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**RESEARCH ARTICLE**

**PREVALENCE OF DEPRESSION IN RADIATION ONCOLOGY IN-PATIENTS AT A TERTIARY CARE HOSPITAL**

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**ABSTRACT**

**Background:** Cancer diagnosis is a life-altering experience. To cope up with the illness and its consequences requires accepting and managing emotions that can interfere with medical care and daily activities. Cancer patients can have many psychiatric disorders; common conditions diagnosed are depression, anxiety and adjustment disorders. Our study aims to report the prevalence of depression in Radiation Oncology in-patients at our hospital.

**Objectives:** To report the prevalence of depression in Radiation Oncology in-patients at our hospital

**Methods:** A total of 50 patients with cancer on Radiation Therapy at the Department of Radiation Oncology, Father Muller Medical College Hospital, Mangalore were included in the study. All cases were screened for depressive disorders using MINI PLUS.

**Results:** Out of 50 cancer patients screened, 19 (38%) patients were identified to have depression using MINI. There was no association found between different variables such as Age, Gender, Marital status and type of treatment.

**Conclusion:** There is a high prevalence of psychiatric disorder, especially depression, amongst the cancer patients. Routine evaluation of all cancer patients might be a necessity and that needs to be addressed in larger prospective surveys.

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**INTRODUCTION**

Cancer diagnosis is a life-altering experience. To cope up with the illness and its consequences requires accepting and managing emotions that can interfere with medical care (Grube *et al*, 2006), family engagement, diet, sleep, and exercise (Spiegel *et al*, 1999). Cancer patients can have many psychiatric disorders; common conditions diagnosed are depression, anxiety and adjustment disorders.

Depression is a co-morbid disabling syndrome that affects 3 to 58% of Cancer patients with variable prevalence (Bardwell *et al*, 2006). The prevalence varies significantly because of varying concepts of depression, different criteria used to diagnose depression, differences in approaches to the measurement of depression, and different populations studied. Most often depression is under diagnosed in patients who have cancer and is considered as a part of the disease process and the treatment of the illness. It is a known fact that if depression is left untreated it elevates the percentage of mortality and

morbidity in cancer patients (Massie *et al*, 2004). The treatment of cancer by Chemotherapy, Radiotherapy and surgery along with various medical co-morbidities invariably increases the prevalence of depressive disorders. Conservative management improves the lifespan, but alleviating symptoms also ignores the development of depressive disorders in an individual (Khudhair *et al*, 2009). Early detection and intervention of depressive disorders in cancer patients will improve their quality of life and also treatment compliance.

Reported prevalence of depressive disorders is highly variable in India, hence symptom oriented clinical studies are needed to detect, investigate and improve the treatment and end of life care of cancer patients with depressive disorders (Mishra *et al*, 2006). There is a paucity of studies about prevalence of depressive disorders among cancer patients (Dikshit *et al*, 2012). This study aims to report the prevalence of depression in Radiation Oncology in-patients at our hospital.

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**MATERIALS AND METHODS**

A total of 50 patients with cancer on Radiation Therapy at the Department of Radiation Oncology, Father Muller Medical College Hospital, Mangalore were included in the study. Every case was screened for depressive disorders using MINI PLUS. The M.I.N.I. was designed as a brief structured interview which can be used by clinicians, after a brief training session. Initially, the patients are informed about a clinical interview that is more structured than usual, with very precise questions about psychological problems which requires a yes or no answer.

**General format**

The M.I.N.I. is divided into modules identified by letters, each corresponding to a diagnostic category. At the beginning of each module (except for psychotic disorders module), screening question(s) corresponding to the main criteria of the disorder are presented in a gray box. At the end of each module, diagnostic box (es) permit(s) the clinician to indicate whether the diagnostic criteria are met. Statistical analysis was done using Vassar Stats software. Frequency, Chi-square tests were applied to the data.

**Table 1** Patient Characteristics

Characteristics	n (Value)
Age Group(most common)	46-55 Years
Sex	
• Males	26
• Females	24
Primary site	
• Head and Neck	20
• Breast	10
• Cervix	10
• Gastrointestinal	6
• Lung	4

**Table 2** Association between Age and Depression

Age group (years)	Sample	Depression				<sup>2</sup> Test
		No		Yes		
		N	%	N	%	
26-35	7	5	10.0	2	4.0	p = 0.832 <sup>NS</sup>
36-45	13	7	14.0	6	12.0	
46-55	18	12	24.0	6	12.0	
56-65	12	7	14.0	5	10.0	
Total	50	31	62.0	19	38.0	

**Table 3** Association between Gender and Depression

	Sample	Depression				<sup>2</sup> test
		No		Yes		
		N	%	N	%	
Male	26	13	26.0	13	26.0	p = 0.127 <sup>NS</sup>
Female	24	18	36.0	6	12.0	
Total	50	31	62.0	19	38.0	

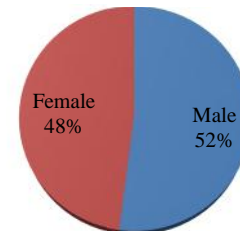
**Table 4** Association between Marital status and Depression

Marital status	Sample	Depression				<sup>2</sup> Test
		No		Yes		
		N	%	N	%	
Single	8	5	10.0	3	6.0	P = 0.718 <sup>NS</sup>
Married	42	26	52.0	16	32.0	
Total	50	31	62.0	19	38.0	

**Table 5** Association between Therapy and Depression

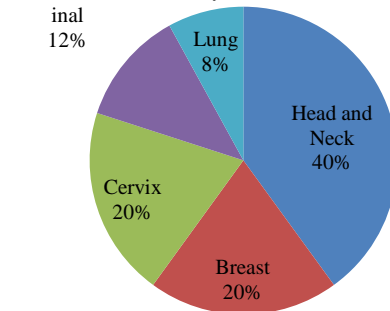
Therapy	Sample	Depression				<sup>2</sup> Test
		No		Yes		
		N	%	N	%	
Chemotherapy + Radiation	21	13	26.0	8	16.0	p = 0.484 <sup>NS</sup>
Surgery + Radiation	23	13	26.0	10	20.0	
Radiation alone	6	5	10.0	1	2.0	
Total	50	31	62.0	19	38.0	

Sex Distribution



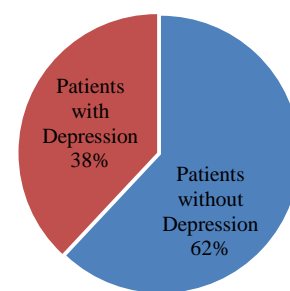
**Figure 1**

Primary Site



**Figure 2**

Prevalence of Depression



**Figure 3**

**RESULTS**

Fifty patients were included in the study. Patient characteristics are given in table 1. The most common age group was 46-55 years with 26 (52%) males and 24 (48%) females. 42(84%) patients are married, 8(16%) patients are single. Most cases of cancer were of short duration ranging from 1-3 months. The sites of primary malignancy were Head and Neck in 20 patients (40%), Breast in 10 patients (20%), Cervix in 10 patients (20%), Gastrointestinal cancer in 6 patients (12%), Lung in 4 patients (8%). All the patients are on Radiation therapy and most of them received combined modality treatment. 21(42%) patients received Chemotherapy and Radiotherapy, 23(46%)

patients received Surgery and Radiotherapy and 6 (3%) patients received Radiotherapy alone. Out of 50 cancer patients screened, 19 (38%) patients were identified to have depression using MINI. There was no association found between different variables such as Age, Gender, Marital status and type of treatment.

## DISCUSSION

38% of the cases with cancer had depression. In our study we did not find any significance between the age, sex and marital status and depression statistically. Most of our cases were between the age group 46-55 years (18), 77% of them with depression, almost equal between genders with most of them married (84%).

Anxiety and depression had higher frequencies in older ages, suggesting that the levels of depression increase as the age advances. The probable reasons for marital status being a protective factor could be the moral and emotional support a spouse provides to their partner which gives them the ability to withstand stress (Nikbakhsh *et al*, 2014).

50% of the women with early breast cancer had depression, anxiety, or both in the year after diagnosis, 25% in the second, third, and fourth years, and 15% in the fifth year. Point prevalence was 33% at diagnosis, falling to 15% after one year (Burgess *et al*, 2005). In our study there was no statistical significance for various modalities of treatment like chemotherapy, radiotherapy and surgery and depression.

In different studies in head & neck and breast cancers undergoing radiotherapy, rate of depression was higher (de paula *et al*, 2012) (So *et al*, 2010).

Following chemotherapy, the number of depressive breast cancer patients increased while the number of uterine cervix cancer patients decreased. This trend to depression was found more often in less responsive breast cancer patients than in the more responsive cervix cancer patients. 3(33.3%) who had surgery for their cancer had depression when compared to 6(66.7%) who did not (Miranda *et al*, 2002). This did not show any statistical significance in our study.

## CONCLUSIONS

There is a high prevalence of psychiatric disorder, especially depression, amongst the cancer patients - particularly in those who were aware of the diagnosis and prognosis. Majority of the disorders are treatable. Routine evaluation of all cancer patients might be a necessity and that needs to be addressed in larger prospective surveys.

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