

# A Pre-Experimental Study to Assess the Effectiveness of Planned Teaching Programme on Knowledge towards Safe Handling of Chemotherapeutics Drugs among Staff Nurses in C.H.R.I Gwalior (M.P)

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## ABSTRACT

**Background:** Health is considered as one of the most important values of life. Certain illnesses can also change the client's body image or physical appearance weakness, loss of limb, and severe scarring. The client's self esteem and self concept will also be affected. Early detection and treatment is one of the measures to prevent illness and also to reduce complications and death. **Objective:** The study aimed to assess the effectiveness of planned teaching programme on knowledge towards safe handling of chemotherapeutics drugs among staff nurses in Cancer hospital Gwalior M.P. **Methods:** The research design selected for the study was pre-experimental(one group pre-test posttest). Structured knowledge questionnaire developed to assess the knowledge of staff nurses regarding safe handling of chemotherapeutic drugs. 60 staff nurse was taken by Non probability convenient sampling technique. Data was collected by administering structured questionnaire before and after the administration of PTP. **Result:** It revealed that in pre test staff nurse had poor knowledge as compare the post test. the mean post-test scores of 16.6 was higher than the mean pre-test scores of 12.95 which was significant at P-value of 0.00001 level which showed Significant increase in knowledge and thus it proves the effectiveness of the planned teaching programme. **Conclusion:** Hence it can be concluded that the planned teaching programme was effective in improving the knowledge of staff nurses on prevention of safe handling of chemotherapeutic drugs.

**KEYWORDS:** Planned teaching programme, Effectiveness, Knowledge, Safe handling of chemotherapeutic drugs

## INTRODUCTION

Cancer, is the multidisease phenomenon and the word cancer came from the 'Father of Medicine', Hippocrates, a Greek physican. Hippocrates used the Greek words, Carcinus and carcinoma to describe tumors, thus killing cancer 'Karkinos'. In Greek the words refer to 'carb'<sup>2</sup>. It is also found in the animal kingdom is most of the multi cellular animals like mammals, fish, reptiles and amphibians.

According to American Cancer Society (ACS), Cancer is a group of disease characterized by uncontrolled growth and spread of abnormal cells. If the spread is not controlled, it can result in death.

Cancer therapy has progressed rapidly in the last half of the 20<sup>th</sup> century. Many cancers once considred incurable are now controlled with the discovery of different methods like surgery, radiation, and chemotherapy. Consequently the attitude towards cancer has become a more positive one bright with hopes of recovery.

Many management options for cancer exist including: chemotherapy, radiation therapy, surgery, immunotherapy, monoclonal antibody therapy and other methods which are used depending upon the location and grade of the tumour and the stage of the disease, as well as the general state of a person's health.

Chemotherapy is a kind of treatment that uses drugs to attack cancer cells. It is called a "systemic treatment" since the drug, entering through the blood stream, travels throughout the body and kills cancer cells at their sites. The drugs may rarely be intended to have a local effect, but in most cases, the intention is to destroy cancer cells wherever they may exist in the body. Since chemotherapy also affects normal actively dividing cells such as those in the bone marrow, the gastrointestinal tract, the reproductive system and in the hair follicles, most patients experience some degree of side effects like nausea, vomiting, hair loss, mouth sores, ulcers

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One of the primary responsibilities of the nurse in the delivery of chemotherapy is to ensure that the correct dose of the appropriate drug is given to the appropriate individual. Despite the fact that safeguards are in place, serious medication errors do occur. Such tragic events are regrettable but not so remarkable when one considers the number of chemotherapy doses given and the number of patients treated. The overall medication error rate is estimated to be 2-10%. However, one recent survey revealed that 63% of the respondents reported that errors had occurred at their workplace. In addition only 3% of the errors were reported to drug manufacturers or national databases though most were reported internally.

A multi method study on exploring the work of nurses who administers chemotherapy concluded that nurses who are new to the oncology/chemotherapy area must be given the appropriate education and supervised practice before administering chemotherapy. Although the nurses are aware that chemotherapy practice is constantly evolving and they feel that they need educational support to maintain their knowledge and skills.

Therefore the investigator is interested in studying the effectiveness of planned teaching program on knowledge and skill of staff nurses in handling chemotherapeutic drugs

#### PROBLEM STATEMENT:

A pre-experimental study to assess the effectiveness of planned teaching programme on knowledge towards safe handling of chemotherapeutics drugs among staff nurses in C.H.R.I. Gwalior (M.P).

#### OBJECTIVES:

1. To assess the knowledge of staff nurses regarding safe handling of chemotherapeutic drugs
2. To determine the effectiveness of planned teaching program on knowledge regarding safe handling of the chemotherapeutic drugs
3. To find the association between pretest knowledge regarding safe handling of chemotherapeutic drugs and selected variables.

#### HYPOTHESIS:

1. **H1-** The mean posttest knowledge score of staff nurses will be significant will be significantly higher than their mean pretest knowledge at 0.05 level of significance.
2. **H2-** There will be a significant association between pretest knowledge and selected baseline variables at 0.05 level of significance.
3. **H3-** There will be significant relationship between knowledge and skill at 0.05 level of significance.

#### OPERATIONAL DEFINITIONS

- **Staff nurse:** To provide services that are essential to or helpful in the promotion, maintenance, and restoration of the health and well-being.
- **Effectiveness:** In this study, it refers to the change in knowledge score and skill score after the planned teaching program as measured by questionnaire and checklist.
- **Assess:** To measure or check the level of knowledge and skills as measured by questionnaire and checklist.
- **Knowledge:** It refers to the understanding of staff nurses regarding safe handling of chemotherapeutic drugs like introduction about chemotherapy, its side

effects for handlers and patients, preparation, administration, spillage, transportation, safe disposal, patient care, patient education as measured by a structured questionnaire.

- **Planned teaching programme:** - In this study Planned teaching programme refers to the information provided to student nurses regarding cancer, transformation of normal cells into cancer cells, cancer chemotherapeutic drugs, complications of unsafe handling of chemotherapeutic drugs to patients and nurses through a systematically developed teaching aid.
- **Cancer chemotherapeutic drugs:-** It refers to the treatment that kills cancer cells or make them less active.
- **Safe handling:** - In this study safe handling for the preparation, administration and disposal of chemotherapeutic drugs as for than standard guidelines without causing any hazardous effect to the nurse and patients.

#### MATERIAL AND METHOD:

##### Research approach:

1. Quantitative research approach.

##### Research design:

Pre-Experimental with one group pre testpost test design.

##### Variables:

- **Dependent variable-** Knowledge of safe handling of chemotherapeutic drugs.
- **Independent variable-**Planned teaching programme
- **Demographic variable-** Such as gender, age, professional qualification, experience, did you have attend any in-service training/workshop on cancer chemotherapy, did you attend any specific training for preparation and administration of cancer chemotherapy.

##### Research setting:

- The study was conducted in the cancer hospital Gwalior, Madhya Pradesh.

##### Population:

Peoples of residents of staff nurses in C.H.R.I. gwalior (M.P.)

##### Sample:

Staff nurses in C.H.R.I. Gwalior (M.P.)

##### Sample size: 60 staff nurse

##### Sample techniques:

Non probability convenient sampling

##### Criteria for sample selection:

##### Inclusion criteria:

- Staff nurse for cancer hospital
- Staff nurse both of male and female are including.
- Staff nurse of who are able to understand, read & write English & hindhi .
- Staff nurses of cancer hospital in the age group of 21-30 & above.
- Staff nurses who are willing to participate in study.
- Staff nurses of cancer hospital they got PTP.

##### Exclusion criteria:

- Staff nurses of cancer hospital who are not willing to participate in the study.

**Tool and method of data collection:**

**Section A:** Demographic variable.

**Section B:** Structured knowledge questionnaire.

**Selection and development of tool:** Structured knowledge questionnaire was used for the study. Questionnaire is used to get exact and complete information from the subject. It was felt that questionnaire would encourage the subjects to give frank information and help in collecting data from literate subject. A questionnaire schedule was prepared to assess the knowledge level of staff nurses regarding safe handling of chemotherapeutic drugs. The tool was developed after extensive review of literature, internet search and expert advice.

**Description of the tool:** The tool comprised of two sections:

**SECTION A**

➤ Demographic data consisting of items seeking information about background data such as gender, age, professional qualification, experience, did you have attend any in-service training/workshop on cancer chemotherapy, did you attend any specific training for preparation and administration of cancer chemotherapy.

**SECTION B:** Structure questionnaire was prepared on two aspects.

1. based on knowledge regarding of chemotherapeutic Drugs.
2. Question based on regarding for safe handling

It consists of 60 items all of which are scored. The total score was 60 and each question contains of four answers out of which one answer is correct. The correct answer is given a score of 'one' and each wrong response a score of 'zero'.

**Table 1-To interpret level of knowledge the score were distributed as follows.**

LEVEL OF KNOWLEDGE	RANGES
POOR	1-10
AVERAGE	11-15
GOOD	16-20
EXCELLENT	21-30

**Reliability of tool:** The tool was tested for reliability on 6 peoples from the residents of saifai, Gwalior [M.P].For structured knowledge questionnaire the reliability of tool was computed by split half method. The reliability coefficient was found to be 0.88 which showed that the tool was reliable.

**Data collection procedure-** Before collecting the data, permission was obtained from the concerned authority. Keeping in mind the ethical aspect of research, the data was collected after obtaining the informed consent of the sample. Pre-test was conducted followed by administration of PTP. The duration of the session was 30 minutes. Post-test was conducted to evaluate the effectiveness of planned teaching programme.

**Ethical consideration:**

Ethical Clearance will be obtained from the in University or College ethical committee. Informed written consent will be taken from the study subjects after giving proper explanation of the purpose of the study. Informed consent will be developed in English as well as in Hindi language. Confidentiality and anonymity of the subjects will be maintained throughout the study.

**Plan for data analysis:**

The plan for data analysis includes descriptive statistics i.e. frequency, percentage, mean and standard deviation where as for inferential statistics. It includes the Z test and chi square test.

**RESULTS**

**Table-2 Distribution of subjects according to their demographic variables**

S.NO	SAMPLE CHARACTERISTICS	FREQUENCY	PERCENTAGE
1.	<b>Age</b>		
	a.18-20 yrs	13	21.67%
	b.21-25yrs	29	48.33%
	c.26-30yrs	14	23.33%
2.	d.30-40yrs	4	6.66%
	<b>Gender</b>		
	a. Male	19	31.66%
	b. Female	41	68.33%
3.	<b>PROFESSIONAL QUALIFICATION</b>		
	a. GNM	12	20%
	b. P.BSC	30	50%
	c. BSC	17	28.33%
4.	d. MSC	3	5%
	<b>EXPERIENCE</b>		
	a. > 2yrs	13	21.66%
	b. 2-4 yrs	15	25%
	c. 4-6 yrs	19	31.66%
	d. < 6yrs	13	21.66%

5.	<b>ATTENED ANY INSERVICE TRAINING WORKSHOP</b>		
	a. YES	26	43.33%
	b. NO	34	56.67%
6.	<b>ATTENED ANY SPECIFIC TRAINING CANCER</b>		
	a. YES	33	55%
	b. NO	27	45%

Table 2 described about the frequency, percentage distribution of demographic variable. Distribution of the subject by age revealed that majority of the subject, i.e. 13 were between 18-20 (21.67%), 29 were between 21-25 (48.33%), 14 were between 26-30(23.33%) and 4 were between 30-40 (6.67%) years of the age group.

As per the finding of the study, the majority of the subject, i.e. 19(31.67%) were male and 41(68.33%) were female.

With regard to the professional qualification standard 12(20%) were from GNM nsg , 30(50%) were from P.bsc nsg, 17(28.33%) were from Bsc nsg, 3(5%) were from m.sc nsg.

In nsg experience 13(21.67%) were from >2yrs, 15(25%) were from 2-4 yrs, 19(31.67%) were from 4-6 yrs, 13(21.66%) were from < 6yrst.

Attended any inservice workshop 26 (43.33%) yes, 34 (56.67%) no.

Attended any specific training in cancer 33(55%) yes, 27 (45%) no.

**Table 3-Distribution of subjects according to their knowledge regarding safe handling of chemotherapeutic drugs.**

**Pre test knowledge score:**

This section deals with the pre test scores of staff nurses of cancer hospital regarding their knowledge which were obtained from the structured questionnaire on the safe handling of chemotherapeutic drugs. The data were compiled into a master data sheet and analyzed. The total knowledge score as follows

**Table-3(A) frequency and percentage distribution of pre test. N=60**

Pre test knowledge	Score	Frequency	Percentage
1. Poor	1-10	14	23.33%
2. Average	11-15	32	53.33%
3. Good	16-20	14	23.33%
4. Excellent	21-30	0	0%

**Post test knowledge score**

This section deals with the post test scores of staff nurses of cancer hospital uregarding their knowledge which were obtained from the structured questionnaire on the safe handling of chemotherapeutic drugs.

The data were compiled into a master data sheet and analyzed.

The total knowledge score as follows

**Table-3(B) frequency and percentage distribution of post test. N=60**

Post test knowledge	Score	Frequency	Percentage
1. Poor	1-10	5	8.33%
2. Average	11-15	21	35%
3. Good	16-20	30	50%
4. Excellent	21-30	4	6.67%

**Table 3(C) Subject distribution on pre test and post test knowledge score of staff nurses of cancer hospital regarding their knowledge on safe handling of chemotherapeutic drugs.**

Knowledge level	Score	Pre test percentage	Posttest percentage
1. Poor	1-10	23.33%	8.33%
2. Average	11-15	53.33%	35%
3. Good	16-20	23%	50%
4. Excellent	21-30	0%	6.67%

The comparison between pre test and post test knowledge score are depicts above. In the pre test majority of 53.33%% had average knowledge, 23.33% had poor knowledge, 23% had good knowledge and 0% excellent knowledge. In post test majority of 50%% had good knowledge, 35% had average knowledge, 8.33% had poor knowledge and 6.67% had excellent knowledge regarding safe handling of chemotherapeutic drugs.

**Table-4(a) Effectiveness of PTP on knowledge of staff nurse safe handling of chemotherapeutic drugs 'Z' Test value.**

KNOWLEDGE	MEAN	STANDARD DEVIATION	MEAN DIFFERENCE	SED	Z VALUE
PRE TEST	12.95	2.94	3.65	0.17	1.50
POST TEST	16.6	3.34			

**Hypothesis**

**H<sub>1</sub>- there will be significant effectiveness of PTP on knowledge of staff nurses of safe handling of chemotherapeutic drugs in cancer hospital gwalior (M.P.)**

**Table:-4(b) Values of mean, standard deviation mean%, Z test.**

Knowledge score	M Mean	SD Standard deviation	Mean %	Z value
Pre test	12.95	2.94	21.58	1.50
Post test	16.6	3.34	27.66	

Since the value of mean % for pre test is 21.58% and post test is 27.66%, It states that there is significant difference in the knowledge score after administration of PTP regarding knowledge of safe handling of chemotherapeutic drugs. PTP was effective to increase the knowledge of staff nurses of cancer hospital gwalior (m.p.).

**Table:-5 Association of selected demographic variables with knowledge regarding safe handling of chemotherapeutic drugs. N=60**

S. no	Demographic variables	post-test				Df	Table value	Chi-square Value	Level Of significance
		poor	Average	Good	Excellent				
1.	<b>Age</b>					9	16.92	175.52	significant
	a. 18-20yrs	2	10	1	0				
	b. 21-25yrs	1	24	3	1				
	c. 26-30yrs	1	10	1	2				
	d. 30-40	1	1	1	4				
2.	<b>Gender</b>					3	7.82	441.25	Significant
	a. Male	3	14	1	1				
	b. Female	2	34	3	2				
3.	<b>Professional qualification</b>					9	16.92	109.65	Significant
	a. Gnm	2	8	2	0				
	b. P.Bscnsg.	2	23	2	1				
	c. Bscnsg.	1	15	1	0				
	d. Mscnsg.	0	1	1	2				
4.	<b>Experience</b>					9	16.92	252.14	Significant
	a. >2yrs	1	10	1	1				
	b. 2 to 4 yrs	1	10	3	1				
	c. 4 to 6 yrs	2	14	1	2				
	d. < 6 yrs	1	10	1	1				
5.	<b>Attend any inservicetraining/workshop.</b>					3	7.82	113.07	significant
	a. yes	1	12	10	3				
	b. no	4	14	10	0				
6.	<b>Attend any specific training for cancer.</b>					3	7.82	164.05	Significant
	a. yes	2	19	10	2				
	b. no	3	14	8	2				

It was also evident that there was significant association between post test knowledge score and demographic variables (ie education).

**DISCUSSION:**

With regard to H<sub>1</sub> findings that indicate mean post test score (16.6) is greater than pre test score (12.95). The obtained Z-value (1.50) was greater at 0.05 level and higher than table value. **Hence null hypothesis rejected and research hypothesis (H<sub>1</sub>) accepted.**

With regard to H<sub>2</sub> findings that indicate the chi-square value of association between selected demographic variables & post test scores are much greater than the table value of 0.05 level significance. This shows that there is significant association between the demographic variables and post test scores. **Thus null hypothesis H<sub>02</sub> is rejected and research hypothesis accepted.**

**Conclusion:**

The main purpose of the study was to assess the effectiveness of planned teaching programme regarding safe handling of chemotherapeutic drugs. Before the administration of planned teaching programme no one was

in excellent category but after the administration of PTP most of the staff nurses were in a excellent category, so I concluded that PTP ensured the increase in knowledge of the residents which was beneficial for them. Finding of this study in relation to other earlier conducted studies also showed that other teaching strategies like video assisted teaching programme, pamphlets, computer assisted learning etc are helpful in increasing the knowledge of the residents.

**Recommendations:**

- A similar study may be replicated on large sample.
- A descriptive study on knowledge regarding staff nurses in selected cancer hospital can be taken up.
- Anquasi-experimental study to assess the knowledge and practice of staff nurses of cancer hospital regarding safe handling of chemotherapeutic drugs, can be taken up.

- A comparative study to assess the knowledge and attitude of staff GNM, BSc, post BSc, MSC nursing on safe handling of chemotherapeutic drugs in selected cancer hospitals can be taken up.
- An experimental study to assess the effectiveness of PPT on knowledge among staff nurses toward safe handling of chemotherapeutic drugs can be taken up.

**Conflict of interest:** No

**Financial support:** Self

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