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A study to assess the knowledge regarding tracheostomy care among staff nurses and nursing students in narayana medical college and hospital, Nellore

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Abstract
Background: Tracheostomy is one of the oldest known surgical procedure. A tracheostomy is an opening in the trachea when an individual natural airway is compromised and requires long term ventilation at the same time tracheostomy care is essential to prevent infection.
Objective: To assess the level of knowledge on tracheostomy care 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 assessment of umbilical cord among 15 staff nurse 8(53.3%) have moderately adequate knowledge and in student nurses 6(40%) have moderately adequate knowledge.
Conclusions: The study concluded that majority of staff nurses and nursing students had moderate knowledge of tracheostomy care.

Keywords: tracheostomy, stoma, suction machine, inner cannula

1. Introduction

Tracheostomy is one of the oldest known surgical procedure. A tracheostomy is an opening in the trachea when an individual natural airway is compromised and requires long term ventilation at the same time tracheostomy care is essential to prevent infection.

A permanent opening between the trachea and anterior surface of neck is called stoma. A tube called tracheostomy tube is placed into the opening. The tracheostomy tube allows the patient to breathe in the air directly into windpipe instead of through the mouth and nose. The surgical opening is done between 2-3 tracheal rings into the trachea below the larynx [1].

The tracheostomy tube is an artificial airway consisting of plastic or metal tube which is surgically implanted just below the larynx in the trachea by passing the mouth and upper airways. The surgical procedure that creates an artificial airway is called tracheostomy.

The reason for tracheostomy is when obstruction cannot be relieved through less invasive means to maintain oxygenation oro pharyngeal suctioning clears the airway of patient and the last reason being exhausted as accessory muscles gradually loses effectiveness in respiration. Finally the body can no longer maintain an adequate gas exchange [2].

The indications of tracheostomy includes

- Airway obstruction
- Bilateral vocal card paralysis
- Cancer of larynx
- Chronic obstructive pulmonary disease
- Congenital airway obstruction
- Burns patient with airway injury

The complication of tracheostomy includes early and late complications.

Early complications are

- Bleeding
- Pneumothorax
- Damage to esophagus
- Recurrent laryngeal nerve damage

Late complications are

- Accidental decannulation
- Infections

In tracheostomy management states that airway assessment and management is one of the primary responsibilities of nurses caring for the critically ill patient.

Although tracheostomy are used to a lesser extent than endotracheal tubes in most intensive care units. Their use typically requires additional education and training because of the available tubes are of surgical site and other related nursing care practices [3].

Nurses are professionally accountable for the quality of care they deliver and for working with them and their scope of practice. One of practice that creates anxiety for many nurses is tracheostomy care unrelenting demand for critical care bed means that more patients are being discharged towards with tracheostomy tube in place.

A tracheostomy care includes stoma care and suctioning. The practice of care was changing in every aspect. These inconsistencies represented patient safety of the threat in the form of nosocomial infections, prolonged hospitalization, airway complications and even death.

Tracheostomy care includes suctioning of tracheostomy tube and dressing around the stomal area suctioning involves use

of flexible catheters to remove secretions from respiratory tract of patient who is unable to cough effectively and patients with tracheostomy or one with over whelming secretions [4].

Articles need for tracheostomy suctioning includes

- Suction machine
- Suction catheter
- Clean container
- Saline solution
- Connecting tubing's
- Syringe

Suctioning procedure

- Wash the hands before the procedure
- Attach connecting tubing and suction catheter to suction machine
- Turn suction machine on
- Pour about half a cup of saline solution into clean container
- Draw 2cc of saline solution into the syringe and squire the saline solution into trachea
- Wet the end of suction catheter with normal saline
- Then gently insert the suction catheter 4-8 inches through the tracheostomy tube. Do not apply suction while inserting the catheter.
- Cover the suction control vent with thumb to apply suction. Do not apply suction for more than 10 seconds. As we apply suction gently rotate the catheter while withdraw it.
- Do not suction more than 3 times a session. If the patient need more suctioning rest at least 5 minutes before repeating.
- Place the catheter in the sterile water and suction to rise tubing.
- Wash the hands [5]

Dressing

Tracheostomy dressing is needed to prevent the infection and skin breakdown around the tracheostomy tube.

Articles need for tracheostomy dressing includes

- Tracheostomy care kit
- Sterile cotton tipped applicators

Procedure

- Wash the hands before tracheostomy care
- Explain the procedure in a way appropriates for the patients age and understanding.
- Blanket or towel roll under his/her shoulders to extend the neck and allow easier visualization of trachea.
- Place the patient in comfortable position on his/ her back with a small Suction the tracheostomy tube if needed. Suction the full length of tracheostomy tube to remove secretions and ensure patient airway.
- Remove soiled tracheostomy dressing and discord the inner cannula and clean it in hydrogen peroxide solution. Rinse the inner cannula thoroughly in the normal saline. Inspect the cannula lumen for patency or cleanliness by holding at eye level before replacing.
- Clean the incision site. Clean the skin around the tracheostomy tube with cotton tip applicator soaked in ½ strength hydrogen peroxide. Using a rolling motion work from the center out ward using 4 swabs, one for each quarter around the stoma and under the flange of the tube. Do not allow any liquid to get into the tracheostomy tube or stoma area under the tube, apply antibiotic ointment.
- Apply sterile tracheostomy dressing use commercially prepared tracheostomy dressing ensure that the tracheostomy tube is securely supported.
- Wash the hands after tracheostomy care [6].

A Study conducted in America consensus statement on artificial airways in patient receiving mechanical ventilation considered translaryngeal intubation to be preferred technique for patient requiring up to 10days of mechanical ventilation. But tracheostomy recommended for those with an anticipated need for artificial airway for more than 21days.Tracheostomies comes risk and reports have documented significant associated morbidity with rates of complications ranging from 6-66% and mortality rates of 0-5%. (UNICEF 2008)

During my clinical experience, researcher found that the staff nurses and nursing students are not having sufficient knowledge about tracheostomy care. So, I selected this problem to improve knowledge of tracheostomy care.

2. Objectives of the Study

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

3. Materials and Methods

Sampling and data collection: Descriptive cross sectional design, used to assess the level of knowledge regarding tracheostomy care 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.

4. Description of Tool

Part I

Deals with demographic variables include age, gender, educational qualification, source of information, attended any CNE programme.

Part II

It deals with structured questionnaire to convey the knowledge on tracheostomy care 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.

Score Interpretation

The score was interpreted as follows:

Inadequate knowledge:	0-10
Moderately adequate:	11-20
Adequate knowledge:	21-30

Data analysis

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

Results

The results shows that frequency and percentage distribution with regard to age, 10(66.7%) staff nurses are between 21-22 years and 5(33.3%) are between 24-26years, regard to gender, 3(20%) is male and 12(80%) are females., regard to educational qualification, 5(33.3%) studied GNM and 9(60%) studied BSC nursing & 1(6.7%) studied PBBSC, regard to working experience, 7(46.7%) have <1 year experience, 7(46.6%) have 1-3 years of experience and 1(6.6%) have 3-6 years, regarding to source of information 1 (6.7%) gained from textbooks, 2 (13.3%) from mass media, 2(13.3%) from curriculum and 10(66.7%) gained from all the above and with regard to attending CNE programme, 1(6.7%) have attended and 14(93.3%) have not attended.

For nursing students with regard to age 1(6.7%) nursing students are between 18-19 years and 14(93.3%) are between 20-21 years, regard to educational qualification, all the 15(100%) are studying BSc (N), regard to year of course 8(53.3%) nursing students are studying 3rd year and 7(46.7%) are studying 4th year, regard to source of information 2(13.3%) gained from textbooks, 1(6.7%) gained from mass media and,12(80%) gained from all the above, regard to attending CNE Programme 15 (100%) not attended.

Percentage distribution of level of knowledge between staff nurses and nursing students

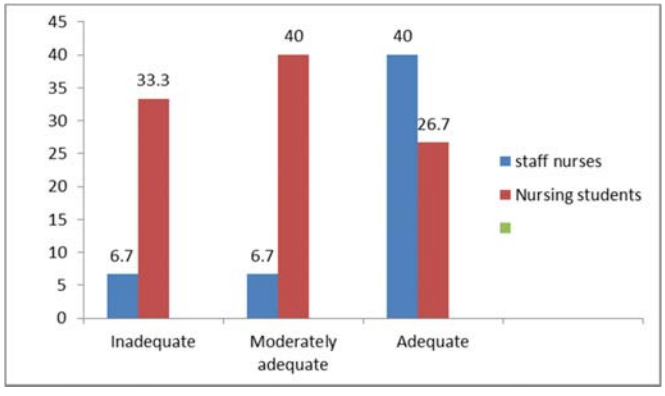

Table 1: Comparison of mean and standard deviation of knowledge scores between staff nurses and nursing students. (N=30)

Category	Mean	Standard Deviation
Staff Nurses	73.3	3.27
Nursing Student	56.6	5.09

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

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 tracheostomy care among staff nurses majority 8(53.3%) have moderately adequate knowledge and among the 15 student nurses majority 6(40%) have moderately adequate knowledge.

With regard to association, nurses there was significant in gender, working experience and source of information and age, educational qualification, attending CNE programme are non significant and for nursing students there was no significant association between age, educational qualification year of course, source of information and attending CNE programme.

6. Conclusion

The study concluded that majority of staff nurses had moderate knowledge and majority of nursing students had moderate knowledge regarding tracheostomy care. There was significant association between the level of knowledge with socio demographic variables such as gender, educational qualification and attending CNE programmes for staff nurses. There was significant association with the level of knowledge with socio demographic variables such as source of information for nursing students.

7. Recommendations

- A similar study can be replicated as a large sample to generalize findings. Special education programme can be provide to staff nurses and nursing students.
- A similar study can be done in different settings.
- An experimental study can be conducted to assess the effectiveness of tracheostomy care in various settings.
- Interventional studies can be conducted to improve the knowledge regarding tracheostomy care

8. Acknowledgement

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