

ORIGINAL ARTICLE

Assessment of Knowledge on Side Effects Among Cancer Patients Receiving Radiotherapy in Selected Hospitals of West Bengal

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Abstract

Background and Aim: Approximately 20 million new cases of cancer and 9.7 million cancer deaths will occur in 2022. Lung cancer is the most frequently diagnosed type of cancer. Radiotherapy is an integral part of cancer management and is associated with several adverse effects. Awareness of the general population is still poor in both developing and developed countries. Therefore, knowledge assessment of patients with cancer is necessary to understand the lack of knowledge regarding cancer.

Objectives: This descriptive study aimed to assess the knowledge of the side effects of cancer patients receiving radiotherapy in selected hospitals in West Bengal.

Method: A total of 171 samples were selected using a non-probability purposive sampling technique, and a validated structured interview schedule was used to collect data from the study samples.

Results: The study results showed that the mean and SD of knowledge score were 11.3 and ± 3.06 , respectively; 25.1% of cancer patients had a poor level of knowledge, and the majority of the study sample had side effects such as nausea, fatigue, weight loss, and psychological changes. There was a significant association between the knowledge of cancer patients and sex, educational status, place of residence, family history of cancer, and duration of radiotherapy ($P < 0.001$). This study has implications for nursing practice, education, administration, and research.

Conclusion: The majority of the patients had a poor level of knowledge. Further studies with larger participants and different populations are required to understand the knowledge and awareness.

Keywords: Knowledge, Cancer, Side effects, Radiotherapy

Introduction

There are approximately 20 million new cases of cancer and 9.7 million cancer deaths in 2022. Lung cancer is

the most frequently diagnosed cancer and the leading cause of cancer-related death, with almost 2.5 million new cases and approximately 1.8 million deaths. New

cancer cases will reach 35 million by 2050, as indicated by demographics-based predictions. In India, breast cancer (26.6%) was the most diagnosed cancer followed by carcinoma in the cervix (17.7%) in females; among males, lip and oral cavity cancer (14.7%) was the most diagnosed cancer followed by lung cancer (8.5%).¹ According to an ICMR report, there were 1,461,427 new cancer cases in 2022 and the crude incidence rate was 11.4 per 1,00,000 individuals.² Available evidence indicates that external beam radiotherapy is required in 52% of cancer patients.^{3,4} Radiation therapy is associated with several side effects. It can be acute or chronic. Acute side effects are generally reversible and subside within the first 3-6 months of radiation therapy. Chronic or late side effects are usually evident several months after starting radiotherapy, but they are generally irreversible.

In the skin and mucosa, acute responses include erythema, inflammation, and dry and moist desquamation, which manifest as mucositis, pruritus, hypersensitivity, pain, and ulcers in the mucosa.⁵ In the nervous system, acute effects include fatigue, nausea, vomiting, loss of appetite, headache, and some neurological symptoms due to edema of the irradiated tumor and adjacent tissues. Long-term neurological symptoms can present as cerebrovascular disease, fatigue, impaired cognition and memory loss, emotional and mood disturbances, and secondary malignancies.^{6,7} Acute gastrointestinal symptoms include diarrhea, increased mucus secretion, and in long-term cases, rectal bleeding, increased frequency of stool, fistula formation, and pain.⁸ In genitalia, acute side effects include erythema, exudative change, ulceration, and increased infection. The late effects include vaginal stenosis, vaginismus.⁹

Irrespective of the stage of diagnosis or treatment intent, approximately 20% and 10% of cancer patients are affected by depression and anxiety respectively.¹⁰ Radiotherapy has been reported to cause acute side effects like fatigue in 80% of patients, and chronic fatigue can persist for months to years after treatment in up to 30% of cases.¹¹ Alterations of taste occur in more than 70% of patients.¹² Dysphagia is a commonly observed side effect in approximately 40% of cases.¹³⁻¹⁵ With the treatment advancements such as intensity-modulated radiotherapy, approximately 40% of patients still experience xerostomia, and approximately 36% of patients face moist desquamation.^{16,17} Radiation-induced diarrhoea is experienced by approximately 30-50% of

patients.¹⁸ In up to 50% of patients some side effects may occur due to radiation at pelvic region, these are diarrhoea, bleeding from the rectum, and fecal incontinence.^{19,20} Trismus is seen in approximately 65% and 25% of head and neck cancer patients following radiotherapy at 6 and 12 months.²¹

Awareness of the general population is still poor in both developing and developed countries. Poor awareness may lead to the poor use of screening modalities, which may cause delays in diagnosis. Therefore, the knowledge assessment of cancer patients is necessary to understand the lack of knowledge regarding cancer and its treatment. Being a healthcare provider, we can help them to understand the importance of treatment, the side effects of radiation therapy, and how they can effectively manage these side effects.

Materials and Methods

This descriptive research survey was conducted in the Department of Community Nursing. Patients with cancer receiving radiotherapy in selected medical colleges and hospitals in West Bengal were included in this study. This study was conducted after receiving approval Institutional Review Board (IRB) approval was obtained under reference BMC/IEC/83 on 20th April 2023 at Burdwan Medical College. This study included patients who gave consent for participation, were able to read and apprehend Bengali or English, were more than 18 years of age, and received radiotherapy treatment at the time of data collection. Patients undergoing palliative radiotherapy and those with any psychological illness were excluded from the study. A nonprobability purposive sampling technique was used for sample size calculation. A self-structured validated questionnaire was used for data collection. A total of 171 patients who fulfilled the inclusion criteria were interviewed during the study period. All the collected data from case record forms were transferred to data processing software, Microsoft Excel (Microsoft Inc., USA) and analyzed using statistical software, SPSS (v. 26, IBM Inc, USA). We presented all quantitative data as mean and standard deviation and qualitative data as percentages and frequencies.

Results

A total of 171 patients were interviewed and included in this study. The demographic variables are presented in Table 1.

Table 1: Frequency and percentage showing demographic variables

Demographic variables	Frequency (n=171)	Percentage (%)
Age group (years)		
18-30	14	8.2
31-43	14	8.2
44-56	73	42.7
57-69	63	36.8
70 and above	7	4.1
Gender		
Male	77	45
Female	94	55
Marital status		
Married	124	72.5
Unmarried	11	6.4
Widow	27	15.8
Divorcee	9	5.3
Educational status		
No formal education	76	44.4
Up to primary	74	43.3
Up to secondary	8	4.7
Higher secondary and above	13	7.6
Religion		
Hindu	134	78.4
Muslim	37	21.6
Place of residence		
Urban	84	49.12
Rural	87	50.87
Occupation		
Service	19	11.1
Business	21	12.3
Daily wage earner	42	24.6
Home maker	72	42.1
Unemployed	17	9.9
Per capita income (According to modified BG Prasad classification)		
Class I (\geq Rs.8480)	0	0
Class II (Rs 4240- Rs 8479)	0	0
Class III (Rs 2544- Rs 4239)	33	19.29
Class IV (Rs 1272- Rs 2543)	70	40.93
Class V (<Rs 1272)	68	39.76
Addiction history		
Yes	98	57.3

No	73	42.7
Addiction		
Alcohol	45	26.3
Cigarette, Bidi	58	33.9
Tambaku, Gutkha	40	23.4
Others	7	4.0
Any family history of cancer		
Yes	31	18.1
No	140	81.9
Any prior information regarding radiotherapy before diagnosis		
Yes	22	12.9
No	149	87.1
Diagnosis		
Carcinoma Oral Cavity	34	19.8
Carcinoma larynx	31	18.1
Carcinoma Nasopharynx	2	1.17
Carcinoma Oropharynx	7	4.01
Carcinoma Breast	51	29.82
Carcinoma Cervix	35	20.47
Carcinoma Urinary Bladder	2	1.17
Carcinoma Prostate	1	0.58
Carcinoma Rectum	5	2.92
Carcinoma Anal Canal	3	1.75
Duration of taking radiotherapy		
1-7 days	21	12.28
8-14 days	80	46.78
15-21 days	46	26.90
22-28 days	24	14.03

The majority of patients (42.7%) were in the 44-56 years age group, followed by 57-69 years (36.8%). Female patients were in majority (55%) than male patients. Based on educational status, the majority (44.4%) had no formal education and 43.3% had education up to the primary level. A total of 50.87% of patients lived in rural areas and 49.12% of patients lived in urban areas. Of the families, 40.93% belonged to Class IV (lower middle class), 39.76% belonged to Class V (lower class), and 19.29% belonged to Class III (middle class). A total of 57.3% of patients had an addiction history. A family history of cancer was reported in 18.1% of patients. No prior information regarding radiotherapy was available for 87.1% of patients. Of the patients, 43.18% received radiotherapy in the head-neck region, 29.82% of patients received radiotherapy in the chest wall, and 26.89% of patients received radiotherapy in the pelvic region.

Table 2 shows the frequency and percentage of knowledge of the side effects of radiotherapy. 25.1 Of the cancer patients, 25.1% had poor knowledge, 24% of cancer patients had average knowledge, 22.2% of cancer patients had good knowledge, 21.1% of cancer patients had very good knowledge, and 7.6% had excellent knowledge. Therefore, it can be interpreted that most cancer patients had poor knowledge of the side effects of radiotherapy.

Table 2: Frequency and percentage showing the knowledge on side effects

Level of knowledge	Frequency (n=171)	Percentage (%)
Excellent	13	7.6
Very good	36	21.1
Good	38	22.2
Average	41	24
Poor	43	25.1

The obtained range of knowledge of cancer patients on side effects of radiotherapy was 4-17 with a mean knowledge score of 11.3, calculated median value of 12, which could be interpreted as the obtained data being almost normally distributed. The standard deviation of knowledge of cancer patients was ±3.06, which

indicates that the obtained data were mildly dispersed with negative skewness (-0.68), as shown in Table 3.

Table 3: Findings related to mean, median and standard deviation of obtained knowledge of cancer patients receiving radiotherapy related to side effects of radiotherapy

Variable	Range	Mean	Median	SD
Knowledge of cancer patients on side effects of radiotherapy	4-17	11.3	12	±3.06

Range*= Obtained Range, Minimum score 0, Maximum score 20

Table 4 shows the association between knowledge of the side effects of radiotherapy and the selected demographic variables. The Chi-square test showed that the sex of the patient had an impact on knowledge, as males had significantly higher knowledge scores than females ($P<0.001$). In addition, there was a strong association between knowledge and educational status, place of residence, family history of cancer, and duration of radiotherapy, at the 0.001 level of significance. Patients with prior information regarding radiotherapy before diagnosis had a higher knowledge score at 0.01 level of significance. There was no significant association between age and knowledge of radiotherapy.

Table 4: Association between knowledge on side effects of radiotherapy and selected demographic variables

Sample characteristics	Knowledge					
	<Median	≥Median	Total (n=171)	χ ²	df	P value
Age (Years)						
<57	53	48	101	1.10	3.84	>0.05
≥57	31	39	70			
Gender						
Male	23	54	77	20.775***	10.83	<0.001
Female	61	33	94			
Educational status						
Formal education	29	66	95	29.578***	10.83	<0.001
No formal education	55	21	76			
Place of residence						
Urban	4	23	27	15.10***	10.83	<0.001
Rural	80	64	144			
Any family history of cancer						
Yes	4	27	31	19.875***	10.83	<0.001
No	80	60	140			
Any prior information regarding radiotherapy before diagnosis						
Yes	5	17	22	7.03**	6.64	<0.01
No	79	70	149			
Duration of taking radiotherapy						
<14 days	53	24	77	21.77***	10.83	<0.001
≥14 days	31	63	94			

Df= Degrees of freedom, n= absolute number of patients, *P value is significant if <0.05, χ² (df 1) = 10.83, P<0.001, χ² (df 1) = 6.64, P<0.01

Discussion

The results revealed that there were 51.1% of patients with poor knowledge, and 48.6% had average knowledge on the side effects of radiotherapy, which is similar to a study conducted by Murkute *et al.*, Similar findings were also noted by Chetan Priya *et al.* that the majority of oral cancer patients had inadequate knowledge (score less than 50%).^{22,23} We found that knowledge of side effects among cancer patients receiving radiotherapy was associated with selected demographic variables in terms of gender, educational status, place of residence, family history of cancer, duration of radiotherapy, and any prior information regarding radiotherapy before diagnosis; similar findings were also noted by Jyothi Makara B *et al.*²⁴ This is only a study from West Bengal on knowledge of the side effects of radiotherapy to the best of our knowledge.

Conclusion

In this study, we assessed the side effects of radiotherapy, which are necessary for every cancer patient to cope with and manage. The results showed that the majority of the patients had a poor level of knowledge. Nursing is a total care process that covers assessment, diagnosis, planning, implementation, and evaluation; hence, nurses play a major role in educating cancer patients about the side effects of radiotherapy, managing these side effects, and improving their quality of life. However, this study was limited to a particular setup and population. Further studies with larger sample sizes and different populations are required to understand this knowledge and awareness. The findings of the present study can be applied to various areas of nursing education, practice, administration, and research.

Conflict of interest

Nil

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Nil

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