

Pattern of Psychological Distress in Cancer Patients Visiting Out-Patient Department- A Prospective Study in A Tertiary Cancer Care Hospital in Northern India

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ABSTRACT

Context: Psychological distress in cancer patients is a well recognized but under diagnosed problem.

Aims: This study aimed to study the prevalence and pattern of distress among cancer patients visiting the out-patient department of oncology.

Settings and Design: This was a prospective observational study, carried out at Cancer Research Institute, Swami Rama Himalayan University, Dehradun, India, between January 2018 and April 2018.

Material and Methods: We enrolled 390 cancer patients prospectively after written informed consent. Their demographic, disease and treatment details were recorded. Self reporting Hospital Anxiety and Depression Scale was used for anxiety and depression.

Statistical analysis used: After checking for normality of data, normal data was analyzed using Parametric, non-normal using Non-parametric methods. Association between baseline and outcome categorical variables was tested with Chi-square test. A p-value of <0.05 was considered significant. Spearman's Rho was used for linear correlation.

Results: The prevalence of anxiety was 34.6% and depression 40.3%. Factors significantly associated with anxiety were female gender ($p=0.051$), advanced stage ($p=0.036$), primary site ($p=0.006$); with depression advanced stage ($p=0.001$) and number of metastatic sites ($p=0.025$). Linear correlation between anxiety and depression was strong (Spearman's $\rho=0.735$).

Conclusions: The prevalence of cancer related psychological distress is high in out-patients. Variables like female gender, primary tumor site, advanced stage and number of metastasis were significantly associated with distress.

Keywords: Anxiety, depression, palliative care, prevalence of distress, psychological distress.

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I. INTRODUCTION

Cancer is associated with a significant amount of distress; its management often requires specialized care. With increasing number of cancer cases being detected each year, healthcare providers are swamped with patients in the out-patient department as well as increased hospital admissions. In the myriad of disease assessment and cancer treatments, symptoms of distress may go undetected.

There is a need for research to fully comprehend the presence of psychological distress (anxiety and depression) in cancer patients. Most of the data available is from developed countries, which is quite different from those in developing ones. There are published studies assessing anxiety and depression in cancer patients in various countries, [1]-[3] and some Indian studies too, with limitation of small sample size [4], [5]. While prevalence of psychological distress among people receiving treatment for cancer in out-patient setting

has received attention by researchers, few studies have investigated the factors associated with it. Our study thus aimed to assess prevalence and pattern of distress in cancer patients presenting to the out-patient department.

II. SUBJECTS AND METHODS

A. Setting

This was a prospective observational study, carried out at Cancer Research Institute, Swami Rama Himalayan University, Dehradun, India, between January 2018 to April 2018, after institutional ethics committee clearance (SRHU/HIMS/PHARMA/E-1/2018/09).

B. Aim of the Study

To study the prevalence and pattern of psychological distress in out-patients with cancer.

C. Inclusion Criteria

All patients visiting out-patient department (OPD) with diagnosis of cancer giving written informed consent to participate in the study.

D. Exclusion Criteria

1. Age less than 7 years.
2. Unconscious patients unable to answer the questionnaire.

E. Sample Size Calculation

Taking the prevalence of distress as unknown, α at 0.05 the sample size was calculated using-

$$n = Z_{\alpha/2}^2 pq / d^2 = 384$$

$$(d = 5\%, p = 50\%).$$

F. Methods

All OPD patients meeting the inclusion and exclusion criteria were approached for enrolment in the study. A written informed consent was obtained. The baseline data (demographic, disease and treatment related) of patients were recorded. The distress was recorded using self reporting Hospital Anxiety and Depression Scale (HADS) in the language of the patient. For anxiety or depression HADS score 0 to 7, 8 to 10 and 11 to 21 were taken as normal, borderline and abnormal respectively. HADS is a common screening tool for assessment of anxiety and depression in cancer patients and has been used as such for multiple studies. [6].

G. Statistical Analysis

The data was analyzed using SPSS version 22. One-sample Kolmogorov-Smirnov test was used to test the normality of data. Outcome data was tabulated and associations evaluated with Chi-square test; p-value of ≤ 0.05 was considered significant. Spearman's correlation test was used for linear correlation between anxiety and depression score.

III. RESULTS

There were a total of 390 patients enrolled in the study. All patients were included in the analysis.

A. Demographic Details

The demographic and base line variables are enumerated in Table I. Mean age of patients was 53.66 ± 14.12 SD years, majority of patients (74.2%) aged between 40 and 69 years. The male to female ratio was 0.78 (171/219). In this study group the commonest site of malignancy was breast (23.1%) followed by genitourinary (20.3%) and head and neck (20.0%). Although, the commonest pathology was carcinoma (83.5%), 3.1% and 2.8% patients had lymphoma and leukaemia respectively. Two-third patients (66.1%) had advanced or metastatic cancer in this study group at the time of data collection. Out of the 22.3% (87/390) patients with metastatic disease only 63 (72.4%) patients had a single site of metastasis, whereas 24 (27.6%) patients had more than one site. The details of cancer treatment taken till the time of data collection are as follows- 58.5% patients had undergone surgery, 55.9% radiotherapy and 75.9% chemotherapy.

TABLE I: BASELINE DEMOGRAPHIC AND DISEASE DETAILS OF THE STUDY POPULATION (N=390)

Baseline Variables		Number of patients n (%)
Mean Age Years $\pm$ SD		53.65 $\pm$ 14.12
Age Group (Years)	1-9	3(0.8)
	10-19	6(1.5)
	20-29	12(3.1)
	30-39	37(9.5)
	40-49	78(20)
	50-59	101(25.9)
	60-69	110(28.2)
	70-79	37(9.5)
	80-89	6(1.5)
Gender	Male	171(43.8)
	Female	219(56.2)
Primary Site	Limb	12(3.1)
	Skin	5(1.2)
	Abdomen	61(15.6)
	Brain	8(2.1)
	Breast	90(23.1)
	Genito-Urinary	79(20.3)
	Head and Neck	78(20.0)
	Hematology	23(5.9)
	Lung	30(7.7)
	Unknown	4(1.0)
Pathology	Carcinoma	345(88.5)
	Leukaemia	12(3.1)
	Lymphoma	11(2.8)
	Sarcoma	15(3.9)
	Other	7(1.8)
Stage	Early	132(33.8)
	Advanced	171(43.8)
	Metastatic	87(22.3)
Number of Metastatic sites	0	305(78.2)
	1	63(16.2)
	2	16(4.1)
	3	5(1.3)
	4	1(0.3)
Surgery		228(58.5)
Radiotherapy		218(55.9)
Chemotherapy		296(75.9)

TABLE II: PREVALENCE OF ANXIETY AND DEPRESSION IN THE STUDY GROUP (N=390)

Variable	Number of patients with Anxiety n (%)	Number of patients with Depression n (%)
Median Score	8	9
Normal Score	194 (49.7)	155 (39.7)
Borderline Score	61 (15.6)	78 (20.0)
Abnormal Score	135 (34.6)	157 (40.3)

B. The Distress Outcome Details

The median anxiety score was 8 and depression score 9. As seen in Table II, prevalence of abnormal anxiety score was 34.6% (135/390) and abnormal depression score 40.3% (157/390).

C. Association of Abnormal Anxiety Score with Other Variables

The association of abnormal anxiety score with basic demographic and disease variables was tested using univariate analysis with Chi-Square test (Table III).

It was found that age, pathology, number of metastatic sites and whether patient had undergone surgery or chemotherapy were not significantly associated with presence of abnormal anxiety score. The highest prevalence of anxiety (abnormal anxiety score) (40.5%) was seen in patients aged 30-39 years. Prevalence of anxiety was 11% higher in females as compared to males, although this did not reach statistical significance ($p=0.051$). It was also seen that prevalence of

anxiety was significantly associated with the primary site ($p=0.006$) and stage of cancer ($p=0.036$).

Abnormal anxiety score was found in 58.3% (7/12), 41.8% (33/79), 34.4% (21/61), 34.4% (31/90) and 30% (9/30) patients with limb, genitourinary, abdomen, breast and lung cancers. Prevalence of anxiety was significantly higher in patients with metastatic disease as compared to early stage disease (44.8% v/s 25%, $p=0.036$).

TABLE III: ASSOCIATION BETWEEN DEMOGRAPHIC, DISEASE VARIABLES AND ANXIETY (N=390)

Variable	Number of patients with abnormal anxiety score		P-value*
	OPD n/N (%)		
Age groups (years)	0 to 09	0/3(0)	0.580
	10 to 19	2/6(33.3)	
	20 to 29	2/12(16.7)	
	30 to 39	15/37(40.5)	
	40 to 49	24/78(30.8)	
	50 to 59	37/101(36.3)	
	60 to 69	41/110(37.3)	
	70 to 79	12/37(32.4)	
Gender	80 to 89	2/6(33.3)	0.051
	Male	48/171(28.1)	
Primary Site	Female	87/219(39.7)	0.006
	Limb	7/12(58.3)	
	Skin	5/5(100)	
	Abdomen	21/61(34.4)	
	Brain	2/8(25)	
	Breast	31/90(34.4)	
	Genito-Urinary	33/79(41.8)	
	Head and Neck	22/78(28.2)	
	Hematology	4/23(17.4)	
	Lung	9/30(30)	
Pathology	Unknown	1/4(25)	0.102
	Carcinoma	120/345(34.8)	
	Leukaemia	1/12(8.3)	
	Lymphoma	3/11(27.3)	
	Sarcoma	9/15(60)	
Stage	Other	2/7(28.6)	0.036
	Early	33/132(25)	
	Advanced	63/171(36.8)	
Number of Metastatic sites	Metastatic	39/87(44.8)	0.351
	0	97/305(31.8)	
	1	26/63(41.3)	
	2	9/16(56.3)	
	3	2/5(40)	
Surgery	4	1/1(100)	0.297
	No	49/162(30.2)	
Radiotherapy	Yes	86/228(37.7)	0.516
	No	58/172(33.7)	
Chemotherapy	Yes	77/218(35.3)	0.224
	No	30/94(31.9)	

*Pearson Chi-Square Test

D. Association of Abnormal Depression Score with Other Variables

As seen in Table IV, only stage of disease ($p=0.001$) and number of metastatic sites (if present) ($p=0.025$) were significant factors associated with the occurrence of abnormal depression score. In metastatic disease, 27% higher prevalence of depression was found as compared to early disease. Variables like- age, gender, primary site of cancer or treatment taken were not significantly associated with presence of depression. The prevalence of depression was lower in patients with leukaemia (16.7%) and lymphoma

(27.3%) as compared to carcinoma or sarcoma, but this difference did not reach statistical significance ($p=0.051$).

TABLE IV: ASSOCIATION OF DEMOGRAPHIC AND DISEASE VARIABLES AND DEPRESSION (N=390)

Variable	Number of patients in which abnormal depression score		P-value*
	n/N (%)		
Age Group (Years)	0 to 09	0/3(0)	0.308
	10 to 19	3/6(50.0)	
	20 to 29	5/12(41.7)	
	30 to 39	8/37(21.6)	
	40 to 49	34/78(43.6)	
	50 to 59	37/101(36.6)	
	60 to 69	50/110(45.5)	
	70 to 79	18/37(48.6)	
Gender	80 to 89	2/6(33.3)	0.854
	Male	70/171(40.9)	
Primary Site	Female	87/219(39.7)	0.113
	Limb	6/12(50.0)	
	Skin	2/5(40.0)	
	Abdomen	27/61(44.3)	
	Brain	3/8(37.5)	
	Breast	34/90(37.8)	
	Genito-Urinary	32/79(40.5)	
	Head and Neck	35/78(44.9)	
	Hematology	5/23(21.7)	
	Lung	11/30(36.7)	
Pathology	Unknown	2/4(50.0)	0.051
	Carcinoma	141/345(40.9)	
	Leukaemia	2/12(16.7)	
	Lymphoma	3/11(27.3)	
	Sarcoma	8/15(53.3)	
Stage	Other	3/7(42.9)	0.001
	Early	37/132(28.0)	
	Advanced	72/171(42.1)	
Number of Metastatic sites	Metastatic	48/87(55.2)	0.025
	0	111/305(36.4)	
	1	35/63(55.6)	
	2	8/16(50.0)	
	3	2/5(40)	
Surgery	4	1/1(100)	0.619
	No	62/162(38.3)	
Radiotherapy	Yes	95/228(41.7)	0.609
	No	67/172(39.0)	
Chemotherapy	Yes	90/218(41.3)	0.256
	No	31/94(33.0)	

TABLE V: NON-PARAMETRIC LINEAR CORRELATION BETWEEN ANXIETY AND DEPRESSION (N=390)

Spearman's rho		Anxiety score
Depression score	Correlation coefficient	0.735
	Significance (2-tailed)	0.000
	N	390

E. Correlations Between Anxiety And Depression Score

Non- parametric linear correlations between the anxiety and depression score were carried out using Spearman's rho test (Table V). The two had a strong correlation with a correlation coefficient of 0.735 ($p=0.000$).

IV. DISCUSSION

Early detection and advances in cancer treatment have resulted in cancer patients living longer with the disease [7]. Over this extended course many patients may experience varying degrees of emotional distress [8] which can be

described as a range of psychological symptoms of varying severities [9]. In fact, the International Federation of Psycho-Oncology Societies has endorsed emotional distress as the 'sixth vital sign' in cancer [10].

Emotional distress may be associated with either the disease itself or maybe a side effect of the treatment given. Unrelieved distress is a major cause of decline in both the patients' quality of life and their capability to function. These distress symptoms may also disrupt treatment, reduce its effectiveness [11], [12], and are also associated with poorer cancer-associated survival [8].

Cancer, due to the costs involved in evaluation and treatment of the disease, causes a huge financial burden on patient and their family. This often causes patients to default from treatment in developing countries. Emotional distress in such patients may progress to larger degree. This can have grave consequences; like poorer quality of life [13], [14], lesser satisfaction with care [15], and even greater non-compliance to treatment [16], [17]. To make things worse, if the symptoms of emotional distress are not recognized in time patient soon gets into a negative spiral [18], [19].

Anxiety and depression are some of the most frequent emotional symptoms reported in patients with cancer [20], [21] and they contribute independently towards the decline in the quality of life [22]. Importance of depressive symptoms in cancer patients have been detected in a meta analysis [23] which showed that non-compliance to treatment was more in patients with depression than in ones without it. However, only limited data is available for Asian populations [24].

Timely recognition, assessment, and management of distress symptoms in cancer patients are essential part of the holistic care and improve patient experience and quality of life. The study by [25] emphasized the importance of psychosocial screening for distress symptoms. If this is done while they are still in the hospital, more patients are likely to be identified. These patients can then be referred for further testing or psychological treatment [22]. It is noteworthy to state that the distress experienced by cancer patients may vary with different socio-geographical parameters. In developing countries like India social structure, medical facilities, awareness regarding psychosocial health is different from developed countries.

In our study, we studied the prevalence and pattern of cancer-related distress in patients visiting the out-patient department of a tertiary cancer care hospital. Assessing the baseline data of patients, we found the proportion of female patients was higher. This matches the study by [26]. Breast, genito-urinary followed by head and neck cancer ranked top three malignancies and only one-third patients were in early stage disease. Similar to studies done by [27] and [28], the majority of the cases when they presented were found to be in the advanced stage. Metastatic disease could be a source of distress in patients as it is associated with wide-ranging psycho-social and spiritual problems. Reference [29] reported that improved spiritual well-being was linked to lesser anxiety and distress score in Hospital Anxiety and Depression Scale (HADS).

We found that 34.6% patients were suffering from anxiety and as many as 40.33% from depression based on their HADS score. This result is similar to result obtained in study by [30] and corroborates with study done by [31]; which reported

prevalence of clinically significant anxiety and depression to be ranging from 15-42% amongst the out-patients.

On comparing the data obtained in our study with the study by [31], it was seen that prevalence of clinically significant anxiety and depression was much higher in our study. Data in two studies could be compared due to a somewhat similar study design and use of same scale to assess presence of clinically significant distress. However, [31] used a lower cut-off of the HADS score for anxiety and depression. Despite a higher cut-off value, the prevalence of clinically significant distress was higher in our study. The high prevalence of abnormal distress score in out-patients, as found in this study, emphasizes clinicians to systematically assess, document and address psychological distress in cancer patients during their visit to the clinic. Facility for this kind of systematic approach to distress in cancer clinics is out of reach for many patients, especially in developing countries. Another fact to be addressed is, patients are unaware that these emotional symptoms can be discussed with their physicians. [6], [32] Whatever be the cause, the end result is that emotional distress may not be treated, and as discussed earlier, this may lead to a host of other problems.

In our study, we found that females were more likely to have anxiety as compared to males in general. Another interesting finding was about adults in earning age group. As much as 31% of those aged 30 to 39 years old were found to have anxiety. This could be related to stress of disease itself or due to other factors, such as worry of job, family or economic stability. These patients tend to be worried about missed working days due to treatment and its side effects [33].

Next we tried to find any association between abnormal anxiety score and the primary site. Reference [25] found that lung cancer patients had significantly higher levels of distress than other cancer diagnoses. However in our study, we found the highest level of distress (mainly anxiety) in patients with limb malignancy, followed by genitor urinary, breast, abdominal and lung cancers. In case of depression, patients with hematological malignancies had much lower prevalence. More emotional distress in certain cancers found in this study could be related to symptoms associated with them, such as constant tiredness, pain, loss of weight, cosmetic disfigurement even while treatment is going on. Those undergoing chemotherapy often feel nauseous, lose their appetite, and become tired easily. Radiation therapy has its own set of problems.

In our study, it was seen that patients with advanced or metastatic stages cases of cancer were more susceptible to anxiety or depression. These results were similar to results obtained in various studies [9], [34]-[39]. By univariate analysis, primary site and stage of cancer were associated with anxiety; while stage of cancer and number of metastatic sites were associated with depression. Practical implication of this finding is that, if there are limited screening resources then cancer patients with advanced stage and other relevant clinical findings should be prioritized as they have a higher probability for distress [36]. There was a strong correlation between anxiety and depression HADS score in our study.

V. CONCLUSION

The prevalence of cancer related psychological distress is high in out-patients. Overall, female gender, primary tumor site, advanced stage, number of metastasis were significantly associated with distress.

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CONFLICT OF INTEREST

Authors declare that they do not have any conflict of interest.

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