ISSN- O: 2458 - 868X, ISSN–P: 2458 – 8687
National Library of Medicine - ID: 101731606

International Journal of Medical Science and Innovative Research (IJMSIR)
IJMSIR : A Medical Publication Hub
Available Online at: www.ijmsir.com
Volume – 9, Issue – 4, July – 2024 , Page No. : 118 – 133

A Comparative Study To Assess The Knowledge Among Final Year B. Se Nursing and Final Year G.N.M Students on Care of Chest Tube Drainage in Selected Institutions at Bangalore

[1]Mrs. Koragayala Nagarathnamma, Department of Medical Surgical Nursing, Smt. Lakshmi Devi College of Nursing Bangalore, Karnataka, India.

Corresponding Author: Mrs. Koragayala Nagarathnamma, Department of Medical Surgical Nursing, Smt. Lakshmi Devi College of Nursing Bangalore, Karnataka, India.

Citation this Article: Mrs. Koragayala Nagarathnamma, "A Comparative Study To Assess The Knowledge Among Final Year B. Se Nursing and Final Year G.N.M Students on Care of Chest Tube Drainage in Selected Institutions at Bangalore", IJMSIR - July - 2024, Vol – 9, Issue - 4, P. No. 118 – 133.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Introduction and Objectives: Ventilation is the flow of gas in and out of the lungs. Adequate gas exchange depends on a effective ventilation. The normal breathing mechanism operates on the principle of negative pressure; that is, the pressure in the chest cavity normally is lower than the pressure of the atmosphere, causing air to move into the lung. The collection of air, fluid, or other substances in the chest can compromise cardiopulmonary function and can also cause the lung to collapse. Pathologic substances that collect in the pleural space include fibrin, or clotted blood, liquids (Serous fluids, blood, pus); and gases (air from the lung, tracheobronchial tree, or esophagus) [1]

The normal ventilation can be impaired due to a variety of medical and surgical conditions, which leads to the development of positive intra pleural pressure and impairment of normal respiratory physiology and hence require drainage of the intra pleural space by using a chest tube. For many surgical procedures, the method of choice has shifted from traditional open surgery to the use of less invasive means like laparoscopy. These minimally invasive alternatives are employed as they usually result in less pain, less scarring and speedy recovery time for patient, as well as reduced health care costs.[2]

Chest tube insertion and drainage is commonly used for spontaneous or traumatic pneumothorax involving more than 25% of collapse or enlargement of lungs, especially if it causes respiratory distress or a serious gas exchange abnormality. It is also inserted for massive or recurrent benign pleural effusion not responding to thoracentesis, empyema, hemothorax and malignant effusions. In patients with clotting abnormalities, tube thoracostomy drainage is necessary but special care must be necessarily taken. The Aim of the study was to assess the knowledge regarding care of chest tube drainage among student nurses. The objectives of the study were to assess the knowledge of final year B. Sc Nursing students on care of chest tube drainage, assess the knowledge of final year G.N.M students on care of chest tube drainage and to compare the knowledge of final year B. Sc Nursing and final year G.N.M students. Education aims at bringing desirable changes in the behavior of an individual as in

the case of care of chest tube drainage among student nurses.[3]

Methodology: A descriptive comparative design was selected for the study. The participants were 30 final year B. Sc Nursing students and 30 final year G.N.M students who were studying at Florence College of Nursing and Florence School of Nursing, Bangalore, sample technique used was a simple random sampling technique was used to select the sample for the study. Data collection tool a questionnaire schedule was used collect the data from the study subjects. Data analysis was done the obtained data was analyzed using descriptive and inferential statistics and interpreted in terms of objectives and hypothesis of the study. The level of significance was set at 0.05 level.

Results: The study shows that out of 30 final year B. Sc Nursing students 10(33.4%) had adequate knowledge, 13(43.3%) had moderately adequate knowledge and 7(23.3%) had inadequate knowledge. In final year G.N.M students out of 30 respondents, only 3(10%) had adequate knowledge 19(63.3%) had moderately adequate knowledge and 8(26.7%) had inadequate knowledge. Mean knowledge score is higher in B. Sc Nursing group 23.43 5.96 when compare to G.N.M group 22.00 +5.69 on care of chest tube drainage.

Conclusion: From the Result it was evident that the B. Sc Nursing group had comparatively a high level of knowledge than the G.N.M group. There was a need for concentrated efforts to be made to increase the relevant knowledge and practice regarding care of chest tube drainage for nursing students through clinical teaching.

Keywords: Ventilation, adequate gas exchange, collapse. thoracentesis, empyema, hemothorax and malignant effusions, chest tube drainage

Introduction

Nurses practicing safely and competently require not only an understanding of the anatomy, physiology and pathophysiology of the pleural space, but an excellent knowledge of the understanding principles of chest drain care. Nurse's comprehension knowledge regarding chest drain care is important to prevent potential complications, which could add to the patient's level of stress as well as lengthen their recovery and hospital stay.[6]

Caring for a patient with any invasive line requires knowledge and awareness on the part of the nurses to assess properly the patient's condition and document their findings no doubt chest tube drainage is also an invasive procedure. Yet the nurse is aware that in such case proper assessment of these types of patients would improve the condition and possibly help to prevent further deterioration of the patient's condition.[4]

Chest tube drainage can be categorized into three types. The single bottle water seal system, consist of a fluid collection bottle. It acts as a reservoir for drainage of air and fluid from the pleural space but does not allow air to move back into the chest. The two bottle water seal system consists of a water seal chamber, plus a fluid-collection bottle. Water seal chamber prevents air from moving back in to the chest when the patients inhale. The three bottle water seal system is similar in all respects to the two-bottle system, except for the addition of a third bottle to control the amount of suction applied. Suction may be added to create negative pressure and promote drainage of fluid and removal of air. [5]

An improper handling of chest tube can lead to many complications. Nurses should have skills to take care of the patients and provide timely intervention to minimize the associated problems and complications, while patients are undergoing chest tube drainage. The nursing

responsibilities for care of such patients include thorough assessment and documentations, assuring proper functioning of the chest drainage systems, adequate knowledge on care of patients with chest drains. The results of the study revealed deficits in knowledge in a selected group of nurses on care of chest tube drainage. Nurses must be supported by practice and through personal portfolio used to identify gaps in knowledge and to seek appropriate training and resources.[6]

Timmins. F (2005), conducted a study on nursing management of chest drainage among 55 B. Sc Nursing students level of knowledge. She found that 7(13%) respondents had poor knowledge, 39(71%) respondents had average knowledge and 9(16%) had adequate knowledge on nursing management of patients with chest tube drainage. The study findings revealed the deficits in knowledge among the selected group of nurses. The study concludes that the knowledge gap identified and requires appropriate training and resources to improve their knowledge.

In 2003, Nehru hospital, Chandigarh, conducted a study on impact of self-instructional module (SIM) for the nurses on nursing management of chest tube drainage among 100 staff nurses. The study findings reveal that subjects had poor knowledge related to clamping (35%), clamping during leak (28%) and about indications for chest tube removal (19%). After introducing SIM, knowledge of the subjects improved to 75%, 65%, and 74% respectively. They found that subjects with B. Sc Nursing were possessing more to knowledge in their pretest (13.28) and posttest (21.00) as compared to subjects having diploma in nursing (pretest 11.55 and posttest 18.17). [8]

Vasantha (2002), conducted a study on management of chest tube drainage among 30 GNM students, GGH Kurnool, AP. She found that 20% of the respondents had inadequate knowledge, 37% had moderately adequate knowledge and 43% of the respondent's adequate knowledge. The researcher recommended that opportunities are needed to be provided to the students during their clinical posting to provide care for patients with chest tube drainage[9]

Even though the topic of water seal drainage system or chest tube drainage was included in the G.N.M and B. Sc Nursing syllabus there is a need to update their knowledge and skills sufficiently, because many of the student nurses possess less knowledge on milking the chest tube, change the bottle if it is filled up or is broken or what is to be done if the tubes are kinked or obstructed. The investigator felt that knowledge on nursing management of nursing students in this regard needs to obviously improved. Nursing students need to have scientific knowledge and practical efficiently in caring for patients with chest tube drainage.

Based on the above information investigator felt that knowledge of nursing students regarding nursing management of chest tube drainage need to be improved. Many studies suggested that nursing students have poor knowledge on nursing management of chest drains. On-going research helps to improve their knowledge. So the investigator was motivated to take up this study.

Courtney M, Townsend (2005), conducted a study on to drain air and fluid to escape from the pleural space with each exhalation and inhalation among 55 staff nurses. 39(71%) respondents stated that escape of air and fluid from each exhalation, 9(16%) respondents stated that escape of air and fluid from each inhalation and 7(13%) respondents stated that escape of air and fluid each exhalation and inhalation. They concluded that to drain air and fluid to escape from the pleural space each exhalation and further to prevent their return flow with each inhalation. [10]

Hilton. P (2004), conducted a study on indication's emerged for chest drain insertion among 250 nurses. The first indication was to re-inflate a collapse lung, and the second indication was to drain serous fluid or pus. More than half of the sampled nurses 128(51.2%) stated that to drain serous fluid or pus, 80(32%) stated that to re-inflate a collapse lung 42(16.8%) stated that both responses correct. She stated that chest drains are used to re-inflate a collapsed lung and to drain serous fluid or pus. [11]

Andrivet P. (1995), made a comparative study of thorax drainage versus immediate or delayed needle aspiration. Results indicated that needle aspiration may be proposed as a FIRST line treatment of spontaneous pneumothoras. Inpatients who do not heal with needle aspiration, a combined risk of thoracic drainage failure and short term recurrence of 50% may be an incentive for un delayed surgical procedures. [12]

Conces DJ, (1988), investigated treatment of pneumothorax utilizing small caliber chest tubes. The findings revealed that no complication attributable to tube placement occurred. When the flutter valve was employed, the patient was able to ambulate allowing for potential out patient therapy. The tube was found to be easy to use, safe and efficacious in the treatment of pneumothorax. [13]

Ishikura H. Kimura S (2006), conducted a study on the use of flexible elastic drains after chest surgery. Its vitro tests demonstrated that the drainage capability of the block drain depends on sufficient length in the fluted part of the structure, clinical outcome demonstrates no significant differences. They concluded that, the blake drains seem to be safe and effective on chest tube drainage [14]

Gordon PA, Norton JM (2005), conducted a study on critical care nurses understand the management of chest tube drainage. To obtain the best patient outcome, critical care nurses develop standard of practice from research derived recommendations. Although there are several studies recommending chest tube management practices, there is limited research in some areas of chest tube management. The authors analyze the body of research and recommended clinical practice changes and timely research projects and chest tube management. [15]

Laws, Mc Mahon, Lazzara (2003), conducted a study on placing patients undergoing chest drain insertion either in Flower's or Semi Fowler's position among 100 staff nurses. They found that 43(43%) of the sampled stated that fowler's position and 57(57%) stated that semi fowler's position. They recommended that the lungs are well expanded in fowler's position, thus allowing for an unproblematic insertion of the chest drain and Semi Fowler's position is that unsuitable for insertion of chest drains, [16]

Shoseyor D, (2002), conducted study on patients with pleural empyema, they categorized patients in 2 groups. Group - 1 consisted of 32patients who were rested with earlier insertion of a chest tube for chest tube drainage and a group - 11 consisted of 35 patients who were treated by a repeated ultrasound guided needle thoracentesis. The severity of the empyema in both these cases was assessed by chest radiograph, the amount of fluid drained, the number of days the patient has experienced a fever and the duration of antibiotic treatment. There were no significant differences found between the two groups. The investigation led them to conclude that the treatment of pleural empyema by repeated ultrasound guided needle thoracentesis is a efficacious as chest tube drainage, unless of course pleural empyema causes mediastinal deviation, [17]

Tooley C (2002), highlighted in her retrospective audit on patients and staff in a hospital, that chest drain

insertion is a painful experience for patients. In the postal questionnaire, 70% of the patients who had undergone chest drain insertion in the past 3 months remembered the procedure and stated that it was the most painful and stressful experience that they had ever to endure. Yet only 47% of the staff nurses a sample consisting of nurses and doctors, recommended analgesia for the procedure. [18]

Lazzara, Johnson (2002), conducted a study regarding periodic air bubbles; usually corresponding with one's respiration or during cough a causing pneumothorax. More than half of the sampled nurses 52.4% reported that the statement was correct, the other half of the sampled reported that statement was wrong. They found that air leakage, the duration of chest tubes such an air leak requires urgent attention and resolved to prevent air from leaking through the drainage tubing or incision site into the chest. [19]

Allibone, Henry (2003) conducted study on clamping chest drains during the transportation of patients for study stated it is unsafe practice particularly when it is bubbling, hence indicated an air leak. It may cause major respiratory complications including the development of subcutaneous emphysema and a tension pneumothorax accordingly, a significant percentage of 72.0% sampled nurses indicated that clamping chest drains during transportation is false. However 24.9% of nurses stated that this is true. 2.6% did not know the answer and remaining of nurses failed to provide an answer. They concluded that this might encourage nurses to direct some of their compliment the fact that time is restricted in the current health care system. In addition, as a component of ongoing professional development, nurses should encourage, skills and practice on chest tube drainage.[20]

Marshall MB, (2002), found that when the chest tubes were placed on water seal after a brief period of suction once the pulmonary resection was made shortened the duration of the air leak and most this process likely decreases the time that the chest tubes remain in place. Adoption of this practice may result in lower morbidity and lower hospital costs [21]

Waldhausen JH (2002), found a water seal trial is not necessary for safe removal of chest tubes in children undergoing elective surgery. Chest tubes can be removed safely without any complications, when pulled directly from suction for both pulmonary and non-pulmonary thoracic paediatric procedures. Suction is safe procedure for removal of chest tubes in paediatric procedures.[22]

Sjostrom C (2002), investigated that advanced age is the most significant risk factor of prolonged length of hospital stay. Their results indicate that needle drainage, in selected situations, is a valuable. Alternative tube drainage, with a shorter length of hospital stay and therefore less complications. [23]

Jones PM (2001), Evaluated 167 patients undergoing chest tube drainage within a 12-month period retrospectively. There were 30 reported cases of subcutaneous emphysema can be spontaneous or traumatic, but is associated with avoidable causes such as inadequate chest tube drainage, particularly due to poor tube placement, blockage and also with side-part migration into the subcutaneous tissue. It is associated with an increased morbidity and mortality and may indicate the need for urgent attention and urgent chest tube replacement. [24]

Minami H (1992), found excellent results after small caliber catheters were used a iatrogenic pneumothorax. No major complications resulted from catheter insertion, and no catheters become occluded. The catheter was easy to insert and the scar that remained after removal of the

catheter was very small. The success of the treatment no complications were found while using small caliber catheters.[25]

So Sy and Yu Dy (1982), conducted a study on 23 patients with primary spontaneous pneumothorax and 30 patients with secondary spontaneous pneumothorax treated by intercostals catheter drainage with under water seal. They were divided randomly into two groups; one group receiving suction drainage and the other no suction. The success rate was 57% for the former and 50% for the latter. The suction group spent an average of five days in hospital, where as the non-suction group averaged four days. Suction drainage therefore did not have much advantage. To determine how soon the catheter could be removed without complication, patients were also divided randomly into two subgroups: one had the catheter removed without previous clamping, as soon as the lung was expanded; the other had the catheters left in situ for a further period of three days. The success rate was 52% for the former and 53% for the latter. Most of the failure in the early removal group was caused by re-collapse of the lung rather than persistent air leakage: They found that removal of the catheter too early was not recommended. [26]

Material and method

A descriptive survey approach was used to assess the knowledge of student nurses on care of chest tube drainage. Descriptive research is designed to provide more information about the characteristics within the existing situation. Descriptive comparative study involves the investigation of research variables. Research variables are the qualities, properties and characteristics that are identified in research problems and sub problems that are to be described or measured in the study. Independent variable is considered to be the variable that is believed to cause or influence the dependent variable. Dependent variable is the variable that is hypothesized to depend on or be caused by the independent variable. [54]

In the present study the independent variables are age, gender, education, family income and clinical exposure of the student nurses. The dependent variables in this study are knowledge of student nurses on care of chest tube drainage. Study was conducted at Florence college of Nursing, Florence School of Nursing Bangalore. The population for the present study consisted of final year B. Sc Nursing and final year G.N.M. students who are studying at selected institutions, Bangalore. Sample is a subset of population selected to participate in a research study 30 final year B. Sc Nursing and 30 final year G.N.M students who are studying at Florence College of Nursing and Florence School of Nursing, Bangalore were selected as sample for this study. The sampling technique was used in this study on simple random sampling which is a probability type of sampling technique. The sample consisted of 30 final year B. Sc Nursing and 30 final year G.N.M students who are studying at Florence college of Nursing and Florence School of Nursing, Bangalore.

Criteria for selection

For assessing the knowledge of student nurses regarding care of chest tube drainage, 60 students were selected by the following criteria.

Description of Data Collection Tools and Technique

To meet the objectives of the study the tool was developed by the investigator. The tool used for the research study comprised of a questionnaire which consists of two parts, PART-I and PART-II

Description of the Tool

The instruments used in this study were: -

Part-1-Socio demographic Proforma

Part-II- Knowledge Questionnaire

Part-1

Socio demographic Proforma:-A Structured proforma was constructed by the investigator to collect information regarding, age, gender, educational level, family income and clinical exposure in cardiothoracic ward. This proforma was used only to describe demographic variables.

Part-II

This Part consist of the knowledge questionnaire which is prepare to assess the knowledge of student nurses on care of chest tube drainage. It consists of 3 sections.

Section - I

It consists of 6 items regarding Anatomy and physiology of the thoracic cavity.

Section - II

It consists of 18 items on general information regarding care of chest tube drainage which covers the of purposes, indications, and management of chest tube drainage

Section-III

It consists of 18 items regarding nursing management of chest tube drainage. All questions are phrased in multiple-choice forms with one correct response and three options as distracters.

Scoring and Interpretation

There were totally 42 questions in the knowledge questionnaire part to assess the knowledge of student nurses regarding care of chest tube drainage. This tool was developed by the investigator after reviewing related literature in text books of medical surgical nursing, journals, articles and also from the electronic sources. Each question has four options, in that one correct answer which carries score of one and the remaining were wrong options, which carries score of zero.

In order to find out the level of knowledge on care of chest tube drainage and three point scale will be used. The scoring can be made as follows:

32-42 (>75.0%) is considered as adequate knowledge

21-31(50-75%) is considered as moderately adequate knowledge

1-20 (<50.0%) is considered as inadequate knowledge

Content Validity of the Tool

Validity of the tool was established in consultation with guides and experts from various fields. The experts included one cardiothoracic surgeon, one Respiratory medicine specialist and eight nursing experts specialized in Medical Surgical Nursing. The recommendations and suggestions were considered to modify the questionnaire.

Reliability of the Tool

The reliability of an instrument is the degree of consistency with which the instrument measures the attribute. Test - retest reliability refers to the estimate of the stability of data collection instruments obtained by correlating the scores from successive administration of the instrument on the same subjects. A reliability of the tool was tested by test - retest method. The questionnaire was administered to 10 final year B. Sc Nursing students und 10 final year G.N.M students of Indira Gandhi College of Nursing and S.J.E.S School of Nursing. Bangalore. After a week the tool was administered again. The reliability was calculated by using Karl Pearson's correlation formula and significance of correlation was tested using probable error. The tool was found reliable [r=0.856].

Pilot Study

Pilot study was conducted in the month of September 2007 on 16th and 17th at Sneha College of Nursing and Ravindranath Tagore Nursing School, Bangalore. Formal permission was obtained from the administrative authority to conduct Pilot study. The purpose of the Pilot study was:

To evaluate the tool constructed

To find out the feasibility of conducting the final study.

To determine the method of statistical analysis

Totally 6 final year B. Sc Nursing and 6 final year G.N.M students from Sneha College of Nursing and Ravindranath Tagore Nursing School, Bangalore were selected by using simple Random sampling technique. The subjects for Pilot study possessed the same characteristics as that of sample of final study. The tool was administered to final year B. Se Nursing and final year G.N.M students collected data was analyzed by using descriptive and inferential statistics.

Findings of Pilot study

Pilot study findings shows that out of 6 final year B. Sc Nursing students 4(66.6%) were in the age group of 23-26 years, 5(83.3%) of sample were females, 4(66.6%) were having basic education PUC, 3(50%) were having family income 5,000-10,000 and adequate level of knowledge 5(83.3%).

In final year G.N.M students out of 6 respondents 5(83.3%) were in the age group of 1922 years, 4(66.6%) of sample were females, 5(83.3%) were having basic education PUC, 4(66.6%) were having family income 5,000 - 10,000 and adequate level of knowledge 4(66.6%).

Comparison mean knowledge scores of final year B. Sc Nursing students 65.22 ± 5.96 and final year G.N.M students 55.96 ± 10.96 was found significant with 0.030 by't test ($P>0.05$). The mean knowledge scores of final year B. Sc Nursing Student is regarding care of chest tube drainage is significantly is higher than that of final year G.N.M students

Findings of the study shows that association between knowledge scores and demographic variables like age, gender, education and family income was found not significant, as implied by chi-square test ($P<0.05$).

Procedure of Data Collection

A formal administrative permission was obtained from the Principal of Florence College of Nursing and the Principal of Florence School of Nursing. Final study was conducted at Florence College of Nursing and Florence School of Nursing for in the month of October 2007. Samples were selected in accordance with laid down criteria's. Written consent was obtained from each subject after giving assurance of confidentiality.

Plan for Data Analysis

The data obtained will be analyzed by using both descriptive and inferential statistics. The plan for data analysis was divided as follows:

Descriptive Statistics:

1. Frequency and percentage distribution will be used to analyze demographic variables of student nurses.
2. Mean and standard deviation to identify knowledge regarding care of chest tube drainage among B. Sc Nursing and G.N.M. students

Inferential Statistics:

1. " test was used to compare the knowledge score between two groups.
2. Chi-Square test was used to find out association between knowledge of student nurses with selected demographic variables such as age, gender, education and family income.

Protection of Human Rights

The proposed study was conducted after the approval of dissertation committee of the Florence College of Nursing. Permission was obtained from the administrative authority of Florence College of Nursing, Florence School of Nursing. Written consent of each subject was obtained before starting the data collection. Assurance was given to them that the anonymity of each individual would be maintained.

Hypotheses

On the basis of objectives and the review of literature, the following hypotheses are developed.

H_1:- There will be a significant difference between mean knowledge score of final year B. Sc Nursing and final year GNM Students.

H2: There will be a significant association between age and knowledge score regarding care of chest tube drainage.

H3: There will be a significant association between gender and knowledge score regarding care of chest tube drainage.

H4: There will be a significant association between education and knowledge score regarding care of chest tube drainage.

H5:- There will be a significant association between family income and knowledge score regarding care of chest tube drainage.

The normal ventilation can be impaired due to a variety of medical and surgical conditions which lead to the development of positive intra pleural pressure and impairment of normal respiratory physiology and have require drainage of the intra pleural space by using a chest tube. Even though the topic of chest tube drainage includes in the B. Sc Nursing and G.N.M syllabus and the same need to update their knowledge and skills sufficiently.

The present study has been undertaken "A comparative study to assess the knowledge among final year B. Sc Nursing and final year G.N.M students on care of chest tube drainage in selected institutions at Bangalore", the findings of the study were discussed as per the objectives and hypotheses.

Findings related to as per objectives

- Findings related to demographic Proforma.
- Findings related to knowledge scores of student nurses on care of chest tube drainage.
- Findings related to comparison of knowledge scores of final year B. Sc Nursing and final year G.N.M students.
- Findings related to association between level of knowledge and selected socio demographic variables.

Findings Related to Socio Demographic Proforma:

The present study shows that, majority number of final year B. Sc Nursing Students 20 out of 30 [66.7%] are in the age group of 23-26 years. In G.N.M group the maximum number of students that is 15 out of 30 [50%] are 19-22 years.

The Present study shows that out of 30 final year B. Sc Nursing students 18 [60%] respondents were female and 12[40%] respondents were males. In final year GNM Students out of 30 respondents, male - female ration is equal.

The present study shows that out of 30 final year B. Sc Nursing students 20 [60.7%] has basic education PUC and 10[33.3%] had degree education. Where as in GNM group out of 30 respondents 16[53.3%] had basic education PUC and 14 [46.7%] had degree education.

The present study shows that, maximum number of final year B. Sc Nursing students that is 13 out of 30[43.3%] were having family income of Rs. 5, 000-10,000 per month. In the GNM Group maximum number of students that is 16 out of 30 [53.3%] were having family income of Rs. 5,000-10,000 per month.

The present study shows that 30 final year B. Sc Nursing students 30(100%) were posted in cardiothoracic ward. In final year G.N.M students out of 30 respondents 30(100%) were posted in cardiothoracic ward.

Findings Related To Knowledge Score of Student Nurses on Care of Chest Tube Drainage

The present study shows that out of 30 final year B. Sc Nursing students 10 [33.4%] had adequate knowledge, 13 [43.3%] had moderately adequate knowledge and 7 [23.3%] had inadequate knowledge. In final year GNM students out of 30 respondents, only 3 [10%] had adequate knowledge, 19 [63.3%] had moderately adequate knowledge and 8 [26.7%] had inadequate knowledge. From the above information it is evident that the final year B. Sc Nursing group had comparatively a high level of knowledge than the G.N.M group on care of chest tube drainage

Findings related to comparison of knowledge scores between final year B. Sc Nursing and final year G.N.M students

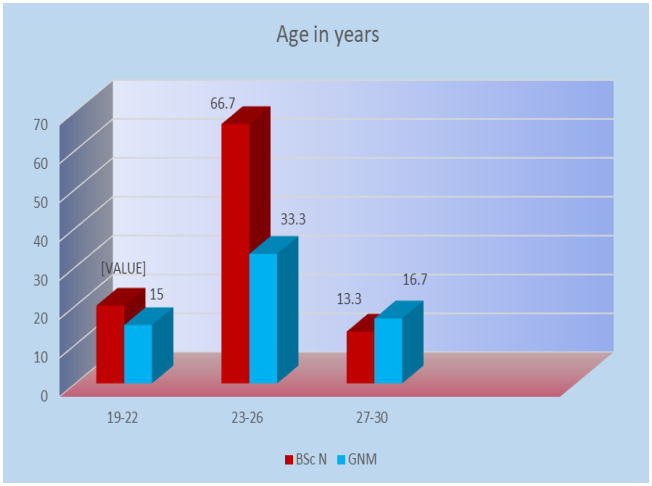
Findings of the study shows that, comparison of mean knowledge scores of final year B. Sc Nursing students are 23.43 plus/minus 5.96 and final year G.N.M students are 22 plus/minus 5.69 was found significant with 0.953 by 't' test (P > 0.05) The mean knowledge scores of final year B. Sc Nursing students are regarding care of chest tube drainage is significantly higher than that of final year G.N.M students.

Findings related to association between level of knowledge and selected socio demographic variables

The findings of the study show that association between knowledge scores and demographic variables like age, gender, education and family income were found not significant, as implied by Chi-square test (P < 0.05)

Organization of study findings

Graph 1: showing percentage distribution of respondents by age



The above figure depicts that maximum number final year B. Sc nursing students, that is 20 out of 30 [66.7%] are in the age group of 23-26 years where as in GNM Group the maximum number of students that is 15 out of 30 [50%] 19-22 years and minimum number of B. Sc nursing students that is 4 out of 30 13%] are in the age group of 27-30 years and in the GNM group also minimum number of students that is 5 out of 30 [16.7%] are in the age group of 27-30 years.

Table 1: shows Knowledge Level of the Respondents Regarding Care of Chest Tube Drainage N: 60

Level knowledge	BSc Nursing		GNM	
	Frequency f	Percentage %	Frequency f	Percentage %
Inadequate (<50.0%)	7	23.3	8	26.7
Moderately adequate (50-75%)	13	43.3	19	63.3
Adequate (>75.0%)	10	33.4	3	10.0
Total	30	100.0	3	100.0

The above shows, that out of 30 final year B. Sc Nursing students 10 [33.4%] had adequate knowledge, 13 [43.3%] had moderately adequate knowledge and 7 [23.3%] had inadequate knowledge. In final year GNM students out of 30 respondents, only 3 [10%] had adequate knowledge, 19 [63.3%] had moderately

adequate knowledge and 8 [26.7%] had inadequate knowledge. From the above information it is evident that the final year B. Sc Nursing group had comparatively a high level of knowledge than the G.N.M group.

Table 2: shows aspect wise mean knowledge score of final year B. Sc Nursing and final year GNM students on care of chest tube drainage N: 60

No.	Knowledge Aspects	Items	B. Sc Nursing		GNM	
			Mean %	SD	Mean %	SD
1	Anatomy & Physiology	6	3.53	+ 1.28 -	3.57	+1.07 -
2	General Information	18	9.77	+3.26 -	8.80	+2.98 -
3	Nursing Management	18	10.23	+3.17 -	9.63	+3.18 -
	Total	42	23.43	+5.96 -	22.00	+5.69 -

The above table reveals the aspect wise mean knowledge scores student nurses on care of chest tube drainage. The mean knowledge score of final year B. Sc Nursing students regarding anatomy and physiology of thoracic cavity is 3.53 plus/minus 1.28 and for G.N.M students it is 3.57 plus/minus 1.07 In the area of general information the mean knowledge score of B. Sc Nursing students is and for G.N.M students it is 8.8 ± 2.98. In the area of 9.77 plus/minus 3.26 nursing management and care of chest tube drainage the mean knowledge score of B. Se Nursing students is 10.23 plus/minus 3.17 and for the G.N.M group it is 9.63 plus/minus 3.18 The total mean knowledge score of final year B. Sc Nursing students is 23.43 plus/minus 5.96 and for the G.N.M students it is 22 plus/minus 5.69

Conclusion

The following conclusions were drawn on the basis of results of the present study "A comparative study to assess the knowledge among final year B. Sc Nursing and final year G.N.M students on care of chest tube drainage at Florence College of Nursing School, Bangalore.

Major findings of the study

Maximum number of final year B. Sc nursing students [66.7] were in the age group of 23-26 years and final year GNM students [50%], were in the age group of 19-22 years

In final year B. Sc nursing students [60%] of sample were females and final year GNM students both respondents are equal.

Maximum number of the final year B. Sc nursing students [66.7%] were having basic education PUC and final year GNM students [53.3%] were having basic education PUC.

In final year B. Sc nursing students [43.3%] were having family income Rs. 5,000-10,000 and final year G.N.M students (53.3%) were having family income Rs. 5,000-10,000.

Final year B. Sc Nursing students (100%) and final year G.N.M students (100%) posted in cardiothoracic ward.

In final B. Sc Nursing students 33.4% has adequate level of knowledge but in final year GNM students only 10% had adequate level of knowledge.

Mean knowledge score is higher in B. Sc Nursing group 23.43 ± 5.96 when compare to G.N.M group 22.00 ± 5.69 on care of chest tube drainage. No significant association was found between knowledge and selected demographic variables like age, gender, education and family income

The investigator felt that there is a need for concentrated efforts to be made by the entire teaching faculty to increase the relevant knowledge and practice regarding care of chest tube drainage for nursing students through appropriate training and resources.

Nursing Implications

The nursing implications of the study could be discussed under the headings as on nursing practice, nursing administration, nursing education and nursing research.

Nursing Practice

Nurses play a vital role at improving health services to providing quality of nursing care. Since the present study showed that most of the nursing students had moderately adequate knowledge on care of chest tube drainage, there is a need for concentrated efforts to be made to increase the relevant knowledge and practice regarding care of chest tube drainage, for nursing students through clinical training and education.

Findings of this study can also be helpful for improving the knowledge and skills on care of chest tube drainage, so as to improve the quality of nursing care.

Nursing Administration

This study emphasizes the need for orientation programs, which would certainly help the nursing students to update their knowledge and skill to provide quality of nursing care. Institutions providing seminars should review their policies and practice regarding care of chest tube drainage

Nursing Education

Nursing curriculum is a measure for motivating the students "to hunt for knowledge". Nursing students should be given necessary theoretical and practical knowledge on care chest tube drainage. Curriculum should give additional importance in developing communication skills of student nurses for better utilization of available resources prompt action. Integrating phases of nursing management of patients with chest tube drainage and its importance into all nursing education programmes has become a necessary.

Nursing Research

Nurses are likely to overlook the important activities of care such as health education, providing coughing and deep breathing exercises for patients with chest tube drainage. So, on-going research and inclusion of the findings are necessary to know the other care activities that are to be provided and employed in nursing care.

Limitations

The present study is limited to:

- final year B. Sc Nursing and final year G.N.M students only.
- the selected institutions of Nursing at Bangalore.
- 30 final year B. Se Nursing students and 30 final year G.N.M students only.

Suggestions

- B. Sc Nursing and G.N.M students, need adequate knowledge; clinical training and resources. Because it is the nurses responsibility to provide quality nursing care.
- Need for orientation programs, which would certainly help the nursing students to update their knowledge and skill to provide quality-nursing care.

Recommendations

Based on the interpretations and conclusions of the present study the following recommendations are made:

- A similar study on a larger and wider sample area and for a longer would be more pertinent in making broad generalization.
- The same study could be specifically conducted to assess the knowledge and practice for nurses on nursing management of patients with chest tube drainage.
- A similar study could be conducted to assess the effectiveness of Self- Instructional Module [SIM] for nurses on nursing management of patients with chest tube drainage.
- comparative study may be conducted between Diploma staff nurses and B. Sc nursing staff nurses.

- A similar study could be conducted to assess the knowledge of staff nurses regarding care of patients with chest tube drainage.

Summary

Nurses practicing safely and competently require not only the understanding of the anatomy, physiology and pathophysiology of the pleural space, but also should have an excellent knowledge of the principles of chest tube drainage and its care Nurses comprehension, knowledge regarding chest drain care is also important to prevent potential complications, which could add to the patient's level of stress as well as lengthen their recovery and hospital stay. Therefore, the present study is aimed at descriptive comparative in nature, was undertaken A comparative study to assess the knowledge among final year B. Sc Nursing and final year GNM students on care of chest tube drainage in selected institutions at Bangalore.

The study was conducted in Florence College of Nursing and Florence School of Nursing, Bangalore, Karnataka. The population of the study included final year B. Se Nursing and G.N.M students in the selected institutions. Simple random sampling technique was utilized to select 60 student nurses.

A knowledge questionnaire was prepared with 42 items to assess the Knowledge of student nurses regarding care of chest tube drainage. The validation of the tool was done by 10 experts. After considering the experts' suggestions and modifications the tool was finalized and it consisted of 8 items on socio demographic proforma and 42 items on knowledge regarding care of chest tube drainage. The tool was found to be feasible to collect the data. Reliability of the tool was established prior to the study. Pilot study as conducted on September 2007 from 16th and 17th

Pilot study sample consist of six final year B. Sc Nursing and six final year G.N.M students from Sneha College of Nursing and Ravindranath Tagore Nursing School, Bangalore. The Pilot study findings were analyzed in the same way as of the main study by using descriptive and inferential statistics.

The main study was conducted among 30 final year B. Sc Nursing and 30 final year G.N.M students from Florence College of Nursing and Florence Scholl of Nursing, Bangalore. A simple random sampling technique was used to collect data. The obtained data were analyzed in terms of the objectives and hypothesis using descriptive and inferential statistical procedure such as frequency, percentage, mean, standard deviation, 't' test and the Chi-Square test were used to find the knowledge scores of final year B. Sc Nursing and final year GNM students.

Major Findings of the Study

The present study shows that, the maximum number of final year B. Sc Nursing students (66.7%) were in the age group of 23-26 years, (60%) of sample were females (66.7%) were having basic education PUC and (43.3%) were having family income Rs. 5,000-10,000 per month, 100% samples were posted in cardiothoracic ward.

Maximum number of final year G.N.M students (50%) were in the age group 19-22 years, gender both respondents were equal, (53.3%) were having basic education PUC and (53.3%) were having family income Rs. 5,000-10,000 per month, (100%) samples were posted in cardiothoracic ward.

The present study shows that out of 30 final year B. Sc Nursing students 10 [33.4%) had adequate knowledge, 13 [43.3%) had moderately adequate knowledge and 7 [23.3%] had inadequate knowledge. In final year GNM students out of 30 respondents, only 3 [10%] had adequate knowledge, 19 [63.3%) had moderately adequate knowledge and 8 [26.7%] had inadequate

knowledge. From the above information it is evident that the final year B. Sc Nursing group had comparatively a high level of knowledge than the G.N.M group.

Findings of the study shows that comparison of mean knowledge scores of final year B. Sc Nursing students 23,43 ± 5.96 and final year G.N.M students 22.00 ± 5.69 was found significant with 0.953 by 't' test (P>0.05). The mean knowledge scores of final year B. Sc Nursing students are regarding care of chest tube drainage is significantly higher than that of final year G.N.M students. Findings of the study shows that association between knowledge scores and demographic variables like age, gender, education and family income was found not significant, as implied by Chi-square test (P < 0.05)

Acknowledgement

I thank the Lord Almighty God for blessing me with his special wisdom and knowledge throughout the study which made this thesis possible. Gratitude can never be expressed in words but this is only a deep perception, which makes the words to flow from one's inner Heart. I wish to express my sincere appreciation and deep sense of gratitude to all those who helped me in accomplishing this 'task' successfully. My sincere thanks to our founder of Florence College of Nursing, Srinidhi education trust, Bangalore, Shri. C. Mallikarjuna, for giving a golden opportunity to take up higher education in this noble profession and for providing and required facilities and opportunities for the successful completion of this study. Quality is never an accident; it is always the result of intelligent effort. The study has under guidance of Asso. Prof. Mrs. Reena George, M. Sc (N), Principal department of Medical Surgical Nursing, Florence College of Nursing, Bangalore. I express my sincere gratitude for her valuable guidance and for making this effort a fruitful learning experience.

My heart felt and faithful thanks to Mrs. Asha Andrews, M. Sc (N), Asso. Professor, Child health nursing, Florence College of Nursing, Bangalore, for her hard work, effort, interest, immerse patience and sincerity to mould this study in a successful way, and has given inspiration, encouragement and laid strong foundation in research to bring out the study to shape.

I am thankful to Mrs. Amudha M. Sc (N), Asso. Professor, Florence College of Nursing, Bangalore for her guidance and encouragement throughout this study and for having laid strong foundation in Nursing Research.

I also extend my thanks to all my tool validators without whom the tool would not come to perfection.

I am indeed thankful to all students who were the backbone of my study. They extend their heart and hand cooperatively to bring out this study a grand success.

I sincerely express my thanks to Asso. Prof. K. P. Suresh, (Biostatistics), National Institute of Animal Nutrition and Physiology, Bangalore, for helping in the statistical analysis of the data.

I express my warmest and great full thanks to Mr. K. Nagaraj, Chairman of S.J.E.S Group of Institutions, Bangalore, who has deputed me in this noble profession for higher education.

I recall with love and affection Mr. M.H. Shivappa, Principal, S.J.E.S School of Nursing and staff for their valuable guidance encouragement and moral support throughout the study.

I offer my earnest gratitude to my friend Mr. Sathish, all my classmates and others who helped me directly or indirectly to make this study a success.

I wish my sincere thanks to Mrs. Rekha, B. Sc, B. Ed, MA. Lit (Eng.) for editing this copy.

I extent my gratefulness for the library staff, Florence College of Nursing for extending helpful, support throughout the study.

Finally I am grateful to my parents Mr. K. Sivaiah, Mrs. K. Bramaramba, Sister Ms. Vasantha, Brother Mr. Ramesh for their help, encouragement, prayers, blessings, essential and immeasurable contributions and cooperation.

I cordially thank my friends for their love and support, guiding me to reach this step and complete my study.

References

1. Brunner and Suddarthas. Text book of Medical and Surgical Nursing. 10th ed. London: Lippincott company. 2001; P. 629-633.
2. Parkar KM. Management of pleural drains. Nursing times. 1997; 93; P.48-52
3. Andrivent P. Spontaneous pneumothorax. Comparison of thoracic drainage Vs immediate needle aspiration chest. 1995; 108 (2): 335-339.
4. Titler MG. Buck Walter KC, Maas. Critical issue for the development of clinical nursing knowledge. Medical journal. 1993; 28; P.475-477.
5. Lippincott. A Manual of Nursing Practice. 3 ^ (rd) ed. Sounders company. 1994; P.589-592.
6. Tang A. Nurses comprehension regarding chest drain management; 199; 10(2); P.4-5.
7. Timmins F. Nurses knowledge of chest drain care. Nursing Times. 2005 Aug: P. 193-196.
8. Nehru hospital, Chandigarh. Impact of self instructional module for the nurses on nursing management of the patients having chest tube drainage. The nursing journal of India; 2003 Feb; P.33-36.
9. Vasantha. K. Management of chest tube drainage. GGH Kurnool. AP. Nursing Research. 2002 Jul; P 45-46.
10. Courtney M, Townsend. Nurses knowledge on chest drain care. Nursing standards. 2005 Oct; P. 72-73.
11. Hilton P. Indications emerged chest drain insertion. Nursing times. 2004 Sep; P.32-33.
12. Andrivent P. Spontaneous Pneumothorax comparison of thoracic drainage Vs immediate or delayed needle aspiration. 1995; 108(2); P. 335-339.
13. Con DC. Treats of printer chest Nursing times. 2007 at 96 P3-6 2006 (1) P. 334.
14. Garden PA, Norton Meting the themes. 2005 14C1E
15. Gorden PA. Norton JM. Refining chest tube management, 2005 Jan; 14(1); P. 51-56.
16. Laws MC, Mahuan, Lactus. The inertion of 3000 58235-39
17. Shoseyor D. Short-term course and outcome of treatments of pleural empyema in paediatric patients; repeated ultrasound guided needle thoracocentesis Vs chest tube drainage: 2002; 121(3): 836-840.
18. Tooly C. Management and care of chest drains. Nursing times. 2002; 98(26); P. 48-50.
19. Lazzar, Johnson. Eliminate the air of mystery from chest tubes. Nursing times. 2002; 32; P. 36-45.20---46 Allibone, Henry. Nursing management of Chest drains. Nursing standard. 2003; 17; P. 45-55.
20. Marshall MB. Suction Vs Water seal after pulmonary resection; a randomized prospective study. Nursing Times. 2002; 121(3); P. 831-835.
21. Waldhausen JH. Removal of chest tubes in children without water seal after elective thoracic procedures; a randomized prospective study. AM Hospital, London. 2002; P.194 (4).
22. Sjostrom C. Advanced age is the most significant risk factor of prolonged length of hospital stay. Nursing times. 2002. April; P. 34.

23. Jones PM. Subcutaneous emphysema associated with chest tube drainage. Medical Journal. 2001; (2); P 87-89.
24. Minami H. Small Caliber catheter drainage for spontaneous pneumothorax. Medical Journal. 1992; 304(6); P 345-347.
25. So sy, Yu Dy. Catheter drainage of spontaneous pneumothorax; suction or no suction, early or late removal. Thorax. 1982; 37(1); P. 46-48.