

The Relationship Between Post-Traumatic Stress Disorder and Coping Strategies among Patients with Cancer in Gaza Strip

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Received Date: March 22, 2017; Accepted Date: April 19, 2017; Published Date: April 24, 2017

Citation: Al Jadili M, Thabet AA. The Relationship Between Post-Traumatic Stress Disorder and Coping Strategies among Patients with Cancer in Gaza Strip. J Nurs Health Stud 2017, 2:1.

Abstract

Aim: The study aimed to examine the mental health status of the patients with cancer and the coping strategies that adopted by them in front of stressful situations.

Method: The sample consisted of 358 patients with cancer in the oncology clinic at Shifa Hospital in Gaza Strip. Participants were interviewed individually by questionnaire include socioeconomic questionnaire, PTSD scale, and Ways of coping Scale.

Results: The study showed that 42.5% of patients had PTSD, 47% had re-experiencing of PTSD, 40.5% had hyperarousal, and 40.1% had avoidance symptoms. The group of 40 years and less were significantly higher in re-experiences than 71 years and above among the study sample.

The results showed that affiliation at the highest rank (81.6%), followed by reinterpretation (75.5%), self-control coping strategy (75.3%), problem solving (72.3%), wish and avoidance thinking was (69.0%), trouble and escape was (61.8%), accountability coping strategy was (53.0%) among the study sample of patients with cancer. The result showed that there were no significant differences in sex of patients and wish and avoidance thinking, problem solving, reinterpretation, affiliation, accountability, and self-control. However, there were significant differences in trouble and escape in favor of male patients.

There was positive significant correlation between wish and avoidance thinking and re-experience of PTSD. In addition, there were positive significant correlation between accountability and PTSD, re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD. In addition, there were positive significant correlation between Trouble and escape and PTSD, re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD. While; there were negative significant correlation between problem solving and PTSD, re-experience of PTSD, avoidance of

PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between re-interpretation and PTSD, re-experience of PTSD, avoidance of PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between affiliation and PTSD, avoidance of PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between self-control and PTSD, avoidance of PTSD, hyper-arousal of PTSD.

Clinical implications: Our findings highlight the need for therapeutic and educational programmes-including counseling for those patients with cancer and their families, support groups, and behavioural therapy for patients with P.T.S.D, and other psychiatric disorders. Also, new family therapy programmes must be established aimed at improving communications and interactions between family members, as well as teaching problem-solving skills to assist the family members in confronting the mental health problems associated with cancer.

Keywords: Cancer; Coping strategies; Gaza Strip; Patients; PTSD

Introduction

According to GLOBOCAN, cancer is one of the leading causes of morbidity and mortality worldwide, with approximately 14 million new cases in 2012 [1]. Globally, cancer the number of new cases is expected to rise by about 70% over the next 2 decades. Cancer is the second leading cause of death globally, and was responsible for 8.8 million deaths in 2015. Globally, nearly 1 in 6 deaths is due to cancer. Approximately 70% of deaths from cancer occur in low-and middle-income countries. Around one third of deaths from cancer are due to the 5-leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use [2].

In Jordan, the incidence of cancer in adolescents is 159 new cases per 100 000, of which 15% die within one year of diagnosis [3]. Cancer among the Palestinians living in the West

Bank and Gaza is increasingly becoming a public health concern. It is the second most common cause of mortality. A total of 2189 new cases have been reported in the West Bank in 2013 (51% females, 49% males). Both in the West Bank and Gaza, breast cancer is the most common cancer among women and lung cancer among men. In children, less than 15 years old, leukemia is the most common one. Cancer is diagnosed at late stages; at least 60% of cancer cases are diagnosed at Stage III or IV [4]. The psychological distress among cancer patients has been addressed consistently in an international context. The notable feature is that the findings of prevalence of psychological distress varied from one sample to another. Accordingly, the Diagnostic Statistical Manual of Mental Disorders, 4th edition [5] modified and broadened its taxonomy of PTSD. This resulted in the inclusion of both the traumatic event itself, and the experience with the person involved in the event. Furthermore, increasing attention has focused upon assessing posttraumatic stress symptoms (PTSS), which provides a continuous measure of posttraumatic stress reactions and risk of PTSD diagnosis in patients with cancer. Specifically, being diagnosed with a life-threatening illness or learning that one's child [5] has such an illness became a qualifying stressful event. Moreover, Hobbie et al. reported that 21.0% of survivors at a long-term follow-up clinic had experienced PTSD since their diagnosis [6]. In a larger and higher-functioning sample of young adult survivors recruited from the community, 15.9% had PTSD since the end of their cancer treatment. Most (75.3%) met criteria of cluster B (re-experiencing), with nearly half (47.3%) meeting criteria of cluster D (arousal) (Rourke et al., 2002). Furthermore, Gold et al. in a study [7], had four aims to determine the percentages of patients with PTSD and partial PTSD of 289 adult oncology patients found that 45% of the sample met the diagnostic criteria for PTSD and partial PTSD and were younger than those with no PTSD. Similarly, Hahn et al. in a study was to determine the prevalence of post-traumatic stress symptoms in a sample of 162 cancer survivors and to investigate their association with the impact of cancer [8], depressive symptoms, and social support showed that 29% of the sample had PTSD.

Individuals diagnosed with incurable cancer face a life-threatening stressor that elicits various coping responses. Lazarus and Folkman [1] define coping as an individual's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources to the person. Before implementing coping strategies, individuals cognitively appraise the nature of the stressor and their abilities and/or resources to cope with the threat [9]. Cancer is the most extensively researched as chronic illness. Cancer has been consistently implicated in the coping literature as necessitating a wide range of coping options to deal with shifting functional abilities, medical implications, treatment modalities, and psychosocial reactions. Compared with other people with serious illnesses, cancer patients have reported the highest percentage of religious coping responses [10]. Indeed, reporting a connection with a benevolent and loving God, religious involvement and spiritual practice have been

associated with higher levels of hope [11,12], and ability to find meaning [13]. Although spirituality and/or religion can be an important resource to many people dealing with illness, sickness can also profoundly shake patients' most fundamental, religious or spiritual (R/S) beliefs and practices leading to R/S struggle or distress, also referred to as negative religious coping (NRC). This struggle includes feeling abandoned by or angry at God, experiencing conflict with others regarding R/S beliefs or practices, or struggling with doubts regarding beliefs [14]. Furthermore, the cancer experience offers the opportunity to enter a reflexive relationship with God and one's faith teachings, as well as providing a context in which to deepen family relationships, and a family's spiritual understandings and experiences [15]. Recently, Dieperink et al. in a study examined in a single-center oncology unit in Odense [16], Denmark, 161 prostate cancer patients treated with radiotherapy and androgen deprivation therapy were included in a randomized controlled trial from 2010 to 2012, showed that the most coping styles remained stable during the patient trajectory, but anxious preoccupation declined from before radiotherapy to follow up in both intervention and control groups. After six months the intervention group retained fighting spirit significantly compared with controls, but after three years this difference evened out. After three years, the intervention group had lower cognitive avoidance than the controls. Similarly, Ghiggia et al. in study of 21 patients with a previous diagnosis of nasopharyngeal cancer enrolled at the First Ear Nose and Throat (1stENT) Division [17], Department of Surgical Sciences, at the University of Turin, during their post-treatment observation period. Results evidenced that fighting spirit; cognitive avoidance and fatalism were used more than hopelessness/helplessness or anxious preoccupation. The aims of this study were 1) to find the prevalence of PTSD among patients with cancer, 2) to explore the types of coping strategies used by patients diagnosed with cancer and 3) to elaborate the relationship between PTSD and coping strategies among patients with cancer in Gaza Strip.

Method

Participants

The study sample consisted of 400 patients selected randomly from a total of 6000 cancer cases attending cancer unit at Al Shifa Hospital in Gaza Strip. The final number agreed to participate were of 358 patients with cancer, 114 were males (32%) and 244 were females (68%). A respondent's rate was 89.5%.

Measures

Interviewed directed questionnaire

This questionnaire contains the following: Demographic and disease-related characteristics: As part of the semi-structured interview, a scale was designed for this study in

order to obtain the following information: age, marital and family monthly income, and diagnosis.

The Posttraumatic stress disorder checklist (DSM-IV)

The checklist contains 17 items adapted from the DSM-IV (APA, 2000) PTSD symptom criteria. Respondents are asked to rate on a 5-point Likert scale (0=not at all to 4=extremely) the extent to which symptoms troubled them in the previous month. A total score was provided, as well as subscales scores for re-experiences, arousal and avoidance PTSD symptoms. The characteristic symptoms of PTSD resulting from the exposure to extreme traumata included re-experiencing the traumatic event (criterion B), avoidance of stimuli associated with the trauma and numbing of general responsiveness (criterion C), and symptoms of increased arousal (criterion D). The full symptom picture must be present for more than one month and the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning [18]. We used the Arabic version of the scale which was widely used in the same area in the last decade (Thabet et al. 2008 and 2015). The reliability validity of the scale was calculated using alpha Cronbach which was ($\alpha=0.82$).

The ways of coping questionnaire

The ways of coping questionnaire (WOC) was developed to assess different coping strategies with specific stressful encounters [19]. A revised version of 50-item WOC, which includes eight subscales, including: (a) Confronting coping, (b) Distancing strategies, (c) Self-control strategies, (d) Seeking social support, (e) Accepting responsibility, (f) Escape-avoidance, (g) Planful problem solving and (h) Positive reappraisal strategies, was used in this study [20]. The Cronbach's alphas of the eight subscales were 0.70, 0.61, 0.70, 0.76, 0.66, 0.72, 0.68 and 0.79, respectively [20]. This scale had been validated in the Palestinian culture and showed high reliability [21].

Study Procedure

Data were collected during the period between in April-June 2008 at al Shifa Hospital. Questionnaires were filled by the researcher through the directed interview questionnaires, which had given to all attendants to the oncology clinic. Suitable environment was considered for all subjects in fulfilling the questionnaire.

Interviews done for 10 to 15 minutes, by the first author, three General Physicians working the cancer unite. Each patient was assessed for the vulnerability for interviewing with no embarrassments. In addition, all the subjects were exhibited the willingness for this study after they inform about the study and the goals of it. Furthermore, the place of the interview was comfortable and air conditioned, and the researcher made the interviews up on the fluency of the subjects with no previous preparation. We selected the first

arriving subject to the clinic randomly while each other subject from the referral files in the oncology clinic (when each subject receives his file from the clerk).

Statistical analyses

Statistical analyses were carried out using IBM SPSS Statistics version 20.0. Continuous variables were presented as $M \pm SD$ and categorical variables were expressed as frequencies (%). The PTSD, and coping strategies of the participants were exhibited using the mean values and SD. Spearman's correlation coefficient tested the association between PTSD and coping scores of the participants. A two-tailed p value <0.05 was considered statistically significant.

Results

Sociodemographic characteristics of study population

The sample consisted of 358 patients with cancer, 114 were males (32%) and 244 were females (68%). patients with cancer from North Gaza were (24.9%), from Gaza (60.1%), and from middle area (15.1%). According to marital status 82.4% were married, 3.4% were single, 0.6% were divorced, and 13.7% were widowed. According to monthly income, 39.4% of patients had monthly income \$ 250 and less, 35.5% had monthly income from \$ 251-500, 22.3% of patients had monthly income from \$ 501-750, and 2.8% had monthly income more than \$751 (**Table 1**).

Table 1 Demographic characteristics of the study sample (N=358).

	N	%
Gender		
Males	114	31.8
Females	244	68.2
Age		
40 and less	39	10.9
41-50	80	22.3
51-60	105	29.3
61-70	84	23.5
71 and above	50	14
Place of residence		
North	89	24.9
Gaza	215	60.1
Middle	54	15.1
Marital status		
Married	295	82.4
Single	12	3.4

Divorced	2	0.6
Widowed	49	13.7
Education level		
Primary and less	96	26.8
Preparatory	99	27.7
Secondary	136	38
Diploma	0	0
University	27	7.5
Post graduate	0	0
Primary and less	96	26.8
Employment		
Unemployed	64	17.9
Employee	39	10.9
Worker and private work	32	8.9
Retired	21	5.9
House wife	202	56.4
Unemployed	64	17.9
Retired	21	5.9
Monthly income		
\$ 250 and less	141	39.4
\$ 251-500	127	35.5
\$ 501-750	80	22.3
\$ 751 and above	10	2.8

Medical conditions of patients with cancer

As shown in **Table 2**, majority of cases were breast cancer (45.8%), 12.6% had colon cancer, and 22.9% diagnosed with other cancer (**Table 2**).

Table 2 Medical conditions of patients with cancer.

	N	%
Type of cancer		
Lung	21	5.9
Breast	164	45.8
Colon	45	12.6
Uterus	7	2
Ovary	3	0.8
Larynx	5	1.4
Liver	3	0.8
Thyroid gland	28	7.8
Other	82	22.9
Duration of illness		

2-5 years	116	32.4
6-10 years	68	19
more than 10 years	35	9.8
Type of treatment		
Hormonal	3	0.8
Chemotherapy	38	10.6
Radiation	3	0.8
Surgical	3	0.8
Mixed	311	86.9

PTSD symptoms

The following table shows that the symptoms of PTSD, where avoiding any thoughts or feelings about the event is the highest rank symptom (60.7%), followed by avoiding doing things or going into situations which remind you by the events (59.5%), and upset by some things which reminded you of the events at the third rank (57.0%) among the study sample of cancer patients (**Table 3**).

Table 3 PTSD symptoms.

Symptoms	Mean	SD	%
Avoiding any thoughts or feelings about the event.	2.43	1.27	60.7
Avoiding doing things or going into situations which remind you by the events.	2.38	1.28	59.5
Upset by some things which reminded you of the events.	2.28	1.23	57
Painful images or memories of the events	2.23	1.17	55.7
Irritable or had outbursts of anger	1.93	1.08	48.2
Thoughts of the events were reoccurring	1.91	1.25	47.7
Jumble easily started	1.7	1.17	42.5
Difficulty enjoying things	1.6	1.17	40
Trouble falling asleep or staying sleep	1.58	1.14	39.5
Physically up set by reminders of the event	1.56	1.33	39
Distressing dreams of the events	1.54	1.08	38.5
On edge been easily distracted or hade to stay	1.46	1.23	36.5
Difficulty in concentration	1.43	1.13	35.7
Found it hard to imagine having along life span fulfilling your goals	1.41	1.24	35.2
Distant or cut off from other people	1.38	1.2	34.5
Unable to have sad or loving feeling	1.27	1.14	31.7

Found yourself unable to recall important parts of the event	0.74	1.11	18.5
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Using the DSM-IV criteria for PTSD, 42.5% of patients with cancer were diagnosed with PTSD (**Table 4**).

Means and Standard deviations of PTSD

The study showed that mean PTSD was 28.91 (SD=13.3), mean re-experiencing was 9.55 (SD=4.76), avoidance was 11.25 (SD=6.07), and hyperarousal mean was 8.11 (SD=4.80) (**Figure 1**).

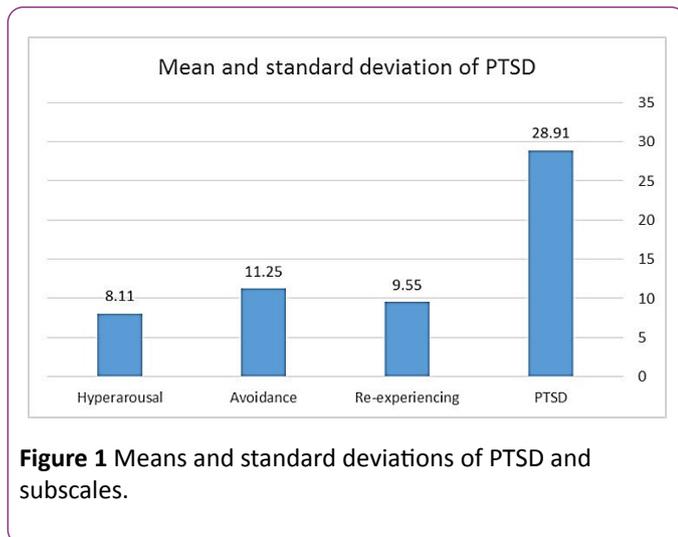


Figure 1 Means and standard deviations of PTSD and subscales.

Table 4 Means and standard deviations of PTSD and subscales.

Variables	Mean	St. Dev.	%
PTSD	28.91	14.36	42.5
Re-experiencing	9.55	4.76	
Avoidance	11.25	6.07	
Hyperarousal	8.11	4.8	

Sociodemographic variables and PTSD

In order to find the differences between sociodemographic variables and PTSD, independent t test for differences in mean of two groups and One Way ANOVA for more than two groups. The study showed that there were no significant differences in total PTSD re-experiences, avoidance, and hyperarousal according to sex of the patients sample (**Table 5**).

Table 5 Independent t-test comparing means of mental health problems according to sex.

Variable	Sex	N	Mean	Std. Dev	t-value	p-value
PTSD	Male	114	29.26	15.595	0.31	0.75
	Female	244	28.75	13.772		
Re-experiencing	Male	114	9.36	5.199	0.49	0.62
	Female	244	9.63	4.544		
Avoidance	Male	114	11.42	6.59	0.38	0.7
	Female	244	11.16	5.823		
Hyperarousal	Male	114	8.46	5.164	0.95	0.34
	Female	244	7.94	4.615		

*p<0.05, **p<0.01, ***p<0.001

Post-hoc analysis using Scheffee statistical test was done. There were no significant age differences in PTSD, avoidance and hyperarousal according to age of the patients. However, patients at age group of 40 years and less were significantly reported more re-experiences symptoms than 71 years old and above a ($F_{4/358}=3.51, p=0.008$).

PTSD according to type of cancer

In order to investigate the difference in PTSD according to type of tumor of the study sample (lung, breast, colon, uterus, ovary, larynx, liver, thyroid, other) the researcher demonstrate one-way ANOVA analysis (**Table 6**).

Table 6 One-way ANOVA comparing PTSD according to type of cancer.

Variable	Source of variance	Sum of Squares	Df	Mean Square	F-value	Sig. Level
PTSD	Between Groups	1055.523	8	131.94	0.635	0.748

	Within Groups	72540.792	349	207.853		
	Total	73596.316	357			
Re-experiencing	Between Groups	101.307	8	12.663	0.554	0.815
	Within Groups	7977.288	349	22.858		
	Total	8078.595	357			
Avoidance	Between Groups	252.207	8	31.526	0.853	0.557
	Within Groups	12903.167	349	36.972		
	Total	13155.374	357			
Hyper arousal	Between Groups	123.681	8	15.46	0.667	0.72
	Within Groups	8087.85	349	23.174		
	Total	8211.531	357			

*p<0.05, **p<0.01, ***p<0.001

Post Hoc test using Tukey test showed that there were no significant differences in PTSD ($F(8/357)=0.63$, $p=0.74$), and its dimensions re-experiences ($F(8/357)=0.55$, $p=0.81$), avoidance ($F(8/357)=0.85$, $p=0.55$), and hyper-arousal ($F(8/357)=0.66$, $p=0.72$) according to type of tumor of the study sample.

Types of coping strategies

The results found that affiliation at the highest rank (81.6%), followed by reinterpretation (75.5%), self-control coping strategy (75.3%), problem solving (72.3%), wish and avoidance thinking was (69.0%), trouble and escape was (61.8%), accountability coping strategy was (53.0%) among the study sample of patients with cancer (**Figure 2 and Table 7**).

Table 7 Means and standard deviations of coping strategies.

Variables	Mean	SD	%
Wish and avoidance thinking	19.33	2.45	69
Problem solving	17.37	3.76	72.3
Reinterpretation	27.19	5.09	75.5
Affiliation	16.33	2.81	81.6
Accountability	10.6	2.77	53
Self-control	21.09	3.34	75.3
Trouble and escape	12.36	2.51	61.8

Sociodemographic variables and coping strategies

As showed in **Table 6**, the result showed that there were no significant differences in sex of patients and wish and avoidance thinking ($t(358)=0.36$, $p<0.71$), problem solving (t

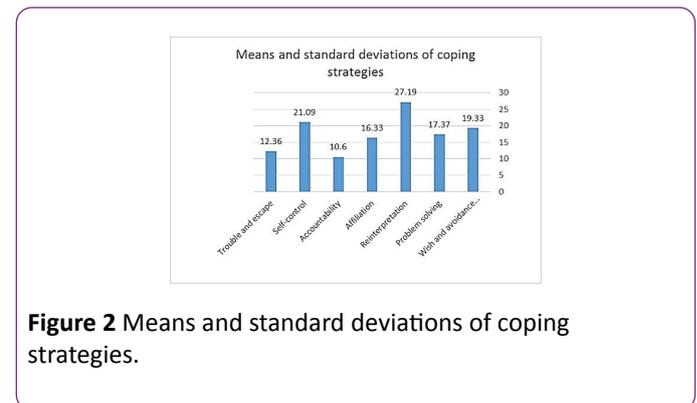


Figure 2 Means and standard deviations of coping strategies.

(358)=0.78, $p<0.43$), reinterpretation ($t(358)=1.21$, $p<0.22$), affiliation ($t(358)=1.29$, $p<0.19$), accountability ($t(358)=1.26$, $p<0.20$), and self-control ($t(358)=0.71$, $p<0.47$). However, there were significant differences in trouble and escape ($t(358)=2.58$, $p<0.01$) in favor of male cancer patients (**Table 8**).

Table 8 Independent t-test comparing means of coping strategies according to sex.

Variable	Sex	N	Mean	Std. Dev	t-value	p-value
Wish and avoidance thinking	Male	114	19.26	2.63	0.36	0.71
	Female	244	19.36	2.37		
Problem solving	Male	114	17.60	3.63	0.78	0.43
	Female	244	17.27	3.83		
Reinterpretation	Male	114	26.71	4.89	1.21	0.22
	Female	244	27.41	5.17		
Affiliation	Male	114	16.05	2.86	1.29	0.19
	Female	244	16.46	2.78		
Accountability	Male	114	10.87	2.72	1.26	0.20
	Female	244	10.47	2.78		
Self-Control	Male	114	20.91	3.27	0.71	0.47
	Female	244	21.18	3.37		
Trouble and Escape	Male	114	12.85	2.52	2.58	0.01**
	Female	244	12.13	2.47		

*p<0.05, **p<0.01, ***p<0.001

Correlation between coping strategies and mental health problems among the study sample

As shown in the following table, there were positive significant correlation between wish and avoidance thinking and re-experience of PTSD ($r(358)=0.12$, $p<0.05$). In addition, there were positive significant correlation between accountability and PTSD ($r(358)=0.18$, $p<0.001$), re-experience of PTSD ($r(358)=0.12$, $p<0.05$), avoidance of PTSD ($r(358)=0.15$, $p<0.001$), hyper-arousal of PTSD ($r(358)=0.22$, $p<0.001$). In addition, there were positive significant correlation between Trouble and escape and PTSD ($r(358)=0.15$, $p<0.01$), re-experience of PTSD ($r(358)=0.10$, $p<0.05$), avoidance of PTSD ($r(358)=0.13$, $p<0.05$), hyper-arousal of PTSD ($r(358)=0.19$, $p<0.001$). While; there were

negative significant correlation between problem solving and PTSD ($r(358)=-0.58$, $p<0.001$), re-experience of PTSD ($r=-0.46$, $p<0.001$), avoidance of PTSD ($r(358)=-0.59$, $p<0.001$), hyper-arousal of PTSD ($r(358)=-0.54$, $p<0.001$). In addition, there were negative significant correlation between re-interpretation and PTSD ($r(358)=-0.50$, $p<0.001$), re-experience of PTSD ($r(358)=-0.34$, $p<0.001$), avoidance of PTSD ($r(358)=-0.53$, $p=0.001$), hyper-arousal of PTSD ($r(358)=-0.49$, $p<0.001$). In addition, there were negative significant correlation between affiliation and PTSD ($r(358)=-0.20$, $p<0.001$), avoidance of PTSD ($r(358)=-0.30$, $p<0.001$), hyper-arousal of PTSD ($r=-0.198$, $p<0.001$). In addition, there were negative significant correlation between self-control and PTSD ($r(358)=-0.15$, $p<0.01$), avoidance of PTSD ($r(358)=-0.19$, $p<0.001$), hyper-arousal of PTSD ($r(358)=-0.13$, $p<0.01$) (Table 9).

Table 9 Correlation between coping strategies and mental health problems.

Variable	PTSD	Re-experiencing	Avoidance	Hyper arousal
Wish and avoidance thinking	0.08	0.12*	0.05	0.07
Problem solving	-0.58***	-0.46***	-0.59***	-0.54***
Re-interpretation	-0.50***	-0.34***	-0.53***	-0.49***
Affiliation	-0.20***	-0.04	-0.30***	-0.19***
Accountability	0.18***	0.12*	0.15***	0.22***
Self-control	-0.15**	-0.08	-0.19***	-0.13**
Trouble and escape	0.15**	0.10*	0.13*	0.19***

*p<0.05, **p<0.01, ***p<0.001

Discussion

This study aimed to find the prevalence of PTSD among patients with cancer, explore the types of coping strategies used by patients diagnosed with cancer and to elaborate the relationship between PTSD and coping strategies among patients with cancer in Gaza Strip. Our study results showed that 42.5% of patients with cancer reported PTSD. Such findings could be as a result of concept of cancer being a traumatic event and dangerous disease so they try to avoid thoughts, feelings, or actions that remind the patient with it. Patients with cancer struggle to survive and they try to avoid the thoughts or situation that may repeat their experience with such disease. Our findings were inconsistent with the results of Lindberg and Wellisch in study of 73 patients at the UCLA/Revlon High Risk Clinic [22], which cares for women who are at familial risk for breast cancer, three subjects (4%) endorsed items in a manner that satisfied the DSM-IV criteria for a PTSD diagnosis. Also, 37% of the participant's criteria for the intrusion symptom cluster, 8% met criteria for the avoidance symptom cluster, and 7% met criteria for the arousal symptom cluster.

Our rate of PTSD was much higher than rate found in Kangas et al. in a study investigated the predictors of posttraumatic stress disorder (PTSD) following a diagnosis of cancer [23]. Individuals who were recently diagnosed with 1st onset head and neck or lung malignancy (N=82) were assessed within 1 month of diagnosis for acute stress disorder (ASD) and other psychological responses including depression; individuals were reassessed (N=63) for PTSD 6 months following their cancer diagnosis. At the initial assessment ASD was diagnosed in 28% of participants, and 22% met criteria for PTSD at 6-months follow-up. Our rate of PTSD was much higher than rate of PTSD found in Hahn et al. in a study of 162 cancer survivors which showed that 29% of the sample had PTSD [8]. Also, rate of PTSD in this study was higher than found in study of Voigt et al (2017) which investigated prevalence and course of posttraumatic stress in patients with early breast cancer (BC) during their first year after diagnosis and determined effects of mastectomy and chemotherapy. Stress disorder (ASD or PTSD) related to breast cancer was diagnosed in 6 (3.6%) of 166 patients before treatment and in 3 patients (2.0%) 1 year later. In 60 controls, no diagnosis of stress disorder, a rate of 18% women experiencing PTSD symptoms. Our study showed that re-experience of PTSD symptoms was significantly more among patients 40 years old and less. Such results may be attributed that young patients are thinking of their future, life situation, and their disease progress. While the 70 years and more didn't think about of the disease since they feel that they reached the age to live, and they didn't care about the situations they live.

Our findings showed that the most commonly used coping strategies were: affiliation, reinterpretation, self-control, problem solving, wish and avoidance thinking, trouble and escape, and finally accountability. We hypothesized that patients with cancer have high spirituality and attribute their disease to God significance not others. They believe in Allah and the causes in which they are diseased, so they

demonstrate affiliation on their behavior and socializing process. However, these patients accommodated to various aspects of their disease because of their use for affiliation and coped effectively to their cancer. We found a being diagnosed as cancer, patients do not tend to assign responsibility on themselves and their character, since they possibly need to avoid guilt, low self-esteem, and social distance, and to maintain a potential to invest in the adjustment process appeared to be consistent with our results regardless the priority of the coping strategies. However, in another study by Mytko et al. found that escape-avoidance was related to psychological distress on several measures [24]. Item endorsement analyses of the escape-avoidance sub scale suggest that patients may have used more passive than active avoidance strategies, which demonstrate the importance of the traumatic cause and its related consequences. Others found that problem-focused coping was less frequent for existential issues, whereas emotion-focused strategies were used less frequently for physical stressors [25]. However, in a study of Silva et al. found that the coping strategy of escape-avoidance and self-control was the most used coping by patients with psoriasis and both groups present high-stress levels [26], which indicate the difference between the cultures in using ways of coping. While, in a study of Rntmsc et al. distancing was the most frequently reported coping strategy [27], and men seemed to focus on the positive side more often than women did. These results indicate the importance of the coping strategies according to community and it's depending on culture or belief of people. However, Büssing et al. found that Arabic patients with a Muslim background had significantly higher scores for spirituality and religious questionnaire scales than German patients, namely [28], "Search for meaningful support", "Trust in higher source", "Positive interpretation of disease", and "Support in relations of life through " scale which demonstrate the consistency with our results.

There were positive significant correlation between wish and avoidance thinking and re-experience of PTSD among the study sample of patients with cancer. The researcher hypothesized that because patients with cancer have stressful life events which different from other people and this cause them re-experience PTSD as a result of their disease so they cope ineffectively with these situations. The researcher hypothesized that the positive correlation between accountability and re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD among the study sample of patients with cancer came from the nature of cancer that they experience and its consequences. Furthermore, it depends on the severity of the cancer and its type and at what stage the cancer ends.

We hypothesized that the positive correlation between trouble and escape and re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD among the study sample of patients with cancer depend on the socio-demographic variables for these patients, since it differs according age, sex, and marital status. Which consistent with the results of Tan, who found that there was a positive correlation between social support and problem-focused coping strategies

(confident approach, optimistic approach [29], and seeking social support); that is, mean social support scores increased as the mean problem-focused coping strategy scores increased. But, in consistent with the results of Hee-Seung et al. found that stress was negatively correlated with both problem-focused coping and emotion-focused coping [30]. Korean patients with cancer used emotion-focused coping strategies more than problem-focused coping strategies. The result found that there were significant differences in most of coping strategies; problem solving, reinterpretation, and affiliation according to PTSD in favor to non-PTSD patients with cancer of the study sample. We hypothesized that the differences related to the type of cancer which the patients suffering and at what age the cancer start and/or who the patient (male/female) also the marital status. All these factors play significant role in the connection between the type of coping strategies used and PTSD subtypes. Non-traumatized patients usually have simple or mild cancer type and/or may be old age and singles or widowed patients. These patients accommodated effectively with cancer. Others in study of patients

with head and neck cancer found that denial, substance use, behavioural disengagement, venting, and self-blame at diagnosis were significantly correlated

with lower HRQL and higher post-traumatic stress at follow-up [31]. Similarly, in another study of patients with incurable cancer, most reported high utilization of emotional support coping (77.0%), whereas fewer reported high utilization of acceptance (44.8%), self-blame (37.9%), and denial (28.2%). Emotional support and acceptance correlated with better QOL and mood. Denial and self-blame correlated with worse QOL and mood [32].

Clinical Implication

Our findings highlight the need for establishment of new services for cancer patients with mental health problems in general hospitals. Also, counseling services for cancer patients inside the cancer unites must be established. Also, family support groups for such patients must be initiated to improve communications and interactions between family members, as well as teaching problem-solving skills to assist the family members in confronting the mental health problems associated with cancer. Home visit programs include regular visits from mental health specialist or psychiatric a nurse or other health professional to the homes of patients with cancer for support and guidance. Special activities for young patients with cancer to relief their anxiety, such as sports, art and music should be established in cancer units. Educational programs for the caregivers and the employees to detect early signs and symptoms of psychological phenomena have associated with cancer.

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Research

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Volume 3 : Issue 2

Article Ref. #: 1000PCSOJ3122

Article History

Received: February 7th, 2017

Accepted: March 24th, 2017

Published: March 27th, 2017

Citation

Thabet AAM, Thabet SS. Coping with trauma among children in South of Gaza Strip. *Psychol Cogn Sci Open J*. 2017; 3(2): 36-47. doi: [10.17140/PCSOJ-3-122](https://doi.org/10.17140/PCSOJ-3-122)

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Coping With Trauma Among Children in South of Gaza Strip

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ABSTRACT

Aim: This study aimed to investigate the relationship between trauma, mental health, and coping strategies among children living in south of Gaza Strip

Methodology: The sample consisted of 317 children and their parents. Children were interviewed with Gaza Traumatic Events Checklist, Children Post Traumatic Stress Disorder Reaction Index, (PTSD-RI) Strengths and Difficulties Questionnaire (SDQ) (Teachers, parents, and children forms), Spence Anxiety Scale, and Adolescent Coping Orientation for Problem Experiences (ACOPE).

Results: Palestinian children reported a mean of 9.34 traumatic events. Boys reported more exposure to traumatic events than girls. Results showed that 25.2% of children had PTSD. The present study showed the prevalence of general mental health problems using SDQ for self-reported, parents and teachers forms (19.4%, 24.3%, and 28.4%). Total score of anxiety was recorded as 41.15. Girls expressed more panic/agoraphobia and separation anxiety than boys. There was a significant correlation between total trauma and PTSD, PTSD and total coping strategies, ventilating feelings and PTSD, social support and PTSD, avoiding problems and PTSD.

Clinical applications: An outreach child mental health clinics with multidisciplinary staff need to be established at primary health centers to assess and treat children referred from community agencies and schools after exposure to traumatic events. Similarly, training courses for social workers, primary health workers, school counsellors in the field of trauma should be conducted.

KEYWORDS: Anxiety; Children; PTSD; SDQ; South Gaza; Trauma.

ABBREVIATIONS: PTSD-RI: Post-Traumatic Stress Disorder Reaction Index; SDQ: Strengths and Difficulties Questionnaire; ACOPE: Adolescent Coping Orientation for Problem Experiences; UNRWA: United Nations Relief and Works Agency.

INTRODUCTION

With a population of 1.4 million people, the Gaza Strip is one of the most densely populated areas in the world with 3800 inhabitants/km² and a population growth of 4% per year. Seventy-eight percent of the population within Gaza are refugees and over half of the one million registered refugees are crammed into eight refugee camps managed by the United Nations Relief and Works Agency (UNRWA).¹ Eighty percent of the population in Gaza falls below the poverty line, with an income of US\$ 2 per day (up from 30% in 2000) and the unemployment level stands at approximately 50%. In addition, people in Gaza have been subjected to military occupation, causing significant psychological trauma, particularly for children.² In Rafah, the situation is particularly acute. According to the ministry of social affairs, 25% of all the people killed in Rafah were children, and one in four children have been injured. The decline in the well-being and quality of life of children in Gaza over the past 2 years has been rapid and profound.³

Since the beginning of 2006, the situation has become more uncertain and can only be viewed with concern by the international organizations working in the West Bank and Gaza Strip. Specifically, this uncertainty is based on the results of the Palestinian Legislative Council elections at the end of January 2006 in which the Islamic Resistance Movement (Hamas) won 74 of the 132 seats. Following this election, the International community, through public statements issued by the Quartet for the Gaza disengagement, the United Nations (UN) and the European Union (EU) have asked the future Hamas-led government to commit to non-violence, to the recognition of Israel and to the acceptance of previous obligations (the Roadmap) in order to allow international donors to continue providing funds to the PA. Israel has announced that it will withhold monthly tax payments to the PA, amounting to between US\$ 50 million and US\$ 65 million per month and constituting about two-thirds of the income derived from Palestinian economic activity.⁴

Trauma and Violence

Numerous studies have directly linked post-traumatic stress disorder (PTSD) among children to the violence and mobility restrictions experienced on a daily basis, including the death and injury of family and friends, damage to property, and the frustration and poverty they sustain through closures, curfews and home confinement. Children have witnessed loved ones being killed or injured; have spent childhood years searching for their belongings in the rubble of destroyed homes and schools, and are living in the reality that no place is a safe place.⁵

Previous studies with children and adolescents exposed to political violence and armed conflict have predominantly focused on the impact of trauma on their mental health.⁶ It is well established that exposure to political violence is positively correlated with mental health presentations (usually post-traumatic stress disorders and depression), often in a 'dose-effect' relationship. The underlying mechanisms have been more difficult to explore, because of the number of potentially confounding variables such as loss of loved ones, disruption of social networks, lack of basic health needs, or displacement. It is well established that exposure to political violence is positively correlated with mental health presentations (usually post-traumatic stress disorders and depression), often in a 'dose-effect' relationship.⁷⁻¹¹

Following the war in former Yugoslavia, the risk factors for post-traumatic and depressive disorders in children and young people were investigated and different patterns for the two types of psychopathologies were analyzed. Variance in post-traumatic stress symptoms was mainly explained by traumatic war experiences (20%) and individual and socioeconomic factors (17%), and less (9%) by cognitive appraisals and coping mechanisms. In contrast, depression was predicted by individual and socioeconomic factors (36%) and less by war experiences (8%), whilst cognitive appraisal and coping mechanisms did not contribute significantly.¹² Family adaptation to the Lebanese

war was predicted by family resources and social support, and was associated with increased use of cognitive coping strategies. Also, perceived stress was a stronger predictor than the actual events experienced by families.¹³

Different models and frameworks have been proposed and investigated and coping strategies adopted by young people in response to stressful events such as trauma. By using various coping strategies, individuals try to modify adverse aspects of their environment as well as to minimize internal threat induced by stress, in a dynamic and reciprocal relationship between emotions and coping.^{14,15} Coping strategies have been broadly defined as problem-focused (acting on the environment or the individual) or emotion-focused (attempting to change the meaning of the event or how this is attended to).¹⁶ They are often also classified as either primary (the judgment of an encounter as stressful) or secondary appraisal (evaluation of the potential effectiveness and consequences of using coping strategies).¹⁷ Most research in young life arises from adolescents and young adults who suffered chronic illness, abuse-related trauma, or who have experienced other types of stressful events.¹⁸ In recent years, there has also been increasing attention on the impact of war, trauma and political conflict on young people and their families, and the underlying mechanisms involved.

It is important to note that not all coping responses are specific to the conflict, as these can be interlinked with universal adolescent developmental issues. For example, some concerns expressed by high school students in Jerusalem were specific to the conflict in the region, i.e., coping with aggression, war, and enlistment into the army, while other concerns were universal (self-image, peer relationships, and school).¹⁹

The aims of this study were (1) To explore the consequences of trauma, in particular the extent to which children suffering from a range of behavioural and emotional disorders becomes the primary driver of violence at the individual, family and community level, (2) To find out the types of coping strategies used by children to overcome the consequences of trauma, (3) To explore the relationship between trauma, PTSD, mental health problems, and coping strategies.

METHOD

Participants

The population of this study includes a random sample of children attending governmental and UNRWA schools. According to literature, a sample of 5-7% of the population is representative of the population. From a total of 55,762 students enrolled in schools in the south of Gaza Strip (Rafah area), 6% of the total number of children i.e., 317 students were selected. Children aged between 9-16 years were included and the numbers of children were divided according to the percentage of children attending different schools.

MEASURES

Sociodemographic Characteristic Questionnaire

This questionnaire includes sex, age, place of residence, and family income.

Gaza Traumatic Events Checklist for Political Violence²⁰

This checklist consists of 28 items covering different types of traumatic events that a child may have been exposed to in the particular circumstances of regional conflict and political violence. This checklist covered three domains of trauma. The first domain covers witnessing the acts of violence such as witnessing killing of relatives, witnessing home demolition, bombardment, and injury of others. The second domain covers the hearing experiences such as hearing killing or injury of friends or relatives. While the third domain covers personal traumatic events such as being shot, injured, or beaten. This checklist can be completed by children of the age group 9-16 years ('yes' or 'no').

Child Post Traumatic Stress Reaction Index²¹

This scale is a standardized 20-item self-report measure designed to assess post-traumatic stress reactions of children of 6-16 years following exposure to a broad range of traumatic events. It includes three subscales, intrusion (7 items), avoidance (5 items) and arousal (5 items), and three additional items. The scale has been found to be valid in detecting the likelihood of PTSD.

Items are rated on a 0-4 scale, and the range of total Child Post-Traumatic Stress Disorder Reaction Index (CPTSD-RI) scores is between 0-80. Scores are classified as 'mild PTSD reaction' (total score 12-24), 'moderate' (25-39), 'severe' (40-59), and 'very severe reaction' (above 60). The CPTSD-RI used in this study was based on Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Revised (DSM-IIIR) criteria, rather than using another PTSD instrument based on DSM-IV criteria, as the CPTSD-RI had already been validated in the Arab culture.²²

Strengths and Difficulties Questionnaire²³

The questionnaire is one of the most commonly used scales in

the assessment of children's strengths and difficulties in child psychiatry.^{23,24} It consists of 25 items, 14 describe perceived difficulties, 10 perceived strengths and one is neutral ('gets on better with adults than with other children'). Each perceived difficulties item is scored on a 0-2 scale (not true, somewhat true, certainly true). Each perceived strengths item is scored in the reverse manner, i.e., 2: Not true, 1: Somewhat true, 0: Certainly true. There are three versions of this questionnaire, one for parents, teachers, and one for children above 11 years. The 25 SDQ items are divided into scales of hyperactivity, emotional problems, conduct problems, peer problems and prosocial scale (five items per scale). A score is calculated for each scale (range 0-10) and a total difficulties score for the four scales (excluding prosocial behaviour, which was considered different from psychological difficulties), i.e., a range of 0-40. The SDQ has been previously used in the Palestinian culture.^{22,25}

Spence Children's Anxiety Scale²⁶

This measure consists of 44 items; of which 38 reflect specific symptoms of anxiety and 6 relate to positive, filler items to reduce negative response bias. Of the 38 anxiety items, independent judges considered 6 to reflect obsessive-compulsive problems, 6 separation anxiety, 6 social phobia, 6 panic/3 agoraphobia, 6 generalized anxiety/overanxious symptoms and 5 items concerning fears of physical injury. Items are randomly allocated within the questionnaire. Children are asked to rate on a 4 point scale involving *never* (0), *sometimes* (1), *often* (2) and *always* (3), the frequency with which they experience each symptom. The instructions state "Please put a circle around the word that shows how often each of these things happens to you. There are no right and wrong answers". Given that the scale examines the occurrence of objective, clinical symptoms, it was considered appropriate to apply a frequency scale, rather than an intensity scale. The 0-3 ratings on the Spence Children's Anxiety Scale (SCAS) are summed up for the 38 anxiety items to provide a total score (maximum=114), with high scores reflecting greater anxiety symptoms. Scores may also be produced for the anxiety subscales using items as outlined in Table 1. There are six, positively worded filler items. These include item 11 (I am popular among other kids of my own age), item 17 (I am good at sports), item 26 (I am a good person), item 31 (I feel happy), item 38 (I like myself) and item 43 (I am proud of my school work). Responses to each of the positively-worded filler items

Table 1: Prevalence of General Mental Health Problems using SDQ by Self, Teachers, and Parents.

Abnormal	Teachers	Parents	Self-reported
SDQ caseness	28.4	24.3	19.4
Hyperactivity	3.8	6.3	4.7
Emotional problems	7.8	19.8	9.9
Conduct problems	47.0	53.3	40.3
Peer problems	21.2	27.8	18.5

are ignored in the scoring process. It was validated in Palestinian society before and showed high reliability.²⁷

The Adolescent Coping Orientation for Problems Experiences²⁸

The Adolescent Coping Orientation for Problem Experiences (A-COPE) is a self-report instrument that describes and measures coping strategies during adolescence. This is based on the theoretical framework of coping being viewed as one of the four components that interact and influence adolescent development and adaptation (the remaining three being demands, resources and definitions/meaning). This model was based on the integration of individual coping theory and family stress theory. The instrument consists of 54 items measuring specific coping behaviours that adolescents may use to manage and adapt to stressful situations. Each item is rated on a 5-point scale (1=never; to 5=most of the time) to indicate how often they use each coping strategy when feeling tense or facing a problem. The following 12 sub-scales (each consisting of between 2 and 8 items) were identified by principal-component analysis.²⁹

Engaging in demanding activity (posing challenges to excel at something or achieve a goal through physical activity, schoolwork or improving oneself); developing self-reliance and optimism (direct efforts to be more organized and in charge of the situation, as well as to think positively); developing social support (helping others solve problems, talking to friends, apologizing); seeking diversions (efforts to keep busy and engage in relatively sedate activities such as sleeping, watching TV or reading); solving family problems (working out difficult issues with family members and having joint activities with the family); seeking spiritual support (focused on religious behaviours such as praying, going to church or talking to clergy); investing in close friendships (seeking closeness and understanding from a peer); use of humour (not taking the situation too seriously by joking or making 'light' of it); seeking professional support (getting help and advice from a professional such as a counselor or teacher about problems); relaxing (ways to reduce tension such as daydreaming, listening to music or cycling); ventilating feelings (expression of frustration and tension through yelling, blaming others, making mean comments, and complaining to friends or family); and avoiding problems (use of substances as a way to escape, or avoiding persons or issues that cause problems). The instrument was translated to Arabic language and was previously used in Gaza Strip.³⁰

Study Procedure

Data was collected by 4 trained social workers and community mental health workers with previous experiences in data collection in similar projects (2 males and two females). They were trained by the consultant and project assistant on questionnaires of the study. Data collectors were provided with a prepared list of 10 schools names (6 from governmental sector and 4 from UNRWA) with number of children according to age and sex. They were permitted to enter the schools after getting permis-

sion from UNRWA and Ministry of Education (MoE) in Gaza and then they met the Rafah directors to give permission to the school head teachers to enter the schools. Children were randomly selected by choosing one class according to age from the registration book of the class. We obtained by a written agreement from the Ministry of Education and UNRWA education department to do the work in schools. A covering for each child was send to parents explaining the aim of the study and about their right not to participate with their children in study and ask them to sign the letter and send it back to school with children if they agree to participate with their children in the study.

Statistical Analysis

After the collected data was entered into the system using SPSS (SPSS win, Ver 20) for data entry and analysis and the validity and reliability of the instruments using split half method and Cronbach's alpha equation. Descriptive statistics and frequencies were used to present the data patterns for the whole sample. Gender subgroups were compared on questionnaire continuous scores by two-tailed *t*-test. The association between exposure to trauma and violence by Israelis and faction war and PTSD symptoms (CPTSD-RI), SDQ parents, teachers, and self, anxiety, coping strategy was investigated by a series of vicariate regression analysis. Finally, the interaction between exposure to trauma and each coping strategy was also included.

RESULTS

Sociodemographic Data

From a total of 317 children, parents and teachers responded to our study. The sample consisted of 161 boys which represented 50.8% and 156 girls which represented 49.2% of the student population. The children aged between 9-16 years recorded a mean age 12.51 (SD=2.2).

The boys' mean age was 12.66 years (SD=2.1), and the girls' mean age was 12.38 (SD=2.28). Palestinian families consisted of large number of children, as 99 (31.2%) had 4 or less children, 129 families (40.7%) had 5-7 children, and 89 families (28.1%) had 8 or more children. Two hundreds and four children (64.4%) lived in the city, 80 (25.2%) lived in refugee camps, and 33 children (10.4%) lived in villages.

The majority of families (188, or 59.3%) had a very low monthly income of less than \$289, 67 families (21.1%) had an income of \$ 290-481, 38 families (12%) had a monthly income of more than \$ 482-722, and 24 families (7.6%) had a monthly income of more than \$ 723 (Table 2).

Types and Severity of Traumatic Events

As shown in Table 3, Palestinian children were exposed to a variety of traumatic events ranging from 0-28 traumatic events, each child reported experiences of 9.34 traumatic events (SD=4.88).

Table 2: Sociodemographic Characteristic of the Study Sample (N=317).

	No	%
Sex		
Male	161	50.8
Female	156	49.2
Age aged from 9-16 years with mean age 12.51 (SD=2.2)		
Place of residence		
City	204	64.4
Camp	80	25.2
Village	33	10.4
No of siblings		
4 and less	99	31.2
5-7 siblings	129	40.7
8 and more siblings	89	28.1
Family monthly income		
Less than\$ 289	188	59.3
\$ 290-481	67	21.1
\$ 482-722	38	12.0
More than \$ 723	24	7.6

Table 3: Types of Traumatic Events due to Israelis.

Trauma	No	%
Hearing shelling of the area by artillery	285	89.9
Watching mutilated bodies in TV	285	89.9
Hearing the sonic sounds of the jetfighters	269	84.9
Witnessing the signs of shelling on the ground	227	71.6
Witnessing assassination of people by rockets	164	51.7
Hearing killing of a close relative	152	47.9
Deprivation from water or electricity during detention at home	150	47.3
Witnessing of a friend home demolition	121	38.2
Hearing killing of a friend	116	36.6
Witnessing firing by tanks and heavy artillery at neighbours homes	112	35.3
Being detained at home during incursions	98	30.9
Witnessing of own home demolition	79	24.9
Threaten by shooting	76	24.0
Threaten by telephoned to evacuate your home before bombardment	71	22.4
Witnessing firing by tanks and heavy artillery at own home	65	20.5
Witnessing arrest or kidnapping of someone or a friend	64	20.2
Witnessing shooting of a friend	61	19.2
Deprivation from going to toilet and leave the room at home where you was detained	54	17.0
Witnessing killing of a friend	53	16.7
Witnessing shooting of a close relative	51	16.1
Destroying of your personal belongings during incursion	47	14.8
Witnessing killing of a close relative	45	14.2
Shooting by bullets, rocket, or bombs	44	13.9
Beating and humiliation by the army	43	13.6
Threatened to death by being used as human shield to arrest your neighbours by the army	34	10.7
Physical injury due to bombardment of your home	32	10.1
Threaten of family member of being killed	26	8.2
Threaten of being killed	25	7.9

The most common traumatic experiences were hearing shelling of the area by artillery (89.9%), watching mutilated bodies in TV (89.9%), Hearing the sonic sounds of the jet fighters (84.9%), and witnessing the signs of shelling on the ground (71.6%). While the least common traumatic events were threatening family members of being killed (8.2%), and threatened of being killed (7.9%).

Sociodemographic Differences and Exposure to Traumatic Events

In order to investigate the sex differences between boys and girls in reporting traumatic experiences, independent *t*-test was performed. The results showed that boys were exposed to more traumatic events than girls (mean=9.9 vs. mean=8.76). This was statistically significant ($p=0.03$). The results showed that older age group children (13-16 years) were exposed to more traumatic events than the younger age group. This was statistically significant ($p=0.001$).

Type of Post-Traumatic Stress Reactions

Among Palestinian children, the most commonly reported post traumatic stress reactions were loss of interest in significant activities (64.7%), sleep disturbance (51.7%), avoidance of reminders (47.6%), intrusive images and sounds (43.3%), and difficulty in concentrating (43.2%).

Severity of Post Traumatic Stress Reactions

Children's post-traumatic stress reactions scores ranged between 5 and 59. Mean CPTSD-RI was 31.15 (SD=11.66). Intrusion subscale mean was 11.19 (SD=5.4), avoidance subscale mean was 7.21 (SD=3.73), and hyperarousal subscale mean was 7.68 (SD=3.46). Twenty one (6.6%) children reported no post-traumatic stress reactions, 69 (21.8%) reported mild post-traumatic stress reactions, 147 (46.4%) reported moderate post-traumatic stress reactions, and 80 (25.2%) reported severe to very severe post-traumatic stress reactions. Using cut-off point of 40 and more as PTSD, 25.2% of children met the diagnosis of PTSD and 74% had no PTSD.

Sociodemographic Differences on Severity of Post-Traumatic Stress Reactions

There were statically significant sex differences in developing post-traumatic stress reactions in which girls developed more PTSD than boys ($\chi^2=14.19$, d.f.=3, $p<.003$). The results showed that girls significantly developed more PTSD than boys (Mean=33.58 vs. 28.79), also more girls developed intrusion symptoms than boys (mean=12.10 vs. 10.31), avoidance symptoms (mean=8.21 vs. 6.3), and also hyperarousal was more in girls (mean=8.05 vs. 7.32). The results showed that older age group children (13-16) developed PTSD more than the younger age group. This was statistically significant ($t=-2.20$, $p=0.01$).

Also, the older group developed intrusion symptoms more than the younger age group ($t=-2.49$, $p=0.01$) and hyperarousal symptoms ($t=-2.18$, $p=0.03$). However, no age differences was observed for avoidance symptoms.

Anxiety Symptoms

Addressing the anxiety symptoms reported by children, 59.6% said that they are worried that something awful will happen to someone in their families, (56.2%) have to think of special thoughts to stop bad things from happening (like numbers or words), and they are proud of their school work (51.4%).

Means and Standard Deviations of Anxiety Disorders in Children

Children recorded from 0-114 symptoms of anxiety, total score of anxiety was 41.15 (SD=20.02), obsessive compulsive disorder mean was 8.4 (SD=3.4), social phobia 7.3 (SD= 4.1), generalized anxiety mean was 6.7 (SD=4), separation anxiety mean was 6.5 (SD=4.2), physical injury fears was 5.3 (SD=4.2), panic/agoraphobia was 7 (SD=5.4).

Sociodemographic Differences in Anxiety of Children

The results showed that girls showed more total anxiety score ($t=-7.74$, $p=0.001$), girls also experienced more panic/agoraphobia ($t=-5.32$, $p=0.001$), and more separation anxiety ($t=-7.92$, $p=0.001$), than boys, however no differences were observed for obsessive compulsive disorder ($t=0.38$, $p=ns$). The results showed that children aged between 9-12 years showed more panic/agoraphobia than children aged between 13-16 years ($t=2.5$, $p=0.01$), physical injury fears were more in children aged between 9-12 years relative to other age groups ($t=2.52$, $p=0.01$), social phobia were also more in children aged between 9-12 years than the older age group ($t=3.07$, $p=0.002$), obsessive compulsive disorder was more in children aged between 13-16 years relative to the younger age group ($t=2.88$, $p=0.004$), however no differences were observed in anxiety, separation anxiety, or generalized anxiety.

Prevalence of General Mental Health Problems Using SDQ

Using SDQ for self, 19.4% of the children rated themselves as having caseness (were considered as having a problem), 4.7% of them were hyperactive, 9.9% had emotional problems, 40.3% had conduct problems, and 18.5% had peer problems.

Using SDQ for parents, 24.3% of the children were rated as having caseness (were considered as having a problem), 6.3% of them were hyperactive, 19.9% had emotional problems, 53.3% had conduct problems, and 27.8% had peer problems. Using SDQ for teachers, 28.4% of the children were rated as having caseness (were considered as having a problem), 3.8% of them were hyperactive, 7.8% had emotional problems, 47% had conduct problems, and 21.2% had peer problems.

Sociodemographic Differences in SDQ Scores

The results showed that girls showed more mental health problems than boy according to their teachers (mean=13.9 vs. mean=11.9) ($t=-3.2, p=0.01$). There were no sex differences in rating mental health problems by themselves and their parents.

Types of Coping Strategies

Children used a variety of coping strategies. The most common coping strategies used by children were: 71.6% of children said they go along with their parents and rules, 64.1% try to improve themselves (get body in shape, get better grades, etc.), 64.1% of them pray, 59.9% work hard on schoolwork or other school projects, 52.8% do things with their family. While the least common coping strategies used were: drinking beer, using sedatives (4.6%) and smoking (3.1%).

Means and Standard Deviation of Coping Strategies

Children used a group of coping strategies to overcome trauma and stress, mean total ACOPE was recorded as 187.5 (SD=21.3), while the highest subscale of coping was for seeking professional support (mean=36.6, SD=1.4), seeking diversion (mean=22.7, SD=5.4), solving family problems (mean=20.9, SD=4.9), devel-

oping social support (mean=19.2, SD=4.2), developing self-reliance (mean=18.4, SD=4.7), ventilating feelings (mean=15.7, SD=3.8), engaging in demanding activities (mean=14.3, SD=3.1), relaxing (mean=10.3, SD=3.3), seeking spiritual support (mean=10.1, SD=3.0), avoiding problems (mean=8.1, SD=3.3), being humorous (mean=5.9, SD=1.8), and investing in a close friend (mean=5.8, SD=2.3) (Table 4).

Sociodemographic Differences in Coping Strategies

The results showed that boys generally cope better than girls ($t=2.12, p=0.04$), Boys also seek diversion more than girls ($t=3.84, p=0.001$), and seek spiritual support ($t=6.98, p=0.001$).

Relationship between Traumatic Events and Child Mental Health Problems

To test the hypothesis underlying the relationship between violence (traumatic events) and mental health in children, correlation coefficient test was performed using the Pearson correlation. The results showed that there was a strong association between trauma and total scoring of mental health problems by teachers ($r=.13, p=0.04$). There was an association between trauma and mental health problems rated by the children themselves ($r=0.15, p=0.03$) (Table 5).

Table 4: Means and Standard Deviation of Coping Strategies.

Coping	Mean	SD
Total ACOPE	187.5	21.4
Seeking professionals support	36.6	1.4
Seeking diversion	22.7	5.4
Solving family problems	20.9	4.9
Developing social support	19.2	4.2
Developing self-reliance	18.4	4.7
Ventilating feelings	15.7	3.8
Engaging in demanding activities	14.3	3.1
Relaxing	10.3	3.3
Seeking spiritual support	10.1	3.0
Avoiding problems	8.1	3.3
Being humorous	5.9	1.8
Investing in close friend	5.8	2.3

Table 5: Pearson Correlation Coefficient test between Trauma and SDQ.

Variables	Trauma R
SDQ total -teachers	0.13*
SDQ total-parents	0.09
SDQ total-self	0.15*

* $p<0.05$, ** $p<0.01$, ** $p<0.001$, $p>0.05$

Table 6: Correlation Coefficients between Coping Strategies and Trauma, PTSD, and Anxiety.

	Total trauma	Total CPTSRI	Total anxiety
Total trauma	1.00	0.14**	0.11
Total CPTSRI	0.14**	1.00	0.40**
Total anxiety	0.11	0.40**	1.00
Total ACOPE	-0.02-	0.14	0.15**
Ventilating feelings	-0.04-	0.27**	0.27**
Seeking diversion	-0.05-	-0.05-	-0.08-
Developing self-reliance	0.12	0.14	0.13
Developing social support	0.01	0.14**	0.27**
Solving family problems	-0.04-	-0.05-	0.00
Avoiding problems	0.04	0.21**	0.12
Seek spiritual support	0.04	0.09	0.07
Investing in close friends	0.04	0.09	0.07
seeking professional support	0.05	0.09	0.05
Seeking engaging in demanding activity	-0.10-	0.06	0.01
Being humorous	0.04	0.12**	0.08
Relaxing	-0.13-	-0.05-	0.17**

* $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$, $p > 0.05$

Relationship between Trauma, Anxiety, General Mental Health, PTSD, and Coping Strategies

To test the hypothesis underlying the relationship between PTSD and coping strategies used by children to overcome violence and related consequences, correlation coefficient test was performed using Pearson correlation. The result showed that there was a strong association between total traumatic events and PTSD ($r=0.14, p=0.01$) (Table 6).

Total PTSD was correlated with total anxiety ($r=0.40, p=0.001$), ventilating feelings ($r=0.27, p=0.01$), developing social support ($r=0.14, p=0.01$), avoiding problems ($r=0.21, p=0.01$), and being humorous ($r=0.12, p=0.01$).

Total anxiety was correlated with total coping ($r=0.15, p=0.001$), total PTSD ($r=0.40, p=0.01$), ventilating feelings ($r=0.27, p=0.01$), developing social support ($r=0.27, p=0.01$), and relaxing ($r=0.17, p=0.01$).

Prediction of PTSD by Traumatic Events by Political Violence

In order to test the predictive value of specific traumatic events on PTSD symptoms, total CPTSD-RI was entered as the dependent variable in logistic regressions, with 28 types of traumatic events as the covariates. The event that was significantly associated with PTSD was beating and humiliation by the army ($\beta=0.16, p=0.01$), witnessing arrest of someone or a friend ($\beta=0.14, p=0.01$) ($F=7.12, p=0.001$) (Table 7).

Prediction of Mental Health Problems Due to Political Violence

In order to investigate the relative predictive value of trauma on the development of different mental health problems, a series of linear regression analyses were performed. Total traumatic events were entered as the dependent variable, and mental health problems, PTSD, and anxiety, as independent variables.

The results showed that traumatic events were predic-

Table 7: Logistic Regression Analysis of PTSD and Types of Traumatic Events.

	Unstandardized Coefficients		Standardized Coefficients	<i>t</i>	<i>p</i>	95.0% Confidence Interval for B	
	B	Std. Error	β			Lower Bound	Upper Bound
(Constant)	30.54	0.87		35.30	0.01	28.84	32.24
Beating and humiliation by the army	6.25	2.27	0.16	2.76	0.01	1.79	10.71
Witnessing arrest or kidnapping of someone or a friend	2.30	0.93	0.14	2.49	0.01	0.48	4.12

Table 8: Linear Regression Analysis between Total Trauma and Children Mental Health Problems.

Independent variables	β	R ²	t	F
Hyperactivity-teachers	0.19	0.03	3.4**	11.7**
SDQ total -teachers	0.14	0.02	2.5**	6.5**
Social problems-self	0.14-	0.02	-2.0*	*4.2*
SDQ total-self	0.14	0.02	2.1*	*4.5
PTSD	0.39	0.15	7.5**	**57.5

* $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$, $p > 0.05$

tive of mental health problems, number of traumatic events and hyperactivity by teachers ($\beta=0.19$, $t=3.4$, $p<0.01$). General mental health problems rated by teachers ($\beta=0.14$, $t=2.5$, $p<0.01$), general mental health problems rated by children ($\beta=0.14$, $t=2.1$, $p<0.05$), PTSD also was predicted by traumatic events ($\beta=0.39$, $t=7.5$, $p<0.01$). However, traumatic events were negatively predictive of social problems rated by children themselves ($\beta=-0.14$, $t=-2.0$, $p<0.05$) (Table 8).

DISCUSSION

In our study each Palestinian child was exposed to 9.34 traumatic events due to political violence and the most common traumatic experiences were hearing shelling of the area by artillery, watching mutilated bodies in TV (89.9%), hearing the sonic sounds of jet fighters, and witnessing the signs of shelling on the ground. This is similar to our study of children in North Gaza and Middle area after incursion.^{20,31-36}

Bosnian children reported other types of traumatic events such as separation from parents, death of parents or siblings, and extreme poverty or deprivation.⁸ From the above mentioned studies, we can conclude that each culture and area may need a certain measure of exposure to trauma in order to adapt to the type of conflict and the involvement of children and their families. Our study showed that boys were exposed to more traumatic events than girls due to political violence. This finding concerning the risks of trauma in boys was consistent with the previous studies in the Gaza Strip.^{31,32,35-37} This high exposure was attributed to cultural factors in which boys moved aside during incursions and bombardment and witnessed the remnant of the martyrs in the streets. While Palestinian girls are protected and kept at home and not allowed going outside the home. Our results showed that older age group children (13-16 y) were exposed to more traumatic events than the younger age group. This due to the fact that the young children are kept at home with their parents and the older children are more active outside their homes. The strong association established between traumatic events and severity of PTSD reactions support the linear relationship between trauma and PTSD in children. Our findings were congruent with those of the previous studies.³⁵⁻³⁷ Our study showed that the rate of PTSD was 25.2%. This rate was less than the studies done in the north and the middle area of the Gaza

Strip in which 71% of the children were considered to be suffering from PTSD.³¹ Our results were consistent with the results of the study on of children and adolescents aged between 8-16 years in Gaza and the West Bank. The frequency of PTSD scores above the established cut-off score (likely PTSD) was 21.2%. There was significant association between exposure to traumatic events and PTSD symptoms.³²

This study showed that girls developed more PTSD than boys. This is consistent with the results from similar studies in other parts of the world.^{8,21,38,39} However, the results showed that older age group children (13-16 y) developed more PTSD than the younger age group thus, more intrusion, and hyper-arousal symptoms. These findings have been replicated in other cultural groups.⁴⁰ This was inconsistent with the results our previous study on the effect of shelling in children.^{31,35,36}

According to this study, the prevalence of mental health problems rated by teachers and parents were less than previously recorded rates in the study in of the children (38.5%) from Gaza were rated as having caseness by teachers and (36.9%) by parents.²⁰

Girls reported more mental health problems by themselves than boys. Children aged between 13-16 years reported more mental health problems by themselves than the younger age group.

Anxiety disorders represent one of the most common forms of child psychopathology. The children’s total score of anxiety was 41.15, obsessive compulsive disorder mean was 8.4, social phobia 7.3, generalized anxiety mean was 6.7, separation anxiety mean was 6.5, physical injury fears was 5.3 and panic/agoraphobia was 7. The present study was consistent with the study of labor children in the Gaza Strip in which the mean total anxiety score was recorded as 48.15.²⁷ Our results were inconsistent with study of a community sample of 2,052 children between 8-12 years of age. Lower scores of total anxiety and other were reported.²¹ Our results were consistent with the study on the effect of home demolition of Palestinian anxiety; they found that children whose homes were demolished showed significantly more psychological symptoms than the children in witness control groups. The age of children was not significantly related to

psychological symptoms.⁴¹ Our results showed that total anxiety scores, generalized anxiety, social phobia, panic/agoraphobia, social phobia, and physical injury fears were statistically significant in children of the younger age. The results showed that girls reported a higher total anxiety score more panic/agoraphobia and more separation anxiety than boys. The results showed that children aged between 9-12 years showed more panic/agoraphobia than children aged between 13-16 years, physical injury fears were more in children aged between 9-12 years than other age group, social phobia was also more in children aged between 9-12 years than the older age group, obsessive compulsive disorder was more in children aged between 13-16 years compared to the younger age group. Our study is inconsistent with the study of a community sample of 2,052 children, between 8-12 years of age. Lower scores of total anxiety and other subscales were recorded.⁴² Our results consisted with study of sample consisted of 358 adolescents which showed the mean total anxiety was 41.18.³³

The children mean total coping strategies was 187.5 for children, while the highest subscale of coping was towards seeking professional support, seeking diversion, solving family problems, developing social support. The results showed that boys generally cope better than girls, boys also seek diversion more than girls, and seek spiritual support. The results showed that there was a strong association between PTSD and total coping strategies, ventilating feelings and PTSD, social support and PTSD, avoiding problems and PTSD. Our results were consistent with the previous studies in the Gaza Strip.^{30,32-34,43} Our results were inconsistent with the results that found children used instrumental social support (81.2%), instrumental emotional support (75.9%), religious coping (59.8%), and humor (50.8%).⁴⁴ Also, others found that a majority of the children's coping responses in the study of stressors and coping behaviors of school-aged homeless children staying in shelters were in the social support (86%), cognitive avoidance (38%), and behavioral distraction categories (31%). While 17% were in the cognitive restructuring category, 14% in information seeking category, 10% in isolating activities and 3% in seeking spiritual support.⁴⁵ Also, the results of the study on adolescents who reported coping strategies among two groups were exposed to different stressors; the groups of different stressful situations have indicate 55% active coping, 19.29% distraction, 27.11% avoidance, 17.97% support-seeking, and social support 18.64%.⁴⁶ The study showed that adolescents who experienced traumatic experiences developed less social support and positively asked for more professional support as coping strategies. Adolescents with PTSD had showed coping by ventilating feelings, developing social support, avoiding problems, and adolescents with less PTSD were more focussed towards solving their family problems. Adolescents with anxiety were associated with ventilating feelings, developing social support, and engaging in demanding activities. Adolescents with less anxiety were seeking more spiritual support. Such findings were consistent with the previous studies in the area.³²⁻³⁴

CONCLUSION

The study showed that Palestinian children were exposed to 9.34 traumatic events due to political violence. Boys and older age children were more traumatized. There was a strong association between traumatic events and the severity of PTSD reactions. Girls showed more PTSD than boys and older age group children developed more PTSD than the younger age group. Our study showed that prevalence of general mental health problems using SDQ by children aged 11 years and more using SDQ for self, parents and teachers (19.4%, 24.3%, and 28.4% of children respectively were rated as having caseness). Anxiety disorders represent one of the most common forms of child psychopathology. The results showed that girls showed more total anxiety. Palestinian children used a group of coping strategies to overcome trauma and stress, the highest subscale of coping was seeking professional support, seeking diversion, solving family problems, developing social support, developing self-reliance, ventilating feelings, engaging in demanding activities, relaxing, seeking spiritual support, avoiding problems, being humorous, and investing in close friend. The result showed that there was strong association between PTSD and total coping strategies, ventilating feelings and PTSD, social support and PTSD, avoiding problems and PTSD.

Clinical Implications

The finding of this study highlighted the need to establish outreach child mental health clinics with multidisciplinary staff at primary health centers to assess and treat children referred from community agencies and schools after exposure to traumatic events. Also, continuous training programmes conducted by child mental health professionals for primary health physicians and nurses, in order to enable those professionals to diagnose detect children with PTSD and other psychiatric disorders, and to manage less complex cases at the primary care level. School-based prevention and treatment programmes need to be developed and supported, as schools provide access to a developmentally appropriate environment that encourages normality and minimizes stigma. School is also a setting in which PTSD and associated symptoms are likely to emerge.

ACKNOWLEDGMENT

We appreciate the support given by World Vision Australia to conduct this study, to children, families, and teachers participating in this study.

CONFLICTS OF INTEREST

There were no conflicts of interest in conducting this study.

AUTHORS' CONTRIBUTIONS

This work was carried out in collaboration between both au-

thors. Authors AMT designed the study and wrote the protocol. Author SST performed the data collection, statistical analysis and managed the literature search. Author AMT wrote the first draft of the manuscript with the author's assistance. Both the authors read and approved the final manuscript.

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Effects of Political and Community Violence on Mental Health of Adolescence in Gaza Strip.

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Published Date: March 06, 2017

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Abstract

Aim: The aim of this study to investigate the impact of trauma due to Israeli and community violence on Palestinian adolescents PTSD, depression, and anxiety.

Method: A stratified cluster random sample survey of 394 adolescents; (51.5% males 49.5% females) aged between 15-18 years were assessed. The researcher used descriptive analytical design to represent the entire sample of the population. However, the researcher used some of modified scales from which; Gaza traumatic events checklist for Israelis violence, Gaza traumatic events checklist for factional fighting, the revised children's manifest anxiety scale (RCMAS), child depression inventory (CDI), UCLA PTSD Index for DSM IV.

Results: The major findings were: the most common traumatic events due to Israel violence revealed by children was "watching mutilated bodies in TV" by 90.4%, the most common traumatic events due to factional fighting was "hearing the shootings and bombardment due to fighting in the streets" by 87.1%. The prevalence of severe Israel violence events was 23.6%. The prevalence of severe factional fighting events was 22.1%. There were a significant association between Israel violence and factional fighting. The prevalence of anxiety, depression, and PTSD were 20.8%, 31.0%, 12.7% consecutively. There were positive significant correlation between anxiety, PTSD, depression and political violence. The study found significant differences in anxiety levels according to sex, but there were no significant differences in PTSD and depression levels according to sex. The study found significant differences between the means of anxiety, PTSD and depression levels according to Israel violence and factional fighting levels.

Clinical implications

The findings of this study showed that there are needs for establishing therapeutic programmes including counseling for victims of violence or for those at risk, support groups, and behavioral therapy for depression and other psychiatric disorders. Also, public education campaigns using the media to target entire communities or educational campaigns for specific settings such as schools, workplaces, and health care and other institutions. For schools extracurricular activities for young people, such as sports, drama, art and music must be established. Moreover, training for police, health and education professionals, and employers to make them better able to identify and respond to the different types of violence.

Keywords: Children, Political Violence, PTSD, Anxiety, Depression.



Introduction

More than 1.3 million people worldwide die each year as a result of violence in all its forms (self-directed, interpersonal and collective), accounting for 2.5% of global mortality. For people aged 15–44 years, violence is the fourth leading cause of death worldwide (WHO, 2014). From a health point of view, the impact of violence in general may be seen within a traumatization framework, i.e. that the different types of violence, including political violence, induce physical and/or mental harm to (i.e. traumatize) individuals, groups or populations. A separation of physical and mental traumatization is difficult, since physical traumatization can hardly occur without being accompanied by mental traumatization (WHO, 2002). The impact of conflicts on mental health is, however, extremely complex and unpredictable. It is influenced by a host of factors such as the nature of the conflict, the kind of trauma and distress experienced, the cultural context, and the resources that individuals and communities bring to bear on their situation (Summerfield, 1991). De Jong et al. (2001) studied community samples in four low-income countries that had recently been experiencing internal conflict. The prevalence rates for PTSD were 37.4% in Algeria, 28.4% in Cambodia, 15.8% in Ethiopia, and 17.8% in Gaza. Torture was reported by 8.4% in Algeria, 9.0% in Cambodia, 25.5% in Ethiopia, and 15.0% in Gaza.

In all cases, torture was significantly related to risk of PTSD. In a study of Silove et al, (2002) examines the effect of torture in generating PTSD symptoms by comparing its impact with that of other traumas suffered by a war-affected sample of Tamils living in Australia. Traumatic predictors of PTSD were examined among a subsample of 107 Tamils (refugees, asylum seekers, and voluntary immigrants) . Tamils exposed to torture returned statistically higher PTSD scores than other war trauma survivors after controlling for overall levels of trauma exposure. Similarly, in the study of Qouta et al, (2003) the prevalence and determinants of PTSD were assessed among 121 Palestinian children (6-16 years; 45% girls and 55% boys) living in the area of bombardment. The results showed that 54% of the children suffered from severe, 33.5 % from moderate and 11 % from mild and doubtful levels of PTSD. Girls were more vulnerable; 58% of them suffered from severe PTSD, and none scored on the mild or



doubtful levels of PTSD. In the study of Elbedour et al, (2007) to evaluate and describe the psychological effects of exposure of war-like circumstances on this population. Participants for this study were 229 Palestinian adolescents living in the Gaza Strip who were administered measures of post-traumatic stress disorder (PTSD), depression, anxiety, and coping. Of the 229 participants, 68.9% were classified as having developed PTSD, 40.0% reported moderate or severe levels of depression, 94.9% were classified as having severe anxiety levels, and 69.9% demonstrated undesirable coping responses. Similarly, Khamis (2008) in study aimed to assess the occurrence of post-traumatic stress disorder (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 6 months after the trauma. In regard to depression and anxiety, significant differences were found between PTSD and non- PTSD adolescents on the depression scale and anxiety scale. Adolescents who exhibited PTSD symptoms were more likely to report higher levels of depression and anxiety.

Also, Thabet et al (2008) in study of 200 families from North Gaza and East Gaza showed that 70.1% of children were likely to present with 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. Thabet et al (2015a) in study of acute traumatic stress disorder symptoms in a sample of displaced and non-displaced children and adolescents in the Gaza Strip, found that 10.0% of non-displaced children and 18.4% of displaced children had acute traumatic stress disorder. Displaced children reported more acute stress disorder, dissociative, re-experiencing, avoidance, and hyperarousal symptoms, Moreover, Thabet et al., (2015b) in a study aimed to investigate the effect of traumatic events due to eight days of military escalation on children PTSD, anxiety, resilience, relationship of between children mental health problems and resilience. This study showed that 35.9% of children showed full criteria of PTSD. Post traumatic stress disorder and re-experiencing symptoms were more in



girls, 30.9% of children had anxiety disorder. No differences in anxiety disorder between boys and girls. The aim of this study to investigate the impact of trauma due to Israeli and community violence on Palestinian adolescents PTSD, depression, and anxiety.

Method

Subjects

A cross-sectional stratified cluster random sample survey of 394 adolescents; 203 (51.5%) males and 191 (49.5%) females aged 15-18 years. We chose two schools from each governorate; (one males school and one females school) randomly by using sampling frame. By the same way in each school we chose three classes (10th, 11th and 12th).

Instruments of the study

We used the following questionnaires

Demographic status

Demographic status developed to assess the adolescents age, sex, place of residence, mother educational level, father educational level, mother work, father work, and family income

Gaza Traumatic Events Checklist for Israelis Violence (Thabet et al., 2006)

This checklist consists of 28 items covering different types of traumatic events that a child may have been exposed to in the particular circumstances of the regional conflict and Israeli violence in the last 6 months. This checklist covers three domains of trauma. The first domain covers witnessing acts of violence such as the killing of relatives, home demolition, bombardment, and injury of others. The second domain covers hearing experiences such as hearing of the killing or injury of friends or relatives. The third domain covers personal traumatic events such being shot, injured, or beaten. This checklist can be completed by children aged 6-16 ('yes' or 'no'). For the 31-item scale, Cronbachs's alpha was 0.90.

Gaza Traumatic Events Checklist for Factional fighting (Thabet et al. 2006)

This checklist consists of 20 items covering different types of traumatic events that a child or adolescents may have been exposed to in the particular circumstances of the regional conflict between Fatah and Hamas faction fighting including traumatic events resulting from insecurity and the lawless situation in the Gaza Strip, the last factional fighting and war in the area. This checklist can be completed by children aged 6-16 ('yes' or 'no'). For the 18-items scale, Cronbachs's alpha was 0.87.

The Revised Children's Manifest Anxiety Scale (RCMAS) (Reynolds and Richmond, 1978) (Arabic version, Thabet 1998):

This is a standardized 37-item self-report questionnaire for children aged 6-19. 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 (Reynolds and Richmond, 1997). Regarding the total anxiety scale reliability, Cronbach's alpha was 0.82. UCLA PTSD index for DSM-IV: Adolescent version [Rodriguez et al., 1999]

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 adolescent aged 13 years and older) contains a total of 22 questions, have also been administered in school 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. Only 17 items were included in the total score because two items were not DSM-IV criteria and three items were repeated symptoms. The split-half reliability of this measure was 0.84 and the Cronbach alpha was ($\alpha = 0.91$).

Child Depression Inventory (CDI) Kovacs, M. (1985)

The CDI is a standardised self-report questionnaire of depressive symptomatology (Kovacs, 1985). This has been developed for children and young people aged 6-17. The CDI includes 27 items, each scored on a 0-2 scale (from 'not a problem' to 'severe') for the previous two weeks. The total score ranges between 0-54, and a score of 19 and higher has been found to indicate the likelihood of a depressive disorder. The CDI has been adapted for use with Arab children (Gharib, 1985). For the 27-items, Cronbach's alpha was 0.65.

Study procedure

An approval letter was obtained from Helsinki committee in the Ministry of Health to allow us to carry out his study and another agreement was obtained from the Palestinian ministry of higher education to facilitate data collection procedures. Data was collected through the distribution of questionnaires on governmental schools in the Gaza governorates by the help of some teachers in those schools in the period from 6/2/2008 to 26/2/2008.

Statistical analysis

After data collection of the sample the researcher used SPSS computer program for data entry and analysis. While the researcher used other statistical analysis that clarifying the differences between the groups such as frequencies, t- independent test, comparing means, one way A NOVA, and chi-square that also denoted the differences between the groups and within the groups of the study variables.

Demographic results of the study sample

The following table shows the demographic results of the study sample, which described the study sample according to sex, Place of residence, Type of residence, number of siblings, mother & father educational level, mother & father work, and monthly income.



The sample consisted of 394 adolescents, 203 were males (51.5%) and 191 were females (48.5%). Adolescents coming from North Gaza were (24.1%), from Gaza (28.4%), from middle area (16.8%), from Khan Younis (15.0 %), and from Rafah (15.7%). According to number of siblings were (28.4%) of adolescents had 4 and less siblings, (45.4%) of adolescents had 5-7 siblings, and (26.1%) of adolescents had 8 and more siblings. According to place of residence, 62.7% of study sample live in cities, 28.4% live in camps, and 8.9% live in villages. According to family monthly income, were (20.1%) of adolescents' had family income less than 600 NIS, (15.0%) family income was from 601-1400 NIS, (12.7 %) of adolescents were from 1401-2000, (19.5%) were from 2001-3000 NIS, (32.7%) were more than 3000 NIS.

Table 1: Demographic characteristics of the study Sample (N = 394).

	N	%
<i>Sex</i>		
Males	203	51.5
Females	191	48.5
Total	394	100.0
<i>Place of residence</i>		
North Gaza	95	24.1
Gaza	112	28.4
Middle area	66	16.8
Khan Younis	59	15.0
Rafah	62	15.7
Total	394	100.0
<i>Number of Siblings</i>		
4 and less	112	28.4
5-7 siblings	179	45.4
8 and above	103	26.1
<i>Family income by 'NIS' (One Us dollar = 3.8 NIS)</i>		
600 and less	79	20.1
601-1400	59	15.0
1401-2000	50	12.7
2001-3000	77	19.5
More than 3000 NIS	129	32.7

Frequency of traumatic events due to Israel violence



The following frequency table 2 described the most traumatic events due to Israel violence and its frequency among study sample. The researcher found that 90.4% of study sample watching mutilated bodies in TV, 86.0% hearing shelling of the area by artillery, and 84% hearing the sonic sounds of the jetfighters. While the lowest traumatic events were physical injury due to bombardment of your home 16.5%, deprivation from going to toilet and leave the room at home where you was detained 17.3%, and threatened to death by being used as human shield to arrest your neighbors by the army 17.5%. There were no significant differences in traumatic events due to Israel violence according to sex.

Table 2: Frequency of traumatic events due to Israel violence.

No	Items	yes	%
1.	Watching mutilated bodies in TV	356	90.4
2.	Hearing shelling of the area by artillery	339	86.0
3.	Hearing the sonic sounds of the jetfighters	331	84.0
4.	Witnessing the signs of shelling on the ground	326	82.7
5.	Hearing the shootings and bombardment	278	70.6
6.	Witnessing assassination of people by rockets	269	68.3
7.	Deprivation from water or electricity during detention at home	214	54.3
8.	Hearing killing of a close relative	191	48.5
9.	Hearing killing of a friend	190	48.2
10.	Witnessing firing by tanks and heavy artillery at neighbors homes	164	41.6
11.	Witnessing of a neighbor home demolition	151	38.3
12.	Being detained at home during incursions or due to factional fighting	142	36.0
13.	Threaten by shooting	134	34.0
14.	Threaten by telephoned to evacuate your home before bombardment	118	29.9
15.	Witnessing firing by tanks and heavy artillery at own home	111	28.2
16.	Witnessing arrest or kidnapping of someone or a friend	108	27.4
17.	Witnessing shooting of a friend	106	26.9
18.	Witnessing of own home demolition	103	26.1
19.	Threaten of family member of being killed	96	24.4
20.	Beating and humiliation by the army	93	23.6
21.	Witnessing killing of a friend	90	22.8
22.	Witnessing shooting of a close relative	88	22.3
23.	Destroying of your personal belongings during incursion	83	21.1
24.	Witnessing killing of a close relative	79	20.1
25.	Threaten of being killed	72	18.3



26.	Threatened to death by being used as human shield to arrest your neighbors by the army	69	17.5
27.	Deprivation from going to toilet and leave the room at home where you was detained	68	17.3
28.	Physical injury due to bombardment of your home	65	16.5

Level of traumatic events due to Israel violence

The following table shows that 129 of study sample have mild traumatic events (0-4) Israel violence 32.7%, while 172 of study sample have moderate traumatic events (5-10) 43.7% and 93 of study sample have severe traumatic events (11 events and more) 23.6%.

Frequency of traumatic events due to factional fighting

The following frequency table describes the traumatic events due to factional fighting and its frequency among study sample. The researcher found that 87.1% of study sample "Hearing the shootings and bombardment due to fighting in the streets", 82.2% "Watching mutilated bodies in TV", and 77.7% "Hearing arrest or kidnapping of someone or a friend". While the lowest traumatic events were "Threaten by shooting or killing" 17.0%, "Shooting by bullets, rocket, or bombs" 17.5%, and "Deprivation from going to toilet and leave the room at home where you was detained" 18.5%.

Table 3: Frequency of traumatic events due to factional fighting.

No	Items	yes	%
1.	Hearing the shootings and bombardment due to fighting in the streets	343	87.1
2.	Watching mutilated bodies in TV	324	82.2
3.	Hearing arrest or kidnapping of someone or a friend	306	77.7
4.	Being detained at home	209	53.0
5.	Witnessing of a neighbor home exposing to shooting and shelling	205	52.5
6.	Deprivation from water or electricity during detention at home	201	51.0
7.	Hearing killing of a friend	191	48.5
8.	Hearing killing of a close relative	137	34.8
9.	Being exposed to shooting during the last shooting and confrontations between factions	122	31.0
10.	Witnessing of your home exposing to shooting and shelling	119	30.2
11.	Witnessing shooting of a friend	112	28.4
12.	Beating and humiliation and beating	104	26.4
13.	Threaten of family member of being killed	103	26.1
14.	Witnessing shooting of a close relative	90	22.8



15.	Witnessing killing of a friend	89	22.6
16.	Destroying of your personal belongings during incursion	89	22.6
17.	Witnessing killing of a close relative	75	19.0
18.	Deprivation from going to toilet and leave the room at home where you was detained	73	18.5
19.	Shooting by bullets, rocket, or bombs	69	17.5
20.	Threaten by shooting or killing	67	17.0

Level of traumatic events due to factional fighting

The following table shows that 120 of study sample have mild traumatic events (0-4) 30.5%, while 187 of study sample have moderate traumatic events (5-10) 47.5%. and 87 of study sample have severe traumatic events (11 and above) 22.1%. In order to test the sex difference between the two types of violence among the study sample the researcher performed t-independent test. As shown in the following table; the result found significant differences in traumatic events due to factional fighting according to sex with an actual probability ($t = 2.65$; $df = 392$, $p = 0.008$) in favor to males.

Prevalence of anxiety

The following table shows that 312 of study sample are not anxious 79.2%, while 82 of study sample had anxiety 20.8% ($Mean = 12.33$, $SD = 5.97$). In order to test the sex difference between anxiety, and gender, performed t-independent test was conducted. The result showed significant differences in anxiety levels according to sex with an actual probability ($t = 2.88$; $df = 392$, $p = 0.004$) in favor of females.

Prevalence of depression

The following table shows that 272 of study sample are not depressed 69.0%, while 122 of study sample were depressed 31.0% ($Mean = 14.44$, $SD = 8.05$). There were no significant differences in depression according to sex.

Prevalence of PTSD

The following table shows that 227 of study sample fulfill criterion (B) (re-experiencing) 57.6% ($Mean = 7.12$; $SD = 4.633$), while 89 of study sample fulfill criterion (C) (Avoidance) 22.6% ($Mean = 9.12$; $SD = 5.377$), and 139 of study sample fulfill criterion (D) (increased arousal) 35.3% ($Mean = 7.49$, $SD = 4.184$). Using cut-off point of DSM-IV criteria, 255 of study sample have no PTSD (64.7%), 89 of study sample have partial PTSD (22.6%), while 50 of study sample have full PTSD (12.7%) ($Mean = 28.90$, $SD = 14.93$). There were no significant differences in PTSD according to sex.

Table 4: Prevalence of PTSD.

Variables	Frequency	Percent
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		N	%
PTSD level	No PTSD	255	64.7
	Partial PTSD	89	22.6
	Full PTSD	50	12.7
Total		394	100.0

Relationships between Trauma Exposure-Related to Israeli and community violence, PTSD anxiety, and depression

In order to find the relationships between the dependent and independent variables, Pearson correlation coefficient test was done. Total traumatic events due to Israeli violence were significantly correlated to community violence ($r=0.79$, $p = 0.01$), anxiety ($r =0.12$, $p = 0.01$), PTSD ($r=0.16$, $p = 0.01$), and depression ($r =0.12$, $p = 0.01$). Traumatic events due to community were significantly correlated to anxiety ($r =0.12$, $p = 0.01$), PTSD ($r =0.13$, $p = 0.01$), and depression ($r =.11$, $p = 0.01$).

Table 5: Correlations between Trauma Exposure-Related to Israeli and community violence, PTSD anxiety, and depression.

	1	2	3	4
1. Israeli violence				
2. Community violence	.79**			
3. Anxiety	.12*	.12*		
4. PTSD	.16**	.13*	.68**	
5. Depression	.12*	.11*	.62**	.60**

Discussion

The aim of the study was to investigate levels of political violence that adolescence encountered in Gaza governorates and their effects on the mental health. The most prevalent traumatic event due to Israel violence that affects the study sample was "Watching mutilated bodies in TV" 90.4%. The researcher hypothesized that these finding related to continuous browsing of martyrs and injured in the television by the media that attracted all ages to follow these events. Furthermore, the daily news exhibit different media that presented to the audience without monitoring. Also, this reflects the importance of the media and its affect on our community; since all of us listen and watch TV programs especially daily news. The second most traumatic



events due to Israel violence that affect the study sample was "hearing shelling of the area by artillery" (86.0%). The researcher hypothesized that these findings related to that artillery occurred suddenly and randomly and nobody knows what the consequences of such rights shelling. The results were consistent with previous studies of Thabet et al. (2007) and El Majdalawi and Thabet, (2009), Thabet et al (2015a, 2015b) found that the most common traumatic events children reported was watching mutilated bodies and wounded people on TV 98.5%, 96.9% respectively. There were no significant differences in Israel Violence according to sex. The researcher attributes that for the social habits in our society that reflect the dominant male and who more exposed to different types of trauma; who shared in different types of aggression events, and violence.

The most prevalent traumatic events due to factional fighting were "hearing the shootings and bombardment due to fighting in the streets" (87.1%), "watching mutilated bodies in TV" (82.2%). The average mean indicated that males exposed to traumatic events due to factional fighting more than females.

The study found there were positive significant correlations between factional fighting and Israel violence, which means the high incidence of Israel violence will be combined with high incidence of factional fighting. Our findings were consistent also with the study of Thabet et al (2008) in a study of 200 families from North Gaza and East Gaza showed that 70.1% of children were likely to present with 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.

The prevalence of anxiety was (20.8%). This prevalence rate of anxiety appears to be consistent with the studies of Thabet and Vostains (1998) (21.5%) and Papageorgiou et al. (2000) (23.0%). But appears to be inconsistent with the studies of Thabet et al. (2007) (33.9%), Holtz (1998) (41.4%), and Scholte et al. (2004) (51.8%), Thabet et al 2008 (21.5%), Thabet et al., (2016 in press) (21.9%). The study there were positive significant correlations between anxiety and Israel Violence, also there were positive significant correlations between anxiety and factional fighting, which means the increase in incidence of Israel violence and factional fighting will lead to increasing of anxiety levels. Our results appeared to be consistent with the study of Punamäki and Suleiman (1990) that found exposure to political hardships increased children's psychological symptoms as general, also the study of Holtz (1998) which revealed that torture survivors had a statistically significant higher proportion of elevated anxiety scores than did the non-tortured, while the study of Scholte et al, (2004) that found higher rates of symptoms were associated with higher numbers of traumas experienced.

The prevalence of depression was (31.0%). This prevalence appears less than the studies of Alexander (2007) (35.0%), Eisenman et al, (2003) (36.0%), Scholte et al, (2004) (38.5%),



Mollica et al. (1999) (39.2%), Elbedour et al, (2007) (40.0%), Papageorgiou et al, (2000) (47.0%) Thabet et al., (2016 in press) (50.6%), but more than the study of Roussos et al, (2005) (13.9%). The study showed that there were positive significant correlation between depression and Israel Violence, also there were positive significant correlation between depression and factional fighting. Which means the increase incidence of Israel Violence, and factional fighting will lead to increasing of depression levels. The previous results appeared to be consistent with the study of Eisenman et al, (2003) that pointed to of those exposed to Israel Violence, (36%) had symptoms of depression. While the study of Scholte et al, (2004) found that higher rates of symptoms were associated with higher numbers of traumas experienced. Also Qouta et al, (2007) and Paxton et al, (2004) exposure to violence was significantly associated with depressive symptoms.

The prevalence of PTSD was 35.3%. This prevalence appear less than the studies of Silove et al. (1997) (37.0%), Thabet et al., (2000) (40.6%), Thabet et al. (1999), (41.0%), Qouta et al, (2003) (54%), Thabet et, al. (2007) (65.0%), Michultka (1998) (68.0%), Elbedour et al, (2007) (68.9%), El Majdalawi, (2002) (71.2%), but more the studies of Eisenman et al, (2003) (18.0%), Scholte et al, (2004) (20.4%), Mollica et al. (1999) (26.3%), Papageorgiou et al, (2000) (28.0%).

The study showed that there were positive significant correlation between PTSD and factional fighting. Which means the increase incidence of Israel Violence and factional fighting will lead to increasing of PTSD levels. The previous results appeared to be consistent with the study of Bravo-Mehmedbasić et al. (2003) that indicated torture is the most intense form of trauma leading to intensive psychopathological responses including chronic PTSD. Also Paxton et al, (2004), Punamäki et al, (2001) and Thabet et al, (2002) found that exposure to violence was significantly associated with PTSD symptoms. While study of Michultka (1998) and Thabet et al. (1999) found that higher numbers of war experiences predicted PTSD severity. While Scholte et al, (2004) conclude as general that higher rates of symptoms were associated with higher numbers of traumas experienced. Also the study of Qouta et al, (2007) indicated that adolescents' PTSD symptoms were most likely if they had been exposed to high levels of traumatic and stressful experiences.

Clinical implication

The findings of this study showed that there are needs for establishing therapeutic programmes-including counseling for victims of violence or for those at risk, support groups, and behavioural therapy for depression and other psychiatric disorders. Also, public education campaigns using the media to target entire communities or educational campaigns for specific settings such as schools, workplaces, and health care and other institutions. For schools extracurricular activities for young people, such as sports, drama, art and music must be



established. Moreover, training for police, health and education professionals, and employers to make them better able to identify and respond to the different types of violence.

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Post-Traumatic Stress Disorder due to War Trauma, Social and Family Support among Adolescent in the Gaza Strip

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Received date: 05/04/2017; Accepted date: 11/05/2017; Published date: 19/05/2017

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Research Article

ABSTRACT

Aim: This study aimed to find the relationship between trauma due to war and post-traumatic stress disorder, social, and family support among adolescent in the Gaza Strip. The sample consisted of 400 students (200 boys and 200 girls).

Method: The adolescents were interviewed by Gaza Traumatic Events Checklist, Post-traumatic Stress Disorder Checklist, Social Support Scale and Family Crisis Oriented Personal Evaluation Scale.

Results: The study showed that mean traumatic experiences reported was 12.19. Boys had been exposed more than girls. The study showed that 25% of adolescents reported partial PTSD and 9.3% had full criteria of PTSD. Boys reported more PTSD than girls. Mean of social support was 83. Adolescents aged 13 years had less total social support than the older group. Mean of family support was 97.33, acquiring social support was 28.62, reframing was 26.18, seeking spiritual support was 14.26, mobilizing family to acquire and accept help was 12.48, positive appraisal was 12.75. There was positive correlation between total traumatic events and PTSD, intrusion and avoidance. While, total traumatic events were correlated negatively with family coping and social support. There was positive correlation between PTSD and social support and family support.

Keywords: Adolescent, Family support, Gaza strip, Post-traumatic stress disorder, Social, War trauma

INTRODUCTION

Palestinians in Gaza Strip are exposed to continuous stress and trauma due to siege and wars, which had negative impact on their psychological, economic, and social, life. Child and adolescent are at risk of high exposure to traumatic events which increase prevalence of posttraumatic stress disorder, anxiety and depression [1]. On August 2014, another war on Gaza increased the suffering of children and their families. This war lasted for 51 days. At the end of the war, the number of killed people was 2,145, 578 of them were children and adolescents, 11,000 others had been wounded, over, over 100,000 were displaced from border areas, and approximately 18,000 houses were completely destroyed or severely damaged [2].

PTSD In Children and Adolescents

Trauma is a life-threatening event which had negative impact on children's mental health. Research has largely focused on psychological symptoms such as posttraumatic stress disorder (PTSD), while the impact of trauma on social relations and other developmental aspects, as important as they are, is ignored [3]. Studies of PTSD in adolescence published from 2003 to 2015 indicate that adolescents are at greater risk of experiencing trauma than either adults or children, and that the prevalence of PTSD among adolescents is 3–57% [1,4-11]. Additionally, adolescents with less social support are more likely to experience trauma and develop PTSD [12].

Social Support and PTSD

Social support has been defined as "those social interactions or relationships that provide individuals with actual assistance or that embed individuals within a social system believed to provide love, caring or a sense of attachment to a valued social group". Lack of social support after exposure to traumatic events is one of the strongest predictors of posttraumatic stress disorder (PTSD). While, Galea et al. [13], found that the inverse relationship between social support and PTSD strengthened as the length of time since the trauma increased. Social support has been considered to be an important factor influencing an individual's reactions to stress and it also has a beneficial effect on PTSD.

Social support from parents, peers and others has been found to be a protective factor both before and after a trauma [14]. Kaniasty and Norris empirically supported these findings and demonstrated a sequential role in how social factors influence symptom outcome. In a sample of natural disaster survivors, social causation, with more positive social interactions leading to less PTSD, was found to be the best supported theory 6 to 12 months following the trauma. Studies that have investigated perceived positive and negative social support separately, for example, have found that perceived positive social support post-trauma is associated with better subsequent mental health outcomes, while perceived negative social support is linked to greater psychological distress. In this manner, higher social support provides a buffer against the development and maintenance of PTSD symptoms over time [15]. Another theory posits the opposite direction of effects, whereby PTSD symptoms themselves lead to an erosion of social support over time, either by survivors withdrawing from social contact over time, or by survivors' symptoms leading to burnout in their support network or both [16]. Moreover, Thabet et al. [7], in a study of Palestinian children exposed to war trauma showed perceived parenting support was found to act as a protective factor in this association. Similarly, Ouda [17] in study the relationship between the degree of exposure to traumatic experience and methods to adapt to the stresses and the level of social support showed that there was high level of traumatic experienced by children Gaza Strip in border areas, as well as a high level of adaptation methods with stress, social support, and psychological toughness. Furthermore, Reavell et al. [18], in a study examined the mediating role of social support in the relationship between emotional intelligence and PTSD symptoms. Participants included 443 trauma-exposed university students who completed online questionnaires. The results of this study indicated that social support mediates the relationship between emotional intelligence and reported PTSD symptoms. Thus, emotional intelligence is significantly associated with PTSD symptoms and social support may play an integral role in the relationship between emotional intelligence and PTSD. In a study of 315 middle school students in Lushan county six months after the Ya'an earthquake in China found that social support had significant direct association with post traumatic growth but not with PTSD, but social support had a negative indirect prediction on PTSD and a positive indirect prediction on post traumatic growth through cognitive reappraisal. Social support, through expressive suppression, had a significant and indirect prediction on PTSD, but a non-significant indirect prediction on post traumatic growth. Additionally, Reavell et al. [18] in a literature review of patterns of risk factors and effects of post-traumatic stress disorder (PTSD) and depression in refugee minors found a high incidences of PTSD and depression found in refugee minors and poorer mental health was correlated with increased exposure to violence. Factors such as social support and family security were important in reducing the rates of PTSD and depression, whereas the implications of age and gender were unclear. Long-term effects from these mental illnesses indicated scholastic issues, but no further worsening of symptoms.

Family Support and PTSD

The family systems theory has hardly been applied in trauma research, although researchers emphasize that the effects of trauma can be understood better through a family's typical coping efforts, adaptation styles and shared expression of pain than through focusing only on psychiatric distress and symptoms [19]. Family support is a style of work and a wide range of activities that strengthen positive informal social networks through community based programmes and services. Family support had been a protective factor for developing PTSD, Nickerson et al. [20] in study of 1132 trauma survivors initially assessed upon admission to one of four Level 1 trauma hospitals in Australia after experiencing a traumatic injury. Participants were followed up at 3 months, 12 months, 24 months and 6 years after the traumatic event. Latent difference score analyses revealed that greater severity of PTSD symptoms predicted subsequent increases in perceived negative social support at each time-point. Greater severity of PTSD symptoms predicted subsequent decreases in perceived positive social support between 3 and 12 months. High levels of perceived positive or negative social support did not predict subsequent changes in PTSD symptoms at any time-point.

This study aims to: 1) To identify the types and severity of trauma among adolescent in the Gaza Strip, 2) To find the prevalence the PTSD among adolescent, 3) To identify the types level of family and social support among adolescent, 4) To explore the relationship between trauma, PTSD, social and family support and other socio-demographic variables.

METHOD

Sample

The sample number was 400 adolescent of the total population, 200 (50%) of the participant were males, and 200 (50%) were females.

Measures

The researcher will use five instruments to implement her study, socio-demographic characteristic questionnaire, Gaza traumatic events checklist, PTSD scale for DSM-IV, family support scale and social support scale.

Socio-demographic characteristic questionnaire

This questionnaire include educational level, Type of school, age, sex, Place of residence, number of family member, parents education, parents work, family income.

Gaza traumatic events checklist (GTEC)^[5]

The checklist consisting of 29 items covering three domains of events typical for the of military escalation: (1) Witnessing personally acts of violence (e.g. killing of relatives, home demolition, bombardment, and injuries); (2) Having experiences of loss, injury and destruction in family and other close persons; and (3) Being personally the target of violence (e.g., being shot, injured, or beaten by the soldiers). In checklist respondent were asked whether they had been exposed to each of these events: (0) no (1) yes. In this study, the Cronbach's alpha coefficient was high and acceptable 0.93.

Posttraumatic stress disorder checklist – Arabic version^[1,5]

This checklist contains 17 items adapted from the DSM-IV-TR PTSD symptom criteria. The 17 PTSD symptoms are rated by the participant for the previous month on a scale indicating the degree to which the respondent was bothered by a particular symptom from 1 (not at all) to 5 (extremely). Items can be categorized as follows: items 1-4, 17 are for criteria B (intrusive re-experiencing); items 5-11 are for criteria C (avoidance and numbness); and items 12-16 are for criteria D (hyperarousal). This scale was used in previous studies and showed high reliability and validity ^[1,5]. In this study, the Cronbach's alpha coefficient was high and acceptable 0.87.

Social support scale- Arabic version^[21]

Social support scale (SSS) contains 26 items and was designed to measure the three factors of social support. It contain three rank (11 items are support perceived from family and relatives, 10 items are Psychosocial support provided by friends, and 5 items are psychosocial support provided by the institutions). In checklist respondent were asked whether they had been exposed to each item: (1) never, (2) sometimes and (3) always. This scale was used previously in Gaza Strip and showed validity ^[21]. In this study, the Cronbach's alpha coefficient was high and acceptable 0.82.

Family crisis oriented personal evaluation scale (f-copes) Arabic version^[22]

The family crisis oriented personal evaluation scales (F-COPES) is a self-report measure used to assess family coping strategies ^[23]. The F-COPES was used in this study because coping as a construct deals with plans or actions that ameliorate the experience of stress. The scale is composed of 30 items to assess effective problem solving coping attitudes and behavior used by families in response to problems or difficulties, which result in five subscale scores and a total score. The five subscales are: (a) requesting for social support; (b) restructuring; (c) request for spiritual (religious) support; (d) positive evaluation; and (e) action of the family. A score is obtained for each subscale and the total score by summing the respondents score for each of the items. This scale had been used in Gaza Strip and Chronbach's alpha was $\alpha=0.85$ ^[22]. In this study, the Cronbach's alpha coefficient was high and acceptable 0.82.

Study Procedure

We selected the study sample by stratified random method, in which we prepared a list of number of student aged between 13-18 years from list of schools obtained from Ministry of Education with the name of schools and location. After the number of the sample determined from each area, the selected schools were contacted and informed about the purpose of the study and asked to give permission to collect the data from the student. Adolescents were selected from classes by using simple random sample. Approval of Ethical Helsinki committee was granted beside Ministry of Education. A prepared consent form was given to the adolescents and another formal consent from parents was obtained before conducting the data collection. Confidentiality of the data was ensured for the adolescents and their

parents. Data collection was conducted by the first author and three trained data collectors. The data was collected inside the classes. The data collection was performed in August, 2016.

Statistical Analysis

Data entry and analysis will use a Statistical Package for the Social Science (SPSS, Version 22). Frequency and percent were used to express quantitative data of type of traumatic experience, post-traumatic stress disorder, family and social support of adolescent. For continuous variables means and standard deviation were reported. For differences between means of two group's parametric test were used such as t-test to compare sex of adolescents and mean of trauma, PTSD, family support and social support. While, ANOVA tests were used for measuring differences between more than two groups of continuous variables such trauma and place of residence, PTSD and family support. The researcher was used least significant difference (LSD) test after one way ANOVA test, to explore further and compare the mean of one group with the mean of another. Pearson's correlation coefficient was used to test the association between traumatic experiences, PTSD, family support and social support. Stepwise multiple regression analyses for the severity PTSD was entered as dependent variable and each traumatic event as independent variables. Another Stepwise multiple regression analyses for the severity PTSD was entered as dependent variable and social support and family copings as independent variables. The 0.05 alpha levels was accepted as a sign for statistical significance for all the statistical procedures.

RESULTS

Socio Demographic Characteristics of the Sample

Table 1 showed that the sample was 400 adolescents, 200 were boys (50.0%) and 200 were girls (50.0%). Regard place of residence, 17% of adolescents were from North Gaza, 45% live in Gaza area, 10% live in Middle area, 20% live in Khan Younis and 8% live in Rafah area. Also, regard number of the family member, 14.8% of the participating had Less than 3 members, 20.5% had 3-6 members and 64.8% had More than 6 members. Regard family monthly income, 56.8% of the families had a monthly income less than \$400, 20% between \$401-600, 13% had a monthly income \$601-900 and 10.3% had a monthly income more than \$901.

Table 1. Socio demographic characteristics of the sample (N=400).

Item	No.	%
Sex		
Male	200	50
Female	200	50
Age in years (mean age=15.49 years, SD=1.71)		
Place of residence		
North Gaza	68	17
Gaza	180	45
Middle area	40	10
Khan Younis	80	20
Rafah area	32	8
Number of the family member		
Less than 3	59	14.8
04-Jun	82	20.5
7 and more	259	64.8
Family monthly income (NIS)		
Less than \$400	227	56.8
\$401-600	80	20

\$601-900	52	13
\$901 and above	41	10.3

Frequency and Severity of Traumatic Events Checklist Scale

The study showed that the most common traumatic experiences reported by adolescents were: Hearing shelling of the area by artillery (88.8%), Hearing the loud voice of Drones (81.3%), watching mutilated bodies in TV (71.8%) and Hearing killing of a friend (68.5%). While, the least common traumatic experiences were: Personal threat if killing by the army (28.3%) and Physical injury due to bombardment of your home (28.8%) (Table 2).

Table 2. Frequency of traumatic events.

No.	Traumatic events	Yes		No	
		No	%	No	%
1	Hearing killing of a friend	274	68.5	126	31.5
2	Hearing killing of a close relative	213	53.3	187	46.8
3	Hearing shelling of the area by artillery	355	88.8	45	11.3
4	Hearing the loud voice of Drones	325	81.3	75	18.8
5	Witnessing killing of a friend	142	35.5	258	64.5
6	Witnessing killing of a close relative	134	33.5	266	66.5
7	Witnessing shooting of a friend	148	37	252	63
8	Witnessing shooting of a close relative	137	34.3	263	65.8
9	Witnessing firing by tanks and heavy artillery at own home	140	35	260	65
10	Witnessing firing by tanks and heavy artillery at neighbors' homes	198	49.5	202	50.5
11	Witnessing arrest of a close relative by the army	138	34.5	262	65.5
12	Witnessing arrest of a friend	162	40.5	238	59.5
13	Watching mutilated bodies in TV	287	71.8	113	28.3
14	Witnessing bombardment of bog buildings by rockets	220	55	180	45
15	Witnessing assassination of people by rockets	168	42	232	58
16	Physical injury due to bombardment of your home	115	28.8	285	71.3
17	Shot by bullets, rocket, or bombs	117	29.3	283	70.8
18	Deprivation from water or electricity during detention at home	152	38	248	62
19	Threaten by shooting	130	32.5	270	67.5
20	Destroying of your personal belongings during incursion	134	33.5	266	66.5
21	Personal threat if killing by the army	113	28.3	287	71.8
22	Threaten of killing of your closed relative in front of you	129	32.3	271	67.8
23	Threatened with death by being used as human shield by the army to move from one home to home	133	33.3	267	66.8
24	Being arrested during the land incursion	130	32.5	270	67.5
25	Forced to leave you home with family members due to shelling	172	43	228	57
26	Exposure to arrest during invasion	175	43.8	225	56.3

27	Inhalation of bad smells due to bombardment	243	60.8	157	39.3
28	Threaten by telephone to leave the home for bombardment of home	210	52.5	190	47.5
29	Receiving pamphlets from Airplane to leave your home at the border and to move to the city centers	158	39.5	242	60.5

Severity of Traumatic Events

In order to find the severity of the traumatic experiences, total traumatic events were recorded in to mild trauma "0-4 events", moderate trauma "5-10 events" and severe trauma "above 10 events" [5]. The results show that 45.0% reported mild traumatic events, 32.5% reported moderate traumatic events, and 22.5% reported severe traumatic events. Mean of traumatic experience was 12.19 (SD=7.96).

Traumatic Experiences According to Socio-Demographic Variables

The study showed that the mean of traumatic event in boys were 16.4 (SD=8.23) and 7.98 for girls (SD=4.89). There were statistically significant differences toward boys ($t(400)=12.388, p=0.001$). Post Hoc test using LSD test posteriori comparisons showed that individual who their age 16 years had more traumatic experience than younger age 13, 14, 15years.

Frequencies of Post-Traumatic Stress Disorder Symptoms

The most common post traumatic reactions were: Efforts to avoid activities, places or people that arouse recollections of the trauma (16%), Efforts to avoid thoughts, feelings or conversations associated with the trauma (14.8%), Acting or feeling as if the traumatic event were recurring (12.3%), Exaggerated startle response (12%), Intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (11%).

Mean and Standard Deviation of the Post-Traumatic Stress Disorder Symptoms

The study showed that mean total scores of PTSD was 40.53 (SD 12.68), mean Intrusion symptoms was 12.64 (SD=4.25), mean avoidance was 15.81 (SD=5.45) and mean arousal was 12.08 (SD=5.19).

Prevalence of Post-Traumatic Stress Disorder

According to DSM-IV diagnostic criteria of PTSD (one re-experiencing, 3 avoidance and 2 arousal symptoms).The study showed that 133 of adolescents (33.3%) showed no PTSD, 130 of adolescents (32.5%) showed at least one criteria of PTSD (B or C or D), 100 showed partial PTSD (25%) and 37 of adolescents showed full criteria of PTSD (9.3%) (Table 3).

Table 3. Prevalence of PTSD symptoms.

PTSD	No.	%
No PTSD	133	33.3
One symptoms	130	32.5
Partial PTSD	100	25
Full PTSD	37	9.3

Posttraumatic Stress Disorder Symptoms According to Socio-Demographic Variables

The study showed that there were statistically significant for all subscales (Intrusion symptoms, avoidance, and arousal) and in total PTSD scores (Mean 37.7 girls vs. 43.4 boys) ($t=4.63, p=0.001$), thus it can be concluded that there are differences in PTSD due to sex in favor of male. There were no differences in PTSD and subscales according to age and family monthly income.

Frequency of Social Support

The most common social support the adolescents received were: my family members being with me when I need them (75%), my family give me advice when I need (68.5%) and my family helps me to overcome the problems that I face (68%).

Mean and Standard Deviation of the Social Support

Mean total scores of social support was 83.98 (SD =16.199), mean support perceived from family and relatives was 34.87 (SD=7.592) mean psychosocial support provided by friends was 33.690 (SD=6.764) and mean psychosocial support provided by the institutions was 15.407 (SD=3.612) (Table 4).

Table 4. Means and standard deviations of social support.

Social support scale	Mean	SD
Total social support	83.98	16.19
Support perceived from family and relatives	34.87	7.59
Psychosocial support provided by friends	33.69	6.76
Psychosocial support provided by Non-Governmental Organizations	15.407	3.61

Social Support According to Socio-Demographic Variables

There were no statistically significant differences in social support according to adolescents sex, in total social support ($t(400)=-1.50, p=0.13$). Post Hoc test using LSD test posteriori comparisons showed that adolescents aged 13 years had less total social support than the older group ($F(5, 400)=2.59, p=0.02$). There were no differences in social support according to family monthly income ($F(5, 400)=0.85, p=0.48$).

Frequency of Family Support Items

The most common family support reported by adolescents were: We share our relatives difficulties (59.1%), ask for encouragement and support from friends (60.3%), face the problems and trying to find solutions to them immediately (56.8%) and watch Television (54.4%).

Mean and Standard Deviation of the Family Support

The study showed that mean total family coping was 97.33 (SD=18.9), acquiring social support was 28.62 (SD=6.49), reframing was 26.18 (SD=6.07), seeking spiritual support was 14.26 (SD=2.82), mobilizing family to acquire and accept help was 12.48 (SD=3.13), positive appraisal was 12.75 (SD=3.15) (Table 5).

Table 5. Mean and standard deviation of family support.

Family Oriented Coping Scale	Mean	SD
Total family coping	97.33	18.9
Acquiring social support	28.62	6.49
Reframing	26.18	6.07
Seeking spiritual support	14.26	2.82
Mobilizing family to acquire and accept help	12.48	3.13
Positive appraisal	12.75	3.15

Family Support According to Socio-Demographic Factors

The study showed no sex differences in family coping and subscales. Post hoc test showed that children aged 17 years had more family coping than younger and older age children ($F(5, 400)=2.35, p=0.04$), reframing was also more in adolescents aged 17 years than the other groups ($F(5, 400)=2.87, p=0.01$), and Positive appraisal was also more in adolescents aged 17 years than the other groups ($F(5, 400)=3.06, p=0.01$).

Relationships between Traumatic Events, PTSD Symptoms, Social and Family Support

Pearson correlation coefficient test was done. The result showed that there was positive correlation with statistical significance between traumatic events experience and PTSD ($r(400)=0.36, p<0.001$), intrusion ($r(400)=0.30, p<0.001$), avoidance ($r(400)=0.33, p<0.001$). While total traumatic events was correlated with family coping ($r(400)=-0.11$,

p<0.01) and social support (r (400)=-0.11, p<0.01). There were positive correlation between PTSD and social support(r (400)=0.12, p<0.01) and family support (r (400)=0.10, p<0.01) (Table 6).

Table 6. Pearson correlation coefficient to study the relation between PTSD, traumatic events, social support and family support, *p<0.05, **p<0.01, ***p<0.00.

	Total Trauma	PTSD total score	Intrusion	Avoidance	Arousal
Total Trauma					
PTSD total score	0.36**	.			
Intrusion	0.30**	0.79**			
Avoidance	0.33**	0.88**	0.54**		
Arousal	0.28**	0.87**	0.54**	0.66**	
Family coping	-0.11-*	0.10*	0.1	0.06	0.10*
Total social support	-0.11-*	0.12*	0.13*	0.08	0.12*

Prediction of PTSD by Traumatic Events

In a multivariate regression model, each traumatic event, were entered as an independent variables and PTSD as dependent variable. Beating and humiliation by the army was predicting PTSD: Forced to leave you home with family members due to shelling ($\beta=0.19$, t (400), p<0.001)Hearing the death of your a friend or neighbor during the war ($\beta=0.16$, t (400),p<0.001) exposure to the threat to leave the home in the border areas and to go to the city center via leaflets from planes ($\beta=0.11$, t (400), p<0.02), witnessing your home demolished, and destroying by shelling or bulldozers ($\beta=0.10$, t (400), p<0.04), R²=0.17, F (1, 400)=20.16, p<0.001 (Table 7).

Table 7. Multivariate regression model of each traumatic event with total PTSD.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta	Lower Bound		Upper Bound	
(Constant)	33.136	1.097		30.193	0.001	30.978	35.294
Forced to leave you home with family members due to shelling	5.089	1.385	0.199	3.674	0.001	2.366	7.812
Hearing the death of your a friend or neighbor during the war	4.416	1.325	0.162	3.332	0.001	1.81	7.021
Exposure to the threat to leave the home in the border areas and to go to the city center via leaflets from planes	3.001	1.324	0.116	2.266	0.024	0.398	5.605
witnessing your home demolished, and destroying by shelling or bulldozers	2.836	1.395	0.107	2.034	0.043	0.095	5.578

Prediction of PTSD by Family Coping

In a multivariate regression model, total family coping and subscales were entered as independent variables, with total PTSD as the dependent variable. Mobilizing family to acquire and accept help was significantly positively predicting PTSD ($\beta=-0.13$, t (400), p<0.01) R²=0.17, F (1, 400)=6.71, p<0.01 (Table 8).

Table 8. Multivariate regression model of family coping and PTSD.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta	Lower Bound		Upper Bound	

(Constant)	34.012	2.593		13.119	0	28.916	39.109
Mobilizing family to acquire and accept help	0.522	0.202	0.129	2.59	0.01	0.126	0.918

Prediction of PTSD by Social Support

In a multivariate regression model, total social support and subscales were entered as independent variables, with total PTSD as the dependent variable. Psychosocial support provided by Non-Governmental Organizations was predicting PTSD ($\beta=-0.16$, $t(400)$, $p<0.01$) $R^2=0.14$, $F(1, 400)=8.9$, $p<0.003$ (Table 9).

Table 9. Multivariate regression model of family support with total PTSD.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta	Lower Bound		Upper Bound	
(Constant)	32.487	2.753		11.802	0	27.076	37.899
Psychosocial support provided by Non-Governmental Organizations	0.522	0.174	0.149	3	0.003	0.18	0.864

DISCUSSION

This study results showed that Palestinian adolescents exposed to war on 2014 reported commonly hearing shelling of the area by artillery (88.8%), hearing the loud voice of Drones motor (81.3%), watching mutilated bodies in TV (71.8%) and hearing killing of a friend (68.5%). Similarly, Abu Nada et al. [24] in study of children in Gaza found that the children commonly reported witnessing bombardments (85) and watching TV (95%). Such types of traumatic events had been reported by children and adolescents in Gaza Strip, Thabet et al. [6] in study of Palestinian children showed that (90.8%) of children reported watching mutilated bodies on TV. Similarly, Thabet et al. [7] in another study reported that the most commonly reported traumatic events were: watching mutilated bodies and wounded people in TV (92.3%) and hearing shelling of the area by artillery (89.4%). Additionally, Ghannam et al. [25] in study of adolescents in Gaza Strip showed that the most common reported traumatic event were hearing shelling of the area by artillery (96.25%), watching mutilated bodies in TV (95.25%) and hearing the loud voice of drones motors (92%).

This study showed that mean traumatic experience reported by adolescents was 12.19. Boys reported more traumatic events than girls. Such findings were consistent with Thabet et al. [6] study which showed that the mean traumatic events reported by adolescents was 13.34. Additionally, Thabet et al. [7], report that the mean number of traumatic events reported by Palestinian adolescents was 14. While, Abu Nada et al. [24], reported that number of traumatic events reported by the adolescents was 9.9. Furthermore, Khamis [21] in another study reported that a substantial number of children experienced at least one lifetime trauma (54.7%) and Al Kurd [26], study showed that percentage of trauma was (61.5%) and Thabet et al. [6], study showed that children reported many traumatic events (mean=4). But a study in New Zealand, showed that 61% of the sample experienced trauma events in their lifetime, with 9% experiencing events in the past year [27]. The study showed that there were statistically significant differences in number of traumatic events toward boys. These findings were consistent with Thabet et al. [6,7] study which showed that boys reported more traumatic events than girls.

Our study showed that the most common post traumatic reactions were: efforts to avoid activities, places, or people that arouse recollections of the trauma (16%), efforts to avoid thoughts, feelings, or conversations associated with the trauma (14.8), acting or feeling as if the traumatic event were recurring (12.3), exaggerated startle response (12%), intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (11%). Qeshta [28], study showed that the most common post traumatic reactions in adolescents were: recurrent and intrusive distressing recollections of the event, including images, thoughts, or perceptions (49%), acting or feeling as if the traumatic event were recurring (44.8%), intense psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event (34.8%). Also, Al Ibawaini [29], reported that the most common post traumatic reactions in adolescents were: recurrent and intrusive distressing recollections of the event, including images, thoughts or perceptions (43.6%), exaggerated startle response (41.4%), acting or feeling as if the traumatic event were recurring (40.7%), efforts to avoid activities, places, or people that arouse recollections of the trauma (40.2%), and efforts to avoid thoughts, feelings, or conversations associated with the trauma (40%). While, Al Kurd [26] study showed that the most common symptoms were: being upset by something which reminded (67.24%). Then, fell as though the event was re-occurring 65.62%.

The study showed that 25% reported partial PTSD, and 9.3% reported full criteria of PTSD. Such prevalence rate of PTSD was less than found in study of Thabet et al. [6], which showed that 35.1% reported partial PTSD and 37.6% reported full criteria of PTSD. Rate of PTSD in this study was less than found in study of Qeshta [28], study which showed that 16.4% of children showed full criteria of PTSD. Additionally, Al Ibawaini's [29] study reported that 19.1% of adolescents showed full criteria of PTSD. While Thabet [5], study showed that 12.4% of the children and adolescents reported probable PTSD. While, Khamis [21], study showed that PTSD was diagnosed in 34.1% of the children, and most of whom were refugees?

The study showed that males had reported more PTSD, intrusion, avoidance, and arousal symptoms. Such findings were inconsistent with study of Qeshta [28] which showed no statistically significant differences in total PTSD scores according to gender. But our study was consistent with findings of Thabet et al. [6] which showed that girls reported more PTSD than boys. Additionally, Nooner et al. [12] showed that the adolescent females are twice as likely to develop PTSD following a significant trauma than males.

The study showed that the most common social support the adolescents get was: support perceived from family and relatives were: family members being with them when they need them (75%), family give them advice when they need (68.5%) and my family helps them to overcome the problems that they face (68%). Mean support perceived from family and relatives was 34.87, mean psychosocial support provided by friends was 33.69 and mean psychosocial support provided by the institutions was 15.407 and mean of total score of social support scale was 83.93, it indicated adolescents in the Gaza Strip have social support with high degree. The study showed that there were statistically significance differences in social support according to age, which their age (13) years had social support less than those with older age 15-18 years. That findings were inconsistent with Al Kurd [26], study which showed that there were no statistically significance differences in social support according to age of children. Our study showed that there were no statistically significance differences in social support according to gender. This was consistent with Al Kurd [26], study showed that there were no statistically significance differences in social support according to sex. Moreover, Brookmeyer et al. [30] in a study showed that girls reported more social support from parents, friends, and school. But Ouda's [17] study found that there were differences in social support in favor of females. The study found that the most common family support were: We share our relatives difficulties (59.1%), ask for encouragement and support from friends (60.3%), face the problems and trying to find solutions to them immediately (56.8%) and watch Television (54.4%). The study showed that mean total family coping was 97.33, acquiring social support was 28.62, reframing was 26.18, seeking spiritual support was 14.26, mobilizing family to acquire and accept help was 12.48, positive appraisal was 12.75.

The study found that there were statistically significant differences in family support according to age; it found that the study sample individual that their age (13) years saw that family support less in adolescents aged (15-18 years). This was inconsistent with Al Kurd [26] study which showed that there were no statistically significance differences in family support according to age. The study found that there were no statistically significant differences in family support according to sex, to number of family member and family monthly income. While, Al Kurd [26] showed that there were no statistically significance differences in family support according to sex, number of family members, and family income.

The study found that there was significant correlation between total traumatic events total PTSD among the adolescents of the study sample. This consistent with Thabet et al.'s [6], study showed that there was significant association between exposure to traumatic events and developing PTSD. And Qeshta's [28] study showed that there was significant correlation between total traumatic events reported by children and total PTSD, re-experiencing, avoidance, and arousal. This means that traumatic experiences lead to post traumatic stress disorder. Also, Bensimon [31] showed that trauma increased PTSD and growth levels. Another study by Al Ibawaini [29] showed that there was significant correlation between total traumatic events reported by adolescents and total PTSD, re-experiencing, avoidance and arousal. Nooner et al. [12] reported that trauma is associated with more shame and deviance, is associated with higher rates of PTSD, and rates of traumatic exposure peak in adolescence compared to adulthood, which is associated with correspondingly higher rates of PTSD. Al Kurd [26] reported that when the trauma is increased the symptoms of PTSD will increased. But, the study found that there was no correlation between traumatic events experience and the social support for adolescents of the study sample. This consistent with Thabet [5] showed that trauma was negatively correlated with social support and wishful thinking, and positively correlated with self-criticism. But, Thabet [5] showed that adolescents experienced traumatic experiences developed less social support and Ouda [17] showed that there was a positive correlation between the positive experience of traumatic and all methods of adaptation with stress, social support, and psychological toughness. Also, Nooner et al. [12] reported that adolescents with less social support are more likely to experience trauma and develop PTSD. Also, the study found that there was significant correlation between traumatic events experience and the family support. The study found that there was significant correlation between PTSD and social support of adolescents in the Gaza Strip. This consistent with Thabet [5] reported that adolescents with PTSD had coping by ventilating feelings, developing social support, however Nooner et al. [12] showed that the adolescents with less social support are more likely to experience trauma and develop PTSD, also Scarpa et al. [32] showed that low perceived social support from family and friends significantly predicted increased PTSD scores. Until, Araya et al. [33]

reported that coping strategies and perceived social support influenced mental distress and quality of life directly. The study found that there was significant correlation between PTSD and family support of adolescents. This consistent with Thabet [5] reported that adolescents with less PTSD had looking more for solving his family problems, also Scarpa et al. [32] reported that low perceived social support from family and friends significantly predicted increased PTSD scores. Also, the study found that there was significant correlation between social support and family support. This consistent with Al Kurd [26] showed that positive correlation between family support and social support, it means when the social support increased the family support increased. Our study results were consistent with those studies that demonstrated the correlation between exposed to trauma, PTSD symptoms, social and family support. Exposed to trauma increase the possibility to develop PTSD, also the family and social support associated positively with PTSD (higher rates of PTSD associated with high rates of family and social support).

CLINICAL IMPLICATIONS

According to the results, there was a high prevalence of traumatic experiences, which affect the adolescents badly, so the researcher recommends restriction of TV programs that display a violence and war reports through cooperation with the ministry of information. Purposefully selected programs by parents or caretakers are good for children and adolescents. It is necessary to provide therapeutic interventions and protective interventions for adolescents exposed traumatic events. Generation counseling department in every school and the staff mission is to give lessons that talk about the psychological problems associated with the trauma. Train courses for mental health workers by Ministry of Health to focus on mental health services that can help affected adolescents must be established. Non-governmental organizations should do modification of their programs and plans which meet all generations and families and cover all levels of community. Also, we have to increases the community institutions which provide social support. Generation counseling department in every school and the staff mission is to give lessons that talk about the psychological problems associated with the trauma. Those counselors work to educate and train students on how to deal with these conditions before, after and during the trauma. To establish supportive and therapeutic programs that encouraged affected adolescents to share their feelings and thoughts, and to provide the appropriate therapy to them (by cooperation with ministry of education and ministry of health). Train good mental health workers by Ministry of Health to focus on mental health services that can help affected adolescents

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Prevalence of ADHD and Mental Health Problems among Preschool Children in the Gaza Strip

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Abstract

Aim: The aim of this study was to investigate the prevalence of ADHD and mental health problems among preschool Palestinian children.

Method: The sample consisted of 398 randomly selected preschool children with their mothers and teachers. Children were rated using SDQ and ADHD for parents and teachers.

Results: The results showed that 28.4% of the children according to mothers displayed psychiatric morbidity. Among the four categories of mental health problems, 45.8% reported conduct, 14.2% reported emotional problems, 46% reported peer relationships problem, 33.8% reported hyperactivity, and 15.1% reported pro-social problems. Boys were more hyperactive than girls. According to mothers report, 31.3% of children met the DSM-IV criteria for inattentive type, 36.3% of children were hyperactive-impulsive, and 29% met criteria for combined type. The results showed boys had more attention, hyperactivity, and combined ADHD type than girls. According to teachers, 46.7% of the children were displayed psychiatric morbidity by their teachers. Among the four categories of mental health problems, 45.8% reported conduct, 11.6% reported emotional, 55.8% reported peer relationship problems, 15.3% reported hyperactivity, and 31.2% reported prosocially behavior problem. According to teachers report, 28.8% of children met the DSM-IV criteria for inattentive type, 37.3% of children were hyperactive-impulsive, and 28.3% met criteria for combined type of ADHD.

Clinical implications: From the above mentioned results, we recommended to conduct more training sessions for parents and teachers specified in one or two specific areas of interest such as behavioural problems and behavioural modification. Involving the fathers in such activities and inviting them to similar training sessions, continuous training inside the kindergarten in specific subjects such as overactivity, using drawing in helping children, play therapy, behavioral modification, and counseling, increase in non curriculum activities in the classes. Increase in number of trips, play sessions, drawing settings, supervision of the kindergarten teachers and regular visits to the kindergartens is required by the project officer and the center directors.

Keywords: ADHD; Gaza; Preschool; SDQ

Introduction

Studies of the epidemiology of childhood disorders have concentrated on school-age children and adolescents. There are emerging studies about the prevalence of DSM disorders among preschool children. Historically, studies of preschool children's problems have concentrated on a limited range of specific problem behaviors. One of the first studies of preschool children was a two-stage design study of 3,860 preschool children in Chicago area [1]. The prevalence of pure internalizing and pure externalizing problems was 3.7% each; the comorbidity rate was 3.3%. With the three scales combined, the overall rate of problems (10.7%) is slightly higher than the rate on the total behavior problems scale (8.3%). The sexes did not differ on internalizing problems, but boys were significantly more likely to exhibit total behavior problems, externalizing behavior problems, and comorbid disorders. In a previous epidemiological study in the Gaza strip, Palestinian children found that in early and middle childhood, the established rates of caseness (10.9% at age 3, 11.1% at age 6, and 16.3% at age 11) compared to findings from Western countries [2]. Thabet et al. [3] in study of 309 preschool children in the Gaza Strip, found in respect to gender, with boys scoring higher on the SDQ hyperactivity subscale. There was only one significant difference in respect to gender, with boys scoring higher on the SDQ hyperactivity subscale. There were no significant differences between boys and girls on total SDQ scores. Children from inner-city areas were rated statistically higher on SDQ emotional problems, prosocial problems, peer problems, and total SDQ scores. The most recently published epidemiologic study with preschoolers included a

sample of 307 children, ages 2 to 5 years, recruited through pediatric practices in semirural North Carolina, drawn from Durham and the surrounding rural area [4]. The study used a structured interview designed for use with preschoolers, the preschool age psychiatric assessment [5]. The sample was predominantly African American (55%) and White=non Hispanic (35%), with few Hispanic families (2%). Egger and Angold reported a prevalence rate of 6.6% for ODD; 3.3% ADHD; 2.1% depression; 2.4% SAD, and 6.5% GAD. Furthermore, Massad et al. [6], in study of children selected from a random sample of kindergartens (3-6 years old, N=350) in Gaza Strip found that 50% of children 3-5 years old had conduct problems, while hyperactivity was mostly reported among the 3 year old children. Lavigne et al. [7] included 796 4-year-old children recruited from schools and pediatric practices in a diverse, urban area. The most common disorders were oppositional defiant disorder (ODD) and attention deficit hyperactivity disorder (ADHD). Generalized anxiety disorder (GAD) and depressive

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Received: January 28, 2017; Accepted: February 08, 2017; Published: February 20, 2017

Citation: Thabet AM (2017) Prevalence of ADHD and Mental Health Problems among Preschool Children in the Gaza Strip. Clin Exp Psychol 3: 149. doi: 10.4172/2471-2701.1000149

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disorders were reported in less than 1% of the sample. Race=ethnicity differences were not significant. Gender differences showed ADHD-inattentive type more common among boys, with no gender differences for GAD, major depressive disorder, dysthymia, separation anxiety disorder, or ODD at any level of impairment. Moreover, Wichstrøm et al. [8] in a community sample of Norwegian preschoolers estimated 12.5% of 4-year-olds had at least one psychiatric disorder. Excluding encopresis, the rate of psychiatric disorder was 7.1%. Emotional and behavioral disorders were much more common among children whose parents did not live together or who had low. In study of a sample consisted of 1,738 German children, 840 girls and 898 boys between 3 and 5 years of age [9]. Parents completed the SDQ and gave basic demographical information. They found mean total difficulties score was 7.91, emotional symptoms 1.56, conduct problems was 1.75, hyperactivity/inattention was 3.44, peer problems was 1.16 and prosocial behavior was 7.77. With respect to subtypes of ADHD, the inattentive and combined sub-types were seldom seen (0.2% and 0.3%, respectively), whereas the hyperactive type was more common (1.6%). Thabet et al. [10] in a study aimed to investigate the prevalence of depression and anxiety among preschool children and relationship to mother's mental health. A sample of 380 pre-school children aged 4-6 years with their mothers was selected. The results showed that mean anxiety scores for preschool children was 27.46, generalized anxiety mean was 3.42, social anxiety was 3.94, obsessive compulsive disorder was 4.92, physical injury fear was 10.47 and separation anxiety was 4.94. No sex differences in showing anxiety symptoms, except for physical injury fear which was more in girls than in boys. Bull, in study of a sample consisted of 411 (192 females) children attending preschools in Singapore, aged from 52 to 87 months showed total SDQ was 10.65 for boys and 8.91 for girls. The mean scores generally show less prosocial behaviour and more difficulties on all subscales (particularly for boys), with the exception of Emotion, than in European samples.

ADHD is a diagnostic category in the American Psychiatric Association's Diagnostic and Statistical Manual of Mental Disorders 4th edition (DSM-IV-1994) and the more recent DSM-5 (2013). The significant variation in ADHD prevalence worldwide may indicate the debate and the concern for subjectivity in ADHD diagnosis and treatment. The specific pathophysiology of ADHD is unclear, and its etiology seems complex. Multiple genetic and environmental factors act together to induce a spectrum of neurobiological vulnerability [11-13]. Egger et al. [14] reported that the prevalence of ADHD in preschool children ranges from 2% to 7.9%. The estimated prevalence of ADHD in children is 3-4% according to the most recent meta-analysis [15]. The main purpose of this study was to investigate the prevalence of emotional and behavioural problems in preschool Palestinian children.

Method

Participants

The study sample consisted of randomly sample of kindergartens in the Gaza included 5 areas of the Gaza Strip. We selected 4 kindergartemns from each area. These represent the different types of kindergartens found in Gaza Strip. This study sample was selected from 392 kindergartens distributed in all areas of Gaza Strip. All preschoolers 4-6 years old were selected from the registration books of ten kindergartens. We randomly selected 20 kindergartens across the Gaza Strip. We randomly selected only one child from each family. If a family had more than one child in the same age group, selection proceeded as follows. The youngest was selected in the first family, the second youngest in the second family, the second oldest child in the third family, and the eldest in the fourth family was approached. This

pattern was repeated in subsequent families. The sample included 398 preschool children and their mothers completed the forms. They were 238 boys (59.8%) and 160 (40.2%) females.

Measures

Sociodemographic data: The children demographic data was collected by questionnaire include sex, age, place of residence and family monthly income.

The strengths and difficulties questionnaire (SDQ preschool forms for teachers and parents) [16,17] Arabic version [2]: The Strengths and Difficulties Questionnaire (SDQ) was developed by Goodman and colleagues in the United Kingdom in the late 1990s to screen for psychopathology among children aged 4-16 years [16]. It consists of 25 items and generates 4 "difficulties" subscales (Hyperactivity, Peer Problems, Conduct Problems, and Emotional Symptoms) and one "strengths" scale (Prosocial Behavior). Parents rate each item according to the children's behavior in the last six months on a 3-point Likert scale: not true=0, somewhat true=1, and certainly true=2. The total difficulty score can be computed by adding up the 4 difficulties subscale scores, with higher scores indicating more difficulties. Similarly, higher scores in Prosocial Behavior indicate more strength. The questionnaire was chosen to allow findings from the present study to be directly comparable with larger samples and because the psychometric properties of the questionnaire have been researched extensively with good results regarding both validity and reliability [2,16].

ADHD-rating scale-IV Arabic version parent and teacher forms: ADHD-RS-IV is a questionnaire originally based on DSM-IV criteria and frequently used in epidemiological studies. It contains questions that correspond to nine symptoms of inattention and the nine symptoms of hyperactivity/impulsivity in the DSM-IV. The ADHD-RS-IV was designed for parents or teachers to rate the frequency of a child's symptoms on a scale of 0 to 3 with 0=never or rarely, 1=sometimes, 2=often, 3=very often. Children scored six and above in nine items are considered as inattentive; children reported 6 and more in 9 items are considered hyperactive-impulsive. Children were classified as ADHD combined subtype if they met the criteria i.e., six or more in both for inattention and hyperactivity versions. The Arabic version of this scale was before in the same area [18]. In this study, internal consistency for parents form using Cronbach's Alpha was high ($\alpha=0.84$); the split half reliability of the scale was (0.79).

Study procedure

An approval letter was obtained from authorized body in the Ministry of Health and Education to allow the researcher to carry out the study. For the study, 20 kindergartens were chosen randomly from Gaza Strip. Then we selected randomly number of children from each kindergarten registration book. The researchers trained 6 persons as a team to help in data collection. The team collected data through meeting with the principal of every kindergarten. The data collectors explained to each mother the aim of the study and that the data collected for the study will be kept for scientific research. The mothers were interviewed by researchers and field workers inside the kindergartens and they completed the forms for participation in the study with their children. Every meeting took almost 30 min. The study was conducted on November 2014.

Statistical analysis

The statistical analyses were accomplished with the SPSS for

Windows (version 20). Percentages, means and standard deviations were used to characterize the sample of mothers and preschool children, children mental health according to ADHD and SDQ. The T-test, one-way analysis of variance and post hoc Tukey's T-test were used to test both the differences in means of ADHD and SDQ. Scores and other sociodemographic variables such as gender, place of residence, and family monthly income. Pearson correlation coefficient test was conducted to find relationships between SDQ scores for parents and teachers.

Results

Socio-demographic characteristics of study population

As shown below in Table 1, the sample consisted of 398 preschool children, 238 males (59.8%) and 160 females (40.2%). The age ranged from 4 to 6 years with mean age 5.26 (SD=0.64). According to place of residence, 16.6% were from North Gaza, 42% from Gaza city, 16.3% from Gaza middle area, 9% from Khan Younis, and 16.1% from Rafah area. According to place of residence, 17.9% lived in cities, 1.3% in villages, and 80.9% in refugee camps. Nearly 55.8% of the families subsisted on a monthly income of less than \$300, 31.7% of families subsisted in monthly income from \$301-650 dollars monthly, 11.6% of families subsisted in monthly income from \$651-750 US, 1.1% of families subsisted in monthly income more than \$751 (Table 1).

Mean and percentage of mental health problems using SDQ ratings by mothers

As shown in Table 2, the results showed that mean total SDQ was 13.09 (SD=5.01), hyperactivity 5.06 (SD=1.57), emotional problems 2.43 (SD=2.06), conduct problems 3.50 (SD=2.12), peer problems was 4.70 (SD=1.73), and prosocial behavior was 7.76 (SD=1.83). Using previous cut-off points of the SDQ, 28.4% of the children rated by their mothers as psychiatric morbidity. Among the four categories of mental health problems, 45.8% reported conduct, 14.2% reported emotional problems, and 46% reported peer relationships problems, 33.8% had

Percent	No.	
		Sex
59.8	238	Boys
40.2	160	Girls
		Age in years
45	11.3	4 y
203	51	5 y
150	37.7	6 y
		Residence
16.6	66	North Gaza
42	167	Gaza
16.3	65	Middle area
9	36	Khan Younis
16.1	64	Rafah
		Type of residence
17.9	71	City
1.3	5	Village
80.9	321	Camp
		Monthly family income
55.8	222	Less than \$300
31.7	126	\$301-625
11.6	46	\$626-750
1	4	More than \$751

Table 1: Sociodemographic characteristic of the study sample (N=398).

hyperactivity and 15.1% had pro-social behaviour problems (Table 2).

Sex differences in strength and difficulties according to mothers

The results showed that the differences toward boys was for hyperactivity (11.59% vs. 3.27%) ($\chi^2=15.76$, $p=0.001$). No differences were found in total SDQ rated by mothers and other subscales. Analysis of variance showed a main effect of age on total SDQ-parent. Post hoc analyses using Tukey's HSD indicated that no age differences in reporting total SDQ by parents, $F(2,388)=0.04$, $p=0.98$.

Mean and percentage of ADHD according to mothers

According to mothers report, inattention mean was 4.74 (SD=2.22), hyperactivity-impulsivity was 5.74 (SD=1.64), combined ADHD was 10.48 (SD=3.29). Using DSM criteria for diagnosis, the results showed 20.9% of preschool children met the DSM-IV criteria for inattentive type, 26.1% of children were impulsive, and 12.8% met criteria for combined ADHD type (Table 3).

Sex differences in ADHD according to mothers

In order to find differences among sex of children, chi square test was conducted. The results showed that the main differences toward boys was for attention (14.6% vs. 6.3%) ($\chi^2=4.3$, $p=0.04$), hyperactivity (18.3% vs. 7.8%) ($\chi^2=6.32$, $p=0.01$), and combined ADHD type (9.5% vs. 3.3%) ($\chi^2=7.6$, $p=0.02$).

Mean and percentage of mental health problems using SDQ ratings by teachers

As shown in Table 4 the results showed that mean total SDQ was 14.43 (SD=4.89), hyperactivity 4.72 (SD=1.70), emotional problems 2.44 (SD=2.21), conduct problems 3.78 (SD=2.03), peer problems was 6.83 (SD=2.32), and prosocial behavior was 2.91 (SD=1.73). As shown in Table 4, 46.7% of children were rated by their teachers as psychiatric morbidity. Among the four categories of mental health problems, 45.8% reported conduct, 11.6% reported emotional, 55.8% reported peer relationships, 15.3% reported hyperactivity, and 31.2% reported problem with prosocial behavior (Table 4).

Sex differences in strength and difficulties according to teachers

In order to find differences among sex of children, chi square test was conducted. The results showed that the differences toward boys was for conduct (32.7% vs. 15.8%) ($\chi^2=9$, $p=0.01$), peer relationships (29.9% vs. 25.9%) ($\chi^2=11.7$, $p=0.04$), and prosocial behaviour (29.9% vs. 14.3%) ($\chi^2=9$, $p=0.01$). No differences in total SDQ by teachers, hyperactivity, and emotional problems. Analysis of variance showed a

Mothers-report	Mean	SD	Abnormal
Total difficulties score	13.09	5.01	28.40
Hyperactivity	5.06	1.57	14.90
Emotional problems	2.43	2.06	14.20
Conduct problems	3.50	2.12	45.80
Peer problems	4.70	1.73	46.00
Prosocial behaviour	7.76	1.83	15.10

Table 2: Mean and percentage of mental health problems using SDQ ratings by mothers (N=398).

	Mean	SD	%
Inattention	4.74	2.22	20.9
Hyperactivity-impulsivity	5.74	1.64	26.1
Combined ADHD	10.48	3.29	12.8

Table 3: Mean and percentage of ADHD according to mothers.

Teachers-report	Mean	SD	Abnormal
Total difficulties score	14.43	4.89	46.7
Conduct problems	4.72	1.70	48.5
Emotional problems	2.55	2.21	11.6
Hyperactivity	3.78	2.03	15.3
Peer problems	6.83	2.32	55.8
Prosocial behaviour	2.91	1.73	31.2

Table 4: Mean and percentage of mental health problems using SDQ ratings by teachers (N=398).

main effect of age on total SDQ-teacher. Post hoc analyses using Tukey's HSD indicated that children at 6 years age had more difficulties than preschool children at age 4 and 5 years $F(2,388)=3.65, p=0.02$).

Prevalence of combined ADHD according to teachers

According to mothers report, inattention mean was 3.17 ($SD=3.11$), hyperactivity-impulsivity was 3.49 ($SD=3.03$), combined ADHD was 6.68 ($SD=5.36$). Using DSM criteria for diagnosis, according to teachers report, the results showed 26.9% of children met the DSM-IV criteria for inattentive type 30.3% of children was impulsive, and 15.9% met criteria for combined ADHD type (Table 5).

Sex differences in ADHD according to teachers

In order to find differences among sex of children, chi square test was conducted. The results showed that the differences toward boys was for attention (21.1% vs. 5.8%) ($\chi^2=21.3, p=0.001$), hyperactivity (22.5% vs. 7.8%) ($\chi^2=14.2, p=0.001$), and combined ADHD type (12.1% vs. 3.8%) ($\chi^2=30.32, p=0.001$).

Relationship between children mental health rated by SDQ-parents and teachers

Pearson correlation test was used to test the correlation between children mental health rated by parents and teachers. The results showed that there was significant association between overall total SDQ- parents and SDQ-teacher ($r=0.16, p=0.001$) (Table 6).

Relationship between children ADHD by parents and teachers

Pearson correlation test was used to test the correlation between ADHD scorers rated by parents and teachers. The results showed that there was significant association between combined ADHD-parents and combined ADHD-teacher ($r=0.80, p=0.001$) (Table 7).

Discussion

Our findings of high rate of mental health problems was inconsistent with studies predominantly from the USA and the UK, Roberts et al. [19] found variation in prevalence rates of child psychopathology, depending on the population and measures. Median rates of psychopathology were: 8% for pre-schoolers, 12% for preadolescents and 15% for adolescents. Few of these studies were from non-Western societies. Also higher than study of Thompson et al. [20] which estimated prevalence rates of 13.2% for mental health problems in UK pre-school children. Fombonne [21] found prevalence of 12.4% among French 8-11 year-olds. In a previous epidemiological study in the Gaza strip, the authors used the Rutter scales in a sample of 6-11 year-old-children and found higher prevalence rates (26.8%), which may reflect differences in the optimal cut-off points of the Rutter Scales and the SDQ [22]. Our study rate of behavioural and emotional problems using SDQ was higher than study of Thabet et al. [2] of Palestinian children found that in early and middle childhood, the established rates of

	Mean.	SD	%
Inattention	3.17	3.11	26.9
Hyperactivity-impulsivity	3.49	3.03	30.3
Combined ADHD	6.68	5.36	15.9

Table 5: Mean and percentage of ADHD according to teachers.

caseness (10.9% at age 3, 11.1% at age 6, and 16.3% at age 11) compared with findings from Western countries.

Our findings were inconsistent with study of German children, which showed that 10% of children reported abnormal range in SDQ parents form. Similarly, Davis et al. [23] in study of 4-5-year-old children in the Longitudinal Study of Australian Children (LSAC) showed that for the whole sample, 11.5% of parents reported scores that were above the recommended cutoff (i.e., in the abnormal or of-concern range) for total difficulties. For the subsample with SDQ data from both sources, 10.5% of the parents reported scores were above the recommended cutoff (abnormal or of-concern range) for total difficulties. The teacher reported a lower prevalence of all mental health problems than parents. Approximately 7% of the teacher reported scores above the recommended cutoff (abnormal or of-concern range) for total difficulties. Elberling et al. [24] in a register data from the first year of life was obtained from 99.7% of the children in the cohort of 5,898 eligible children, 3,501 participated in the SDQ assessment (59%). The overall estimated 6 month prevalence of mental health problems was 4.8%. Conduct problems were found in 3.0%, problems of hyperactivity/inattention in 0.7% and emotional problems in 1.5%. Boys showed a higher risk of having mental health problems as compared to girls

Our study showed that teachers said that 26.9% of children met the DSM-IV criteria for inattentive type 30.3% of children was impulsive, and 15.9% met criteria for combined ADHD type. According to mothers report, the results showed 20.9% of preschool children met the DSM-IV criteria for inattentive type, 26.1% of children were impulsive, and 12.8% met criteria for combined ADHD type. Our rate of ADHD is higher than results of Cuff in a NHIS includes 10,367 children ages 4-17 with a response rate of 79.4%. The lifetime prevalence of ADHD was reported by parents to be 7.8%. These high prevalence in consistent with previous study after 6 months of Gaza War in older age children which reported 28% of children had attention deficit disorder by parents and children [9].

Conclusion

From the above mentioned results, we can record the following recommendations:

More training sessions specified in one or two specific areas of interest such as behavioural problems and behavioural modification. Forming groups of parents who can help other parents in dealing with their children behavioural and emotional problems. Involving the fathers in such activities and inviting them to similar training sessions. Group's sessions for parents need help in understanding their children behaviour and this could be every two weeks in regular base. Distribution of more brochures and pamphlets about children needs, problems, and solutions. Continuous training inside the kindergarten in specific subjects such as overactivity, using drawing in helping children, play therapy, behavioural modification, and counseling. Providing the teachers who show talent and ability to deal with children incentives and promotion.

	1	2	3	4	5	6	7	8	9	10	11
Total difficulties score-parents											
Social-parents	0.59**										
Hyperactivity- parents	0.79**	0.27**									
Emotional-parents	0.76**	0.34**	0.41**								
Conduct-Parents	-0.25 **	0	-0.23 **	-0.26 **							
Peer relationship-parents	-0.01-	-0.03-	0.02	-0.08-	0.02						
Total difficulties score-teachers	0.16**	0.15**	0.09	0.12*	0.01	0.40**					
Social-teachers	0.08	0.14**	0.02	0.09	0.07	0.09	0.69**				
Hyperactivity-teachers	0.16**	0.07	0.16**	0.09	-0.05	0.22**	0.71**	0.20**			
Emotional-teachers	0.15**	0.18**	0.01	0.18**	-0.01	0.05	0.72**	0.54**	0.22**		
Conduct -teachers	-0.17 **	-0.16-**	-0.09-	-.019-**	0.23**	0.23**	-0.09	0.07	-0.23 **	-0.15 **	
Peer relationship-teachers	0.52**	0.13**	0.36**	0.19**	-0.19-**	0.05	0.09	0	0.09	0.06	-0.07

Note: **p<0.01; *p<0.05

Table 6: Pearson correlation values of SDQ parents and teachers.

	1	2	3	4	5
Hyperactivity impulsivity by parents					
Attention by parents	0.44**				
Combined ADHD-Parents	0.80**	0.89**			
Attention by teachers	0.20**	0.33**	0.32**		
Hyperactivity impulsivity by teachers	0.28**	0.22**	0.29**	0.53**	
Combined ADHD-teachers	0.27**	0.31**	0.35**	0.88**	0.87**

Note: **p<0.01; *p<0.05

Table 7: Pearson correlation values of ADHD parents and teachers.

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Research

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Volume 3 : Issue 2

Article Ref. #: 1000PCSOJ3124

Article History

Received: February 7th, 2017

Accepted: April 19th, 2017

Published: April 19th, 2017

Citation

Thabet AA, Younis JW. Quality of life (QoL) and depression among children with end stage renal disease attending hemodialysis units in Gaza Strip. *Psychol Cogn Sci Open J*. 2017; 3(2): 57-65. doi: [10.17140/PCSOJ-3-124](https://doi.org/10.17140/PCSOJ-3-124)

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Quality of Life (QoL) and Depression Among Children With End Stage Renal Disease Attending Hemodialysis Units in Gaza Strip

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ABSTRACT

Aim: The aim of this study was to compare the quality of life (QoL) and depression among children with end-stage renal disease (ESRD) undergoing hemodialysis in the Gaza strip compared to the control group of children with chronic medical problems attending the same hospitals.

Methodology: The study sample consisted of children diagnosed with ESRD (N=47) and a control group of children with chronic medical problems attending the same hospitals (N=95). Data collection was performed using sociodemographic scale, medical status checklist, QoL questionnaire and the birleson depression self-rating scale (DSRS) in a face-to-face interview.

Results: The results showed that prevalence of depression reported in children with ESRD was 20.13% and for the control group was 12.63%. The study showed that the mean total QoL for end stage renal (ESR) failure in children was 48.98 relative to 52.75 SD for the control group. There were statistically significant differences in the QoL among the control group children. Physical functioning mean for ESR failure was 14.02% and for the control group was 21.24%. There were statistically significant differences in physical functioning for the group being studied. Emotional functioning for ESR failure was 14.04% and the control mean was 9.68%. There were statistically significant differences in emotional functioning in the control group. Social functioning mean in ESR failure was 9.96% and 8.32% for the control group. There were statistically significant differences in social functioning towards the ESR failure. School functioning mean in ESR failure was 11.38% and 12.77 % for the control group. There were statistically significant differences in school functioning in the control group.

Conclusion: The findings of the study showed that the ESRD have positive perceptions about their QoL (emotional, social), negative perception towards physical functioning and school, compared to the control group who have positive perception about physical functioning, school and their QoL and negative perception towards social and emotional functioning, and indicate a higher incidence of depression among ESRD relative to the control group.

KEY WORDS: Children; Depression; ESRD; QoL.

ABBREVIATIONS: QoL: Quality of Life; ESRD: End-Stage Renal Disease; DSRS: Depression self-rating scale; CKD: Chronic Kidney Disease; CRF: Chronic Renal Failure.

INTRODUCTION

According to the American Society of Nephrology, chronic kidney disease (CKD) has affected 5-10% of the world population and has become a global public health problem.¹ CKD is an important health problem for adults as well as pediatric and adolescent populations. Now-a-days, the frequent use of conventional concepts such as morbidity, mortality, and life expectancy

for the evaluation of public health, is not sufficient to assess the state of health and well-being. Replacing these concepts, the measurement of quality of life (QoL) was proposed as a more appropriate approach for the evaluation of health care services.² Health-related quality of life (HQoL) focuses only on the well-being of an individual, and refers to an individual's satisfaction with his/her own present health state.³

Comparisons of QoL and depression among end stage renal diseases (ESRD) children and non-ESRD children is an important health issue due to the higher reported rate of depression among these groups. Depression is the most common psychological problem encountered in patients with end-stage renal disease.²

Hemodialysis is the most common form of renal replacement therapy (RRT), with over 75% of ESRD patients being treated using this type of therapy.⁴ Hemodialysis is a technique implemented to mediate the removal of waste products such as creatinine, urea and free water from the blood during renal failure. Hemodialysis is one of the three renal replacement therapies (the other two being renal transplant and peritoneal dialysis).^{5,6} Stressors, including medication procedures, dietary constraints, fear of death, and dependency upon treatment, may affect the QoL and exacerbate the feeling of a loss of control.⁷ Depression is widely believed to be the most common mental health problem among patients with ESRD.⁸

The prevalence of major depression in the general population is approximately 1.1-15% for men and 1.8-23% for women.⁹ However, the prevalence of major depression among ESRD patients is approximately 20-30%, and it may be as high as 47%.¹⁰ Some studies have indicated that moderate depressive syndromes are common in approximately 25% of ESRD patients, and that major depression is common in 5-22% of ESRD patients.¹¹

The aims of this study were 1) To compare the QoL and prevalence rate of depression among children with ESRD undergoing hemodialysis compare to the control group, 2) To examine the relationship between QoL and depression among ESRD children and non-ESRD children (control group) in relation to socio-demographic variables such as (age, gender, family income, place of residence, etc.) in the Gaza Strip hospitals.

METHOD

Participants

The study sample include all children (N=47) aged between 6-18 years, attending 4 hemodialysis centers in Gaza Strip, who have a medical record and are registered in the hospital of Ministry of Health as ESRD patients to receive regular hemodialysis sessions during the study. The sample consisted of 28 boys

(19.7%) and 19 girls (13.4%). The control group included children (N=95) admitted at the time of the study and were selected randomly from the other departments in the 4 hospitals. Their age group was between 6-18 years. There were 47 boys (33.1%) and 48 girls (33.8%) at the time of the study.

Measures

Socio-Demographic Information: Variables including age, sex, educational level, living area and family income.

Medical History

Additional information on medical history was obtained, including primary diagnosis, treatment status with respect to dialysis.

The Pediatric QoL Inventory Scale (version 4.0) Arabic Versions¹²

It is a brief, 23-item multidimensional instrument designed by Varni for measuring pediatric health-related QoL.¹³ The pediatric QoL inventory (PQLI) consists of 4 generic core scales: (1) Physical functioning, (2) Emotional functioning, (3) Social functioning, and (4) School functioning. For this study, the parent proxy-report format was used. The instructions assess how much of a problem each item has posed over the past month. The response scale uses a 5-point Likert-type format, ranging from 0 (never a problem) to 4 (almost always a problem). The raw score for each item is reverse-scored and transformed to a scale from 0 to 100 (0-100, 1-75, 2-50, 3-25, and 4-0), with higher scores indicating better health-related QoL to create the total scale score, the mean is computed as the sum of the items divided by the number of items answered on all scales. To determine the psychosocial health summary (PHS) score, the sum of items divided by the number of items answered on the social, emotional, and school functioning scales is computed.¹³ The Arabic version was used in the Gaza strip and showed high reliability.^{14,15}

The parent was asked about how much of a problem a specific function has been for their child in the past 4 weeks. The response to each item is based on a 5-point Likert category, ranging from "never", "almost never", "sometimes", "often", and "almost always" having a problem. As per the user's guidelines, the subject's missing item value of a specific domain using a mean score of the rest of items was included, which do not contain missing values. If more than 50% of the items in the domain are missing, the domain scores of that subject were not computed. We calculated the domain score by adding the item scores of the corresponding domain, dividing the summated item score by the number of items used in the domain. Then, we linearly transformed the domain scores to a 0-100 scale. We referred 0 as the lowest HRQoL and 100 as the highest HRQoL.^{14,15} The reliability of QoL (Arabic version) scale in this study was N=0.65.

Birleson Depression Self-Rating Scale (DSRS)¹⁶

Depression self-rating scale (DSRS) for children: The DSRS for children was developed to assess the degree of depression in children and the youth. The scale comprises 18 items, and is scored on a 3-point scale: Mostly, sometimes, and never, with eight items reversed. The total score ranges from 0 to 36. The clinical cutoff score for depression has been set to ≥ 15 (Birleson, Hudson, Buchanan, Wolff, 1987).¹⁶ The DSRS has been reported to have good internal consistency.¹⁶ The reliability of our Arabic version of the depression scale in this study was $N=0.89$; split half was 0.81. This scale had been used in previous studies in the Gaza strip and showed high reliability.¹⁷

STUDY PROCEDURE

Inclusion and Exclusion Criteria ESRD Patients

Participants were all children ($N=47$) aged between 6-18 years who have a medical record and are registered in hospitals of Ministry of Health as ESRD, attending 4 hemodialysis centers in Gaza strip receiving regular hemodialysis sessions during the study. The age of the children ranged from 6 to 18 years with a mean age of 12.31 years.

Controls

The control group consisted of ($N=95$) children matched in sex and age, admitted with chronic diseases to the same hospitals. The age of the children ranged from 6 to 18 years with a mean age of 11.7 years.

Children and their parents in both groups were told about the aims of the study and they had the right not to participate in the study. Every subject and his parent in the study received an explanatory letter about the study; the researcher explained to all the participants that the information will be kept exclusively for the research purpose. Informed consent to take part in the study was obtained from the patient and their parents. An official letter of approval to conduct the research was obtained from Helsinki Ethical Committee Gaza Strip (HECGS) and an official letter of approval to conduct the study has been obtained from the Human Resource Development Department in Ministry of Health (HRDDMH), which allowed the researcher to carry out the study. Another official letter was obtained from the general administration of hospitals in order to conduct the study in Government hospitals and facilitate the process of data collection. Data collection was done in a face-to-face interview with all the children and inside the hospitals. The time of the interview was 15-20 minutes. The data collection was done on March 2015.

Statistical Analysis

We analyzed our dataset of 350 subjects using the SPSS 20 Software (Statistical Package for the Social Sciences). We

used means and percentages to describe the characteristics of the study sample. In addition to estimating the overall QoL and prevalence of depression, we calculated the prevalence on the basis of the type of participants (cases and control). Independent *t*-test and analysis of variance (ANOVA) were performed to examine differences in both ESRD children and the control groups with respect to QoL, depression and socioeconomic status. For analyzing the association between depression and QoL, Pearson correlation coefficient test was done. Two group MANOVA (e.g., Hotelling's *t*-squared was done) in which case/control were entered as independent variable and depression and QoL as dependent variables. Statistical significance was assumed at $p < 0.05$.

RESULTS

Sociodemographic Characteristics of the Study Sample

Out of 142 children, 47 children were suffering from ESRD and undergoing kidney dialysis, of which 28 children were male (19.7%) and 19 were females (13.4%). While 47 participants of the control group were boys (33.1%) and 48 were girls (33.8%). The age of 15.5% of the participants with ESRD ranged from 6-12 years, the age of 11.3% of the participants ranged from 13-15 years, and the age of 6.3% of the participants ranged from 16-18 years. While the age of 43.7% of the participants in the control group ranged from 6-12 years, age of 14.1% of the participants ranged from 13-15 years, and the age of 9.2% of the participants ranged from 16-18 years. The mean age for ESRD was 12.31 ($SD=2.15$) and the mean age for control was 11.7 ($SD=3.20$). According to the place of residence, 11.3% of the control and 7.1% of the ESR failure patients were from north Gaza, 41.1% of control and 11.3% of ESR failure were patients from Gaza, 7.1% of the control were patients from the middle area and 3.5% of the patients were from the middle area, 5% of the control and 8.5% of ESR failure patients were from Khan Younis, and 2.1% of the control and 2.8% of the ESR failure patients were from Rafah. On the basis of family monthly income, 20.4% of the ESR failure patients had a family income of \$300 and less, 4.2% had a family income in the range \$301-500, 5.6% had a family income in the range \$501-750, and 2.8% had a family income in the range \$751 and more. While, 29.6% of the control patients had family income less than \$300, 23.2% of the control patients had \$301-500, 7.2% of the control patients had \$501-750, and 6.3% of the control patients had \$751 and more (Table 1).

Medical Characteristics of the Kidney Dialysis End Stage Renal Failure

As shown in Table 2, the analysis of the medical characteristics of end stage renal disease, showed that 59.6% of the children had consanguineous relationship between parents, while, 40.4% had no consanguinity. Also, 95.7% of the children had ESRD alone and 4.3% had co-morbid disease with ESRD. Regarding family history of renal disease in children with ESRD, 14.9% of

Table 1: Sociodemographic Characteristics of the Study Sample.

	Case (ESRD) (n= 47)		Control (n= 95)	
	Mean=12.31 (SD=3.25)		Mean=11.17 (SD=3.20)	
Age	N	%	N	%
6-12 years	22	15.5	62	43.7
13-15 years	16	11.3	20	14.1
16-18 years	9	6.3	13	9.2
Sex				
Male	28	19.7	47	33.1
Female	19	13.4	48	33.8
Place of residence				
North Gaza	10	7.1	16	11.3
Gaza	16	11.3	59	41.5
Middle area	5	3.5	10	7.1
Khan Younis	12	8.5	7	5
Rafah	4	2.8	3	2.1
Family monthly income				
\$300 and less	29	20.4	42	29.6
\$301-500	6	4.2	33	
\$501-750	8	5.6	11	7.7
\$751 and more	4	2.8	9	6.3

ESRD: End-stage renal disease; SD: Standard deviation.

children reported a family history of renal disease. According to the number of dialysis sessions, 42.6% of the children took dialysis for less than three sessions per week and 57.4% of the children took dialysis for less than five sessions per week (Table 2).

Means and Standard Deviation of Depression between Two Groups

In order to find the differences in the mean of depression between the two groups, independent *t*-test was conducted. The results showed that the mean depression scores in children with ESRD was 20.13 (SD=7.67) and mean depression scores in control groups was 12.63 (SD=6.16). There were statistically significant differences in depression scores between the two groups among children with ESRD ($t(140)=7.50, p<0.001$) (Table 3).

Prevalence of Depression Disorder

Using the clinical cut-off score for depression which had been set to ≥ 15 by Birlleson¹⁶ and used in the previous studies conducted in Gaza strip.¹⁷ The result showed that (N=37/47) children with ESRD had depression (78.7%) compared to (N=28/95) of control group children who had depression (29.5%). There were statistically significant differences in depression among children with ESRD ($\chi^2=29.81, df=1, p=0.001$) (Table 4).

QoL of Study Sample Means and Standard deviation of QoL and subscale

As shown in Table 4, the study showed that the mean total QoL

in children with ESRD was 48.98 (SD=10.88) compared to the mean scores of 52.75 (SD=10.15) in the control group. There were statistically significant differences in the total QoL between the children in the control group ($t(140)=2.03, p<0.04$). The mean physical functioning scores for children with ESRD was 14.02 (SD=5.98) and for the control group was 21.24 (SD=5.77). There were statistically significant difference in physical functioning among children in the control group ($t(140)=6.94, p<0.001$). Emotional functioning for ESRD mean was 14.04 (SD=4.32), and the control group children mean scores were recorded at 9.68 (SD=4.21). There were statistically significant differences in emotional functioning for children with ESRD ($t(140)=6.94, p<0.001$). The social functioning mean in ESRD children was 9.96 (SD=3.93) and 8.32 in control group (SD=3.69). There were statistically significant differences in social functioning for children with ESRD ($t(140)=2.44, p<0.02$). School functioning mean in children with ESRD was 11.38 (SD=3.61) and control group children was 12.77 (SD=2.68). There were statistically significant differences in school functioning among children in the control group ($t(140)=2.56, p<0.01$) (Table 5).

Relationship between Depression and QoL of the Children with End Stage Renal Failure

The Pearson correlation test shows that there is a statistically significant positive relationship between total depression and emotional functioning ($r(140)=0.53, p<0.001$) and a negative relationship with school functioning ($r(140)=-0.36, p<0.001$). For the control group, there was a statistically significant positive relationship between total depression and social functioning ($r(140)=0.27, p<0.001$) and negative relationship with physical

Table 2: Medical Characteristic of ESRD Children undergoing Dialysis.

	N	%
Consanguinity of parents		
Consanguineous	28	59.6
No Consanguinity	19	40.4
Current diseases		
Renal Failure	45	95.7
Renal Failure & other disease	2	4.3
Previous family history of renal failure		
No	40	85.1
Yes	7	14.9
Number of other diseases in family		
Less than 2 diseases	15	31.9
Less than 4 diseases	3	6.4
None	29	61.7
Other diseases in family		
Handicapped	1	2.1
Thalassemia	1	2.1
Diabetes	2	4.2
Cancer	1	2.1
Neurological	1	2.1
Liver cirrhosis	1	2.1
Gastric problems	1	2.1
Renal failure	4	8.5
Kidney Stone	1	2.1
Nothing	34	72.3
Weekly dialysis		
Less than 3 times	20	42.6
Less than 5 times	27	57.4
Dialysis Hours		
Less than 3 Hours	5	10.6
Less than 5 hours	42	89.4
Place of dialysis		
Shifa Hospital	14	29.8
Rantisi Hospital	25	53.2
Al Aqsa Hospital	4	8.5
Naser Hospital	4	8.5
Total	47	100.0

ESRD: End-stage renal disease.

Table 3: Depression of Cases and Control Group.

	N	Mean	SD	SE	MD	t	p	95% Confidence interval of the difference	
								Lower	Upper
ESRD	47	20.13	7.67	1.12	-6.28	-7.50	0.001	-9.86	-5.14
Control	95	12.63	6.16	0.63					

ESRD: End-stage renal disease; SD: Standard deviation; SE: Standard error; MD: Mean deviation.

Table 4: Differences in Prevalence of Depression Between Children with ESRD and Control Group.

		ESRD	Control	χ^2 (df=1)	p
No depression	N	10	67		
	%	21.3	70.5		
Depression	N	37	28	29.81	0.001
	%	78.7	29.5		

ESRD: End-stage renal disease.

Table 5: Means and Standard Deviation of Quality of Life and Subscales.

	Group	Mean	SD	SE	t	p	95% Confidence Interval of the Difference	
							Lower	Upper
Quality of life	Control	52.75	10.15	1.04	2.03	0.04	0.10	7.43
	ESRD	48.98	10.88	1.59				
Physical functioning	Control	21.24	5.77	0.59	6.94	0.001	5.16	9.28
	ESRD	14.02	5.98	0.87				
Emotional functioning	Control	9.68	4.21	0.43	-5.76	0.001	-5.85	-2.86
	ESRD	14.04	4.32	0.63				
Social functioning	Control	8.32	3.69	0.38	-2.44	0.02		
	ESRD	9.96	3.93	0.57				
School functioning	Control	12.77	2.68	0.28	2.57	0.01	-2.97	-31-
	ESRD	11.38	3.61	0.53				

ESRD: End-stage renal disease; SD: Standard deviation; SE: Standard error.

functioning ($r(140)=-0.29, p<0.001$) (Table 6).

Differences in Depression and QoL in the Children with ESRD and Control Group

Cohen’s d^{18} was selected as the measure of effect size, because of its widespread use in the literature. To calculate d , the difference in means between ESRD children with depression compared to control group children was as follows:

Input data provided:

For ESRD children, Mean 1: 20.13 (SD 1: 7.67).

For control group children, Mean 2: 12.63 (SD 2: 6.16).

Cohen’s d was: ($d=1.085$).

Such findings showed high effect size (effect sizes as small ($d=0.2$), medium ($d=0.5$), and large ($d=0.8$) based on the benchmarks suggested by Cohen (1988).¹⁸

In order to find the effect size between the children with ESRD and the control group with respect to the QoL, Cohen’s d^{18} was selected as the measure of effect size, because of its widespread use in the literature. To calculate d , the difference in means between children with ESRD with respect to QoL was

Table 6: Pearson Correlation Coefficient Test of the Study Variables in Children with ESRD and Control Group.

	Depression	
	Cases	Control
1. Depression	-	-
2. QoL	0.07	-0.07-
3. Physical functioning	-0.21-	-0.29-*
4. Emotional unctioning	0.53**	0.20
5. Social functioning	0.34*	0.27**
6. School functioning	-0.36-*	-0.04-

ESRD: End-stage renal disease;

Table 7: Multivariate Test of Total Depression and QoL According to Case/Control.

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected model total QoL	Depression	1766.85a	1	1766.85	39.45	0.001
		446.58b	1	446.58	4.13	0.04

df: Degrees of freedom; QoL: Quality of life.

compared with the control group children as follows:

Input data provided:

For ESRD children, Mean 1: 52.75 (SD 1: 10.15).

For control group children Mean 2: 48.98 (SD 2: 10.88).

Cohen’s d was: (d=0.35). Such finding showed small effect size (effect sizes as small (d=0.2), medium (d=0.5), and large (d=0.8) based on the benchmarks suggested by Cohen.¹⁸

Partial eta squared can be computed with SPSS (e.g. using “effect size” under Analyze, General Linear Model) to compare the QoL and depression between children with ESRD relative to the control group.

In order to find the differences in total depression and QoL between the two groups, Hotelling’s T, MANOVA analogue of the two group t-test situation; was done in which one dichotomous independent variable was ESRD and control group, and multiple dependent variables were depression and QoL. The results showed that there was a statistically significant interaction effect between case/control on the combined dependent variables (depression and QoL), $F(2,139)=21.36, p=0.001$; Hotelling’s Trace=0.307 (Table 7).

DISCUSSION

This study was conducted to determine the prevalence of depression and the QoL among children with ESRD attending hemodialysis sessions in Gaza strip compared to the children who were admitted to the hospital. This study showed that the prevalence of depression in children with ESRD and under dialysis was 21.1% compared to 12% among children in the control groups. Our study showed that the mean total QoL in children with ESRD was 48.98 as compared to the mean scores of QoL 52.75 in the control group. There were statistically significant differences in the total QoL with the children in the control group. Our study rate of depression was higher than found by Bakr et al¹⁹ in a study of 19 children with pre-dialysis chronic renal failure (CRF) and 19 children with end stage renal disease undergoing regular hemodialysis. The prevalence rate of psychiatric disorders in all the studied patients was 52.6%. Adjustment disorders were the most common disorders (18.4%), followed by depression (10.3%) and neurocognitive disorders (7.7%). Anxiety and

elimination disorders were reported in 5.1% and 2.6%, of the children respectively. The disorders were more prevalent in dialysis (68.4%) than in pre-dialysis patients (36.8%).¹⁹

Similarly, in a study to assess depression, anxiety, and QoL in a cohort of children and adolescents with ESRD, were compared with healthy controls. Thirty-two children and adolescents 8-18 years of age were enrolled in the study. There was a significant difference in mean depression score, which was significantly higher for the ESRD patients. The mean anxiety score was significantly lower for ESRD patients than for the control group. Regarding QoL score, there were significant differences between the ESRD patients and control groups for both child-rated and parent-rated QoL scores, which were significantly lower for ESRD patients.²⁰ Similarly, clinical data were collected from 28 children and adolescents with pre-dialysis CKD and 28 healthy sex- and age-matched controls. The results showed that, of the 56 children enrolled in the study, the CKD patients were referred to mental health professionals more frequently than the controls. Patients exhibited higher scores for separation anxiety and a higher frequency of clinically significant depressive symptoms. They also had lower overall QoL scores, as well as poorer scores for the psychological, educational and psychosocial sub-domains of QoL instruments. There was a negative correlation between anxiety and depressive symptoms and all domains of QoL.²¹ Our results were consistent with who undertook a study to determine the incidence of depressive symptomatology and to evaluate the QoL among 64. Sudanese children on hemodialysis and 6 on continuous ambulatory dialysis. Almost half of the patients were having depressive symptomatology (47.1%) with a variable degree of severity. Depression symptoms were found to be common among patients undertaking hemodialysis (44.3%) and were associated with school absentees, low adequacy of dialysis, female gender and adolescent age. One third of the patients on chronic dialysis had impaired QoL, another third had poor QoL and the rest had average QoL.²² Similarly, Kul et al²³ in a study aimed to compare the QoL of children and adolescents in various stages of their CKD, who were managed with different treatment modalities to that of children and adolescents without any chronic disease. The study included 18 renal transplant and 21 dialysis patients (8 on hemodialysis, 13 on peritoneal dialysis) and 16 patients who did not yet require renal replacement therapy. The control group consisted of 37 children without any chronic disease. CKD patients had lower scores in all scales of pediatric QoL inventory (PQLI) than the control group. There were no differences in self-reported scores on the

pediatric QoL scale scores between treatment groups; however, parents of the transplant patients had reported higher (more favorable) physical health summary scores than those of the dialysis patients. Our study showed that physical, school functioning were more in control group children. While, emotional functioning and social functioning were more in children with ESRD. Such findings were consistent with the study of Varni and co-workers who reported that children with ESRD exhibited better emotional scores of HRQoL than children with other chronic diseases, including diabetes, asthma, cerebral palsy and cardiac and rheumatologic diseases.²⁴

CONCLUSION

This study showed that the prevalence of depression in children with renal failure and under dialysis was double the prevalence rate among other control groups. Also, total QoL for ESR failure was lower than the control group. There were statistically significant positive relationships between total depression and emotional functioning, and negative relationship and school functioning. These findings suggest that there are very strong risk factors associated with depression, which increase emotional functioning and decrease school functioning of children with ESR failure.

CLINICAL IMPLANTATIONS

The results of the present study might help in developing a deep understanding of the issues that may influence the overall health of the subjects affecting their QoL leading to depression. Moreover, due to a significant decrease in the QoL domains among ESRD patients undergoing HD in Gaza, and a significant increase in the rate of depression among ESRD patients, we emphasized on increasing the efforts to avoid negative impacts on QoL and depression by establishing a psychosocial support program to decrease the level of depression and enhance the QoL, to coordinate between the Ministry of Health and non-governmental organization to apply for a psychological support program. The training of the team needs to be conducted to deal with ESRD to provide support to the patient and their families, encourage communication between healthcare givers and ESRD patients. The educational program should be designed and counseling team set up, to work with the patients to be able to cope with the new condition. Psychological programs should be designed for families dealing with their children to decrease the level of depression and promote their QoL.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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Relationships Between Traumatic Events, Religious Coping Style, and Post-Traumatic Stress Disorder among Palestinians in the Gaza Strip

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Received Date: January 31, 2017; Accepted Date: March 24, 2017; Published Date: March 29, 2017

Citation: Mousa Thabet AA, Vostanis P. Relationships Between Traumatic Events, Religious Coping Style, and Post-traumatic stress disorder among Palestinians in the Gaza Strip. J Nurs Health Stud. 2017, 2:1.

Abstract

Aim: The aim of the study was to investigate the effect of trauma due to Gaza war on Palestinians' PTSD and copings strategies. A sample of 374 adults, the age ranged from 21 to 60 years with mean age 41.5 (SD=8.6), 193 were males (53.9%) and 181 were females 46.1%. Participants completed measures of experience of traumatic events (Gaza Traumatic Events Checklist-20 items, War on Gaza), PTSD, and Ways of Coping Scale.

Mean traumatic events experienced 5.4 traumatic events and 42% reported full criteria of PTSD. Mean coping scores was 107.28, acquiring social support mean was 29.59, reframing mean was 31.22, seeking spiritual support mean was 15.93, mobilizing family to acquire and accept help mean was 14.14, and positive appraisal mean was 13.89. Traumatic events were significantly negatively correlated to other coping strategies such as reframing and mobilizing family to acquire and accept help.

Participants with no PTSD scored more coping, acquiring social support, reframing, and seeking spiritual support, positive appraisal. While, there was no significant differences in mobilizing family to acquire and accept help with PTSD.

Keywords: Copings strategies; Palestinians; PTSD; War trauma

Introduction

Palestinians in Gaza are among the populations exposed to the highest levels of traumatization in history. Palestinians have experienced, in addition to chronic stressors and other personal interpersonal traumas and poverty, years of intergroup violence in the Israeli-Palestinian conflict and resulting refugee status without a land or recognized national identity. Palestinians are also experiencing a civil war; Palestinian factions fight for the leadership of Palestinian

people with very different visions of what they hope to accomplish and how they hope the Palestinian State will be governed [1].

In United States, it has been estimated that at least half of the general population experiences one or more traumatic events during their lifetime, with approximately 6.4% to 6.8% of the population developing symptoms that meet the criteria for posttraumatic stress disorder (PTSD) [2,3]. However, in comparison study of Palestinians in Gaza and American Indians in the United State, [4] found that 16.5% scored in the range of severe and 46.9% scored above the suggested cutoff score for diagnosable PTSD.

Coping

Research suggests the ways individuals cope with trauma may play a more important role in their adjustment than the traumatic event itself [5]. Coping is defined as "efforts to prevent or diminish threat, harm, and loss, or to reduce associated distress" [6]. Several distinctions have been made between different types of coping mechanisms; a widely-used distinction is between avoidance (or disengagement) coping and approach (or engagement) coping. Based on Lazarus and Folkman's model, coping refers to the behavioral and cognitive efforts one uses to manage the internal and external demands of a stressful situation. Coping can be classified as being either problem-focused or emotion-focused in nature. Problem-focused coping involves activities that focus on directly changing elements of the stressful situation, whereas emotion-focused coping involves activities that focus more on modifying one's internal reactions resulting from the stressful situation. Coping strategies includes a broad diversity of thoughts and behaviors used to manage the demands of a taxing situation [7]. Multiple research groups have attempted to organize coping strategies (and styles) into different categories.

The approach/avoidance construct, as the label implies, indicates whether the individual makes attempts to change the situation or distance him- or herself from the stressor as a way to reduce negative outcomes. Coping strategies implemented immediately following trauma exposure, and in response to

post-traumatic stress. Avoidance as a sort of coping, such as behavioral or emotional avoidance, have been associated with increased psychological distress among interpersonal violence PTSD populations [8]. Avoidance behaviors could lead to withdrawal from support networks and reduced opportunities for positive experience, thereby compounding negative affect and reduced emotional experiencing. Approach-oriented coping strategies, such as active coping, planning, and support seeking, have been generally deemed adaptive following exposure to stress [9]. Social support is a variable that has been considered as both a means of coping and a resource contributing to the availability of other forms of coping [10]. The different ways of conceptualizing the role of social support in coping, and the relative lack of studies that examine reciprocal relationships between coping factors, has created some confusion about what roles social support may play in helping women deal with domestic violence.

Trauma-related coping self-efficacy, the perceived ability to cope with post trauma recovery demands, plays an important role in psychological recovery after trauma. A meta-analysis [11] demonstrated that higher coping self-efficacy, levels were consistently associated with lower levels of distress and posttraumatic stress symptom (PTSS) levels in cross-sectional and longitudinal studies.

The aims of the study were 1) to investigate the type of traumatic events due to war on Gaza, 2) to explore the prevalence of post-traumatic stress disorder, 3) to find the types of coping strategies used by Palestinians to overcome the impact of trauma, 4) and to elaborate the relationships between trauma, Post traumatic stress disorder, and religious coping strategies.

Method

Participants

The study population included 374 Palestinians living in Gaza Strip. They were randomly selected from five areas of the Gaza Strip (North, Gaza, Middle area, Khan Younis, and Rafah). They were interviewed 16 months after the end of war on Gaza in 2009. From 374, 193 were males (53.9%) and 181 were females 46.1%. According to the selection criteria, the age range was 20-60 years, with a mean age of 41.5 (SD=8.6).

Measures

A predesigned socio-demographic sheet: This questionnaire included including age, place of residence, and family monthly income.

The Gaza traumatic events checklist: This checklist describing the most common traumatic experiences families could have faced in the Gaza Strip during the Gaza War one and half year ago. The checklist was revised from a version used in earlier research [12-14], adapted for the nature of traumatic events occurring during the Gaza war. The scale consisted of 20 items with Yes and No answer. The scale was recorded into mild traumatic events (less than 5 traumatic

events), moderate traumatic events (6-10) and severe traumatic events (11 and more traumatic events). In this study, the Cronbach's alpha coefficient was acceptable.

Posttraumatic stress disorder checklist: This checklist contains 17 items adapted from the DSM-IV-TR PTSD symptom criteria (APA, 2000). The 17 PTSD symptoms are rated by the participant for the previous month on a scale indicating the degree to which the respondent was bothered by a particular symptom from 1 (not at all) to 5 (extremely). Items can be categorized as follows: items 1, 2, 3, 4, 17 are for criteria B (intrusive re-experiencing); items 5, 6, 7, 8, 9, 10, 11 are for criteria C (avoidance and numbness); and items 12, 13, 14, 15, 16 are for criteria D (hyperarousal). Respondents are asked to rate on a 5-point Likert scale (1=not at all to 5=extremely) the extent to which symptoms troubled them in the previous month. Using the recommended Posttraumatic Stress Disorder Checklist cutoff score of 50, Blanchard found cut of point of 44 [15]. Previous research [15] has suggested using as a minimum sum either a score of 3 or 4 on a symptom for it to count as positive towards the diagnosis. This scale was used in previous studies and showed high reliability and validity 27 [16]. In this study, the Cronbach's alpha coefficient was high and acceptable.

Ways of coping: The revised Ways of Coping [17] differs from the original Ways of Coping Checklist [18] in several ways. The response format in the original version was Yes/No; on the revised version, the subject responds on a 4-point Likert scale (0=does not apply and/or not used; 3=used a great deal). Redundant and unclear items were deleted or reworded, and several items, such as prayer, were added. The Way of Coping that used in this study shortened to 44 items divided in 7 subscales as follow: Wish and avoidance thinking including the following items (3, 11, 19, 21, 34, 39, 42), planful problem solving including the following items (7, 12, 15, 23, 43, 44), positive reappraisal including the following items (5, 8, 9, 16, 20, 31, 32, 38, 40), seeking social support including the following items (1, 17, 24, 30, 33), accepting responsibility including the following items (2, 10, 18, 26, 41), self-control including the following items (6, 13, 14, 22, 28, 35, 37), escape avoidance including the following items (4, 25, 27, 29, 36). The validity of this scale was tested before in study by Folkman et al. among community sample of people and showed their alphas independently as follow [19]; confronting coping (alpha=0.70); Distancing (alpha=0.61); self-controlling (alpha=0.70); seeking social support (alpha=0.76); accepting responsibility (alpha=0.66); escape and avoidance (alpha=0.72); planful problems solving (alpha=0.68); and positive reappraisal (alpha=0.79). The eight scales accounted for 46.2% of the variance. In this study, the (alpha=0.72). In this study, the Cronbach's alpha was $\alpha=0.80$ and split half was 0.70.

Study procedure: Data collection was conducted by 8 professionals who attended day training by the principal investigator about the aim of the study, sample, and questionnaires of the study. Data collection was done after 16 months of end of war on Gaza in 2009. which include the 374 people in the five areas. For selecting the participants from

each district, one street was selected in each area, and every principal was selected. In larger buildings, one flat from each floor was selected randomly. Families were approached until 374 agreed to participate. Covering letter was given to each participant explaining the aim of the study and about their right not to participate in study and ask them to sign the letter. Informed consent was required from respondents prior to the survey questionnaire as well as interviewees.

Statistical analysis

In this study, we used SPSS ver. 20 for data entry and analysis. Frequencies and percentages of trauma items, PTSD, and coping were calculated. Independent t-test, ANOVA tests for between-group comparison of continuous variables. Spearman's correlation coefficient tested the association between numbers of traumatic events, PTSD, and coping strategies by families' scores. Linear regression investigated the association between independent variables (trauma events, PTSD, and coping strategies) as dependent variable

was conducted to find the predicting effect of trauma on PTSD and coping strategies.

Results

Sociodemographic characteristics of study population (N=374)

Participants in this study consisted of 374 persons, 193 were males (53.9%) and 181 were females 46.1%. They had a mean age of 41.5 (SD=8.6). According to place of residence, 16.3% were from North Gaza, 34.3% were from Gaza city, 18.3% were from middle area, 19.2% from Khan Younis, and 12% were from Rafah area. Regarding type of living, 64.1% live in cities, 9.9% live in villages, and 26% live in refugee camps. According to family monthly income, 73.2% had less than \$ 300 US monthly, 23.1% had \$ 301-650 family monthly income, and 3.7% had \$ 651 and above family monthly income (**Table 1**).

Table 1 Socio demographic characteristics of study population (N=449).

	No.	%
1. Sex		
Male	242	53.9
Female	207	46.1
2. Place of residence		
North Gaza	73	16.3
Gaza	154	34.3
Middle area	82	18.3
Khan Younis	86	19.2
Rafah area	54	12
3. Type of residence		
City	284	64.1
Village	44	9.9
Camp	115	26
6. Family monthly income		
Less than \$300	317	73.2
\$301-650	100	23.1
\$ 651 and more	16	3.7

Traumatic events experienced by subjects after War on Gaza

Table 2 Percentage of traumatic events due to War on Gaza (N=449).

	Yes		No	
	No	%	No	%

1. Watched mutilated bodies in TV	424	94.4	25	5.6
2. Deprivation of going to the toilet and leaving the room at home because of the firing and shelling in the area	226	50.3	223	49.7
3. Witnessed firing by tanks and heavy artillery at neighbors' homes	215	47.9	234	52.1
4. Witnessed shelling and destruction of neighbors home	196	43.7	253	56.3
5. Were detained at home during incursion	184	41	265	59
6. Loss of one of the friends, relatives during the war	175	39	274	61
7. Forced to move from home to a safer place during the war	174	38.8	275	61.2
8. Heard killing of a relative	119	26.5	330	73.5
9. Heard killing of a non-relative	111	24.7	338	75.3
10. Threatened by shooting	101	22.5	348	77.5
11. Witnessed shelling and destruction of own home	92	20.5	357	79.5
12. Destruction of personal belongings during the war	90	20	359	80
13. Witnessed firing by tanks and heavy artillery at own home	84	18.7	365	81.3
14. Witnessed shooting of a relative	59	13.1	390	86.9
15. Witnessed shooting of a friend	57	12.7	392	87.3
16. Threatened by shooting	46	10.2	403	89.8
17. Beaten and humiliated by the army during the war	29	6.5	419	93.5
18. Shot by bullets, rocket, or bombs	28	6.2	421	93.8
19. Exposure to burn by bombs and phosphorous bombs	28	6.2	421	93.8
20. Threatened with death by being used as human shield by the army to move from home to home	24	5.3	425	94.7

Participants commonly reported traumatic events such as 94.4% reported watched mutilated bodies in TV, 50.3% were deprived of going to the toilet and leaving the room at home because of the firing and shelling in the area, 47.9% witnessed firing by tanks and heavy artillery at neighbors homes, 43.7% and witnessed shelling and destruction of neighbors home (Table 2).

Mean traumatic events and sex differences

Palestinians experiences variety of traumatic events, the traumatic events ranged from one to 19, total number of traumatic events experienced by each participant were 5.4 traumatic events (SD=4.1). The results showed that mean traumatic events reported by males was 5.83 (SD=4.32) compared to mean in female=5.07 (SD=3.88). There was a significant effect for gender, $t(442)=2.00$, $p<0.05$, with male receiving higher scores than female.

Means and standard deviations o PTSD and subscales

Mean PTSD symptom severity score was 48.29 (SD=13.82), intrusion mean was 15.65 (SD=4.49), avoidance mean scores was 18.84 (SD=5.65), hyperarousal mean scores was 13.66 (SD=5.42).

Prevalence of PTSD

Using scoring of DSM-IV of one intrusion symptom, three avoidance, and two hyperarousal symptoms, 1.9% of the sample reported no PTS symptoms, 36.1% reported at least one DSM-IV traumatic stress symptom (B or C or D), 20% reported at least two DSM-IV traumatic stress symptom (partial PTSD) (C and B, C and D, B and D), and 42% reported at least three DSM-IV traumatic stress symptom (full criteria of PTSD).

Relationships between PTSD and sociodemographic variables

Using T independent test, the mean PTSD-17 in males was 44.76 (SD=13.66) compared to mean scores in females=52.32 (SD=12.88). These differences reached statistically significant differences toward females ($t=(427) 5.862$, $p<0.001$). Intrusion mean for males was 14.27 (SD=4.46) compared to 17.25 (SD=3.98) in females. These differences reached statistically significant differences toward females ($t=(440) 3.15$, $p<0.01$) avoidance mean scores in males was 17.87 (SD=5.69) compared to 19.97 (SD=5.40) in females. These differences reached statistically significant differences toward female ($t=(439) 1.75$, $p<0.01$), and hyperarousal mean scores in males was 12.54 (SD=5.26) compared to 14.97 (SD=5.31) in females.

These differences reached statistically significant differences toward female ($t=(441) 4.81, p<0.01$).

Post hoc test using LSD test showed that there was a significant main effect for families with low income (Less than \$300) in which they reported more PTSD than the other groups ($F=(2, 210) 11.43, p<0.001$). This was also applicable to intrusion ($F=(2/410) 6.81, p<0.01$), avoidance ($F (2/422)=9.13, p<0.01$), and hyperarousal ($F (2/424)=11.44, p<0.01$).

Coping strategies used by Palestinian adults

The study showed that the most common coping items used by adults were: praying and calling Gods (77.9%), wishing that the difficult situation finished (67%), asking for advice from close person (55%), and promise themselves that next time the situation will be better (54.7%).

Means and standard deviations of coping strategies

The study showed that mean scores of coping strategies (44 items) was 124.88 (SD=16.75), mean wishful thinking was 18.99 (SD=3.97), mean planful problem solving was 17.45 (SD=3.40), mean positive reappraisal was 27.61 (SD=4.72), mean accepting responsibility was 14.82 (SD=2.99), mean seeking social support was 13.57 (SD=3.08), mean self-controlling was 20.86 (SD=3.63), escape avoidance mean was 11.29 (SD=3.12). The study showed that males were significantly reported more Planful problem solving than females ($M=17.7$ vs. 17.07) ($t=(446) 3.05, p=0.02$) and self-controlling than females ($M=21.34$ vs. 20.29) ($t=(442) 3.05, p=0.02$) (Table 3).

Table 3 Means and standard deviations of coping strategies.

SD	Mean	
16.75	124.88	Total coping
4.72	27.61	Positive reappraisal

Table 4 Bivariate correlations between trauma, PTSD symptoms, and coping strategies.

	1	2	3	4	5	6	7	8	9	10	11	12
Total trauma												
Total PTSD	0.30**											
Intrusion	0.33**	0.85**										
Avoidance	0.24**	0.90**	0.64**									
Hyperarousal	0.25**	0.91**	0.67**	0.72**								
Total Coping Strategies	0.10*	0.28**	0.29**	0.22**	0.25**							
Wishful thinking	0.22**	0.48**	0.45**	0.41**	0.43**	.55**						
Planful problem solving	0.02	0.03	0.04	0.02	0.02	0.74**	0.16**					

3.63	20.86	Self-control
3.97	18.99	Wishful thinking
3.4	17.45	Planful problem solving
2.99	14.82	Accepting responsibility
3.08	13.57	Seeking social support
3.12	11.29	Escape avoidance

Differences in coping strategies according to PTSD scoring

In order to find differences in coping strategies between people with PTSD and no PTSD, independent t test was performed. The results showed that people with PTSD scored statistically significant in total coping strategies than those without PTSD ($t=-4.20, p=0.001$). Also, adults with PTSD scored more in wishful thinking ($t=8.44, p=0.001$), seeking social support ($t=5.41, p=0.001$), and escape avoidance ($t=6.77, p=0.001$).

Bivariate relationships between trauma, PTSD Symptoms and coping strategies variables

Pearson's correlation coefficients were computed to detect the strength of the relationship between total trauma, PTSD symptom severity, each of the three PTSD symptom clusters, and total coping. The results showed that total traumatic events were correlated with PTSD ($r (449)=0.31, p<0.001$), intrusion symptoms ($r (449)=0.35, p<0.001$), avoidance symptoms ($r (449)=0.25, p<0.001$), hyperarousal symptoms ($r (449)=0.25, p<0.001$), and total coping strategies ($r (449)=0.10, p<0.04$). There was significant correlation between total traumatic events and some of the coping strategies subscales: trauma was correlated positively with total coping ($r=(449) 0.09, p<0.04$) wishful thinking ($r (449)=0.21, p<0.001$), and escape avoidance ($r (449)=0.12, p<0.01$) (Table 4).

Positive reappraisal	-0.04	0.02	0.08	-0.02	-0.01	0.78**	0.17**	0.62**				
Accepting responsibility	0.02	0.11*	0.13**	0.09	0.07	0.64**	0.16**	0.47**	0.53**			
Seeking Social Support	0.02	0.31**	0.27**	0.25**	0.29**	0.73**	0.39**	0.44**	0.47**	0.43**		
Self-controlling	0.06	0.08	0.10*	0.06	0.04	0.69**	0.23**	0.53**	0.51**	0.36**	0.36**	
Escape-Avoidance	0.13**	0.38**	0.30**	0.34**	0.37**	0.52**	0.42**	0.21**	0.18**	0.14**	0.38**	0.22**

*p<0.05 ** p<0.01

Prediction of PTSD by traumatic events

Separate multiple regression analyses were conducted for each traumatic event was entered as an independent variable with PTSD symptom as the dependent variables. PTSD was predicted by deprivation of going to the toilet and leaving the

room at home because of the firing and shelling in the area ($\beta=0.23$, $t(425)=4.31$, $p<0.001$) and they were detained at home during the war ($\beta=0.20$, $t(425)=3.88$, $p<0.001$), and loss of one of the friends, relatives during the war ($\beta=0.11$, $t(425)=2.46$, $p<0.001$) ($R^2=0.29$, $t(425)=11.69$, $p=0.001$) (Table 5).

Table 5 Prediction of PTSD by traumatic events.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Deprivation of going to the toilet and leaving the room at home because of the firing and shelling in the area	6.49	1.51	0.23	4.31	0.001	3.53	9.45
Were detained at home during incursion	5.72	1.47	0.2	3.88	0.001	2.83	8.62
Loss of one of the friends, relatives during the war	3.36	1.37	0.11	2.46	0.01	0.68	6.04

$R^2=0.29$, $t=11.69$, $p=0.001$

Prediction of PTSD by coping strategies

Separate linear regression analyses were conducted for total coping and subscales scores was entered as an independent variable and total PTSD symptom as the dependent variables. PTSD symptoms were predicted positively by with wishful

thinking ($\beta=0.17$, $t(391)=7.08$, $p<0.001$), escape-avoidance ($\beta=0.21$, $t(392)=4.16$, $p<0.001$), and seeking social support ($\beta=0.24$, $t(392)=3.30$, $p<0.001$), and was negatively predicted by positive reappraisal ($\beta=0.14$, $t(392)=-3.45$, $p<0.001$), ($R^2=0.29$, $t=40.01$, $p=0.001$) (Table 6).

Table 6 Prediction of PTSD by coping.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
Wishful thinking	1.22	0.17	0.35	7.08	0.001	0.88	1.56
Escape-Avoidance	0.89	0.21	0.2	4.16	0.001	0.47	1.3
Positive reappraisal	-0.48	0.14	-0.17	-3.45	0.001	-0.75	-0.21
Seeking Social Support	0.78	0.24	0.18	3.3	0.001	0.32	1.25

Discussion

The aim of the study was to investigate the effect of trauma due to Gaza war on Palestinians' PTSD, and coping. Participants commonly reported traumatic events after 16 months of war, 94.6% reported watched mutilated bodies in TV, 50.3% said they were deprived of going to the toilet and leaving the room at home because of the firing and shelling in the area, 48.1% witnessed firing by tanks and heavy artillery at neighbors' homes, 43.8% and witnessed shelling and destruction of neighbors home. Such findings were consistent with research in the area [14,16,20,21] which showed that the commonly reported traumatic events due to war were watching mutilated bodies in TV, hearing the shelling of the area, hearing the loud voice of the Drones. Mean traumatic events reported by males was 5.78 compared to mean in female was 5.11. Such level of trauma was less than found in studies conducted few months after the war on Gaza [14,22]. Such decrease in reporting the traumatic experience after 16 months of the war could be due to protective factors in the Palestinian society including family, social support, and coping strategies used to overcome such stressors and trauma. The mean PTSD-17 in was 48.29, intrusion mean was 15.65, avoidance mean scores was 18.84, hyperarousal mean scores was 13.66. After 16 months of war still 42% of Palestinians in the Gaza Strip reported full criteria of PTSD. Mean PTSD-17 in males was 44.76 compared to mean scores in females=52.32. Our findings of prevalence of PTSD were inconsistent with Steel et al. [23] who examined 161 articles on refugees and conflict affected populations. Reviewing a total of 181 surveys, a total subject pool of 81,866 subjects from 40 countries was identified. Studies showed that a weighted prevalence rate across the surveys was 30.6% and 30.8% for PTSD and depression, respectively. Our results were consistent with study of Kira et al. [4] in study of chronic stress and trauma profiles, cumulative trauma (CT) appraisal, and coping in 2 multiply traumatized communities: Palestinians in Gaza (N=132) and American Indians in the United States (N=302), showed that 46.9% of Palestinians scored above the suggested cutoff score for diagnosable PTSD. This study reported much higher rate of PTSD than found in study of Smith and Patton investigates traumatic stress symptoms among young Black males exposed to community violence and traumatic loss while living in Baltimore, USA in which 19% of participants reporting symptoms in all four categories of posttraumatic stress symptoms. Such high rate of PTSD could be due to cumulative effect of repeated traumatic events in the last decades. However, such rate of PTSD was less than found in a study of Palestinians after two weeks after the war on Gaza on 2009 in which 61% of the sample reported PTSD [14]. The results showed that PTSD was correlated with total traumatic events. PTSD was predicted by deprivation of going to the toilet and leaving the room at home because of the firing and shelling in the area and were detained at home during the war. Research examining direct forms of trauma exposure has often focused on cumulative trauma. Others found that higher cumulative trauma exposure is associated with greater PTSD risk [24].

The study showed that the most common used coping items by adults were: praying and calling Gods (77.9%), wishing that the difficult situation finished (67%), asking for advice from close person (55%), and promise themselves that next time the situation will be better (54.7%). The study showed that mean scores of coping strategies (44 items) was 124.88, mean wishful thinking was 18.99, mean planful problem solving was 17.45, mean positive reappraisal was 27.61, mean accepting responsibility was 14.82, mean seeking social support was 13.57, mean self-controlling was 20.86. Other studies have found that emotion-focused coping, especially an avoidant strategy, is generally related to worse mental health outcomes, whereas the research on avoidant coping has found mixed results [25]. Such findings of coping by praying and call God was consistent with study of Exline et al. [26], who found that those who used positive religious framing when writing about their traumatic events experienced more positive mood, and those who mentioned the use of prayer in particular experienced the greatest benefits of all. These findings suggest that actively engaging in prayer may be a helpful way of negotiating mental health concerns or processing exposure to potential traumas. Moreover, participating in frequent prayer when one adopts a distant, unloving image of God has been related to psychopathology, whereas the inverse pattern has been demonstrated among those who endorse a loving God image. Similarly, prayer that is focused on God has positively correlated with measures of subjective well-being, whereas ego-focused prayer has negatively correlated with well-being measures [27] used strategies [14,20,28]. The results showed that people with PTSD scored statistically significant in total coping strategies, more in wishful thinking, seeking social support, and escape avoidance.

Other research has supported the importance of prayer as religious ways in coping with stressful life events such as war-zone service. Prayer is an integral part of most major world religions and can be an important dimension of coping with pain and suffering [29]. Decker asserted that prayer can represent "a basic foundation of coping" with the mental health impact of serving in war [30].

Prayer coping might be conceptualized by victims in part as "disclosure to God" in the aftermath of potentially traumatic events [31].

Our findings showed that PTSD symptoms were predicted positively by wishful thinking, escape-avoidance, and Seeking Social Support. Our findings were consistent with longitudinal studies which indicated a reciprocal relationship between PTSD and avoidance coping [32,33], suggesting that while individuals with higher PTSD symptomatology turn to avoidance coping mechanisms to alleviate distress, using these coping mechanisms results in more persistent distress.

Clinical Applications

The present study has certain implications for clinical practice. Our findings showed that 45% of Palestinian reported full criteria of PTSD. Such rate of PTSD highlight the needs for establishing intervention programs targeting adults including

different types of intervention including psychoeducation and stress management programs.

Also, establish other types of psychotherapy programs in community based centers for trauma-related disorders ranging from trauma counseling, psycho-dynamic, cathartic approaches, and cognitive-behavioral techniques. With the knowledge that the coping mechanisms such as wishful thinking, seeking social support, and escape avoidance contribute to PTSD in war trauma-exposed individuals, other types of interventions showed be implemented in special programs to reduce these maladaptive coping mechanisms, which may play an important role in preventing further post-traumatic stress symptoms. In addition, courses for target groups such as parents, high risk groups living in border areas to teach them best ways of effective coping mechanisms which may increase their ability to flexibly and use different positive coping strategies in facing stress and trauma. Also, training courses for health professionals working in primary health care and other community center in the field of adult psychosocial intervention must be considered to help them gaining the knowledge and skill to deal with this large number of people with post-traumatic stress disorder.

Limitations

There are several limitations within this study that deserve consideration. For instance, this sample was selected 16 months after the end of the war in 2009 which may affect their remembering ability of the traumatic events. Also, other types of life stressors due to siege in the last 10 years may act as accumulative risk added with war traumatic events which may increase rate of PTSD symptoms. Additionally, as a cross-sectional, assessment-based investigation, we can draw few conclusions about the impact of coping strategy use on expression of post-traumatic stress disorder. Future research would benefit from exploration of other contributing variables to psychological distress (PTSD), such as substance use, trauma type, and social supports.

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Risk and Protective Factors in Relation to Trauma and Post Traumatic Stress Disorders: A Meta-Analytic Review

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Received: February 01, 2017; **Published:** February 16, 2017

Abstract

This meta-analysis examined studies of the Risk and Protective factors in relation to trauma and post-traumatic stress disorders of children exposed to political and community violence. Review of 109 articles was done using Psych info and other documents published by the author. Similar effects were found across a range of outcomes, with evidence for greater risk factors included proximity to the traumatic event, personal predisposition/temperament Co-morbid psychopathology with other disorders, older age, living in inner-city areas, being, and presence chronic family adversities. While, protective factors were found to be presence of coping strategies, presence of family and of social support.

Keywords: Risk; Trauma; Post-Traumatic Stress

Introduction

In the past several decades, researchers, clinicians, and policymakers have expressed increasing concern that children who witness political and community violence may suffer negative consequences even when they are not themselves the target of violence. The concept of 'risk' is often used to indicate vulnerability to mental health problems and psychiatric disorders, if an individual is exposed to certain life events or circumstances. Masten and Garmezy [1], and Rutter [2] identified such factors, based on research with children and adults in the 1970s and early 1980s. Originally, risk was conceived in static terms as a marker, a stressor, or a factor predicting undesirable outcomes. For example, poverty, marital conflict, and child abuse were independently considered to place children at risk for negative developmental outcomes because a number of studies had found that more children in these risk groups presented with behavioural and emotional difficulties than children not exposed to adverse life events or circumstances. However, it is now known that these three factors often co-exist, and thus exert an additive impact on children.

Rutter [2] argued that researchers should move beyond the identification of risk groups or markers. Risk should be thought of as process. The active ingredients of a risk factor do not lie in the variable itself, but in the set of processes that flow from the variable, linking risk conditions with specific dysfunctional outcomes. Risks lie in the individual as much as in their environment. For example, researchers have shown that socially withdrawn or shy children are at greater risk for developing depression than their more outgoing peers [3]. The risk should not be attributed to traits of social withdrawal or shyness, as it resides in the processes associated with social withdrawal, such as lack of positive feedback from others. These increase the probability of the child developing internalising disorders such as depression.

Risk is defined with reference to a specific negative outcome. That is, risk is not simply an accumulation of life stressors in which negative life events are associated with any manner of diseases or disorders. 'Children at risk' or 'families at risk' should not be talked about without specifying what they are at risk for. Although it is known that the previously stated factors of poverty or marital conflict

are not positive for children's emotional well-being, whether they constitute risk factors depends on the outcomes in mind, and on the mechanisms by which risk processes exert their negative effects on the child. This article seeks to review the available literature concerning the risk and protective factors among children and adolescents victims of political, community, and domestic violence and the most commonly studied negative mental health outcomes among survivors of such violence (PTSD symptoms).

Method

Literature Search

Multiple sources were used to identify studies for the current meta-analysis including (a) studies identified in more than 103 qualitative reviews on the effects of witnessing political, family, and community violence; (b) reference lists from the studies cited in these reviews; (c) reference lists of other published articles and books on the more general topic of violence; and (d) nearly 500 abstracts identified in computer searches of the PsycINFO database (<http://www.apa.org/psycinfo/>), The final set of 109 studies that met our selection criteria (described later) consisted of 109 journal articles. Several terms need to be defined for purposes of this review. First, the term violence has been used to refer to a wide range of behaviors including political, domestic, community violence shown by children. In the current article, we use the term political and community violence more specifically to refer to incidents of traumatic events and PTSD due to such violence. Second, PTSD and children's risk, and protective factors. Studies included in the current meta-analysis met the following selection criteria: (a) The study reported empirical data; thus, case studies and qualitative studies were excluded. (b) The study examined the effects of witnessing political, community and domestic violence. (c) The study reported on psychosocial outcomes, including emotional and behavioral (e.g., PTSD). (d) The study sample was restricted to children. Adolescent samples that included 19-year-olds were included if most of the sample was 18 or younger, but college samples of 19-year-olds were excluded. (e) The study was published in 2016 or earlier. (f) The study was reported in English.

Results

A number of risk factors have been found to make children vulnerable to the development of child psychiatric disorders [4]. These factors are often interactional and have a cumulative effect. In this chapter, risk factors will be specifically discussed in relation to trauma and post traumatic stress disorders.

Proximity to the traumatic event

In investigating the relationship between trauma and post traumatic stress symptoms, we need to consider previous research on the association between trauma and symptom severity. This association arises from studies on natural disasters, community and family violence, and political conflict.

There are evidences that exposure to traumatic events, whether human -induced or natural catastrophe, can lead to post traumatic stress disorder. In addition, proximity to the trauma and symptomatology are often associated in the form of a linear-dose response relationship between the trauma and the post traumatic stress disorder symptoms in children [5].

This relationship between the severity of trauma and post traumatic symptomatology has been criticised by other researchers. Yule, *et al.* [6,7], in the study of children involved in the sinking of the ferry 'Jupiter', concluded that the proximity to a traumatic event does not necessarily mean that all affected children will exhibit anxiety and depressive symptoms. Also, that it does not necessarily support the relationship between the severity of traumatic events and psychological symptoms.

This hypothesis has been tested in children of different cultures. McClosky, *et al.* [8] assessed school-age children exposed to a range of traumatic events, such as family violence, violent crime, death or illness of someone close to child, and accidents. Among children reporting a traumatic event, the leading precipitating event for post traumatic stress disorder was death or illness of someone close to the child. Family violence, violent crime, but not accidents, also resulted in post traumatic stress disorder.

In a study of Palestinian children in the West Bank and the Gaza Strip, children whose families faced a high number of traumatic events were more likely to present with severe aggression, nervousness, and withdrawal symptoms [9]. However, a more recent study of 209 Palestinian and Israeli sixth-grade children of 12 - 13 years, found a different impact of trauma on the two groups. For the Israeli children, high level of exposure was positively correlated with psychological distress, but the reverse relationship was established for Palestinian children, with those at the very high levels of exposure experiencing relatively low psychological distress [10]. The authors interpreted the findings as a reflection of the self-selection of the two groups because of the socio-political circumstances, i.e. Palestinian children may have been actively involved in the conflict.

The linear-dose relationship between the severity of trauma post traumatic symptomatology had been tested in many studies in the Gaza Strip; in comparative study of children witnessed bombardment of their homes, the most frequently reported items of the post traumatic stress symptoms were associated with traumatic events [11]. There is evidence that exposure to traumatic events, can lead to post traumatic stress disorder. In addition, proximity to the trauma and symptomatology are often associated in the form of a linear-dose response relationship between the trauma and the post traumatic stress disorder symptoms in adults and children [12-29].

Personal predisposition/temperament

In children, researchers are dealing with the concept of temperament rather than fully developed personality characteristics. The themes of current interest in temperament [30] include: a) individual differences in development rather than normative trends; b) the child as an active agent who shapes his own environment, as well as being influenced by his circumstances; c) possible neurobiological bases for behaviour, including genetic influences; and d) socio-emotional, rather than cognitive, aspects of development. Different classifications of temperament have been put forward and applied in longitudinal studies. Highly stressed children with later resilient outcomes had been more outgoing, adaptable to change, and positive in mood as infants, than children with later stress affected outcomes [31]. Wyman., *et al.* [32] also found that, resilient children, compared with stress affected ones, reported more nurturing relationships with primary caregivers, more stable family environments, more inductive, age appropriate and consistent family discipline practices, and perceived their mothers as more nurturing and interactive. In contrast, Maziade., *et al.* [33] found that children with difficult temperament were at increased psychiatric risk: they were worried, unhappy, tearful or distressed, fearful of new things, and solitary.

Gender and temperament may also have an interactional effect. For example the development of externalising and internalising symptoms was examined longitudinally in more than 800 children over a 12-year period [34]. Boys who were characterised as confident and as eager to explore novel situations at five years of age, were significantly less likely to manifest anxiety in childhood and adolescence. Girls who were passive, shy, fearful, and avoided new situations at the age of three and five years, were significantly more likely to exhibit anxiety at later ages.

In summary, temperament characteristics, in the presence of traumatic events, constitute protective or risk factors in developing post traumatic stress disorders. Children with temperament characterised by outgoing nature, resistance to change and negative mood, are at risk of developing psychiatric and stress related disorders [32,33-35].

Co-morbid psychopathology

High prevalence of comorbid PTSD and depression has been established among children who had experienced war conflict, predominantly from studies with resettled refugees or internally displaced children after the conflict. This factor makes traumatised individuals even more vulnerable to new traumatic events. In understanding this relationship between comorbid PTSD and depressive disorders, we need to consider other factors such as 1) contaminated symptoms between both disorders, 2) common precipitants, but different pathways, and 3) trauma lead to PTSD, while life events lead to depression.

In studies with children exposed to trauma. For example, in a study of community violence, Pynoos., *et al.* [36] found that the main comorbid diagnoses were depression, attention deficit-hyperactivity disorder, and phobic disorder. Over-anxious and separation anxiety

disorder were found to be associated with other factors, including worrying about a significant other, and past history or threats to important attachments (e.g. parental illness, separation, divorce, and loss).

In a study of 117 children aged 6 - 12 years, who were before a juvenile/family court secondary to experiencing significant child abuse and/or trauma in Boston, children diagnosed with PTSD demonstrated concurrent attention deficit-hyperactivity disorder, anxiety disorder, and a tendency toward mood disorder [37].

In a case study of four co-morbid cases of attention deficit-hyperactivity disorder and post traumatic stress disorder in children aged 5 - 12 years, two hypotheses were put forward to explain this co-morbid relationship. Firstly, children with attention deficit-hyperactivity disorder are at higher risk for trauma because of their impulsivity and dangerous behaviours, or because of parents who may have a genetic predisposition for impairment. Secondly, hyperarousal induced by severe trauma, and manifested by hypervigilance and poor concentration, may impair attention (Steven., *et al.* 1994).

Symptoms of PTSD also occur in conjunction with other symptoms of emotional and behavioural disturbance. Depression and somatic complaints are often associated with PTSD in people of all ages. In a study of immigrant Central American children in the USA, 10 of the 22 children were considered 'possibly depressed' [38]. Children with the highest number of PTSD symptoms reported more symptoms of depression and more somatic complaints.

In a longitudinal study of children after a bus-train collision in Petah Tikva, Israel, the directly exposed subjects exhibited more maladjustment, reflected additional PTSD symptoms and more depression, phobic anxiety, and somatisation, than control subjects [39]. A similar pattern of comorbid depressive and anxiety disorders was found at the long-term follow-up of survivors of a shipping disaster [40].

The depression and PTSD disorders appear to follow different courses over time, PTSD was predicted by earlier war trauma experiences, while depression was associated with recent stressful events related to their current life circumstances [41]. However, a more recent study with refugee Cambodian adolescents in Thailand, established a dose-effect relationship between trauma and both PTSD and depressive scores [42]. In study of the prevalence and nature of comorbid post-traumatic stress reactions and depressive symptoms, and the impact of exposure to traumatic events on both types of psychopathology, among Palestinian children during war conflict in the Gaza Strip, 403 children aged 9 - 15 years, who lived in four refugee camps, were assessed. The study showed that exposure to trauma ceased to have significant impact on depressive symptoms, in the presence of PTSD symptoms [13]. In another study of Palestinian children in West Bank and Gaza Strip, the study showed that there was relationship between total IES and inattention, hyperactivity scores by parents. IES subscale: intrusion was significantly associated with total inattention scores by parents and teachers, and hyperactivity scores by parents. Also, avoidance was significantly associated with total scores of inattention by teachers and hyperactivity scores by teachers [18].

Developmental differences

In arguing that individual characteristics can play a role in the response to traumatic events, it is necessary to consider whether there are age or sex differences.

The developmental effects on child psychiatric disorders are well documented. In a study of children in World War II, children's fears were related to their stage of development. Some toddlers exhibited an enjoyment of aggression, whilst other preschool children reacted 'hysterically' with much anxiety [43].

In another study, preschool children were more likely to exhibit regressive symptoms such as decreased verbalisation and cognitive confusion, as well as an increase in attachment behaviour [44]. School age children were more apt to react to violence with aggressive or inhibited behaviour, and with psychosomatic complaints. Their behaviour was more likely to be both more inconsistent and more reckless.

Others found that school-age children displayed fears related to their understanding of the evacuation from the dangerous area, and the realistic dangers facing them and their families. At the younger end of the age continuum, children's concerns were vague, for example

that the Three Mile Island nuclear accident might be dangerous. Adolescents expressed more sophistication in their cognitive appraisal of various stressors than younger children [45].

These findings have been replicated in other cultural groups. In a comparative study of Palestinian children in the West Bank and the Gaza Strip compared to Israeli-Arab children, El Bedour, *et al.* [46] found that differences in symptom scores of younger and older children were lower in Gaza children, followed by West Bank children, and Israeli Arab children. Overall, there was higher PTSD disturbance in older children than younger ones. Among orphans of Eritrea, younger children showed relatively more behavioural symptoms rather than emotional ones [47]. Similar findings have arisen from the war in Croatia and Bosnia, where displacement appeared to increase the risk of developing PTSD. Among 364 internally displaced 6-12-year-old children living in central Bosnia during the war, almost 94% fulfilled DSM-IV criteria for post traumatic stress disorder, with older children and those living in inner-city areas being at higher risk [48].

Not all studies have, however, replicated this trend. For example, Green, *et al.* [49], in a long-term follow-up study of children survivors of a devastating human made disaster (collapse of Buffalo Creek Dam), found no difference among three age groups. In another study of pre-school children in the Gaza Strip supports the statement that younger children may express their distress in different ways [50]. In another study of children in the Gaza Strip exposed to shooting at their school showed that children aged 6 - 12 years showed more total IES, intrusions, and avoidance symptoms than the old age group [19]. One interpretation was that younger children may have expressed their distress in different ways. A more plausible explanation of these findings is the absence of comparable and developmentally sensitive measures in some of previous studies.

In summary, the above-mentioned research findings suggest that very young children can not conceptualise traumatic events. Their cognitive abilities to appraise the meaning of the traumatic events are not as developed as those of older children. Instead, they may present with non-specific behavioural or emotional disorders, rather than PTSD reactions. Older (school age) children are possibly more vulnerable to develop the full presentation of PTSD after exposure to a severe traumatic event [44,46,49].

Gender differences

In epidemiological child psychiatry studies, boys are more likely to present with behavioural problems than girls, while girls are more likely to present with emotional problems, particularly in adolescence [51]. In relation to PTSD, most studies have found girls to report higher levels of symptoms than boys [49,52-62].

Similar study in the Gaza Strip, Thabet, *et al.* [22,23] of PTSD and anxiety and coping strategies as mediating factor in Palestinian adolescents showed that girls reported more PTSD than boys.

Chronic family adversities

The association between parental psychiatric disorder and mental health problems in children has been consistently established in previous research [63-65]. Maternal criticism and rejection, paternal criminality, and marital conflict increased the risk of persistent emotional and behavioural difficulties in children of parents with psychiatric disorders [66,67].

In a study of children in El Salvador, Allodi [68] found that family trauma, as indicated by the mother being absent, dead, imprisoned or disappeared, and children's emotional and behavioural problems, were significantly correlated. Children whose mothers were victims of the current conflict had a much higher chance of being highly disturbed in their emotions and behaviour. In another epidemiological survey of adults and children in Puerto Rico, parental psychopathology increased the risk of maladjustment in the offspring [69].

In the Newcastle Social and Family Deprivation study, the impact of life events was examined in a sample of children attending a child psychiatry clinic and a sample of community control children matched for age and sex, who were free of psychiatric disorder at the time of the interview. Mothers of cases reported a mean number of five events per child during the 12 months prior to the onset of symptoms, compared with four events per child in the controls during the 12 months prior to the day of interview. Nineteen percent of all events were

not independent of illness or illness-determined behaviour. However, the results indicated more dependent events in conduct disorders (26% of events), than in emotional disorders (18% of events – Kolvin., *et al.* 1990).

This association between family adversities and child psychopathology has been replicated by studies with different samples and designs, such as early onset of conduct disorders in boys [70], or adolescent psychiatric disorders [71]. Also, in research in traumatic events and disasters. The effect of the parent's loss of employment was greater for symptoms of re-experiencing and increased arousal, rather than emotional numbing and avoidance, in children survivors of hurricane disaster, which suggests that the effect of this factor may reflect the influence of a parent's own post traumatic reactions to the hurricane [72].

Chronic family adversities, including psychopathology of parents or offspring, and family discord, are risk factors for the development of child psychiatric disorders. This is an important mediating factor in the case of children exposed to stressful situations during war and other catastrophes [5,72].

In a study of Palestinian children in the Gaza Strip, we found that low socio-economic status (father unemployed or unskilled worker) was the strongest predictor of general mental health problems. Living in inner-city areas or camps, both common among refugees, was strongly associated with anxiety problems (Thabet & Vostanis, 1998). In another study of the relationship between children's and mothers' mental health problems in an urban and a rural area in the Gaza Strip, mothers' mental problems scores significantly predicted children's post traumatic stress disorder [73]. In other recent study of children and parents exposed to war trauma in the Gaza Strip to establish the relationship between ongoing war traumatic experiences, PTSD and anxiety symptoms in children, accounting for their parents equivalent mental health responses. The study showed that both war trauma and parents' emotional responses were significantly associated with children's PTSD and anxiety symptoms [20].

Protective factors

Rutter [35] stated that "protective factors may be considered as influences that modify or alter a person's response to an environmental hazard that predisposes to a maladaptive outcome". These do not equate to pleasurable experiences, but are better defined in terms of their effects on the individual in producing a more favourable response to stressors. They may not have any detectable effect in the absence of a subsequent stressor; and act to modify response to later adversity rather than directly influence development. Protective factors may thus be viewed as qualities of the individual as a person rather than an experience of the person perse.

In his review of childhood stressors, Garmezy [74] considered protective factors as being derived from three main sources:

1. constitutional child factors such as central nervous system health, positive temperament, evident selfesteem, ability, and social responsiveness;
2. a supportive family milieu, including a sound relationship with at least one parent.
3. social support in the wider community environment, such as school, church, and the community.

Protective factors will be discussed in relation to general child psychopathology and post traumatic stress disorders.

Presence of coping strategies

Previous research indicates that individual coping styles mitigate or exacerbate the effect of a stressor on psychosocial functioning. There are a number of definitions of coping behaviours. Early research on coping behaviour [75] looked at patients with life threatening diseases. Visotsky's research studied the impact of severe poliomyelitis on patients. He defined coping as the behaviour aimed at keeping distress within manageable limits; maintaining a sense of personal worth; restoring relations with other people; enhancing prospects for recovery of vital functions; and working out a personally valued and sociably acceptable situation after maximum physical recovery has been attained. Although this was ground breaking early work, it was not always relevant to situations where the stress was caused by external social and political events, rather than disease.

Horowitz [76] postulated that, avoidance as a coping mechanism could assist people to face intense anxiety caused by traumatic memories in the case of Vietnam veterans. Four basic modes of coping strategies were described by Lazarus and Launier (1987):

1. Instrumental strategies, or direct action, are directed towards managing the threat or stressor itself;
2. Intrapsychic strategies are aimed primarily at regulating or minimizing the accompanying emotional distress;
3. Inhibition of action refers to the ability to resist taking action when such action would increase the likelihood of harm, danger, or conflict; and
4. Information-seeking involves the instrumental activity of mobilising support or investigating alternatives that can relieve emotional distress.

Coping encompasses cognitive and behavioural strategies used to manage stressful situations (emotion-focused coping) and attendant negative emotions (behaviour-focused coping) [77]. Miller & Green [78] suggested that people differ in the extent to which they tend to approach or avoid information relevant to a stressful event.

Research on children's conception of emotions suggests that they are more likely to consider the possibility for changes as resulting from the situation itself, rather than from more internal, especially mental sources [79]. Weissman, *et al.* (1986) found developmental increases in the ability to simultaneously keep in mind two incongruous emotional reactions. Thus, the duality involved in trying to avoid the situation, while still monitoring it, may be too confusing or difficult for younger children.

Parents' and children's coping styles are often related, through genetic and/or learned mechanisms. In a study of the children of Latin American victims of political persecution and torture, Allodi [80] found that parental coping style, as reflected in low dogmatism and authoritarianism scores of refugees can be important in protecting against or modifying stress.

Development is another factor to consider in the interpretation of coping strategies. Young children have considerably greater difficulty than older ones in employing distraction and other forms of coping designed to alter one's cognitive state. Younger children tend to rely more on complete avoidance techniques, whereas older children would use these in addition to the less extreme forms (Band, *et al.* 1988).

As in the case of risk factors, child temperament mediates coping strategies, hence psychosocial functioning. Wyman, *et al.* [32] found that stress resilient children had higher hopes and expectations for the future than did stress adaptive children. Such views may reflect both healthy adaptation and a self image that facilitates coping with stress. The expectation of a good future may counter the sense of helplessness and frustration experienced after major life stresses.

Cultural characteristics can affect coping styles. For example, a sample of Thai and American children aged 6-14 years used twice as many covert methods of coping such as withdrawal and suppression of emotion, particularly for stressors involving authority figures [81].

Thabet, *et al.* [13] in study of 97 male adolescents attending a vocational training centre based in the Gaza Strip. Findings revealed high rates of emotional and physical maltreatment. Most adolescents relied on emotion-focussed or avoidant coping strategies and this was associated with exposure to maltreatment. Use of maladaptive coping also predicted emotional difficulties in the respondents.

In a study aimed to measure strategies for coping with prolonged conflict by Palestinian young people in Gaza using A-Cope questionnaire showed that boys and girls share the most common coping strategies (50% and over) that relate to self-reliance and optimism. Boys and girls choose to engage in activities that are demanding of themselves and within their control, such as getting their bodies in shape and getting better marks at school. Both girls and boys explore ways to figure out how to deal with problems or tensions on their own [82].

Similar study in the Gaza Strip, Thabet, *et al.* [22] of PTSD and anxiety and coping strategies as mediating factor in Palestinian adolescents showed that Palestinian adolescents mainly cope commonly by developing social support, investing in close friends, and/or

engaging in demanding activities. The study showed that adolescents experienced traumatic experiences developed less social support and positively asked more professional support as coping strategies.

In a study aimed to investigate whether the association between trauma exposure and posttraumatic stress symptoms in Palestinian children and adolescents living in a region of war conflict, was mediated or moderated by certain coping strategies. Participants consisted of 424 children and adolescents aged between 8 - 16 years, who were randomly selected from 32 schools in Gaza and the West Bank. The study showed that exposure to trauma was moderated by seeking social and spiritual support in predicting PTSD symptoms [23].

Thabet and Thabet [26] in study of children in the Gaza Strip showed that Palestinians children used different ways of coping with the stress and trauma, and common resilience items were 94.6% said they were proud of their citizenship, 92.4% said they feel safe when they were with their caregivers, 91.4% said that their spiritual (religious) beliefs were a source of strength for them, and 91% said they were proud of their family background.

However, children coping strategies may depend on contextual factors such as the degree to which the situation is controllable or not. The controllable situation may most effectively be handled by monitoring the situation coping strategies, whereas an uncontrollable stressor may best be handled by avoidance (blunting) strategies.

Presence of family support

Family members can help a victim of trauma to confront the problem. They can also help him/her to recapitulate the catastrophe and thus perceive the events with greater clarity, as well as correct views that have been associated with feelings of guilt or self-hatred. Also, they can help to resolve the trauma-inducing conflicts by serving as facilitators. In contrast, parents' reactions to trauma may adversely affect children and maintain their PTSD symptoms.

During the London air raids of World War II, children who had remained with their parents, forgoing the greater safety and material comfort away from the bombing, suffered less distress than those who had been separated from their parents [43]. In a study of survivors of the Buffalo Creek Flood, children in traumatised families within shattered communities formed their own theories on disaster, based on their reactions and perception of the reactions of their parents and other adults [83]. In another disaster study, children whose parents disagreed in their reactions to the Three Mile Island Nuclear reactor accident were significantly more upset over the event than were children of parents who were consistent with each other in mood, distress level, and intensity of response [45].

Family support could serve as an antidote to PTSD in four different ways: detecting symptoms, confronting the problem, recapitulating the traumatic inducing conflicts associated with events, and resolving the trauma-induced conflict [84]. Others, such as Smith [31], suggested that families act as stress buffers and support for family members who have been traumatised. Children are thus susceptible and sensitive to other family members' reactions to traumatic events. In traumatised families, children tend to be more vulnerable to being traumatised themselves. Presence of family support is a predictor of positive outcome.

In another study aimed to assess the impact of parenting support on post-traumatic stress disorder among Palestinian children in the Gaza Strip. A sample of 434 Palestinian children aged from 12 - 16 years living in Gaza Strip was assessed during the second scholar trimester. The results showed that Palestinian children were exposed to different types of war traumatic events. Children with more parental support reported less PTSD than the non supported one. There was strong relationship between level of exposure to trauma and PTSD [85]. Also, Thabet., *et al.* [24] in study of acute traumatic stress disorder symptoms in a sample of displaced and non-displaced children and adolescents in the Gaza Strip after 2012 war showed that displaced children reported more traumatic event such as forced to leave home with family members due to shelling and 10.0% of non-displaced children and 18.4% of displaced children had acute traumatic stress disorder.

Presence of social support

Social support is considered as one of the most important coping strategies in overcoming problems. Eastern societies used social support as a coping strategy in difficult situations.

Social support is defined as:

1. Emotional support, implying care and love between family members;
2. Esteem support, implying esteem and value by family members for family members; and
3. Network support, implying that family members enjoy belonging to a network where there is mutual understanding and obligation [86].

Relatives are, therefore, an important resource of social support, who can provide a shelter for evacuees from disaster impact zones (Instituut voor Sociaal Onderzoek, 1955; Bates, *et al* 1963). Social support interacts with the direct impact of trauma. For example, Israeli children from Kibbutzim undergoing moderate shelling had higher anxiety scores than children from non bombarded Kibbutzim [87].

A high level of social support helps an individual against the negative consequences of stressors. This so called 'buffering effect' implies that, among individuals who have access to a strong social support system, stressful life events are less likely to lead to strain and deterioration of physical and mental health. It is believed that social networks and social support systems moderate the effect of stressful life events by providing a sense of security, sharing of concerns and feelings of belonging [88].

In a Middle East study, Lebanese family members were confident that they could rely on social support to deal with problems of various natures. Social support had the largest influence. For fathers, social support had a significant mediating effect on most psychosocial outcome measures. For mothers, social support showed significant mediating effect only in term of marital relationships. For adolescents, social support had mediated effect for depression and interpersonal relationships [89]. Pine and Cohen [90], emphasized that social support is an important factor to assess when working with children exposed to trauma. And explain that the role of less than optimal familial and social support cannot be overestimated as a potential vulnerability factor for developing PTSD, highlighting that disruption of social and familial support plays an important role in the development of psychiatric disturbance.

Social support has likewise been identified as a protective factor in the development of PTSD in a general bereavement sample [91]. Other studies found significant buffering effects of social support on PTSD among survivors of violent death [92-94].

Protective cultural influences in relation to PTSD

Culture has been defined by sociologists and anthropologists in different ways. Most would agree that it refers to a number of collective factors. These include patterns of behaviour and customs, values, beliefs and attitudes, implicit rules of conduct, patterns of family and social organisation, and taboos and sanctions. These are shared by a group of people that have a common identity, based on ethnic and sometimes territorial unity. One grows up, in a very general sense, thinking, believing and behaving in ways which are found in one's culture, adhering to its rules and conforming with its practices. Cultures vary in the degree to which rules and customs are followed rigidly, and in how pervasive its influence is on the individual's life [95].

Cultural factors can modulate the type of mental health symptoms, with higher rates of somatoform and somatising symptoms in certain cultural groups. Individuals in Eastern countries are more likely to express psychological problems through somatic symptoms like headaches, abdominal pains, and conversion fits [96-98].

Family and social support is often difficult to distinguish from underlying cultural factors. Cultural differences are evident in the responses of children to traumatic events and the presentation of child psychopathology. In a study of South Asian refugee children who settled in Australia, South Asian children showed higher rates of somatoform symptoms than in the native Australian child population [99].

In another study of parental perception of child mental health issues and services in the Gaza Strip, 249 Palestinian mothers living in refugee camps in the Gaza Strip. Mothers perceived multiple causes of child mental health problems, including family problems, parental psychiatric illness and social adversity. A substantial proportion (42.6%) had knowledge of local child mental health care services. Overall, mothers preferred Western over traditional types of treatment, and were keen to increase mental health awareness within their society. Despite a different cultural tradition, Palestinian parents appear open to a range of services and interventions for child mental health problems [15].

The role of culture in the development and outcome of post traumatic stress disorder has been discussed. As the diagnostic category for PTSD is relatively new, there is only a limited literature addressing cultural aspects of this disorder, unlike disorders such as schizophrenia and depression. However, it is clear that cultural factors have an important role to play in the genesis and presentation of PTSD, and in how it is perceived, responded to and treated.

Discussion

Research in risk factors for child psychiatric disorders has indicated the marked individual variation in people's responses to stress and adversity; some succumb, and some escape damage. The phenomenon of maintaining adaptive functioning in spite of serious risk hazards has been termed 'resilience'. The factors promoting resilience remain poorly understood, but it is clear that part of the explanation lies in the overall level of risk. Frequently, individuals who develop disorders have suffered accumulation of greater risks experienced over longer periods of time. In addition, there are vulnerability and protective processes by which there is catalytic modification of a person's response to the risk situation. This interactive mechanism applies to both vulnerability and protective mechanisms [24-26,100].

Being near the traumatic event, being a girl, older in age, understanding the meaning of trauma, having difficult temperament such as unhappy, tearful or distressed, being fearful of new things or solitary, having another psychiatric disorder such as depression and anxiety, and living in families with adversities such as history of abuse, are all inter-related risk factors for children to develop post traumatic stress disorders. Much of the research on protective influences has concentrated on a search for protective variables, often with the aim of distilling the findings down to provide identification of the few key global attributes or experiences that are crucial in this connection. It is argued that the focus needs to be on protective process or mechanisms, rather than single variables. By definition, these involve interactions of one sort or another. Three broad categories of protective variables have been found to promote resilience in childhood [74]. The first refers to individual dispositional attributes, including temperamental factors, social orientation and responsiveness to change, cognitive abilities, and coping skills. The second general category of protective factors is the family milieu. A positive relationship with at least one parent or a parental figure serves an important protective function. Other important family variables include cohesion, warmth, harmony, supervision, and absence of neglect. The third category of protective influences in childhood encompasses attributes of the extrafamilial social environment. These include the availability of external resources and extended social supports as well as the individual's use of those resources. The two most prominent predictors of resilience throughout childhood and adolescence are having a strong prosocial relationship with at least one caring adult and having good intellectual capabilities [100-104].

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Volume 2 Issue 4 February 2017

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The Relationship Between Parenting Styles and Fear among Palestinian Children in the Gaza Strip

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Received: January 23, 2017; **Published:** February 06, 2017

Abstract

Aim: This study aimed to investigate the relationship between parenting styles and children' fears among school aged children in Gaza Strip.

Method: The study sample consisted of 380 children (183 boys and 197 girls) aged between 6 and 12 years old and their parents (180 fathers and 200 mothers). The researcher adopted the descriptive analytical design to represent the entire sample; where the simple was randomly selected from the targeted population. Children and parents were interviewed by modified version of FSSC-R-parents and child forms and the Parenting styles Inventory for the styles of parenting.

Results: The results showed that the children commonly reported the following fears: fears of fire and being burned (87.8%), fears of falling from high places (86.2%) reported. While 91.7% of parents said that they had fears for children of being hit by a car or truck and 85.2% said that they fear that children being shocked by electricity. Girls reported more fears than boys as reported by themselves and their parents.

For parental style, the most commonly parental style was dismissing parent (permissive) (70.8%), disapproving parent (authoritarian) (67.3%), Laissez-faire parent (uninvolved) (65.3%), and emotion-coaching parent (authoritative) (56.6%). There were no significant differences between the means of the parenting styles (Dismissing parent, Disapproving parent, Laissez-faire parent and Emotion-coaching parenting) according to children fears as reported by either children or the parents.

Keywords: Fears; Children; Parents; Parental style

Introduction

Parenting style, defined as “the parents’ perceivable attitudes towards the child” [1,2], is the primary avenue through which the child becomes acclimated to social life and interaction [3]. Parenting styles are generally regarded as the attitudes, behaviors, and interaction styles that, when taken together, create an emotional context in which socialization efforts and family interactions can occur [1-3]. Cultural values shape socialization goals to influence parenting styles and practices, which in turn relate to child outcomes [1,2]. But, another aspect about culture and parenting styles came from Kim and Wong [4] defining the concept of culture as a critical force in this socialization process. While, Recent controversy concerns the outcomes of different parenting styles for child social development in low-socioeconomic

Citation: Abdel Aziz Mousa Thabet and Tariq Said Qrenawi. “The Relationship Between Parenting Styles and Fear among Palestinian Children in the Gaza Strip”. *EC Psychology and Psychiatry* 2.2 (2017): 61-71.

status, high-risk, inner-city families [5,6]. The parenting styles have many types, it may be described as dictator style, wet clay parents, or authoritative style that play a significant role in shaping the children's behavior. These styles have direct and special effects on children's behavior and trends which are reflected on children themselves and on their parents in the future. The authoritarian and permissive parenting styles appear to represent opposite ends of the parenting spectrum, neither of the styles has been linked to positive outcomes, presumably because both minimize opportunities for children to learn to cope with stress [5,6]. Following the parenting style classification scheme developed by Baumrind [7,8], four mutually exclusive parenting styles are derived. First, authoritative parenting, typified by high demandingness and high responsiveness, grants a significant amount of autonomy to the child and has been described as parenting that is rational, consistent, and warm. Second, authoritarian parenting, characterized by high demandingness and low responsiveness, represents total control of the child by the parent. Third, permissive parenting, defined by low demandingness and high responsiveness, is a parenting style that allows children to self-regulate without concern for the consequences of their actions. Last, uninvolved parenting, exemplified by low demandingness and low responsiveness [9], is a style in which parents are not involved emotionally with children and provide minimal supervision.

Schroeder and Mowen (2014) in study of parenting style transitions are across third waves of the National Longitudinal Survey of Youth, 1997. Consistent with estimates from prior studies 35.8% of the respondents have authoritative parents, 16.1% have authoritarian parents, 30.9% have permissive parents, and 17.1% have uninvolved parents. Authoritative parenting is all associated with decreases in offending in adolescents. Dwairy [10] studied the relationship between three parenting styles (authoritarian, permissive, and authoritative) and the mental health of Arab adolescents was tested. The results revealed that the parenting style with regard to girls tends to be more authoritative and less authoritarian than with regard to boys. Girls scored higher than boys on identity disorder, anxiety disorder, and depression scales, whereas boys scored higher than girls on the behavior disorder scale. There was no significant relationship between the authoritarian parenting style and the mental health measures. A significant positive relationship exists between the authoritative parenting style and the mental health of children. Among boys, the permissive parenting style was associated with negative attitudes towards parents, lower self-esteem and increased identity, anxiety, phobia, depressive, and conduct disorders. Dwairy and Menshar [11] studied Parenting style of 351 Egyptian adolescents. Results showed that in rural communities the authoritarian style is more predominant in the parenting of male adolescents, while the authoritative style is more predominant in the parenting of female adolescents. In urban communities, on the other hand, the authoritarian style was more predominant in the parenting of female adolescents. The connectedness of all female adolescents with their family was stronger than that of male adolescents. The connectedness of girls was found to be more emotional and financial in villages and to be more functional in town. Female adolescents reported a higher frequency of psychological disorders. Mental health was associated with authoritative parenting, but not with authoritarian parenting. It seems that authoritarian parenting within an authoritarian culture is not as harmful as within a liberal culture. Dwairy, *et al.* [12] studied 2,893 Arab adolescents in eight Arab societies. Results showed that all parenting styles differed across Arab societies. Cluster analysis revealed three combined parenting patterns: inconsistent (permissive and authoritarian), controlling (authoritarian and authoritative), and flexible (authoritative and permissive). The mean score of the authoritarian style was higher among males, whereas the mean score of the authoritative style was higher among females. First-born adolescents reported higher level permissive parenting than other adolescents. The effects of urbanization, parents' education, and the family economic level on parenting were minor.

Fears of children are affected directly by parenting styles adopted by parents in children development and rearing throughout the life. Gilmore and Campbell [13] in a study aimed to determine the possible impact of such distal events; fears were measured in a sample of 220 children aged 6 to 12 years using the Fear Survey Schedule for Children (FSSC-R) as well as a free option method. On the FSSC-R, the type and intensity of children's fears were similar to previous studies conducted over the past two decades, with being hit by a car, bombs and being unable to breathe producing the most fear. By contrast, spontaneous responses indicated that children's greatest fear was of animals. Surprisingly few children mentioned war and terrorism without prompting. The findings suggest that concerns about Australian children becoming more fearful as a result of media coverage of war and terrorism are not supported. Latouf [14] in study of the relationship between parenting styles, as used by the pre-school parent and the social behaviour of the five-year old. The results indicated

primarily that the Authoritative Parenting Style was most used by the parents of the five-year old group and that this Parenting Style tends to lead to more acceptable social behaviour among the five-year olds. Erlanger, et al. [15] examined the relations among authoritative parenting style, academic performance, self-efficacy, and achievement motivation using a sample of college students (N = 264). Results indicated that authoritative parenting continues to influence the academic performance of college students, and both intrinsic motivation and self-efficacy predicted academic performance. Additionally, the study tested the interaction between self-efficacy and authoritative parenting, but the interaction was not significant. Elias and Yee [16] studied the parenting styles (paternal and maternal) and student's achievements. The sample consisted of 247 Form Four students in two secondary schools. The findings revealed that perceived paternal permissive, authoritarian, and authoritative parenting styles were not significantly correlated with students' academic achievement. The findings also revealed that perceived maternal permissive, authoritarian, and authoritative parenting styles were not significantly correlated with students' academic achievement. Moreover, Campbell and Gilmore (2009) in a study aimed to investigate of 220 children fears from the father's perspectives or informants. The finding showed that there were significant differences between the total "children fears" score responses among the parents and their children. The parents (fathers and mothers) provide different responses when generating a spontaneous list of their child's fears and worries, or rating the intensity of their fears on the FSSC-R, there is much less consistency between parents and children. The aims of this study were 1) To identify the types of parenting styles of school age children, 2) to identify the types of fears, 3) to investigate the relationship between parenting styles fears and socio-demographic variables.

Method

Participants

A simple random sample consisted of 380 school children. The total number of boys was 183 (48.2 %) and 197 were girls (51.8 %). The age range from 6 - 12 years (M = 9 years).

Measures

Socio-demographic questionnaire

This questionnaire included information about age, sex, place of residence, and family income.

Parenting styles inventory [17]

The parenting styles inventory (PAI) is an 81-item test developed to assess parental authority or disciplinary practices from the parent's point of view [17]. It is designed to reflect the four basic parenting styles: dismissing parent, disapproving parent, laissez-faire parent, and emotion-coaching parent. This inventory classified to four parenting styles that checked by (true or false) and measuring the specified classification according to the following criteria: Dismissing parent (items: 1, 2, 6, 7, 9, 12, 13, 14, 15, 17, 18, 19, 24, 25, 28, 33, 43, 62, 66, 67, 68, 76, 77, 78, 80).

Disapproving parent (items: 3, 4, 5, 8, 10, 11, 20, 21, 22, 41, 42, 54, 55, 56, 57, 58, 59, 60, 61, 63, 65, 69, 70) Laissez-faire parent (items: 26, 44, 45, 46, 47, 48, 49, 50, 52, 53). Emotion-coaching parent (items: 16, 23, 27, 29, 30, 31, 32, 34, 35, 36, 37, 38, 39, 40, 51, 64, 71, 72, 73, 74, 75, 79, 81). The internal consistency of the scale was measured by Chronbach's alpha ($\alpha = 0.70$).

Fears Self-Rating questionnaire (FSSC-R) child version [18,19]

Fear survey schedule for children, the FSSC-R consists of 80 stimulus items to which children respond on a three-point scale indicating how much fear (none, some or a lot) they have of particular things. Researcher estimated the reliability of the Fears Self-Rating questionnaire (FSSC-R) child version by using the equation of Cronbach's alpha (No. of items = 78); where the value of alpha ($\alpha = 0.94$). The fears Self-Rating questionnaire (FSSC-R) child version measurement device is valid and reliable for data collection. This scale was translated to Arabic by the first author and back translated to English by the second author. No significant differences were found.

Fears Self-Rating questionnaire (FSSC-R) parent version

Fear survey schedule for parents, the FSSC-R consists of 80 stimulus items to which they respond on a three-point scale indicating how much fear (none, some or a lot) they have seen in their children of particular things. Cronbach’s alpha (No. of items = 78); where the value of alpha ($\alpha = 0.74$). This scale was translated to Arabic by the first author and back translated to English by the second author. No significant differences were found.

Study Procedure

An approval letter was obtained from Helsinki committee in the Ministry of Health to allow the researcher to carry out the study. In addition to an approval letters were obtained from the Ministry of Education. Also, a cover letter describing the study aim and its purpose and a guarantee that the study was for scientific research and didn’t carry any threats or harm to the children or their parents was attached with each questionnaire to parents and they were asked to sign it. The children were interviewed in their classrooms by 3 trained nurses. The completed consent forms and questionnaires were returned to the researcher within 48 hours from parents. The study was carried out in 2011.

Statistical Analysis

The data was analyzed using the statistical package for social sciences (SPSS) program (version 20). Descriptive techniques were used to examine the similarities and differences of variables associated with fears of children and parental styles. The statistical significance of differences was assessed using two-tailed independent samples t-tests ($p < 0.05$). One Way ANOVA test was performed to test the statistical significance of between more than two group differences for distributions and means. The Pearson correlation was used to examine the relationship between type of fears and parental styles.

Results

Socio-demographic results of the study sample

The total numbers of children selected were 380. Boys were 183 (48.2 %); girls were 197 (51.8 %). The minimum age was 6 years and the maximum age was 12 with mean age of 9 years. Regarding place of residence, 71 children live in North Gaza (18.7%); 180 live in Gaza city (47.4%); 31 live in Middle area (8.2%); 74 live in Khan Younis (19.5 %); and 24 live in Rafah (6.3%). Regarding family monthly income, 150 of children had family income less than \$ 300 (39.5%); 100 had monthly income \$301-500(26.3%), 93 had an income \$501-750 NIS (24.5%), and 39 had \$751 and more (9.7%).

	N	%
Sex		
Male	183	48.2
Female	197	51.8
Parents Gender		
Father	180	42.1
Mother	200	57.9
Type of residence		
City	277	72.9
Camp	35	9.2
Village	68	17.9

Place of residence		
North Gaza	71	18.7
Gaza	180	47.4
Middle area	31	8.2
Khan Younis	74	19.5
Rafah	24	6.3
Family income		
Less than \$ 300	150	39.5
\$ 301-500	100	26.3
\$ 501-750	93	24.5
\$751 and more	37	9.7

Table 1: Socio-demographic variables of the study sample (N = 380).

Types of children fears

The commonly fears symptoms reported by children were “Fire-getting burned” (87.8%) followed by “Falling from high places” (86.2%); while the least fears were “had to go to school (38.7%), and “Talking on the telephone” (43.5%). While the commonly fears symptoms reported by the parents were “Fire-getting burned” (91.7%), “Fears of my child being hit by a car or truck” (91%), and the least fears reported by parents were: Having my child to go to school (38.7%) and “Riding in the car or bus” (39.7%).

Fears reported by children			Fears reported by parents		
		%			%
1.	Fire-getting burned	87.8	1.	Fire-getting burned	91.7
2.	Falling from high places	86.2	2.	Being hit by a car or truck.	91.0
3.	Earthquakes	85.2	3.	Getting a shock from electricity	90.6
4.	Being hit by a car or truck.	84.4	4.	Falling from high places	90.0
5.	Getting lost in a strange place	82.6	5.	Failing a test	88.9
6.	Failing a test	82.4	6.	Earthquakes	88.6
7.	Bombardment -being invaded	82.2	7.	Bombardment-being invaded	87.3
8.	Germes or getting a serious illness	82.1	8.	Snakes	87.0
9.	Snakes	81.8	9.	Terrorists	86.5
10.	A burglar breaking into our house	81.4	10.	Germes or getting a serious illness	86.4

Table 2: Frequency of fears by children and parents (N = 380).

Differences in children’ fears according to sociodemographic variables

In order to test the sex difference between the children and fears the independent t test was performed. Children reported different types of fears according to the self—rating questionnaire, boys vs. girls (M= 145.19 vs. M = 167.92). The results showed that there were statistically significant differences in total fears scores toward girls (t (378) = 9.11, p < 0.001).

One-Way ANOVA was used to study the differences between children fears for both children version and parent version according to the family income. Post –hoc analysis test was done using Scheffee test, there were significant differences in children fears according to

children report ($F(3, 379) = 3.02, p = 0.02$) and parents reports ($F(3,379) = 4.33, p = 0.005$) toward families with low monthly income of \$300 and less. Post-hoc analysis test showed that children living in refugee camps had more fears according to children report ($F(2,379) = 4.17, p = 0.01$) and also parents report ($F(2,379) = 10.2, p = 0.001$) than those live in a city or a village.

Types of parenting styles

The following table 3 showed the parenting styles. The most commonly reported parenting style was dismissing parent with 70.8%, disapproving parent 67.3% and Laissez-faire parent 65.3% and the lowest one was emotion-coaching parent 56.6%.

Parenting Styles	N	Min.	Max.	Mean	SD	Ratio Scale
Dismissing parent	380	26	42	35.43	2.79	70.8
Disapproving parent	380	24	41	30.98	3.53	67.3
Laissez-faire parent	380	10	19	13.07	1.77	65.3
Emotion-coaching	380	23	39	29.07	2.98	56.6
Total score	380	85	127	108.55	7.08	67.1

Table 3: Types of parenting styles (N = 380).

Parenting styles and the sex of parent (Father or mother)

In order to test the sex difference for the parents (father/mother) among parenting styles types we performed t-independent test. As shown in the following table 4 the results showed no significant differences among parents in any type of parental styles (dismissing, disapproving, Laissez-faire and emotion-coaching parenting styles).

Parenting Styles	Sex	N	Mean	SD	t	p
Dismissing parent	Father	180	35.29	2.88	0.61	0.44
	Mother	200	35.57	2.68		
Disapproving parent	Father	180	31.15	3.71	2.83	0.09
	Mother	200	30.84	3.32		
Laissez-faire parent	Father	180	12.91	1.84	1.22	0.27
	Mother	200	13.25	1.67		
Emotion-coaching	Father	180	29.27	3.05	1.41	0.24
	Mother	200	28.98	2.94		
Total score	Father	180	108.63	7.59	3.21	0.07
	Mother	200	108.64	6.52		

Table 4: Independent t-Test comparing means of parenting styles according to sex (N = 380).

$p \leq 0.05^*$, $p \leq 0.01^{**}$, $p \leq 0.001^{***}$

Relationship between Parenting Styles and children’s fears

In order to analyze the relationship between parenting styles and children fears, Pearson-Product Moment Correlation Coefficient was used. Table 5 showed that there are no significant relationship among parenting styles and children fears for both [parent version and children version]. The findings suggest that the parenting styles [dismissing parenting, disapproving parenting, laissez-faire parent, and emotion-coaching parent] do not correlate with children fears for both children and parents versions.

Children fears		Dismissing parent	Disapproving parent	Laissez-faire parent	Emotion coaching
Fears Self-Rating questionnaire Parent Version	Pearson Correlation	0.07	-.066-	0.07	0.001
	Sig. (2-tailed)	0.20	0.20	0.15	0.97
	N	380	380	380	380
Fears Self-Rating questionnaire Children version	Pearson Correlation	0.03	0.00	0.04	-.074-
	Sig. (2-tailed)	0.55	0.99	0.41	0.15
	N	380	380	380	380

Table 5: Correlation matrix among parenting style and children fears (N = 380).

Discussion

The study showed children reported that they had fears of burned by fire (87.8%) and their parents reported that their children were of most fearful items from the same item as their children (91.7%). The children reported fears of for falling from high places (86.2%), while their parents reported that their children fear of “being hit by a car or truck (91%). Earthquake was reported by children as a third fearful situation by 85.2%, while “getting a shock from electricity” was classified as the third fearful situation as reported by the children parents. The results showed significant differences among children fears according to sex toward female’s children.

The results of this study appears to be consistent with the results of Muris., *et al.* study (1997) which indicated that there were a significant difference between males and females according to sex in favor of females. The researcher hypothesized that for the dominant gender and concrete feeling which appear to be for males among the community and the females appear to be more sensitive and concerned by their parents more than boys.

In the same sequence the study showed that the children reported their most often fears are from fire getting burned by 87.8%; fear from falling from high places 86.2%; and fear from earthquake 85.2%. But, Muris., *et al.* found that the most fearful situation that reported by the children were; fear of bombing attacks/being invaded 70.6%; being hit by a car or truck 70.3%; not being able to breathe 67.8%; getting a serious illness 60.4%; falling from high place 57.4% ; and fire /getting burned 53.8% (Muris., *et al.* 1997).

While, study results of Gilmore and Campbell [13] showed that the type and intensity of children’s fears were; being hit by a car, bombs and being unable to breathe producing the most fear. While, spontaneous responses indicated that children’s greatest fear was of animals. Surprisingly few children mentioned war and terrorism without prompting. These findings appear to be consistent with the results of Campbell and Gilmore (2009) that showed the parents provide different responses when generating a spontaneous list of their child’s fears and worries, or rating the intensity of their fears on the Fears Self – Rating questionnaire FSSC-R. There is much less consistency between parents and children.

This could be to the context surrounding and culture diversity play a significant role in defining the fears and its severity through the study sample. This means that every community is exposed to different types of fears (War, Accidents, Falling down, and all the fears) that occupy the children and their families for a specified time and point of view. So, in the study community as regarded by the children the most fearful event is “getting fire/burned” which reflects specified time in which the data collected during the electricity problems and the general use of generators among the Gazan’s population in which many deaths and injuries occurs because of the misuse of the generators. The results of the current study indicated that there were significant differences among the means of the children fears both children and parents according to the type of residence toward those who live in camps for children version and toward those who live in camps and village for the parent version. This could be attributed to the fact that the children who live in camps exposed more frequently to the fears because they are prone to car accidents in crossing the streets, danger of generators and falling from windows. But children’s

parents reported more fears among their children because they suffer from the same situations in addition to the danger of the street, accidents, and heavy trucks. There were significant differences among the means of the children fears [Children and Parent] according to family income level in favor of those who have family low income. These differences reflect the importance of family income variable and its correlation with children fears, since the low income level reported fears more frequently than those who are classified as medium or high level income. The researcher thinks that this is related to insufficient recreation activities that may be offered for the low income children and also they have no chance to do any thing that except they must accept the reality they face.

The results demonstrated that the highest parenting style used by parents was permissive parenting (dismissing parent) with 70.8% followed by authoritarian parenting (disapproving parent) 67.3% and uninvolved parenting (laissez-faire) parent 65.3% and the lowest one was authoritative parenting (emotion-coaching) parent 56.6%. These results reflect the parenting styles that are used by the parents in our community as the main source for rearing and educating the children inside the community. But, the study results of Elias and Yee [16] found that the majority of the children in their study perceived their father as authoritative (n = 200, 81.00%), followed by authoritarian (n = 25, 10.10%) and permissive (n = 19, 7.70%). There were three subjects who do not have father (n = 3, 1.20%), thus were unable to answer the questionnaire pertaining to paternal parenting style.

These results appears to be inconsistent with the results of Latouf [14] which indicated that the authoritative parenting style was the mostly used by the parents of the five-year old group and that this parenting style tends to lead to more acceptable social behaviour among the five-year olds. While, the study results of Dwairy, *et al.* [12] found that all parenting styles differed across Arab societies, where the Arab societies have mixed parenting styles for their children and they responded differently to every parenting style. However, Dwairy, *et al.* [12] indicated that authoritative parenting was associated with a higher level of connectedness with the family and better mental health of adolescents. The study results of Dwairy and Menshar [11] indicated that authoritarian parenting within an authoritarian culture is not as harmful as within a liberal culture. In the Islamic culture the parents' love for their child is so taken for granted that it is not even thought necessary to state this as a requirement for parents. However, in the Islamic culture the main responsibility of the parents to their child is to support him with the suitable education (this is to be understood in the broadest possible sense, including all things that assist the child to become a good and right human being). The Qur'an also places great responsibility on the child in regard to his parents, requiring the child to be kind to the parents, to help his parents in their old age, to never talk to his parents with contempt, to never reject his parents, to honor them, and to fulfill all these responsibilities with humility.

These results appears to be inconsistent with the study results of Dwairy, *et al.* [12] that indicated that the mean score of the authoritarian style was higher among males, whereas the mean score of the authoritative style was higher among females. In addition, the first-born adolescents reported higher level of permissive parenting than other adolescents.

The researcher hypothesized that because the parents used mixed parenting styles for children rearing and the dominant parent considered the father in the Palestinian community. However, as mentioned before the parenting styles depend on the cultural view among the Palestinian families in which there were no selected criteria for defined style.

There were no significant differences among the means of the parenting styles dismissing parent, disapproving parent, laissez-faire parent and emotion-coaching.

The study results demonstrated that there are no significant differences among the means of the parenting styles (the four styles) according to children fears level as reported by either children or the parents. The current study appears to be inconsistent with the study results of Dwairy [10] who found that among boys, the permissive parenting style was associated with negative attitudes towards parents, lower self-esteem and increased identity, anxiety, phobia, depressive, and conduct disorders. While Chen, *et al.* [20] found that authoritarian parenting was associated positively with aggression and negatively with peer acceptance, sociability-competence, distinguished studentship and school academic achievement. In another study by Dwairy [10], girls scored higher than boys on identity disorder, anxiety

disorder, and depression scales, whereas boys scored higher than girls on the behavior disorder scale that accompanied the authoritative style. Also, the same study revealed that there was no significant relationship between the authoritarian parenting style and the mental health measures which matched with the current results. But, other studies by Dwairy and Menshar [11]; and Dwairy, *et al.* [12] indicated that female adolescents reported a higher frequency of psychological disorders and mental health which were associated with authoritative parenting, but not with authoritarian parenting.

The researcher attributes result that found no correlation among the parenting styles and children fears to the structure of the families that employ the dignity and protection for the children regardless of the parenting styles. Also, due to the connectedness between children and parents where the parents are required to provide the ultimate requirements and necessities for the children whenever possible and to provide the protection from different types of fears because these issues were from the core functions of the parents. The parents try to offer all the comfortable facilities and services for their children to grow up safely and with secure needs. In this regard the parents care for their children development, nurturing, communication regardless of the parenting styles they adopt.

In another study by Elias and Yee [16]; it was shown that perceived paternal permissive, authoritarian, and authoritative parenting styles were not significantly correlated with students' academic achievements. Also the findings revealed that perceived maternal permissive, authoritarian, and authoritative parenting styles were not significantly correlated with students' academic achievements [21,22].

Clinical Implications

Such findings encourage and reinforce the roles of the counselors at the schools in alleviating the children fears and promote periodically follow up for the children at schools. Promote active participation among the children and the teachers at schools as well as the counselors to help in reducing the children fears. Establish a specialized rehabilitation unit for children to express their feeling freely and provide frequent psychological support regarding their fears and phobias. Promote and reinforce the policies that protect the children rights according to the Palestinian law and according to the international agreements.

For the parents they have to maintain psychosocial connection and communication among the children and their parents regarding children fears and phobias. Customize specific programs for children that help in reducing the fears and phobias accordingly with their parents and schools counselors. Promote public educational programs regarding children fears using the media and advertisement to help the target group specifically to help the parent in identifying the children fears. Reinforce the favorites activities that children prefer to alleviate their fears and phobias and let them express their feelings.

For the children: we have to promote active participation among the children and their parents at homes, teachers at schools as well as the counselors to help in reducing the children fears. Let the children express their fears and phobias to help in minimizing the effects of their fears. Make a follow up and consecutive care for the children regarding their fears and phobias.

For this purpose the researcher suggests the following recommendations: Reinforce and encourage the emotion-coaching parenting (authoritative) administration between the children's parents since this style help the children grow and develop independently, and let them be self-reliance and motivated. Customize the parenting styles according to the children adjustment and motivation to help them better in their development. Promote constructive communication between the parents and their children to achieve the best parenting styles output for the safety of the children. Instruct the parents to be selective for their parenting styles and approaches to be more valuable and specific in their communication with the children.

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Volume 2 Issue 2 February 2017

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The Relationship Between Post-Traumatic Stress Disorder and Coping Strategies among Patients with Cancer in Gaza Strip

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Received Date: March 22, 2017; Accepted Date: April 19, 2017; Published Date: April 24, 2017

Citation: Al Jadili M, Thabet AA. The Relationship Between Post-Traumatic Stress Disorder and Coping Strategies among Patients with Cancer in Gaza Strip. J Nurs Health Stud 2017, 2:1.

Abstract

Aim: The study aimed to examine the mental health status of the patients with cancer and the coping strategies that adopted by them in front of stressful situations.

Method: The sample consisted of 358 patients with cancer in the oncology clinic at Shifa Hospital in Gaza Strip. Participants were interviewed individually by questionnaire include socioeconomic questionnaire, PTSD scale, and Ways of coping Scale.

Results: The study showed that 42.5% of patients had PTSD, 47% had re-experiencing of PTSD, 40.5% had hyperarousal, and 40.1% had avoidance symptoms. The group of 40 years and less were significantly higher in re-experiences than 71 years and above among the study sample.

The results showed that affiliation at the highest rank (81.6%), followed by reinterpretation (75.5%), self-control coping strategy (75.3%), problem solving (72.3%), wish and avoidance thinking was (69.0%), trouble and escape was (61.8%), accountability coping strategy was (53.0%) among the study sample of patients with cancer. The result showed that there were no significant differences in sex of patients and wish and avoidance thinking, problem solving, reinterpretation, affiliation, accountability, and self-control. However, there were significant differences in trouble and escape in favor of male patients.

There was positive significant correlation between wish and avoidance thinking and re-experience of PTSD. In addition, there were positive significant correlation between accountability and PTSD, re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD. In addition, there were positive significant correlation between Trouble and escape and PTSD, re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD. While; there were negative significant correlation between problem solving and PTSD, re-experience of PTSD, avoidance of

PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between re-interpretation and PTSD, re-experience of PTSD, avoidance of PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between affiliation and PTSD, avoidance of PTSD, hyperarousal of PTSD. In addition, there were negative significant correlation between self-control and PTSD, avoidance of PTSD, hyper-arousal of PTSD.

Clinical implications: Our findings highlight the need for therapeutic and educational programmes-including counseling for those patients with cancer and their families, support groups, and behavioural therapy for patients with P.T.S.D, and other psychiatric disorders. Also, new family therapy programmes must be established aimed at improving communications and interactions between family members, as well as teaching problem-solving skills to assist the family members in confronting the mental health problems associated with cancer.

Keywords: Cancer; Coping strategies; Gaza Strip; Patients; PTSD

Introduction

According to GLOBOCAN, cancer is one of the leading causes of morbidity and mortality worldwide, with approximately 14 million new cases in 2012 [1]. Globally, cancer the number of new cases is expected to rise by about 70% over the next 2 decades. Cancer is the second leading cause of death globally, and was responsible for 8.8 million deaths in 2015. Globally, nearly 1 in 6 deaths is due to cancer. Approximately 70% of deaths from cancer occur in low-and middle-income countries. Around one third of deaths from cancer are due to the 5-leading behavioral and dietary risks: high body mass index, low fruit and vegetable intake, lack of physical activity, tobacco use, and alcohol use [2].

In Jordan, the incidence of cancer in adolescents is 159 new cases per 100 000, of which 15% die within one year of diagnosis [3]. Cancer among the Palestinians living in the West

Bank and Gaza is increasingly becoming a public health concern. It is the second most common cause of mortality. A total of 2189 new cases have been reported in the West Bank in 2013 (51% females, 49% males). Both in the West Bank and Gaza, breast cancer is the most common cancer among women and lung cancer among men. In children, less than 15 years old, leukemia is the most common one. Cancer is diagnosed at late stages; at least 60% of cancer cases are diagnosed at Stage III or IV [4]. The psychological distress among cancer patients has been addressed consistently in an international context. The notable feature is that the findings of prevalence of psychological distress varied from one sample to another. Accordingly, the Diagnostic Statistical Manual of Mental Disorders, 4th edition [5] modified and broadened its taxonomy of PTSD. This resulted in the inclusion of both the traumatic event itself, and the experience with the person involved in the event. Furthermore, increasing attention has focused upon assessing posttraumatic stress symptoms (PTSS), which provides a continuous measure of posttraumatic stress reactions and risk of PTSD diagnosis in patients with cancer. Specifically, being diagnosed with a life-threatening illness or learning that one's child [5] has such an illness became a qualifying stressful event. Moreover, Hobbie et al. reported that 21.0% of survivors at a long-term follow-up clinic had experienced PTSD since their diagnosis [6]. In a larger and higher-functioning sample of young adult survivors recruited from the community, 15.9% had PTSD since the end of their cancer treatment. Most (75.3%) met criteria of cluster B (re-experiencing), with nearly half (47.3%) meeting criteria of cluster D (arousal) (Rourke et al., 2002). Furthermore, Gold et al. in a study [7], had four aims to determine the percentages of patients with PTSD and partial PTSD of 289 adult oncology patients found that 45% of the sample met the diagnostic criteria for PTSD and partial PTSD and were younger than those with no PTSD. Similarly, Hahn et al. in a study was to determine the prevalence of post-traumatic stress symptoms in a sample of 162 cancer survivors and to investigate their association with the impact of cancer [8], depressive symptoms, and social support showed that 29% of the sample had PTSD.

Individuals diagnosed with incurable cancer face a life-threatening stressor that elicits various coping responses. Lazarus and Folkman define coping as an individual's constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources to the person. Before implementing coping strategies, individuals cognitively appraise the nature of the stressor and their abilities and/or resources to cope with the threat [9]. Cancer is the most extensively researched as chronic illness. Cancer has been consistently implicated in the coping literature as necessitating a wide range of coping options to deal with shifting functional abilities, medical implications, treatment modalities, and psychosocial reactions. Compared with other people with serious illnesses, cancer patients have reported the highest percentage of religious coping responses [10]. Indeed, reporting a connection with a benevolent and loving God, religious involvement and spiritual practice have been

associated with higher levels of hope [11,12], and ability to find meaning [13]. Although spirituality and/or religion can be an important resource to many people dealing with illness, sickness can also profoundly shake patients' most fundamental, religious or spiritual (R/S) beliefs and practices leading to R/S struggle or distress, also referred to as negative religious coping (NRC). This struggle includes feeling abandoned by or angry at God, experiencing conflict with others regarding R/S beliefs or practices, or struggling with doubts regarding beliefs [14]. Furthermore, the cancer experience offers the opportunity to enter a reflexive relationship with God and one's faith teachings, as well as providing a context in which to deepen family relationships, and a family's spiritual understandings and experiences [15]. Recently, Dieperink et al. in a study examined in a single-center oncology unit in Odense [16], Denmark, 161 prostate cancer patients treated with radiotherapy and androgen deprivation therapy were included in a randomized controlled trial from 2010 to 2012, showed that the most coping styles remained stable during the patient trajectory, but anxious preoccupation declined from before radiotherapy to follow up in both intervention and control groups. After six months the intervention group retained fighting spirit significantly compared with controls, but after three years this difference evened out. After three years, the intervention group had lower cognitive avoidance than the controls. Similarly, Ghiggia et al. in study of 21 patients with a previous diagnosis of nasopharyngeal cancer enrolled at the First Ear Nose and Throat (1stENT) Division [17], Department of Surgical Sciences, at the University of Turin, during their post-treatment observation period. Results evidenced that fighting spirit; cognitive avoidance and fatalism were used more than hopelessness/helplessness or anxious preoccupation. The aims of this study were 1) to find the prevalence of PTSD among patients with cancer, 2) to explore the types of coping strategies used by patients diagnosed with cancer and 3) to elaborate the relationship between PTSD and coping strategies among patients with cancer in Gaza Strip.

Method

Participants

The study sample consisted of 400 patients selected randomly from a total of 6000 cancer cases attending cancer unit at Al Shifa Hospital in Gaza Strip. The final number agreed to participate were of 358 patients with cancer, 114 were males (32%) and 244 were females (68%). A respondent's rate was 89.5%.

Measures

Interviewed directed questionnaire

This questionnaire contains the following: Demographic and disease-related characteristics: As part of the semi-structured interview, a scale was designed for this study in

order to obtain the following information: age, marital and family monthly income, and diagnosis.

The Posttraumatic stress disorder checklist (DSM-IV)

The checklist contains 17 items adapted from the DSM-IV (APA, 2000) PTSD symptom criteria. Respondents are asked to rate on a 5-point Likert scale (0=not at all to 4=extremely) the extent to which symptoms troubled them in the previous month. A total score was provided, as well as subscales scores for re-experiences, arousal and avoidance PTSD symptoms. The characteristic symptoms of PTSD resulting from the exposure to extreme traumata included re-experiencing the traumatic event (criterion B), avoidance of stimuli associated with the trauma and numbing of general responsiveness (criterion C), and symptoms of increased arousal (criterion D). The full symptom picture must be present for more than one month and the disturbance must cause clinically significant distress or impairment in social, occupational, or other important areas of functioning [18]. We used the Arabic version of the scale which was widely used in the same area in the last decade (Thabet et al. 2008 and 2015). The reliability validity of the scale was calculated using alpha Cronbach which was ($\alpha=0.82$).

The ways of coping questionnaire

The ways of coping questionnaire (WOC) was developed to assess different coping strategies with specific stressful encounters [19]. A revised version of 50-item WOC, which includes eight subscales, including: (a) Confronting coping, (b) Distancing strategies, (c) Self-control strategies, (d) Seeking social support, (e) Accepting responsibility, (f) Escape-avoidance, (g) Planful problem solving and (h) Positive reappraisal strategies, was used in this study [20]. The Cronbach's alphas of the eight subscales were 0.70, 0.61, 0.70, 0.76, 0.66, 0.72, 0.68 and 0.79, respectively [20]. This scale had been validated in the Palestinian culture and showed high reliability [21].

Study Procedure

Data were collected during the period between in April-June 2008 at al Shifa Hospital. Questionnaires were filled by the researcher through the directed interview questionnaires, which had given to all attendants to the oncology clinic. Suitable environment was considered for all subjects in fulfilling the questionnaire.

Interviews done for 10 to 15 minutes, by the first author, three General Physicians working the cancer unite. Each patient was assessed for the vulnerability for interviewing with no embarrassments. In addition, all the subjects were exhibited the willingness for this study after they inform about the study and the goals of it. Furthermore, the place of the interview was comfortable and air conditioned, and the researcher made the interviews up on the fluency of the subjects with no previous preparation. We selected the first

arriving subject to the clinic randomly while each other subject from the referral files in the oncology clinic (when each subject receives his file from the clerk).

Statistical analyses

Statistical analyses were carried out using IBM SPSS Statistics version 20.0. Continuous variables were presented as $M \pm SD$ and categorical variables were expressed as frequencies (%). The PTSD, and coping strategies of the participants were exhibited using the mean values and SD. Spearman's correlation coefficient tested the association between PTSD and coping scores of the participants. A two-tailed p value <0.05 was considered statistically significant.

Results

Sociodemographic characteristics of study population

The sample consisted of 358 patients with cancer, 114 were males (32%) and 244 were females (68%). patients with cancer from North Gaza were (24.9%), from Gaza (60.1%), and from middle area (15.1%). According to marital status 82.4% were married, 3.4% were single, 0.6% were divorced, and 13.7% were widowed. According to monthly income, 39.4% of patients had monthly income \$ 250 and less, 35.5% had monthly income from \$ 251-500, 22.3% of patients had monthly income from \$ 501-750, and 2.8% had monthly income more than \$751 (**Table 1**).

Table 1 Demographic characteristics of the study sample (N=358).

	N	%
Gender		
Males	114	31.8
Females	244	68.2
Age		
40 and less	39	10.9
41-50	80	22.3
51-60	105	29.3
61-70	84	23.5
71 and above	50	14
Place of residence		
North	89	24.9
Gaza	215	60.1
Middle	54	15.1
Marital status		
Married	295	82.4
Single	12	3.4

Divorced	2	0.6
Widowed	49	13.7
Education level		
Primary and less	96	26.8
Preparatory	99	27.7
Secondary	136	38
Diploma	0	0
University	27	7.5
Post graduate	0	0
Primary and less	96	26.8
Employment		
Unemployed	64	17.9
Employee	39	10.9
Worker and private work	32	8.9
Retired	21	5.9
House wife	202	56.4
Unemployed	64	17.9
Retired	21	5.9
Monthly income		
\$ 250 and less	141	39.4
\$ 251-500	127	35.5
\$ 501-750	80	22.3
\$ 751 and above	10	2.8

Medical conditions of patients with cancer

As shown in **Table 2**, majority of cases were breast cancer (45.8%), 12.6% had colon cancer, and 22.9% diagnosed with other cancer (**Table 2**).

Table 2 Medical conditions of patients with cancer.

	N	%
Type of cancer		
Lung	21	5.9
Breast	164	45.8
Colon	45	12.6
Uterus	7	2
Ovary	3	0.8
Larynx	5	1.4
Liver	3	0.8
Thyroid gland	28	7.8
Other	82	22.9
Duration of illness		

2-5 years	116	32.4
6-10 years	68	19
more than 10 years	35	9.8
Type of treatment		
Hormonal	3	0.8
Chemotherapy	38	10.6
Radiation	3	0.8
Surgical	3	0.8
Mixed	311	86.9

PTSD symptoms

The following table shows that the symptoms of PTSD, where avoiding any thoughts or feelings about the event is the highest rank symptom (60.7%), followed by avoiding doing things or going into situations which remind you by the events (59.5%), and upset by some things which reminded you of the events at the third rank (57.0%) among the study sample of cancer patients (**Table 3**).

Table 3 PTSD symptoms.

Symptoms	Mean	SD	%
Avoiding any thoughts or feelings about the event.	2.43	1.27	60.7
Avoiding doing things or going into situations which remind you by the events.	2.38	1.28	59.5
Upset by some things which reminded you of the events.	2.28	1.23	57
Painful imagoes or memories of the events	2.23	1.17	55.7
Irritable or had outbursts of anger	1.93	1.08	48.2
Thoughts of the events were reoccurring	1.91	1.25	47.7
Jumble easily started	1.7	1.17	42.5
Difficulty enjoying things	1.6	1.17	40
Trouble falling asleep or staying sleep	1.58	1.14	39.5
Physically up set by reminders of the event	1.56	1.33	39
Distressing dreams of the events	1.54	1.08	38.5
On edge been easily distracted or hade to stay	1.46	1.23	36.5
Difficulty in concentration	1.43	1.13	35.7
Found it hard to imagine having along life span fulfilling your goals	1.41	1.24	35.2
Distant or cut off from other people	1.38	1.2	34.5
Unable to have sad or loving feeling	1.27	1.14	31.7

Found yourself unable to recall important parts of the event	0.74	1.11	18.5
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Using the DSM-IV criteria for PTSD, 42.5% of patients with cancer were diagnosed with PTSD (**Table 4**).

Means and Standard deviations of PTSD

The study showed that mean PTSD was 28.91 (SD=13.3), mean re-experiencing was 9.55 (SD=4.76), avoidance was 11.25 (SD=6.07), and hyperarousal mean was 8.11 (SD=4.80) (**Figure 1**).

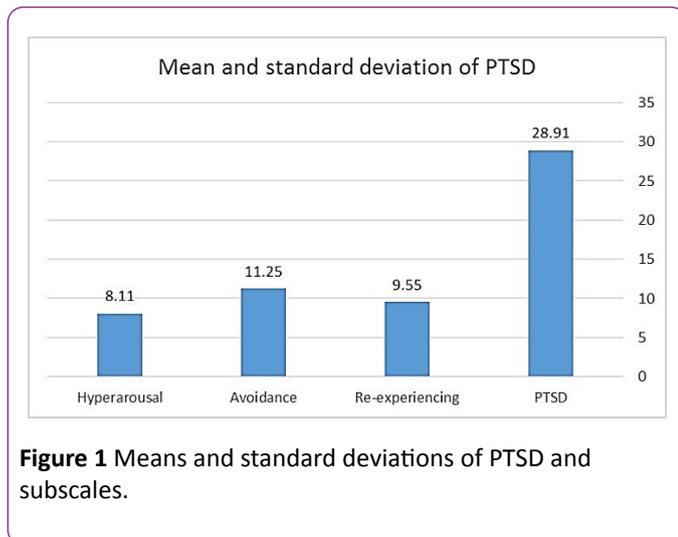


Figure 1 Means and standard deviations of PTSD and subscales.

Table 4 Means and standard deviations of PTSD and subscales.

Variables	Mean	St. Dev.	%
PTSD	28.91	14.36	42.5
Re-experiencing	9.55	4.76	
Avoidance	11.25	6.07	
Hyperarousal	8.11	4.8	

Sociodemographic variables and PTSD

In order to find the differences between sociodemographic variables and PTSD, independent t test for differences in mean of two groups and One Way ANOVA for more than two groups. The study showed that there were no significant differences in total PTSD re-experiences, avoidance, and hyperarousal according to sex of the patients sample (**Table 5**).

Table 5 Independent t-test comparing means of mental health problems according to sex.

Variable	Sex	N	Mean	Std. Dev	t-value	p-value
PTSD	Male	114	29.26	15.595	0.31	0.75
	Female	244	28.75	13.772		
Re-experiencing	Male	114	9.36	5.199	0.49	0.62
	Female	244	9.63	4.544		
Avoidance	Male	114	11.42	6.59	0.38	0.7
	Female	244	11.16	5.823		
Hyperarousal	Male	114	8.46	5.164	0.95	0.34
	Female	244	7.94	4.615		

*p<0.05, **p<0.01, ***p<0.001

Post-hoc analysis using Scheffee statistical test was done. There were no significant age differences in PTSD, avoidance and hyperarousal according to age of the patients. However, patients at age group of 40 years and less were significantly reported more re-experiences symptoms than 71 years old and above a ($F_{4/358}=3.51, p=0.008$).

PTSD according to type of cancer

In order to investigate the difference in PTSD according to type of tumor of the study sample (lung, breast, colon, uterus, ovary, larynx, liver, thyroid, other) the researcher demonstrate one-way ANOVA analysis (**Table 6**).

Table 6 One-way ANOVA comparing PTSD according to type of cancer.

Variable	Source of variance	Sum of Squares	Df	Mean Square	F-value	Sig. Level
PTSD	Between Groups	1055.523	8	131.94	0.635	0.748

	Within Groups	72540.792	349	207.853		
	Total	73596.316	357			
Re-experiencing	Between Groups	101.307	8	12.663	0.554	0.815
	Within Groups	7977.288	349	22.858		
	Total	8078.595	357			
Avoidance	Between Groups	252.207	8	31.526	0.853	0.557
	Within Groups	12903.167	349	36.972		
	Total	13155.374	357			
Hyper arousal	Between Groups	123.681	8	15.46	0.667	0.72
	Within Groups	8087.85	349	23.174		
	Total	8211.531	357			

*p<0.05, **p<0.01, ***p<0.001

Post Hoc test using Tukey test showed that there were no significant differences in PTSD ($F(8/357)=0.63$, $p=0.74$), and its dimensions re-experiences ($F(8/357)=0.55$, $p=0.81$), avoidance ($F(8/357)=0.85$, $p=0.55$), and hyper-arousal ($F(8/357)=0.66$, $p=0.72$) according to type of tumor of the study sample.

Types of coping strategies

The results found that affiliation at the highest rank (81.6%), followed by reinterpretation (75.5%), self-control coping strategy (75.3%), problem solving (72.3%), wish and avoidance thinking was (69.0%), trouble and escape was (61.8%), accountability coping strategy was (53.0%) among the study sample of patients with cancer (**Figure 2 and Table 7**).

Table 7 Means and standard deviations of coping strategies.

Variables	Mean	SD	%
Wish and avoidance thinking	19.33	2.45	69
Problem solving	17.37	3.76	72.3
Reinterpretation	27.19	5.09	75.5
Affiliation	16.33	2.81	81.6
Accountability	10.6	2.77	53
Self-control	21.09	3.34	75.3
Trouble and escape	12.36	2.51	61.8

Sociodemographic variables and coping strategies

As showed in **Table 6**, the result showed that there were no significant differences in sex of patients and wish and avoidance thinking ($t(358)=0.36$, $p<0.71$), problem solving (t

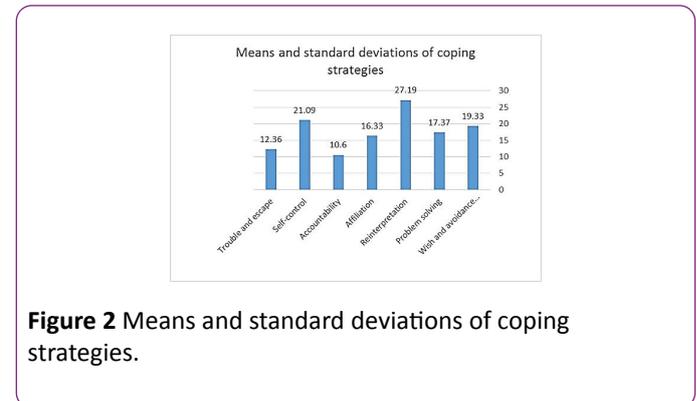


Figure 2 Means and standard deviations of coping strategies.

(358)=0.78, $p<0.43$), reinterpretation ($t(358)=1.21$, $p<0.22$), affiliation ($t(358)=1.29$, $p<0.19$), accountability ($t(358)=1.26$, $p<0.20$), and self-control ($t(358)=0.71$, $p<0.47$). However, there were significant differences in trouble and escape ($t(358)=2.58$, $p<0.01$) in favor of male cancer patients (**Table 8**).

Table 8 Independent t-test comparing means of coping strategies according to sex.

Variable	Sex	N	Mean	Std. Dev	t-value	p-value
Wish and avoidance thinking	Male	114	19.26	2.63	0.36	0.71
	Female	244	19.36	2.37		
Problem solving	Male	114	17.60	3.63	0.78	0.43
	Female	244	17.27	3.83		
Reinterpretation	Male	114	26.71	4.89	1.21	0.22
	Female	244	27.41	5.17		
Affiliation	Male	114	16.05	2.86	1.29	0.19
	Female	244	16.46	2.78		
Accountability	Male	114	10.87	2.72	1.26	0.20
	Female	244	10.47	2.78		
Self-Control	Male	114	20.91	3.27	0.71	0.47
	Female	244	21.18	3.37		
Trouble and Escape	Male	114	12.85	2.52	2.58	0.01**
	Female	244	12.13	2.47		

*p<0.05, **p<0.01, ***p<0.001

Correlation between coping strategies and mental health problems among the study sample

As shown in the following table, there were positive significant correlation between wish and avoidance thinking and re-experience of PTSD ($r(358)=0.12$, $p<0.05$). In addition, there were positive significant correlation between accountability and PTSD ($r(358)=0.18$, $p<0.001$), re-experience of PTSD ($r(358)=0.12$, $p<0.05$), avoidance of PTSD ($r(358)=0.15$, $p<0.001$), hyper-arousal of PTSD ($r(358)=0.22$, $p<0.001$). In addition, there were positive significant correlation between Trouble and escape and PTSD ($r(358)=0.15$, $p<0.01$), re-experience of PTSD ($r(358)=0.10$, $p<0.05$), avoidance of PTSD ($r(358)=0.13$, $p<0.05$), hyper-arousal of PTSD ($r(358)=0.19$, $p<0.001$). While; there were

negative significant correlation between problem solving and PTSD ($r(358)=-0.58$, $p<0.001$), re-experience of PTSD ($r=-0.46$, $p<0.001$), avoidance of PTSD ($r(358)=-0.59$, $p<0.001$), hyper-arousal of PTSD ($r(358)=-0.54$, $p<0.001$). In addition, there were negative significant correlation between re-interpretation and PTSD ($r(358)=-0.50$, $p<0.001$), re-experience of PTSD ($r(358)=-0.34$, $p<0.001$), avoidance of PTSD ($r(358)=-0.53$, $p=0.001$), hyper-arousal of PTSD ($r(358)=-0.49$, $p<0.001$). In addition, there were negative significant correlation between affiliation and PTSD ($r(358)=-0.20$, $p<0.001$), avoidance of PTSD ($r(358)=-0.30$, $p<0.001$), hyper-arousal of PTSD ($r=-0.198$, $p<0.001$). In addition, there were negative significant correlation between self-control and PTSD ($r(358)=-0.15$, $p<0.01$), avoidance of PTSD ($r(358)=-0.19$, $p<0.001$), hyper-arousal of PTSD ($r(358)=-0.13$, $p<0.01$) (Table 9).

Table 9 Correlation between coping strategies and mental health problems.

Variable	PTSD	Re-experiencing	Avoidance	Hyper arousal
Wish and avoidance thinking	0.08	0.12*	0.05	0.07
Problem solving	-0.58***	-0.46***	-0.59***	-0.54***
Re-interpretation	-0.50***	-0.34***	-0.53***	-0.49***
Affiliation	-0.20***	-0.04	-0.30***	-0.19***
Accountability	0.18***	0.12*	0.15***	0.22***
Self-control	-0.15**	-0.08	-0.19***	-0.13**
Trouble and escape	0.15**	0.10*	0.13*	0.19***

*p<0.05, **p<0.01, ***p<0.001

Discussion

This study aimed to find the prevalence of PTSD among patients with cancer, explore the types of coping strategies used by patients diagnosed with cancer and to elaborate the relationship between PTSD and coping strategies among patients with cancer in Gaza Strip. Our study results showed that 42.5% of patients with cancer reported PTSD. Such findings could be as a result of concept of cancer being a traumatic event and dangerous disease so they try to avoid thoughts, feelings, or actions that remind the patient with it. Patients with cancer struggle to survive and they try to avoid the thoughts or situation that may repeat their experience with such disease. Our findings were inconsistent with the results of Lindberg and Wellisch in study of 73 patients at the UCLA/Revlon High Risk Clinic [22], which cares for women who are at familial risk for breast cancer, three subjects (4%) endorsed items in a manner that satisfied the DSM-IV criteria for a PTSD diagnosis. Also, 37% of the participant's criteria for the intrusion symptom cluster, 8% met criteria for the avoidance symptom cluster, and 7% met criteria for the arousal symptom cluster.

Our rate of PTSD was much higher than rate found in Kangas et al. in a study investigated the predictors of posttraumatic stress disorder (PTSD) following a diagnosis of cancer [23]. Individuals who were recently diagnosed with 1st onset head and neck or lung malignancy (N=82) were assessed within 1 month of diagnosis for acute stress disorder (ASD) and other psychological responses including depression; individuals were reassessed (N=63) for PTSD 6 months following their cancer diagnosis. At the initial assessment ASD was diagnosed in 28% of participants, and 22% met criteria for PTSD at 6-months follow-up. Our rate of PTSD was much higher than rate of PTSD found in Hahn et al. in a study of 162 cancer survivors which showed that 29% of the sample had PTSD [8]. Also, rate of PTSD in this study was higher than found in study of Voigt et al (2017) which investigated prevalence and course of posttraumatic stress in patients with early breast cancer (BC) during their first year after diagnosis and determined effects of mastectomy and chemotherapy. Stress disorder (ASD or PTSD) related to breast cancer was diagnosed in 6 (3.6%) of 166 patients before treatment and in 3 patients (2.0%) 1 year later. In 60 controls, no diagnosis of stress disorder, a rate of 18% women experiencing PTSD symptoms. Our study showed that re-experience of PTSD symptoms was significantly more among patients 40 years old and less. Such results may be attributed that young patients are thinking of their future, life situation, and their disease progress. While the 70 years and more didn't think about of the disease since they feel that they reached the age to live, and they didn't care about the situations they live.

Our findings showed that the most commonly used coping strategies were: affiliation, reinterpretation, self-control, problem solving, wish and avoidance thinking, trouble and escape, and finally accountability. We hypothesized that patients with cancer have high spirituality and attribute their disease to God significance not others. They believe in Allah and the causes in which they are diseased, so they

demonstrate affiliation on their behavior and socializing process. However, these patients accommodated to various aspects of their disease because of their use for affiliation and coped effectively to their cancer. We found a being diagnosed as cancer, patients do not tend to assign responsibility on themselves and their character, since they possibly need to avoid guilt, low self-esteem, and social distance, and to maintain a potential to invest in the adjustment process appeared to be consistent with our results regardless the priority of the coping strategies. However, in another study by Mytko et al. found that escape-avoidance was related to psychological distress on several measures [24]. Item endorsement analyses of the escape-avoidance sub scale suggest that patients may have used more passive than active avoidance strategies, which demonstrate the importance of the traumatic cause and its related consequences. Others found that problem-focused coping was less frequent for existential issues, whereas emotion-focused strategies were used less frequently for physical stressors [25]. However, in a study of Silva et al. found that the coping strategy of escape-avoidance and self-control was the most used coping by patients with psoriasis and both groups present high-stress levels [26], which indicate the difference between the cultures in using ways of coping. While, in a study of Rntmsc et al. distancing was the most frequently reported coping strategy [27], and men seemed to focus on the positive side more often than women did. These results indicate the importance of the coping strategies according to community and it's depending on culture or belief of people. However, Büssing et al. found that Arabic patients with a Muslim background had significantly higher scores for spirituality and religious questionnaire scales than German patients, namely [28], "Search for meaningful support", "Trust in higher source", "Positive interpretation of disease", and "Support in relations of life through " scale which demonstrate the consistency with our results.

There were positive significant correlation between wish and avoidance thinking and re-experience of PTSD among the study sample of patients with cancer. The researcher hypothesized that because patients with cancer have stressful life events which different from other people and this cause them re-experience PTSD as a result of their disease so they cope ineffectively with these situations. The researcher hypothesized that the positive correlation between accountability and re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD among the study sample of patients with cancer came from the nature of cancer that they experience and its consequences. Furthermore, it depends on the severity of the cancer and its type and at what stage the cancer ends.

We hypothesized that the positive correlation between trouble and escape and re-experience of PTSD, avoidance of PTSD, hyper-arousal of PTSD among the study sample of patients with cancer depend on the socio-demographic variables for these patients, since it differs according age, sex, and marital status. Which consistent with the results of Tan, who found that there was a positive correlation between social support and problem-focused coping strategies

(confident approach, optimistic approach [29], and seeking social support); that is, mean social support scores increased as the mean problem-focused coping strategy scores increased. But, in consistent with the results of Hee-Seung et al. found that stress was negatively correlated with both problem-focused coping and emotion-focused coping [30]. Korean patients with cancer used emotion-focused coping strategies more than problem-focused coping strategies. The result found that there were significant differences in most of coping strategies; problem solving, reinterpretation, and affiliation according to PTSD in favor to non-PTSD patients with cancer of the study sample. We hypothesized that the differences related to the type of cancer which the patients suffering and at what age the cancer start and/or who the patient (male/female) also the marital status. All these factors play significant role in the connection between the type of coping strategies used and PTSD subtypes. Non-traumatized patients usually have simple or mild cancer type and/or may be old age and singles or widowed patients. These patients accommodated effectively with cancer. Others in study of patients

with head and neck cancer found that denial, substance use, behavioural disengagement, venting, and self-blame at diagnosis were significantly correlated

with lower HRQL and higher post-traumatic stress at follow-up [31]. Similarly, in another study of patients with incurable cancer, most reported high utilization of emotional support coping (77.0%), whereas fewer reported high utilization of acceptance (44.8%), self-blame (37.9%), and denial (28.2%). Emotional support and acceptance correlated with better QOL and mood. Denial and self-blame correlated with worse QOL and mood [32].

Clinical Implication

Our findings highlight the need for establishment of new services for cancer patients with mental health problems in general hospitals. Also, counseling services for cancer patients inside the cancer unites must be established. Also, family support groups for such patients must be initiated to improve communications and interactions between family members, as well as teaching problem-solving skills to assist the family members in confronting the mental health problems associated with cancer. Home visit programs include regular visits from mental health specialist or psychiatric a nurse or other health professional to the homes of patients with cancer for support and guidance. Special activities for young patients with cancer to relief their anxiety, such as sports, art and music should be established in cancer units. Educational programs for the caregivers and the employees to detect early signs and symptoms of psychological phenomena have associated with cancer.

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DOI: 10.21767/1791-809X.1000499

The Relationship between Siege Stressors, Anxiety, and Depression among Patients with Cancer in Gaza Strip

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Abstract

Introduction: There is a growing body of literature examining the impact of other stressors due to daily life situation beside the stress of being diagnosed with cancer on anxiety and depression.

Aim: The study aimed to investigate the relationship between stressors due to siege, war trauma, anxiety and depression among cancer patients in Gaza Strip.

Method: The study sample consisted of 380 cancer patients (128 male and 252 female). The researcher used descriptive-analytical design to describe the study variables using; Gaza Scale for Socio-demographic status; Gaza Stressful Situations Checklist; Beck Depression Inventory Short form 13 items, translated into Arabic by Thabet; Hamilton Anxiety Scale.

Results: The most common reported stressors due to siege were : 92.9% said prices are sharply increased due to closure, 90.3% said they feel that they are in big prison, 85.5% their work affected so much due to cut-off of electricity and shortage of gas (85.5%). The patients with cancer reported from 2-16 stressors due to siege with mean 9.02. Male cancer patients reported more stressors due to siege and families with low income had more stressors. Twenty four percent of patients had severe depression, female patients, and families with monthly income less than \$300 had more depression. The results showed that 58.9% of patients had severe anxiety; female patients had more anxiety and families less than \$300 had more anxiety. The study showed that there were statistically significant positive relationship between total stressors due to siege and depression symptoms and anxiety and there were significant relationship between the depression and anxiety in patients with cancer.

Clinical implications: The results revealed that the majority of the study sample suffering from anxiety and

depression due to siege. These results considered critical indicators that must be taken into consideration by the policy makers, researchers and clinicians to establish psychological support department specialized for cancer patients at the treating Centre and should be consult with specialized psychiatrist. Also, to provide the cancer patients with a list of recognized psychological centers and professional counselors for help. Establishing psychotherapy group for cancer patients. Provide special treatment and psychological support for the cancer patients.

Keywords: Anxiety; Cancer; Depression; Siege; Stressors

Introduction

For the last 7 years, there were an increasing number of the cancer patients among the Palestinian people that call actions and interventions by researchers and clinicians to stand as the basis and the nature of the cancer. Cancer mortality rates show the remarkable increase in Palestine during 2013 compared with 2007 and 2010, from (10.3%) in 2007 to (10.8%) in 2010 then increases to reach (13.3%) from the total deaths in Palestine in 2013(MOH, 2014). Breast cancer ranked first, with (401) reported cases, (18.3%) cases. Breast cancer is the highest among females and focus in the age group between 20-59, where colon cancer ranked second, with (236) reported cases and (10.8%) from all reported cancers (MOH, 2014). According to MoH reports, cancer considered the second-leading cause to death in Palestine. Cancer or terminally ill patients cannot receive any more treatment in Cairo or Israel for the closure of the borders [1]. Patients with cancer suffer from a wide range of stressors, including but not limited to stressing, anxiety, depression, physical health disturbance, and malnutrition and mood imbalance. Subsequently, the war and siege aggregate these stressors and increase the chance of death as a result of limited medications, equipment, and transfer procedures. Palestinian breast cancer patients and survivors reported considerably

higher levels of cancer-related posttraumatic stress symptoms than Danish women with comparable disease severity [2]. Furthermore, the stressors of the cancer patients at Shifa hospital where state anxiety was at the highest rank 60.8%, followed by trait anxiety 54.6%; re-experiencing PTSD at the third rank 47.0%, PTSD 42.5%, hyper-arousal 40.5%, avoidance 40.1% [3]. There are many stressors that face women diagnosed with cancer, including the fear of possible death, stress of informing family members, and the stress associated with being informed that their lives is going to be drastically change. Disruption, social stigmatization, side effects of treatment, and other stressors more specific for the disease and treatments are also pertinent [4]. These stressors can occur within the context of a disrupted family and other ongoing sources of stress. Psychiatric problems have been frequently reported in cancer patients [5].

Cancer patients experience different types of stressors that generated from the cancer itself that presented to the patients suffering from cancer. Cancer is chronic, rather than acute stressors [6] and presents a series of different traumatic events over time, including diagnosis, disease progression, treatment, adverse physical effects (e.g. disfigurement) and recurrence [7,8]. Found that cancer-related symptoms are the strongest predictors of depression and the PTSD sub-dimension of hyper-arousal. These effects persist even when the effects of other stressors and non-cancer illness symptoms are statistically controlled. Patients with cancer face most of the stressors associated with diagnosis, illness and treatment. Cancer diagnosis and treatment brings changes in patient's personal paths of life, in their daily activities, work, relationships, and family roles, and it is associated with a high level of patient psychological stress. This stress shows up as anxiety and/or depression [9]. These stressors may generate coping strategy, which may affect the mental health [10,11]. In a study to determine the levels of depression and anxiety, and coping strategies, and the effects of the levels of depression and anxiety on strategies for coping with stress in cancer patients. Anxiety was determined in 61.5% and depression in 81.3% of the patients. Other epidemiological and clinical studies over the past 30 years have provided strong evidence for links between chronic stress, depression, social isolation and cancer progression. Cancer and stress disease are both characterized by a huge complexity, heterogeneity and multi-factorial pathogenesis. It is well accepted that cancer growth involves the microenvironment, a space where tumor cells receive nutrients from the host tissue, produce angiogenetic factors and form new vessels [12,13]. In a study aimed to identify clinical factors that are predictive of depression and quality of life (QOL) among 209 long-term survivors of head and neck squamous cell carcinoma and to develop predictive scores using these factors. The results showed significant pretreatment predictors of depression were identified on multivariate analysis as smoking at diagnosis. Furthermore, Ellis G [14] aimed to assess the prevalence of general anxiety and depression, as well as procedure-related worry and pain in patients undergoing local anaesthetic flexible cystoscopy and to determine whether these conditions occur more frequently

in subsets of the population. The prevalence of significant anxiety was 15% and depression 3.5%.

Al-Jadili et al. [3] in a study aimed to examine the mental health status of the patients with cancer and the coping strategies that adopted by them in front of stressful situation. 42.5% of patients had PTSD. 47% had been re-experiencing of PTSD. 40.5% had been hyperarousal, and 40.1% had avoidance symptoms. The common emotional reactions in patients diagnosed to have cancer are shock, denial, disbelief, anxiety, anger, guilt, and depression. The major sources of continuing emotional distress are fear of incurability, pain, disfigurement, recurrence of disease, and a sense of helplessness over its treatment. Life stressors due to war and siege are linked to exacerbation of chronic medical conditions and mental-health problems in a variety of populations, including cancer patients. The study aims were 1) to explore the types and severity of stressors due to siege among cancer patients in Gaza Strip, 2) to explore the types and severity of war trauma among cancer patients, 3) to find prevalence of depression and anxiety among patients with cancer, 4) to explore the relationship between stressors due to siege, war trauma, depression and anxiety among cancer patients in and other socio-demographic variables.

Methods

Participants

The study sample consisted of 358 patients selected randomly from a total of 3683 cases (MOH, 2015). Of 358, 114 were males (32%) and 244 were females (68%).

Measures

Socio-demographic status

A brief socio-demographic questionnaire developed containing the magnificent data about the patients with cancer including sex, age, income, working status and other variables.

Medical history

While confirming the disease history of occurrence, type of drug taken (medical or chemotherapy) and the diagnosis.

Gaza siege stressful situations checklist [15]:

Stressful situations experiences were collected by using Gaza Siege Stressful Situation (GSSS) Checklist, this was developed before 2009 [15] and was modified recently [16], describing the most common stressful experienced during the last 10 years of closure and seize of Gaza Strip. This checklist consisted of 19 items with answers Yes (1) and no (0). The current scale was modified for Cancer patients. The scoring of the scale is considered by summing all the answers. In this study, the split half reliability of the scale was high ($r=0.70$). The internal consistency of the scale was calculated using Cronbach's Alpha was ($\alpha=0.78$).

Beck depression inventory short form

The Beck Depression Inventory (BDI) is a 21-item; self-report rating inventory that measures characteristic attitudes and symptoms of depression [17]. The BDI has been developed in different forms, the 13-item short form and the more recent BDI-11 by Beck et al. [18]. Internal consistency for the BDI ranges from 0.73 to 0.92 with a mean of 0.86 [19]. Similar reliabilities have been found for the 13-item short form [20]. The BDI demonstrates high internal consistency, with alpha coefficients of 0.86 and 0.81 for psychiatric and non-psychiatric populations respectively [19].

This inventory was validating in Palestine culture [21]. The severity of depression is classified on the basis of the total score; in a normal community sample, a BDI score <4 suggests no or minimal depression, 5 to 7 represents mild to moderate depression, 8 to 15 is moderate to severe and ≤ 16 indicates a severe level of depression. The internal consistency of the scale in study using Cronbach's Alpha was ($\alpha=0.86$).

Hamilton anxiety scale (Hamilton)

The Hamilton Anxiety Scale (HAM-A) was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Although the HAM-A remains widely used as an outcome measure in clinical trials, it has been criticized for its sometimes poor ability to discriminate between anxiolytic and antidepressant effects, and somatic anxiety versus somatic side effects. The HAM-A does not provide any standardized probe questions. The items are rated on a five-point scale and summed to provide a score ranging from 0 to 56. A score of 17 or less represents mild anxiety, a score between 18 to 24 mild to moderate anxiety, and a score of 25 and above moderate to severe anxiety. The scale has been shown to differentiate older adults with generalized anxiety disorder from those with no anxiety disorders [18]. The scale was validated in previous studies in the Gaza Strip and showed validity and reliability in measuring depression [22]. The internal consistency of the scale in study using Cronbach's Alpha was ($\alpha=0.88$).

Study procedure

The study was conducted in the in two cancer departments in Gaza Strip (European Gaza and Al Shifa Hospital). A letter of Approval for conducting this study was obtained from local Ethical Helsinki committee in Gaza. Another two letters from Ministry of Health and hospitals' administration were obtained to collect data from the two departments. A consent form each patient was granted to participate in the study with an

explanation the aims for the study and that the information will be kept with the researcher. The sample was a random sample in which we calculated the sample of the cancer patients who registered with the hospital directorate and attending the governmental hospitals and out-patients clinics (N=380) out of the total number of registered cancer patients in Ministry of Health in Gaza Strip (N=3683).

The data was carried out by the first author and by the help group of four nurses in the two departments who had been trained for four hours in data collection. The patients were interviewed at out-patients clinics and inside the oncology departments. The data collection was carried out from September 2015 to November 2015.

Statistical Analysis

Statistical Package for the Social Sciences (SPSS version 21.0; SPSS, IBM, Chicago, IL, USA) was used for descriptive statistics. Frequency tables that show sample characteristics and plot differences between various Gaza hospitals and out patient's clinics and clients characteristics variables will be done. Moreover, cross tabulation for main findings and advanced statistical tests such as Chi-square test to compare categorical variables, and T test or One-way ANOVA test to compare means of numeric variables will be done when required to analyze questionnaire data. Pearson's correlation test was used to find the relationship between stressors due to siege, anxiety, and depression. The level of significance was set at $p<0.05$.

Results

Sociodemographic characteristics of the study sample

The total number of sample selected for the current study were 380 cancer patients, 128 (33.7%) of the sample were males and 252 (66.3%) were females. The age ranged from 18-75 years, mean age patients was 52.7 years (SD=14.77 years). According to marital status, 10.5% were single, 85% were married, 2.9% were divorced and 1.6% was widowed. The results showed that; 48 of the cancer patients were not educated (12.5%), 48 were educated to elementary school (12.6%), 78 were to preparatory level (20.5%), 122 father of sample were to secondary education (32.1%), 33 were educated to diploma level (8.7%), 50 were educated to the university level (13.2%), and 1 was educated to the post graduate level (0.3%). The results showed that; 334 were unemployed (87.9%), 17 were simple worker (4.5%), 5 were skilled worker (1.3%), 20 were employee and working (30.8%), 3 were civil employee not at work and getting salary (0.8%), and 0.3% were merchants (**Table 1**).

Table 1 Distribution of the sample according to gender (N=380).

Variable	N	%
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Gender		
Male	128	33.7
Female	252	66.3
Age		
Less than 24 y	23	6.1
From 25 to 34	26	6.8
From 35 to 44	54	14.2
From 45-54	79	20.8
55 and above	198	52.1
Marital status		
Single	40	10.5
Married	323	85
Divorce	11	2.9
Widowed	6	1.6
Place of residence		
North Gaza	75	19.7
Gaza	152	40
Middle area	71	18.7
Khan Younis	48	12.6
Rafah	34	8.9
Family size		
Four and less children	150	39.5
Five to seven siblings	134	35.3
Eight and more siblings	96	25.3
Family monthly income		
Less than \$400	321	84.5
\$401 - \$600	38	10
\$601 - \$750	11	2.9
\$751 and more	10	2.6
Patients' education		
Not educated	48	12.6
Elementary	48	12.6
Preparatory	78	20.5
Secondary	122	32.1
Diploma	33	8.7
University	50	13.2
Post graduate	1	0.3
Patients' job		
Unemployed	334	87.9

Simple worker	17	4.5
Skilled worker	5	1.3
Civil employee and working	20	5.3
Civil employee not at work and getting salary	3	0.8
Merchant	1	0.3

Medical history

The commonly reported cancer types were: breast cancer (38.2%), lymphoma (13.7%), leukemia (11.3%), and colon cancer (8.4%) (Table 2).

Table 2 Type of cancers (N=380).

Type of cancer	No	%
Breast Cancer	145	38.2
Lymphoma	52	13.7
Leukemia	43	11.3
Colon cancer	32	8.4
Cancer liver and spleen	26	6.8
Bladder cancer	26	6.8
Metastasis	8	2.1
Stomach cancer	7	1.8
Uterus cancer	6	1.6

Cancer brain	6	1.6
Spinal cord cancer	6	1.6
Intestinal cancer	5	1.3
Mouth and throat cancer	5	1.3
Colon cancer	5	1.3
Bone marrow cancer	4	1.1
Chest Cancer	4	1.1

Type of stressors due to siege

The most common reported stressors due to siege were: 353 of participants (92.9%) said prices are sharply increased due to closure, 343 said they feel that they are in big prison (90.3%), 325 said their work affected so much due to cut-off of electricity and shortage of gas (85.5%). The patients with cancer reported from 2-16 stressors due to siege with mean 9.02 (SD=2.53) (Table 3).

Table 3 Types and frequency of stressors due to siege (N=380).

Stressor	Yes		No	
	%	No	%	No
1. Prices are sharply increased due to closure	353	92.9	27	7.1
2. I feel I am in a big prison	343	90.3	37	9.7
3. My work affected so much due to cut-off of electricity and shortage of gas	325	85.5	55	14.5
4. Social visits are less than before	302	79.5	78	20.5
5. I cannot finish some construction and repair work in my house due to shortage of cement and building materials	287	75.5	93	24.5
6. I sold some of my furniture and my wife's gold.	264	69.5	116	30.5
7. I cannot get medicine	228	60	152	40
8. I cannot go outside the Gaza Strip for treatment when there is no treatment in Gaza	174	45.8	206	54.2
9. I went to Zaka organizations and other organizations to get the food	168	44.2	212	55.8
10. I was not able to get specific medicine for me or for one of the family member	157	41.3	223	58.7
11. I had suffering of not able to receive proper medical care due to shortage of medicine	154	40.5	226	59.5
12. I Cannot travel for treatment and work	117	30.8	263	69.2
13. I stopped completely working due to siege	104	27.4	276	72.6
14. One of the family member died due to prevention of traveling for treatment	103	27.1	277	72.9

15. I stopped sending my children to schools and send them to work to help the family	96	25.3	284	74.7
16. I thought of immigration	93	24.5	287	75.5
17. My monthly income decreased and can't send my children for schools	83	21.8	297	78.2
18. I went to human rights organizations and other organizations to get the help for travel outside Gaza for treatment	58	15.3	322	84.7
19. I was prevented from visiting one of the family members in Israelis jails	19	5	361	95

Differences in stressors due to siege and other socioeconomic variables

In order to find differences in types and severity of stressful situations due to siege and other sociodemographic variables such as, a t-independent test was conducted. Also, One Way ANOVA was done for groups more than two. The result showed significant differences between stressors due to siege according to sex toward males (Males vs. Females) (Mean=9.43 vs. 8.81) ($t(378)=2.25, p<0.02$). Post Hoc test using Tukey test showed that there were significant differences between the total means of stressors due to siege according to the number of children toward patients with number of children ranged from 5-7 ($F(2/379)=3.745, p=0.02$). The results showed that there were significant differences between the total means of stressors due to siege according to family income towards those who have family income less than \$300 ($F(3/379)=7.96, p=0.001$).

Depression in patients with cancer

As shown in **Table 4**, 7.7% of patients had no depression, 15% had mild depression, 53.4% had moderate depression, and 24.2% had severe depression (**Table 4**).

Table 4 Prevalence and level of depression.

Depression	N	%
No depression	28	7.4
Mild to moderate	57	15.0
Moderate	203	53.4
Severe depression	92	24.2

Differences in depression and other sociodemographic variables

There were significant differences in mean depression scores toward female patients ($t(378)=10.08, p<0.001$). Post hoc test showed that there were significant differences in depression scores toward families with monthly income less than \$300 ($F(3/379)=4.196, p=0.006$) (**Figure 1**).

Prevalence of anxiety symptoms

The study showed that the commonly reported anxiety symptoms among cancer patients were; being tense and

restless (61.3%), had insomnia (56.3%), had cardiovascular symptoms (51.1%) and worried (50%).

Prevalence of anxiety among cancer patients

The results showed that 19.7% of patients had no anxiety, 21.3% had mild to moderate anxiety, and 58.9% had severe anxiety. There were statistically significant differences in level of anxiety toward female patients ($t(378)=23.1, p<0.001$).

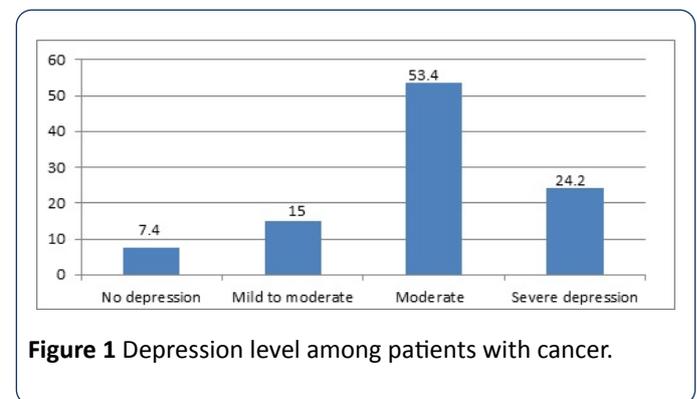


Figure 1 Depression level among patients with cancer.

Differences in anxiety and other socioeconomic variables

The result showed significant differences between anxieties according to sex toward female patients (Males vs. Females) (Mean 22.71 vs. 28.40) ($t(378)=5.54, p<0.001$).

Also, the results showed that there were significant differences between the total means of anxiety according to family income towards those who have family income less than \$300 ($F(3/379)=5.06, p=0.002$).

Relationship between stressors due to the siege, depression and anxiety

Pearson correlation test showed that there were statistically significant positive relationship between total stressors due to siege and depression symptoms ($r(379)=0.27, p<0.001$) and anxiety ($r(379)=0.14, p<0.01$). Where there were significant relationship between the depression and anxiety ($r(379)=0.27, p<0.001$).

Prediction of depression by stressors due to siege

In a multivariate regression model, each stressor due to siege was entered as an independent variables and total depression as dependent variable. I went to Zaka organizations and other organizations to get the food ($\beta=0.19$, $t(380)$, $p<0.001$) was predicting depression, I feel I am in a big prison, my monthly income decreased and cannot send my children for schools ($\beta=0.16$, $t(380)$, $p<0.001$), one of the family member died due to prevention of traveling for treatment ($\beta=0.11$, $t(380)$, $p<0.02$), $R^2=0.10$, $F(1, 380)=11.02$, $p<0.001$.

Prediction of anxiety by stressors due to siege

In a multivariate regression model, each stressor due to siege was entered as an independent variables and total anxiety as dependent variable. One of the family members died due to prevention of traveling for treatment was predicting anxiety ($\beta=0.13$, $t(380)$, $p<0.001$).

I sold some of my furniture and my wife's gold ($\beta=0.14$, $t(380)$, $p<0.001$), I had suffering of not able to receive proper medical care due to shortage of medicine ($\beta=0.19$, $t(380)$, $p<0.06$). I went to human rights organizations and other organizations to get the help for travel outside Gaza for treatment ($\beta=0.10$, $t(380)$, $p<0.02$), I stopped completely working due to inability to go to my land and restriction in sea area ($\beta=0.12$, $t(380)$, $p<0.001$), my work affected so much due to cut-off of electricity and shortage of gas ($\beta=0.16$, $t(380)$, $p<0.01$), I cannot travel for treatment and work ($\beta=0.13$, $t(380)$, $p<0.01$), I went to Zaka organizations and other organizations to get the food ($\beta=0.11$, $t(380)$, $p<0.01$), $R^2=0.15$, $F(1, 380)=8.37$, $p<0.001$.

Discussion

The most common reported stressors due to siege were : 92.9% said prices are sharply increased due to closure, 90.3% said they feel that they are in big prison , 85.5% their work affected so much due to cut-off of electricity and shortage of gas. The researcher hypothesized that for dangerous effects of siege that destroyed everything in Gaza strip including but not limited to political, social, cultural and economic aspects. The expandable siege that blocked everything put Gaza under collective punishment against every Palestinian. While, Thabet et al. [16] found that the most common stressful situations due to blockade identified during the study are: General feeling of living in a big prison; The inability to finish construction and repair work in people's homes due to a chronic shortage in cement and building materials; The sharp increase in prices in commodities in recent years; The inability to upkeep social and family relationships, including social and religious visits to the West Bank/East Jerusalem; The negative impacts on daily life and work due to repeated cut-off of electricity and shortage of gas and fuel. However, the results of the current study appeared to be consistent with the study of Thabet [15] that found the most common items of siege checklist; learning problems due to shortage of electricity and

teachers unable to come schools 82.6%; I feel I'm in a big prison 79.3%; I was not able to go to school due to shortage of fuel and absence of transportation 75%; I can't find some of the necessary things for study such as books and stationary 68.5%. Also, the study of Lubbad et al. [23] in study of university students in Gaza Strip showed that the most common siege items; we can't finish some construction and repair work in my house due to shortage of cement and building material 97.4%; one of the family member died due to prevention of travelling for treatment 86.2%; we cannot find some of the necessary things for children 86.2%; I feel I am in a big prison 78.3%; shortage of fuel, papers, medicine, row material 77.3%; social visit less than before 75.3%.

Moreover, Qouta [24] found that the Israeli siege pushed around 84% of Palestinian families to change the patterns of their lives; 93% of them gave up their daily living requirements; 95% said they live in big prison; 47% of patients in Gaza are not able to get the medicine they needed; 38% not receiving medical services; reduction in social visits 79%; 95% of the citizens could not find the objects and goods that they were looking for; while the prices rose 99% as the income of citizens were reduced with 68%; 45% of whom were fired from their jobs; moreover, 77% of the workers were suspended of their jobs in the construction sector. The result found significant differences between stressors due to siege according to sex toward males of the cancer patients. The researcher attributed these results for dominant gender "males", since they work, move, travel, buy, and share the society more than females. This reflected on their behavior and mental health more than female. The males have more participation in the community and the Palestinian families dependent on males. This let them experience the stressors of siege more than females. The results of the current study consistent with the results of study of Lubbad et al. [23] university students which found significant differences between stressors due to siege according to sex toward males of the study sample. Our results showed that there were significant differences between the total means of stressors due to siege according to family income towards those who have family income less than \$300. We postulated that the families in Gaza Strip were unable to achieve the minimum requirement that needed for their life, but high income families were able to achieve their needs. The results of current study seem to be consistent with the results of Lubbad et al. [23] that found significant differences between the means of stressors of siege and family income toward low family income families.

The study showed that the most common depression symptoms were: discouraged about the future (52.9%) and feel sadness (46.6%), while the least common depression symptom was thoughts of killing self (13.7%). We attributed these results to direct consequences of siege effects that affected the mental health of the cancer patients. The siege has major negative consequences in all life aspects including psychological, social, physical, as well as economic and general life aspects. While, Chen [25] found that the most prevalent symptom in the total sample was insomnia (occurrence rate=67%). Insomnia, pain, anorexia, fatigue and wound or

pressure sore occurred significantly more often in depressed patients, with no difference in occurrence rates of nausea/vomiting and dyspnoea. Also, the results consistent with Qouta [24] found that the increase in the siege status leads to more psychological suffering like being existed, anxiety, depression, hostility and sensitivity. The results consistent with the results of Lubbad et al. [23] that found, the most reported depression symptoms were; tiredness or fatigue 64.5%; sadness 62.5%; guilty feeling 59.2%. Where the lowest depression symptoms were; past failure 8.7%; and self-dislike 11.5%. But, Gogne et al. [26] found a significant correlation was observed between response to neoadjuvant chemotherapy and depression levels in breast cancer patients. Karabulutlu et al. [11] in his study revealed that, depression determined in 81.3% of the cancer patients. A positive, statistically significant relationship was found between the avoidance strategy and depression levels of the cancer patients. Where, Thabet et al. [16] in their study found that most of the study sample reported symptoms of depression included general sad feelings and feeling weak in parts of the body.

The study results revealed 53.4% had moderate depression and 24.2% had severe depression. Such findings may be due to continue siege the imposed by the Israel government on Gaza strip for long time period and reflected on the mental health of the cancer patients. However, Ellis et al. [14] found that the prevalence of significant depression 3.5%. This was higher in younger, female and unmarried patients. Procedure-related worry and pain were generally low. Where, Smith et al. found on the Hospital Anxiety and Depression Scale (HADS)], 15 (22%) were depressed (HADS depression score)/11 among the cancer patients. The results were consistent with the results of Lubbad et al. [23] found that 59.7% have no depression; 37.2% have moderate depression; 3.1% have severe depression. However, Thabet et al. [16] and GCMHP (2007, 2008) reported that , the situation does gravely impact the mental health of the population and the psychological pain the people experience is being manifested in the high levels of domestic, tribal and community violence.

There were significant differences between means of depression and gender among cancer patients in favor of females. The researcher attribute these results to the majority of females who experience cancer and especially breast cancer, breast cancer manifested among females between 20-59 years old. According to MOH breast cancer is the highest among females and focus in the age group between 20 -59 (MOH, 2014). Furthermore, in Gaza Strip, Health Information System Unit reported that, breast cancer ranked first, with 278 reported cases (19.7%), and considered the highest among females (HISU, 2015). These ratios for breast cancer, but there are other types of cancer that affect females. This give privilege to female cancer patients to experience wide range of siege stressors more than males that affected them because of limited medication, difficulty in transfer and more problems related and lead to depressive symptoms among females. In addition, the current study results were consistent with the study of Ellis et al. [14] found that the prevalence of was female and unmarried patients. Also, the results seem to be inconsistent with the results of Lubbad et al. [23] that

indicated significant differences between the means of depression according to sex in favor of males. The results seem to be consistent with the results of Lubbad et al. [23] revealed significant differences between the means of depression and family income toward low income families. But, Gogne et al. [26] found that depression was found to be higher in literate (25, 54.3%) and employed (14, 53.8%) patients.

The study showed that the commonly reported anxiety symptoms among cancer patients were; being tense and restless (61.3%), had insomnia (56.3%), had cardiovascular symptoms (51.1%) and worried (50%). The researcher attributed these results for the siege that affect the life of the general population and cancer patients specifically. The effect of siege stack everyone young or adult, patients or healthy. The exposure to siege reflected on the daily living of the Gaza population. Where, Thabet et al. [16] found that Palestinian parents reported anxiety symptoms such as nervousness or trembling, feeling tense or locked up. Mothers showed similar signs of anxiety and somatization symptoms as fathers did, but at a lesser degree. The study results appear to be consistent with results of Hein found that 92% of the Palestinian children suffer from feeling of insecurity and feel of anxiety and tension due to continuous siege. The results different with results of Lubbad et al. [23] revealed the most common reported anxiety symptoms were; I would like to be happy like others 92.1%; I lost my sleep because of anxiety 86.7%; while the lowest items were; I feel no redness face at all 22.2%; I feel quietness all times 26.3%. However, Al-Jadili et al. [3] revealed that state anxiety was at the highest rank 60.8%, followed by trait anxiety 54.6% among the cancer patients. Where, Karabulutlu et al. [11] in his study revealed that anxiety was determined in 61.5% of the cancer patients. A positive, statistically significant relationship was found between the avoidance strategy and anxiety levels of the cancer patients. While, Smith et al. found that that Seventeen (25%) of patients were anxious [anxiety score]/11 on the Hospital Anxiety and Depression Scale (HADS)]. The results showed that 10.8% of males had no anxiety, 8.2% had mild to moderate, and 14.7% had moderate to severe anxiety. For females, 8.9% had no anxiety and 13.2% had mild to moderate anxiety, and 44.2% of females had moderate to severe anxiety. Our study showed that female patients had more anxiety. The effects of the siege contributed to psychological problems as well as anxiety. However, Lubbad et al. [23] in their study "the impact of the siege on the mental health of university students" reported that, 2% have no anxiety; 39.8% have mild anxiety; 42.3% have moderate anxiety; 15.8% have severe anxiety. Where, Ellis et al. [14] found the prevalence of significant anxiety was 15%. This was higher in younger, female and unmarried patients that appear to be consistent with our results. The results showed that there were significant statistical differences in level of anxiety toward females. We attributed that for emotional feeling of females, since they were more emotional than males and they were more sensitive for the disease itself and for mental health problems they encounter due to siege and life stressors. The results seem to be inconsistent with study of Lubbad et al. [23] that found no significant differences between the means of anxiety according to sex. The results showed that there

were significant differences between the total means of anxiety according to family income towards those patients who have family income less than \$400. Such low income families strive for achieving their needs in presence of high prizes and absent of goods due to siege. The high class may find their needs and requirements despite of expensive prizes, but the low income families are not able to do so. Such findings consistent with study of families in the Gaza Strip which showed that general psychological symptoms, somatization, depression, and anxiety were significantly higher in families with monthly incomes less than \$300/month [16].

Clinical Implications

The results revealed that the majority of the study sample suffering from anxiety and depression due to siege. These results considered critical indicators that must be taken into consideration by the policy makers, researchers and clinicians to establish psychological support department specialized for cancer patients at the treating Centre and should be consult with specialized psychiatrist. To establish periodical appointment and follow up for the cancer patients seeking mental health service and provide frequent psychological support. To provide the cancer patients with a list of recognized community mental health centers and professional counselors for further therapy. Moreover, we had to establish psychotherapy groups for cancer patients inside the hospitals dealing with such target patients. To call the international organization to press and eliminate the siege immediately and improve the life situation in the Gaza Strip. For research, we need more precise and accurate studies that include large group and under the supervision of MOH with cooperation with the psychiatric hospitals with professional researchers. Additional, a need for research to evaluate the effective psychological program for treating anxiety and depression among Palestinian.

Study Limitations

The data collection based on self-report scales, therefore, where some potential reporting bias which may have occurred because of respondents interpretation of the questions or desire to report their emotions in a certain way or simply because of inaccuracies of responses. Furthermore, it found to be difficult to follow up the cancer patients during their transfer from hospital to another or to another clinic.

Conclusion

To live under siege and go ahead in your daily living considered impossible for everyone in Gaza Strip. The siege considered the most extreme case in which the Palestinian people in Gaza were totally isolated and separated from the world. The siege contributed to several problems including; psychological, economic, social, and physical problems. As a result, the individuals were living in critical and overwhelming situations and become nervous, anxious, depressed and fearful in addition to vague future due to continued siege. Furthermore, the continued siege resulted in destruction in

the basic life material and complicated the entry of essential supplies and equipment to maintain life that made threat to health. The siege stressors are leading to various problems including; physical, social, psychological, economic problems. The stressors that generated by the siege and war affect the Palestinian people psychological health and generated mental health problems including but not limited to anxiety, depression, stress, fear and nervousness. The devastating and extreme exposure to these stressors will develop long term mental health problems.

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The Relationship between War Trauma and Anxiety and Posttraumatic Stress Disorder among Preschool Children in the Gaza strip

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العلاقة بين رض الحرب واضطراب كرب ما بعد الرض والقلق لدى الاطفال ما قبل سن المدرسة في قطاع غزة
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Abstract

Aim: The current study investigated the relationship between war trauma and anxiety and posttraumatic stress disorder (PTSD) among preschool children in the Gaza Strip. **Methods:** N=399 mothers and their preschool children who were enrolled in kindergartens in the Gaza Strip. Child ages ranged from 3-6 years with mean age of 4.48 years. Mothers were interviewed using a sociodemographic questionnaire, Gaza Traumatic Events Checklist, Child PTSD Symptom Scale-parent form, and Spence Children's Anxiety Scale. **Results:** The most commonly reported traumatic experiences by mothers for their children were: hearing shelling of the area by artillery (95.5%), hearing loud noises from drones (89.2%) and seeing mutilated bodies on TV (81.2%). The mean number of traumas experienced by preschool children was 8.3. PTSD prevalence was 6% with scores higher in children aged five and older. The mean for total anxiety was 49.84, generalized anxiety was 10.7, social anxiety was 8.4; specific phobia was 21.1, and separation anxiety was 9.65. There were significant associations between trauma and PTSD and anxiety as well as a significant association between PTSD and anxiety. **Conclusion:** Preschool children exposed to war-related incidents are at risk of developing PTSD and anxiety problems, which highlights the need to establish programs for preschool children affected by traumatic events associated with war.

Key words: Trauma, Posttraumatic Stress Disorder, PTSD, anxiety, preschool children, war, Gaza

Declaration of interest: None

Introduction

Since 1948, Palestinians have suffered from repeated episodes of war and conflict, which have occurred approximately every seven to 10 years. Palestinians live under severe conditions with the expectation that every nine years there will be war or an Intifada (uprising) compounded by a continued sense of oppression caused by the Occupation.¹ In the last seven years, people living in Gaza have been exposed to three recurrent wars: the first was on December 2008, which lasted 23 days; the second started on November 2012 and lasted for 8 days; and the most recent started on July 2014 and went on for 51 days.

On 7 July 2014, a humanitarian emergency was declared in the Gaza Strip, which involved intense Israeli aerial and navy bombardment. Israeli aggression de-escalated following an open-ended ceasefire which came into force on 26 August 2014. The scale of destruction, devastation and displacement during the 51 days of conflict was unprecedented in Gaza since at least the start of the Israeli occupation in 1967. The humanitarian impact of this aggression is understood against a backdrop of heightened vulnerability and instability in Gaza.²

There is no doubt that these offenses have too many devastating effects causing physical, emotional and psychological problems for people living in the Gaza Strip, including children. Traumatic events related to war affected Palestinians' normal daily life and had a negative impact on individual well-being in all ages, especially children. Psychiatric disorders associated with war traumas are best regarded, according to the International Classification of Diseases - 10th Edition (ICD-10), as depressive adjustment disorders with anxiety symptoms (e.g. generalized anxiety, phobic anxiety, etc.) and posttraumatic stress disorder (PTSD) as a reaction to loss of security.^{3,22,30}

Trauma overwhelms the affected person's ego capacities to understand what has happened. Fundamental assumptions about the safety of the world and trust in the relationships are undermined as the individual struggles to assimilate this experience.⁴ Children who experience severe early trauma often develop a foreshortened sense of the future. They come to expect that life will be dangerous; that they may not survive; and, as a result, they give up hope and expectations for themselves that extend into the future.⁵

Exposure to trauma in early childhood may cause disruptive and disorganizing effects on early physical, cognitive, social and emotional development. Traumatized preschoolers often present with regulatory and social difficulties, including frequent tantrums, aggression and noncompliance. Some young children exposed to trauma develop symptoms consistent with a diagnosis of PTSD.⁶ Children may suffer from PTSD as well as other types of psychopathology, which are not specific to the experience of trauma, such as general anxiety and depression.⁷ PTSD symptoms include re-experiencing the traumatic event, avoidance of reminders of the event, and hyperarousal. Responses to violence and trauma may be categorized as either self-directed or directed toward others and can include nightmares and sleep disturbances, regression and clinginess to caregivers, loss of concentration and learning difficulties, fearfulness and anxiety as well as aggressive behavior.⁸

Previous studies have shown strong associations between traumatic experiences and PTSD symptoms among preschool children, but few children have met the full diagnostic criteria for PTSD due to the old diagnostic criteria used when assessing the condition in preschool children. Previous studies reported high levels of

internalizing and externalizing symptoms as well as PTSD symptoms of re-experiencing, avoidance, and hyperarousal in toddlers who experienced traumatic life events^{9,10} though they may not meet the full criteria for this diagnosis.¹¹ Early childhood trauma also contributes to adverse outcomes in adulthood, including depression, PTSD, substance misuse, health problems (likely related to increased stress and wear and tear on the immune system) and decreased occupational attainment.¹² Studies conducted on Palestinian children during the first Intifada showed that they suffered from depression, anxiety, and PTSD symptoms.^{13 14 15}

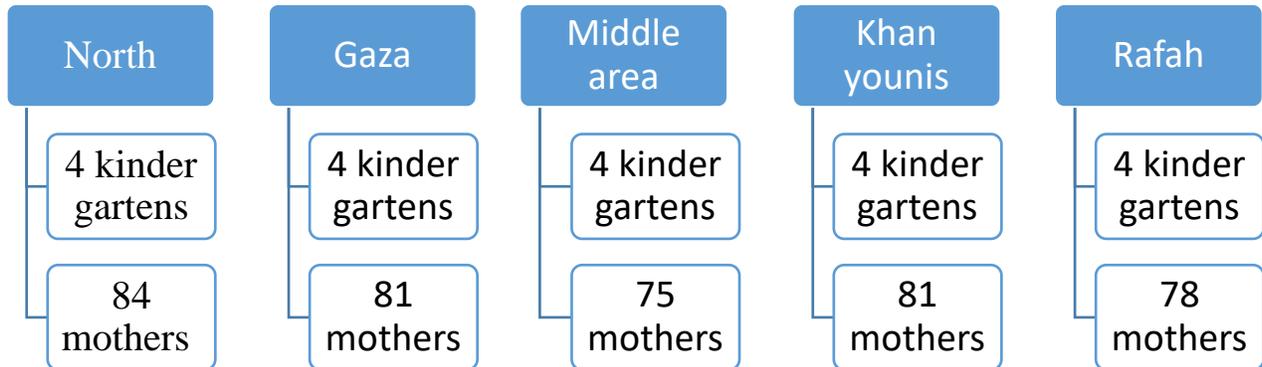
The present study aimed to investigate the relationship between war trauma and anxiety and PTSD among preschool children in the Gaza Strip.

Methods

Participants

The study sample consisted of N=420 mothers of preschool children. From this sample only n=399 mothers were reached and N=399 preschool children were also included (n=165 boys, 41.35% and n=234 girls, 58.65%. Their ages ranged from 3-6 years (M=4.48 years).

Figure 1. Distribution of the study sample according to place of residence



Instruments

Sociodemographic scale

Demographic information about the participants included gender, age, number of siblings, area of residence and monthly family income.

Gaza Traumatic Event Checklist (GTECL)¹⁶

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.¹⁶ This version of the Gaza Traumatic Event Checklist, updated after the most recent war on Gaza on 2014, lists 25 events relevant to the Israeli attacks. Items number 1-4 indicated hearing experiences, items 5-15 indicated witnessing experiences, and items 16-25 indicated direct exposure to trauma. The checklist was completed by mothers with ('yes' or 'no' statements). Mothers were asked about the events their children had experienced in the preceding 12 months. The total composite score (0-25) provides an indication of the amount and type of war exposure the

respondent has experienced during the war. This scale was validated in Palestinian society.^{21,23} The internal consistency of the scale, calculated using Chronbach's alpha, was $\alpha=0.82$.

Child PTSD Symptom Scale-parent form (CPSS)¹⁷

Posttraumatic stress symptomatology in children was assessed using a modified version of the Child PTSD Symptom Scale (CPSS). Using a 4-point scale ranging from 0 = not at all to 3 = five or more times a week, mothers rated the frequency with which the child demonstrated each of the 17 items, corresponding to the DSM-IV PTSD symptoms. This measure has shown good convergent, discriminant validity, and high reliability in assessing PTSD in older age group Palestinian children.³ The internal consistency of the scale, calculated using Chronbach's alpha, was $\alpha=0.91$.

Spence Children's Anxiety Scale (SCAS)¹⁸

A preschool version (The Preschool Anxiety Scale) was adapted from the Spence Children's Anxiety Scale (SCAS) by Spence.¹⁸ The Arabic version of the scale was used in the current study consisted of a list of 28 items that describe anxiety in preschool children. It assesses generalized anxiety (1, 4, 8, 14, 28), social phobia (social anxiety) (2, 5, 11, 15, 19, 23), separation anxiety (6, 12, 16, 22, 25), obsessive-compulsive disorder (3, 9, 18, 21, 27), and physical injury fear (7, 10, 13, 17, 20, 24, 26). For each item, the parent circles the response that best describes her/his child. She/ he should circle the 4 if the item is very often true, 3 if the item is quite often true, 2 if the item is sometimes true, 1 if the item is seldom true or if it is not true at all circle the 0. The parent should answer all the items as well as she/he can, even if some do not seem to apply to her/his child. This scale was validated in Palestinian society and internal consistency, calculated using Chronbach's alpha, was as follows: generalized anxiety (5 items) where the value of alpha ($\alpha=0.61$), social anxiety (6 items) where the value of alpha ($\alpha=0.68$), OCD (5 items) where the value of alpha ($\alpha=0.57$), physical injury anxiety (6 items) where the value of alpha = (0.76), separation anxiety (5 items) where the value of alpha ($\alpha=0.57$) and the value of split half = (0.43).¹⁹ The internal consistency of the total anxiety scale, calculated using Chronbach's alpha, was $\alpha=0.90$.

Study Procedure

The data was collected from 20 kindergartens (four kindergartens from each area of Gaza Strip - the North area, Gaza city, Middle area, Khan Younis and Rafah). We had an official letter of approval from the Palestinian

Ministry of Education-Kindergarten section. The data was collected by the first author and three assistants. The researcher collected data through meeting the principal of each of the 20 kindergartens, which were chosen randomly from the list of kindergartens given by the Ministry of Education. We explained the purpose of the study then asked them to select randomly from the registration book the number of children already prepared in a list for sampling. Mothers of the selected children received a written form to sign explaining the study purpose and stressing that the data will be kept with the researchers for scientific research and their confidentiality, and that of their children, was ensured. The mothers were interviewed by researchers and field workers inside the kindergartens with interview lasting 30 minutes. The response rate was 95%. Data collection was conducted in May 2015.

Statistical analysis

We used the Statistical Package of Social Science - version 20 (SPSS 20.0) for data entry and analysis. Data coding and recording was completed before analysis. Frequency tables that show sample characteristics and plot differences between various variables were done. Descriptive statistics were used to present the characteristics of the sample. Independent *t* test was used to test the gender differences related to children, trauma, PTSD, and anxiety. One-way ANOVA test was used to study the differences among the 'means' of preschoolers' trauma, PTSD and anxiety according to age, family income, and type of residence. Pearson correlation was used to explain and clarify the data and to demonstrate the relationship between preschool children trauma and anxiety, the relationship between preschool children trauma and PTSD, and the relationship between preschool children anxiety and PTSD. Linear regression investigated the association between independent (traumatic events) and psychological problems (PTSD and anxiety) as dependent variables.

Results

Socio-demographic characteristics of the preschool children

As shown in Table 1, the total number of questionnaires returned were 399, 174 (50.4%) were from boys and 171 (49.6%) were from girls, which resulted in a response rate of 95%. Ages ranged from 3-6 years with mean age 4.48 (SD=0.67). Regarding place of residence, 21.02% of children were from North Gaza, 20.30% were from

War Trauma and Anxiety and PTSD among Preschool Children in the Gaza strip

Gaza, 18.8% from Middle area, 20.3% from Khan Younis, and 19.55% from Rafah.

Table 1. Socio-demographic characteristic of the preschool children (N=399)

<i>Gender</i>	<i>Number</i>	
Boys	165	41.35
Girls	234	58.65
<i>Age mean age 4.48 (SD =0.67).</i>		
3-4 years	171	42.9
5-6 years	228	57.1
<i>Number of siblings</i>		
4 and less	262	65.66
5-7 siblings	89	22.31
8 and more	48	12.03
<i>Place of residence</i>		
North Gaza	84	21.05
Gaza	81	20.30
Middle area	75	18.80
Khan Younis	81	20.30
Rafah	78	19.55
<i>Family monthly income</i>		
Less than 1200 NIS (one \$ =3.80 NIS)	252	63.16
1201 - 2500 NIS	76	19.05
2501 - 3000 NIS	33	8.27
3001 NIS and more	38	9.52

Types of traumatic events after 51 days of war

The most common traumatic experiences reported by mothers on behalf of their children were: hearing shelling of the area by artillery (95.5%), hearing the loud noise of drones (89.2%), seeing mutilated bodies on TV (81.2%), being forced to leave home with family members due to shelling (64.4%) and inhalation of bad

smells due to bombardment (62.2%). The least common traumatic experiences were: threats of being killed (6.5%), witnessing close relatives receive threats of being killed (7.8%) and threatened with death by being used as human shield moving from home to home by the army (8%).

Table 2. Type of traumatic event

<i>Type of traumatic event</i>	Yes		No	
	No.	%	No.	%
<i>Hearing shelling of the area by artillery</i>	381	95.5	18	4.5
<i>Hearing the loud noise of drones</i>	356	89.2	43	10.8
<i>Seeing mutilated bodies and dead people on TV</i>	324	81.2	75	18.8
<i>Being forced to leave your home with family members due to shelling</i>	257	64.4	142	35.6
<i>Inhalation of bad smells due to bombardment</i>	248	62.2	151	37.8
<i>Hearing about the killing of a known person</i>	235	58.9	164	41.1
<i>Witnessing firing by tanks or heavy artillery at neighbors' homes</i>	182	45.6	217	54.4

<i>Witnessing demolition of big buildings</i>	168	42.1	231	57.9
<i>Hearing about the killing of a close relative</i>	149	37.3	250	62.7
<i>Deprivation from water or electricity during detention at home</i>	141	35.3	258	64.7
<i>Witnessing firing by tanks and heavy artillery at own home</i>	100	25.1	299	74.9
<i>Witnessing assassination of people by rockets</i>	100	25.1	298	74.9
<i>Threatened by shooting</i>	92	23.1	307	76.9
<i>Witnessing shooting of a known person</i>	85	21.3	314	78.7
<i>Witnessing shooting of a close relative</i>	74	18.5	325	81.5
<i>Witnessing killing of a close relative</i>	73	18.3	326	81.7
<i>Destruction of your personal belongings during incursion</i>	63	15.8	336	84.2
<i>Witnessing killing of a known person</i>	56	14	343	86
<i>Witnessing arrest of a known person</i>	51	12.8	348	87.2
<i>Exposure to physical injury as a result of the bombing of your home</i>	44	11	355	89
<i>Exposure to physical injury caused by shrapnel, bullet or missile</i>	40	10	359	90
<i>Witnessing arrest of a close relative by the army</i>	38	9.5	361	90.5
<i>Threatened with death by being used as human shield by the army to move from one home to home</i>	32	8	367	92
<i>Threat of having a close relative being threatened with killing</i>	31	7.8	368	92.2
<i>Threat of being killed</i>	26	6.5	373	93.5

The study showed that Palestinian preschool children in the Gaza Strip had experienced from 0-25 traumatic events with the mean being 8.3 traumatic events (SD=4.30). Independent *t*-test was conducted. The results showed that the mean number of traumatic events in boys was 7.99 (SD=4.07) and 8.67 for girls (SD=4.45). There were no statistically significant differences in total traumatic events according to gender ($t=1.55, p=0.21$).

For other sociodemographic variables the results showed that there were statistically significant differences in traumatic events in favor of children living in the Middle area ($F=8.8, p=0.001$). In addition, children having more than eight siblings had more traumatic events than the other two groups ($F=17.29, p=0.001$) and children

having a family monthly income of less than 1200 NIS experienced more traumatic events than the other three groups (above 1201 NIS) ($F=17.29, p=0.001$).

Prevalence of PTSD

According to DSM-IV-diagnostic criteria for PTSD, a person must have reported one re-experiencing symptom, three avoidance symptoms, and two arousal symptoms. Results showed that $n=160$ children (40.1%) reported no PTSD symptoms, $n=116$ children (29.1%) reported at least one criterion of PTSD (B or C or D) with $n=99$ indicating partial PTSD (24.8%), and $n=24$ reporting full criteria of PTSD (6%) as Table 3 shows.

Table 3. Prevalence of PTSD

<i>PTSD symptoms</i>	No.	%
<i>No PTSD</i>	160	40.1
<i>One symptom</i>	116	29.1
<i>Partial PTSD</i>	99	24.8
<i>Full PTSD</i>	24	6.0

PTSD and sociodemographic variables

Only one significant difference was found in the PTSD subscale according to age of preschool children on the arousal subscale for the 5-6 years old group of children. The results showed that children aged 5-6 have reported having more PTSD symptoms than 3-4 years old children ($M=7.77$, $SD=4.35$) ($t=2.62$, $p=0.009$).

One-way ANOVA analysis was conducted to find the differences between PTSD and number of siblings. Significant differences in total PTSD and subscales according to number of siblings were found. Total PTSD symptoms for re-experiencing, avoidance and arousal were higher in children with eight or more siblings. ($M=24.85$, $SD=11.41$).

Frequency of preschool anxiety symptoms

The most common anxiety symptoms reported by parents were: he/she has to keep thinking special thoughts (e.g., numbers or words) to stop bad things from happening (66%), has nightmares about being apart from me (65.4%), is afraid of the dark (62.2%), is afraid of talking in front of the pre-school class group (e.g., show and tell) (57.9%), worries that something bad might happen to him/her (e.g., getting lost or kidnapped), and that he/she won't be able to see you again (56.3%).

Prevalence of preschool anxiety

Preschool anxiety scales showed that the mean for total anxiety scale was 49.84, generalized anxiety was 10.7, social anxiety was 8.4, specific phobia was 21.11 and separation anxiety was 9.65.

Anxiety and sociodemographic variables *t*-test was conducted to find the differences in anxiety according to gender. Results showed that there were no significant differences in means of anxiety and all subscales according to gender. The ages of children were categorized as 3-4 years and 5-6 years. An independent *t*-test was conducted with results showing no significant differences in mean anxiety according to age group ($t=0.94$, $p=0.34$). The results showed that there were statistically significant differences in total anxiety in favor of children living in the Rafah area ($F=4.9$, $p=0.001$), social phobia ($F=2.65$, $p=0.03$), generalized anxiety ($F=3.9$, $p=0.004$), separation anxiety ($F=5.1$, $p=0.001$), and specific phobia ($F=2.5$, $p=0.03$). Moreover, results showed that children having family monthly income of less than 1200 NIS were more anxious than the other three groups ($F=10.16$, $p=0.001$).

Relationship between trauma, PTSD and anxiety

Pearson correlation test was conducted to find the association between trauma, PTSD and anxiety. Results showed that there was significant association between total traumatic events reported by children and total anxiety ($r=0.30$, $p=0.001$), generalized anxiety ($r=0.31$, $p=0.001$), separation anxiety ($r=0.25$, $p=0.001$), and specific phobia ($r=0.14$, $p=0.01$). This suggests experiences that are more traumatic lead to anxiety. In addition, trauma was associated with total PTSD ($r=0.32$, $p=0.001$), re-experiencing ($r=0.32$, $p=0.001$), avoidance ($r=0.28$, $p=0.001$) and arousal ($r=0.23$, $p=0.001$).

Table 5. Pearson correlation coefficient test between trauma, PTSD and anxiety

	1	2	3	4	5	6	7	8	9
1. Trauma									
2. Total anxiety	.30**								
3. Social anxiety	.29**	.76**							
4. Generalized anxiety	.31**	.82**	.62**						
5. Separation anxiety	.25**	.77**	.42**	.60**					
6. Specific phobia	.14**	.82**	.42**	.47**	.52**				
7. Total PTSD	.32**	.64**	.46**	.60**	.48**	.48**			
8. Re-experiencing	.32**	.59**	.39**	.58**	.47**	.44**	.90**		
9. Avoidance	.28**	.55**	.47**	.51**	.39**	.38**	.88**	.67**	
10. Arousal	.23**	.58**	.38**	.54**	.43**	.49**	.90**	.76**	.68**

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Prediction of PTSD by traumatic events

In a univariate linear regression analysis, each traumatic event associated with war was entered as an independent variable in a multiple regression model, with total PTSD

scores as the dependent variable. Two events were significantly associated with total PTSD: hearing about the killing of a known person ($\beta=0.18$, $p=0.001$) and hearing shelling of the area by artillery ($\beta=0.12$, $p=0.01$).

Other significant incidents were deprivation from water or electricity during detention at home ($\beta=0.11, p=0.02$), witnessing shooting of a close relative ($\beta=0.12, p=0.02$)

and destroying of your personal belongings during incursion ($\beta=0.10, p=0.04$) ($F=10.92, p<0.001, R^2=0.13$).

Table 6. Linear regression analysis for prediction of children PTSD by traumatic events

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
<i>(Constant)</i>	21.71	2.88		7.53	0.001	16.04	27.38
<i>Hearing about killing of a known person</i>	4.57	1.24	0.18	3.68	0.001	2.13	7.01
<i>Hearing shelling of the area by artillery</i>	-7.56	2.88	0.12	2.63	0.01	13.22	1.90
<i>Deprivation from water or electricity during detention at home</i>	3.04	1.30	0.11	2.34	0.02	0.48	5.59
<i>Witnessing shooting of a close relative</i>	3.87	1.68	0.12	2.30	0.02	0.56	7.17
<i>Destruction of your personal belongings during incursion</i>	3.54	1.72	0.10	2.06	0.04	0.15	6.92

Prediction of anxiety by traumatic events

In a univariate linear regression analysis, each traumatic event associated with war was entered as an independent variable in a multiple regression model, with total anxiety scores as the dependent variable: two events were significantly associated with total anxiety: being

threatened by shooting ($\beta=13, p=0.001$) and hearing about the killing of a friend ($\beta=0.15, p=0.01$). Other significant experiences were witnessing shooting of a close relative ($\beta=12, p=0.01$) and deprivation from water or electricity during detention at home ($\beta=12, p=0.02$) ($F=11.19, p<0.001, R^2=0.09$).

Table 7. Linear regression analysis for prediction of anxiety by traumatic events

	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	95% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
<i>(Constant)</i>	41.70	1.70		24.55	0.001	38.36	45.04
<i>Threatened by shooting</i>	6.32	2.56	0.13	2.47	0.01	1.29	11.36
<i>Hearing about killing of a friend</i>	6.21	2.05	0.15	3.02	0.001	2.17	10.24
<i>Witnessing shooting of a close relative</i>	6.66	2.64	0.12	2.53	0.01	1.48	11.85
<i>Deprivation from water or electricity during detention at home</i>	5.28	2.21	0.12	2.39	0.02	0.93	9.62

Discussion

The current study investigates the relationship between war trauma experiences in 2014, anxiety and PTSD on preschool children in the Gaza Strip. Children commonly reported shelling of the area by artillery, hearing the loud noise of drones, seeing mutilated bodies on TV, being forced to leave home with family members due to shelling and inhaling bad smells due to bombardment. Less common experiences were the threat of being killed, threat of having a close relative killed in front of them, and the threatened to be used as a human shield by the Israeli army while being moved from home to home. Such findings were consistent with the results of other studies conducted with children in Gaza who were exposed to war-related trauma. The studies showed that the most commonly reported traumatic events were witnessing mutilated bodies and wounded people on television and witnessing the bombardment of other's houses by airplanes and helicopters.^{19,20,21,22} The results showed that 26.8% reported mild, 45.6% reported moderate, and 26.6% reported severe traumatic events. Such results were consistent with a previous study of preschool children in the Gaza Strip.²¹ The study showed no significant statistical differences in reported traumatic events according to gender. Such findings were inconsistent with previous studies of older children, which suggested that boys were more traumatized than girls.²² Results demonstrated that there were statistically significant differences in reporting traumatic events in children living in the Middle area of the Gaza Strip. Such findings could be due to the sample of kindergartens chosen from the Middle, which was one of border areas. Poor children from families with a monthly income of 1200 NIS (\$300) reported more traumatic events than wealthier families. Such findings could suggest that families living near the border areas are farmers whose lands were destroyed in the previous two wars on Gaza, which left such families impoverished and more vulnerable to risk of repeated exposure to trauma, including ground incursion.

Using DSM-IV diagnosis of PTSD, participants would have to report one symptom of re-experiencing, three of avoidance and two of arousal. Results found that 6% of children met the full criteria for a PTSD diagnosis. Findings in the present study were consistent with results of previous studies. In a study of children who were burned, it was found that 10% had PTSD at six months post-injury.²³ The current findings were also consistent with previous studies, which found no differences between boys and girls in relation to the severity of traumatic events if they were mainly with parents during the war and not exposed to trauma in the way older children were exposed.²⁴ Results showed significant

differences in PTSD and its symptom clusters according to age. The group of five year old children reported greater PTSD symptom levels than the other ages. Studies showed that children under age six rarely possess the social, verbal or cognitive ability to relay symptomology associated with previous PTSD diagnostic criteria. These results were consistent with other study results, which showed that very young children cannot conceptualize traumatic events because their cognitive abilities to appraise the meaning of the traumatic events are not as developed as those of older children. Instead, they may present with non-specific behavioral or emotional disorders rather than PTSD reactions. Older children are possibly more vulnerable to developing the full presentation of PTSD after exposure to a severe traumatic event.^{25,26,27,28}

The mean for total anxiety scale was 49.84. It was higher than results from previous studies conducted in the Gaza Strip, which showed that the mean anxiety score for preschool children was 27.46. Such findings could be due to new traumatic events from the 2014 war and/or because families were not able to protect their children since there were even fewer safe places in the Gaza Strip due to repeated air strikes and shelling. No significant differences were found between the means for anxiety problems for boys and girls in terms of total anxiety and all subscales, and no significant differences were found between the means of preschoolers' anxiety problems according to age. Other studies reported no gender differences in anxiety symptoms, except for physical injury fear, which was higher in girls than in boys. Anxiety problems were greater in children with low family income.²⁹ Also, such findings were consistent with other studies which showed no significant gender differences in prevalence of anxiety disorders in preschool children.^{19,30} Our study showed that preschool children with eight siblings or more experienced more anxiety symptoms. Previous results also found that trauma severity and PTSD were positively associated with having large numbers of siblings. Such findings were consistent with a study of preschool anxiety disorders in pediatric primary care, which found that preschoolers who lived with many siblings were more likely to meet the criteria for generalized anxiety disorder, social phobia, and any anxiety disorder.³¹

Our results showed that there was significant correlation between total traumatic events reported by children and total anxiety, generalized anxiety, separation anxiety, and specific phobia and with total PTSD, re-experiencing, avoidance, and arousal, which was also consistent with most of the studies conducted on children in Gaza and other areas.^{19,32} In addition, our results were consistent with a study of New York City preschool children eight

to 10 months after September 11, 2001 in which trauma exposure was significantly correlated with PTSD symptoms.³³

Study limitations

One of the study limitations was reliance on mothers' reports, which were not sufficient for accurately assessing the psychological disorders of their preschool age children. Preschool children may be subject to the effect of parental recall and parental mental health when their difficulties are being reported. Information from other informants (predominantly teachers) together with observational assessments could have corroborated information obtained from parents. One other study limitation was the absence of a suitable control group of unaffected (resilient) children. Factors contributing to resilience could have been inferred from a controlled study since other tools used in the present study have never been standardized on Palestinians.

Clinical implication

The current study contributes to the existing literature by demonstrating that exposure to war-related trauma contributed to the presence of PTSD and anxiety-related problems among preschool children. Such findings highlight the need for additional and also newer methods of intervention for preschool children living in areas of war and conflict. Such methods of intervention should target all preschool children to reduce the effects of war trauma on them. In addition, organized activities in kindergartens could include activities to maintain psychosocial connections between children and their mothers or caregivers. It is important to promote active participation between mothers and their children. Societal institutions should organize activities for parents and caregivers of preschool children to improve their mental health and help children overcome war trauma, such as through various training courses and educational programs.

In addition, future research should involve the psychiatric assessment of primary care givers in parallel with assessment of their children in order to understand the impact of family and social support in the development of PTSD and anxiety problems in preschool children living in the Gaza Strip.

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الخلاصة

الهدف: هدفت هذه الدراسة إلى فحص العلاقة بين الرضوض الناتجة عن الحرب واضطراب كرب ما بعد الرض واضطرابات القلق لدى اطفال مرحلة ما قبل المدرسة بعد الحرب الأخيرة على غزة سنة 2014. **الطريقة:** تكونت العينة من 399 أم لأطفال ما قبل المدرسة المسجلين في 20 روضة أطفال في مناطق قطاع غزة. والذين تراوحت أعمارهم بين 3-6 سنوات. واستخدمت في هذه الدراسة عدة مقاييس خاصة بالأم وهي مقياس المعلومات الديموغرافية، ومقياس الرضوض الناتجة عن الحرب على غزة. ومقياس اضطراب كرب ما بعد الرض، ومقياس القلق لدى الأطفال ما قبل المدرسة. النتائج: لقد وجدت الدراسة على حسب رأي الأم أن 95.5% قد سمعوا القصف على المناطق المختلفة، و89.2% تعرضوا لسماع صوت موتور الطائرات بلا طيار، 81.2% شاهدوا صور الجرحى والشهداء الفلسطينيين على شاشات التلفاز. وكان متوسط الخبرات الصادمة لكل طفل هو حوالي 8 خبرات رضوية. أشارت الدراسة إلى أن نسبة انتشار اضطراب كرب ما بعد الرض بعد أكثر من ستة أشهر على انتهاء الحرب كانت 6%. وكان متوسط القلق لدى الأطفال حوالي 50، ومتوسط القلق العام لجزء من القلق هو 10.7، والقلق الاجتماعي 8.4، والمخاوف الخاصة 21.11، وخوف الانفصال عن الأم 9.65. كما وجدت الدراسة أن أعراض اضطراب كرب ما بعد الرض كانت أكثر انتشاراً لدى الأطفال الذين كانت أعمارهم 5 سنوات. وأظهرت الدراسة أن هناك علاقة قوية بين التعرض للخبرات الرضوية واضطراب كرب ما بعد الرض والقلق لدى اطفال ما قبل المدرسة. **التوصيات:** الدراسات المستقبلية لا بد أن تتضمن التقييم النفسي لمقدم الرعاية للطفل (الأم أو الأب) بالإضافة إلى التقييم الخاص بالطفل نفسه من أجل فهم أثر الدعم من الأسرة و الدعم الاجتماعي على تطور اضطراب كرب ما بعد الرض واضطرابات القلق لدى اطفال ما قبل المدرسة في قطاع غزة، بالإضافة إلى عمل دراسات أكثر عمقاً تقيس أثر عدد الأحداث الصادمة التي تم التعرض لها الطفل بالإضافة إلى قياس أثر شدة الحدث لأنواع مختلفة من رضات الحرب عوضاً عن القيام بعد الخبرات الصادمة التي تعرض لها الأطفال فقط من أجل تحديد شدة الأحداث الصادمة.

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