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A Study to Evaluate the Effectiveness of Structured Teaching Programme on Knowledge regarding Hazards of Radiation Exposure among Staff Nurses at Selected Hospitals of Udupi District, Karnataka

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ABSTRACT

BACKGROUND AND OBJECTIVES

Radiation is the process in which energy emitted as particles or waves. The use of medical radiation for diagnostic and therapeutic purposes continues to increase worldwide and the incidence of radiation hazards from prolonged exposure to radiation also increases these days. It is necessary to make aware on the hazards of radiation exposure. This study was conducted to assess the pre and post interventional level of knowledge, evaluate the effectiveness of structured teaching programme and find out an association between the pre-test knowledge score on hazards of radiation exposure with selected demographic variables in selected hospitals of Udupi District, Karnataka

METHOD

Pre-experimental one group Pre and Post-test design was adopted for this study. The study was conducted at selected hospitals (Chinmay hospital and Manish hospital) in Kundapur, Udupi District, Karnataka. Fifty staff nurses in the respective hospitals were selected as samples by using purposive sampling technique. Data was collected by demographic proforma and structured knowledge questionnaire. Data was analyzed by using descriptive and inferential statistics.

RESULTS:

The results showed that there is significant difference in mean pre-test and post-test scores. the mean post-test knowledge score (25.1±2.8) was higher than the mean pre-test knowledge score (13.3±4.7). The t test was computed to compare the significant difference between pre-test and post- test knowledge score. The calculated t value ($t = 17.6$, $p < 0.05$) was greater than table value ($t_{49} = 1.68$) at 0.05 level of significance. P value was 0.00 which is <0.05. Hence the research hypothesis is accepted and null hypothesis is rejected

at 0.005 level of significance, stating that there is significant effect of structured teaching programme on hazards of radiation exposure.

Chi-square Yates correction test was computed to find the association of pre-test knowledge score and selected demographic variables. Demographic variables did not show any significant association since p value was found to be greater than 0.05.

CONCLUSION

The study's overall findings showed that the structured teaching programme significantly improved the staff nurse's knowledge score regarding hazards of radiation exposure.

Keywords: Radiation, Hazards of radiation exposure, structured teaching programme.

Introduction

Radiation is the process by which energy is emitted from a source and propagated through the surrounding medium. Radiation exits in the world several forms. We are all exposed to a little radiation in the environment, but at levels which are not considered harmful. Healthcare is one of the main workplaces where ionizing radiation is deliberately used. The effects of these ionizing attacks depend on the following factors: the size of the dose, the area or extent of exposure of the body, the duration of the exposure to radiation. The health effects of ionizing radiation may be summarized into two groups – somatic effects, which refer to cell damage in the person exposed to the radiation dose and genetic effects, which refer to damage done to the children of the irradiated person.

It is imperative that all nursing staff, working in areas where ionizing radiation is a risk, is protected against excessive exposure. Learning about the hazards of radiation is only half the battle. Educating them about the potential dangers and how to reduce their exposure is the next step.

Objectives of the study

The objectives of the study are to:

- Assess the pre-test knowledge scores regarding hazards of radiation exposure among the staff nurses in selected hospitals of Udupi District.
- Evaluate the effectiveness of structured teaching programme on hazards of radiation exposure among the staff nurses in selected hospitals of Udupi District.
- Find out an association between the pre-test knowledge score on hazards of radiation exposure among the staff nurses and selected demographic variables.

Hypotheses:

H_1: There will be a significant difference between mean pre-test and post-test knowledge score of staff nurses regarding hazards of radiation exposure.

H_2: There will be a significant association between pre-test knowledge score regarding hazards of radiation exposure and selected demographic variables.

Methods:

Pre-experimental one group Pre and Post-test design was adopted for this study. The study was conducted in Chinmay hospital and Manish hospital kundapur, Udupi District, Karnataka. The sample of this study was 50 staff nurses, who were selected from the respective hospitals by using a purposive sampling technique. Prior to data collection, permission was obtained from concerned authorities for conducting the

study. Sample were selected according to the selection criteria of the study. Before administering the tool, self-introduction and purpose of data collection were explained to the sample and consent was obtained. Data was collected from the samples by using Tool I Demographic proforma and Tool II structured knowledge questionnaire. Tool was taken back and STP was conducted to the samples. On the 7th day again the knowledge questionnaire was administered and data was collected.

Result:

The data were analyzed by using descriptive and inference statistics. The data is presented under the following headings:

Section 1: Demographic characteristics of the subjects

Section 2: Knowledge of staff nurses regarding hazards of radiation exposure.

Section 3: Effectiveness of structured teaching programme on hazards of radiation exposure.

Section 4: Association of pre-test knowledge score on hazards of radiation exposure and selected variables.

Section 1: Demographic characteristics of the subjects: A total of 50 staff nurses were included in the study. The majority, 42% of nurses were in the age group 20-22, 100% were females, 88% nurses were GNM, 58% nurses were single, 60% nurses were Hindus. Areas of working were 28% nurses worked in general ward, 14% working in radiology department, 28% nurses worked in operation theatre, 26% in

critical care unit and 4.0% in another department. Majority, 56% of nurses had experience for 1 to 3 year & 82% nurses had no information on hazards of radiation.

Section 2: Knowledge of staff nurses regarding Hazards of Radiation exposure

Table 1: Frequency and percentage distribution of samples according to their knowledge regarding hazards of radiation exposure.

Knowledge score	Pre-test		Post-test	
	Frequency	Percentage	Frequency	Percentage
Inadequate	21	42.0%	0	0%
Moderate	29	58.0%	2	4%
Adequate	0	0%	48	96%
Total	50	100%	50	100%

Fig 1: Cylindrical diagram showing Knowledge of Staff nurses regarding Hazards of Radiation exposure

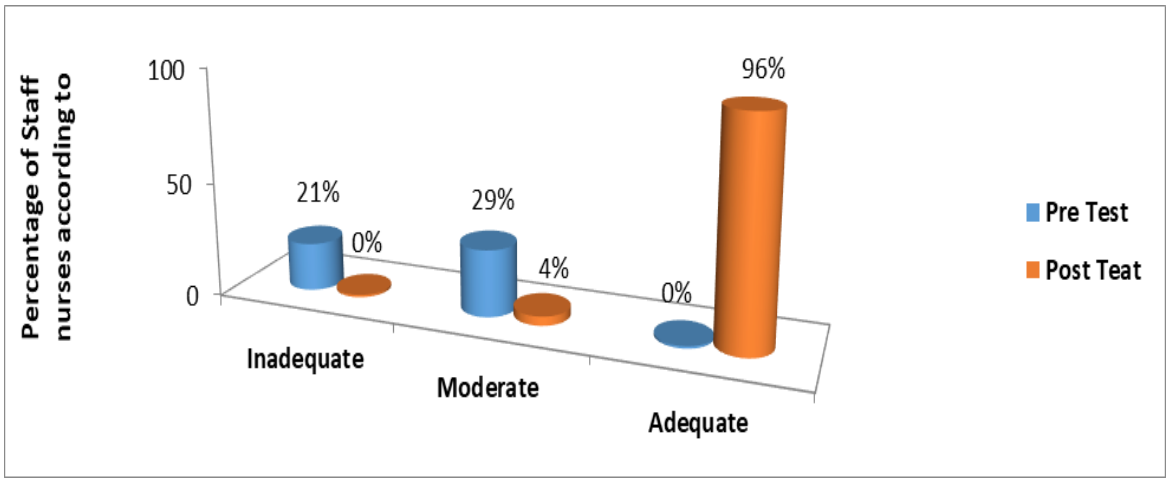

Table 1 & Figure 1 shows that during pre-test majority of nurses 21(42%) had inadequate knowledge, 29(58%) had moderate knowledge and none of the nurses had adequate knowledge regarding hazards of

radiation exposure. Whereas in the post-test 48 (96%) had adequate knowledge and 2(4%) had moderate knowledge on hazards of radiation exposure.

Section 3: Effectiveness of structured teaching programme on hazards of radiation exposure:

Table 2: Pre-test and Post-test mean percentage knowledge score regarding hazards of radiation exposure.

Parameters	Mean Score	Mean percentage	Max score	SD	Mean difference	't' value	Df	Table value
Pre-test	13.3	45.37%	29	4.7	11.8	17.6	49.00	1.68
Post-test	25.1	86.48%	29	2.8				

Table 2: show that there is significant difference in mean pre-test and post-test scores, the mean post-test knowledge score (25.1±2.8) was higher than the mean pre-test knowledge score (13.3±4.7). The t test was computed to compare the significant difference between pre-test and post-test knowledge score. The calculated t value ($t = 17.6$, $p < 0.05$) was greater than table value ($t\ 49 = 1.68$) at 0.05 level of significance. P value was 0.00 which is <0.05. Hence the research hypothesis is accepted and null hypothesis is rejected at 0.005 level of significance, stating that there is significant effect of structured teaching programme on hazards of radiation exposure.

Section 4: Association of pre-test knowledge score and selected demographic variables: Chi-square Yates correction test was computed. Demographic variables did not show any significant association (since p value was found to be greater than 0.05) Hence, research hypothesis is rejected and null hypothesis is accepted.

Discussion:

The present study was to evaluate the effectiveness of structured teaching programme on knowledge regarding hazards of radiation exposure among staff nurses. Data shows that there was significant difference in mean pre-test and post-test scores, the mean post-test knowledge score (25.1±2.8) was higher than the mean pre-test knowledge score (13.3±4.7). P value was 0.00 which is <0.05. Hence, the research hypothesis is accepted and null hypothesis is rejected at 0.005 level of significance, stating that there is significant effect of structured teaching programme on hazards of radiation exposure.

Conclusion:

A nurse should know each hazard of different types of radiation and protective measures to prevent herself/himself from further complications. With newer knowledge the scope of education too increases. Nurse educators should get the benefit of these studies to include them in their teachings to enhance the

knowledge. Even nurse administrator can take the initiative in imparting health information by individual and group teaching in the hospital, and other community settings.

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