COLLEGE OF HEALTH SCIENCES

POSTGRADUATE PROGRAMS

Cross Sectional Study on Nurses' Knowledge and Practices Regarding Tracheostomy Care at Tash & Yekatit 12 Medical College in a, Ethiopia

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Cross Sectional Study on Nurses' Knowledge and Practices Regarding Tracheostomy Care at TASH & Yekatit-12 Medical College in AA, Ethiopia

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APPROVAL SHEET

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We, the undersigned, members of the Board of examiners of the final open defense by **Dr. Chernet Tegegne** have read and evaluated his/her research/entitled **"Cross Sectional Study on Nurses' Knowledge and Practices Regarding Tracheostomy Care at TASH & Yekatit-12 Medical College in AA, Ethiopia"** and examined the candidate. This is, therefore, to certify that the research has been accepted in partial fulfillment of the requirements for the Degree of **specialty training in ORL-HNS.**

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ACRONYMS AND ABBREVIATIONS

CPD: Continuous Professional Development

ENT: Ear, Nose and Throat ward

ICU: Intensive Care Unit

MOH: Ministry of Health

NCEPOD: The National Confidential Enquiry into Patient Outcome and Death

ORL-HNS: Otorhinolaryngology & Head and Neck surgery

PDT: Percutaneous Dilatational Tracheostomy

PI: Principal Investigator

SPSS: Statistical Package for the Social Sciences

TASH: Tikur Anbessa Specialized Hospital

UAWO: Upper Airway Obstruction

Y12MCH: Yekatit-12 Medical College Hospital

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ABSTRACT

Background: Tracheostomy is a common surgical procedure in critically ill patients. 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. Although tracheostomy is performed by Otolaryngologists, the postoperative period is spent in ICU or in general wards, where nursing staff are the caregivers of continuing contact.

Objective: this study was conducted to assess nurses' knowledge and practices regarding tracheostomy care at Tikur Anbessa Specialized Hospital & Yekatit-12 medical college in Addis Ababa, Ethiopia.

Methodology: A cross-sectional design was used to assess nurse's knowledge and practice about tracheostomy care in Tikur Anbessa Specialized Hospital and Yekatit-12 medical Hospital within the study period from December, 2022, to October, 2023. The study used adopted standardized and structured questionnaires to collect participant's socio-demographic characteristics, knowledge and practice of tracheostomy care at the hospitals with modification. Then, data was entered and analyzed in SPSS software version no. 26 for the assessment of descriptive and regression analysis.

Result: A total of 80 study participants were recruited and included in the study. Out of the total participants, the majority of them were female (58.8%), young adult (20-39-year group) (67.5%), had 5-10 years working experience (42.5%); BSc educational level (78.8%), surgical ward working department (23.8%). The 'poor' knowledge level was 61.2% which scored less than or equal to 7 correctly out of 15 questions and 'medium' & 'satisfactory' knowledge level was 36.3% and 2.5%, respectively. Similarly, the 'poor practice' level was 16.2%) that scored less than or equal to 10 out of 20; while 'medium' & 'satisfactory' practice level was 55% and 28.8% respectively. Moreover, the study explored that there were statistically significant associations between practice level of participants and age group, educational level, working experience and working department ($P<0.05$). However, there was no significant association between knowledge level & any of the associated factors ($P>0.05$).

Conclusions and Recommendation: The study concluded that participants were having relatively low or poor knowledge about tracheostomy care than the skill and practice of it.

Hence; it is recommended to the hospitals and policy makers to provide more focus on knowledge and practice of nurses about tracheostomy care to avoid further complications.
Key words: Nurses, Tracheostomy care, Knowledge and Practice

1. INTRODUCTION

1.1. Background

Tracheostomy is commonly performed surgical procedure in ENT practice, which involves making an incision in the anterior wall of cervical trachea and the overlying skin and soft tissues to relieve obstructed airway or as alternative short cut airway. Tracheostomy is done as either an emergency or elective procedure (1).

The primary objective of a tracheostomy is to secure protected & patent airway. Current major indications for tracheostomy include (a) relief of upper airway obstruction (both acute and chronic), (b) providing a means for assisted mechanical ventilation, and (c) enabling more efficient tracheobronchial toilet. Other indications include sleep apnea, chronic lung disease, primary alveolar hypoventilation syndrome (Ondine curse) (2).

Even though it is a lifesaving & morbidity-reducing procedure, poor post op care will cause significant morbidity & mortality. The complications can be either early or late. The early complications include hemorrhage, tube dislodgement, pneumothorax, and wound infection, tube blockage, while late complications include tracheal stenosis, tracheo-esophageal fistula and laryngeal stenosis (2).

Although most tracheostomy related complications are preventable, it is common to experience unacceptable tracheostomy related deaths & long term complications.

1.2. Statement of the problem

The UK National Confidential Enquiry into Patient Outcomes and Death shows that there is significant morbidity and mortality in tracheostomy patients due to preventable complications. The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) reported that 24% of patients in ICU and 31% of ward patients'-experienced tracheostomy-related complications (3). An annual audit conducted at a tertiary care hospital in Peshawar showed that early complications were 37.5% while late complications were at an ample 7.5% (4).

Retrospective chart review of patients who underwent tracheostomy during a major oral cancer resection between March 2001 and January 2016 at the National Cancer Center, Korea showed morbidity and mortality rates were 35.2 % (n = 18) and 0 % (n = 0), respectively (5) .

Postoperative care is the most important aspect for achieving good patient outcomes & early detection & prevention of complications. The nursing staff and doctors play a very important role in bedside management, both in the ward and in the intensive care unit (ICU) setup. Among the team, nurses are the primary stakeholders on postoperative tracheostomy care. So nurses need to have good knowledge & skill in giving tracheostomy care, detecting & preventing complications.

1.3. Significance of the study

As of my knowledge, nurses' knowledge and practices in regards to tracheostomy care was found to be very low in studies conducted in Europe, Asia & Rwanda in Africa. And negatively impacting the clients' outcome.

In Ethiopia, there are no studies published about knowledge and practices regarding tracheostomy care among nurses, even though the care is primarily provided by nurses.

Therefore, this study was conducted with the aims to assess the current knowledge & practice regarding tracheostomy care among hospital nursing staff & this will help the MOH to prepare guidelines & to work on CPD on nurses' knowledge & practice of post op tracheostomy care.

2. LITERATURE REVIEW

A Descriptive Study to assess the knowledge and skill on tracheostomy care among staff nurses working in selected hospitals of district Mohali, Punjab, India, showed that 57% of staff nurses had 'average' knowledge and 43% staff nurses 'satisfactory' knowledge. Moreover, 44% and 56% staff nurses were having 'fair' and 'good' skills regarding tracheostomy care respectively. The same study also depicted that there was a weak positive correlation between knowledge and skills on tracheostomy care (r= 0.198). The same study also indicated that there was a significant association of knowledge with age, total work experience, present area of work and educational program attended on tracheostomy care. No association was found between skills and selected socio-demographic variables i.e., age, gender, educational qualification, total work experience (in years), present area of work, experience of work in present area and educational program attended on tracheostomy care (6).

Similarly, a descriptive cross-sectional study conducted on nurses knowledge and practices regarding tracheostomy care at a selected referral hospital in Kigali city, Rwanda, showed that the majority of nurses (71%) had 'moderate' knowledge, 26.5% 'lower' knowledge and only 2(2,5%) of nurses had 'high' knowledge about tracheostomy definition, types and care. Regarding the practice(s) of nurses, a greater number [78(97.5%)] exhibited 'low levels' and only 2-(2.5%) with 'high level of practice' regarding the tracheostomy care. There were no significant demographic factors associated with knowledge and practice of nurses (7).

A descriptive, cross-sectional study conducted during the period from January 2018 to July 2018 in Ankara, Turkey, on evaluation of nurses' knowledge related to tracheostomy care in tertiary intensive care units showed answers about the emergent cases were not satisfactory (approximately 30% correctness). The respondents were aged 19-48 years and the percentage of the correct answers in total was 56%; only 64 nurses (46.4%) answered ≥7 questions correctly. In this study, no variable did show a significant correlation with the nurses' knowledge level (8).

A cross-sectional descriptive questionnaire-based study conducted to assess knowledge levels in healthcare providers (regarding bedside tracheostomy care and management of early complications;) among doctors and nurses working in selected government and private tertiary care hospitals in Karachi showed; that the knowledge level regarding tracheostomy care ranges

from 48% to 52% with knowledge scores above 50% being considered satisfactory. Significant gaps in knowledge existed in various aspects of tracheostomy care and management among healthcare professionals (9).

A descriptive study producing quantitative and qualitative data to investigate knowledge and observed practice in the actual tracheal suctioning of patients in acute and high dependency ward areas, in London was conducted. The findings demonstrated a poor level of knowledge for many subjects. This was also reflected in practice, as suctioning was performed against many of the research recommendations. Many nurses were unaware of recommended practice and most demonstrated potentially unsafe practice(s). Additionally, there was no significant relationship between knowledge and practice (10).

Conversely, another recent cross sectional descriptive study was conducted about Nurses Knowledge and Practices Regarding Tracheostomy Care in ICU Patients; in ICU of three tertiary care hospitals in Lahore. There was significant association (p-value <0.05) between nurses' knowledge and practice regarding tracheostomy care in ICU patients. The majority of the nurses > 65% had adequate knowledge (11) .

Death after percutaneous dilatational tracheostomy: a systematic review and analysis of risk factors analyzed cases of lethal outcome due to complications from PDT including cases published between 1985 and April 2013. The incidence of lethal complications was calculated to be 0.17%. Of the fatal complications, 31.0% occurred during the procedure, and 49.3% within seven days of the procedure. The main causes of death were: hemorrhage (38.0%), airway complications (29.6%), and tracheal perforation (12).

A quasi-experimental study (a single group) conducted at Sinnar Teaching Hospital (STH) about the effect of an Educational Training Program in Tracheostomy Care on Nurses' Knowledge and Skills showed total knowledge percentage before training program ranged from (2.2%) to (46.7%), whereas the post-training program, ranged from (57.8%) to (88.9%) (13).

Despite reports of very low to moderate nurses' knowledge and practices in regards to tracheostomy & its care; in studies conducted in Europe, Asia and Rwanda. There are no studies published about levels of knowledge and practices regarding tracheostomy care among nurses in

Ethiopia. Moreover there are no established guidelines to promote knowledge & practice of health professionals on tracheostomy care, in Ethiopia.

2.1. Conceptual framework

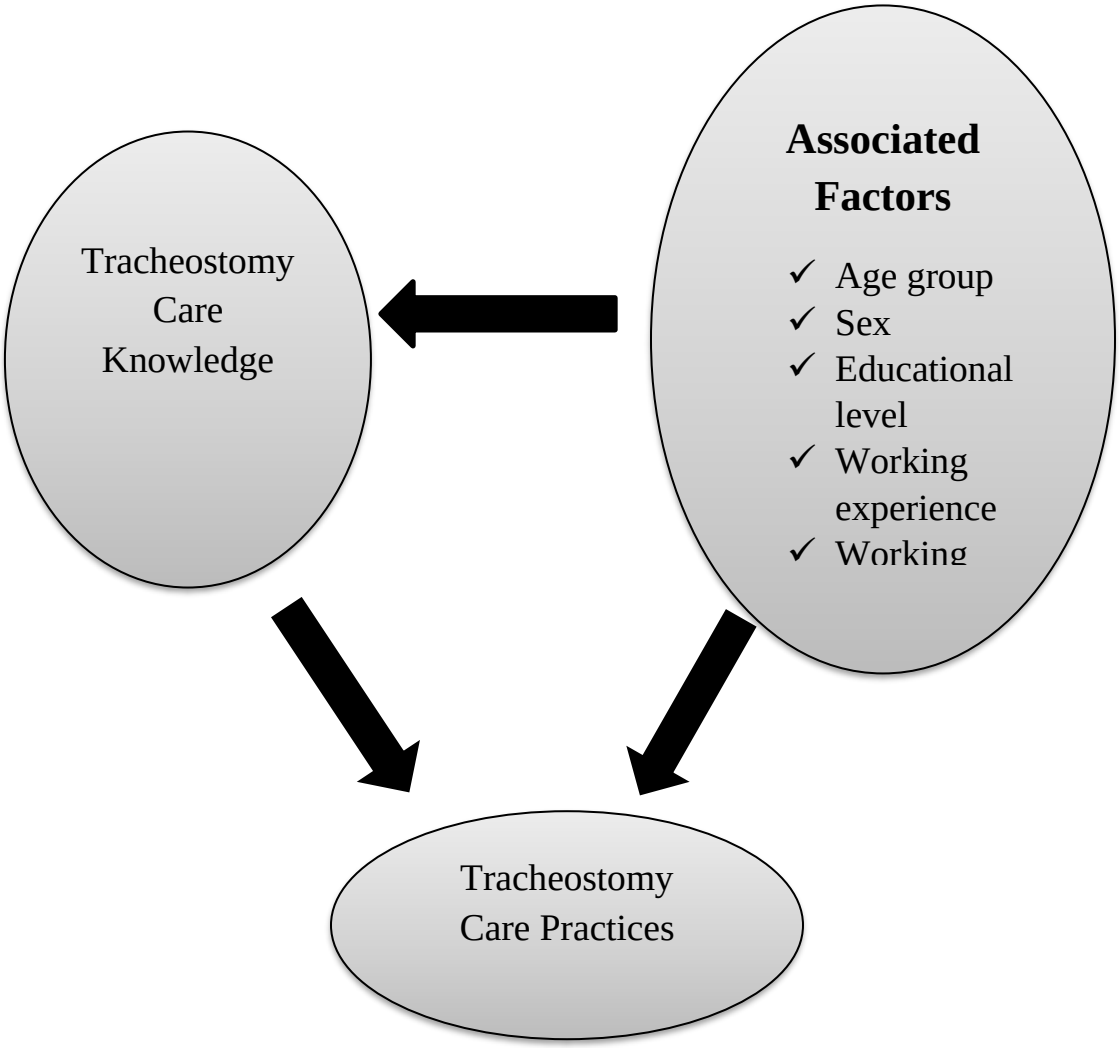


Figure 1: Conceptual framework regarding knowledge, practices and other associated factors on tracheostomy care

3. OBJECTIVES OF THE STUDY

3.1. General objective

The aim of this study is to assess nurses' knowledge and practices regarding tracheostomy care at TASH & Yekatit 12 medical college in Addis Ababa, Ethiopia.

3.2. Specific objectives

- To determine the level of knowledge regarding tracheostomy care among nurses working in TASH & Yekatit 12 medical college in Addis Ababa, Ethiopia.
- To establish the level of practice regarding tracheostomy care among nurses working in TASH & Yekatit 12 medical college in Addis Ababa, Ethiopia.
- To determine the socio- demographic factors relation with knowledge and practice of nurses regarding tracheostomy care at TASH & Yekatit 12 medical college in Addis Ababa, Ethiopia.

4. METHODS AND MATERIAL

4.1. Study design

A descriptive cross-sectional study design was used to assess nurses' knowledge and practice toward tracheostomy care.

4.2. Study Area and Period

The study was conducted in TASH & Yekatit-12 medical college in Addis Ababa, Ethiopia. This setting receives patients from all over the country and some patients from neighborhood countries (Somaliland, Djibouti and other). The study was conducted from December, 2022 to October, 2023. The data collection was done from May, 2023 to July, 2023.

4.3. Population

4.3.1. Source of Population

The source population of this study were all nurses who were working at TASH and Yekaiti-12 Medical College in Addis Ababa, Ethiopia.

4.3.2. Study population

The study population consisted of nurses working at the selected study site in intensive care units (ICU), surgical ward, ENT ward, pediatric medical ward, orthopedic ward, oncology ward & internal medicine. These wards were chosen because patients with tracheostomy were mostly nursed in these specific wards.

4.4. Inclusion and Exclusion criteria

4.4.1. Inclusion criteria

Nurses who were working in ICU, surgical ward, ENT ward, pediatric medical ward and internal medicine and willing to participate in the study were included.

4.4.2. Exclusion criteria

Nurses who were working in the other departments and other professionals were excluded from the study.

4.5. Sample size

All willing nurses in the study population were included in the study. Eighty nurses were included in the study via voluntary questionnaires.

4.6. Sampling Technique and Sampling Procedure

A non-probability, convenience sampling method were used to select participants for this study.

4.7. Data collection procedure

4.7.1. Data collection instrument

A structured questionnaire was developed based on the factors identified through literature review and adopted questionnaire with modification (14). The data collection tool included three parts: questions for assessing socio-demographic attributes, questions for assessing knowledge of the study participants regarding tracheostomy care, and questions designed to assess tracheostomy care practices. Before the actual data collection, questioner was pre-tested in 8 nurses of the study sample to ensure the effectiveness and explore any problem on the question in TASH and Yekatit-12 medical Hospital. Necessary amendments were done based on the feedback.

When the identified participants were eligible for the study, information had been given to them regarding the aim of the study then asked if they were willing to provide honest information and sign consent.

During the actual data collection, the standardized questionnaire was self-administered and completed at the working place of the study participants**.**

4.7.2. Validity, reliability of the data collection instrument and quality assurance

The adopted instrument was used after adding some aspects from in- depth literature review enhanced content of the tool. Further, the tool was given to the clinical and academic experts (ORLHNS surgeons) in order to assess whether all contents to be measured have been included. Content validity ration of the instrument was considered in this study after being rated by the experts using the formulae Content validity ratio (CVR) = [(E – (N/2))/ (N/2)] where (N) stand for the total number of experts and (E) Stand for the number of experts who rated the instrument as essential. During data collection, all participants were given the same questionnaire, which was explained in the same manner at the beginning of the questionnaire.

4.8. Study variable

4.8.1. Dependent variable

- Knowledge level on tracheostomy
- Practice level on tracheostomy care

4.8.2. Independent variable

- Sex
- Age group
- Educational Level
- Working Experience
- Working Department

4.9. Operational Definitions/ Measuring Scale

- **Tracheostomy:** A surgical procedure in ENT practice, which involves making an incision in the anterior wall of cervical trachea, the overlying skin and soft tissues to relieve obstructed airway or as alternative short cut airway (1).
- **Decannulation:** Removal of the tracheostomy tube which can be accidental or it can usually be done once the indication for the tube placement has been resolved (2).
- **Satisfactory Knowledge level:** participants who scored above 12 out of 15 questions in the study
- **Medium knowledge level:** it is the level of participants who scored from 8 to 11 out of 15 questions in the study
- **Poor Knowledge Level:** participants who scored less than or equal to 7 out of 15 questions in the current study
- **Good Practice Level:** a participants who scored above 15 out of 20 practice checklists
- **Medium Practice level:** it is the level of participants who scored from 11-15 out of 20 checklists
- **Poor Practice Level:** participants who scored 10 or less out of 20 practice checklists in the study

4.10. Data Entry and Analysis

Completeness and consistencies of data were checked. Then, the coded data was entered, cleaned and analyzed in SPSS software package. Those qualitative data were analyzed descriptively using tables, graphs and presentation in the form of frequencies and percentages (%). Inferential statistics (regression) was used to establish an association between demographic data and nurse's knowledge and practices regarding tracheostomy care.

4.11. Ethical Considerations

An ethical clearance was issued and obtained from Addis Ababa University, College of Medicine and Health Sciences Institutional Review Board & Ethical Committee of Hospital. Then the written official letter submitted to TASH and Yekatit-12 Medical College Medical Director. After approval offered to conduct the study, each ethical procedures were strictly followed throughout the study. The objective of the study, confidentiality measures, risks, result dissemination, refusal and withdrawal rights were informed to the participant. Additionally, participants were made aware how to contact an investigator or supervisor for any questions. Codes were used in lieu of participant's name and address in order to retain all participants anonymity. Written informed consent was also obtained from participants after a full explanation of the interest of the study.

4.12. Dissemination of results

The final data will be available both in hard copy and soft copy format at ENT Dept. & in TASH library. The final result and recommendation will be given for TASH & Yekatit 12 medical college quality assurance office, Addis Ababa health OFFICE and MOH, CPD.

5. RESULTS

5.1. Socio-demographic characteristics of study participants

A total of 80 participants were recruited, with all providing a full response. From all participants, about two thirds were young adults and about one thirds were middle-aged adults. Regarding sex, females were 47 (58.8%); males were 33 (41.3%) of the total sample. The majority of study participants had 5 to 10 years of working experience. Their educational status showed that 63 (78.8%) of them had a Bachelor of Science (BSc) and 15 (18.8%) had M.Sc. Concerning their working department 19 (23.8%) of them were from the surgical ward, 18 (22.5%) of them were from the pediatric ICU, one fifth of them were from the ENT ward, and 15 (18.8%) of them were from the adult ICU (Table 1).

Table 1: Socio-demographic characteristics of the study participants, 2023 (N=80).

Socio-demographic characteristics	Category	Frequency (N)	Percentage (%)
Data Collection Area	TASH	43	53.8
	Yekatit-12	37	46.3
Sex	Female	47	58.8
	Male	33	41.3
Age Group	20-39 (Young adult)	54	67.5
	40-59 (Middle aged adult)	26	32.5
Year of Experience	less than 5 year	20	25.0
	5-10 Year	34	42.5
	10-15 Year	12	15.0
	16 year or more	14	17.5
Educational Status	B.Sc.	63	78.8
	M.Sc.	15	18.8
	Post basic Pediatrics	1	1.3
	Post basic surgical	1	1.3
Working Department	Adult ICU	15	18.8
	ENT ward	16	20.0
	Medical Ward	7	8.8
	Pediatrics ICU	18	22.5
	Surgical Ward	19	23.8
	Other	5	6.3

5.2. Participant's knowledge regarding Tracheostomy care

Participants' knowledge of tracheostomy and trachea was tested in this study. From the total number of study participants, 63 (78.8%) gave the correct response regarding the definition trachea. Majority of them knew about trachea's primary function too. However, about two-thirds of the participants were unaware of the number of tracheal cartilages (there are 16 to 20 hyaline tracheal cartilages) or tracheal extension which is from the level of the cricoid to the fourth- sixth thoracic vertebrae. Similarly 61.2% & 71.5% of participants doesn't know about average longitudinal length and diameter of trachea respectively.

Regarding participants' knowledge about the definition of tracheostomy, indication, and types of tracheostomy tube, 58 (72.5%) of them knew, what a tracheostomy is, and 54 (67.5%) of them knew that; it could be a permanent procedure. Conversely, only 7 (8.8%) of them knew about the most common global indication of tracheostomy (i.e., prolonged intubation); whereas 28 (35.0%) of them knew the most common global indication for emergency tracheostomy (i.e., airway obstruction).

Similarly, knowledge about the appropriate tube size, parts of the tube, tracheostomy tube cuff pressure, type, and size of each type of tube was assessed. Fifty five percent of the study participants didn't know about the type of tracheostomy tube that is recommended to adult patients for use at home (where suctioning machines are not available). Only a few of them were able to list at least two parts of a plastic tracheostomy tube; about two-thirds were unable to list possible parameters to estimate appropriate plastic tracheostomy tube size (which is mainly based on neck circumference, age & sex). Most of them didn't know the types of plastic tubes that are used for mechanically ventilated patients (with positive pressure ventilation). The minority of them knew the recommended maximum cuff pressure for a tracheostomy tube (which is 25–30 mmHg) (Table 2).

Table 2: Knowledge of nurses regarding Tracheostomy, 2023 (N = 80).

Knowledge of the participants about tracheostomy, trachea and tracheostomy tube	**Correct**	**Incorrect**
	N (%)	N (%)
What is trachea	63 (78.8)	17 (21.2)
How many hyaline tracheal cartilages do we have	27 (33.7)	53 (66.3)
What is primary function of trachea	51 (63.8)	29 (36.3)
Trachea extends from cricoid downward to which thoracic vertebral level	28 (35.0)	52 (65.0)
What is average longitudinal length of adult trachea in cm in range	31 (38.8)	49 (61.2)
What is average internal diameter of trachea of men and women in range	22 (27.5)	58 (72.5)
Definition of tracheostomy, indication, types of tracheostomies		
What is the definition of tracheostomy	58 (72.5)	22 (27.5)
What is the commonest indication for tracheostomy worldwide now days	7 (8.8)	73 (91.2)
What is the commonest indication for emergency tracheostomy worldwide now days	28 (35.0)	52 (65.0)
Could it be permanent procedure	54 (67.5)	26 (32.5)
Appropriate tube size and types, parts of the tube, tracheostomy tube cuff pressure.		
What type of tracheostomy tube is recommended to adult patients for use at home, (where suctioning machine is not available)	36 (45.0)	44 (55.0)
What are parts of plastic tracheostomy tube at least two	2 (2.5)	78 (97.5)
How to estimate appropriate tracheostomy tube size (plastic) (based on what body parameter)	28 (35.0)	52 (65.0)
What type of plastic tube is used for mechanically ventilated pt. (with positive pressure ventilation? A cuff less B with cuff	37 (46.2)	43 (53.8)
What is the recommended maximum cuff pressure for tracheostomy tube is 25-30mmHg?	4 (5.0)	76 (95.0)

5.3. Participants' Tracheostomy care practices

The practices of participants regarding tracheostomy care were also assessed. Remarkably, a high percentage of 66 (82.5%) of participants preferred the supine position with neck extension (waters position) during tracheostomy suctioning, about three fourth of them agreed with

administering analgesia for patients on tracheotomy care, 70 (87.5%) of them used sodium chloride as a solution to loosen thick secretion in the trachea or tracheotomy tube, 48 (60.0%) of them administered narcotics and analgesic drugs with precaution because it will cause hypoxemia, and three fourth of them assessed the health of stoma before tracheostomy care. However, about three fourth of them disagreed with fixing tracheotomy tape on the neck in flexed position & 63 (78.8%) of them also differed admitting 2 fingers during fixing tracheotomy tape.

In the practice of participants regarding tracheostomy suction tubes, a majority of them used a suction catheter ranging from 12 to 18 ft. in size for adults, 55 (68.8%) of them accomplished suctioning not more than 15 seconds at a single attempt, and three-fourth of them used suctioning to maintain patient airway.

It was also investigated how nurses provided tracheostomy care. The majority of 65 (81.2%) of the study's participants cleansed their hands before and after tracheostomy procedures because they understood how important it was to lower the risk of infection. Fifty-eight (72.5%) of them indicated to watch for respiratory difficulty such as restlessness, cyanosis, and intercostal retraction; and 66 (82.5%) of them preferred Fowler's position (which is the best position for a patient with a tracheostomy to breathe better), and most of them agreed with having Obturator instrument during tracheostomy decannulation.

Likewise 57 (71.2%) of them monitored tracheostomy tube cuff pressure every 12 hours, 45 (56.2%) of them suctioned the trachea every 4-6 hours and during signs of RD, and about three-fourths of them agreed with inflating the cuff for at least 1 hour after feeding as special precaution by the nurse while giving tube feeding to the patient with tracheostomy. However, 45 (56.2%) of them didn't pre-oxygenate patients before suctioning and 2/3-of them did not know appropriate cuff pressure level (which is less than 25–30 mmHg) (Table 3).

Table 3: Practice of nurses regarding tracheostomy care, 2023 (N = 80).

Practice of nurse regarding tracheostomy care, tracheostomy suction tube, during tracheostomy care	**Correct**	**Incorrect**
	N (%)	**N (%)**
Supine with neck extension (waters position) preferred position	66 (82.5)	14 (17.5)

It requires administering analgesia for tracheotomy care	61 (76.2)	19 (23.8)
sodium chloride as solution is used to loosen thick secretion in the trachea or tracheotomy tube in our practice	70 (87.5)	10 (12.5)
During tying (fixing) tracheotomy tape, the neck has to be in a flexed position.	18 (22.5)	62 (77.5)
During fixing tracheotomy tape, it should admit 2 fingers, but not more	17 (21.2)	63 (78.8)
Administer narcotics and analgesic drugs with precaution because it will cause hypoxemia	48 (60.0)	32 (40.0)
Health of stoma should be assessed before tracheostomy care	61 (76.2)	19 (23.8)
Practice of nurse regarding tracheostomy suction tube		
Size of suction catheter used for adult is 12 to 18 Fr. or not more than half of estimated tracheal diameter	61 (76.2)	19 (23.8)
Suctioning should not be continued for more than 15 seconds once a time	55 (68.8)	25 (31.2)
Purpose of suctioning is to maintain patent airway	60 (75.0)	20 (25.0)
Practice of nurse during tracheostomy care		
Hand washing is essential and should be done before and after tracheostomy procedure to reduce risk of infection	65 (81.2)	15 (18.8)
Indication to watch for respiratory difficulty are restlessness, cyanosis and intercostal retraction	58 (72.5)	22 (27.5)
Fowler's position is the best position given patient with tracheostomy to breath better	66 (82.5)	14(17.5)
Observe constantly patient with tracheostomy to avoid tube displacement	56 (70.0)	24 (30.0)
Obturator is the instrument should be kept ready during tracheostomy decannulation	69 (86.2)	11 (13.8)
Pre-oxygenating the pt. before suctioning is recommended	35 (43.8)	45 (56.2)
The recommended cuff pressure is less than 25-30 mmHg	25 (31.2)	55 (68.2)
Tracheostomy tube cuff pressure should be monitored every 12 hours	57 (71.2)	23 (28.8)
During the first days of tracheostomy, the trachea should be sectioned at least every 4-6 hours & during signs of RD	45 (56.2)	35 (43.8)
Inflating the cuff for at least 1 hr. after feeding is the special precaution by the nurse while giving tube feeding to the patient with tracheostomy	62 (77.5)	18 (22.5)

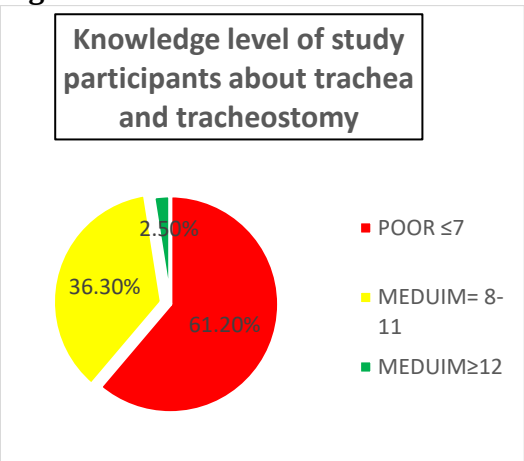
5.4. Knowledge and practice level of study participants

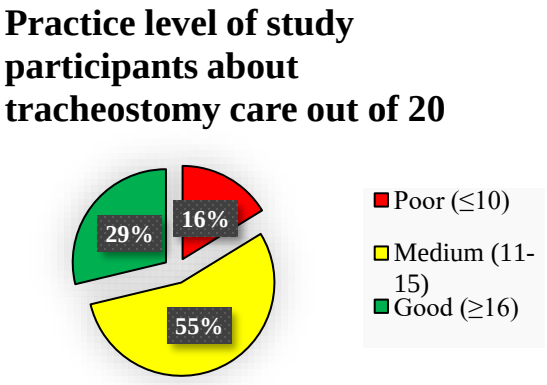
After the correction of 15 knowledge questions and 20 practices of study participants about tracheostomy care, they were scored and leveled into good, medium, and poor.

More than half of the study participants had ‘poor knowledge’ level about trachea & tracheostomy, while 36.3% of them had ‘medium’ level of knowledge. Only a few of them had ‘good or satisfactory’ knowledge level.

Regarding their practice level, the majority of them (55.0%) showed a medium practice level & 28.8% of them had a good practice level. In contrary to knowledge level, only few of them (16.3%) scored ‘a poor’ practice level (Table 4).

Figure 2





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Pie chart of knowledge and practice level of study participants regarding tracheostomy care, 2023 (N=80).

5.5. Factors associated with knowledge and practice of study participants regarding tracheostomy care

The association of factors with the knowledge of study participants was analyzed by regression analysis. However, there is no statistically significant association (P > 0.05) between socio-demographic characteristics and the knowledge study participants. The findings reveal that males were 1.5 [1.5 (0.6–3.6), (P = 0.386)] times more knowledgeable than females, and the young adult age group was 1.2 [1.2 (0.46-2.9), (P = 0.747)] times more knowledgeable than the middle aged group.

The experience of study participants on their work was also assessed: 5–10 years of experienced participants were 2.4 [2.4 (0.75-7.4), (P = 0.142)] times more knowledgeable than those with less than 5 years of experience; and greater than or equal to 16 years old experienced participants were 2.5 [2.5 (0.6–10.1), (P = 0.205)] times more knowledgeable than those with less than 5 years. Between departments, the ENT ward & PICU nurses were twice & four times as knowledgeable as adult ICU nurses respectively.

Table 4: Regression analysis of associated factors with knowledge level of the study

Associated Factors	Category	Knowledge level, N (%)		COR (95% CI)	P-value
		≤7 scored	>7 scored		
Sex	Female	26 (55.3)	21 (44.7)	I	
	Male	15 (45.5)	18 (54.5)	1.5(0.6-3.6)	0.386
Age group	20-39	27 (50.0)	27 (50.0)	1.2(0.46-2.9)	0.747
	40-59	14 (53.8)	12 (46.2)	I	
Educational Level	B.Sc.	32 (50.8)	31 (49.2)	I	
	M.Sc.	9 (60.0)	6 (40.0)	0.7(0.22-2.2)	0.522
	Post basic Pedi	0 (0)	1 (100)	--	--
	Post basic surgical	0 (0)	1 (100)	--	--
Working Experience	< 5 year	13 (65.0)	7 (35.0)	I	
	5-10 Year	15 (44.1)	19 (55.9)	2.4(0.75-7.4)	0.142
	10-15 Year	7 (58.3)	5 (41.7)	1.3(0.3-5.8)	0.706
	≥16 year	6 (42.9)	8 (57.1)	2.5(0.6-10.1)	0.205
Working Department	Adult ICU	9 (60.0)	6 (40.0)	I	
	ENT ward	7 (43.8)	9 (56.2)	2(0.46-8.1)	0.368
	Medical Ward	6 (85.7)	1 (14.3)	0.25(0.02-2.6)	0.249
	Pediatrics ICU	5 (27.8)	13 (78.2)	3.9(0.9-16.7)	0.068
	Surgical Ward	10 (52.6)	9 (47.4)	1.4(0.3-5.3)	0.668
	Other	4 (80.0)	1 (20.0)	0.4(0.03-4.2)	0.427

participants, 2023 (N=80).

Similarly, the associated factors of practice level of study participants were analyzed by regression analysis. The study explored that age group, educational level, working experience, and working department had a statistically significant association with practice level of study participants (P<0.05).

Young adults had 5.9 times more better practice level than the middle-aged adult group (P = 0.001), the educational level with a BSc had 17.6 times more better practice level than those with an MSc degree (P = 0.001), and those in adult ICU were 4 times more skilled than those in ENT ward nurses' (P = 0.012). Relative to 16- year-old(and over) experienced participants, those with less than 5 years old experience had 10 times better practice (P = 0.005)levels, and between 5 and 10 years old participants showed 6.9 times better (P = 0.006)practice.

Table 6: Regression analysis of associated factors with practice level of the study participants, 2023 (N=80).

Associated factors	**Category**	**Practice level, N (%)**		**COR (95% CI)**	**P-value**
		≤10 scored	**≥11 scored**		
Sex	Female	17 (36.2)	30 (63.8)	1.1(0.45-2.8)	0.769
	Male	13 (39.4)	20 (60.6)	I	
Age group	20-39	13 (24.1)	41 (75.9)	5.9(2.1-16.5)	0.001
	40-59	17 (65.4)	9 (34.6)	I	
Educational Level	B.Sc.	17 (27.0)	46 (73.0)	I	
	M.Sc.	13 (86.7)	2 (12.3)	0.05(0.01-0.27)	0.001
	Post basic Pedi	0 (0)	1 (100)	--	--
	Post basic surgical	0 (0)	1 (100)	--	--
Working Experience	< 5 year	4 (20.0)	16 (80.0)	10(2.0-49.0)	0.005
	5-10 Year	9 (26.5)	25 (73.5)	6.9(1.7-27.8)	0.006
	10-15 Year	7 (58.3)	5 (41.7)	1.7(0.34-9.1)	0.486
	≥16 year	10 (71.4)	4 (28.6)	I	
Working Department	Adult ICU	3 (20.0)	12 (80.0)	I	
	ENT ward	5 (31.2)	11 (68.8)	0.04(.004-.491)	0.012
	Medical Ward	6 (85.7)	1 (14.3)	0.38(.042-3.34)	0.38
	Pediatrics ICU	7 (38.9)	11 (61.1)	0.39(0.08-1.9)	0.247
	Surgical Ward	7 (36.8)	12 (63.2)	0.43(0.08-2.0)	0.291
	Other	2 (40.0)	3 (60.0)	0.37(0.04-3.3)	0.380

6. DISCUSSION

Even though tracheostomy is performed by otolaryngologists, ongoing nursing care is equally vital. Hence, studying nurses' tracheostomy knowledge and practices is also necessary, and this study was accomplished through the responses of participants to a questionnaire and direct observation in Tikur Anbessa Specialized Hospital and Yekatit-12 Medical Hospital. A total of 80 participants were included in the study.

6.1. Assessing knowledge level of the participants about tracheostomy, trachea and tracheostomy tube, indication, types of tracheostomies

In this study, more than half of the participants had an understanding about; the trachea's definition; the primary function of the trachea; what tracheostomy means; and that it can be both a temporary and/or permanent procedure.

Inversely, less than half of the respondents were aware of the number of hyaline tracheal cartilages; the anatomic extension of the trachea; the average longitudinal length of the adult trachea; the average internal diameter of the trachea in adult; and the most common current global indication(s) of tracheostomy and emergency tracheostomy.

Overall, the prevalence of unsatisfactory knowledge levels regarding tracheostomy care was 61.2%, which is high. This level aligns with research conducted in Ankara, Turkey, discovered that only 64 nurses (46.4%) correctly answered 7 out of 15 questions (8). This result was concurrent with the study done in India, Mohali which showed the majority of people (57%) had unsatisfactory degree of understanding (6)

The results of this study; contradicts the study done in Rwanda, which revealed most nurses (71%) had the necessary knowledge (7). Similarly the study in Pakistan, Lahore showed that, majority (65%) had satisfactory knowledge level (11).

Only 5% of participants in the current study knew about appropriate cuff pressure level, which is almost the opposite of what Rwandan (56%) investigation found (7) .

6.2. Assessing practice level of the participants about tracheostomy care

According to this study, 55% and 29% of nurses provided 'medium' & 'good' level of tracheostomy care respectively. In congruent to this, Dhaliwal et al.'s study from 2018, (Mohali,

India) discovered that 56% of participants had a good practice level and 44% had a medium level (6).

Similarly, more than half of the participants practiced suctioning in supine position with the neck extended, used sodium chloride as a solution to loosen thick secretions in the trachea, administered narcotics and analgesics with caution because they could cause hypoxemia, evaluated the health of the stoma prior to providing tracheostomy care, used the appropriate size of suction catheter for adults, which is 12 to 18 ft., washed their hands, This is consistent with a research by Pinto et al., 2020, which discovered that only 62% of nurses consistently washed their hands before suctioning (15).

Furthermore, the current study found that most of nurses (72.5%) were aware of the indication for starting suctioning the tube to clear the patient's airway, which is in contrary to the study done in Rwanda; which found a low score (as only 41% of nurses were aware of the indication)-(6).Additionally, the current study discovered that almost 76% of nurses knew the recommended suctioning catheter's size, compared to 44% in the Rwanda study (7).

However, in this study more than three-fourths of nurses were not fixing tracheotomy tube tape in appropriate way.

6.3. Factors associated with knowledge and practice level of nurses

The study evaluated any relationships between variables and nurses' level of expertise in tracheostomy care. In accordance with Gaterega et al.'s study done in Rwanda (7) , this study found no statistically significant association between factors and knowledge level ($P > 0.05$). But this study contradicts with the study of Dhaliwal et al in Mohali. (6).

This study discovered a statistically significant relationship between age, educational attainment, professional experience, and department of employment and the practice level of nurses regarding tracheostomy care; which is against to results inferred from most other studies

7. LIMITATION AND STRENGTH OF THE STUDY

Limitation:

- ✓ The study area was restricted within two hospitals, due to time, personnel, and money constraints.

Strengths:

- ✓ The inquiries were unmistakably apparent.
- ✓ There were no data gaps.
- ✓ Even though, the study area was restricted within two hospitals, the two hospitals in which, this study was conducted are the biggest referral centers in Ethiopia with highest ENT-Head & Neck patient flow and ICU care. Since this study was conducted in high volume tracheostomy patient care centers in the country, the findings can be applied to all Ethiopian nurses.

8. CONCLUSIONS AND RECOMMENDATION

8.1. Conclusions

The following inferences could be made in light of the goals established and the findings attained:

- ✓ The majority of the related characteristics have a substantial correlation with nurses' tracheostomy care practices.
- ✓ None of the linked criteria, however, are statistically associated with a nurse's understanding of tracheostomy care.
- ✓ In this study, it was discovered that 61.2% of nurses had poor knowledge about trachea & tracheostomy.
- ✓ Almost one sixth (16.0%) of nurse's showed poor tracheostomy care practice
- ✓ Additional variables that have been identified to influence nurses' practices include age group, educational attainment, job experience, and department of employment.
- ✓ Good practices were indicated by those with a higher degree of BSc education, a young adult group, 5–10 years of work experience, and medical ward nurses.
- ✓ The discouraging finding is that nurses frequently rate their tracheostomy management skills higher than their knowledge-based responses. Using a well-planned and reliable simulation model along with a continuous quality auditing tool, hospitals need to address the gap in nurses' knowledge and abilities regarding care of a tracheostomy.

8.2. Recommendations

- ✓ To evaluate the effectiveness of tracheostomy care provided by nurses, the Ethiopian Ministry of Health, the Nurses Association, and other researchers are recommended to do more study on it.
- ✓ The inclusion and execution of initiatives that assist the development of tracheostomy care knowledge and practice in healthcare institutions is recommended for policy-making bodies.
- ✓ I recommend all nurses and healthcare professionals to have access to brochures on tracheostomy care.

9. Bibliography

1. **CW, Cummings.** *Otolaryngology--head and Neck Surgery: General, face, nose, paranasal sinuses.* s.l. : google scholar, 1996.

2. **Bailey's head and neck surgery-otolaryngology I [edited by] Jonas T. Johnson, Clark A Rosen. - 5th ed.** *TRACHEOTOMY.* 351 West Camden Street : Philadelphia, 2014.

3. *Patient safety incidents associated with tracheostomies occurring in hospital wards: A review of reports to the UK National Patient Safety Agency.* **B A McGrath, 1 A N Thomas.** 2010/09/01, Postgraduate medical journal, p. 86:522e525.

4. *AN AUDIT OF TRACHEOSTOMY AT A .* **Fazal-i-Wahid, Amir Hamza , Qaisar Khan , Bakht Zada , Iftikhar Ahmad Khan.** s.l. : Journal of Postgraduate Medical Institute 26(2):206-211, 2012.

5. *Analysis of morbidity, mortality, and risk factors of tracheostomy-related complications in patients with oral and maxillofacial cancer .* **Seung Tae Lee 1, Min Gyun Kim 1 , Jae Ho Jeon 1 , Joo Hee Jeong 1 , Seung Ki Min 1 , Joo Yong Park 1 , Sung Weon Choi 1.** s.l. : Maxillofac Plast Reconstr Surg, 2016.

6. *A Descriptive Study to assess the knowledge and skills on tracheostomy.* **Mandeep Kaur Dhaliwal, Rashmi Choudhary, Poonam Sharma.** s.l. : Asian Journal of Nursing Education and Research , 2018, Asian Journal of, p. 1.

7. *Nurses knowledge and practices regarding tracheostomy care at a selected referral hospital in Rwanda – A descriptive cross-sectional study.* **TonyGateregaaMarie-JoseeMwisenezaaGeldineChirondaabc.** s.l. : International Journal of Africa Nursing Sciences , 2021, International Journal of Africa Nursing Sciences, p. 1.

8. *The evaluation of nurses' knowledge related to.* **İbrahim Mungan, Dilek Kazancı, Şerife Bektaş, Sema Sarı, Mine Çavuş, Sema Turan.** s.l. : International Medicine 2019; 1(6): 313-31, 2018, International Medicine · January 2019, p. 1.

9. *Assessment of knowledge regarding tracheostomy care.* **Tooba Khanum a, Sadaf Zia a, Tahseer Khan a,*, Saima Kamal b,.** s.l. : Brazilian journal of otorhinolaryngology, 2021, Brazilian Journal of, p. 1.

10. *Tracheal suctioning: an exploration of nurses' knowledge and competence in acute and high dependency ward areas.* **BARNETT, DAY T FARNELL S HAYNES S WAINWRIGHT S. & WILSON.** s.l. : Journal of Advanced Nursing 39(1), 35–45, 2002, p. 1.

11. *Nurses Knowledge and Practices Regarding Tracheostomy Care in ICU.* **NAZIR1, SAMINA.** 2022, P J M H S Vol. 16, No. 07, July 2022 79, p. 1.

12. *Death after percutaneous dilatational.* **Simon1†, Marcel.** 2013, Open Access, p. 1.

13. *Effect of an Educational Training Program in Tracheostomy.* **Abdulrahman1, ELsadigEltaher.** 2021, International Journal of Nursing Education, April-June 2021, Vol.13, No. 2 , p. 17.

14. *Knowledge and Practice of Tracheostomy Care: A Case of Federal Medical Centre, . .* **Nwakaego, O. (.** Umuahia South East of Nigeria : Texilla international journal of Nursing .,2(2), 1–22. , 2016.

15. *Knowledge and Practices of Endotracheal Suctioning amongst Nursing Professionals: A Systematic Review.Peer-reviewed, Official Publication of Indian Soci.* **Pinto, Halita J, D'silva, Fatima, & Sanil, Thankappan S.** s.l. : Indian Journal of Critical Care Medicine: , 2020.

16. *Analysis of morbidity, mortality, and.* **Seung Tae Lee, Min Gyun Kim, Jae Ho Jeon, Joo Hee Jeong, Seung Ki Min, Joo Yong Park.** 2016, Open Access, p. 1.

17. *Tracheostomy in young patients: indications and long-term.* **·, Johannes Zenk · Georgios Fyrmpas.** 2008, Eur Arch Otorhinolaryngol, pp. 266:705–711.

18. ***s.l. : Journal of Advanced Nursing 39(1), 35–45.***

Annex-1: Information sheet and Consent Form

Addis Ababa University college health sciences, school of graduate studies, department of Otorhinolaryngology Head & Neck Surgery

Questionnaire prepared to assess nurses' knowledge and practices regarding tracheostomy care at TASH & Yekatit-12 medical college in AA, Ethiopia 2023G.C.

Hi, my name is Dr. Chernet Tegegne; I am a student in Addis Ababa University School of medicine, department of Otorhinolaryngology Head & Neck Surgery. I am conducting a Cross sectional study on nurses' knowledge and practices regarding tracheostomy care at TASH & Yekatit 12 medical college in AA, Ethiopia 2023G.C. I have got formal permission from Addis Ababa University School of medicine and TASH officials to conduct the study.

You are selected as a study participant hoping that you would be willing to help me by providing with some information. All information obtained from you will be kept confidential. I will not include such as your name or exact address. Your role in this research is important and this study will provide base line information & in the future information gathered by this study will helps policy makers, programmers and researchers to give appropriate attention on issues of interest.

If you need any further information or explanation regarding to the study, you can have this address to contact.

Name: Dr. Chernet Tegegne, Tel- +251-945565528, Email- cher.tegegne19@gmail.com

Are you voluntary to participate in the study?

Yes……

No……..

Questionnaire Code _____

Annex 2: Questionnaire

Part-I: Socio-demographic characteristics

1. Sex:- A. male B. Female
2. Age group: A. 20-39(young adults) B. 40-59(middle aged adults) C. above 60(old)
3. Year of experience A. less than 5 year B. 5-10 year C. 10-15 year D. 16/more year of experience
4. Educational status:- A. Advanced diploma, B. BSc ,C. masters , D. post basic surgical, E. post basic medical, F. post basic ICU, G. post basic Pedi, H. other
5. working departments:- A. Surgical ward B. Medical ward ,C. Adult ICU D. pediatrics ICU E. ENT ward, F. other

Part-II: Practice of nurses regarding tracheostomy care

During tracheotomy care		
Practice of nurses regarding tracheostomy care	Agreed	Disagreed
Supine with neck extension(waters position)preferred position		
It require administering analgesia for tracheotomy care		
Sodium chloride as solution is used to loosen thick secretion in the trachea or tracheotomy tube in our practice		
during tying(fixing) tracheotomy tape neck has to be in extended position		
during fixing tracheotomy tape, it should not admit 1-2 fingers		
Administer narcotics and analgesic drugs with precaution because it will cause Hypoxemia		
health of stoma should be assessed before tracheostomy care		
Practice of nurses regarding tracheostomy suction tube	Agreed	Disagreed
Size of suction catheter used for adult is 12 to 18 Fr. or not more than half diameter of trachea		
Suctioning should not be continued for more than15 seconds once at a time		
Purpose of suctioning is to Maintain patent & protected airway		
Practice of nurses during tracheostomy care	Agreed	Disagreed

Hand washing is essential and should be done before and after tracheostomy procedure to reduce risk of infection		
Indication to watch for respiratory difficulty are restlessness, cyanosis and Intercostal retraction		
Fowler's position is the best position given patient with tracheostomy to breath better		
Observe constantly patient with tracheostomy to avoid tube displacement		
Obturator is the instrument should be kept ready during tracheostomy decannulation		
Pre oxygenating the pt. before suctioning is not recommended		
The recommended cuff pressure is less than 50 mmhg		
Tracheostomy tube cuff pressure should be monitored every 12 hours		
During the first days of tracheostomy, the trachea should be suctioned every 4-6 hours only		
Inflating the cuff for at least 1 hr. after feeding is the special precaution by the nurse while giving tube feeding to the patient with tracheostomy		

Please write your response clearly & it should not be more than one line for each questions.

Part-III: Knowledge of nurses regarding tracheostomy care

A. Knowledge of the participants about tracheostomy, trachea and tracheostomy tube.

1. What is trachea (definition)?

   ……
   ……

2. How many hyaline tracheal cartilages do we have?

   ……

3. What is primary function of trachea?

   ……
   ……..

4. Trachea extends from cricoid downward to which thoracic vertebral level...
5. What is average longitudinal length of adult trachea in cm? in range……..
6. What is average internal diameter of Adult trachea? In range……

B. Definition of tracheotomy, indication, types of tracheotomy

1. What is the definition of tracheostomy?

   .....
   .....

2. What is the commonest indication for tracheostomy worldwide now days?

   .....

3. What is the commonest indication for emergency tracheostomy worldwide now days?

   ……..

4. Could it be permanent procedure? .....

C. Appropriate tube size, parts of the tube, tracheotomy tube cuff pressure, tube types and size for each type

1. What type of tracheotomy tube is recommended to adult patients for use at home, (where suctioning machine is not available)?

   ……..

2. What are parts of plastic tracheotomy tube? List at least 2.

   ……
   ……

3. How to estimate appropriate tracheotomy tube size(plastic)(based on what body parameter)

   ……
   ……
   ……

4. What type of plastic tube is used for mechanically ventilated pt.(with positive pressure ventilation? A cuff less B with cuff
5. What is the recommended maximum level of cuff pressure for tracheotomy tube cuff?

   ……