD scores as the dependent variable. Two traumatic events were significantly associated with total PTSD symptoms: hearing about the arrest of someone or a friend (B=0.19, p=0.001); and being forced to leave home during the war (B=0.14, p=0.001).

Types of coping subscales (ACOPE)

Adolescents in the present study used a group of coping strategies to overcome trauma. The most common coping items were "try to improve" self (get body in shape, get better grades, etc.) 58.9%, "try to keep up friendships or make new friends" (45.5%), and then "go along with parents and rules" (40.2%). The least frequently reported items were: "try to see the good things in a difficult situation (0.6%)," "get professional counseling" (not from a school teacher or school counselor) (1.4%), and "use drugs not prescribed by a doctor (2.5%).

Total ACOPE mean scores were 152.6 (SD=22.4), seeking diversion mean was 22.45 (SD=5.47), developing social support was 20.05 (SD=4.23), and developing self-reliance mean was 18.92 (SD=4.16). Results demonstrated no significant differences in total coping strategies between boys and girls (t = -0.04; P=0.97) while there were statistically significant differences in coping strategies subscales (i.e. developing social support, solving family problems, being humorous) toward girls. Also, significant differences were found in coping strategies subscales (avoiding problems, developing social support, investing in close friend, seeking professionals support) in favor of boys.

Table 5: Means, standard deviation of ACOPE subscales (N=358)

Coping subscales	Mean	SD
Total ACOPE	152.6	22.4
Seeking diversion	22.45	5.47
Developing social support	20.05	4.23
Developing self-reliance	18.92	4.16
Solving family problems	17.82	5.01
Ventilating feelings	15.25	3.63
Engaging in demanding activities	12.43	3.04
Relaxing	12	3.18
Avoiding problems	10.12	2.58
Seeking spiritual support	8.13	2.94
Being humorous	5.47	2.08
Seeking professionals support	3.19	1.61

Prediction of traumatic experiences by coping strategies

In a unilateral linear regression analysis, each traumatic event was entered as an independent variable in a multiple regression model with total coping score as the dependent variable. Four traumatic events were significantly associated with total anxiety symptoms: hearing about the killing of a friend (B=0.15, p=0.004); and being threatened to death by the army when used as human shield to arrest neighbors negatively predicted coping in adolescents (B= - 0.13, p=0.01).

Relationships between coping, trauma, PTSD, and anxiety

In order to test the relationship between trauma, anxiety, and PTSD and coping strategies used by adolescents, we used the correlation coefficient test by Pearson correlation. Results showed that traumatic events were significantly positively correlated with seeking professional help (r= 0.19, p=0.01). PTSD was positively correlated with ventilating feelings (r= 0.12, p= 0.01), developing social support (r= 0.48, p= .001), avoiding problems (r= -0.13, p= 0.01), and relaxing (r= 0.48, p= .001), and PTSD as negatively correlated with solving family problems (r= -0.13, p= 0.01).

Anxiety was correlated positively with total coping (r= 0.12, p= 0.01), ventilating feelings (r= 0.15, p= 0.01), developing social support (r= 0.78, p= 0.01), solving family problems (r= 0.11, p= 0.01) and engaging in demanding activities (r= 0.16, p= 0.01).

Table 6: Pearson correlation matrix of major study variables (trauma, PTSD, anxiety, and coping strategies)

Coping strategies	Total PTSD	Traumatic events	Total anxiety
Total coping	.03	.01	.12*
Ventilating feelings	.12*	.01	.15**
Seeking diversion	.01	.06	.05
Developing self-reliance	-.02	-.01	.02
Developing social support	.48**	-.01	.76**
Solving family problems	-.13*	-.04	.11*
Avoiding problems	.13*	.09	-.07
Seeking spiritual support	.02	.05	-.08
Investing in close friend	-.07	-.07	-.06
Seeking professionals support	.07	.19**	-.07
Engaging in demanding activities	.00	.05	.16**
Being humorous	-.05	.03	.05
Relaxing	.11*	.02	.09

** Correlation is significant at the 0.01 level 2-tailed.

Discussion

The present study showed that at the end of a three month war on Gaza in 2009, Palestinian adolescents reported many traumatic events, including seeing mutilated bodies and injured people on TV, and hearing the sounds of shelling in the area. Such traumatic experiences were commonly reported by Palestinian children and adolescents in previous studies on the Gaza Strip.[2,26] Palestinian adolescents in the present study reported a high number of traumatic events (mean=13.3). The number of traumatic experiences was higher than a study on the effect of continuous shelling along the border areas of the Gaza Strip on children in which participants reported fewer traumatic events (mean=7.7).[2] The present study highlighted the intensity and severity of traumatic events during the war and the lasting effect of adolescent tendencies to store memories of the traumatic events for much longer than expected.

The study showed that 29.8% of participants met the full criteria for PTSD according to DSM-IV-TR. PTSD prevalence rates were consistent with similar studies in the area. A study of 403 Palestinian children aged 9–15 years, who lived in four refugee camps, adopted a cut-off score of 40 as the threshold for likely clinical caseness (i.e., severe and very severe PTSD reactions grouped together), 95 participants (23.9%) scored within that range.[1] In the present study there was strong association between total traumatic events and PTSD. This finding was consistent with previous studies that demonstrated how exposure to trauma was the best predictor of PTSD in children.[1, 2]

Results showed significant differences in PTSD according to gender in favour of girls. This is consistent with the study of PTSD prevalence as measured by the Child PTSD Symptom Scale[30] with approximately 30% of the children meeting the diagnosis. More girls (33%) than boys (26%) met the diagnostic criteria of PTSD even though boys reported more violence exposure than girls.

The results showed that mean for total anxiety was 41.18, obsessive compulsive symptoms was 8.90, generalized anxiety symptoms was 4.46, social phobia symptoms mean was 6.99, separation anxiety symptoms was 6.16, physical injury fears symptoms mean was 5.48, and mean panic/Agoraphobia symptoms was 5.41. The same scale for anxiety was used for a study on anxiety disorder in Japanese children and adolescents. Results demonstrated mean scores for anxiety to be 23.50 for children and 20.93 for adolescents, which was a much lower figure than those found in the present study.[30] The findings for anxiety demonstrated higher levels than a study which examined the relationship between exposure to war stressors and psychological distress of a community sample of 139 adolescents, in which 23.7% of adolescents were categorized as likely cases of clinical anxiety.[31] Also our rate of anxiety was higher than other studies conducted in European countries. A study of anxiety among four countries (Germany, Greek Cyprus, Sweden, Italy) found the mean anxiety disorder was (Germany= 21.91, Greek Cyprus= 28.42, Sweden= 23.94, Italy= 27.11).[32] High anxiety scores in the present study could be due to the high level of stress and trauma experienced by those living in the Gaza Strip during the last war on Gaza as well as other socioeconomic risk factors, such as unemployment of father, living in big families with overcrowded living conditions.[33] Also, a recent study of 139 Palestinian adolescents (ages 12 to 17 years) exposed to traumatic

events arising from the war on Gaza found a significant association between higher levels of exposure and PTSD symptoms as measured by CRIES-13. A significant positive relationship was also found between level of exposure and anxiety.[29]

The present study found that adolescents used a group of coping strategies to overcome trauma due to war. Adolescents commonly used social support, investing in close friends, engaging in demanding activities. The finding was consistent with previous studies of children and adolescents in the Gaza Strip, which showed similar coping strategies were used to cope with the impact of previous trauma due to political violence during the Al Aqsa Intifada.[2,17] Use of social support as a coping behavior was emphasized by others who examined the influence of parental and other adult support on academic achievement in African American girls. Adult support was found to be an important predictor in positive academic outcomes.[34] Others documented a positive association between children's exposure to media cues and subsequent anxiety levels.[35] This was consistent with other studies carried out among African American youth, which found that African American high school students who commonly used collaborative religious coping (i.e., seeking to work together with God to solve a problem) were protected against suicidal ideation whereas self-directed coping (i.e., relying on oneself to manage a problem) acted as a risk factor.[36]

The present study showed that adolescents with higher traumatic experiences were positively contacted and asked for professional help. Adolescents with high levels of PTSD used more coping strategies, such as ventilating their feelings, developing social support, avoiding problems, and relaxing while adolescents with PTSD focused less on solving family problems as a coping strategy. Adolescents with anxiety problems coped by ventilating feelings, developing social support, solving family problems and engaging in demanding activities. Similarly, in a study of orphaned Kurdish children revealed that the nature of traumatic events determined their impact on coping strategies. The study showed that family-related hardships, such as separations, neglect, and marital conflict compromised children's ability to cope by actively restructuring their experiences while economic hardships were associated with reduced active social affiliation.[37] The results of the present study were consistent with research showing that exposure to stressful experiences compromised children's constructive, active, and affiliating coping responses.[38,39,40] It was consistent with a study that examined African American children and their parents' coping strategies post–Hurricane Katrina, which suggested that both children and parents reported active coping strategies most frequently followed by adaptive coping strategies and avoidance. The subtypes of coping responses reported most frequently included emotionally processing with family and kinship members, distraction (play and work), seeking meaning and understanding (religious or spiritual guidance) and seeking social support and coping assistance.[41]

Clinical implications and recommendations

Findings from the present study have several implications for clinical practice. First, it will not be possible to easily identify adolescents at risk of compound trauma and long-term distress based on a few demographics and exposure criteria. Earlier psychological symptoms provide the best indicators when predicting PTS symptoms and anxiety disorder. Early screening for stress symptoms could enable early interventions. However, early interventions such as debriefing are generally not recommended. In our view, there may be good alternative early interventions. For example, when an adolescent has been identified as being at risk, an intervention focused on activating social support and / or preparations to engage the adolescent in therapy could be started. The effects of these interventions would obviously have to be studied. Therapeutic programs might include crisis intervention and counseling for victims of violence or for those at risk, support group, and behavioral therapy for those experiencing mental illness as a consequence of violence.

Family therapy programs and home visits are also recommended. Family therapy programs could involve interventions aimed at improving communications and interactions among family members as well as teaching problem-solving skills to assist parents and children facing various traumatic events. Regular home visits to at-risk families by trained mental health professionals could include interventions, such as counseling and therapy. Public education campaign are equally important, such as those involving public meetings, workshops and the media to target entire communities or for specific settings such as schools, civil institutions, and other health agencies. We have to create community policies to provide partnerships and coordination among various social institutions and governmental as well as nongovernmental organizations. Also, extracurricular activities could be offered for at-risk children and adolescents, such as drama, sport, art, and music etc. Alongside such programs, specialized training for mental health professionals, parents, and teachers would better enable them to identify and deal with specific types of

violence and the psychosocial consequences. Specialist trained team for crisis intervention could be organized, which would enable teams to work during crisis and disasters and provide help for those who are need as well as provide support for community groups and their community during crisis.

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الملخص

الهدف: كان الهدف من هذه الدراسة هو معرفة أنواع الأحداث الصادمة الناتجة عن الحرب على قطاع غزة، و علاقتها بكرب ما بعد الصدمة والقلق، واستراتيجيات التأقلم المستخدمة من قبل المراهقين للتغلب على الصدمات النفسية و آثارها. **الطريقة:** تكونت عينة الدراسة من 358 من المراهقين الذين تتراوح أعمارهم بين 15 إلى 18 سنة. وكان متوسط العمر 16.7 عاما. وكان توزيع العينة على 158 من الأولاد (44.1 ٪) و 200 من البنات (55.9 ٪) . وأجريت مقابلات مباشرة مع المراهقين المشمولين من خلال استبيان يشمل معلومات اجتماعية وديموغرافية ، و مقياس الخبرات الصادمة عن الحرب على غزة، ومقياس سبنس للقلق، ومقياس كرب ما بعد الصدمة ، و مقياس التأقلم للمراهقين. وأظهرت الدراسة أن متوسط الأحداث الصادمة التي تعرض لها المراهقين كان 13.34 حدثاً ، وكانت الخبرات الأكثر شيوعا التي ذكرها المراهقين هي : مشاهدة الجثث المشوهة و الجرحى على شاشة التلفزيون و بلغت النسبة 90.8 ٪، وسماع صوت القصف من المدفعية الثقيلة في المنطقة التي يعيش فيها و بلغت النسبة 88.5 ٪ ، و رؤية آثار القصف المدفعي على الأرض وبلغت النسبة 86.6 ٪، و سماع صوت الطائرات الحربية و هي تخترق حاجز الصوت و بلغت النسبة 86 ٪ . أظهرت النتائج أن متوسط القلق لدى الاطفال هو 41.18 ، و متوسط أعراض الوسواس القهري 8.90 ، وكان القلق 4.46 العام ، و الرهاب الاجتماعي 6.99، و قلق الانفصال 6.16 ، وكانت مخاوف الإصابة الجسدية 5.48 ، و كان متوسط الذعر/ الخوف من الأماكن المكشوفة 5.4 . أظهرت النتائج وجود فروق ذات دلالة إحصائية في مجموع أعراض القلق وجميع أنواع القلق الآخرى لصالح الفتيات. وفقاً لمقياس كرب ما بعد الصدمة ، أظهرت الدراسة أن 11.8 ٪ ليس لديهم كرب ما بعد الصدمة ، وكان 24.2 ٪ من الأقل من المراهقين لديهم اثنين من الأعراض، و كان لدى 34.31 ٪ كرب جزئي ما بعد الصدمة ، في حين كان 29.8 ٪ يعانون من كرب ما بعد الصدمة . وأظهرت النتائج أن هناك فروق ذات دلالة إحصائية في كرب ما بعد الصدمة لصالح الفتيات. أظهرت النتائج أن المراهقين الفلسطينين لجأوا لاستراتيجيات مختلفة للتأقلم مع الخبرات الصادمة وكان أكثر الاستراتيجيات استخداماً طلب الدعم الاجتماعي ، واللجوء لصديق، والعمل بجد و نشاط في الأنشطة المختلفة المطلوبة منهم, و تبين أن هناك إرتباط عكسي بين التعرض للخبرات الصادمة و البحث عن الدعم الاجتماعي من الآخرين. وزيادة التعرض للخبرات الصادمة أدت إلى طلب المساعدة من المهنيين المتخصصين في المجال النفسي الاجتماعي . أما بالنسبة للعلاقة بين كرب ما بعد الصدمة و استراتيجيات التأقلم فقد أظهرت الدراسة أنه كلما زادت أعراض كرب ما بعد الصدمة كلما لجأ المراهقين إلى التعبير عن المشاعر ، وطلب الدعم الاجتماعي ، وتجنب الانخراط في المشاكل ، وكانت هناك علاقة سلبية ما بين أعراض كرب ما بعد الصدمة مع محاولة المراهقين لاستخدام حل المشاكل الأسرية كطريقة للتأقلم. و كان هناك علاقة إيجابية بين أعراض القلق والتعبير عن المشاعر ، وطلب الدعم الاجتماعي, والعمل بجد و نشاط في الأنشطة المختلفة المطلوبة منهم, وإرتبط القلق سلبياً مع السعي للدعم الديني.

التطبيقات العملية و التوصيات: لنتائج هذه الدراسة عدة انعكاسات على التطبيقات العملية. اولا، أظهرت هذه الدراسة أنه بعد بضعة أشهرمن إنتهاء الحرب على غزة فما زال العديد من المراهقين يستحضرون الخبرات الصادمة المتعلقة بالحرب الأمر الذي أدى إلى وجود أعراض كرب ما بعد الصدمة والقلق. ولكن كثيرمن هذه الأعراض النفسية تم التأقلم معها بإيجابية. وهذه النتيجة تسلط الضوء على الاحتياجات الماسة لاستحداث وتطوير البرامج النفسية الاجتماعية التي تزيد من المهارات الاجتماعية للمراهقين والاتصال و التواصل. و كذلك وضع برامج في المدارس و نوادي الشباب باستخدام الأنشطة اللامنهجية للأطفال والمراهقين مثل الدراما النفسية ، والرياضة ، والفن و المسرح لفترة طويلة.

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