Print ISSN: 2321-6379
Online ISSN: 2321-595X

Original Article

Prevalence and Associated Factors of Anxiety Disorders among Cancer Patients Presented to Madras Medical College Chennai

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Abstract

Background: The prevalence of anxiety disorders and its associated factors among cancer patients in India and Tamil Nadu are less studied. As untreated anxiety can lead to significant morbidity, there is a strong need to address these issues with an evidence-based knowledge.

Objective: The objective of the study was to determine the prevalence and associated factors of anxiety disorders among cancer patients presented to Madras Medical College, Chennai, India.

Methodology: This cross-sectional study was carried out among cancer patients presented to Madras Medical College. Sample consisted of 200 cancer patients, out of this ten were excluded due to missing data, only 190 patients were included for analysis. We used Tylor scale for anxiety.

Results: The mean age of cancer patients was 56.11 years and median duration of cancer was 12.79 months. The prevalence of anxiety among cancer patients presented to Madras Medical College Chennai was 64%. The ajority have moderate degree of anxiety (51%). We observed a significant association between anxiety and duration (time since diagnosis) of cancer and socioeconomic status of patients with $P = 0.00001$, 0.035, respectively. There was no significant association between anxiety and marital status, age, sex, educational level, and cancer type.

Conclusions: The prevalence of anxiety disorder was high among cancer patients attending care at Madras Medical College Hospital. The majority were having moderate degree anxiety. There was significant association between anxiety and cancer duration and patient's socioeconomic status that needs to be addressed and requirement of a trained staffs or clinical psychologist's availability is warranted.

Key words: Anxiety disorders, Cancer patients, Madras Medical College Chennai

INTRODUCTION

Cancer is a now considered as a chronic health condition. Cancer directly or indirectly influences physical, psychosocial well-being, and overall quality of life of these patients. For all individuals, the diagnosis of cancer is a life altering experience .Many psychiatric conditions may occurs in cancer patients, commonly diagnosed are depression, anxiety, adjustment disorders, stress related disorders, and other neurocognitive disorders. Sometimes that anxiety becomes a clinically debilitating condition in its own right. Hence, initial recognition and management of anxiety disorders are utmost important. Cancer care professionals should be aware of these mental health problems and should take a responsible step for its initial recognition and management.

Patients may experience fear, stress, loneliness, and uncertainty about the future, once cancer diagnosis is established. It is one of the most stressful events that a person may experience in his or her life. They may also experience various bouts of stress and anxiety during their treatment. Within 1 year of diagnosis around one-third of cancer patients will experience psychological morbidity such as major depression, generalized anxiety disorder.[1]

Access this article online

www.ijss-sn.com

Month of Submission : 06-2020
Month of Peer Review : 07-2020
Month of Acceptance : 07-2020
Month of Publishing : 08-2020

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As per many studies, as high as 50% of cancer patients can develop anxiety. As per studies, anxiety may affect mood of patient, adherence to treatment, thereby the success of cancer treatment, and the quality of life.[2]

Patients experience high level of anxiety soon after the diagnosis of cancer, but many of them adapt to this over time.[3] As cancer progresses, anxiety may start to increase such that more extensive disease is often associated with a higher prevalence of anxiety in the majority of studies.[4]

Cancer patients usually experience more than one type of anxiety; among this, generalized anxiety disorder is the most common .Most of these patients also experience panic disorders. Severe stress itself can also trigger a panic attack.[5]

Variables such as age, gender, marital status, social class, and education variants have influence on anxiety in the general population but in cancer patients degree of susceptibility with these variants may become less important, because the stressor is more severe.[6]

Apart from diagnosis of cancer, treatment of cancer with surgery, chemotherapy, radiotherapy also leads to anxiety. Association between anxiety and self-reported quality of life particularly impaired social functioning, fatigue, and physical impairment has been demonstrated in cancer care.[7]

The aim of our research is to understand the prevalence and nature of anxiety and factors associated with anxiety.

Objectives

The objectives of the study were to determine the prevalence and associated factors of anxiety disorders among cancer patients presented to Madras Medical College Chennai.

1. To know the grade of anxiety disorders among cancer patients presented to Madras Medical College, Chennai
2. To know the association between the medical variables such as type of cancer and duration of cancer (time since the diagnosis has made) and anxiety
3. To know the association between the socio-demographic variables such as age, gender, level of education, and socioeconomic status of patient and anxiety.

METHODOLOGY

Study Design, Area, and Time

A cross-sectional study conducted at the Madras Medical College, Chennai, during the period from November 2, 2019, to March 2, 2020.

Study Population

Both adult male and female patients (over 20 years of age) undergoing chemotherapy were included in this study at Madras Medical College, Chennai, during the period from November 2, 2019, to March 2, 2020, was included in this study.

The patients' details were collected from the registration Department of Madras Medical College, Chennai.

Data Collection Tools and Analysis

Structured questionnaire was used to interviewing patients for data collection. It contains personal data such as sex, age, marital status, educational level, socioeconomic status, and some medical variables such as type of cancer and time since diagnosis.

The different types of questionnaires used were Hospital Anxiety and Depression Scale (HADSA), HADS-D, GAI, and geriatric depression short form. HADSA displayed sensitivity 91%, and specificity 70%. HADS-D displayed sensitivity 82% and specificity 83%. GAI displayed sensitivity 91% and specificity 65%.[8]

We used Taylor scale for anxiety (modified HADSA questionnaire). This scale contains 30 questions, with yes or no answers. And every yes answer means one degree in the scale. The scale divided into five categories as follow:

- 0–9 free from anxiety
- 10–12 mild anxiety
- 13–16 moderate anxiety
- 17–19 severe anxiety
- 20–30 very sever anxiety

Computer program (SPSS) version 19 was used for analysis of the data.

Ethical Consideration

This study was started after obtaining Ethical Committee approval from Madras Medical College, Chennai. Patients were clearly explained the objectives of the study. Patients were double ensured that all this information will be kept in a strictest confidence. Information will be used for benefit of the community only.

RESULTS

The overall response rate to the questionnaires was 95% (190 of 200 questionnaires), while ten were excluded from the analysis either due to missing data or below or above the required age. The mean age of patients in this study was 56.11, as shown in Table 1. The overall prevalence of the anxiety among cancer patients was 64 % [Figure 1].

We observed that the highest prevalence of the anxiety was among the age group between 20 and 40 years, it was 65.62%, and lowest prevalence was among the age group above 60 years, it was 63.33%, as shown in Table 1 and Figure 2.

In this study, of 190 patients, 105 (55.26%) were male, while the remaining were female 85 (44.74%) [Figure 3].

Considering the marital status of patients, 164 (86.32%) of them were married, 14 (7.37%) were single, 10 (5.26%) were widow, and only 2 (1.05%) of them were divorced [Figure 4].

Education level of patients in this study, most of them 126 (66.32%) were illiterate, while 46 (24.21%) of them were having primary school degree, and 15 (7.89%) of the patients were having secondary school degree, only 3 (1.58%) with university degree [Figure 5].

Considering the socioeconomic status, the majority of patients in this study were belong to poor class 102 (53.68%) and 86 (45.26%) of them were middle class while the remaining 2 (1.06%) were rich [Figure 6].

The most common tumor's type among the patients was: Breast cancer, lung cancer, head and neck cancer, and colon cancer, 52 (27.37%), 36 (18.95%), 30 (15.79%), and 30 (15.79%), respectively, while the lower types were: Non-Hodgkin Lymphoma, stomach cancer, and esophagus, 12 (6.32%), 18 (9.47%), and 12 (6.31%), respectively [Figure 7].

We observed that anxiety was highly prevalent among patients who had the cancer for around 19–24 months [Table 2] as it was 81.82%, and least prevalent among the patients who had the cancer for around 6 months, as it was 42.86%.

The mean duration of the cancers was 12.79 days.

We observed from Figure 8 that the most common form of the anxiety is the moderate form 51%, followed by the mild form of anxiety 26%, while the lowest is the very severe form of anxiety (8%).

Table 1: Presence of anxiety or not among patients receiving chemotherapy at Madras Medical College, Chennai, in relation to their age distribution data

Age	Anxiety number	Normal number	Anxiety percentage	Normal percentage	Total %
20–40 years	21	11	65.62	34.38	32 (16.84)
41–60 years	44	24	64.71	35.29	68 (35.79)
61–80 years	57	33	63.33	36.67	90 (47.37)
Total	122	68	64	36	190 (100)

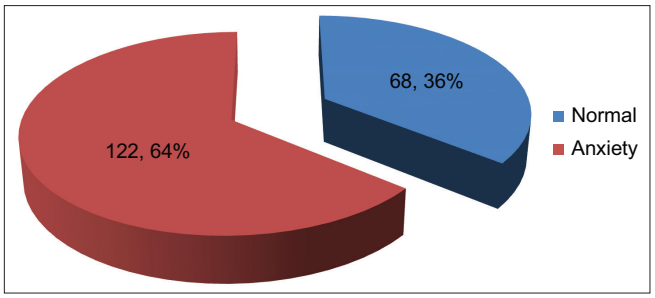

Figure 1: Distribution of anxiety in the patients attending chemotherapy at Madras Medical College Chennai

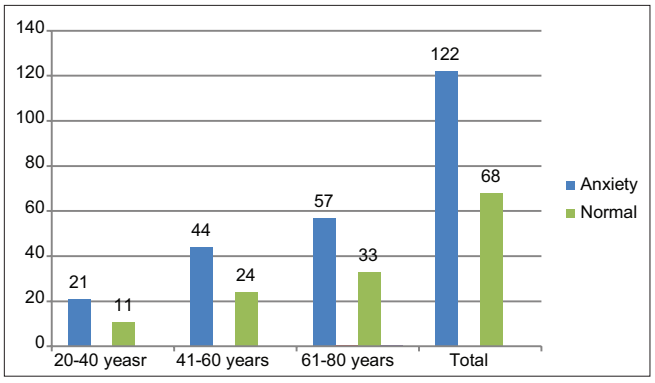

Figure 2: Presence of anxiety or not among patients receiving chemotherapy at Madras Medical College Chennai ,in relation to their age distribution data

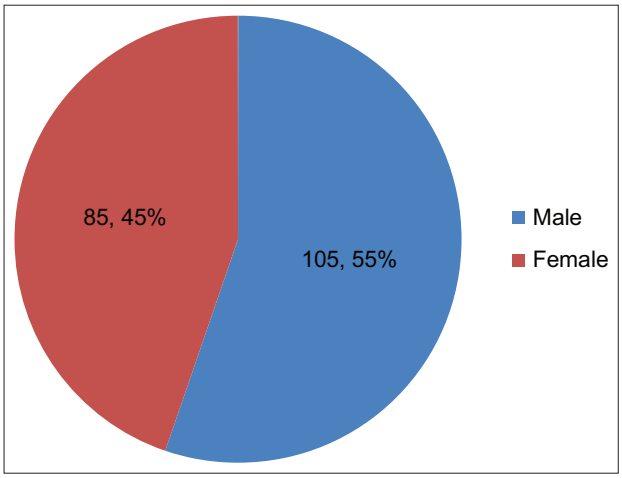

Figure 3: Distribution patients attending chemotherapy at Madras Medical College Chennai according to their sex

t-test is used to investigate the relationship between patients age and presence of anxiety or not [Table 3].

Another *t*-test was used to investigate relationship between duration of cancer and presence of anxiety or not. We got $P = 0.00001$ and result of *t*-test = 5.39, significant association, as shown in Table 4.

Chi-square test was used to investigate the association between categorical variables (such as marital status,

sex, education, socioeconomic status, and cancer type) in regarding to the presence of anxiety or not in these patients.

For marital status regarding to anxiety, the Chi-square test resulted in $P = 0.632$, as shown in Table 5. For patients sex regarding to anxiety the test resulted in $P = 0.432$, as shown in Table 6. For patients education regarding to anxiety ($P = 0.0669$), as shown in Table 7. For patients socioeconomic status regarding to anxiety the result of test was $P = 0.035$, as shown in Table 8. Finaly, for patients cancer type regarding to anxiety the result of test was $P = 0.166$ [Table 9].

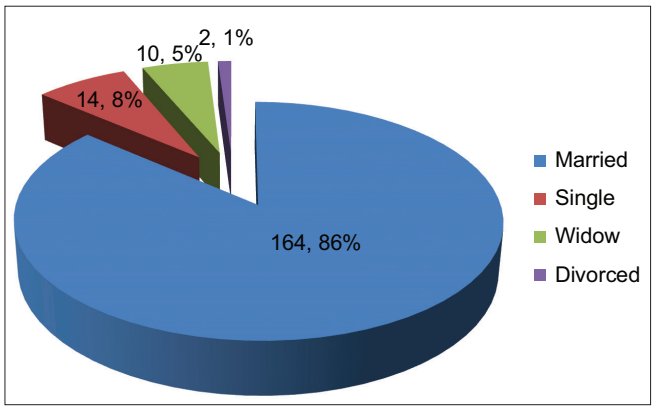

Figure 4: Distribution of marital status of patients attending chemotherapy at Madras Medical College Chennai

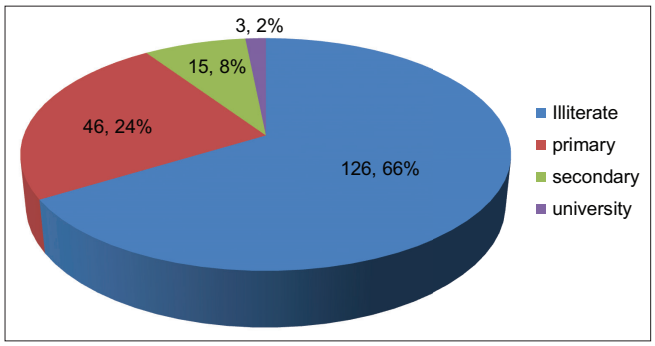

Figure 5: Distribution of educational level of patients attending chemotherapy at Madras Medical College Chennai

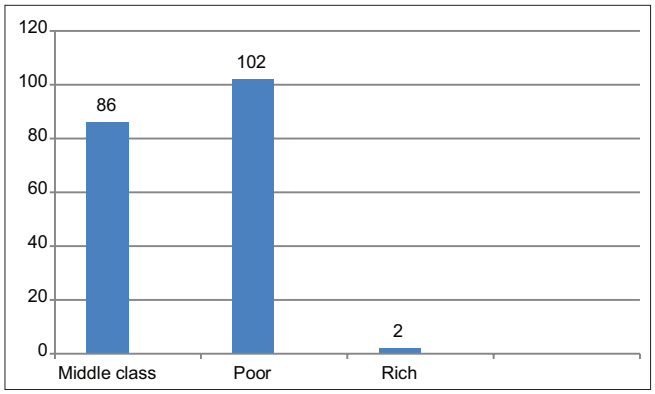

Figure 6: Distribution of patients attending chemotherapy at Madras medical college according to their socioeconomic status

Table 2: Distribution of cancer's duration in-relation to presence of anxiety or not among patients attending chemotherapy at Madras Medical College

Duration	Anxiety number	Anxiety percentage	Normal number	Normal percentage	Total %
6 months	15	42.86	20	57.14	35 (18.42)
7–12 months	32	72.73	12	27.27	44 (23.16)
13–18 months	39	58.21	28	41.79	67 (35.26)
19–24 months	36	81.82	8	18.18	44 (23.16)
Total	122	64	68	36	190 (100)

Table 3: Comparison of the using *t*-test, relationship between patients age and presence of anxiety or not

Anxiety	Mean±SD	*t*	df	*P* value
Age				
Anxiety	55.90±3.34	0.733	188	0.464
Normal	56.47±7.35			

We got a $t = 0.733$ and $P = 0.464$. Not significant.

Table 4: Comparison of the patients state of presence anxiety or not in-relation to their cancers duration using *t*-test

Anxiety	Mean±SD	*t*	Df	*P* value
Duration				
Anxiety	13.72±3.47	5.39	188	0.00001
Normal	11.18±2.34			

Table 5: Comparison of the patients state of anxiety or not in-relation to their marital status using Chi-square test

Variables	Anxiety	Normal	X^2	*P* value
Marital status				
Married	103 (62.8)	61 (37.2)	1.719	
Single	10 (71.43)	4 (28.57)		0.632
Widow	8 (80)	2 (20)		
Divorced	1 (50)	1 (50)		
Total	122 (64)	68 (36)		

Table 6: Comparison of the patients state of anxiety or not in-relation to their sex using Chi-square test

Variables	Anxiety	Normal	X^2	*P* value
Sex				
Male	70 (66.67)	35 (33.33)	0.6161	0.432
Female	52 (61.18)	33 (38.82)		
Total	122 (64)	68 (36)		

DISCUSSION

The study aimed to find out the prevalence of anxiety and its relation to medical variables, and sociodemographic variables.

We found a high prevalence of anxiety among cancer patients in this study, 64% patients with cancer had anxiety. This is in par with other studies, as shown (2007) in Iran study 57% of cancer patient have anxiety.[9] Studies from developed countries usually showed a low prevalence of anxiety. Compared to developing countries, developed countries have low prevalence of mental health problems.

The most of the patients in our study are with moderate type anxiety (51%). Our results are in par with UK (2013) and Iran (2013) studies.[10] This shows that cancer patients are more prone for mental health problems such as anxiety and since anxiety can affect quality of life of patient and treatment outcome this should be taken seriously.

We observed that there was no statistically significant relationship between anxiety and cancer type ($P = 0.166$) in our study. However, we find significant association between cancer duration ($P = 0.00001$) and anxiety. Those with cancer duration of 19–24 months are more prone for development of anxiety in our study. Our result was consistent with the Pakistani study (2010) showing a significant association of cancers duration on predisposition to anxiety.[11]

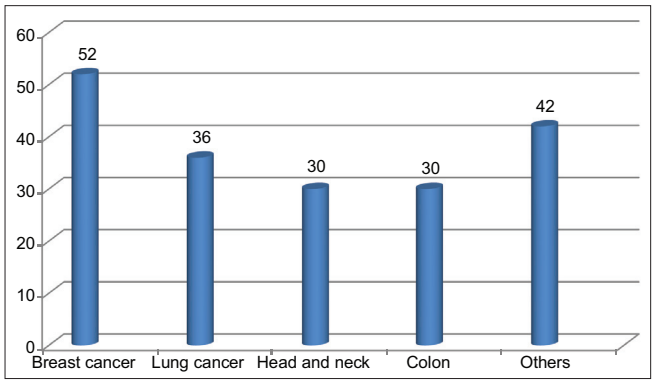

Figure 7:Distribution cancer type among patients attending chemotherapy at Madras Medical College Chennai

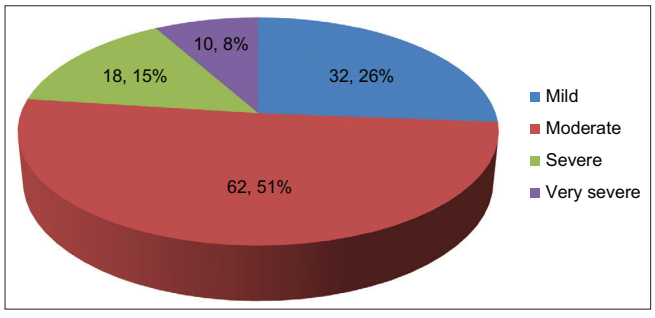

Figure 8: Distribution of anxiety grades in patients attending chemotherapy at at Madras medical college

There was no statistically significant relationship between anxiety and gender, and anxiety and the educational status in our study. Other studies also confirmed our results. We observed a statistically significant relationship between anxiety and socioeconomic status in our study, which was not consistent with most of the other studies. Most of the patients in our study belong to poor class, 102 of 190 patients, only two patients belong to rich class. So their financial stress, poor social support may lead to less hospital visits and less attention to mental health may be reason for these significant associations in our study.

In our study, we not observed significant association ($P = 0.464$) between anxiety and patients age. However,

Table 7: Comparison of the patients state of anxiety or not in-relation to their educational level using Chi-square test

Variables	Anxiety	Normal	X2	*P* value
Education				
Illiterate	88 (69.84)	38 (30.16)	7.1591	0.0669
Primary	22 (47.83)	24 (52.17)		
Secondary	10 (66.67)	5 (33.33)		
University	2 (66.67)	1 (33.33)		
Total	122 (64)	68(36)		

X2=Chi-square test

Table 8: Comparison of the patients state of anxiety or not in-relation to their socioeconomic status using Chi-square test

Variables	Anxiety	Normal	X2	*P* value
Socioeconomic status				
Poor	74 (72.55)	28 (27.45)	6.6816	0.035
Middle class	47 (54.65)	39 (45.35)		
Rich	1 (50)	1 (50)		
Total	122 (64)	68 (36)		

X2=Chi-square test

Table 9: Comparison of the patients state of anxiety or not in-relation to their cancer types using Chi-square test

Variables	Anxiety	Normal	X2	*P* value
Tumour type				
Breast	40 (76.92)	12 (23.08)	9.1340	0.166
Lung	20 (55.56)	16 (44.44)		
Head and neck	18 (60)	12 (40)		
Non-Hodgkin Lymphoma	8 (66.67)	4 (33.33)		
Colon	16 (53.33)	14 (46.67)		
Esophagus	10 (83.33)	2 (16.67)		
Stomach	10 (55.56)	8 (44.44)		
Total	122	68		

some of the previous studies showed a significant association between patients' age and anxiety. They observed that young patients having a higher likelihood of suffering from anxiety. In our study, also we observed a numerically high value for young patients regarding their anxiety, but it found to be not statistically significant. Older patients also experience same amount of anxiety in our study, contribution of other external factors may be reason for this variation compared to other studies in developed countries.

There was no statistically significant relationship between anxiety and marital status ($P = 0.632$) in our study. This is comparable to other studies.[12]

Limitation

In this study, patients were interviewed using a questionnaire. Different studies tend to phrase questions differently which may influence the patient answers. We might unintentionally direct the patients to specific answers.

CONCLUSIONS

The prevalence of anxiety disorder among cancer patients presented to Madras Medical College was high.

1. Moderate grade of anxiety is observed in majority of patients
2. There was significant association between anxiety and duration of cancer
3. There was significant association between the anxiety and socioeconomic status of the patients
4. There was no significant association between the anxiety and marital status, sex, and educational level, age of patient and cancer type.

Recommendations

We likes to suggest the following recommendations based on the result of our study:

1. We recommend that all cancer patients should undergo a complete and thorough baseline psychological screening as a part of standard cancer care
2. We recommend that all cancer patients should undergo periodic psychological assessment during treatment and follow-up period by psychiatric consultants
3. There is need for giving psychological awareness to cancer patients and their family to decrease the risk of anxiety development.

Questionnaire about the prevalence of anxiety disorders

Dear patient:

We doctors of Madras Medical College, medical oncology department are conducting a research on the prevalence of anxiety disorders among cancer patients. Reconducting out the answers of these questions, and your sincere answers will be very useful for our research result. All these information will be kept strictly confidential and will be used for scientific purposes only and you have complete freedom in the non-acceptance to answer any questions.

Our sincere thanks and appreciation.....

*Personal Information:

Sex:……. Age:……..
Marital status:……
Educational level:……
Socioeconomic state:……
Type of cancer:……
Time since diagnosis:…….

N	Question	Yes	No
1	Is your sleep disturbed and not continued?		
2	Do you have great fears compared to your friends?		
3	Have you had periods in which you lost sleep over worry?		
4	Do you complain of severe diarrhea or constipation?		
5	Do you see yourself lacking self-confidence?		
6	Do you have uncomfortable feelings in your stomach?		
7	Do you blush from yourself or from others?		
8	Do you feel anxious about work or money?		
9	Do you complain form nausea?		
10	Do you feel hungry almost all the time?		
11	Do you feel unhappy all the time and you wish to be as happy as others.		
12	Did you frequently notice hands shaking when you try to do something?		
13	Do you feel worried beyond reason over small things?		

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How to cite this article: Tintu MV, Rahul TS, Latha KVS, Subramaniam KS. Prevalence and Associated Factors of Anxiety Disorders among Cancer Patients Presented to Madras Medical College Chennai. Int J Sci Stud 2020;8(5):35-41.

Source of Support: Nil, **Conflicts of Interest:** None declared.