

A Study to Assess Anxiety and Depression Among Patient Undergoing Radiation Therapy at Selected Hospital Kolar

Jairakini Aruna¹, Kavitha Mohan², Karishma S³

Abstract

Background: to evaluate the levels of anxiety and depression among the patients undergoing radiation therapy. **Methods:** 30 patients between the age group of 40-70, who were undergoing radiotherapy, were included in the study. Data collection and analysis was done using Socio-demographic data, Hamilton's anxiety rating scale and Beck depression inventor -II. **Results:** Out of 30 study participants 80% of patients undergoing radiation therapy had mild anxiety, 13.3% had moderate anxiety and 6.66% had severe anxiety. Out of 30 study participants 30 % of samples had minimal level of depression, 46.6 % had mild level of depression, 20 % had moderate level of depression, and 3.33 % had severe level of depression. The study result revealed that there was a moderately positive correlation between anxiety and depression among patients undergoing radiation therapy ($r = 0.721, P < 0.05$). **Conclusion:** The study showed that there is an increase in level of anxiety and depression among the patients undergoing radiation therapy, so the nurse can provide effective interventions to reduce the anxiety and depression. It also showed the need for the psychosocial interventions to cancer patients in order to reduce anxiety and depression among the patients undergoing radiation therapy.

Keywords: Radiotherapy; Anxiety; depression and Hamilton's anxiety rating scale.

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Introduction

Cancer is a group of diseases involving abnormal cell growth with the potential to invade or spread to other parts of the body. In the developing world nearly 20% of cancers are due to infections such as hepatitis B, hepatitis C and human papilloma virus infection. These factors act, at least partly, by changing the genes of a cell. Typically many genetic changes are required before cancer develops. Approximately 5-10% of cancers are

due to inherited genetic defects from a person's parents. Cancer can be detected by certain signs and symptoms or screening tests. It is then typically further investigated by medical imaging and confirmed by biopsy.³

Anxiety can lead to early death if untreated. Anxiety, regardless of its degree, can substantially interfere with the quality of life of patients.¹ Anxiety is the subjectively unpleasant feelings of dread over anticipated events, such as the feeling of imminent death. Anxiety is not the same as fear, which is a response to a real or perceived immediate threat, whereas anxiety is the expectation of future threat. Anxiety is a feeling of uneasiness and worry, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing.⁴ Among patients with cancer, anxiety is a common response to threats of uncertainty, suffering and mortality. One may experience anxiety while undergoing screening test, waiting for results, receiving a diagnosis of cancer, undergoing cancer treatment, or anticipating a recurrence of cancer. In minority of patients, anxiety can persist at an excessive and uncomfortable level. This impairs the ability to accurately evaluate situations for

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real versus imagined threat.⁵ Radiation therapy is therapy using ionizing radiation, generally as part of cancer treatment to control or kill malignant cells. Radiation therapy may be curative in a number of types of cancer if they are localized to one area of the body. It may also be used as part of adjuvant therapy, to prevent tumor recurrence after surgery to remove a primary malignant tumor (for example, early stages of breast cancer). Radiation therapy is synergistic with chemotherapy and has been used before, during and after chemotherapy in susceptible cancers.⁷

Objectives:

1. To assess the anxiety and depression among the patients undergoing radiation therapy (Hamilton's anxiety scale and Beck depression inventory II scale).
2. To find out the co-relation between anxiety and depression among patients undergoing radiation therapy.
3. To find out the association between anxiety and depression among patients undergoing radiation therapy with selected demographic variables (age, sex, education, occupation, income, marital status, religion, place of residence, duration of radiation therapy, fraction of radiation therapy).

Materials and Methods

Source of the data

The study was conducted at RL Jalappa Hospital and Research Centre, Tamaka, Kolar. It is a 1050 bedded Teaching Hospital to accommodate the clinical teaching requirements of undergraduate and post graduate medical students, nursing personnel, allied health department and many other health speciality departments. The present study was conducted in oncology wards; the sample size consists of 30 cancer patients undergoing radiation therapy.

Inclusion Criteria:

The patients who are:

- a Between the age group of 40-70 years.
- b Patients undergoing radiation therapy during the data collection period.
- c Able to read and write Kannada and English language.

Exclusion Criteria:

- a Patients undergoing chemotherapy.
- b Not willing to participate.

Data Collection Tool:

Tool - 1: Socio-demographic data

Tool - 2: Hamilton's anxiety rating scale

Tool - 3: Beck depression inventory-II

Description of Tool

Tool - 1: Socio demographic data

The tool was constructed by investigator to collect the background data of the study subject. It consist of 10 items which includes age, sex, education, occupation, income, marital status, religion, place of residence, duration of radiation therapy, fraction of radiation therapy.

Tool - 2: Hamilton Anxiety Rating scale

The Anxiety Rating scale is a psychological questionnaire used by clinicians to rate the severity of patient's anxiety. In 1959, Max Hamilton developed the first version of the Hamilton Anxiety Rating scale. The scale consists of 14 items designed to assess the severity of patient's anxiety. Each group of 14 items contains a number of symptoms, and each group of symptoms is rated on a scale of 0 to 4, with 4 being the most severe.²³ All of these scores are used to compute an overarching score that indicates a person's anxiety severity. Hamilton anxiety rating scale describes certain feelings that people have. It rates the patients by answering which best describes the extent to which he/she have these conditions. There are five responses to each of the fourteen questions.

The scales items measures : anxious mood, tension, fears, insomnia, intellectual impairment, depressed mood, somatic muscular and sensory complaints, cardio vascular, respiratory, gastro intestinal, genitourinary and autonomic symptoms and patients behaviour at interview.²⁵

0: not present, 1: Mild, 2: Moderate, 3: Severe, 4: very severe

Tool - 3: Beck depression inventory - II

Beck depression inventory - II was developed by Dr Aaron T Beck in the year 1996, one of the most widely used instrument for measuring the severity of depression. The Beck Depression Inventory Second Edition (BDI-II) is a 21-item self-report instrument intended to assess the existence and

severity of symptoms of depression as listed in the American Psychiatric Association’s Diagnostic and Statistical Manual of Mental Disorders Fourth Edition (DSM-IV; 1994). This new revised edition replaces the BDI and the BDI-1A, and includes items intending to index symptoms of severe depression, which would require hospitalization. Items have been changed to indicate increases or decreases in sleep and appetite, items labelled body image, work difficulty, weight loss, and somatic preoccupation were replaced with items labelled agitation, concentration difficulty and loss of energy, and many statements were reworded resulting in a substantial revision of the original BDI and BDI-1A. When presented with the BDI-II, a patient is asked to consider each statement as it relates to the way they have felt for the past two weeks, to more accurately correspond to the DSM-IV criteria.²⁴

The standard categories of cut off scores are

0 - 13: Minimal level of depression

14 - 19: Mild level of depression

20 - 28: Moderate level of depression

29 - 63: Severe depression

Method of Data Collection:

Phase - I

- a formal permission was taken from Medical Superintendent of R. L. Jalappa Hospital and Research Centre, Tamaka, Kolar.
- b Screening of subjects was done based on sampling criteria.

Phase - 2

- a The investigators introduced themselves to the participants and explained the purpose of the

study and requested the participants for their co-operation and ensured the confidentiality of their responses.

- b An informed consent was obtained from the participants before the study.
- c Administrations of tools were done and requested them to put tick Marks against the respective questions or circle the number beside the statement they have picked. After completion of tools,the investigator did not find any difficulty in collecting data from the participants and they were co-operative. The data was thus collected and compiled for data analysis.

Results

Analysis of data was presented under following headings:

Section 1: Data pertaining to demographic variables of patients undergoing radiation therapy which includes age, sex, education, occupation, income, marital status, religion, place of residence, duration of radiation therapy & fraction of radiation therapy.

Section 2: Data pertaining to assess anxiety among patients undergoing radiation therapy.

Section 3: Data pertaining to assess depression among patients undergoing radiation therapy.

Section 4: Relation between anxiety and depression among patients undergoing radiation therapy.

Section 5: Association between anxiety with the selected socio-demographic variables.

Section 6: Association between depression with the selected socio - demographic variables.

Data in table 3 & figure 2 showed that, there was a moderately positive correlation between

Table 1:Frequency and percentage distribution of patients undergoing radiation therapy according to socio demographic data

n=30

Sl. No	Particulars	Frequency	Percentage (%)
1	Age Below 50 yrs/Above 51yrs	13/17	43.3/56.6
2	Sex Male/Female	08/22	26.6/73.3
3	Education Literate/Illiterate	14/16	46.6/53.3
4	Occupation Labor Private/Govt.	25/05	83.3/16.6
5	Income Below 8000rs. Above 8001rs	15/15	50/50
6	Marital status Married Separated / widow	22/08	73.3/26.6
7	Religion Hindu/Muslim	28/02	93.3/6.66
8	Place of residence Urban/Rural	12/18	40/60
9	Duration of Radiation Therapy Below 1 month/Above 1 month	23/07	76.6/23.3
10	Fraction of radiation therapy Below 6 fractions/Above 6 fractions	28/02	93.3/6.66

anxiety and depression scores ($r = 0.341, P < 0.05$), i.e., as the mild anxiety was increased, there was an increase in mild depression among radiation therapy patients.

Table 2 showed that, 80 % of study participants undergoing radiation therapy had mild anxiety,

13.3 % of study participants had moderate anxiety and 6.66% of study participants had severe anxiety.

Fig.1 showed that 30% (n=9) of study participants had minimal level of depression, 46.6% (n=14) had mild depression, 20 % (n=6) had moderate depression and 3.33% had severe depression.

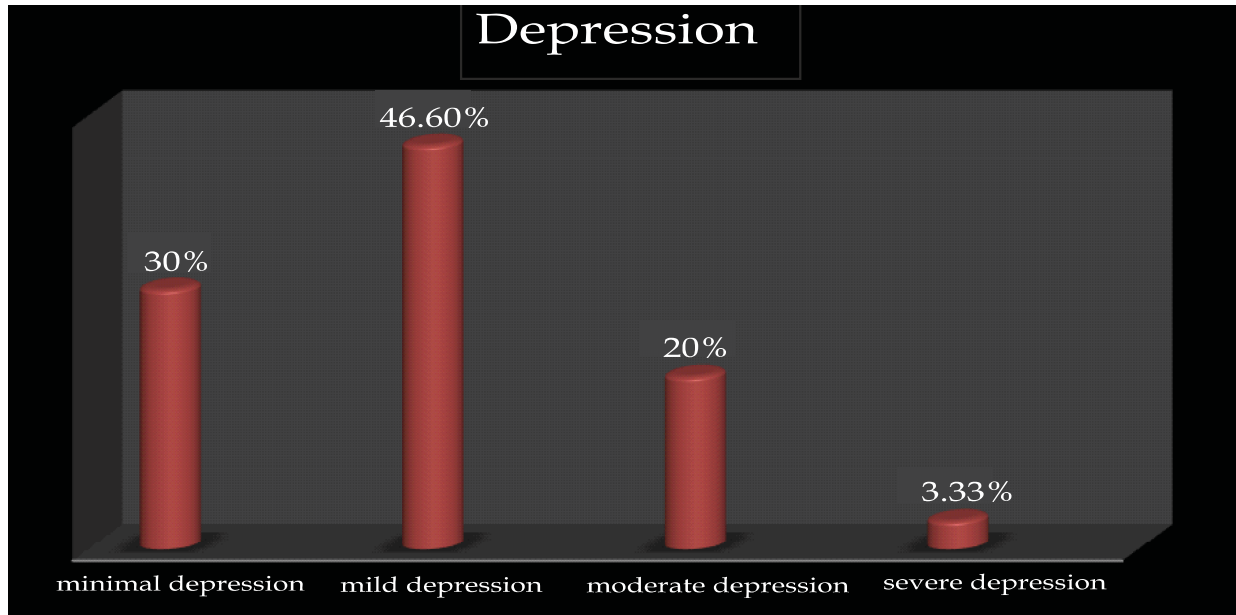


Fig. 1: Cylinder diagram showing the distribution of depression among patients undergoing radiation therapy

Table 2: Description of anxiety scores among patients undergoing radiation therapy.

Sl. No	Category	Frequency	Percentage (%)
1.	Mild Anxiety	24	80
2.	Moderate Anxiety	04	13.3
3.	Severe Anxiety	02	6.66

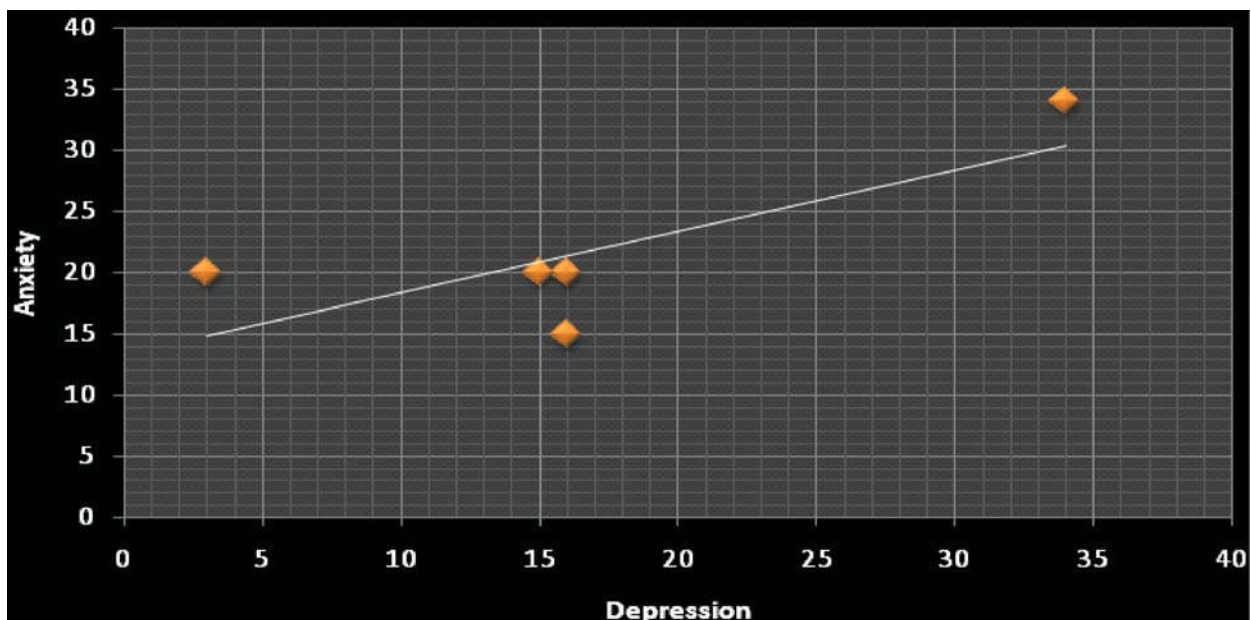


Fig. 1: Scatter plot showing the relationship between depression and anxiety among patients undergoing radiation therapy

Table 3: Correlation between anxiety and depression among patients undergoing radiation therapy.

Sl.no	Variables	Mean ± SD	Correlation	Significance
1.	Anxiety	14.1 ± 6.27	0.721	P < 0.05
2.	Depression	16.3 ± 5.18		Significant

r(29) = 0.341, P < 0.05

Table 4: Chi-square value showing association between anxiety among patients undergoing radiation therapy with their selected demographic variables

Sl. No	Demographic variables	Anxiety among Radiation therapy patients		X2	df	Inference
		Below Median (< 14)	Above Median (> 14)			
1.	Age			7.03	1	P < 0.05 S
	Below 50	09	06			
	Above 51	02	13			
2.	Sex			0.028	1	P > 0.05 NS
	Male	05	03			
	Female	13	09			
3.	Education			1.094	1	P > 0.05 NS
	Literate	07	07			
	Illiterate	11	05			
4.	Occupation			2.30	1	P > 0.05 NS
	Labour	16	09			
	Private/ Govt.	02	03			
5.	Income			0.55	1	P > 0.05 NS
	Below Rs. 8000/-	10	05			
	Above Rs. 8001	08	07			
6.	Marital status			0.028	1	P > 0.05 NS
	Married	13	09			
	Separated/widowed	05	03			
7.	Religion			3.214	1	P > 0.05 NS
	Hindu	18	10			
	Muslim	0	02			
8.	Place of residence			0.023	1	P > 0.05 NS
	Urban	07	05			
	Rural	11	07			
9.	Duration of RT			1.118	1	P > 0.05 NS
	Below 1 month	15	08			
	Above 1 month	03	04			
10.	Fraction of RT			3.214	1	P > 0.05 NS
	Below 6	18	10			
	Above 6	0	02			

S = Significant,

NS = Not significant,

X²(1) = 3.84, P < 0.05

Data in table 3 and fig. 2 showed that, there was a moderately positive correlation between anxiety and depression scores (r = 0.341, P < 0.05), i.e., as the mild anxiety was increased, there was an increase in mild depression among radiation therapy patients.

Table 4 showed that, there was no significant statistical association between anxiety level among patients undergoing radiation therapy

with demographic variables like sex, education, occupation, income, marital status, religion, place of residence, duration and fraction of radiation therapy, except age.

Table 5: showed that there was no significant association between depression among patients undergoing radiation therapy.

Table 5: Chi- square value showing association between depression among patients undergoing radiation therapy with their selected demographic variables

Sl.no	Demographic variables	Depression among Radiation therapy patients		X ²	df	Inference
		Below Median (< 15.5)	Above Median (> 15.5)			
1.	Age					
	Below 50	04	09	3.394	1	P > 0.05
	Above 51	11	06			NS
2.	Sex					
	Male	05	03	0.682	1	P > 0.05
	Female	10	12			NS
3.	Education					
	Literate	05	09	2.143	1	P > 0.05
	Illiterate	10	06			NS
4.	Occupation					
	Labour	14	11	2.160	1	P > 0.05
	Private/ Govt.	01	04			NS
5.	Income					
	Below Rs. 8000/-	09	06	1.200	1	P > 0.05
	Above Rs. 8001/-	06	09			NS
6.	Marital status					
	Married	09	13	2.727	1	P > 0.05
	separated/widowed	06	02			NS
7.	Religion					
	Hindu	15	13	2.143	1	P > 0.05
	Muslim	0	02			NS
8.	Place of residence					
	Urban	04	08	2.222	1	P > 0.05
	Rural	11	07			NS
9.	Duration of RT					
	Below 1 month	11	12	0.186	1	P > 0.05
	Above 1 month	04	03			NS
10.	Fraction of RT					
	Below 6	13	15	2.143	1	P > 0.05
	Above 6	02	0			NS

S = Significant

NS = Non significant

X²(1) = 3.84, P < 0.05

Discussion

Major Findings of the Study

Demographic characteristic of the samples

- More than half of the study participants (56.6%) were above the age group of 51 years.
- Three fourth of the study samples (73.3%) were females.
- More than half of the study participants (53.3%) were illiterate.
- Majority (83.3%) of the study samples were labour.
- Half of the study participants (50%) monthly family income was above Rs. 8000/-
- Three fourth of the study participants (73.3%) were married.
- Majority (93.3%) of the study participants were Hindus.

- More than half (60 %) of the study participants were living in rural area.
- Majority (76.6%) of the study participants were undergoing radiation therapy below one month of duration.
- Majority (93.3%) of the study participants were taken below 6 fractions of radiation therapy.

Out of 30 study participants 80% of patients undergoing radiation therapy had mild anxiety, 13.3% had moderate anxiety and 6.66% had severe anxiety.

Out of 30 study participants 30% of samples had minimal level of depression, 46.6% had mild level of depression, 20% had moderate level of depression, and 3.33% had severe level of depression.

The study result revealed that there was a moderately positive correlation between anxiety and depression among patients undergoing radiation therapy ($r = 0.721$, $P < 0.05$) also revealed that there was a statistically significant association with age, which supported the findings of the study to assess the anxiety and depression among 80 breast and stomach cancer patients. Hospital Anxiety and Depression scale were used to assess the samples. The results showed that 44 (29.3%) patients had mild anxiety, 25 (16.7%) symptomatic anxiety but mild and symptomatic depression were seen in 40 (26.7%) and 32 (21.3%) patients respectively. There were significant relationship between anxiety, depression and the age group of patients with higher frequency in older ages.²⁶

Conclusion

The result of this study showed that 80% of study participants had mild anxiety, 13.3% had moderate anxiety and 6.66% had severe anxiety.

The result showed that 46.6% of study participants had mild level of depression, 30% had minimal level of depression, 20% had moderate level of depression and 3.33% had severe level of depression.

And also the study result revealed that there was a moderately positive correlation between anxiety and depression among patients undergoing radiation therapy ($r = 0.721$, $P < 0.05$).

Implications of the Study:

The Present study has several implications for nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

The study showed that there is an increase in level of anxiety and depression among the patients undergoing radiation therapy, so the nurse can provide effective interventions to reduce the anxiety and depression.

It also showed the need for the psychosocial interventions to cancer patients in order to reduce anxiety and depression among the patients undergoing radiation therapy.

Nursing Education

This study helps as an education tool for the nursing students to understand the psychological problems prevalent among cancer patients undergoing radiation therapy.

The nursing health care professionals can be made aware of the importance of interventions related to anxiety and depression so that the holistic health care approach can be improved.

Nursing Administration

This study helps the nursing in-charges to assess the level of anxiety and depression in order to prevent suicidal behaviour which can be possible because of anxiety and depression among the patients undergoing radiation therapy.

It highlights the need for nursing administrator and staff nurses to make protocol to reduce anxiety and depression among radiation therapy patients.

Nursing Research

The finding of the study serves as a basis of the health promotion of patients undergoing radiation therapy and students to conduct further studies.

This study helps the nurse researcher to develop an insight about the factors which negatively and positively affects the patients undergoing radiation therapy

This study also provide an enhancement to provide further intervention studies to reduce anxiety and depression among the patients undergoing radiation therapy.

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