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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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## 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, 2015). The reliability and 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	%
<b>Gender</b>		
Males	114	31.8
Females	244	68.2
<b>Age</b>		
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
<b>Place of residence</b>		
North	89	24.9
Gaza	215	60.1
Middle	54	15.1
<b>Marital status</b>		
Married	295	82.4
Single	12	3.4

Divorced	2	0.6
Widowed	49	13.7
<b>Education level</b>		
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
<b>Employment</b>		
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
<b>Monthly income</b>		
\$ 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	%
<b>Type of cancer</b>		
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
<b>Duration of illness</b>		

2-5 years	116	32.4
6-10 years	68	19
more than 10 years	35	9.8
<b>Type of treatment</b>		
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.

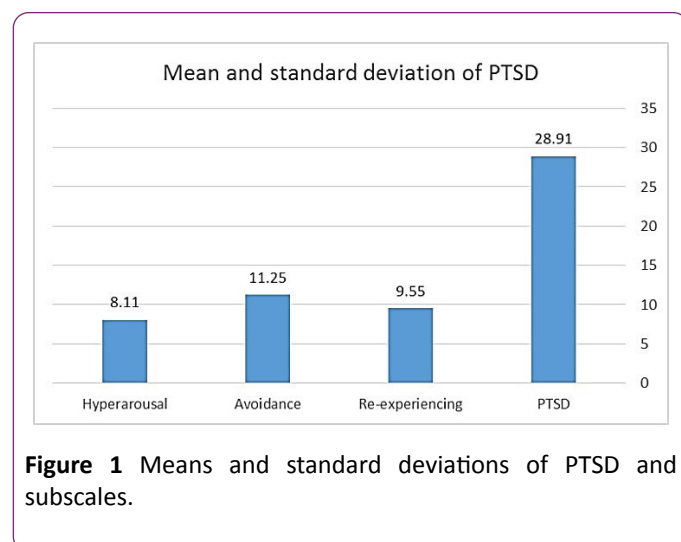
Symptoms	Mean	SD	%
Avoiding any thoughts or feelings about the event.	2.43	1.27	60.7
Avoiding doing things or going into situations which remind you by the events.	2.38	1.28	59.5
Upset by some things which reminded you of the events.	2.28	1.23	57
Painful images or memories of the events	2.23	1.17	55.7
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 had 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

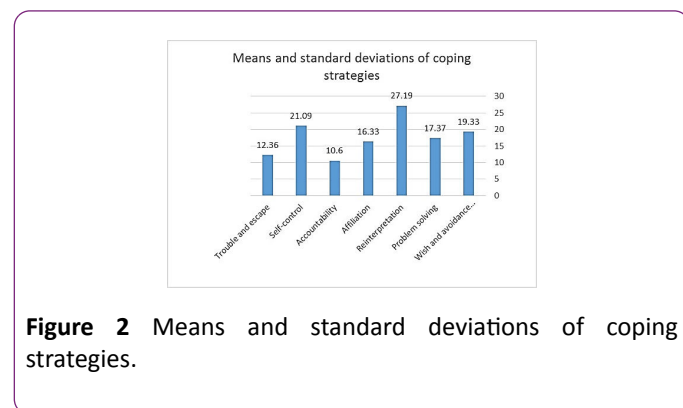
The results found that affiliation at the highest rank (81.6%), followed by reinterpretation (75.5%), self-control coping strategy (75.3%), problem solving (72.3%), wish and avoidance thinking was (69.0%), trouble and escape was (61.8%), accountability coping strategy was (53.0%) among the study sample 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 units 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 nurse or other health professional to the homes of patients with cancer for support and guidance. Special activities for young patients with cancer to relieve 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.

## References

1. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, et al. (2013) GLOBOCAN 2012 v1.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 11. Lyon, France: International Agency for Research on Cancer.
2. WHO (2016) Cancer fact sheet [online]. World Health Organisation. Accessed on: 12 March 2017.
3. Tarawneh M, Nimri O, Arkoob K, Zaghal MA (2009) Cancer incidence in Jordan 2009. Amman, Jordan: Ministry of Health.
4. Kharroubi A, Abu Seir RY (2016) Cancer Care in Palestine. Chapter in a book "Cancer Care in Silberman, M. Countries and Societies in Transition. Swaziland: Springer International Publishing, pp: 77-97.
5. American Psychiatric Association (1994) Diagnostic and statistical manual of mental disorders (4th edn). Washington, DC: American Psychiatric Association.
6. Hobbie W, Stuber M, Meeske K, Wissler K, Rourke M, et al. (2000). Symptoms of posttraumatic stress in young adult survivors of childhood cancer. *J Clin Oncol* 18: 4060-4066.
7. Gold JI, Douglas M, Thomas M, Elliott JE, Rao SM, et al. (2012) The relationship between posttraumatic stress disorder, mood states, functional status, and quality of life in oncology outpatients. *J Pain Symptom Manage* 44: 520-531.
8. Hahn EE, Hays RD, Kahn KL, Litwin MS, Ganz PA (2015) Post-traumatic stress symptoms in cancer survivors: relationship to the impact of cancer scale and other associated risk factors. *Psycho-Oncology* 24: 643-652.
9. Hoffman MA, Lent RW, Raque-Bogdan TL (2013) A social cognitive perspective on coping with cancer theory, research, and intervention. *Counsel Psychol* 41: 240-267.
10. Cigrang JA, Hryshko-Mullen A, Peterson AL (2003) Spontaneous reports of religious coping by patients with chronic physical illness. *J Clin Psychol Med Settings* 10: 133-137.
11. Borneman T, Stahl C, Ferrell BR, Smith D (2002) The concept of hope in family caregivers of cancer patients at home. *J Hosp Palliat Nurs* 4: 21-33.
12. Theis SL, Biordi DL, Coeling H, Nalepka C, Miller B (2003) Spirituality in caregiving and care receiving. *Holist Nurs Pract* 17: 48-55.
13. Howard AF, Bottorff JL, Balneaves LG, Grewal SK (2007) Punjabi immigrant women's breast cancer stories. *J Immigr Minor Health* 9: 269-279.
14. Pargament KI, Murray-Swank N, Magyar G (2005) Spiritual struggle: a phenomenon of interest to psychology and religion. In: Judeo Christian perspectives on psychology: human nature, motivation, and change. In: Miller WR, Delaney H (Eds.). APA Press: Washington, DC, pp: 245-268.
15. Sadati AK, Lankarani KB, Gharibi V, Fard ME, Ebrahimzadeh N, et al. (2014) Religion as an empowerment context in the narrative of women with breast cancer. *J Relig Health* 54: 1068-1079.
16. Dieperink KB, Johansen C, Hansen S, Wagner L, Andersen K, et al. (2017) Male coping through a long-term cancer trajectory. Secondary outcomes from a RTC examining the effect of a multidisciplinary rehabilitation program (RePCa) among radiated men with prostate cancer. *Acta Oncologica* 56: 254-261.
17. Ghiggia A, Castelli L, Riva G, Tesio V, Provenzano E, et al. (2017) Psychological distress and coping in nasopharyngeal cancer: An explorative study in Western Europe. *Psychol Health Med* 22: 449-461.
18. American Psychiatric Association (2000) Diagnostic and statistical manual of mental disorders, text revision (DSM-IV-TR). (4th edn). Washington, DC: APA.

19. Folkman S, Lazarus RS (1988) Ways of Coping Questionnaire. Palo Alto, CA: Consulting, Psychological Press.
20. Folkman S, Lazarus RS, Dunkel-Schetter C, DeLongis A, Gruen RJ (1986) Dynamics of a stressful encounter: Cognitive appraisal, coping, and encounter outcomes. *J Pers Soc Psychol* 50: 992-1003.
21. Qouta S, Punamaki RL, El Sarraj E (1997) Experiences and coping strategies among political prisoners. *Peace and Conflict: J Peace Psychol* 3: 19-36.
22. Lindberg N, Wellisch DK (2004) Identification of traumatic stress reactions in women at increased risk for breast cancer. *Psychosomatics* 45: 7-16.
23. Kangas M, Henry JL, Bryant RA (2005) Predictors of posttraumatic stress disorder following cancer. *Health Psychol* 24: 579-585.
24. Mytko J, knight S, Chastain D, Mumby P, Sisto A, et al. (2005) Coping strategies and psychological distress in cancer patients before autologous bone marrow transplant. *J Clin Psychol Med Settings* 3: 355-366.
25. De Faye B, Wilson K, Chater S, Viola R, Hall P (2006) Stress and coping with advanced cancer. *Palliat Support Care* 4: 239-249.
26. Silva J, Muller M, Bonamigo R (2006) Coping strategies and stress levels in patients with psoriasis. *J clin Epidemiol laboratory* 81: 315-325.
27. Hjorleifsdottir E, Hallberg I, Bolmsjo I, Gunnarsdottir E (2006) Distress and coping in cancer patients: Feasibility of the Icelandic version of BSI 18 and the WOC-CA questionnaires. *Eur J Cancer Care* 15: 80-89.
28. Büssing A, Ostermann T, Koeing H (2007) Relevance of religion and spirituality in German patients with chronic diseases. *Int J Psychiatry Med* 37: 39-57.
29. Tan M (2007) Social support and coping in Turkish patients with cancer. *Cancer-Nurs J* 30: 498-504.
30. Hee-Seung K, Hye-A Y, Young-Sun S, Nam-Cho K, Yang-Suk Y (2002) Stress and coping strategies of patients with cancer: A Korean Study. *Cancer Nurs J* 25: 425-431.
31. Richardson AE, Morton RP, Broadbent E (2016) Coping strategies predict post-traumatic stress in patients with head and neck cancer. *Eur Arch Otorhinolaryngol* 273: 3385-3339.
32. Nipp RD, El-Jawahri A, Fishbein JN, Eusebio J, Stagl JM, et al. (2016) The relationship between coping strategies, quality of life, and mood in patients with incurable cancer. *Cancer* 122: 2110-2116.