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A Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Protocol-Based Care on Chest Tube Drainage among BSc Nursing 4th Semester Students at SGRRUCON, Dehradun

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ABSTRACT

Introduction: A chest tube insertion is a surgical procedure to remove the air, blood, pus, lymph and fluid from the pleural space by inserting a hollow, flexible drainage tube through the side of the chest in the pleural space. Chest tube is a widespread therapeutic intervention for patients admitted in medical and surgical care areas. It is associated with significant morbidity and mortality. The main indications for intercostal or chest drains are conditions followed by chest injuries like pneumothorax, hemothorax, chylothorax, flail chest, cor-pulmonale, pleural effusion, empyema etc. Following cardiac surgeries also chest drains are used to regain normal functional status of lungs.

Statement: A study to assess the effectiveness of structured teaching programme on knowledge regarding protocol-based care on chest tube drainage among BSc Nursing 4th semester students at SGRRUCON, Dehradun.

Objectives of the study:

1. To assess the pre and post-test knowledge score.
2. To evaluate the effectiveness of self-instructional module
3. To find out the association between the pre-test knowledge scores regarding care of chest tube drainage with their demographic variables.

Methods: A quantitative one group pre- test and post- test design was conducted at Shri Guru Ram Rai University, College of Nursing, Dehradun. A total of 104 nursing students were selected by purposive sampling technique. The tool used for data collection was Demographic Performa and structured knowledge questionnaire. A structured teaching programme on care of patient with chest tube drainage was administered.

Results: A study on 104 nursing students at Shri Guru Ram Rai University, Dehradun, assessed the effectiveness of a structured teaching program on protocol-based chest tube drainage care. Most participants (61%) were aged 20-21 years, with 87% female and 86% from the Hindu religion. Prior knowledge sources included workshops (43%) and online resources (33%). Pre-test results showed 51% had inadequate knowledge, while post-test results revealed improvement, with 64% attaining moderate and 22% adequate knowledge. The mean post-test score (16.89) was significantly higher than the pre-test score (12.85) ($t = 7.929$, $p < 0.05$), confirming the program's effectiveness. No significant association was found between knowledge and demographic variables.

Conclusion: The study concluded that the pretest knowledge of the nursing students had a lack of adequate knowledge regarding care of chest tube drainage and there is a need for educating the staff nurses. The mean knowledge improved after administration of structured teaching programme. There was no significant association between knowledge of nursing students and with demographic variables. Therefore, the study concluded that administering structure teaching programme are effective in increasing the knowledge of nursing students regarding care of chest tube drainage.

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KEYWORDS: *Effectiveness, Chest tube drainage, Knowledge, Structured Teaching Program, Nursing Students*

INTRODUCTION

An intercostal drainage or chest drain, placed in the pleural space to restore intrapleural negative pressure, allows re-expansion of the lungs. The chest tube also prevents air and fluid from returning to the chest. The drainage system consists of one or more chest tubes or drain, a collection of chambers placed below the chest level, and a water seal to keep air from entering the chest. The drainage system may be a stationary, disposable, self- contained system with or without suction or vacuum assistance.[1]

The main indications for intercostal or chest drains are conditions followed by chest injuries like pneumothorax, hemothorax, chylothorax, flail chest, cor-pulmonale, pleural effusion, empyema etc. Following cardiac surgeries also chest drains are used to regain normal functional status of lungs. The management of critically ill patients has become very important in modern medical and nursing system. At the same time the number of intensive care beds in hospitals has grown. The complexity of medical and nursing problems and the severity of illness in critically ill patients have also increased. Critically ill population now occupying intensive care units and demand appropriate diagnosis as well as management skills.[2]

NEED FOR THE STUDY

The common indication of chest tube drainage is Pneumothorax (accumulation of air in the pleural space), plural effusion (accumulation of fluid in the plural space), chylothorax (collection of lymphatic fluid in the plural space), and emphysema (a pyogenic infection of the pleural space), Hemothorax (accumulation of serous fluid in the pleural space). In addition to these cardiothoracic surgeries and chest trauma are common indications of chest tube insertion.[9]

The other indications that may need to be treated by chest drainage therapy include Pyo pneumothorax and spontaneous pneumothorax that causes more than a 25% collapse of lung. Cancer that causes excessive secretions, hydrothorax, and lung or heart surgery are also the indications for chest tube drainage. The four main pleural complication of traumatic Hemothorax or the retention of clotted blood in the pleural space, increase the incidence of subsequent emphysema, pleural effusion and fibro thorax.[10]

This study aims to address several key objectives related to the care of patients with chest tube drainage among BSc nursing students. Firstly, it seeks to assess the baseline and post- intervention knowledge levels of BSc nursing students regarding the care of patients with chest tube drainage. Secondly, the study aims to evaluate the effectiveness of a structured teaching program designed to enhance BSc nursing students' proficiency in caring for patients with chest tube drainage. Lastly, the study aims to explore potential associations between pre- and post- intervention knowledge scores among staff nurses and selected demographic variables. By addressing these objectives, the study seeks to contribute to the body of knowledge surrounding optimal care practices for patients undergoing chest tube drainage.

STATEMENT OF THE PROBLEM:

"A study to assess the effectiveness of structured teaching programme on knowledge regarding protocol-based care on chest tube drainage among BSc Nursing 4th semester student njurses at Shri Guru Ram Rai University College of Nursing, Dehradun"

OBJECTIVES:

1. To assess the pre and post-test knowledge score
2. To evaluate the effectiveness of self-instructional module
3. To find out the association between the pre-test knowledge scores regarding care of chest tube drainage with their demographic variables.

ASSUMPTIONS:

- Samples are true representative of the population
- The 4th semester students of BSc Nursing students may have some knowledge regarding care of patients with chest tube drainage
- Teaching session will be improving knowledge of students.

HYPOTHESIS:

H_1: There is significant increase in the mean post- test knowledge score as compared to mean pre-test knowledge score regarding care of chest tube drainage among 4th semester students of BSc Nursing at SGRRUCON, Dehradun.

H_2: There is significant association between the pre-test knowledge score regarding care of chest tube drainage among 4th semester students of BSc Nursing at SGRRUCON, Dehradun with their demographic variables. at 0.05 level of significance.

OPERATIONAL DEFINITIONS

ASSESS: In this study, assess refer to determining the knowledge regarding protocol-based care of chest tube drainage.

KNOWLEDGE: In this study, knowledge refers to the ability of the BSc nursing students to responds correctly to knowledge related to protocol-based care

on chest tube drainage which is measured by a structured knowledge questionnaire.

Effectiveness: Refers to gain in knowledge as determined by the significant difference between pre-test and posttest knowledge scores.

Structured teaching programme: Refers to a planned and organized teaching programme aimed at educating the participants regarding management of patients with Intercostal drainage.

Chest tube drainage: In this study, chest tube drainage refers to a hollow, flexible tube placed into the chest, which acts as a drain. Chest tube drains abnormal collection of blood, fluid or air around lungs, heart and esophagus.

Patient: Refers to a person who is on Intercostal drainage.

Nursing student: Refers to registered 4th semester students of BSc Nursing at SGRRUCON, Dehradun

DELIMITATION

- The study is delimited to the students who are wish to participate in the study
- Students who are available at the time of data collection

RESEARCH APPROACH: In the present study quantitative research approach was used.

RESEARCH DESIGN: A pre-experimental research design with one group pre-test and post-test was used to assess the effectiveness of STP on knowledge regarding protocol-based care on chest tube drainage among Nursing Students.

RESEARCH SETTING OF THE STUDY: The research study was conducted SGRRCON Dehradun.

TARGET POPULATION

The population under the study will be 4th semester students of BSc Nursing at SGRRUCON, Dehradun". Once the eligibility of sample will be established, written informed consent will be obtained from students.

SAMPLING TECHNIQUES

In the present study Non probability sampling method was done by using purposive sampling.

SAMPLE SIZE

A total sample size will be 104 4th semester BSc Nursing students in SGRRCON Dehradun.

INCLUSION AND EXCLUSION CRITERIA:

Inclusion Criteria

- Students who are studying 4th semester B.Sc. nursing in SGRR College of Nursing
- Students who are willing to participate in the study.

Exclusion Criteria:

- B.Sc. nursing 1st, 2nd, 3rd semester students.
- B.Sc. 4th semester students who are absent on that day

Dependent variable: In the present study the dependent variable was the 4th semester B.Sc. nursing 4th semester students.

Independent variable:. In the present study dependent variable was the structured teaching programme on knowledge regarding protocol- based care on chest tube drainage

DEVELOPMENT OF THE TOOL: The tool which is used in this study consists of two parts.

Part-I: Demographic data. It consists of age, gender, Religion, Source of Prior Information on Chest tube Drainage, Attended any educational programme regarding chest tube drainage.

Part-II: Structured questionnaire was used to assess the level of Knowledge. The tool consists of 25 items, which involves assessment of psychological, social and physical problems associated with chest tube drainage. Items were scored as; I mark for each correct answers and 0 for wrong answers. The total marks were 25.

SCORING AND INTERPRETATION

1	Adequate Knowledge	76-100%
2	Moderate Knowledge	51-75 %
3	Inadequate Knowledge	0-50%

VALIDITY

Content validity of the tool was established by five experts three M.Sc., nursing faculty with more than five years of experience, one Psychiatrist and one Clinical Psychologist. The experts were requested to give their opinions and suggestions for further modification of items to improve the clarity and content of the items. The Final tool was prepared as per the suggestions and advice given by the experts.

RELIABILITY OF THE TOOL

Instrument reliability is the consistency with which it measures the target attribute. The calculated value was r=0.88 which signifies that the tool is highly reliable.

DATA COLLECTION PROCEDURE

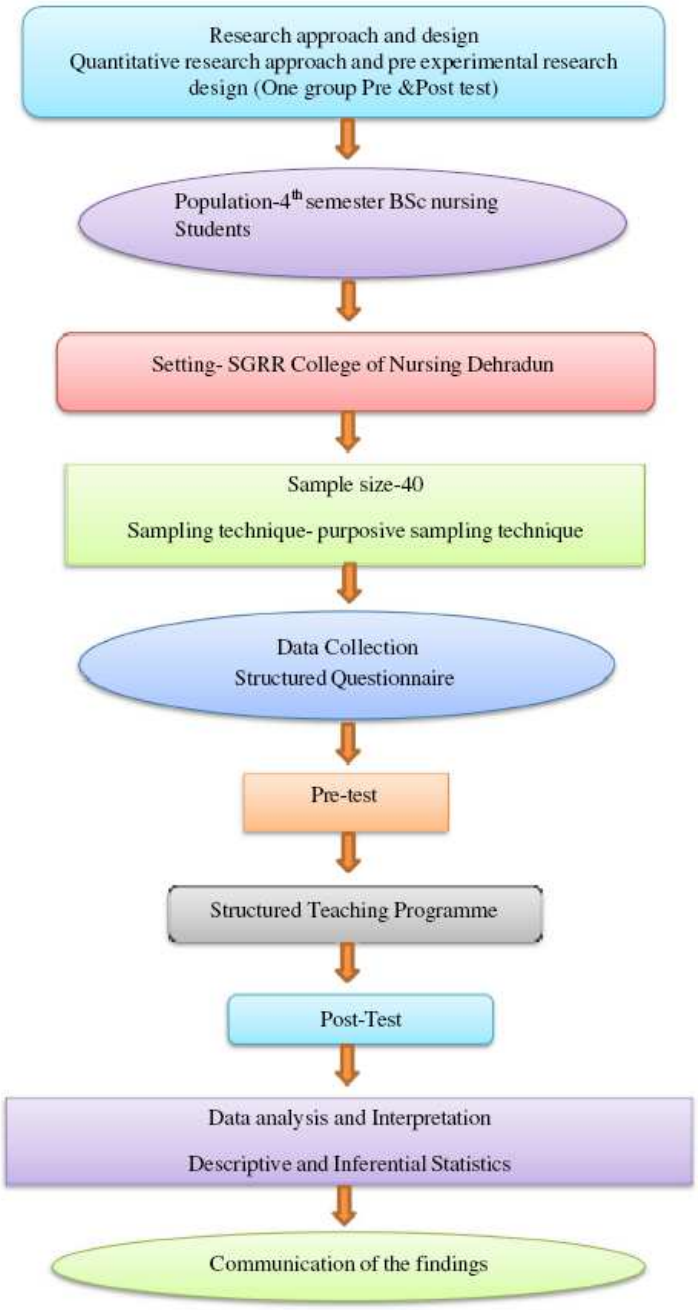
The formal permission obtained from Institutional Ethics Committee of SGRR College of Nursing, Dehradun for conducting main study. The data collection was done within 4 week of time period. The researcher first introduced herself and had a general talk with all Nursing Students. Who are

fulfilled the inclusion criteria and selected 104 samples by non-random purposive sampling technique and got written consent from all Nursing students.

Pre- test was conducted for the study subjects. It took about 30 minutes to complete the questionnaire. It was followed by the structured teaching programme for about 30-45 minutes using the power point presentation was given to study group at the end of the week. About 8 – 10 subjects were conducted pre- test on every day. As planned earlier post test was conducted at the second odd and even week using the same structured questionnaire. Pretest for the experimental group followed by structured teaching was done in the odd week of the data collection. Post test for the experimental group was also conducted in the second odd week. The investigator is able to complete the data collection with in the period of 4 weeks. The data collection procedure was terminated by thanking the respondents.

ETHICAL CLEARANCE

1. Written permission was obtained from the Principal SGRR College of Nursing
2. Ethical clearance was obtained from the Institutional Ethics Committee of the SGRR College of Nursing Dehradun
3. Informed consent was obtained from the 4th semester BSc Nursing Students
4. Confidentiality and anonymity were maintained throughout the study

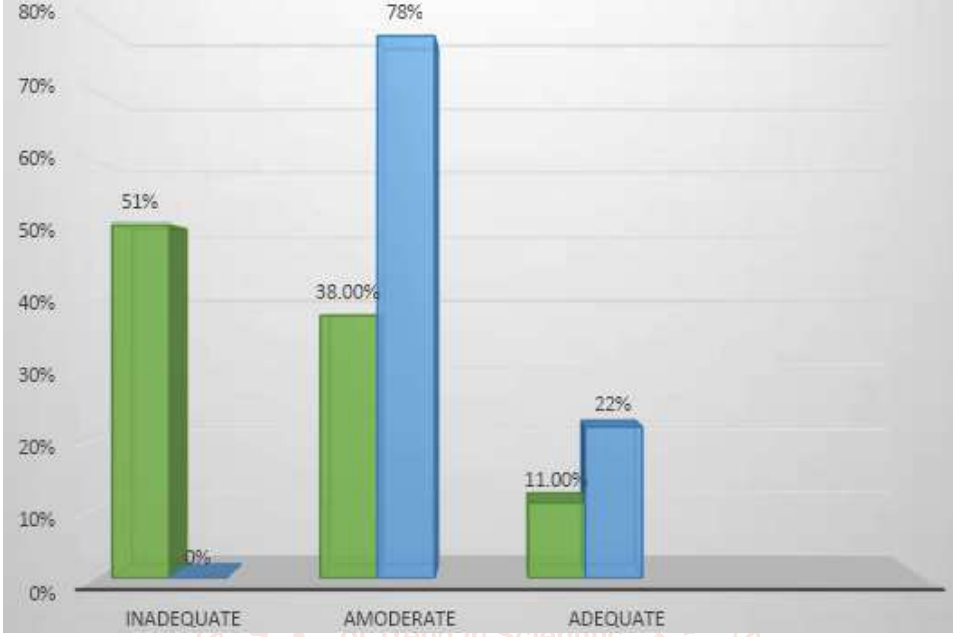


Schematic Representation of Research Methodology

Frequency distribution of Staff Nurse's according to their pre-test & Post-Test level of knowledge regarding chest tube drainage

the pre- test level of knowledge. In the pretest majority 53 (51%) of the nursing students had inadequate knowledge level and 40 (38%) had moderate level of knowledge and 11 (11%) had adequate level of knowledge about Chest tube drainage.

In the posttest majority 81 (64%) of the nursing students had moderate knowledge level and 23(22%) had adequate level of knowledge in post- test. The above findings summarize that, the structured teaching programme has significant beneficial effect in the level of knowledge among nursing students.



Comparison of pre-test and post- test level of knowledge on Chest tube drainage

Group	Mean	S. D	Mean Difference	t-value
Pre-test	12.85	11.75	4.04	7.929 P=.00001 Significant
Post-test	16.89	10.64		

The above table depicts comparison of mean pre- test and post-test knowledge level on prevention of pressure sore. The post- test mean score (16.89) was high when compared to the pre- test mean (12.85) score of knowledge. The obtained t value (7.929) was greater than table value at 0.05 level of significance, which shows that there is significant difference between the pre-test and post- test level of knowledge regarding protocol-based care of chest tube drainage among nursing students. Hence**, the formulated research hypotheses H1 was accepted.**

Description of the Nursing students according to their pre-test and post-test level of knowledge regarding chest tube drainage.

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Comparison of pre-test and post- test level of knowledge on Chest tube drainage

comparison of mean pre- test and post-test knowledge level on prevention of pressure sore. The post- test mean score (16.89) was high when compared to the pre- test mean (12.85) score of knowledge. The obtained t value (7.929) was greater than table value at 0.05 level of significance, which shows that there is significant difference between the pre-test and post- test level of knowledge regarding protocol-based care of chest tube drainage among nursing students. Hence, **the formulated research hypotheses H1 was accepted.**

Association between pre-test level of knowledge of Nursing Students and their selected demographic variables

the association of Nursing Students knowledge on protocol-based care on chest tube drainage with their selected demographic variables, Chi square test was used. The obtained Chi square value for age, gender, religion, source of information and attended any

educational programmes, the calculated value of chi-square was less than the table value at 0.05 level of significance. So, there was no significant association exist between these variables and nursing students' knowledge.

CONCLUSION:

The nursing students had a lack of adequate knowledge regarding care of chest tube drainage and there is a need for educating the staff nurses. The mean knowledge improved after administration of structured teaching programme. There was no significant association between knowledge of nursing students and with demographic variables. Therefore, the study concluded that administering structure teaching programme are effective in increasing the knowledge of nursing students regarding care of chest tube drainage.

LIMITATIONS

1. The study is limited to the 104 nursing students of SGRR college of Nursing Dehradun, which limits the generalization.
2. There was no control group
3. Retention of knowledge of nursing students was not measured.

RECOMMENDATIONS

Keeping in view the findings of present study, the following suggestions were made

1. The studies can be replicated on larger samples in a different setting to validate the findings and for generalization.
2. A similar study can be done to assess the practice of care of patient with chest tube drainage among staff nurses.
3. A similar study can be conducted using true experimental design.
4. A comparative study can be done on the knowledge and practices of nurses working in government hospitals versus private hospitals in providing care to the patient with chest tube drainage among staff nurses.
5. An exploratory study to find out the factors that hinder the nurses in providing care for patients with chest tube drainage among staff nurses.
6. An exploratory study to find out the difficulties experienced by the nurses in providing care to the patient with chest tube drainage.
7. A comparative study to find out the effect of different teaching methods in improvement of knowledge and practice of nurses regarding care of patient with chest tube.

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