



A Study to Assess Effectiveness of Structured Teaching Programme on Knowledge Regarding the Side Effects of Chemotherapy and Radiation Therapy and their Management Among Patients with Cancer in Selected Hospital at Jaipur

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Abstract

A study to assess effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients with cancer in selected hospital at Jaipur was conducted by Mr. Sunil Kumar in partial fulfillment of the required of the award of the degree of MSN-Oncology, Rajasthan University of Health Sciences.

Objective of the study were:

- 1. To determine the pre test level of knowledge regarding side effects of chemotherapy and radiation therapy and their management among patients with cancer by using structured knowledge questionnaire.*
- 2. To find the effectiveness of structured teaching programme on knowledge regarding side effects of chemotherapy and radiation therapy and their management.*
- 3. To determine the association between the knowledge level and the selected demographic variables (age, sex, education, religion, occupation, number of days of hospitalization).*

According to Poit and beck (2008) “conceptual framework as interrelated concept of abstraction assembled together in rational scheme to form a by virtue relevance to a common theme.

The present study aim to assess effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients.

The framework of the study based on Imogene M. “kings goal attainment model”. The major elements of the study of goal attainment are seen in the inter personal system in which two people, who are usually strangers, comes together in a health organization to helped and be helped to maintain a state of health that permits function in roles The concept of theory is perception, action, interaction and transaction. These concepts are interrelated in every nursing situation. This term are defined as concept in the conceptual framework.

Pre –experimental “one group pretest – posttest research design was selected for the present study. The primary objective of study was to find the effectiveness structured teaching programme regarding side effects of chemotherapy and radiation therapy and their management. The study conducted in B.C.H.R.C. hospital, Jaipur. 60 patients with cancer were selected for the study. The data collected from 22/06/2016 to 09/07/2017.

The sample characteristics show that:

- *The majority 20 (33.33%) of subjects was in the age group of 21 – 30 years and 15 (25%) of subjects was in the age group of 31 – 40 & 41 – 50 years and remain 10 (16.66) of subjects was in the age group of above 50 years.*
- *Most of subject was male 45 (75%) and female 15 (25%).*
- *Most of them were Hindu 30 (50%) and Muslim 15 (25%) and Christian 10 (16.66%) and remaining others 05 (8.33%).*
- *Most of subjects were having secondary education 25 (41.66%), followed by senior secondary 20 (33.33%), some was above graduation 10 (16.66%) and remaining illiterate 05 (08.33%).*
- *Majority 25 (41.66%) of subject was laborer followed by from government sector 15 (25%) and remaining business men and from private sector 10 (16.66%) of each.*
- *Most of subjects were 20 (33.33%) stay in hospital for 0 – 02 & 3 – 4 days during hospitalization some was 15 (25%) stay for 5 – 6 days and remaining stay more than 6 days was 05 (8.33%).*

The mean post test knowledge score (25) was higher than the mean pre test knowledge score (14.5). The median of the post test (25) is higher than the median of the pre test knowledge score (15). The finding also revealed that the post test knowledge score is homogenous (SD 1.77) than the pre test knowledge score (SD 2.82).

The calculated 't' value (28.14) was found to be statistically significant at 0.05 level of significance which showed that the mean difference obtained in the knowledge score was 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.

List of Abbreviations

| | | |
|------|---|-------------------------------|
| H | : | Hypothesis |
| SD | : | Standard Deviation |
| df | : | Degree of Freedom |
| 2 | : | Chi Square |
| FIG. | : | Figure |
| STP | : | Structured Teaching Programme |

Introduction

The sign of the Zodiac cancer is the Crab. A crab as moves fast in all direction, similarly the disease cancer also spread in all direction. Cancer occurs in all strata of our society. The largest number of malignant tumor occur in four area of the body; the lungs, colon – rectum, breast and the prostate. Cancer is the one of the major cause of the death. Most people until recently believed that cancer was incurable but research and technology along with advance in diagnosis and treatment have helped cure cases in many cases. Treatment options offered to cancer patients should be based on realistic and achievable goals for each specific type of cancer. The range for possible treatment goals may include complete eradication of malignant disease (cure), prolonged survival and containment of cancer cell growth (control), or relief of symptoms associated with the disease (palliation). Early detection and treatment may result in cure whereas delayed diagnosis and treatment may result in palliative treatment only.[1]

Multiple modalities are commonly used in cancer treatment. A variety of approach including surgery, radiation therapy, chemotherapy, immunotherapy and bone marrow transplantation.[1]

Chemotherapy is a systemic intervention that prevents and treats the disease by use of chemical agents. The objective of chemotherapy is to destroy all malignant tumor cells without destruction of normal cell. Chemotherapy drugs can be administered by variety of route such as intravenous and regional. Other routes of administration of the chemotherapeutic agents include oral, subcutaneous, intramuscular and can be administered singly or combination.[1]

Cancer has a profound impact on patient's physical functions, psychological wellbeing and social life. Besides the physical effects of cancer, patients also suffer from depression. Chemotherapy can produce many side effects, such as: Anemia, low red blood cell count, low white blood cell count (this increases risk for infection), hair loss, or thinning hair, bleeding or bruising (due to low platelet count), dry skin, or rashes, fatigue, diarrhea, constipation, nausea or vomiting, muscle and nerve problems, lung problems and difficulty breathing; coughing excessively, fertility and sexuality problems.[1]

The desired outcome can be divided into these two categories:

- To treat cancer by killing cancer cells: This includes cells in primary tumors and cancer cells that have spread to other parts of the body. Chemotherapy might be the only treatment given or it may be used with other treatments. Neo-adjuvant chemotherapy is given before surgery or radiation treatment to make the tumor smaller. Adjuvant chemotherapy is given to prevent recurrence of the original tumor after surgery or radiation therapy by killing remaining cancer cells.[2]
- Palliative chemotherapy to relieve symptoms: The goal of chemotherapy may be to relieve symptoms, such as pain. It is given to control the growth of tumors or to shrink or eliminate them, which can relieve symptoms but not be a cure.[2]

Chemotherapy is an important treatment modality in oncology which can prolong life of cancer patients. These drugs are chemically designed to target cancer cells that are dividing and growing rapidly. However most chemotherapy drugs have some side-effects such as nausea and vomiting, mouth sores and ulcers and increased susceptibility to infection that can profoundly affect the nutritional status. Patients who have lost a significant amount of weight before cancer treatment are at increased risk of becoming further malnourished during treatment. A study by Gupta et al showed that well-nourished (a good SGA-subjective global assessment score) cancer patients were associated with better survival outcomes.[3]

Radiotherapy is often used as a treatment for cancer. Around four out of every 10 people who are treated for cancer have radiotherapy, often together with other types of treatment (including chemotherapy and surgery). Radiotherapy usually uses high energy X-rays to destroy unwanted cells, such as cancer cells. The aim of radiotherapy is to target the unwanted cells and avoid damaging healthy cells as much as possible. Radiation therapy may be external beam radiotherapy and internal radiotherapy.[1]

External beam radiotherapy is the most commonly used type of radiotherapy. Radiation is directed into the affected area of your body from outside of your body, usually from a machine called a linear accelerator.[1]

Internal radiation directed from inside your body. A small source of radiation is placed near to or inside the affected area in your body. This may be temporary or permanent. Your doctor may inject or ask you to drink a special radioactive liquid that is taken up by cancer cells.[1]

Radiation therapy has been in use as a cancer treatment for more than 100 years with its earliest routes traced from the discovery of x-rays in 1895. The concept of therapeutic radiation was invented by German physicist Wilhelm Conrad Rontgen when he discovered that the X-ray was a powerful and effective tool to treat cancer. Radiation therapy is one of the four approaches to the treatment of cancer; the other three are surgery, chemotherapy and biological therapy. The most common type of cancer that radiation therapy is used for are brain tumors, head and neck cancer, breast cancer, lung cancer, prostate cancer, skin cancer, rectal cancer, cervix and uterine cancer, lymphoma and sarcoma.[1]

The doses of radiation are used to destroy cancer cells can also hurt normal cells, thus the side effects are directly related to the area of the body being treated. Most side effects are temporary; disappearing gradually after therapy is complete. If side effects become severe treatment may be put on hold to allow the tissue to heal before continuing.[4]

There are several methods being utilized for the prevention of radiation therapy side effects. These mainly include altering the manner in which radiation is delivered and administering drugs that protects normal cells from radiation damage. Two delivery methods that were originally used to reduce radiation side effects include dose fractionation, or splitting the total dose or radiation therapy into multiple doses and physical shielding with lead blocks to reduce the area of exposure while preventing side effects from occurring. Sometimes side effects are inevitable, in these situations several types of drugs can be used to decrease the side effects of radiation.[5]

The response of a tumor to radiation therapy is also related to its size. Due to complex radiobiology, very large tumors respond less well to radiation than smaller tumors or microscopic disease. Various strategies are used to overcome this effect. The most common technique is surgical resection prior to radiation therapy. This is most commonly seen in the treatment of breast cancer with wide local excision or mastectomy followed by adjuvant radiation therapy. Another method is to shrink the tumor with

neoadjuvant chemotherapy prior to radical radiation therapy. A third technique is to enhance the radiosensitivity of the cancer by giving certain drugs during a course of radiation therapy. Examples of radiosensitizing drugs include: Cisplatin, Nimorazole, and Cetuximab.[6]

The effect of radiotherapy on control of cancer has been shown to be limited to the first five years after surgery, particularly for breast cancer. The difference between breast cancer recurrences in patients who receive radiotherapy vs. those who don't is seen mostly in the first 2–3 years and no difference is seen after 5 years. This is explained in detail here.[7]

Side Effects

Radiation therapy is in itself painless. Many low-dose palliative treatments (for example, radiation therapy to bony metastasis) cause minimal or no side effects, although short-term pain flare-up can be experienced in the days following treatment due to edema compressing nerves in the treated area. Higher doses can cause varying side effects during treatment (acute side effects), in the months or years following treatment (long-term side effects), or after re-treatment (cumulative side effects). The nature, severity, and longevity of side effects depends on the organs that receive the radiation, the treatment itself (type of radiation, dose, fractionation, concurrent chemotherapy), and the patient.[8]

Most side effects are predictable and expected. Side effects from radiation are usually limited to the area of the patient's body that is under treatment. Modern radiation therapy aims to reduce side effects to a minimum and to help the patient understand and deal with side effects that are unavoidable.[8]

The main side effects reported are fatigue and skin irritation, like a mild to moderate sun burn. The fatigue often sets in during the middle of a course of treatment and can last for weeks after treatment ends. The irritated skin will heal, but may not be as elastic as it was before.[8]

Background of the Study

Cancer is a vast medical problem. It is now the major cause of mortality, both in the UK and elsewhere in the Western world, diagnosed each year in one in every 250 men and one in every 300 women. The incidence rises steeply with age so that, over the age of 60, three in every 100 men develop the disease each year. It is a costly disease to diagnose and investigate, and treatment is time-consuming, labor

intensive and usually requires hospital care. In the Western world the commonest cancers are of the lung, breast, skin, gut and prostate gland. The lifetime risk of developing a cancer is likely to alter sharply over the next decade because the number of cancer cases has risen by nearly one-third over the past 30 years. An ageing population, successes from screening and earlier diagnosis have all contributed to the rise.

Health care should encompass all aspects of keeping a person in a state of health. Normally it is a form of prevention of sickness and a conscious effort to maintain a healthy life style.[9]

Cancer is a tumor, or an overgrowth of abnormal cells. These cells grow by multiplying or dividing to rapidly make new tumor cells. This ability to multiply without limits grows quickly and invades surrounding normal tissues makes cancer cells different from normal cells.[9]

Cancer is the uncontrolled growth of abnormal cells in body. The treatment of cancer with chemotherapeutic drugs started in early 20th century. Since then chemotherapy begin to use to treat many types of cancer. Worldwide, anti-neoplastic drugs are used in the treatment of cancer. These drugs, which are administered as infusions or bolus injections, are usually prepared individually for each patient. The health hazard for medical personnel administering these drugs is a major concern as cytostatic drugs are classified as potentially carcinogenic, mutagenic or teratogenic.[10]

Chemotherapy is broadly based upon the use of chemotherapeutic drugs with strong anti-cancer cytotoxic effects. In order to minimize occupational exposure to chemotherapeutic cytotoxic drugs, special department design and equipment are necessary as well as personal protective measures and safety practices during all procedures involving the use of these agents, such as transportation and storage, preparation and reconstitution, administration and care of patients and finally disposal.[11]

The toxic effects of anticancer chemotherapy are well known to oncology specialists and to primary care clinicians. Awareness of these effects typically influences treatment plans for patients undergoing cancer therapy to prevent or mitigate adverse outcomes. However, beyond the patient safety concerns arising from the necessary therapeutic use of these drugs, occupational risks to health care workers handling these drugs in the course of their duties still need to be fully addressed.[11]

For the past 3 decades, treatment for many of these cancer cases has relied principally on anticancer chemotherapy. The first such agent, sulphur mustard gas, was observed to cause changes in bone marrow of World War I veterans who were hospitalized many years later. This led to its evaluation as an anticancer agent, and the related, but less toxic, nitrogen mustards were later demonstrated to produce tumour

regression in lymphoma patients. With approximately 100 different antineoplastic drugs now in use and many more under development, drugs used to treat cancer have opened new avenues, from improving the quality of life of patients with cancer to a complete cure. Addressing these drugs' formidable toxicity profile, however, has been an ongoing campaign for clinicians and, more recently, for the occupational health community.[12]

Nurses must be aware of the safe handling of the chemotherapeutics, its classification, its action on cells and the safe handling and disposal to prevent the hazards. They must be conscious about their effects on health.

The Magnitude of the problem of cancer in our society is only partially reflected by statistic on mortality and morbidity. Cancer is a major killing disease in the beginning of the 20th century, cancer was the 6th cause of death in industrialized countries, and today it stands as second leading cause of death.[13]

In 2005, 7.6 million people died of cancer out of 58 million deaths worldwide. More than 70% of all cancer death can occur in low and middle income countries.

Based on projection, cancer deaths will continue to raise with an estimated 9 million people dying from cancer in 2015, 11.4 million dying in 2030.[14]

Cancer rates in India is rising due to increase in life expectancy, changes in life style and increased migration from rural area to the cities, India is a vast country with diverse lifestyle and therefore have varying cancer patterns and incident rates.[15]

One way to stop the cancer from growing is to interfere with the cancer cells ability to multiply there are several methods being utilized, in which radiations, used at a high doses, causes changes in the cancer cells that stops the cells ability to multiply and eventually kills the cancer cells.

The response of a cancer to radiation is described by its radio-sensitivity. Highly radiosensitive cancer cells are rapidly killed by modest doses of radiation. These include leukemia, most lymphomas and germ cell tumors. The majority of epithelial cancers are only moderately radiosensitive, and require a significantly higher dose of radiation (60-70 Gy) to achieve a radical cure. Some types of cancer are notably radio-resistant, that is, much higher doses are required to produce a radical cure than may be safe in clinical practice. Renal cell cancer and melanoma are generally considered to be radio-resistant but radiation therapy is still a palliative option for many patients with metastatic melanoma. Combining

radiation therapy with immunotherapy is an active area of investigation and has shown some promise for melanoma and other cancers.

It is important to distinguish the radio-sensitivity of a particular tumor, which to some extent is a laboratory measure, from the radiation "curability" of a cancer in actual clinical practice. For example, leukemia are not generally curable with radiation therapy, because they are disseminated through the body. Lymphoma may be radically curable if it is localised to one area of the body. Similarly, many of the common, moderately radio responsive tumors are routinely treated with curative doses of radiation therapy if they are at an early stage. For example: non-melanoma skin cancer, head and neck cancer, breast cancer, non-small cell lung cancer, cervical cancer, anal cancer, prostate cancer. Metastatic cancers are generally incurable with radiation therapy because it is not possible to treat the whole body.

Before treatment, a CT scan is often performed to identify the tumor and surrounding normal structures. The patient receives small skin marks to guide the placement of treatment fields.[5] Patient positioning is crucial at this stage as the patient will have to be set-up in the identical position during treatment. Many patient positioning devices have been developed for this purpose, including masks and cushions which can be molded to the patient.[16]

Need for the Study

Cancer is the word used for a tumor that spreads & destroys the host and one of the leading causes of morbidity and mortality in developed and developing countries. Cancer prevalence in India is estimated to be around 2.5 million with over 8,00,000 lakh new cases every year.

The toxicity of antineoplastic drugs has been well known since they were introduced in the 1940s. Because most antineoplastic drugs are nonselective in their mechanism of action, they affect noncancerous as well as cancerous cells, resulting in well-documented side effects. During the 1970s, evidence came to light indicating health care workers may be at risk of harmful effects from antineoplastic drugs as a result of occupational exposure. Since that time, reports from several countries have documented drug contamination of the workplace, identified drugs in the urine of health care workers, and measured genotoxic responses in workers. Evidence also exists of teratogenic and adverse reproductive outcomes and increased cancers in health care workers. During the past 30 years, professional organizations and government agencies have developed guidelines to protect health care workers from adverse effects from

occupational exposure to antineoplastic drugs. Although many safety provisions were advanced to reduce worker exposure in the 1980s, recent studies have shown that workers continue to be exposed to these drugs despite safety policy improvements. In 2004, the National Institute for Occupational Safety and Health (NIOSH) published an alert reviewing the most recent information available and promoting a program of safe handling during their use. [17]

The International Agency for Research on Cancer has classified several antineoplastic drugs in Group 1 (human carcinogens), among which chlorambucil, cyclophosphamide (CP) and tamoxifen, Group 2A (probable human carcinogens), among which cisplatin, etoposide, N-ethyl- and N-methyl-N-nitrosourea, and Group 2B (possible human carcinogens), among which bleomycins, merphalan and mitomycin C. The widespread use of these mutagenic/carcinogenic drugs in the treatment of cancer has led to anxiety about possible genotoxic hazards to medical personnel handling this drugs.[18]

Many acute or short-term effects have been observed in patients treated with antineoplastic agents. Some of these same effects have been seen in health care workers who handle them. The acute effects associated with exposure to antineoplastic agents, such as skin rashes, allergic-type reactions, hair loss etc.[19]

Common side effects of chemotherapy and radiation therapy include mucositis, nausea, vomiting, taste changes and fatigue. Chemotherapy and radiation therapy presents a challenge to patients because of their altered abilities for self-care. Nurses are in a strategic position to lead efforts at changing attitudes and behaviors about cancer by providing adequate knowledge. Knowledge acquired will enable them to adapt measures to relieve discomforts caused by the side-effects of chemotherapy and radiation therapy.[14]

The uncertainty about how to cope with the life threatening situations such as cancer, treatment, and resulting stress can be decreased by providing information about the treatment and side effects.[15]

A study was conducted to assess the quality of life of Chinese patients undergoing chemotherapy (2006). A convenient sample of 146 newly diagnosed GIT cancer patients were recruited from three major hospitals in Shanghai. Results indicated that, Chinese patients newly diagnosed with GIT cancer experience a range of symptoms associated with cancer and its treatment and resulted in varying degrees of symptom distress, anxiety and depression and decreased quality of life. Findings from this research give insights into the importance of ongoing quality of life assessment, symptom management and intervention to improve quality of life of Chinese cancer patients.[20]

In India the estimated number of new cancer cases per year is about 7 lakhs and over 3.5 lakhs people die of cancer each year. According to Indian Council of Medical research, the incidence of thrombophlebitis among cancer patients is 18.3%.

Thrombophlebitis is a common complication associated with chemotherapeutic patients, affecting between 27% and 70% of all clients receiving intravenous therapy.

A hospital staff nurse probably spends up to two-thirds of their shift on IV- related responsibilities like venipunctures or inserting cannulas, hanging fluids, calculating and administering IV medications, assessing IV sites and removing IV lines. The frequent use of intravenous catheters carries with it, many potential risks, both mechanical and infections. Not all intravenous complications can be avoided but assessment skills, recognizing their key signs and symptoms, ability to identify problems can minimize risks for patients and will help avoid life-threatening situations.[21]

A prospective observational study was conducted to determine the incidence of acute and delayed chemotherapy-induced nausea and emesis (vomiting) (CINV) among adult patients receiving highly (HEC) or moderately (MEC) emetogenic chemotherapy for the first time. Physicians and nurses accurately predicted the incidence of acute and delayed CINV after HEC patients receiving aprepitant. Acute nausea and emesis were observed in 22.2% and 0% respectively of MEC patients and delayed nausea and emesis in 33.3% and 22.2% of MEC patients respectively and the incidence of acute nausea and delayed nausea and emesis after MEC by 15, 28 and 18 percentage points, respectively. The result of the study revealed that acute nausea and emesis were observed in 14.3% and 2.4% respectively of HEC patients receiving aprepitant, and delayed nausea and emesis were observed in 14.3% and 7.1% of these patients respectively.[22]

A study was carried out genotoxicity monitoring of nurses from the oncology department of a hospital in South India, occupationally exposed to anti- neoplastic drugs under routine working conditions. A significant increase in micronuclei (MN) frequency with peripheral blood lymphocytes and buccal cells was observed in the exposed nurses compared to controls ($P < 0.05$). Multiple regression analysis showed that occupational exposure and age had a significant effect on mean comet tail length as well as on frequency of MN. The mean value of CP in urine of the nurses handling anti-neoplastic drugs was (mean \pm standard deviation; 0.44 \pm 0.26 micro g/ml). The study has shown that increased genetic damage was evident in nurses due to occupational exposure to anti-neoplastics. This data corroborate the need to

maintain safety measures to avoid exposure and the necessity of intervention in the case of exposure when using and handling anti-neoplastic drugs.[23]

Surveys have associated workplace exposures to antineoplastic drugs with acute health effects, primarily in nurses. These included hair loss, headaches, acute irritation, and/or hypersensitivity, as well as adverse reproductive outcomes (including infertility, spontaneous abortions, and congenital malformations). A meta-analysis of 14 studies performed from 1966 to 2004 in the United States and Europe described an association between exposure to antineoplastic drugs and adverse reproductive effects in female health care workers. The most common reproductive effects found in these studies were increased fetal loss, congenital malformations, low birth weight and congenital abnormalities, and infertility.[24]

The effects of antineoplastic agents on fertility and reproduction are well documented in patients treated with these drugs. The effect of exposure to antineoplastic agents on fertility and reproduction, like such as low birth weight, malformations and others. Several studies have reported adverse reproductive outcomes in female health care workers who were exposed to antineoplastic agents.

A descriptive study was conducted to determine both the level of information that nurses possessed and the method of administration nurses used during chemotherapeutic drug preparation and administration at chemotherapy units of all hospitals in west turkey. Nurses showed that their actual administration method was insufficient according to their level of information, with average administration evaluations of 5.46 for protection of the environment and 6.59 for self-protection. The ratio for nurses' usage of the safety cabinet during the preparation of chemotherapeutic drugs was very low at 14.2%. Only 7.4% of nurses had received in-service education about chemotherapeutics. Thus, it has been recognized that nurses' information and administrations during preparation and administration of chemotherapeutic drugs are of utmost vital importance in removing the harmful effects of chemotherapeutic agents.[25]

Based on the above information it is evident that that patients are at greater risk of developing adverse effects to chemotherapy and radiation therapy. Apart from this during my clinical exposure I have noticed that patients are poor knowledge regarding treatment, side effect and their management. So I felt that it is essential to assess the knowledge and improve their existing knowledge regarding side effect of chemotherapy and radiation therapy and their management.

Statement of the Problem

“A study to assess effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients with cancer in selected hospital at Jaipur.”

Objectives of the Study

1. To determine the pre test level of knowledge regarding side effects of chemotherapy and radiation therapy and their management among patients with cancer by using structured knowledge questionnaire schedule.
2. To find the effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management.
3. To determine the association between the knowledge level and the selected demographic variables (age, gender, religion, education, occupation, number of days of hospitalization).

Hypothesis

Hypothesis will be tested at 0.05 level of significance

- H1: The mean post test knowledge score of the patients with cancer will be significantly higher than the mean pretest knowledge score.
- H2: There will be significant association between level of knowledge and selected demographic variables.

Conceptual Framework

A concept is a thought, idea or mental image framed in the mind in response to learning something new. A framework work is basic structure supporting anything. A conceptual frame work deals with abstraction that is assembled by nature of their relevance to common theme. Conceptual framework refers to inter related concepts or abstraction that is assembled together in some rational scheme by virtue of their relevance to a common theme; they serve as a spring board for generation of hypothesis to be tested.[25]

One of the important purposes of conceptual framework is to communicate clearly the interrelationship of various concepts. It guide to investigator to know that what data need to be collected and give direction to the entire research process. The present study aim at on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients with cancer. [26]

The framework of the study based on Imogene M. “kings goal attainment model”. The major elements of the study of goal attainment are seen in the inter personal system in which two people, who are usually strangers, comes together in a health organization to helped and be helped to maintain a state of health that permits function in roles. The concept of theory is perception, action, interaction and transaction. These concepts are interrelated in every nursing situation. These terms are defined as concept in the conceptual framework. [26]

Perception

Perception is each person’s representation of reality. The elements of perception are importing of energy from the environmental and organizing it by information, transforming energy, processing information, storing information, and exporting information in the form of the over behaviours. In this study investigator perceives learning need of patients. Patients perceives lack of knowledge regarding the side effects of chemotherapy and radiation therapy and their management.[27]

Action

Action refers to the activity to achieve the goal what the individual perceives. In this study the investigator prepare structured knowledge questionnaire to assess the knowledge of patient regarding side effect of chemotherapy and radiation therapy and prepare a structured teaching programme. Patients expressed know about side effect of chemotherapy and radiation therapy. [28]

Interaction

Interaction refers to the perception and communication between a person and the environment or between two or more persons. In this study the investigator administer the structured knowledge questionnaire to

assess the of knowledge of the patients regarding side effects of chemotherapy and radiation therapy and their management.[29]

Transaction

Transaction of a process of interaction in which human being communicate with the environment to achieve goal that are valued and directs human in this study, there is again in knowledge regarding of knowledge regarding side effects of chemotherapy and radiation therapy and their management.[30]

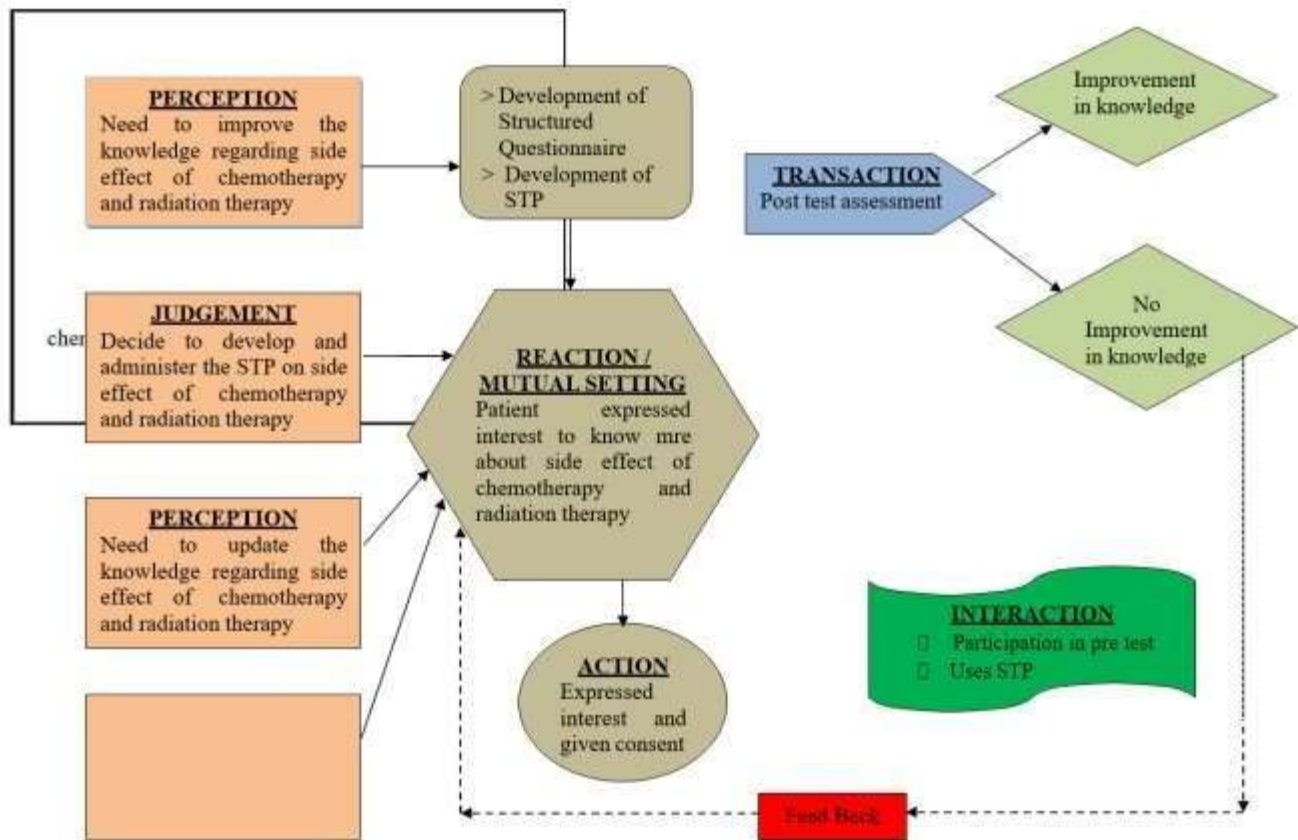


Figure:-1: Modified Conceptual Framework based on Imogene M. “kings goal attainment model”

Operational Definitions

Effectiveness

In this study it refers to the extent to which the structured teaching program has achieved the desired effect in improving the knowledge of patients with cancer regarding the side effects and management of chemotherapy and radiation therapy as evident from gain in posttest knowledge score.

Structured Teaching Program

In this study it refers to information provided to patients with cancer regarding the side effects of chemotherapy and radiation therapy and their management through systematically developed instructional teaching aid.

Knowledge

In this study knowledge refers to the correct response of the patients to the questionnaire regarding side effects of chemotherapy and radiation therapy and their management.

Side Effect

Side effect refers to adverse effect of chemotherapy and radiation therapy on our body.

Chemotherapy

Chemotherapy is a systemic intervention that prevents and treats the disease by use of chemical agents.

Radiation Therapy

Radiotherapy is often used as a treatment for cancer. Radiotherapy usually uses high energy X-rays to destroy unwanted cells, such as cancer cells.

Patient

In this study it refers to a person either male or female who is suffering from cancer receiving chemotherapy and radiation therapy in the selected hospital during the time of data collection.

Assumptions

- Clients may have limited knowledge about the side effects of chemotherapy and radiation therapy and their management.
- Structured teaching program is an accepted method of teaching strategy

Delimitations

- Study is delimited to patients receiving chemotherapy and radiation therapy in B.M.C.H.R.C.
- Study is delimited to Patient who are in the age group between 25-70 years.

Summary

The chapter dealt with the introduction, need of the study, objectives of the study, hypothesis, conceptual framework, operational definition, assumption, delimitation of the study.

Research Methodology

The research methodology indicates the general pattern to gather valid and reliable data for the problem under investigation.[66]

Research methodology is a way to systematically solve the research problem. It involves systematic procedure by which the researcher starts from initial identification of research problem to its final conclusion.[67]

This chapter deals with description of various steps adopted to collect and organize data for the study. It includes the research approach, research design, setting of the study, variables under study, population, sample and sample size, sampling technique, development of the tool, development of structured teaching programme, method of data collection and plan for data analysis.

Study has been conducted in two phases where structured teaching programme (STP) regarding the side effects of chemotherapy and radiation therapy and their management in B.M.C.H.R.C. Jaipur and thereafter seven days the effectiveness of structured teaching programme (STP) was assessed by post test.

Research Approach

Research approach indicates the basic procedure for conducting the research study. Research approach helps the researcher to determine what data to be collected and how to analyze it. It also suggests possible conclusions to be drawn from the data. The selection of approach depends upon the purpose of the study.[68]

In view of the nature of the problem selected for the study, an evaluative approach was found appropriate. Evaluation research is an applied form of research that involves finding out how well a programme, procedure or policy is working. Its goal is to assess or evaluate the success of a programme.[66]

Research Design

The research design is the plan, structure and strategy of investigation for answering the research question. It is the overall plan or blue print, the researcher select to carry out their study.[68]

The term research design refers to the plan or organization of a scientific investigation. Research design helps the researcher in selection of subjects, manipulation of experimental variables, control of extraneous variables, procedure of data collection and the type of statistical analysis to be used to interpret the data.[67]

The research design selected for the present study was Pre –experimental “one group pre test – post test design. Keeping in the view the objectives of the study, the investigator, assess the knowledge regarding side effects of chemotherapy and radiation therapy and their management of patients before administration of the structured teaching programme (by pre-test score). After pre-test, structured teaching programme was administered to the same group and was then again assess the knowledge regarding side effects of chemotherapy and radiation therapy and their management of patients (by post-test score) on the 7th day.

The design can be represented as:

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O1—X—O2

- O1: knowledge regarding side effects of chemotherapy and radiation therapy and their management of patients before administration of the structured teaching programme (STP).
- X: structured teaching programme (STP).
- O2: knowledge regarding side effects of chemotherapy and radiation therapy and their management of patients after administration of the structured teaching programme (STP).

| Group | Day 1st | Day 7th |
|--|---|---|
| Patient admitted in selected hospital of Jaipur. | Assess the knowledge by Pre test and administered structured teaching programme | Assess the knowledge by Post test after administration of structured teaching programme |

Table 1 Schematic Representation of Research Design

The table 1 represent schematic presentation of research design which shows the pre test of patients was done from day 1-4 day for 15 patients in a day followed by administration of the structured teaching programme (STP) regarding side effects of chemotherapy and radiation therapy and their management. After 7th day the post test was done from 7 – 10 days for 15 patients in a day.

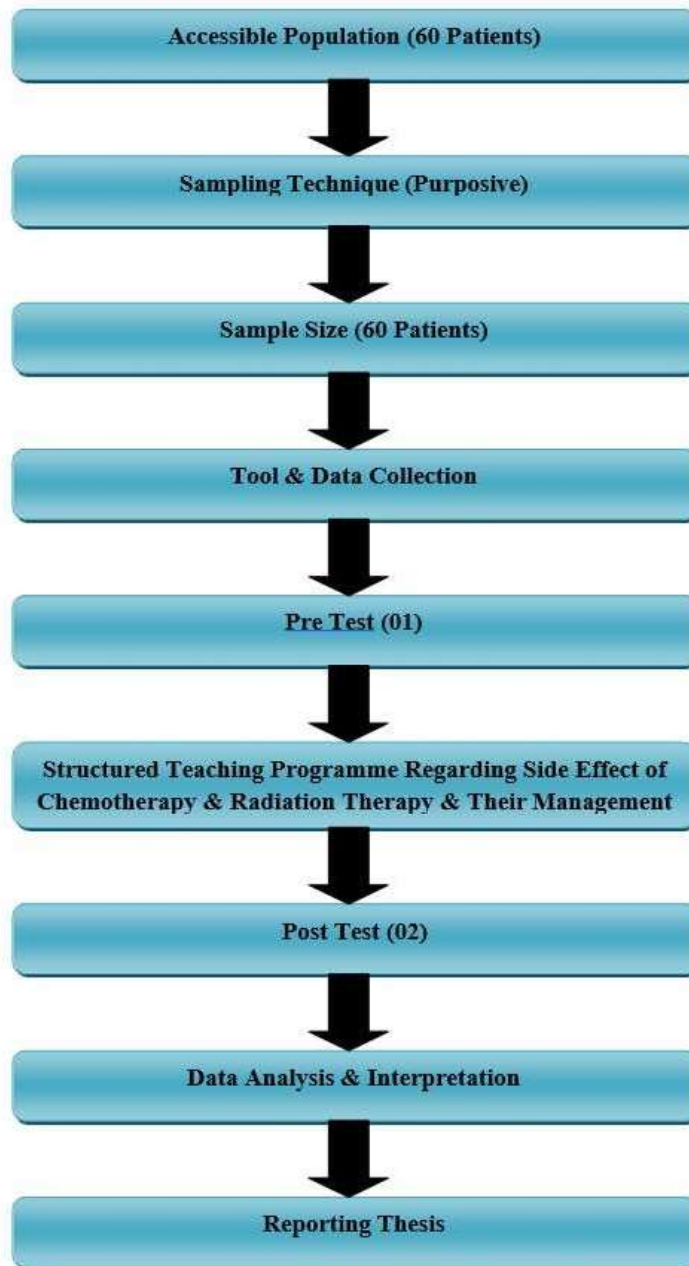


Fig. No.2 Schematic Representation of Research Methodology

Variables Under Investigation

A variable is a phenomena or characteristic or attribute under a study. Variables are the measurable characteristics of a concept and consist of a logical group of attributes.[68]

Two types of attributes were identified in the study. They are independent variable, dependent variable.

Independent Variable

According to Treece and Treece (1988) the independent variable is the one variable that stands alone and not dependent on any other. It is the cause of the action.[66]

In present study it refers to the structured teaching programme regarding side effects of chemotherapy and radiation therapy and their management.

Dependent Variable

Dependent variables are the effect of the independent variable and cannot exist by itself.[66]

In the present study it refers to the knowledge of patients regarding side effects of chemotherapy and radiation therapy and their management.

Demographic Variables

An uncontrolled variable that greatly influences the results of the study is called as the demographic variables.[66]

Demographic variables selected for this study are age of sample, gender, religion, education, occupation, number of days of hospitalization.

Setting of the Study

Setting refers to the area where the study is conducted. Qualitative researchers deliberately strive to study their phenomenon in a variety of natural context.[69]

The study was conducted B.M.C.H.R.C., Jaipur.

The criteria for selecting the setting were:

- The availability of subjects.
- Feasibility of conducting the study.
- Familiarity of the investigator with the setting.
- Administrative approval and expected cooperation for the study.

Population

Population refers to the complete set of observations or measurements about which the investigator would like to draw conclusions. Population is a group whose members possess specific attributes that the researcher is interested in studying. In the present study the population consists of all patients admitted in selected hospital of jaipur.[68]

Sample and Sampling Technique

Sample

A sample is a subset or portion of the population that has been selected to represent the population of interest.[67]

The present study was conducted among 60 cancer patients who receive chemotherapy and radiation therapy and admitted in B.M.C.H.R.C., Jaipur.

Sampling Technique

Sampling is a process of selecting a group of people, events or position of the population to represent the entire population.[66]

Non-probability purposive sampling technique was used to select 60 patients admitted in B.M.C.H.R.C., Jaipur as the sample for the present study.

Sample Size

Sample size of total 60 patients admitted in B.M.C.H.R.C., Jaipur.

Data Collection Technique and Instrument

The phenomena in which a researcher is interested must ultimately be translated into data that can be analyzed. The task of defining the research variable and selecting or developing appropriate methods for collecting data are amongst the most challenging work in hand of a researcher. With high quality data collection methods, the accuracy and robustness of the conclusions are always subject to challenge. The most important and crucial aspect of any research is data collection, which provides answers to the questions under study. Data collection relies on instruments.

The present study aimed at assessing the effectiveness structured teaching programme on knowledge regarding side effects of chemotherapy and radiation therapy and their management. Although the investigator is accustomed to asking questions, the proper phrasing of questions in a research study is a delicate task.

Pre-planned set of questions designed to yield specific information to meet a particular need for research information about a related topic. The research information is attained from respondents normally from a related interest area. The dictionary definition gives a clearer definition.

Review of research and non-research literature was conducted in the area related side effects of chemotherapy and radiation therapy and their management among patients. Opinion and suggestions were taken from experts, which helped in determining the important areas to be included. This was done with the help of literature review and advice from experts.

The structured teaching programme was prepared on the side effects of chemotherapy and radiation therapy and their management. Opinions & suggestions of experts in the field and the exposure of investigator in the area of research were considered.

Description of the Tool

The Structured questionnaire consists of two sections:

Section I: This section is the first section seeking information on demographic background of patients i.e. age of sample, gender, religion, education, occupation, number of days of hospitalization.

Section II: This section is the second part of structured questionnaire, which consists of questions assessing knowledge side effects of chemotherapy and radiation therapy and their management.

There are a total of 30 questions in the questionnaire, question number in which some are introduction of cancer, some are regarding chemotherapy, some are regarding radiation therapy and Some are side effect of chemotherapy and radiation therapy and remaining management of side effects of chemotherapy and radiation therapy.

The score for correct answer was '1' and for the wrong answers was '0'. The scores range from a minimum of zero to a maximum score of 30. The levels of knowledge have been classified as follows:

- Poor (0-10)
- Average (11-20)
- Good (21-30)

The content of data collection tool was sent for its validity in terms of relevance and accuracy to a list of experts along with scoring sheet. The data collection tool was send to 6 experts. These were received with their valuable suggestion and comments on the study tool.

The content validity of tool enclosed, structured question schedule with two sections pertaining to questions on assessing the demographic information and knowledge assessment regarding side effect of chemotherapy and radiation therapy and their management and structured teaching programme. The validity was established by the experts from different specialties i.e. Medical surgical Nursing and others. The experts were selected based on their clinical expertise, experience and interest in the problem being studied. They were requested to give their opinions on the appropriateness and relevance of the items in the tool.

As a whole the suggestions and comments of the experts included grammatical corrections of sentences, some questions were not found good so they were removed. Else the tool was found to be relevant.

The necessary modification was done as per the expert's advice.

Pre-Testing of Tool & Reliability

After establishing the validity of the tool to be used for the study, the final tool was made and then the reliability of the tool was done. The reliability was done in B.M.C.H.R.C. Jaipur. After obtaining formal administrative permission the tool was administered to 12 samples, selected as per the set criteria. The scores were calculated and then given for statistical analysis.

To test the reliability of the tool the method of 'split half' has been used. This method is used as the data is of qualitative type and this method gives the exact error in the reliability scores. The method of 'split half' stresses internal score relations of items in the tool as well as correlation of each item with the test as a whole. The reliability coefficient was calculated and the value is 0.97. Test is more reliable.

The final form of the tool consisted of questions related to demographic data and 30 questions pertaining to knowledge assessment regarding side effect of chemotherapy and radiation therapy and their management.

Development of Structured Teaching Programme

The structured teaching programme was developed to the improvement of the knowledge of patients regarding side effect of chemotherapy and radiation therapy and their management. It was prepared on the basis of research and non – research literature with the opinion of the expert.

Pilot Study

The pilot study was conducted in B.M.C.H.R.C., Jaipur from 13/06/2016 to 20/06/2016 on 12 samples to assess the feasibility of the study and to decide the plan for data analysis. Administrative permission was procured formally from the B.M.C.H.R.C., Jaipur.

The investigator approached the subjects, informed them regarding the objectives of the study and obtained their consent after assuring the subjects about the confidentiality of the data.

The data was collected through a structured demographic Proforma. The pre- test was given to samples on the first day. The teaching was disseminated to the group after pre-test. The post-test was administered on the seventh day to the group with an introductory brief.

Ethical Consideration

The research was ethically approved by institutional ethical committee and it has no harm on living being. The superintendent of the hospital was informed about the study and the formal administrative approval was taken. The introduction of the study was given to the participant and verbal consent/ written consent was taken. The confidentiality of the subject and their response were assured.

Procedure for Data Collection

A formal permission was obtained from the concerned authority. The final study was conducted from 23/06/2016 to 13/07/2016. The following schedule was followed for data collection.

Objectives of the study were discussed and consent for participation in the study was taken from the selected group. The investigator assured the subjects about the confidentiality of the data. The investigator himself administered the structured questionnaire schedule for the pre-test. The duration of data collection for each sample was 30 minutes. Daily timing for the data collection was 8 am to 4 pm, and approximately 15 samples per day were approached.

Plan For Data Analysis

The statistical analysis was made on the basis of objectives and hypothesis. The data analysis was planned to include descriptive and inferential statistics. The following plan was developed for data analysis on the basis of the opinion of experts.

- For the analysis of demographic data frequencies and percentage was calculated.

- The significance was calculated by using mean, median, standard deviation, & 'z' test was used to find the co-relation with every item & the findings were documented in tables, graphs & diagrams.

Summary

This chapter deals with the methodology adopted for the study. It included the research approach, research design, variables, setting, population, sample, sampling technique, sample size, data collection tool and technique, development of tool, description of tool, development of structured teaching programme, content validity of tool, reliability of tool, , pilot study, ethical considerations, and procedure for data collection and plan for data analysis.

Results

Data Analysis and Interpretation of Findings

This chapter deals with the data analysis and interpretation of the data collected through questionnaire method. All obtained data were analyzed and interpreted on the basis of research objectives. Then the findings were printed in different graphs and tables of percentage.

This chapter presents the analysis and interpretation of the data collected to assess effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients with cancer in selected hospital at Jaipur. The data was analyzed based on the following objectives.

Objectives of the Study

To determine the pre test level of knowledge regarding side effects of chemotherapy and radiation therapy and their management among patients with cancer by using structured knowledge questionnaire schedule.

To find the effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management.

To determine the association between the knowledge level and the selected demographic variables (age, gender, religion, education, occupation, number of days of hospitalization).

The data was analyzed, interpreted and presented in the table and graph. Both descriptive and inferential statistics was used for data analysis. The finding of the study was organized and presented in the following section:

Section I : Characteristics of sample Section II : Effectiveness of STP

Section III : The association of level of knowledge scores with the selected personal demographic variables.

Section I: Characteristics of sample

This section describes the sample characteristics of Patients under the study. The sample consisted of 60 patients. The sample characteristics are describe in terms of frequency and percentage of personal variables such as: age, gender, religion, education, occupation, number of days of hospitalization.

| Demographic Variable | Frequency | Percentage (%) |
|-----------------------|-----------|----------------|
| Age (In years) | | |
| 21 – 30 | 20 | 33.33% |
| 31 – 40 | 15 | 25% |
| 41 – 50 | 15 | 25% |
| Above 50 | 10 | 16.66% |
| Gender | | |
| Male | 45 | 75% |
| Female | 15 | 25% |
| Religion | | |
| Hindu | 30 | 50% |
| Muslim | 15 | 25% |
| Christian | 10 | 16.66% |
| Other | 05 | 08.33% |
| Educations | | |
| Illiterate | 05 | 08.33% |
| Secondary | 25 | 41.66% |
| Senior secondary | 20 | 33.33% |

| | | |
|--|----|--------|
| Above graduation | 10 | 16.66% |
| Occupation | | |
| Laborer | 25 | 41.66% |
| Business | 10 | 16.66% |
| Government | 15 | 25% |
| Private | 10 | 16.66% |
| Number of days of hospitalization | | |
| 0 – 2 days | 20 | 33.33% |
| 3 – 4 days | 20 | 33.33% |
| 5 – 6 days | 15 | 25% |
| Above 6 days | 05 | 08.33% |

N = 60

Table No.: 2 Distribution of Respondents according to Demographic Information

The table shows that:

- The majority 20 (33.33%) of subjects was in the age group of 21 – 30 years and 15 (25%) of subjects was in the age group of 31 – 40 & 41 – 50 years and remain 10 (16.66) of subjects was in the age group of above 50 years.
- Most of subject was male 45(75%) and female 15(25%).
- Most of them were Hindu 30 (50%) and Muslim 15 (25%) and Christian 10 (16.66%) and remaining others 05(8.33%).
- Most of subjects were having secondary education 25 (41.66%), followed by senior secondary 20 (33.33%), some was above graduation 10 (16.66%) and remaining illiterate 05 (08.33%).
- Majority 25(41.66%) of subject was laborer followed by from government sector 15(25%) and remaining business men and from private sector 10 (16.66%) of each.

- Most of subjects were 20 (33.33%) stay in hospital for 0 – 02 & 3 – 4 days during hospitalization some was 15 (25%) stay for 5 – 6 days and remaining stay more than 6 days was 05 (8.33%).

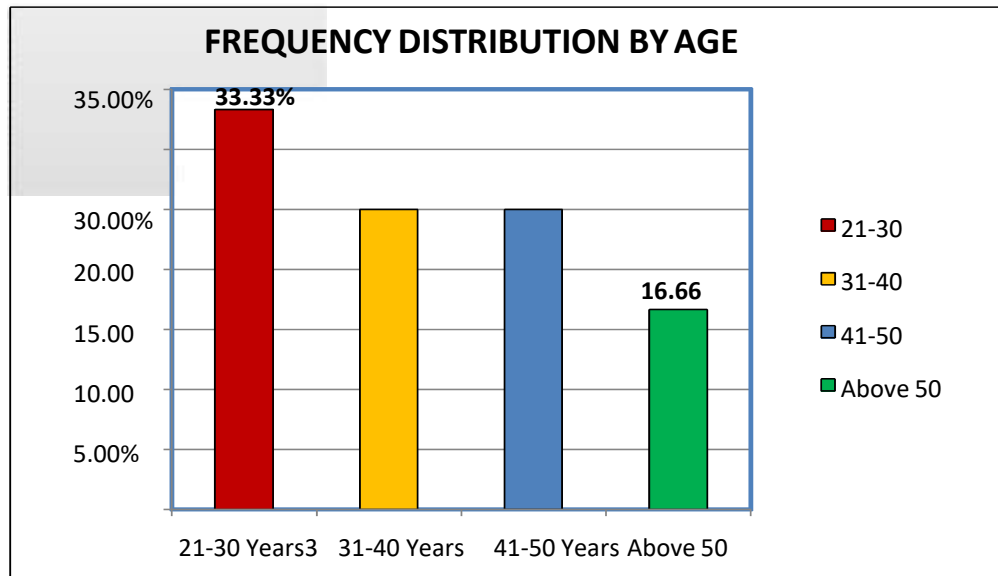


Fig. 3: Column diagram showing percentage distribution of respondents by Age

The figure 3 shows that majority 20 (33.33%) of respondents were in the age group of 21 – 30 years and 15 (25%) of respondents were in the age group of 31 – 40 & 41 – 50 years and remain 10 (16.66) of respondents were in the age group of above 50 years.

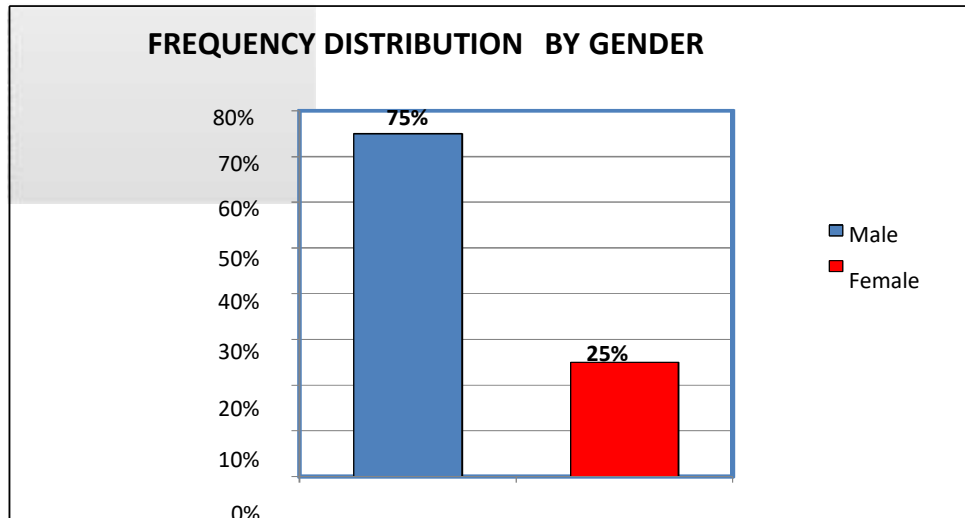


Fig. 4: Column diagram showing percentage distribution of respondents by Gender

The figure 4 shows that most of respondents were male 45(75%) and female 15(25%).

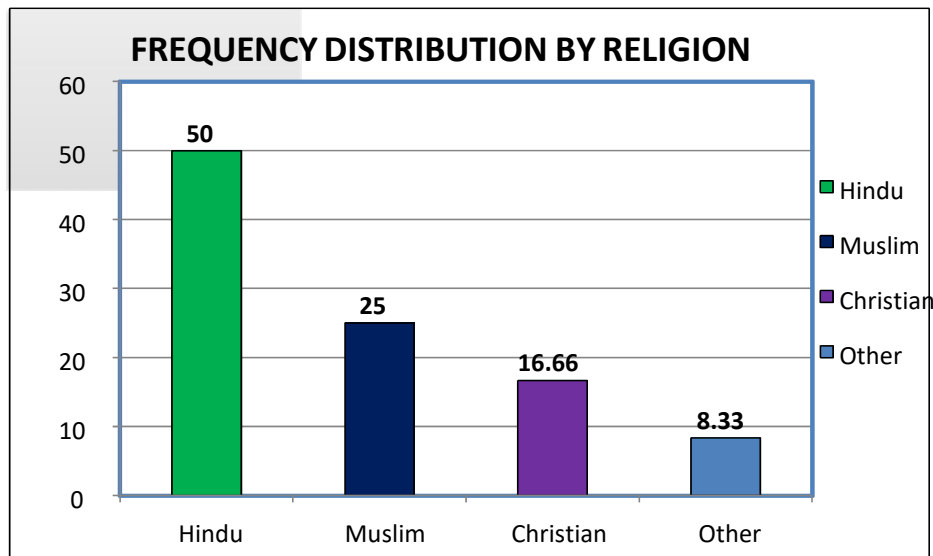


Fig. 5: Column diagram showing percentage distribution of respondents by Religion

The figure 5 shows that most of them were Hindu 30 (50%) and Muslim 15 (25%) and Christian 10 (16.66%) and remaining others 05(8.33%).

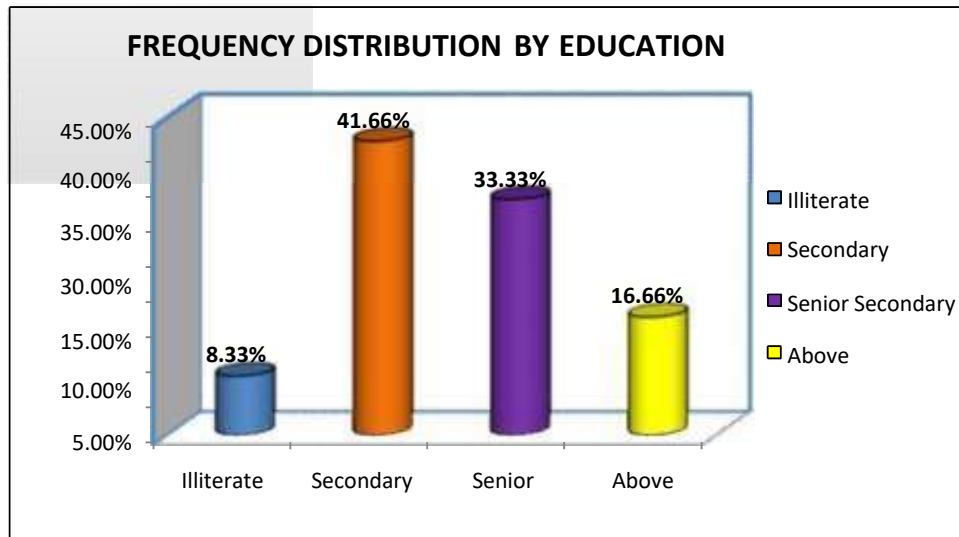


Fig. 6: Cylindrical diagram showing percentage distribution of respondents by Education

The figure 6 shows that Most of respondents were having secondary education 25 (41.66%), followed by senior secondary 20 (33.33%), some were above graduation 10 (16.66%) and remaining illiterate 05 (08.33%).

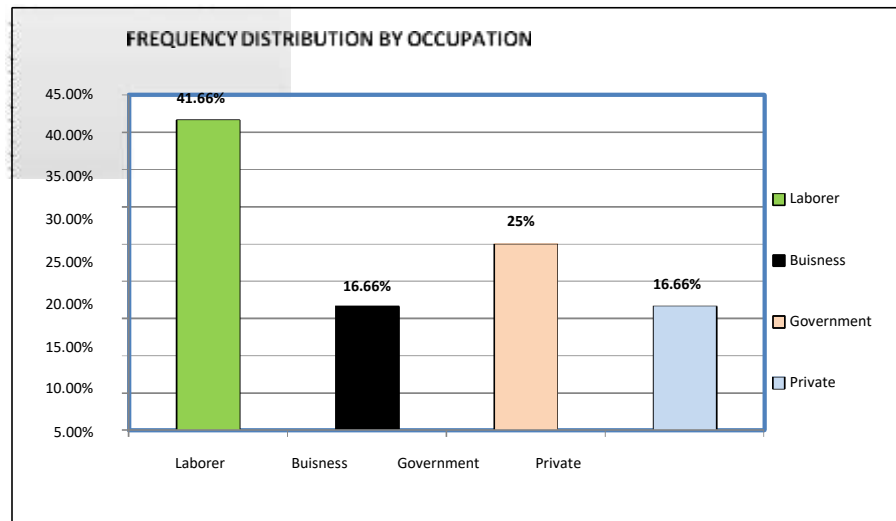


Fig. 7: Column diagram showing percentage distribution of respondents by Occupation

The figure 7 shows that majority 25(41.66%) of respondents were laborer followed by from government sector 15 (25%) and remaining business men and from private sector 10 (16.66%) of each.

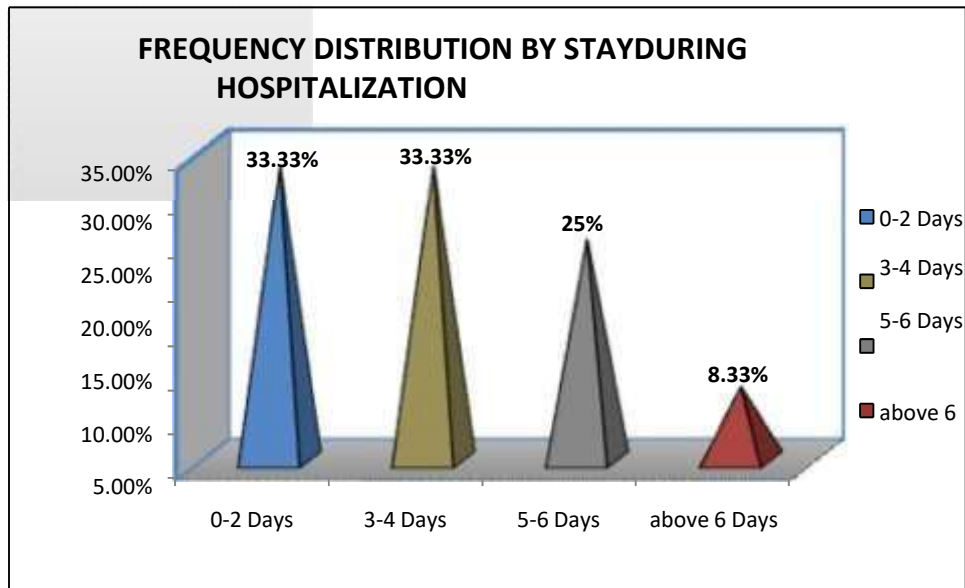


Fig. 8: Pyramid diagram showing percentage distribution of respondents by stay during hospitalization

The figure shows that most of respondents were 20 (33.33%) stay in hospital for 0 – 02 & 3 – 4 days during hospitalization some were 15 (25%) stay for 5 – 6 days and remaining stay more than 6 days was 05 (8.33%).

Section II: Evaluation of effectiveness of structured teaching programme regarding side effects of chemotherapy and radiation therapy and their management

This chapter finding related to evaluation of the effectiveness of structured teaching programme regarding side effect of chemotherapy and radiation therapy and their management among patient. The pre test and post test knowledge score obtained through structured knowledge questionnaire are describe and analyzed for the entire test as well as area wise.

To find out the significance of the mean difference between the pre test and post test knowledge score the following hypothesis were tested at 0.05 level of significance and state as:

I. H1: The mean post test knowledge score of the patients with cancer will be significantly higher than the mean pretest knowledge score is measured by structured knowledge questionnaire.

II. H2: There will be significant association between levels of knowledge with their selected demographic variables as measured by structured knowledge questionnaire.

Mean, median and standard deviation of pre test and post test knowledge scores of patients on a structured knowledge questionnaire was calculated. These are presented in table: -03.

| Knowledge test | Mean | Median | SD | Df | 't' test |
|----------------|------|--------|-------|----|----------|
| Pre test | 14.5 | 15 | ±2.82 | 59 | 28.14 |
| Post test | 25 | 25 | ±1.77 | | |

Maximum Score: 30 Minimum Score: 0

Table: 03 Mean median and standard deviation of pre test and post test knowledge scores of patients on a structured knowledge questionnaire.

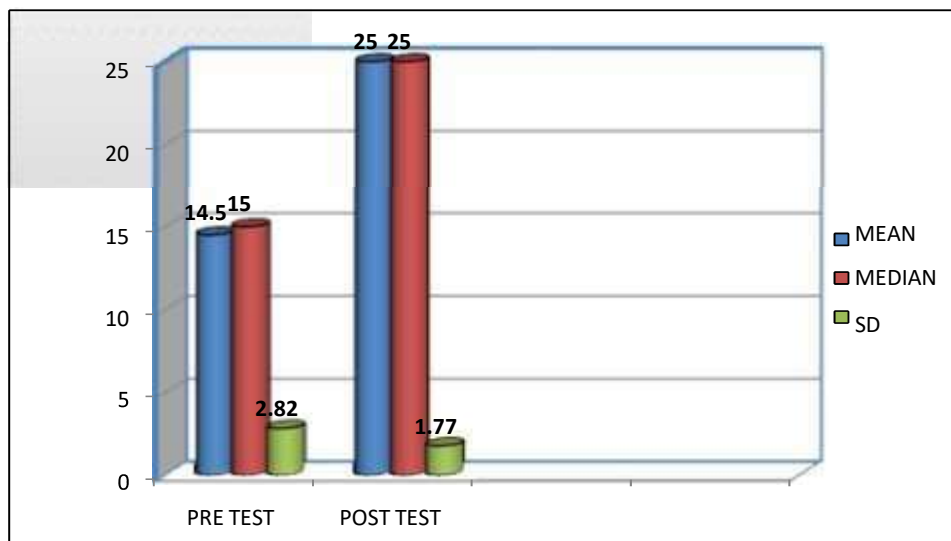


Fig. 9: Cylindrical Diagram showing the mean, median and standard deviation of pre test and mean post test knowledge score of patients.

Table no. 03 indicates that the mean post test knowledge score (25) was higher than the mean pre test knowledge score (14.5). The median of the post test (25) is higher than the median of the pre test knowledge score (15). The finding also revealed that the post test knowledge score are homogenous (SD 1.77) than the pre test knowledge score (SD 2.82).

The calculated 't' value (28.14) was found to be statistically significant at 0.05 level of significance which showed that the mean difference obtained in the knowledge score was 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.

A study conducted by Methew M X, on side effect of chemotherapy and radiation therapy in 2010. The study done in 80 patients who fulfill the exclusion criteria and structured knowledge questionnaire is applied. The researcher was used t test for analyses the data and the results of the study was that self instructional module is effective. The t value of the study was 23.53. These study is supported my study.

The diagram in the figure 9: showing the mean pre test and mean post test knowledge score of patients. It is evident from the bar graph that the mean knowledge score of post test (25) was higher than the mean knowledge score of pre test (14.5). The median of the post test (25) is higher than the median of the pre test knowledge score (15). The finding also revealed that the post test knowledge score are homogenous (SD 1.77) than the pre test knowledge score (SD 2.82).

Section III: Association of level of knowledge score with selected personal demographic variables

The Association of level of knowledge score with personal demographic variables was found out by calculating chi –square (2).

| DEMOGRAPHIC VARIABLE | df | Tabulated value | ² of Pre Test | Finding | Tabulated value | ² of Post Test | Finding |
|----------------------|----|-----------------|--------------------------|-------------|-----------------|---------------------------|-------------|
| Age | 4 | 9.48 | 3.631 | Significant | 9.48 | 0.214 | Significant |
| Gender | 2 | 5.99 | 0.242 | Significant | 5.99 | 0.475 | Significant |
| Religion | 6 | 12.59 | 0.316 | Significant | 12.59 | 0.156 | Significant |

| | | | | | | | |
|------------------|---|-------|-------|-------------|-------|-------|-------------|
| Education | 6 | 12.59 | 1.065 | Significant | 12.59 | 2.513 | Significant |
| Occupation | 6 | 12.59 | 2.974 | Significant | 12.59 | 3.417 | Significant |
| Stay in Hospital | 6 | 12.59 | 1.403 | Significant | 12.59 | 2.532 | Significant |

Table: 04 Association of knowledge score with their demographic variable

If tabulated value is greater than calculated value it means that null hypothesis is rejected and alternate hypothesis is accepted.

If tabulated value is less than calculated value it means that null hypothesis is accepted and alternate hypothesis is rejected.

Table 4 shows that the tabulated value of chi square at 0.05 level of significance at df of 4, 2, 6, 6, 6, 6 are 9.48, 5.99, 12.59, 12.59, 12.59 and 12.59. The calculate value for pre test of demographic variables are such as age (3.631), gender (0.242), religion (0.316), education (1.065), occupation (2.974) and no. of days (1.403) which are less than tabulated value. It means all demographic variables are significant with their knowledge score.

Table 4 shows that the tabulated value of chi square at 0.05 level of significance at df of 4, 2, 6, 6, 6, 6 are 9.48, 5.99, 12.59, 12.59, 12.59 and 12.59. The calculate value for post test of demographic variables are such as age (0.214), gender (0.473), religion (0.156), education (2.513), occupation (3.417) and no. of days (2.532) which are less than tabulated value. It means all demographic variables are significant with their knowledge score.

Summary, Major Findings, Conclusion, Implication, Limitation And Recommendation

This chapter deals with summary of findings, major finding, conclusion, implication, limitation and recommendation of the study.

Summary

The objective of the study is determining the effectiveness of structured teaching programme on knowledge regarding side effects of chemotherapy and radiation therapy and their management.

Objective of the Study

1. To determine the pre test level of knowledge regarding side effects of chemotherapy and radiation therapy and their management among patients with cancer by using structured knowledge questionnaire schedule.
2. To find the effectiveness of structured teaching programme on knowledge regarding the side effects of chemotherapy and radiation therapy and their management.
3. To determine the association between the knowledge level and the selected demographic variables (age, gender, religion, education, occupation, number of days of hospitalization).

Hypothesis

- H1: The mean post test knowledge score of the patients with cancer will be significantly higher than the mean pretest knowledge score.
- H2: There will be significant association between level of knowledge and selected demographic variables.

Conceptual Framework

A concept is a thought, idea or mental image framed in the mind in response to learning something new. A framework work is basic structure supporting anything. A conceptual frame work deals with abstraction that is assembled by nature of their relevance to common theme. Conceptual framework refers to inter related concepts or abstraction that is assembled together in some rational scheme by virtue of their relevance to a common theme; they serve as a spring board for generation of hypothesis to be tested.¹⁸

One of the important purposes of conceptual framework is to communicate clearly the interrelationship of various concepts. It guide to investigator to know that what data need to be collected and give direction to the entire research process. The present study aim at on knowledge regarding the side effects of chemotherapy and radiation therapy and their management among patients with cancer. ¹⁹

The framework of the study based on Imogene M. “kings goal attainment model”. The major elements of the study of goal attainment are seen in the inter personal system in which two people, who are usually strangers, comes together in a health organization to helped and be helped to maintain a state of health that permits function in roles. The concept of theory is perception, action, interaction and transaction. These concepts are interrelated in every nursing situation. This term are defined as concept in the conceptual framework. 19

Major Findings

The major findings of the study are given below

- The majority 20 (33.33%) of subjects was in the age group of 21 – 30 years and 15 (25%) of subjects was in the age group of 31 – 40 & 41 – 50 years and remain 10 (16.66) of subjects was in the age group of above 50 years.
- Most of subject was male 45(75%) and female 15(25%).
- Most of them were Hindu 30 (50%) and Muslim 15 (25%) and Christian 10 (16.66%) and remaining others 05(8.33%).
- Most of subjects were having secondary education 25 (41.66%), followed by senior secondary 20 (33.33%), some was above graduation 10 (16.66%) and remaining illiterate 05 (08.33%).
- Majority 25(41.66%) of subject was laborer followed by from government sector 15(25%) and remaining business men and from private sector 10 (16.66%) of each.
- Most of subjects were 20 (33.33%) stay in hospital for 0 – 02 & 3 – 4 days during hospitalization some was 15 (25%) stay for 5 – 6 days and remaining stay more than 6 days was 05 (8.33%).

Description of Score

The mean pre-test knowledge score of the samples is 14.5 and mean post test knowledge score is 25. To know whether this increase in the mean knowledge score is significant or not, the researcher applied ‘t’ test. The researcher can conclude at 5% level of significance and 59 degree of freedom that there is significant change in mean knowledge score. It means that the intervention (STP regarding side effects of chemotherapy and radiation therapy and their management) is effective.

The researcher can conclude at 0.05 level of significance, which means that H1 is accepted. Therefore there is significant difference between the average values of pre and post-test related to side effects of chemotherapy and radiation therapy and their management, which gives an interpretation, that there is a significant gain in the knowledge score of the samples in the post-test phase. This indicates that the STP is effective in increasing the knowledge of the samples regarding the side effects of chemotherapy and radiation therapy and their management.

Conclusion

The main aim of the study was to determine the effectiveness of structured teaching programme on knowledge regarding side effects of chemotherapy and radiation therapy and their management among the patients. Information was given to the patients through structured teaching programme which includes various aspects regarding side effects of chemotherapy and radiation therapy and their management.

The following conclusions were drawn on the basis of findings of the study:

- The pre-test findings showed that knowledge of patients regarding side effects of chemotherapy and radiation therapy and their management was inadequate.
- The administration of structured teaching programme helped the patients to understand more regarding side effects of chemotherapy and radiation therapy and their management.
- Most of the patients were having adequate level of knowledge after the administration of structured teaching programme.
- The structured teaching programme is proved to be very effective method of transforming information and enhance the knowledge.

Implications

The findings of the study have implications for nursing education, nursing administration and nursing research.

Nursing Education

Nursing education is developing rapidly in India, and nurse from our country can be found all over the world providing care and education.

Now a day's much importance is given to the awareness and promotion of health than to the curative aspects. As the needs of society are continuously changing, newer components must be incorporated in the nursing curriculum. Nursing education must emphasize on preventive and rehabilitative aspects.

The nursing teachers can use the result of the study as an informative illustration for the students. Nursing education should help in inculcating values and a sense of responsibility in the students to educate them with such condition.

Nursing Administration

As a part of administration, the nurse administrator plays a vital role in educating the clients/ students and other people in community.

The Nurse administrator can utilize this type of structured teaching programme in order to use this study to enhance the knowledge of the clients/ students and other people in community. Nursing administration can depute students for various workshops, conferences, and special courses, seminar etc.

The findings of the study should be used as a basis of in-service education programs for the students so as to make them aware of the present problems in the community.

Nursing Research

Nursing research is an essential aspect of nursing as it uplifts the profession and develops new nursing norms and a body of knowledge. Another research has been added to the Nursing literature. Very few studies have been done on a similar basis. The research design, findings and the tool can be used as avenues for further research.

There is a need for extended and intensive nursing research in the area of sex education. The nurses can gain output regarding the pattern of disease and the care patient demands. The students can benefit by improving their knowledge for better compliance with the aspects of sex education.

Recommendations

Keeping in view the findings of the study, the following recommendations are made:

- A similar study can be done on a larger sample.
- A study can be conducted to assess the knowledge and practice regarding side effects of chemotherapy and radiation therapy and their management.
- A study may be conducted to assess the effectiveness of structured teaching programme versus other methods of health teaching on the similar problem.
- A study can be done on the association between various demographic variables, which were significant, on larger sample.

References

1. Suzanne C Smletzer, Brenda G. Bare “Brunner and Siddarth’s text book of Medical-Surgical Nursing”, 11THedition, 2004, page no. 855 to 866.
2. [Http://:chemotherapy categories.org.co.in](http://chemotherapycategories.org.co.in)
3. Gupta D, Lammersfeld CA, Vashi PG, et al. Prognostic significance of Subjective Global Assessment (SGA) in advanced colorectal cancer. *European Journal of Clinical Nutrition* 2005; 59:35-40.
4. Corrie PG, Pippa G. (2008). "Cytotoxic chemotherapy: clinical aspects". *Medicine* 36 (1): 24–28. doi:10.1016/j.mpmed.2007.10.012
5. Mercia LG. Effects of structured teaching program for cancer patients under- going radiation therapy on anorexia, nutritional status, functional status & disease & quality o f life. *Cancer nursing* 2004(3): 45-56
6. Maverakis E, Cornelius LA, Bowen GM, Phan T, Patel FB, Fitzmaurice S, He Y, Burrall B, Duong C, Kloxin AM, Sultani H, Wilken R, Martinez SR, Patel F (2015). "Metastatic melanoma - a review of current

and future treatment options". *Acta Derm Venereol* 95 (5): 516–524. doi:10.2340/00015555- 2035. PMID 25520039.

7. Wickberg, A.; Holmberg, L.; Adami, H.-O.; Magnuson, A.; Villman, K.; Liljegren, G. (3 February 2014). "Sector Resection With or Without Postoperative Radiotherapy for Stage I Breast Cancer: 20-Year Results of a Randomized Trial". *Journal of Clinical Oncology* 32(8): 791– 797. doi:10.1200/JCO.2013.50.6600.

8. "Radiation Therapy for Breast Cancer: Possible Side Effects". *Rtanswers.com*. 2012-03-15. Retrieved 2012-04-20.

9. Baird SB, McCorkle R, Grant M. A comprehensive Text book, cancer nursing, W.B Saunders, Philadelphia: 56-70

10. International Agency for Research on Cancer. Monographs on the Evaluation of the Carcinogenic Risk of Chemicals to Humans: Pharmaceutical Drugs. Lyon, France: IARC;2001

11. Journal of American Society of Hospital Pharmacists. ASHP technical assistance bulletin on handling cytotoxic and hazardous drugs. 1990; 47:1033–49.

12. Rizzo, Toni; Cloos, Rhonda Gale *Encyclopedia of Cancer* 2002

13. Dinshaw KA, Shastri SS, Pattil SS. Cancer control programme in India. *Health Administrator* 17 (1): 10-13

14. Smeltzer SC, Bare BG. *Text Book of Medical Surgical Nursing*, 11th ed. Lippincott Williams and Wilkins Philadelphia: 394-397

15. Dodd MJ. Assessing patient self care for side effects of cancer chemotherapy part-1, *cancer nursing*; 1982; 12: 447-51.

16. Camphausen KA, Lawrence RC. "Principles of Radiation Therapy" in Pazdur R, Wagman LD, Camphausen KA, Hoskins WJ (Eds) *Cancer Management: A Multidisciplinary Approach*. 11 ed. 2008.

17. Centre for disease control and prevention. Occupational exposure to antineoplastic agents. Available from url:<http://www.cdc.gov/niosh /topics/ antineoplastic. html>

18. Centre for disease control and prevention. Occupational exposure to antineoplastic agents. Available from url:<http://www.cdc.gov/niosh/topics/antineoplastic.html>
19. Stellman JM, Aufiero BM, Taub RN Assessment of potential exposure to antineoplastic agents in the health care setting 1984 May;13(3):245-55 PMID Available from <http://www.ncbi.nlm.nih.gov/pubmed/6494107>
20. Yan H, Sellick K. Quality of life of Chinese patients with newly diagnosed gastrointestinal cancer. American Journal Of Medicine. 2006; 41(5):25-32
21. Teaching Students about Intravenous Therapy: Increased Competence and Confidence Original Research Article Journal of the Association for Vascular Access, Volume 14, Issue 1, 2009, Pages 21-26
Rebecca Jensen Ann Fam Med. 2010 January; 8(1): 47–50. doi: 10.1370/afm.1058 PMID: PMC2807388
22. Majem M, Moreno E, Perej J, Calvo N, Feilu A , Gich I et al . Incidence of chemotherapy-induced nausea and vomiting after highly and moderately emetogenic chemotherapy in the era of NK-1 receptor antagonists. [abstract] 2009 [cited 2012 Dec
23. Rekhadevi PV, Sailaja N, Chandrasekhar M, Mahboob M, Rahman MF, Grover P. Genotoxicity assessment in oncology nurses handling anti- neoplastic drugs. Mutagenesis. 2007 Nov;22(6):395-401. Epub 2007 Sep 13. Available from <http://www.ncbi.nlm.nih.gov/pubmed/17855733>
24. Dranitsaris G, Johnson M, Poirier S et al A systematic review and meta- analysis of the literature on health care providers who work with cancer drugs at an increased risk for toxic events . a Journal of Oncology Pharmacy Practice 2005; page no 69-78 available from <http://www.ncbi.nlm.nih.gov/pubmed/194391611>
25. Agarwal M Idris MZ, Ahmed N. Quality of health services at primary level in lachnow district. Indian J Comm Med 2004;29:192-95
26. Gupta M Agarwal AK Feasibility study of side effect of chemotherapy and radiation therapy area of North India. Indian J Comm Med 2008 july;33(3):201-03
27. Awasthi S, Shrivastava NM, specific care seeking behaviour for sick patient. India 2008 Dec.:869-75
28. santosh K, Center for cancer department in india. India Med 2004; 41:456-662

29. Anive E, Perez F, Pierre L.M. The management of side effect : Health's example. Sante. 2004jul-sep; 14(3):137-42.
30. Kosgeroglu N, Ayranci U, Ozerdogan N, Demirustu C Turkish nurses' - information about, and administration of, chemotherapeutic drugs J Clin Nurs. 2006 Sep;15(9):1179-87. Osmangazi University, School of Health, Meselik, Eskisehir, Turkey. Available from <http://www.ncbi.nlm.nih.gov/pubmed/16911059>
31. Polit D.F. and Hungler. Nursing research. 7th ed. J.B. lippincott co, piladelphia 1999
32. BT Basavanthappa. Nursing Research 2nd ed. Jaypee Brothers, Medical Publicasher (P) LTD, New Delhi 2005 p. no. 49
33. Clin J Oncol Nurs. 2015 Jun;19(3):E59-62. doi: 10.1188/15.CJON.E59-E62. Nursing considerations for patients with sarcoma on pazopanib therapy. Holland J1, Flaherty C.
34. Eur J Oncol Nurs. 2013 Feb;17(1):59-69. doi: 10.1016/j.ejon.2012.01.006. Epub 2012 Mar 28. Exploring the work of nurses who administer chemotherapy to children and young people. Gibson F1, Shipway L, Aldiss S, Hawkins J, King W, Parr M, Ridout D, Verity R, Taylor RM. Author information.
35. Am Soc Clin Oncol Educ Book. 2015:e553-60. doi: 10.14694/EdBook_AM.2015.35.e553. Chemotherapy-induced peripheral neurotoxicity in cancer survivors: an underdiagnosed clinical entity? Cavaletti G1, Alberti P1, Marmioli P1.
36. Pan Afr Med J. 2014 Jul 21;18 Suppl 1:8. doi: 10.11694/pamj.supp.2014.18.1.3408. eCollection 2014. Health care workers' knowledge and attitude towards TB patients under Direct Observation of Treatment in Plateau state Nigeria, 2011. Ibrahim LM1, Hadjia IS2, Nguku P1, Waziri NE1, Akhimien MO1, Patrobas P3, Nsubuga P4.
37. J Infus Nurs. 2008 Jan-Feb; 31(1): 28-38. doi: 10.1097/01.NAN.0000308543.67744.9e. Nononcologic use of chemotherapy. Geddie P11.
38. Huldij A,Giesbers A, Polhuis EHK, Hart AAM. Hulshof and Bruning PF. Alterations in taste tas appreciation in cancer patients during treatment, cancer nursing 1986, 9(1):38-42

39. Kosgeroglu N, Ayrançi U, Ozerdoğan N, Demirustu C Turkish nurses' - information about, and administration of, chemotherapeutic drugs J Clin Nurs. 2006 Sep;15(9):1179-87. Osmangazi University, School of Health, Meselik, Eskisehir, Turkey. Available from <http://www.ncbi.nlm.nih.gov/pubmed/16911059>
40. CA: A Cancer Journal for Clinicians, Volume 62, Issue 1, pages 10– 29, January / February 2012
41. Life.nationalpost.com/.../cancer-rates-worldwide-set-to-skyroc. Canada
42. Ann Oncol (1995) 7(2): 181-190
43. Ann Oncol (2012) 23(6): 1471-1474 first published online November 15, 2011 doi:10.1093/annonc/mdr459)
44. Ann Oncol (1992) 3 (9): 719-722
45. Chemotherapy 2007;53:449-453 (DOI:10.1159/000110018)
46. Clin J Oncol Nurs. 2003 Jan-Feb;7(1):48-54. Treatment outcomes and quality- of-life issues for patients treated with prostate brachytherapy. Abel L1, Dafoe- Lambie J, Butler WM, Merrick GS.
47. Plast Surg Nurs. 1999 Winter;19(4):185-92, 223; quiz 191-2. Management of radiation skin reactions: literature review and clinical application. Porock D1, Nikoletti S, Kristjanson L.
48. Mercia LG. Effects of structured teaching program for cancer patients under- going radiation therapy on anorexia, nutritional status, functional status & disease & quality o f life. Cancer nursing 2004(3): 45-56
49. Polovich M, Martin S .Nurses' use of hazardous drug-handling precautions and awareness of national safety guidelines. Oncol Nurs Forum. 2011 Nov ; 38(6):718-26Duke Oncology Network, Durham, NC, USA. Available from <http://www.ncbi.nlm.nih.gov/pubmed/22037334>
50. Svärd L, Landersjö L, Aslund B, Lundgren P . A study of side effect of radiation therapy in Bangalore hospital wards. Available from <http://www.ncbi.nlm.nih.gov/pubmed/6630566>
51. Reynolds MR, Haydon DH, Caird J, Leonard JR. Radiation-Induced Moyamoya Syndrome after Proton Beam Therapy in the Pediatric Patients. Pediatr Neurosurg. 2016 May 19.

52. Ciernikova S, Mego M, Semanova M, Wachsmannova L, Adamcikova Z, Stevurkova V, Drgona L, Zajac V. Probiotic Survey in Cancer Patients Treated in the Outpatient Department in a Comprehensive Cancer Center. *Integr Cancer Ther.* 2016 May 5. pii: 1534735416643828.
53. Savard J, Ivers H, Savard MH, Morin CM. Cancer treatments and their side effects are associated with aggravation of insomnia. *Cancer.* 2015 May 15;121(10):1703-11.
54. Soeyonggo T, Locke J, Giudice ME, Alibhai S, Fleshner NE, Warde P. National survey addressing the information needs of primary care physicians: Side effect management of patients on androgen deprivation therapy *Can Urol Assoc J.* 2014 Mar;8(3-4):E227-34.
55. Hofman M1, Morrow GR, Roscoe JA, Hickok JT, Mustian KM, Moore DF, Wade JL, Fitch TR. Cancer patients' expectations of experiencing treatment-related side effects. *Cancer.* 2004 Aug 15;101(4):851-7.
56. Cochrane Database Syst Rev. 2004 Oct 18;(4):CD004282. Non-invasive interventions for improving well-being and quality of life in patients with lung cancer. Solà I1, Thompson E, Subirana M, López C, Pascual A.
57. *J Nurses Staff Dev.* 2012 nov-Dec; 28 (6) :E1-4. doi: 10.1097/NND.0b013e3182725a5f. Measuring the impact of an educational program on nurses: teaching an evidence-based approach to oral mucositis. Tringali CA1, Kanaskie ML.
58. *J Psychiatr Ment Health Nurs.* 2005 Apr;12(2):237-44. Antipsychotic depot medication and attitudes of community psychiatric nurses. Patel MX1, DE Zoysa N, Baker D, David AS.
59. Cardock, Adams RB, Usi PF, Mitchell WWL. An intervention to increase the use and effectiveness of self care measures for breast cancer chemotherapy patients, *cancer nursing* 1999, 22(4): 312-319
60. Kokilvani N, Valson, Radhak. Effectiveness of structured teaching program on selected nursing measures among women with breast cancer, *Nightingale nursing times*, Apr. 2010; 6 (1): 26-27
61. Mahboob M, Rahman MF, Rekhadevi PV, Sailaja N, Balasubramanyam A, Prabhakar PV, Singh SP, Reddy UA, Rao GS, Grover P. Monitoring of oxidative stress in nurses occupationally exposed to antineoplastic drugs . Available from <http://www.ncbi.nlm.nih.gov/pubmed/22736898>

62. Ben-Ami S, Shaham J, Rabin S, Melzer A, Ribak J. The influence of nurses' knowledge, attitudes, and health beliefs on their safe behavior with cytotoxic drugs in Israel. *Cancer Nurses*. 2001 Jun;24(3):192-200. Available from <http://www.ncbi.nlm.nih.gov/pubmed/11409063>
63. Baykal U, Seren S, Sokmen S. A description of oncology nurses' working conditions in Turkey. *European Journal Oncology Nurses*. 2009 Dec;13(5):368-75. Nursing Management Department, Florence Nightingale College of Nursing, Istanbul University, Abide-i Hurriyet Cad. No: 290, Istanbul, Turkey. Available from <http://www.ncbi.nlm.nih.gov/pubmed/19520605>
64. <http://www.bastyrcenter.org/content/view/390/>
65. Kokilvani N, Valson, Radhak. Effectiveness of structured teaching program on selected nursing measures among women with breast cancer, *Nightingale nursing times*, Apr.2010; 6 (1): 26-27
66. Denise F Polit, Cherry Tatano Beck. *Nursing research: generating and assessing evidence for nursing practice*. Lippincott publications. 8th edition. Pg: 105, 139, 337-341, 367, 712.
67. Polit DF, Hungler BP. *Essentials of nursing research: methods, appraisal and utilisation*. 2nd edition. Lippincott publishers; 1995.
68. Basavanthappa BT. *Nursing research*. Jaypee publishers. First edition 2003. Pg: 49, 66, 93, 215, 219.
69. Polit and Hungler (1977), 'Nursing Research Principles & methods', Philadelphia J.B. Lippincott.