

A Study to Assess the Effect of Planned Teaching on Knowledge and Practice of Staff Nurses on Endo - Tracheal Suctioning in Critical Care Unit of Selected Hospital, Guwahati

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Abstract: Background: Endotracheal suctioning is a procedure to remove respiratory secretions from the tracheo - bronchial tree by insertion of a sterile catheter in to the airway through endotracheal tube by planned care vacuum. Suctioning is a delicate art, and requires practice and patience to perfect the skill. It is one of the most common activities of nurses working in critical care unit. If the nurses have inadequate knowledge and practice regarding endotracheal suctioning, numerous complications may arise during the procedure. Aims/objectives: The objectives of the study were to assess knowledge and practice of nurses regarding endotracheal suctioning before and after planned teaching and to compare the knowledge and practices of nurses before and after planned teaching. The study was also attempted to determine the correlation between knowledge and practices of nurses with selected variables such as age, educational qualification, experience, in - service education. Methodology: A Quasi experimental research design (one group pre test and post test design) was used for the study. The study was conducted in critical care unit of selected hospital, Guwahati. For the study, 30 numbers of staff nurses were selected by using convenience sampling technique. A structured questionnaire and an observational checklist was developed to collect necessary data and analyzed and interpreted by using descriptive and inferential statistics. Results: Among 30 of the sample in pretest 9 (30%) had inadequate knowledge, 21 (70%) had moderately adequate knowledge and no one had adequate knowledge. After planned teaching in post test none of the sample had inadequate knowledge, 17 (56.67%) had moderately adequate knowledge and 13 (43.33%) had adequate knowledge. In pretest, 1 (3.33%) of the nurses had inadequate practice and 29 (96.67%) nurses had moderately adequate practices. None of the nurses among samples had practices that was adequate. After planned teaching none of them practiced inadequately, 1 of (3.33%) them had moderately adequate practice and 29 (96.67%) had adequate practice. It shows that there was an improvement in the level of knowledge and practice in post test ($t = P < 0.05$). The study also revealed that knowledge and practice scores were correlated with each other for respondents belonging to different groups according to the selected demographic variables such as age, educational qualification, work experiences and special training. Conclusion: This study demonstrated that planned teaching programme on endotracheal suctioning is effective in improving on knowledge and practices of staff nurses in critical care unit. Educational programme on regular basis will help in updating and improving their knowledge and practices regarding endotracheal suctioning.

Keywords: Staff nurse, Endotracheal suctioning, Knowledge, Practices.

1. Introduction

"Nurses dispense comfort, compassion, and caring without even a prescription. ~Val Sainbury

"Nursing is an art, and if it is to be made an art it requires as exclusive as devotion, as hard a preparation, as any painters or sculptors work; for what is the having to do with dead canvas or cold marble compared with having to do with the living body - the temple of Gods Spirit. It is one of the Fine Arts; almost said, the finest of Fine Arts". **Florence Nightingale**¹

Knowledge is the most powerful tool to counter obstacles and to find appropriate logical solution. Also knowledge is doubled when shared. Nursing has passed through several decades, improving its theories and advanced technology with Nightingale's legacy in one hand. But still while handling a critical patient most of the nurses struggle due to lack of knowledge and technical competency.²

Promoting and implementing research based practice is not a simple task in nursing. Yet it has to be attempted. The nurses practice within a diverse and complex health care system. The nurse with advanced practice is a skilled specialist with higher level of education and experience in their area of practice. But along with these advancements, negligence, mal practices, organizational problems, inadequate education lead to major complications. The main responsibility of a nurse is the safety of a patient to whom she is giving care.³

The patient in critical care unit often requires mechanical assistance to maintain airway patency. Endotracheal tubes are artificial airway, inserted to relieve airway obstructions, provides a route for mechanical ventilation, permit easy access for secretion removal, and protect the airway from gross aspiration in clients with impaired cough or gag reflexes.⁴

Endotracheal suctioning is a procedure to remove respiratory secretions from the tracheo - bronchial tree by insertion of a

sterile catheter in to the airway through endotracheal tube by planned care vacuum. This procedure may require in an emergency situation or as part of a patients planned care.⁵

Suctioning is a precise intervention requiring careful attention to safety. Direct care toward maintaining sterility to prevent infection; avoiding traumatic vacuum pressures and mechanical trauma from suction catheter; providing oxygen administration before, during, and after invention; hyperinflating the lungs before and after each catheter insertion by either supervising deep breathing or using an anesthesia bag or self - inflating bag if the person is unable to deep breath independently; and using extra caution if the person has an unstable cardiovascular system. Suctioning is a delicate art, and requires practice and patience to perfect the skill.¹

Nurses carry out activities for patient in clinics as well as in I. C. U One of the most common activities of I. C. U. is endotracheal suctioning. Services are poorly organized in many countries including India. Most of the hospital either they do not have infrastructure or lack of qualified and skilled nurses to manage. Nurses working with extended and unpredictable hours in I. C. U, caring with a client who needs long term care and support. Study reveals that nurses with efficient skill, updated knowledge and continuous motivation show better performance in the clinical practice.⁶

A survey was conducted by **Mrs. Rashmi Phillips** Lecturer, Choithram College of Nursing, Indore for 6 months from July 2006 to December 2006, suction catheter tip culture was used to identify the organism, result showed that there were 30 cases of pulmonary infection, The causative organism found were 12 acenatobacter, 9 were pseudomonas, rest were candida, E. coli, citrobacter and staphylococcus aureus. It was observed that the knowledge and technique of endotracheal suctioning, which was mainly done by the staff nurses were not satisfactory.⁷

Due to nurses' inadequate knowledge and practice numerous complications may arise during the procedure. Different studies and review of literature suggest that nurses need to improve their knowledge. During the clinical experience in the hospital, the investigator had opportunity to participate in and observe the care of critically ill patients. To meet the basic and complex needs of such patients, nurses perform numerous activities to help the patient to achieve and maintain optimum level of health. While working in the ICU, investigator found that the incidence of pulmonary infection was very high. This motivated the investigator to take up this study

The objectives of the study were to assess knowledge and practices of nurses regarding Endotracheal suctioning before and after planned teaching and to compare the knowledge and practices of nurses before and after planned teaching. The study also attempted to determine the correlation between knowledge and practices of nurses with selected variables like age, gender, educational qualification, experience and any in service training.

2. Methodology

The present study was a descriptive evaluative study done using quasi - experimental (one group pre test post test) design in GNRC (Guwahati Neurological Research Centre) Hospital, Dispur, Guwahati. In this study the population consisted of staff nurses working in selected hospitals of Guwahati that is GNRC. In GNRC hospital 208 staff nurses were working out of which 100 were working in critical care. A total of 30 staff nurses were selected for the purpose of data collection by using non - probability convenience sampling technique. A structured self administered questionnaire and an observational checklist was developed to collect data regarding knowledge and practices of the respondents regarding endotracheal suctioning. Demographic information like age, gender, educational qualification, experience in critical care area and in - service training were taken by using a socio - demographic performa. A formal written permission from the concerned authority was obtained for conducting the study. An informed consent was obtained from the staff nurses indicating their willingness to participate in the study. Confidentiality was maintained during data collection. The collected data were coded and organized in a master sheet and were analyzed by using the Statistical Package for the Social Science (SPSS).

3. Results

The socio - demographic characteristics of the respondents are showed in table 1. Out of 30 nurses, 24 (80%) nurses belong to 20 - 30 years, majority of the samples 27 (90%) educational qualification were diploma in nursing, majority i. e., 14 (46.67%) no of nurses had 1 - 6 month experience at critical care area and most of the nurses 22 (73.33%) were not attending any in service training.

Table 1: Frequency and percentage distribution of respondents according socio - demographic variables n=30

Sl. No.	Demographic Variables	Frequency	Percentage
1.	Age in Years		
	a) 20 - 30 years	24	80
	b) 31 - 40 years	6	20
	c) 41 - 50 years	-	-
	d) > 50 years	-	-
2.	Educational Qualification		
	a) Diploma in nursing	27	90
	b) B Sc. Nursing	3	10
3.	Experience in critical care area		
	a) < 1 month	-	-
	b) 1 - 6 month	14	46.67
	c) 6 month - 1year.	5	16.67
	d) 1 - 5 years	8	26.67
	e) > 5 years	3	10
4.	Attended any in service training of critical care		
	a) Yes	8	26.67
	b) No	22	73.33

Knowledge distribution of staff nurse in pre - test and post - test shows that the staff nurses those who attended teaching programme improve their knowledge in post - test when

compared to pre - test score. The result is presented in table 2.

Table 2: Frequency and percentage distribution of pre – test and post – test knowledge level of staff nurse n=30

Category	Pre - test		Post - test	
	Frequency	%	Frequency	%
Inadequate (<50%)	9	30.00%	0	0%
Moderately adequate (50 - 75%)	21	70.00%	17	56.67%
Adequate (>75%)	0	0.00%	13	43.33%

Practice distribution of staff nurse in pre - test and post - test shows that the staff nurses those who attended teaching programme improve their practice in post - test when compared to pre - test score. The result is presented in table 3.

Table 3: Frequency and percentage distribution of pre - test and post - test practice level of staff nurse n=30

Category	Pretest		Post - test	
	Frequency	%	Frequency	%
Inadequate (<45%)	1	3.33%	0	0%
Moderately adequate (45 - 70%)	29	96.67%	1	3.33%
Adequate (>70%)	0	0%	29	96.67%

As seen in table 4 the pre - test mean score of knowledge was 13.03 which was increased to 18.33 in post - test, and pre - test mean score of practice was 21.43, which is increased to 31.39 in post - test. The improvement was statistically tested by paired 't' test and the results were found to be significant (P= 0.000). Therefore, it shows that

the planned teaching on E/T suctioning to staff nurses was effective.

Table 4: Comparison of knowledge and practices on endotracheal suctioning among the staff nurses between pretest and posttest. n=30

Particulars	Knowledge		Practice	
	Score	Mean score	Score	Mean score
Pretest	391.00	13.03	643.00	21.43
Posttest	550.00	18.33	941.66	31.39
't' value		7.82		22.145
P value		0.000		0.000

The correlation between knowledge and practice on ET suctioning with selected demographic variables are shown in table 5. As shown in the table, knowledge and practice scores were correlated with each other for respondents belonging to different groups according to the selected demographic variables. The population in the age group 20 - 30 years showed significant positive correlation (0.645) between knowledge and practice, while the age group 31 - 40 years also showed positive correlation (0.802). The GNM trained nurses had a better conversion of knowledge into practice as evidenced by the correlation (0.687**). Regarding special training, the respondent those who have attended special training showed positive correlation (0.811) between knowledge and practice, where as respondent those who have not attended special training also showed positive correlation (0.622). In case of working experience, respondent with less than 6 month experience showed highly positive correlation (0.679), and respondent with 6month to 2 years experience showed positive correlation (0.721).

Table 5: Correlation between knowledge and practice on endotracheal suctioning with selected demographic variables. n=30

Demographic variables	No. of subjects	Knowledge Mean score	Practice mean score	't' value	Significance
Age					
a.20 - 30 years	24	15.75	26.55	0.645	0.000**
b.31 - 40 years	6	15.42	25.86	0.802	0.002**
c.41 - 50 years	-	-	-	-	-
d. >50 years	-	-	-	-	-
Professional qualification					
a. GNM	27	15.63	26.48	0.687	0.000**
b. B. Sc. Nursing	3	16.17	25.83	0.679	0.138NS
Special training attended on					
a. Yes	8	15.69	26.06	0.811	0.000**
b. No	22	15.68	26.54	0.622	0.000**
Working experience					
a. < 6m	14	14.79	26.85	0.670	0.000**
b.6m - 2yrs	5	15.70	25.47	0.721	0.012*
c.2 - 4 yrs	8	16.50	26.13	0.842	0.000**
d. >4 yrs	3	17.67	26.72	0.690	0.130NS

4. Conclusion

The study revealed that if planned teaching is given to staff nurse on endotracheal suctioning can prevent complication and reduce patient suffering and thereby increase patient safety. As per the findings of the study, planned teaching on E/T suctioning had a positive influence on nurses knowledge. Planned teaching improves the knowledge and there by practice. Continuing education would keep the staff nurses knowledge update in regards to the recent trends in preventing complications of E/T suctioning and improve

practices. There was a marked increase in the post test knowledge, which represent the effectiveness of planned teaching, so that staff nurses can be encouraged to increase knowledge and awareness regarding identification and management of patient with E/T tube. Thus the findings of the study highlight the importance of nurses continuous in - service education for better practice.

5. Recommendations

- a) The study can be replicated on a larger sample, selected from different hospitals, there by findings can be generalized.
- b) A comparative study can be done with staff nurses working in two different hospitals.
- c) A follow up study can be carry out to identify the nurses attitude regarding endotracheal suctioning.
- d) This study can be done by developing a SIM and effectiveness of the SIM can be assess.

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