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## A study to assess the knowledge regarding ET suctioning among staff nurses and student nurses in NMCH, Nellore

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**Abstract**

**Background:** ET Intubation is an important procedure done in the patients who are unable to breathe by themselves. Endotracheal suctioning (ETS) is one of the most common procedure performed in patients with artificial airways. It is a component of bronchial hygiene therapy and mechanical ventilation that involves mechanical aspiration of pulmonary secretions from a patient's artificial airway to prevent its obstruction.

**Objective:** To assess the level of knowledge on ET suctioning among staff nurses and student nurses in Narayana Medical College and hospital.

**Materials and Methods:** Descriptive cross sectional design and convenient sampling technique was followed which included 30 samples were used. Data was collected using structured questionnaire. Data analysis was done with SPSS.

**Results:** Shows that with regard to level of knowledge of ET suctioning among staff nurses 1(7%) had inadequate knowledge, 11(73%) had Moderate knowledge, and 3(20%) had adequate knowledge. Among nursing students 3(20%) had inadequate knowledge, and 12(80%) had moderate knowledge.

**Conclusions:** In the present study concluded that comparing the level of knowledge between staff nurses and nursing students, Staff nurses having adequate level of knowledge than nursing students regarding ET suctioning.

**Keywords:** Endotracheal suctioning, cough reflex, muco -ciliary.

### 1. Introduction

ET Intubation is an important procedure done in the patients who are unable to breathe by themselves. ET Intubation is the placement of a tube into the trachea (wind pipe) via the mouth in-order to maintain an open airway in patients who are unable to maintain their own airway. ET Intubation prevents the cough reflex and interferes with normal muco-ciliary function, therefore increasing airway secretion production and decreasing ability to clear secretions. Suctioning clears secretions from the airway of patient who cannot mobilize and expectorate them without assistance. Oral suctioning is to remove secretions from the pharynx by a suction catheter inserted through the mouth. A Yankauer (tonsil tip) suction catheter helps to clear secretions from the mouth.

ET suction should be used to maximise the amount of secretions removed with minimal adverse effects associated with the procedure. The parameters such as oxygen saturation, vital signs, respiratory function including respiratory flow, pressure, tidal volume all has to be assessed priory to the procedure. Endotracheal suctioning (ETS) is one of the most common procedure performed in patients with artificial airways. It is a component of bronchial hygiene therapy and mechanical ventilation that involves mechanical aspiration of pulmonary secretions from a patient's artificial airway to prevent its obstruction the procedure includes patient preparation, the suctioning event, post procedure care.

Tracheobronchial suctioning using the closed suctioning system has physiological benefits for critically ill patients. Because micro-aspiration of secretions is a risk factor for Ventilator Associated Pneumonia, assessment of practices related to oral suctioning, oral care, and management of endotracheal tube is important.

Indications for the procedure are desaturations, absent chest movements, visible secretions in ET tube, increased partial pressure of carbondioxide, coarse or decreased breath sound, recent history of large amounts of thick or tenacious secretions.

ET tube suctioning is the process of application of negative pressure to the distal endotracheal tube by introducing a catheter. ET tube suction is necessary to clear the secretion and to maintain airway patency and to therefore optimize oxygenation and ventilation in a ventilated patient.

The scheduled frequency of performing ET suction every 1,2,3,4,6,8 hours or even 12 hours, the overall recommendation is to suction only as indicated (as needed). ET suction should be performed at least every 8 hours. The duration of each suction session should last for 10-15 seconds. The duration should not exceed more than 15 seconds and there should be an interval of 1 minute between each suctioning session.

There is too much vacuum pressure, if the suction catheter is too large for the ET tube, it may cause massive atelectasis. One method to calculate the French (Fr) catheter size is,  $Fr = [ETT \text{ size}(mm) - 1] * 2$ , which is relatively accurate. The catheter size for adults is 10-16 French, for infants 5-6 French, for children 6-10 French. The common solutions used for suctioning is Normal Saline, it is proved that the normal saline will help to lubricate the catheter. Isotonic Sodium Chloride will be used for thick secretions.

The procedures such as Normal Saline lavage, hyper-oxygenation, hyper-inflation, pulse monitoring, and hyper-ventilation should be done before ET suctioning using sterile gloves, passes a sterile catheter through the tube into the trachea. When in position suction is applied intermittently and the catheter is rotated and withdrawn. If the airway is not cleared of secretions the catheter is not allowed to become contaminated and may be re-introduced into the trachea. ET suction will probably be necessary to ventilate the patient with the self-inflating bag before passing catheter again. If the secretions are tenacious, 5-10ml of sterile saline solution may be introduced into the tube, followed by immediate suction. Frequent mouth care is necessary.

ET suctioning is complicated to hypoxaemia, atelectasis, bradycardia, tachycardia, BP fluctuations, decreased tidal volume, airway mucosal trauma, ET tube dislodgement, bacteraemia, pneumonia client. Documentation after the procedure should be done regarding the amount, consistency, and colour of the secretions.

## 2. Objectives

1. To assess the level of knowledge regarding ET suctioning among staff nurses.
2. To assess the level of knowledge regarding ET suctioning among student nurses.
3. To compare the level of knowledge regarding ET suctioning between staff nurses and student nurses regarding ET suctioning.
4. To find out association between the level of knowledge regarding ET suctioning among the staff nurses with their selected socio-demographic variables.
5. To find out association between the level of knowledge regarding ET suctioning among the student nurses with their selected socio-demographic variables.

## 3. Materials and Methods

**3.1 Sampling and data collection:** Descriptive cross sectional design, used to assess the level of knowledge regarding ET suctioning among staff nurses and student nurses in Narayana medical college hospital. Non-probability convenient sampling was used. Staff nurses and student nurses who were eligible, can understand regional language,

who were available during data collection and voluntarily willing to participate in the study. Who are sick, who are on leave were excluded. Prior Permission was obtained from ethical clearance committee Participants signed an informed consent and were told they could withdraw from the study at any time for any reason.

## 3.2 Description of Tool

**3.2.1 Part I:** Deals with demographic variables for staff nurses are age, gender, educational qualification, working experience, source of information, attended any CNE programme. For student nurses include Age, Course of studying, Years of course, source of knowledge, whether attended any CNE programme.

**3.2.2 Part II:** It deals with structured questionnaire to convey the knowledge regarding ET suctioning among staff nurses and student nurses. It consists of 30 multiple choice question. Each question gives success answer as 1 score. If not answering gives 0 score.

## 3.3 Score Interpretation

The score was interpreted as follows:

Inadequate knowledge: 0-10

Moderately adequate: 11-20

Adequate knowledge: 21-30

## 3.4 Data analysis

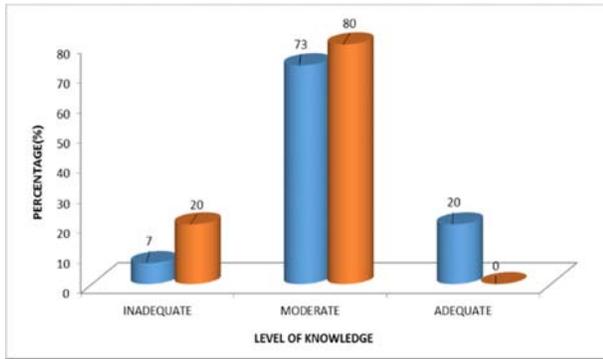
Data was analysed by using descriptive and inferential statistics. Frequency, percentage, mean, standard deviation and chi-square test were done.

## 4. Results

The results shows that frequency and percentage distribution with regard to age 13(87%) staff nurses are between the age group of 21-25 years, 2(13%) are between the age group of 26-30 years, gender, 2(13.3%) are male and 13(86.7%) are female, educational qualification, 4(27%) staff nurses belongs to GNM, 10(66%) belongs to BSC Nursing and 1(7%) belongs to PBBS Nursing, working experience, 9(60%) staff have <1 year experience, 5(33%) staff have 1-3 years of experience and 1(7%) staff have 4-6 years of experience, source of knowledge, 2(13%) are from text books and 13(87%) are from all the above, CNE attended, 6(40%) staff have attended and 9(60%) not attend the CNE programme.

Results Shows that frequency and percentage distribution with regard to age 11(73%) student nurses between the age group of 20-21 years, 4(27%) are between the age group of 22-23 years, years of course 8(53%) students were 3<sup>rd</sup> year and 7(47%) students were 4<sup>th</sup> year, source of knowledge 8(53%) students got through text books, 1(7%) students got through curriculum and 6(40%) students got through all the above sources, CNE programme 4(26.7%) have attended and 11(73.3%) do not attend any CNE programme.

For staff nurses there was no significant association between age, educational qualification and attending CNE programme, gender, working experience and source of information and for nursing students there was no significant association between age, educational qualification, year of course, source of information and attending CNE programme.



**Fig 1:** Percentage distribution based on level of knowledge among staff nurses and student nurse

**Table 1:** Comparison of level of knowledge scores of mean and standard deviation among staff nurses and nursing students (n=30)

Sample categories	Staff nurses	Nursing students
Mean	28.2	24.13
Standard deviation	4.607	5.277

**5. Discussion**

The discussion of the present study was based on the findings obtained from the descriptive and inferential statistical analysis of collected data. It is presented in the view of the objectives of the study. The study related to level of knowledge regarding staff nurses 1(7%) had inadequate knowledge, 11(73%) had Moderate knowledge, and 3(20%) had adequate knowledge. Among nursing students 3(20%) had inadequate knowledge, and 12(80%) had moderate knowledge.

For staff nurses results Shows that with regard to association of level of knowledge regarding ET suctioning among staff nurses and selected demographic variables. The calculated value is less than the table value at P=0.05.so stastically there is no significant association between level of knowledge among staff nurses and selected demographic variables. And for student nurse’s association of level of knowledge regarding ET suctioning among nursing students with their selected socio demographic variables. The calculated value is less than the table value. So statistically there is no significant association between the level of knowledge among nursing students with their selected sociodemographic variables.

**6. Conclusion**

In the present study concluded that comparing the level of knowledge between staff nurses and nursing students, Staff nurses having adequate level of knowledge than Nursing students regarding ET suctioning.

**7. Recommendations**

- A similar study can be replicated on a large sample to generalize the findings.
- An experimental study can be conducted to assess the effectiveness of teaching programme ET suctioning.
- Similar study can be done on different hospital settings.
- A comparative study can be undertaken to compare the knowledge of staff nurses and nursing students about ET suctioning.

**8. Acknowledgement**

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