

Prevalence and Associated Factors of Anxiety Disorders among Cancer Patients Presented to King Abdulaziz University Hospital - Jeddah (2014)

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Abstract: **Background:** The prevalence of anxiety disorders among cancer patients and its associated factors in Saudi Arabia are unknown. There is a need to develop an evidence-based knowledge to help introduce interventions as untreated anxiety can lead to significant morbidity. **Objective:** To determine the prevalence and associated factors of anxiety disorders among cancer patients presented to King Abdulaziz University Hospital - Jeddah (2014). **Methods:** This cross-sectional study was carried out among cancer patients presented to King Abdulaziz University Hospital - Jeddah. Sample consisted of 129 cancer patients, we included (120) of them in the analysis and excluded (9) of them due to missing or incorrect data. We used Tylor scale for anxiety. **Results:** The mean age of cancer patients was 50.98 years, SD=16.233, and median illness duration was 17 months & 19.5 days, SD=19.813. The prevalence of anxiety among cancer patients presented to King Abdulaziz University Hospital - Jeddah city was (65%). Majority of patients have moderate degree of anxiety (34.62%). Age, duration (time since diagnosis), and marital status significantly affect the prevalence of anxiety with p-value (0.024, 0.001 & 0.042) respectively. There was no significant association between anxiety and socioeconomic, sex, and educational level. **Conclusions:** The prevalence of anxiety disorder among cancer patients attending care at King Abdulaziz University Hospital was high. The majority of patients were having moderate degree anxiety. There was significant association between anxiety and cancer's duration. There was significant association between the anxiety, and patients' age and marital status, there was no significant association between the anxiety and socioeconomic, sex, and educational level. Almost all cancer types showed moderate degree of anxiety. **Recommendations:** We recommend that all cancer patients should complete a baseline psychological screening as a part of standard cancer care, there is a need for periodic psychological assessment of cancer patients by psychiatric consultants and we recommend the Oncology Center to have a psychiatric center as a part of their facilities to help support their patients.

Keywords: Anxiety, Oncology, Chemotherapy, Prevalence, Psychiatry

1. Introduction

Cancer is a life threatening condition, it is an illness with direct influence on physical, and psychosocial well-being and overall quality of life and as in all threatening situations many individuals become anxious, feel alone, fear and vulnerable. Unfortunately, that anxiety sometimes becomes a clinically debilitating condition in its own right, and cancer care professionals will often be responsible for its initial recognition and management(1)

Cancer is more than a health condition. It is characterized by fear, stress, and uncertainty about the future and it is one of the most stressful events that a person may experience in his or her life, so understandably many cancer patients can develop anxiety, Up to one third of patients within one year of diagnosis with cancer will experience psychological morbidity such as major depression, generalized anxiety disorder(19).

Other researches estimates that as many as 50% of cancer patients develop anxiety, and more are likely to suffer from various bouts of stress and anxiety during their treatment. Yet studies have also shown that anxiety can actually hinder the success of cancer treatment, and the quality of life of recovery(2).

Cancer patients may develop more than one type of anxiety; Generalized anxiety disorder is the most common, but panic disorders may also affect those with a cancer diagnosis because health problems like cancer can make a patient to be hyper-aware of how they feel, and when they pay too much attention to the sensations in their body, they increase the risk of experiencing a panic attack. In addition, severe stress can also trigger a panic attack(3).

Anxiety levels become high soon after the onset of cancer symptoms, during investigation and diagnosis, but many people adapt over time(5).

Anxiety appears to increase as illness progresses, such that more extensive disease is associated with a higher prevalence of anxiety in the majority of studies(6).

In the general population, younger women are more prone to anxiety. However, age, gender, marital status, social class and education variants are not associated with anxiety in cancer patient populations. Perhaps when the stressor is more severe, degree of susceptibility with each variant may become less important(6).

However, such co variation of anxiety and progression of disease may not be found when analysis is controlled for physical disability(7).

Anxiety certainly can cause disruption, and be detrimental to quality of life. A pattern of association between anxiety and self-reported quality of life particularly impaired social functioning, fatigue, and physical impairment has been demonstrated in cancer care(8).

Chemotherapy and radiotherapy are associated with anxiety, but the context is important. Toxicity of chemotherapy co-

varies with anxiety, in a multivariate analysis controlled for progression of disease and performance status(7).

The aim of our research is to help those involved in cancer patient care, who are not specialists in mental health, to understand the nature of anxiety, and discriminate morbid from normal anxiety. The introduction of paper contains the nature of research work, purpose of work, and the contribution of this paper. It contains the references of the previous work done. This template is in Word document, provides authors with most of the formatting specifications required by the author for preparation of their research paper.

2. Materials and Methods

Objectives

2.1 General Objective

To determine the prevalence and associated factors of anxiety disorders among cancer patients presented to King Abdulaziz University Hospital-Jeddah City (2014)

2.2 Specific Objectives

- To recognize the grade of anxiety disorders among cancer patients presented to King Abdulaziz University Hospital-Jeddah City.
- To assess the association between the medical variables (Type of cancer and time since the diagnosis has made) and anxiety.
- To assess the association between the socio-demographic variables (age, gender, level of education, and socioeconomic status) and anxiety.

3. Methodology

3.1 Study design, area and time:

A cross-sectional study conducted at the King Abdulaziz University Hospital-Jeddah City (Makkah Al Mukarramah Province, Saudi Arabia) during the period from 2/3/2014 to 2/4/2014.

3.2 Study Population

The study included both adult male and female patients (over 18 years of age) undergoing chemotherapy at King Abdulaziz University Hospital-Jeddah City during the period from 2/3/2014 to 2/4/2014.

The list of all targeted patients was obtained from the registration department of King Abdulaziz University Hospital.

3.3 Data collection tools and analysis

The data was collected by interviewing patients using structured questionnaire containing personal data (sex, age, marital state, educational level, socioeconomic state), and some medical variables such as type of cancer and time since diagnosis. According to a study conducted in USA (9) among patients with anxiety, firstly diagnosed by psychiatric clinical interview, then by different types of questionnaires (HADS-A, HADS-

D, GAI, and GDS-SF) the results were: "all measures were able to distinguish those with index disorders from those without. HADS-A displayed sensitivity 91% specificity 70%. HADS-D displayed sensitivity 82% specificity 83%. GAI displayed sensitivity 91% specificity 65%....." (9).

We used Taylor's scale for anxiety, which is a modified HADS-A questionnaire (scale containing 30 questions, with yes or no answers. And every yes answer means one degree in the scale), The scale divided into 5 categories as follow:

*0-9 free from anxiety. *10-12 mild anxiety. *13-16 moderate anxiety. *17-19 severe anxiety. *20-30 very severe anxiety. Finally, the data was analyzed by using a computer program (SPSS) version 19.

3.4 Ethical Consideration

We obtained this study's approval from the department of community medicine, College of Medicine, King Abdulaziz University. These research processes including patients registry and data collection were facilitated by registration department of King Abdulaziz University hospital, Jeddah city. Objectives of the study were clarified for the participants. We ensured to those who agreed to participate in our study that their information will be kept in a strictest confidence and will only be used for benefit of the community.

4. Results and Discussion

4.1 Results

The overall response rate to the questionnaire was 93% (120 out of 129 questionnaires) while the remaining (9 questionnaires) were excluded from analysis either due to incorrect, missing data or was under the required age. The mean age of patients was 50.98 and SD = 16.233, as shown in (Table 1). Also showed that the overall prevalence of the anxiety among all types of cancer was 65% (Figure 1). The highest prevalence of the anxiety was among the age group between 36-50 years, it was 70.73%, and lowest prevalence was among the age group above 50 years, it was 60.35%, as shown in (Table 1).

Regarding the gender of the respondents 55 (45.8%) of them were male, while the remaining were female 65 (54.2%) (Figure 2).

Regarding the marital status of respondents 93 (77.5%) of them were remarried, 11 (9.2%) were single, 11 (9.2%) were widow, and only 5 (4.2%) of them were divorced (Figure 3).

Regarding the education level of respondents most of them 63 (52.5%) were illiterate, while 35 (29.2%) of them were having primary school degree, and 20 (16.7%) of the patients were having secondary school degree, only 2 (1.7%) patients were having university degree (Figure 4).

Regarding the socioeconomic status of the respondents the majority of them 56 (46.7%) were middle class, and 49 (40.8%) of them were poor, while the all rest 15 (12.5%) patients were rich (Figure 5).

Regarding the tumor's type among the patients, the common three types were: breast cancer, Hodgkin lymphoma, and uterine cancer

27 (22.5%), 14 (11.67%), and 10 (8.3%) respectively, while the other types were: esophageal cancer, renal cancer, hepatic cancer, pharyngeal cancer, and non-Hodgkin lymphoma each one was 3 (2.5%) (Figure 6).

In resemblance to other researches we categorized the duration of cancer to four categories to make the comparison between the age group easy, the age groups were: 6 months or less, 7 to 12 months, 13 to 24 months, and more than 24 months (Table 2).

As you can see clearly, the results proved that anxiety was highly prevalent among patients who had the cancer for around 13-24 months (Table 2) as it was 91.67%, and least prevalent among the patients who had the cancer for around 7-12 months, as it was 30%. The mean duration of the cancers was 17 months & 19.5 days and SD = 19.813 (Table 2).

We can notice from (Figure 7) that the most common form of the anxiety is the moderate form (34.2%), followed by the very severe form of anxiety (32.05%), while the lowest is the mild form of anxiety (12.82%).

T-Test was used to investigate the respondents' age in relation to respondents' state of presence of anxiety or not, as a result we found the P-value = 0.024 and result of T-test = 2.29, as shown in (Table 3).

Another T-Test was used to investigate the respondents' duration in relation to respondents' presence of anxiety or not, as a result we found the P-value = 0.001 and result of T-test = 3.34, as shown in (Table 4).

As you can see, Chi-Square test was used to investigate the association between categorical variables (which were marital status, sex, education, socioeconomic status, and cancer type) in regarding to the presence of anxiety or not in those patients.

For marital status regarding to anxiety the Chi-Square test resulted in (P-Value = 0.042), as shown in (Table 5). For respondents' sex regarding to anxiety the test resulted in (P-Value = 0.212), as shown in (Table 6). For respondents' education regarding to anxiety the test came up with (P-Value = 0.641), as shown in (Table 7). For respondents' socioeconomic status regarding to anxiety the result of test was (P-Value = 0.471), as shown in (Table 8). Lastly for respondents' cancer type regarding to anxiety the result of test was (P-Value = 0.042), as shown in (Table 9).

5. Discussion

The study focused on a from four aspects of anxiety: its prevalence, its grades, its relation to medical variables, and its relation to socio-demographic variables. So, we are going to categorize the discussion into these aspects.

The main finding of this study is the high prevalence of anxiety among cancer patients (65.0%) as compared to other studies. In our study, 65% patients with cancer had anxiety. This is slightly higher than study conducted earlier (2007) in Iran showing a rate of 57% for an

xiety(10).However,thefindingsarecomparabletoarecent(2010)studyfromPakistanreportingprevalenceratesof66%amongcancerpatientsforanxiety(11).Thiscouldbeexplainedbydifferent explanations: first explanation could be that most of the studies on prevalence of anxiety among cancer patients are from developed countries which have low prevalence of mental health problems as compared to developing countries (12), other developing countries have with similar result like Pakistan (11) and Iran (10). A second explanation could be that all the participants in our study were undergoing chemotherapy which is established risk factors for anxiety and psychiatric morbidity (13).

The most grade of anxiety in the patients was moderate type (34.62%). Other studies also confirmed our results UK (2013) & Iran (2013) (14, 15). This shows that cancer makes most of the patients moderately anxious and this should be taken into consideration in health policies.

There was no statistically significant relationship between anxiety and cancer type (p-value=0.875) in the present study. Other meta-analysis of more than 50 studies (1997) showed that there were significant differences among groups with regard to type of cancer and cancer duration (13). We, however, did not find any significant effect of cancer type but we find significant differences with regards to cancer duration (p-value=0.001) on predisposition to anxiety toward patients with more than one year cancer duration. Our result was consistent with the Pakistan study (2010) on significant of cancer's duration on predisposition to anxiety toward patients with more than 6 months cancer duration (11).

There was no statistically significant relationship between anxiety and gender, and anxiety and the socioeconomic status in the present study. Other studies also confirmed our results Pakistan (2010) (11). Also, there was no statistically significant relationship between anxiety and educational level in the present study, which was not consistent with most of the other studies, but as we can see, there were 2 educated persons with university degree in our patient sample and 20 persons with secondary school degree which were the lowest two percentages while all others were illiterate or at primary school level, we, however, assume that the relationship between anxiety and educational level was not measured appropriately in our study.

In our cross-sectional study, a significant association (p-value=0.024) was observed between anxiety and patients of age 18 up to 50 years having a higher likelihood of suffering from anxiety. We have seen that with increasing age of the patient the level of anxiety decreases. 62 (51.67%) of the study subjects were from the age group of 18–50 years. 43 (69.36%) subjects of them were having anxiety. This is in agreement with previous study from Pakistan (2008) (16) conducted in Lahore demonstrating that younger people up to 40 years are more prone to psychological distress when suffering from cancer and with other studies (10; 17; 18).

There was a statistically significant relationship between anxiety and

marital status (p-value=0.042) in the present study. The significant change was toward single and divorced patients, in expense of married and widow patients. Other studies show no statistical significant (10; 11; 14; 15).

6. Limitation

Firstly, Due to time and resource limitation, the study has been conducted only in chemotherapy's patients (cancer's patients undergoing surgery or other types of treatment: radiotherapy, concomitant treatment, not included in the study) and hence it may be not a representation of all cancer patients.

Secondly, the study also has certain limitation represented in the use of self-reported questionnaires instead of psychiatric diagnostic interview and unavailability of psychiatric specialist or consultant.

Thirdly, there might be errors in the questionnaire stage. Different students tend to phrase questions differently which may influence the patient answers. Students may be forced to explain, elaborate and rephrase the questions so the patients can understand, thus might unintentionally direct the patients to specific answers.

7. Figures, Graphs and Tables

Table 1: Distribution of age of respondents in-relation to present of anxiety or not among patients attending chemotherapy at king Abdulaziz University Hospital.

Variable		Anxiety Number	Normal Number	Anxiety Percent	Normal Percent	Total
Age	18 – 35 Years	14	7	66.7%	33.3%	21 (17.50%)
	36 – 50 Years	29	12	70.73%	29.27%	41 (34.17%)
	51 years & ↑	35	23	60.35%	39.65%	58 (48.33%)
	Total	78	42	65%	35%	120 (100%)
Mean ± SD		50.98 [^] ±16.233				

[^] = Years, SD = Standard deviation. **The overall prevalence is 65%**

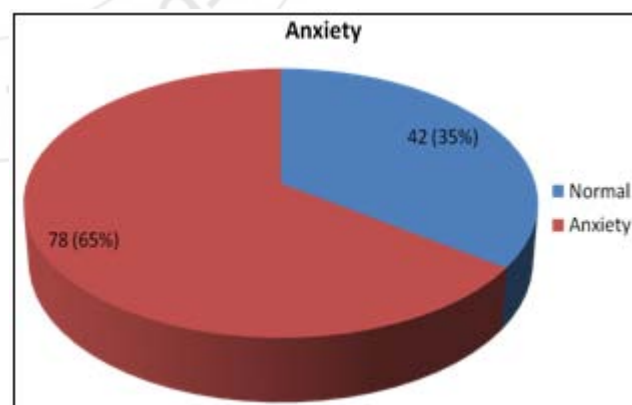


Figure 1: Distribution of anxiety in the respondents attending chemotherapy at King Abdulaziz University Hospital – Jeddah city

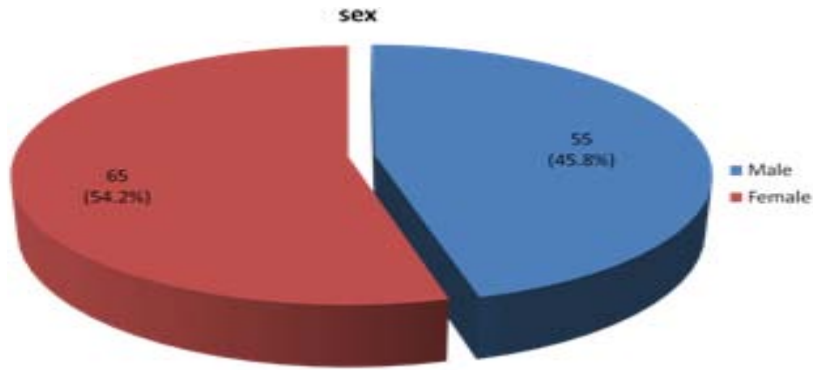


Figure 2: Distribution of respondents' sex among patients attending chemotherapy at king abdulaziz university hospital – Jeddah city.

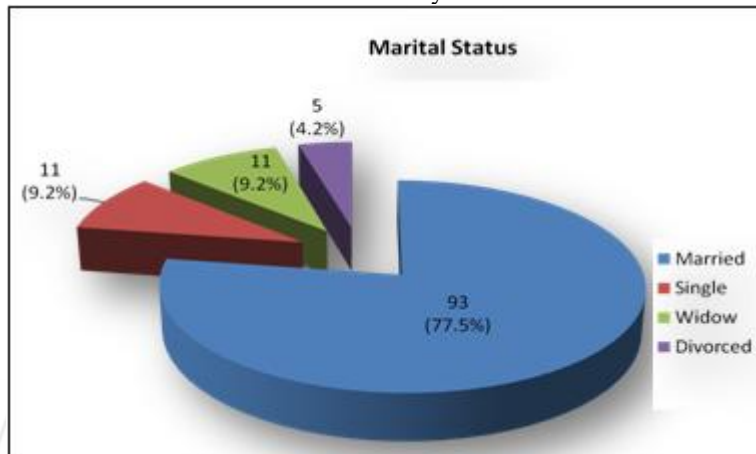


Figure 3: Distribution of Marital Status of respondents attending chemotherapy at king abdulaziz university hospital – Jeddah city.

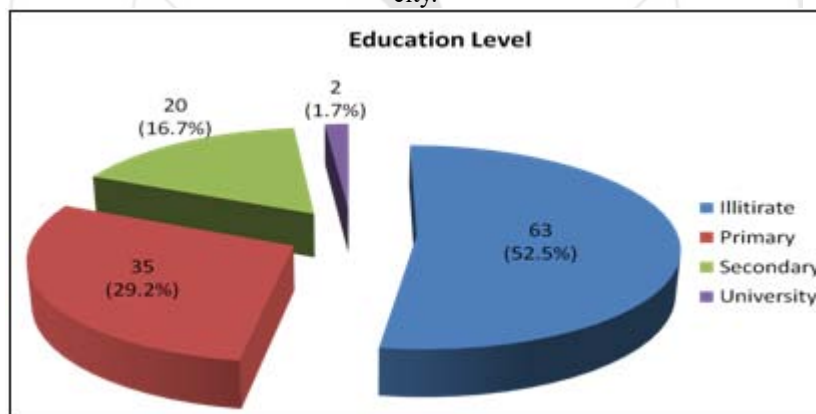


Figure 4: Distribution of educational level of respondents attending chemotherapy at king abdulaziz university hospital – Jeddah city

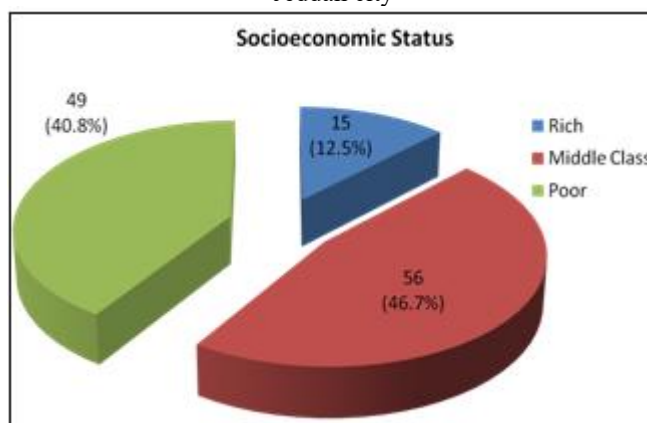


Figure 5: Distribution of socioeconomic status of respondents attending chemotherapy at King Abdulaziz University Hospital – Jeddah city.

Table 2: Distribution of cancer's duration in-relation to presence of anxiety or not among patients attending chemotherapy at king abdulaziz university hospital.

Variable	Anxiety Number	Normal Number	Anxiety Percent	Normal Percent	Total	
Duration	6 months & ↓	28	21	57.14%	42.86%	49 (40.83%)
	7 – 12 months	6	14	30%	70%	20 (16.67%)
	13 – 24 months	22	2	91.67%	8.33%	24 (20%)
	25 months & ↑	22	5	81.48%	18.52%	27(22.5%)
	Total	78	42	65%	35%	120 (100%)
Mean ± SD	17.65 [^] ±19.813					

[^] = months,
 SD = Standard deviation.

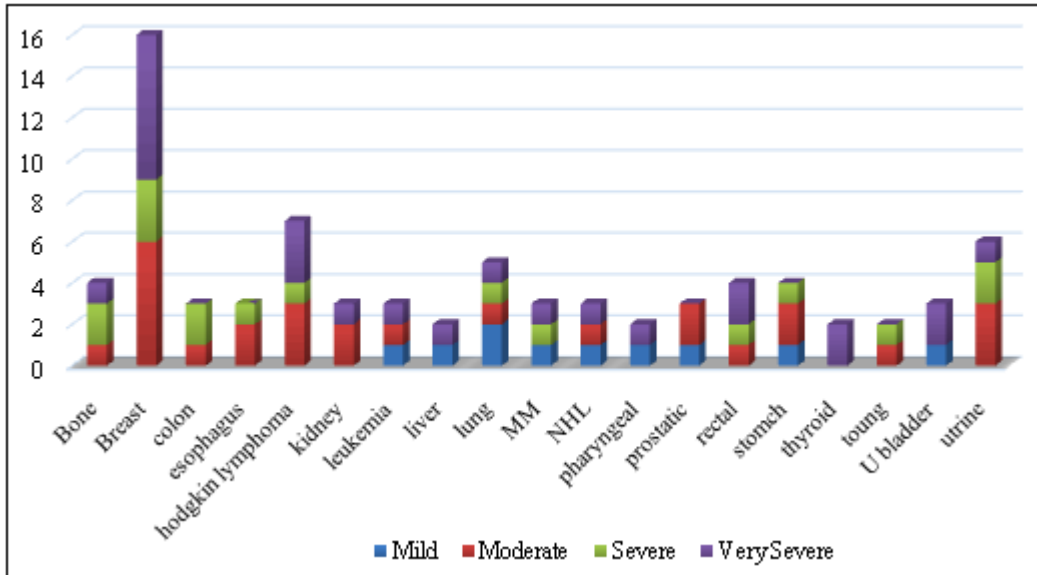


Figure 6: Distribution of respondent's cancer types and their relation to the grade of anxiety

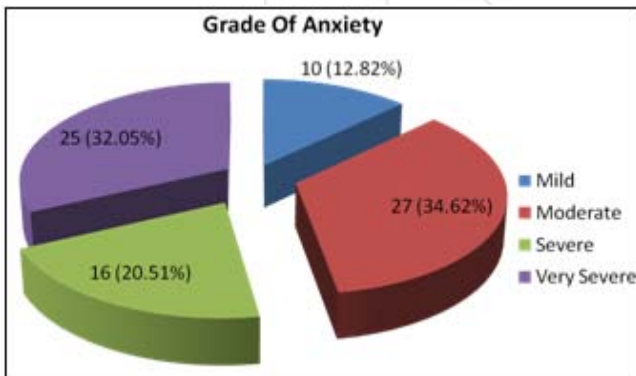


Figure 7: Distribution of anxiety grades in respondents attending chemotherapy at King Abdulaziz University hospital – Jeddah city

Table 3: Comparison of the respondents' state of presence anxiety or not in-relation to their age using T-Test

Anxiety		Mean ± SD	t	df	p-value
Age	Anxiety	48.54 ± 14.8	2.29	118	0.024*
	Normal	55.52 ± 17.91			

* = significant,
 df = degree of freedom,
 SD = Standard deviation.

Table 4: Comparison of the respondents' state of presence anxiety or not in-relation to their cancers duration using T-Test

Anxiety		Mean ± SD	t	Df	p-value
Duration	Anxiety	21.91 ± 22.09	3.34	118	0.001*
	Normal	9.74 ± 11.16			

* = significant,
 df = degree of freedom,
 SD = Standard deviation.

Table 5: Comparison of the respondents' state of anxiety or not in-relation to their marital status using Chi-Square Test

Variable	Anxiety	Normal	X ²	p-value	
Marital Status	Married	57 (61.29%)	36 (38.71%)	8.22 3	0.042*
	Single	10 (90.91%)	1 (9.09%)		
	Widow	5 (45.45%)	6 (54.54%)		
	Divorced	5 (100%)	0 (0%)		
	Total	78(65%)	42)35%(

*=significant
 X² = Chi-Square test.

Table 6: Comparison of the respondents' state of anxiety or not in-relation to their sex using Chi-Square Test

Variable	Anxiety	Normal	X ²	p-value	
sex	Male	39 (71.43%)	16 (28.57%)	1.558	0.212
	Female	39 (60.71%)	26 (39.29%)		
	Total	78 (65%)	42 (35%)		

X² = Chi-Square test.

Table 7: Comparison of the respondents' state of anxiety or not in-relation to their educational level using Chi-Square Test

Variable	Anxiety	Normal	X2	p-value	
Education	Illiterate	41 (65.08%)	22 (34.92%)	1.681	0.641
	Primary	21 (60%)	14 (40%)		
	Secondary	14 (70%)	6 (30%)		
	University	2 (100%)	0 (0%)		
	Total	78 (65%)	42 (35%)		

X2 = Chi-Square test.

Table 8: Comparison of the respondents' state of anxiety or not in-relation to their socioeconomic status using Chi-Square Test

Variable	Anxiety	Normal	X2	p-value	
Socioeconomic status	Poor	35 (71.43%)	14 (28.57%)	1.507	0.471
	Middle Class	34 (60.71%)	22 (39.29%)		
	Rich	9 (60%)	6 (40%)		
	Total	78 (65%)	42 (35%)		

X2 = Chi-Square test.

Table 9: Comparison of the respondents' state of anxiety or not in-relation to their cancer types using Chi-Square Test

Variable	Anxiety	Normal	X2	p-value	
Tumor Type	Bone	4 (66.7%)	2 (33.3%)	13.053	0.875
	Breast	16 (59.26%)	11 (40.74%)		
	colon	3 (75%)	1 (25%)		
	esophagus	3 (100%)	0 (0%)		
	HL	7 (50%)	7 (50%)		
	kidney	3 (100%)	0 (0%)		
	leukemia	3 (50%)	3 (50%)		
	liver	2 (66.7%)	1 (33.3%)		
	Lung	5 (71.43%)	2 (28.57%)		
	MM	3 (100%)	0 (0%)		
	NHL	3 (100%)	0 (0%)		
	pharynx	2 (66.7%)	1 (33.3%)		
	prostatic	3 (60%)	2 (40%)		
	rectal	4 (66.7%)	2 (33.3%)		
	stomach	4 (100%)	0 (0%)		
	Thyroid	2 (50%)	2 (50%)		
	tongue	2 (50%)	2 (50%)		
UB	3 (60%)	2 (40%)			
uterine	6 (60%)	4 (40%)			
Total	78 (65%)	42 (35%)			

HL = Hodgkin lymphoma.

MM = multiple myeloma.

NHL = Non-Hodgkin lymphoma.

UB = urinary bladder

X2 = Chi-Square test

8. Conclusion

The prevalence of anxiety disorder among cancer patients presented to king Abdulaziz university hospital was high.

- 1) The majority of patients were having a moderate grade of anxiety.
- 2) There was significant association between anxiety and duration of cancer.
- 3) There was significant association between the anxiety and age of the patients,
- 4) There was significant association between the anxiety and marital state.

- 5) There was no significant association between the anxiety and socioeconomic, sex, and educational level.
- 6) Almost all cancer types showed moderate grade of anxiety. The most frequent type in our study was breast cancer and the least type is tongue cancer.

9. Recommendations

Based on the result of our study, the following recommendations were made:

- 1) We recommend that all cancer patients should complete a baseline psychological screening as a part of standard cancer care.
- 2) There is need for periodic psychological assessment of cancer patients by psychiatric consultants.
- 3) Achievement of psychological awareness of cancer patients and their family to decrease the risk of anxiety development,
- 4) There is a need for these patients to be seen regularly by psychiatric doctors so we recommend king Abdulaziz university hospital to facilitate a psychiatric interview to help support their patients.

10. Conflict of Interest

No conflict of interest

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