



# “A STUDY TO ASSESS THE KNOWLEDGE ON RADIATION THERAPY INDUCED SKIN REACTIONS AMONG ATTENDANTS OF THE CANCER PATIENTS ATTENDING RADIATION ONCOLOGY OUT PATIENT DEPARTMENTS, SVIMS, TIRUPATI.”

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## ABSTRACT

### OBJECTIVES:

- To assess knowledge on radiation therapy induced skin reactions among attendants of cancer patients.
- To find out the association between level of knowledge on radiation therapy induced skin reactions with their selected socio - demographic variables.

### Materials and methods:

**Methodology:** The research approach used for the present study was Cross-Sectional Descriptive Research Design. The sample of the study chosen by Non-Probability Convenient Sampling Technique, which includes 200 attendants of the Cancer patient of SVIMS, Radiation Oncology Out Patient Departments. A self structured questionnaire was used to collect the data which consists of 30 multiple choice questions.

**Results:**

The major findings of the study was out of 200 cancer patient attendants shows that 109 (54.5%) of patient attendants had moderate knowledge level, 53 (26.5%) of patient attendants had adequate knowledge level, 38 (19%) of patient attendants had inadequate knowledge levels on radiation therapy induced skin reactions. The associations of demographic variables with the level of knowledge on radiation therapy induced skin reactions determined by using chi-square test which revealed that there was a highly significant association with education, occupation, marital status, personal habits, having any skin diseases before radiation therapy and co-morbidity conditions.

**Conclusion:**

The study findings concluded that the patient attendants had moderate knowledge on radiation therapy induced skin reactions and need to develop skills and techniques on skin care management. The information booklet on side effects and its management of radiation therapy and therapy induced skin reactions had significantly favourable effect on knowledge of patient attendants regarding side effect management.

**Key words:** Radiation therapy, Radiation therapy induced skin reactions, Knowledge.

## **I. INTRODUCTION**

Cancer is a universal and non-communicable disease that affects people without regards to gender, culture, race and economic status. It can occur at any organ or part of body and involves any types of tissue or cells. There are huge variations in the occurrence of cancer throughout the world. Cancer is the second most common killer disease in many nations.<sup>1</sup>

Radiotherapy is one of the main modality in the management of cancer treatment, along with chemotherapy and surgery. The goal of Radiation therapy is to provide maximum damage to tumour with the minimal side effect. One of the most common side effects of radiation is acute skin reaction, affecting up to 90% of people receiving radiation treatment for their cancer.<sup>1</sup>

Effects of Radiotherapy on skin are Inflammation of skin tissue within the radiotherapy field, discoloration of the overlaying skin, desquamation, epilation within the radiotherapy field, oedema of skin, breakdown of skin with minor trauma, ulceration and burn and bleeding.<sup>1</sup>

**NEED FOR THE STUDY:**

The reactions are the result of radiation treatment disrupting the normal process of cell division and regeneration in the basal cell layer of the skin, resulting in cell damage or cell death. The damage can be a result of several processes, including a reduction of endothelial cell changes, inflammation, and epidermal cell death. The tissue damage occurs immediately after the first dose of Radiation therapy. The severity of skin reaction varies from mild erythema to sever moist desquamation and necrosis. The higher prevalence of

Radiation therapy induced skin reaction has created interest in methods of preventing and managing such reactions.<sup>1</sup>

Based on the review of literature, personal experience of the investigator in the oncology unit, it was found that there is need for to provide the patients education that is understandable and helpful to improve coping and adjusting with the bodily changes there are very few studies dealing with effectiveness of information booklet on side effect management in the patients of cancer undergoing radiation therapy, thus the investigator would like to explore on the effects of planned information booklet -on management of selected side effects of Radiation Therapy induced skin reactions and make significant contribution to the field of radiation oncology nursing in achieving a better quality of life for patients receiving Radiations Therapy.

### STATEMENT OF THE PROBLEM:

A STUDY TO ASSESS THE KNOWLEDGE ON RADIATION THERAPY INDUCED SKIN REACTIONS AMONG ATTENDANTS OF THE CANCER PATIENTS ATTENDING RADIATION ONCOLOGY OUT PATIENT DEPARTMENTS, SVIMS, TIRUPATI.

### OBJECTIVES OF THE STUDY:

- To assess the level of knowledge on radiation therapy induced skin reactions among attendants of cancer patients.
- To find out the association between levels of knowledge on radiation therapy induced skin reactions with their selected socio-demographic variables.

### OPERATION DEFINITIONS:

**Assess:** Refers to determine the knowledge on radiation therapy induced skin reactions among attendants of the cancer patients

**Knowledge:** It refers to awareness on radiation therapy induced skin reactions as measured by their responses to the questionnaires.

**Radiation therapy:** Radiation therapy or radiotherapy, often abbreviated RT, RTx, or XRT, is a therapy using ionizing radiation, generally provided as part of cancer treatment to control or kill malignant cells and normally delivered by a linear accelerator.

**Radiation-induced skin reaction (RISR):** Is a common side effect that affects the majority of cancer patients receiving radiation treatment. RISR is often characterized by swelling, redness, pigmentation, fibrosis, and ulceration, pain, warmth, burning, and itching of the skin.

**Attendants:** One who attends another to perform a service.

**ASSUMPTIONS:**

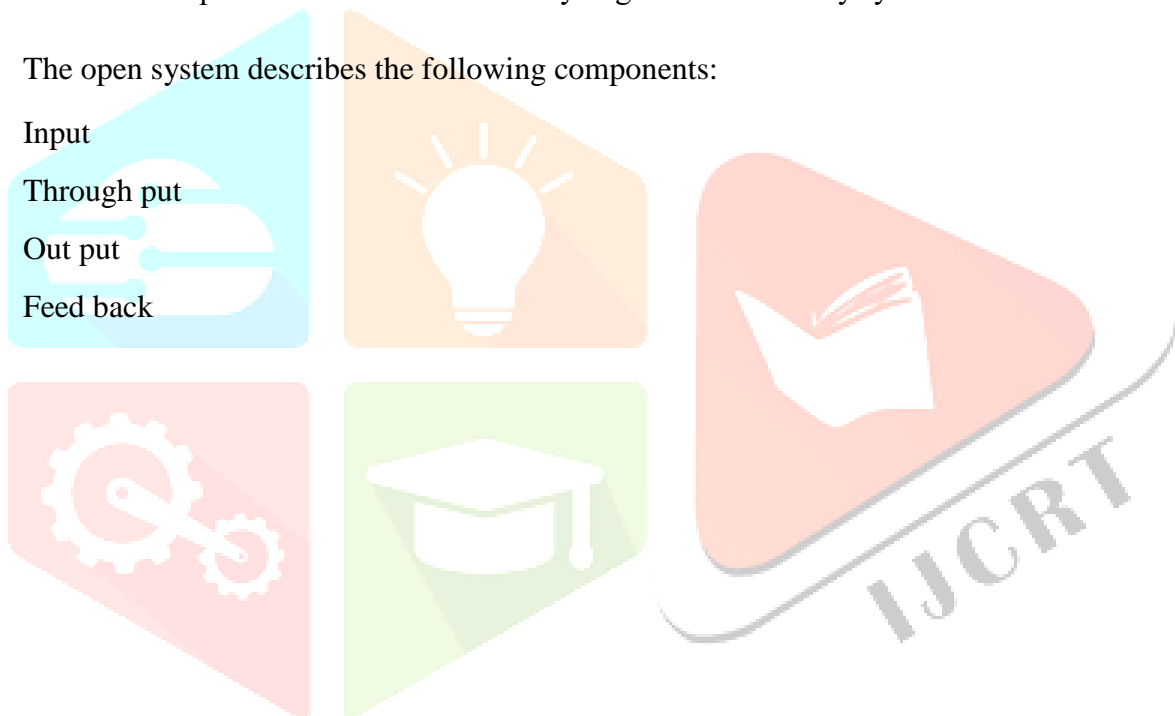
- Attendants of cancer patients may not have inadequate knowledge on radiation therapy induced skin reactions.

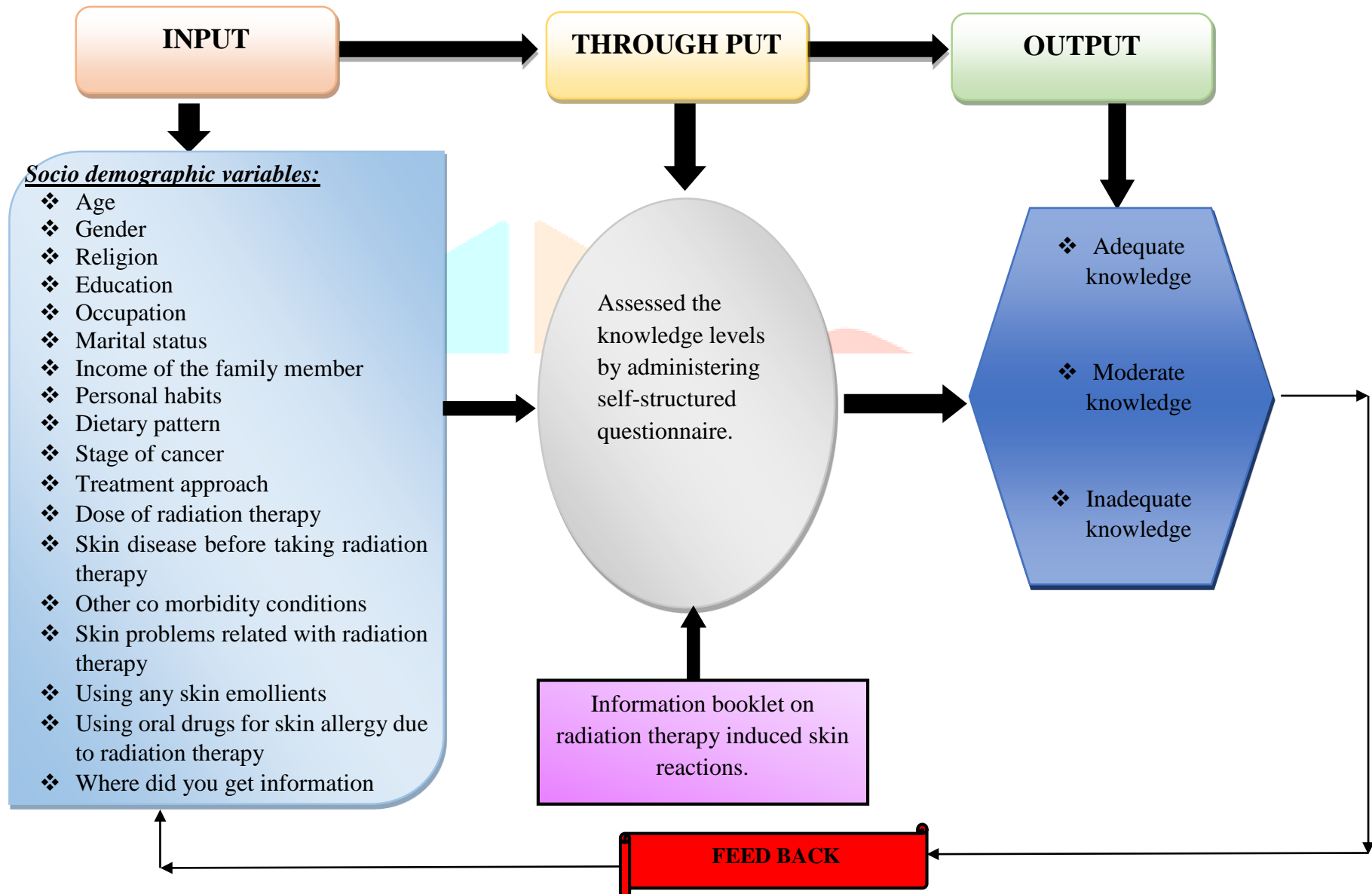
**CONCEPTUAL FRAME WORK:**

The conceptual framework for the present study was adopted from ‘**General system theory by Ludwig Von Bertalanff (1968)**. General system theory explains that, a system of interrelated elements in the abstract system are the human being their environment. A system must achieve the balance internally and externally. According to general system theory, ‘silence of wholeness and its purpose is scientific thinking across the discipline and which provide frame work for analyzing the whole of any system’<sup>2</sup>.

The open system describes the following components:

- Input
- Through put
- Out put
- Feed back





**Fig.No. 1: MODIFIED CONCEPTUAL FRAMEWORK BASED ON “GENERAL SYSTEM THEORY MODEL” 2022.**

## II. METHODOLOGY

### RESEARCH APPROACH:

Research approach tells the researcher from whom the data to be collected, how to collect and how to analyse them. It suggests possible conclusion and help the researcher in answering the questions in the most accurate and efficient manner.

Non-experimental research approach was adopted to achieve the objectives of the study, which is felt to be the most appropriate in the field of education for its practicability in real life situation. It has the advantage of practicability, feasibility and to certain extent of generalization.<sup>3</sup>

### RESEARCH DESIGN:

A research design is the overall plan, structure and strategy investigation of answering the questions. It is the blue print that the researcher selects to carry out the study.<sup>4</sup>

The research design selected for the present study was descriptive research design.

### VARIABLES:

**Independent variable:** Patients attendants attending Radiation oncology OPD's.

**Dependent variable:** Knowledge on radiation therapy induced skin reactions.

**Extraneous variables:** Which could influence the study includes age, gender, educational qualification, religion, marital status, occupation, income, co- morbidity diseases, and source of information.

### SAMPLE SETTING

The study was conducted at Radiation oncology OPD's, SVIMS, Tirupati. The setting was chosen based on of investigation's feasibility in terms of availability of required sample.

### POPULATION:

The population in this study includes the patient's attendants' who came for radiation oncology OPD's either for check-ups or follow ups.

### SAMPLE:

The sample includes patients attendants attending radiation oncology OPD's and who fall under inclusion criteria.

**SAMPLE SIZE:**

Sample size calculation formula done by using Yamane (1967:886)

$$n = \frac{N}{1 + N(e)^2}$$

Where, 95% confidence level =1.96

Confidence interval (margin of error) of  $\pm 7\%$ .( d=0.07)

Where 'n' is the sample size =?

'N' is the population size = 947 (Known population)

'e' is the level of precision= 0.07

When this formula is applied to the above formula:

$$n = \frac{947}{1 + 947(0.07)^2}$$

$$n = \frac{947}{1 + 947(0.0049)}$$

$$n = \frac{947}{5.6403}$$

$$n = 167.8$$

Hence, the final sample size by considering the non-response of patient's attendants – 168 and is rounded to 200.

**SAMPLING TECHNIQUE:**

Non probability convenience sampling technique was adopted based on the inclusion criteria.

**CRITERIA FOR SAMPLE SELECTION:****Inclusion criteria: The patient's attendants who are**

- Both male and female >18 years are included.
- Willing to participate in the study and available during the period of data collection.

**Exclusion criteria: The patients who are**

- Below 18 years are excluded.

**DEVELOPMENT AND DESCRIPTION OF THE TOOL**

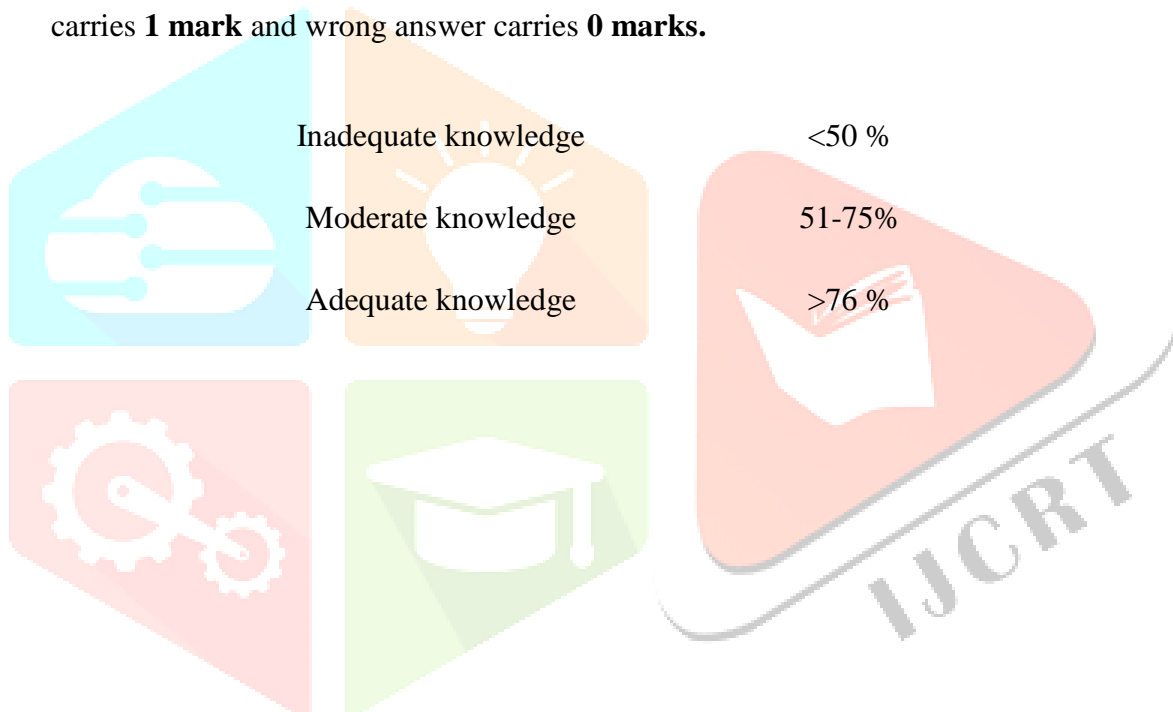
- The tool was developed with the help of related literatures from text books, journals, websites, discussions and guidance from experts in the field of Nursing and Radiation Oncology department.

**The tool consists of 2 sections:**

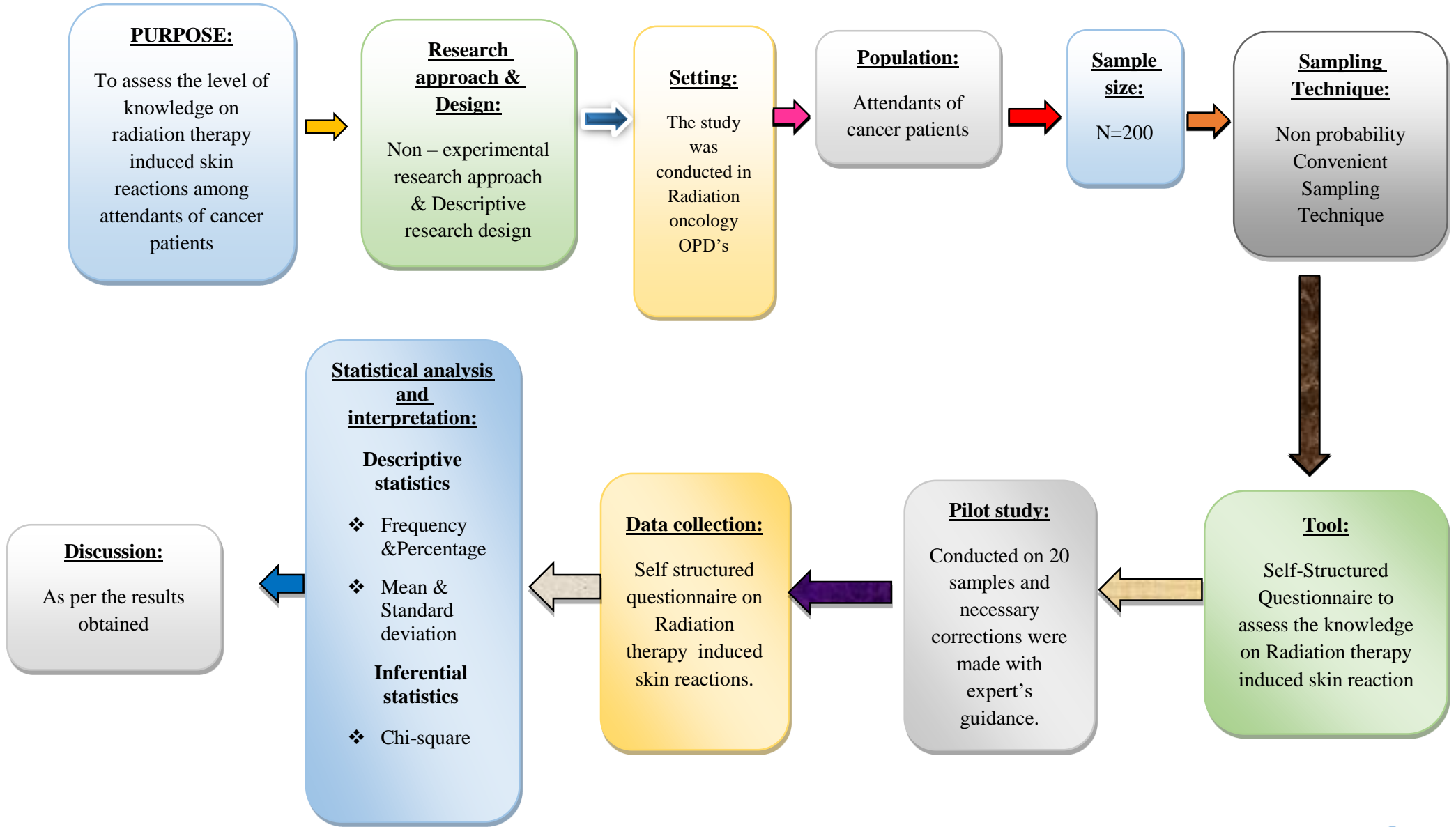
- **SECTION I:** Consists of socio-demographic variables like age, gender, religion, education, occupation, marital status, Income of the family member, personal habits, dietary pattern, stage of cancer, treatment approach, dose of radiation therapy, any skin disease before taking radiation therapy, any other co morbidity conditions, any skin problems related with radiation therapy, using any skin emollients, using oral drugs for skin allergy due to radiation therapy, where did you get information.
- **SECTION II:** Multiple choice questions related to knowledge on radiation therapy and therapy induced skin reactions.

**SCORING KEY:**

- **SECTION I:** By coding the demographic variables.
- **SECTION II:** The questionnaire consists of 30 multiple choice questions, each correct answer carries **1 mark** and wrong answer carries **0 marks**.







**Fig. No 2: SCHEMATIC REPRESENTATION OF RESEARCH METHODOLOGY**

### III. RESULTS

Majority of patients shows that (117) 58.5% were belongs to the age group of > 50 years, (127) 63.5% were female, (163) 81.5% were Hindu, (112) 56% were illiterate, (88) 44% were home maker, (169) 84.5% were married, (85) 42.5% were income is 5,000/-10,000/-, (111) 55.5% were no bad habits, (117) 88.5% were non-vegetarian,(95) 47.5% were stage II cancer, (110) 55% were taking radiation therapy and chemo therapy, (143) 71.5% were taking 21- 40 GY, (185) 92.5% were not having skin problems before radiation therapy, (135) 67.5% were no co-morbidity, (179) 89.5% were no skin problems related radiation therapy, (177) 88.5% were not using skin emollients, (171) 85.5% were not taking oral drugs for skin reactions, (173) 86.5% were getting information through health personals.

The major findings of the study was out of 200 cancer patient attendants shows that 109 (54.5%) of patient attendants had moderate knowledge level, 53 (26.5%) of patient attendants had adequate knowledge level, 38 (19%) of patient attendants had inadequate knowledge levels on radiation therapy induced skin reactions.

**Table-1:** Frequency and percentage distribution of levels of knowledge on radiation therapy induced skin reactions.

Knowledge levels on radiation therapy induced skin reactions among attendants of the cancer patients	Frequency (f)	Percentage (%)
Inadequate	38	19.0%
Moderate	109	54.5%
Adequate	53	26.5%
Total	200	100

The association of demographic variables with the level of knowledge on radiation therapy induced skin reactions shows that education, occupation, marital status , personal habits, having any skin diseases before radiation therapy& co-morbidity conditions having high significance of  $p < 0.001$  and other variables such as age, gender, income, stage of cancer , treatment approach, skin problems related with radiation therapy, information about radiation therapy having significance of  $p < 0.05$  and other variables such as religion, dietary pattern , dose of radiation therapy, using any skin emollients, using oral drugs for skin allergy due to radiation therapy were not having significance.

### IV. CONCLUSION

The study findings concluded that patient attendants had moderate level of knowledge on radiation therapy induced skin reactions and need to develop skills and techniques on skin care management. Results Shows that 109 (54.5%) of patient attendants had moderate knowledge level, 53 (26.5%) of patient attendants had adequate knowledge level, 38 (19%) of patient attendants had inadequate knowledge levels on radiation therapy and therapy induced skin reactions. The information booklet on side effects and its

management of radiation therapy induced skin reactions had significantly favourable effect on knowledge of patient attendants regarding side effect management.

### **IMPLICATIONS:**

The implications drawn for the present study are vital concern to health care team, including nursing practice, nursing education, nursing administration and nursing research.

### **NURSING PRACTICE:**

The present health care delivery system gives emphasis on comprehensive healthcare, which includes preventive, curative and rehabilitative care.

- Nurses should update the knowledge on safety measures of radiation therapy induced skin reactions through the health education programs in their clinical area.
- Nurse administrator should prepare adequate learning material for giving health education and making necessary educational material available to needy patients.

### **NURSING EDUCATION:**

- The nursing curriculum, the students need to be strengthened to enable them to identify the skin changes related to radiation therapy and to provide supportive educative care for the self-care in preventing side effects.

### **NURSING ADMINISTRATION:**

- Nursing leaders are challenged to take care of the most dreadful disease condition by effective organization and management.
- The nurse administrators should take active participation in the health policy making, developing protocol, procedures, and standing orders related to health of the cancer patients.

### **NURSING RESEARCH:**

- The essence of research is to build up a body of knowledge in nursing, as it is an evolving profession.
- The effectiveness of the studies in research field is verified by its utility by the nurses in the practical field.

### **LIMITATIONS:**

The study was limited to the Radiation Oncology OPD's, SVIMS, Tirupathi.

**RECOMMENDATIONS:**

- The nurse posted in the oncology radiation therapy unit could spare sometime for teaching and guiding the cancer patients who are chosen to undergo radiation therapy.
- A nurse health educator may be posted in the pre-radiation therapy unit.
- A booklet containing information in their own language to create more awareness and knowledge about radiation therapy may be prepared.

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