

A Study to assess the Knowledge Regarding Tracheostomy Care among Critical Care Nurses: A Cross-sectional study

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ABSTRACT

Background: Tracheostomy care needs a multidisciplinary approach which particularly involves nurses to prevent complications such as tube blockage, infection, and bleeding. A tracheostomy tube is then inserted into this opening to maintain an airway for breathing.

Aim: The aim of study was to assess the knowledge regarding tracheostomy care among critical care nurses at tertiary care Hospital.

Materials and Methods: The study design was a cross sectional study. Total samples of 50 critical nurses were included in this study. This study was conducted at the Intensive Care units, Chalmeda Anand Rao institute of Medical Sciences, Karimnagar. An adapted structured knowledge questionnaire was used to collect data.

Statistical analysis used: The collection data were utilized Microsoft Excel sheet and descriptive and inferential statistics.

Results: Majority of critical care nurses were female 37(74%) and age between 21-35 years. 10% of nurses had a poor knowledge about tracheostomy care.

Conclusion: This study shows those who were experienced in the field of critical care practice were able to score above average. Nurses faced challenges in day to day life while caring the critically ill patients.

KEYWORDS

• Tracheostomy Care • Knowledge • Critical Care • Nursing

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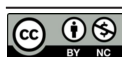
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INTRODUCTION

Tracheostomy is a common surgical procedure in critically ill patient. Post tracheostomy care is vital as potential life threatening complications like tube block, displacement, accidental decannulation including bleeding can be prevented by care, timely recognition and intervention.¹ Tracheostomy is making an opening between 3 and 4. Cartilage rings on the front wall of trachea to maintain airway and it is one of the oldest life saving surgical procedures. Indications for tracheostomy operation, prolonged intubation and mechanical ventilation can be listed firstly.

Tracheostomy care needs a multidisciplinary approach which particularly involves nurses to prevent complications such as tube blockage, infection, and bleeding.² The nurses plays an important role in care of to maintain balance & nutrition, aspiration, cleaning of inner cannula, adjustment of cuff pressure (if the annula has cuff system), prevention of peristomal skin problems and communication process.³ Several studies conducted in different parts of world reveal lack of confidence, knowledge and practice among nurses dealing with tracheostomised patients.⁴

Tracheostomy care and management are key skills required by all nurses, as nurses are considered crucial members of the tracheostomy care team regardless of the nurse-designated unit of practice,⁵ especially in situations of bed management crisis.

Aim of the study

The aim of this study was to assess the baseline knowledge regarding tracheostomy care of critical care nurses in tertiary care Hospital, Karimnagar.

MATERIALS AND METHODS

Research Design:

The study design was a cross-sectional study.

Study Setting:

This study was conducted at the Intensive Care units, Chalmeda Anand Rao Institute of Medical Sciences, Karimnagar. The study comprised three critical care units i.e. Medical intensive care unit (MICU), Surgical critical care unit (SICU) and respiratory intensive care unit (RICU).

Study Duration: The study period was January 2023 to June 2023.

Sample size:

The present study sample size was 50 ICU nurses included in this study.

Sampling Technique:

Convenient sampling strategy was used to select the participants.

Study population:

Qualified nursing staff who are GNM, PBSc, B.Sc. nursing, working in ICU

Inclusion Criteria

- Gender
- Age
- Year of experience
- Nurses selected were required to have a Diploma, Graduate and Postgraduate degree
- Structured knowledge Questionnaire

Exclusion Criteria

- Less than 6 months year experiences of nursing staff and other health care providers
- Participants with incomplete questionnaires or missing data were excluded.

Data Collection tools

The questionnaire prepared was designed after a thorough study and review literature. The questions used were simple and straight forward regarding tracheostomy suctioning, cuff management, tube blockage and feeding management in patients with tracheostomy.

All the ICU nurses directly involved in the provision of care to patients with tracheostomy and agreed to participate in the study were included. The participants were asked to fill out the questionnaire, which was taken from the literature. A tracheostomy self assessment subjective questionnaire that used a 5 point Likert scale, based on the questionnaire used by Dorton *et al* (2014).⁶

Statistical Analysis

Descriptive statistics were used to the sociodemographic data including age, sex, year of experience and qualification. All the

statistical tests were carried out at a 5% level of significance and a P-value less than 0.05 was considered significant.

RESULTS

The study consists of socio-demographic profile of the participants such as age, sex, education, total experience in ICU and service training done. Demographic characteristic of participants using frequency and percentage.

Total 50 critical care nursing staff actively participated in the study. Table 1 shows that more than half (50%) of nurses were age group between 26-30 years and 74% of them are female and 26% are male. 72% of nurses have in bachelor degree in nursing , with 1-5 years of working experience (62%). The percentage of nurses with less than 1 year of experience is 11(22%). In service education training has done in critical care nurses was 39(78%).

Table 1: Socio-demographic profile (n=50)

Variables	Frequency	Percentage
Age(years)		
< 25 years	12	24%
26-30 years	28	50%
31-35 years	10	20%
Gender		
Male	13	26%
Female	37	74%
Nursing Education		
GNM	10	20%
BSc	36	72%
PBSc	3	6%
MSc	-	-
Work Experience		
< 1 year	11	22.0%
1-5 years	31	62%
10 years	8	16%
In service education/Training done		
Yes	39	78%
No	11	22%

Table 2: Level of knowledge of the participants

Questionnaire	Correct	Incorrect
Indication for tracheostomy is acute respiratory failure	22	28
Tracheostomy tube tape is tight enough to support the tube	43	7
The appropriate size of folded gauze used inappropriate method for tracheostomy dressing around stoma is 4x4	39	11

Questionnaire	Correct	Incorrect
Tracheostomy suction is a sterile procedure	11	39
The tracheostomy care giver must know the resuscitation before suctioning some process are given to patients O2 100% with Ambu bag	49	1
Normal suction pressure while doing tracheostomy suction in adult is 80-120 mmHg	34	16
Suctioning of the conscious patient should be placed in semi upright position	46	4
Unconscious patient suctioning should be done in lateral position	43	7
Episode of suctioning is completed within <12 second	40	10
Normal saline 0.9% help to liquefy secretions during suctioning	47	3
Length of the suction catheter to be inserted (1-2cm)	44	6
The pressure in the tracheostomy cuff 20-25 mmHg		
In pressure in the tracheostomy tube patient can eat food	40	10
Before suctioning the lip of the suction catheter should be placed in normal saline is 7-10cms	41	9
Suctioning should be stopped in case of decrease in oxygen saturation < 90%	49	1
While giving tracheostomy care notable important sign of infection is code of stoma	46	4
Ideal time for giving tracheostomy care is at least every 4 hours	48	2
Cuff deflation and inflation can be help the vascularity in trachea	42	8
After 6 months of tracheostomy tube removal there may be formation of tracheal stenosis	12	38

Table 3: Level of knowledge about tracheotomy care in Critical care nurses

Level of Knowledge	Frequency	Percentage
Insufficient	5	10%
Average	17	34%
Good	16	32%
Very good	12	24%

Table 3 shows that the majority of the nurses 34% had average knowledge regarding tracheostomy care while 32% of nurse's has adequate knowledge.

DISCUSSION

The present study samples were 50 critical care nurses participated in this study. The current study revealed that there is no statistically significant relationship between age, sex, education, year of experience and in-service education/training.

Day T *et al* (2002) conducted study among nurses working in critical care units, reported that majority of subjects had poor knowledge of tracheostomy care and practices coincided with these findings. Many nurses demonstrated potentially unsafe practices against the recent imperial evidences.⁷

A study conducted supports the findings of this study, where tracheostomy care knowledge levels ranged from 48 to 52%, and scores above 50% were considered acceptable. Healthcare professionals exhibit significant knowledge gaps in various aspects of tracheostomy care and management.⁸

The study revealed that there are gaps in nurses' understanding of tracheostomy care, particularly in routine tracheal care (55%), tracheal care skills (11.6%), and tracheal emergency care (2.3%).⁹ The nurses lack sufficient knowledge and expertise in the evidence based guidelines for tracheostomy care.¹⁰

In present study, 50 nurses were evaluated about tracheostomy care and completed knowledge based questionnaire. The findings showed that a poor level of knowledge among majority of subjects. Additionally, conducting in-service training sessions on tracheostomy care is deemed essential.¹¹ There was significant improvements in tracheostomy care practice ($p = 0.001$) among nurses who received progressive tracheostomy care procedure training.

CONCLUSION

Our study shows those who were experienced in the field of critical care practice were able to score above average. Nurses faced challenges in day to day life while caring the critically ill patients. Several factors responsible for the stress of the nurses were revealed from the statements of the participants. The study recommends that in-service education & critical care training should be adopted to ensure the best practice.

Ethical Approval

The study was reviewed and approved by the Institute ethics committee, CAIMS, Karimnagar. Written informed consent was obtained from participants after full explanation of the interest of the study.

Conflict of Interest: This study was self funded research work. There is no conflict of interest.

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