

A STUDY TO ASSESS THE EFFECTIVENESS OF VIDEO ASSISTED TEACHING ON SAFETY MEASURES WHILE HANDLING CHEMOTHERAPY DRUGS ON KNOWLEDGE & PRACTICE OF NURSES IN SELECTED HOSPITAL, HARYANA

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Abstract

The purpose of the study was to assess the knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching. Samples used were 60 Nursing Officers who were working in the LHDM & Dr Prem Hospital. To assess the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching. To compare the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching. To associate the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs with selected demographic variables. Purposive sampling technique was adopted. Samples were selected on the basis of inclusion criteria. Samples used were 60 Nursing Officers who were working in the LHDM & Dr Prem Hospital. Developed for generating the data, were a structured knowledge questionnaire to assess the knowledge of nurses regarding safety measures while handling chemotherapy drugs and observational check list. The research design adapted for this study was one group pretest post-test design. The feasibility of the study and the refinement of tools were assessed through pilot study. Regarding the knowledge score of Nursing Officers 56.7% had adequate knowledge regarding safety measures while handling of chemotherapy drugs. The mean knowledge score was 9.7 ± 1.9 . There is no association between level of knowledge and practice of nursing officers on safety measures while handling chemotherapy drugs and their selected demographic variables. Study reveals that the video assisted teaching was effective in improving the knowledge and practice of Nursing Officers regarding safety measures while handling chemotherapy drugs. Though knowledge and practice of Nursing Officers were significantly improved with highest mean improvement. So we strongly recommend to upgrade the clinical area with adequate resources to maintain safe and to avoid harmful effects from chemotherapy drugs.

Keywords: Teaching, Safety Measures, Chemotherapy, drugs

INTRODUCTION

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 (**American Cancer Society (ACS)**).¹ Cancer is a term for diseases in which abnormal cells divide without control and can invade nearby tissues and other parts of the body through blood and lymphatic systems (**National Cancer Institute (NCI, 2015)**).² Worldwide, more than 11 million new cases of cancer are diagnosed every year, and that number is expected to rise to 16 million by 2020. In India, cancer is the second most common disease at the year of 2015, 1 crore new cases have been diagnosed and

by the year 2020 cancer cases is going to be increased to 1 crore 20 lakh according to **Indian Council of Medical Research, (2017)**.³ About 6.5 lakh new cancer cases are diagnosed in Haryana by the year of 2020. In Haryana the most common cases that affect are those of stomach, lung and mouth and among women it is breast cancer (**Fortis Memorial Research Institute (FMRI, 2020)**).⁴ Chemotherapy is the use of cytotoxic drugs in the treatment of cancer. It is one of the four treatment modalities (the other being surgery, radiation therapy, and biotherapy) that provide cure, control, or palliation (**Martha E. Langhorne et al., 2007**).⁵ Chemotherapy is the treatment of cancer by the use of chemical substances to kill tumor cells by interfering with cellular function and cellular reproduction (**Brunner 2011**).⁶ Chemotherapy may be used to achieve control over the disease by preventing or slowing down the growth of a malignant tumor and thus prolonging survival (**Jessica Corner et al., 2008**).⁷

NEED FOR THE STUDY

All drugs have side effects associated with their use by patients, and both patients and nurses who handle them are at risk of suffering these effects that might result from exposure to even very small concentrations of certain hazardous drugs. Many anti neoplastic drugs are known to be carcinogenic, teratogenic and mutagenic to humans. Although the potential therapeutic benefits of hazardous drugs outweigh the risks of side effects for ill patients, exposed nurses risk these same side effects with no therapeutic benefit. Most drugs are given to the patient through intravenous drip but some drugs are pushed via a syringe. In either case, drug administration poses a risk to the nurses from a spill or release from the IV bag or through a pressured release during the drug push. Drug administration to patients requires wearing personal protective equipment in the event of a spill or other unplanned release (**American cancer society, 2016**).

During the past 30 years, professional organizations and government agencies have developed guidelines to protect healthcare workers from adverse effects of occupational exposure to anti neoplastic drugs. In 2004, (**NIOSH**) published an alert reviewing the most recent information. When health risks to exposed workers became a recognized safety concern, professional practice organizations (**Oncology Nursing Society**) and government agencies (**NIOSH-2013, OSHA – 2013**) published guidelines for the safe handling of hazardous drugs. So researcher felt that it is essential to assess the knowledge and to improve their existing knowledge on safety measures while handling chemotherapy anti neoplastic drugs among staff nurses.

PROBLEM STATEMENT

“A study to assess the effectiveness of video assisted teaching on safety measures while handling chemotherapy drugs on knowledge and practice of nurses in selected hospital of Haryana.”

OBJECTIVES

- To assess the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching.
- To compare the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching.
- To associate the level of knowledge and practice of nurses on safety measures while handling chemotherapy drugs with selected demographic variables.

OPERATIONAL DEFINITIONS

Effectiveness:

It refers to change in knowledge and practice after video assisted teaching on safety measures while handling chemotherapy drugs as measured by knowledge, observational checklist and its scores.

Knowledge:

It refers to the level of understanding of nurses regarding safety measures while handling of chemotherapy drugs which is measured by structured knowledge questionnaire and its scores.

Practice:

It refers to the activities performed by the nurses while handling chemotherapy drugs as measured by using observational checklist and its scores.

Handling:

It refers to the activities carried out by the nurses while preparation, administration and disposal of chemotherapy drugs.

Safety measures:

It means a measure which is taken to increase or ensure safety or protection.

Chemotherapy:

It refers to the drugs which are used to treat cancer patients as part of treatment.

Video assisted teaching:

It refers to giving an education to nurses regarding safety measures while handling chemotherapy drugs with the help of video to prevent hazardous effects of chemotherapy.

ASSUMPTIONS

1. Nursing Officers may have some knowledge regarding safety measures while handling chemotherapy drugs.
2. Nursing Officers are at a risk for developing adverse effects due to occupational exposure to chemotherapy drugs.
3. Video assisted teaching can enhance the knowledge and practice of nurses regarding safety measures while handling chemotherapy drugs.

LIMITATIONS

- A study is limited to 6 weeks.
- This study is limited to Nursing Officers who are working in cancer hospitals.

RESEARCH METHODOLOGY

- **RESEARCH APPROACH:** Quantitative approach.
- **RESEARCH DESIGN:** Pre-experimental one group pre test and post test design.
- **SETTING OF THE RESEARCH:** LHDM & Dr. Prem Cancer Hospital.
- **POPULATION:** All Nursing Officers working at LHDM & Dr. Prem Cancer Hospital.
- **SAMPLE:** The sample consisted 60 Nursing Officers.
- **SAMPLE TECHNIQUE:** Convenience Sampling Technique.

PLAN FOR DATA ANALYSIS

Descriptive and Inferential statistics were used to analyze the data

1. Frequency, mean, standard deviation to analyze the knowledge scores.

2. Paired „t“ test to find the significance of knowledge gained by nursing officers regarding safety measures while handling of chemotherapy drugs.
3. Chi square test to find the association between pre test and post test knowledge scores regarding safety measures while handling of chemotherapy drugs with their selected demographic variables.

ORGANIZATION OF FINDINGS

The analysis of data were organized and presented under the following headings.

Section - I

Data on description of the study subjects according to their demographic variables.

Section - II

Assessment of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching.

Section - III

Effectiveness of video assisted teaching on improvement of knowledge and practice.

Section - IV

Association between demographic profile of nurses with knowledge and practice

SECTION - I: Data on description of the study subjects according to their demographic variables.

TABLE 1 : FREQUENCY AND PERCENTAGE DISTRIBUTION OF ONCOLOGICAL NURSES ACCORDING TO THEIR DEMOGRAPHIC VARIABLES

n=60

Sr. No	Demographic Variables	Frequency	Percentage
1	Age in years		
	20 - 29 years	46	76.7
	30 -39 years	12	20.0
	40 years and above	2	3.3
2	Gender		
	Male	0	0
	Female	60	100.0
3	Qualification		
	GNM	60	100.0
	B. Sc Nursing	0	0
4	Designation		
	Nursing officers	56	93.4
	Ward Sister	2	3.3
	Head Nurses	2	3.3
5	Marital Status		
	Married	18	30.0
	Unmarried	42	70.0
	Widow	0	0
6	Experience in Oncology unit		
	Less than 1 year	28	46.7

	1 – 2 years	22	36.7
	3 – 4 years	10	16.6
	5 years and above	0	0

The above table-1 reveals that the demographic profiles of the nurses. Age in years, the majority of the subjects 76.7.% were in the age group of 20-29 year. Regarding sex, that the all of the subjects (100%) were female only. Regarding qualification, that the all of the subjects (100%) were GNM. Regarding designation, that the majority of the subjects 93.4% were Nursing officers. Regarding marital status, that the majority of the subjects 70% were unmarried and 30 % were married. Regarding experience, that the majority of the sample subjects 46.7% were had less than 1year experience.

SECTION – II: Assessment of knowledge and practice of nurses on safety measures while handling chemotherapy drugs before and after video assisted teaching.

TABLE-2: ASSESSMENT OF NURSES KNOWLEDGE IN PRE AND POST TEST

n=60

Category of Knowledge		Pre test		Post test	
		Frequencies	%	Frequencies	%
Good	15-20	0	0.0	52	86.7
Adequate	10-14	34	56.7	8	13.3
Poor	<10	26	43.3	0	0.0
Total		60	100.0	60	100.0

Table 2 showed that, in the pretest majority of the subjects, that was 34 (56.7%) had adequate level of knowledge, 26 (43.3%) poor and no one had good level of knowledge. In the post test majority of the subjects, that was 52 (86.7%) had good level of knowledge, 8 (13.3%) adequate and no one had poor level of knowledge.

TABLE-3: ASSESSMENT OF NURSES PRACTICE IN PRE AND POST TEST

n=60

Category of Practice	Score	Pre test		Post test	
		Frequencies	%	Frequencies	%
Good	15-20	0	0.0	0	0.0
Moderate	10-14	0	0.0	8	13.3
Poor	<10	60	100.0	52	86.7
Total		60	100.0	60	100.0

Table 3 showed that, in the pretest, majority of the subjects were 60 (100.0%) had poor level of practice, and no one had moderate and good level of practice. In the post , test majority of the subjects, that was 52 (86.7%) had poor level of practice ,8 (13.3%) had moderate and none of them had good level of practice.

SECTION – III The effectiveness of video assisted teaching in the improvement of knowledge and practice was analyzed and interpreted in pre and post test

TABLE-4: EFFECTIVENESS OF VIDEO ASSISTED TEACHING ON KNOWLEDGE AND PRACTICE REGARDING SAFETY MEASURES WHILE HANDLING CHEMOTHERAPY DRUGS WITH MEAN AND STANDARD DEVIATION

n=60

Variables	Pre test		Post test		Improvements		“t”	df	Sig
	Mean	SD	Mean	SD	Mean	SD			
Knowledge	9.7	1.9	17.4	2.0	7.7	1.4	29.033	29	P<0.001
Practice	3.9	0.6	7.9	1.2	4.0	1.3	16.664	29	P<0.001

In the above table 4, mean knowledge before video assisted teaching was 9.7±1.9 and the same after video assisted teaching was 17.4±2.0. The mean improvement was 7.7±1.4. Similarly, the mean practices before and after video assisted teaching were 3.9±0.6 and 7.9±1.2. The practice improvement was 4.0±1.3. The mean improvements of knowledge and practice were statistically very highly significant (P<0.001).

SECTION – IV- Association between demographic profile of nurses with knowledge and practice.

TABLE –5 : ASSOCIATION BETWEEN PRE TEST LEVEL OF KNOWLEDGEREGARDING SAFETY MEASURES WHILE HANDLING CHEMOTHERAPYDRUGS WITH SELECTED DEMOGRAPHIC VARIABLES

n=60

Sr. No	Variables	Knowledge				χ^2	df	Sig
		Good	Adequate	Poor	Total			
1	Age in years					0.000	1	P=1.000
	20 - 29	0	26	20	46			
	30 -39	0	6	6	12			
	40 & above	0	2	0	1			
2	Designation					0.875	1	P=0.179
	Nursing officers	0	34	22	56			
	Ward Sister	0	0	2	2			
	Head Nurses	0	0	2	2			
3	Marital Status					0.002	1	P=1.000
	Married	0	10	8	18			
	Unmarried	0	24	18	42			
	Widow	0	0	0	0			
4	Experience					0.002	1	P=0.961
	Less than 1 year	0	16	12	28			
	1 - 2 years	0	12	10	22			
	3 - 4 years	0	6	4	10			
	5 years and above	0	0	0	0			

Table 5 showed that the association of pretest level of knowledge regarding safety measures while handling chemotherapy drugs with selected demographic variables and chi – square test was computed. The findings revealed that there was no significant association between knowledge with age ($\chi^2 =0.000,df=1,p=1.000$), designation($\chi^2=0.875,df=1,p=0.179$), marital status ($\chi^2=0.002,df=1,p=1.000$), and experience ($\chi^2=0.002,df=1,p=0.961$).

TABLE – 6: ASSOCIATION BETWEEN PRE TEST LEVEL OF PRACTICE REGARDING SAFETY MEASURES WHILE HANDLING CHEMOTHERAPY DRUGS WITH SELECTED DEMOGRAPHIC VARIABLES

n=60

S. No	variables	Practice				df	Sig	
		Good	Moderate	Poor	Total			
1	Age in years					0.128	1	P=0.729
	20 -29	0	8	38	46			
	30 -39	0	2	10	12			
	40 & above	0	2	0	2			
2	Designation					0.000	1	P=1.000
	Nursing officers	0	12	44	56			
	Ward Sister	0	0	2	2			
	Head Nurses	0	0	2	2			
3	Marital status					0.657	1	P=0.517
	Married	0	2	16	18			
	Unmarried	0	14	28	42			
	Widow	0	0	0	0			
4	Experience					0.037	1	P=0.847
	Lessthan1 year	0	6	22	28			
	1-2 year	0	6	16	22			
	3-4 year	0	4	6	10			
	5years &above	0	0	0	0			

Table 6 showed that the association of pretest level of practice regarding safety measures while handling chemotherapy drugs with selected demographic variables and chi – square test was computed. The findings revealed that there was no significant association between practice with age ($\chi^2=0.128,df=1,p=0.729$), designation($\chi^2=0.000,df=1,p=1.000$), marital status ($\chi^2 =0.657,df=1,p=0.517$), and experience ($\chi^2=0.037,df=1,p=0.847$).

DISCUSSION

This study reveals that the video assisted teaching is effective in improving the knowledge and practice of nurses on safety measures while handling chemotherapy drugs. Though knowledge of nurses are significantly improved with highest mean improvement, because of unavailability of adequate resources (bio safety cabinet, N95 respirator) in the oncology unit, practice were improved with low mean improvement. So we strongly recommend to setup the clinical area with adequate resources to maintain safe practices and to avoid harmful effects from chemotherapy drugs.

NURSING IMPLICATIONS

Implication For Nursing Practice

1. The present study will help the nurses to evaluate their knowledge and practice on safety measures while handling chemotherapy drugs.
2. The study will emphasize in gaining knowledge regarding safety measures while handling chemotherapy drugs by video assisted teaching.

Implications for Nursing Education

1. The in service education which has been conducted by the investigator help the student nurses, trained nurses to understand the importance of safety measures while handling

chemotherapy.

Implications for Nursing Administration

1. Nurse administrator should initiate to conduct the periodical in service education programme in order to gain knowledge.
2. The nurse administrator should provide pamphlets to each oncology ward.

Implications for Nursing Research

1. This study finding can be utilized for literature review for researchers
2. This study can motivate researchers to conduct experimental studies, further regarding safety measures while handling chemotherapy drugs which ultimately the way to many research studies.

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