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Effectiveness of a Structured Teaching Programme to Assess Knowledge of Nursing Interventions for Radiotherapy Side Effect Management

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Abstract: ***A pre-experimental one-group pretest and posttest study was undertaken on "Effectiveness of a structured teaching program to assess knowledge of nursing interventions for radiotherapy side effect management among nurses in Apollo Hospitals, Health City, Visakhapatnam, Andhra Pradesh." The objectives of the study were to assess the knowledge regarding the side effects of radiation therapy among the demographic variables and to find out the association between pre and post-tests after the structured teaching program. To evaluate the effectiveness of a structured teaching program on the effects of intervention-related management of side effects of radiation therapy among nurses at Apollo Cancer Hospital Visakhapatnam. The study was conducted at Apollo Hospital, Health City, Visakhapatnam, Andhra Pradesh. The population of this study was Nurses in Apollo hospitals who are taking care of radiation therapy the total sample size was sixty and a Purposive sampling technique was adopted for selecting the samples in the present study. The investigator prepared a structured questionnaire for data collection and a structured teaching program to deliver the content related to nursing intervention on radiation therapy complications. The questionnaire and the structured teaching program content were given for content validity to the experts in the field of Oncology medicine. Demographic tools consisted of age, gender, religion, education, occupation, and monthly income of the nurse. The knowledge questionnaire tool contains 30 multiple choice questions to assess the knowledge regarding the nursing interventions on complications of radiation therapy; the correct answer carries 1 mark wrong answer carries 0 mark. The possible maximum score is 30 minimum score is 0. In the pretest, 78.3% had inadequate knowledge, whereas 21.6% of nurses had moderate knowledge. In the post test knowledge discourse showed the improvement. The findings show that an overall pre-test score of the „r" value is 1 comparing the post-test score of the r" value is 0.0683 there is a negative correlation between the pretest and post-test level of knowledge among nurses correlation is significant at the 0.01 level. The findings show that an overall pre-test score of r" value is 1 comparing the post-test score of "r" value is 0.0683 there is a negative correlation between the pre-test and post-test level of practice among nurses. Correlation is significant at the 0.01 level. It showed that there was a significant difference between pretest and post-test knowledge scores. Hence it could be concluded that structured teaching education has increased the knowledge of nurses. These findings showed that nurses can be educated on nursing intervention for radiation therapy complications.***

Keywords: Knowledge, Side effects of Radiotherapy. Management of Radiotherapy Side Effects.

1. Introduction

Cancer can affect multiple organs of the human body and it starts due to DNA modifications and exacerbated cell multiplication. Malignant tumors are capable of multiplying and spreading to other organs and causing death of the individual. Approximately 8.8 million people die from cancer every year in the world most of them in developing countries. Cancer is a non-communicable disease, and it is responsible for 71% of all deaths worldwide.

The estimated number of incident cases of cancer in India for the year 2022 was found to be 14,61,427 (crude rate:100.4 per 100,000). In India, one in nine people is likely to develop cancer in his/her lifetime. Lung and breast cancers were the leading sites of cancer in males and females, respectively. Among the childhood (0-14 yr) cancers, lymphoid leukemia (boys: 29.2% and girls: 24.2%) was the leading site. The incidence of cancer cases is estimated to increase by 12.8 percent in 2025 as compared to 2020.

According to an international study and as per WHO, the survival rates of cancer patients are either stagnant or going up at a very slow rate compared to developed countries. Even though there has been an increase in awareness and better medical facilities there is a still wide gap between survival rates for cancer patients between India and most countries.

Survival rates for some of the common types of cancers in India are 19% for stomach cancer compared to 25-30% in most countries, 37% for colon cancer compared to 50-59% for most countries, only 4% of liver cancer survive for five years in India compared to 10 – 20% elsewhere, 60% survival rate for breast and prostate cancers compared to 80% in advanced countries. Mortality rates are falling across the world but in developing nations, the mortality rates are around 70% and 1 in 5 cancer-related deaths are from India.

- 70% of cancer-related deaths occur in the first year in India, due to late detection and access to quality healthcare.
- 80% of patients consult doctors at an advanced stage where recovery chances are slim.

- 71% of deaths occur in the age band of 30-69 in India, while in developed countries incidences are higher for people above 50 years.
- 15% of cancer patients are children and adolescents in India, compared to the global average of 0.5%.

The objectives of the study were

- To assess the knowledge regarding side effects of radiation therapy among the demographic variable
- To find out the association between pre and post-tests after the structured teaching program.
- To evaluate the effectiveness of a structured teaching program on the effects of intervention-related management of side effects of radiation therapy among nurses at Apollo Cancer Centre, Visakhapatnam.

2. Methods

The study was conducted at Apollo Hospital, Health City, Visakhapatnam, Andhra Pradesh. The population of this study was Nurses in Apollo hospitals who are taking care of radiation therapy the total sample size was sixty and a Purposive sampling technique was adopted for selecting the samples in the present study. The investigator prepared a structured questionnaire for data collection and a structured teaching program to deliver the content related to nursing intervention on radiation therapy complications. The questionnaire and the structured teaching program content were given for content validity to the experts in the field of Oncology medicine. Demographic tools consisted of age, gender, religion, education, occupation, and monthly income of the nurse. The knowledge questionnaire tool contains 30 multiple choice questions to assess the knowledge regarding the nursing interventions on complications of radiation therapy; the correct answer carries 1 mark wrong answer carries 0 mark. The possible maximum score is 30 minimum score is 0. A pilot study was conducted on six oral cancer patients who are taking radiation therapy in Apollo Hospital, Vishakhapatnam district. The study was found feasible, practicable, and appropriate. Data collection was done in Apollo Hospital, Vishakhapatnam district, Andhra Pradesh. The analysis and interpretation of the data was done with the help of descriptive and inferential statistics. A pretest was given and the structured teaching education regarding nursing intervention in radiation therapy complications was conducted on the same day. The post-test was conducted after one week.

3. Results

As per the project objectives the data were collected and analyzed. The results were presented as

Section 1: Findings related to demographic variables of the staff nurses

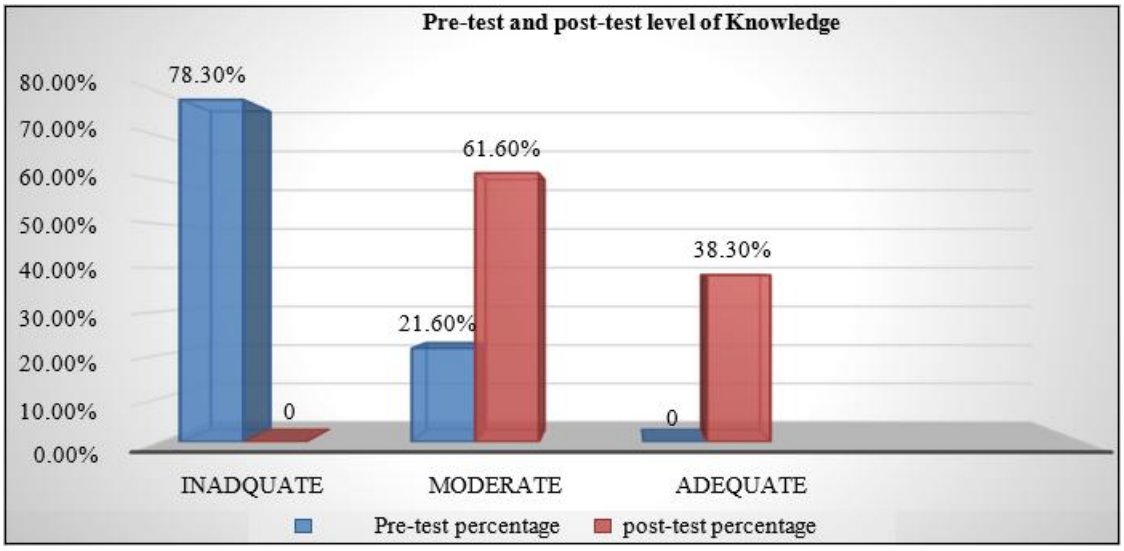
In the total sample of 60. The age group of 40 years above was 1%, 30-40 years 31.70%, 30-20 years 65.10%, the percentage the gender of people were males, 78.3% of Hindus, 68.3% of primary education people and 58.3% small family, 50.0% they get 10,000-15,000 monthly incomes.

Table 1: Frequency and percentage distribution of demographic data of the staff nurse, n=60

Sample characteristics	Frequency	Percentage
Age in years		
18-20-years	0	0
20-30years	40	65.1
30-40years	19	31.70%
40years above	1	1%
MONTHLY INCOME		
16,000-20,000	22	36.70%
21,000 -25,000	30	50.00%
26,000 -30,000	7	11.70%
30,000 above	1	1.70%
Gender		
Male	5	8.30%
Female	55	91.70%
Religion		
Hindu	47	58.30%
Muslim	4	6.70%
Christian	9	35.70%
others	0	0
Education		
ANM	4	6.70%
GNM NURSING	14	23.30%
BSC NURSING	41	68.3
MSC NURSING	1	1.70%

Section 1: Findings related to demographic variables of the staff nurses

In the pretest, 78.3% had inadequate knowledge, whereas 21.6% of nurses had moderate knowledge. In the post test knowledge discourse showed the improvement.



Graph 1: Graph showing knowledge score of the staff both in pre & post-test. n=60

The findings show that an overall pre-test score of r‟ value is 1 comparing the post-test score of „r‟ value is 0.0683 there is a negative correlation between the pre-test and post-test level of practice among nurses. Correlation is significant at the 0.01 level.

It showed that there was a significant difference between pretest and post-test knowledge scores. Hence it could be concluded that structured teaching education has increased the knowledge of nurses. These findings showed that nurses can be educated on nursing intervention on radiation therapy complications.

Table 2: Distribution of mean, standard deviation of knowledge score, and t value of the staff regarding medication administration process in pre & post-test

S. No	Group	Mean	Standard Deviation	‘t’ Value
1	Pre-Test	9.28	1.61	‘t’= 36.01
2	Post Test	20.38	1.75	df=118

The knowledge gained with structured teaching education has been estimated by comparing the pretest mean of 9.28 and the post-test mean of 20.38. The calculated T value was 36.01at degree of freedom with a 0.05 level of significance

The table shows that comparison of the pretest and posttest level of knowledge mean scores regarding nursing interventions on radiation therapy complications among nurses.

The value of the pre-test mean is 9.28 with standarddeviation1.61 the value of the posttest mean is 20.38 with a standard deviation of 1.75. The calculated "t" value is 36.01 the table value at df = 118 at 0.01 level. The calculated value is more than the table value. Hence there is a significant difference between pretest and posttest knowledge scores. So a structured teaching programme was effective.

4. Discussion

The current project was carried out in order to identify the managing skills of nursing interventions of side effects of radiation therapy Shows that nurses have an inadequate to moderate level of knowledge regarding radiation therapy complications**.** The true difference and show that the knowledge score was significantly increased after the administration of structured teaching programme regarding side effects of chemotherapy and radiation therapy and their management. According to Abreu AM, Fraga DRS, Giergowicz BB, Figueiró RB, Waterkemper R The reviewers aimed to synthesize the best available evidence on the effectiveness and experiences of nursing interventions for the prevention and treatment of side effects in patients undergoing radiotherapy. A rigorous literature review and quality appraisal process was conducted and 12 studies were included in the review. The studies were classified as having high methodological quality and provided evidence of effectiveness, particularly, about skin care with the use of calendula to radio dermatitis and honey thyme to mucositis and a meaningful result by patients. The purpose of this study was to assess the effectiveness of nursing intervention on radiation therapy complications among nurses. The finding shows that nurses have a inadequate to moderate level of knowledge regarding radiation therapy complications.

5. Summary

The investigator undertook the study the effect "a study of the effectiveness of a structured teaching program to assess knowledge of nursing interventions for radiotherapy side effect management among nurses in Apollo hospitals, Health City, Vishakhapatnam, Andhra Pradesh." the conceptual framework of the study was based on the Roys adaptation theory. A pre experiment alone group pre-test and post-test design was used in the dependent variable was planned teaching program dependent variable was knowledge nurses regarding nursing intervention on radiation therapy complication. The study period was 5 weeks. Totally 60 nurses were selected as a sample using the convenience sampling technique. The data was collected using a questionnaire and practice checklist planned teaching program and given the reliability of the tool the test-retest method, the data analysis and interpretation were done by using descriptive and inferential statics.

6. Conclusion

Nurses have an essential role in providing nursing intervention on radiation therapy complications to educate the patient about the treatment of radiation therapy complications is essential to prevent infections after radiation therapy. The majority of nurses should gain adequate knowledge after a structured teaching program.

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