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NURSES KNOWLEDGE AND PRACTICE REGARADING TRACHEOSTOMY CARE AT SELECTED TERTIARY HOSPITALS IN PESHAWAR, KPK – A DESCRIPTIVE CROSS SECTIONAL STUDY.

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Abstract

Introduction: Tracheostomy is a life-saving procedure used to establish an alternative airway in patients with airway obstruction or respiratory compromise. Proper tracheostomy care requires competent and knowledgeable nurses to prevent complications such as infection, bleeding, tube blockage, and accidental dislodgement. Previous studies have reported varying levels of nurses' knowledge and practice regarding tracheostomy care. However, limited evidence is available from Peshawar, Khyber Pakhtunkhwa. Therefore, this study was conducted to assess nurses' knowledge and practice regarding tracheostomy care in tertiary care hospitals of Peshawar. Aim: The aim of the study was to assess nurses' knowledge and practice regarding tracheostomy care among patients with tracheostomy tubes. Methodology: A quantitative descriptive cross-sectional study was conducted among 125 nurses working in internal medicine, surgical wards, and intensive care units of Lady Reading Hospital (LRH), Khyber Teaching Hospital (KTH), and Hayatabad Medical Complex (HMC), Peshawar. Participants were selected through convenience sampling, and data were collected using an adapted structured questionnaire. Descriptive and inferential statistics were used for data analysis. Results: The findings showed that 38.4% of nurses had high knowledge, 57.6% had moderate knowledge, and 4% had low knowledge regarding tracheostomy care. Regarding practice, 20.8% demonstrated a high level, 72.6% a moderate level, and 6.6% a low level of practice. Conclusion: The study revealed gaps in nurses' knowledge and practice regarding tracheostomy care. Continuous professional education, regular training, and standardized clinical guidelines are recommended to improve the quality and safety of tracheostomy care. Further research is needed to identify factors contributing to inadequate knowledge and practice.

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INTRODUCTION

Tracheostomy is a medical and surgical procedure in which an opening is created in the trachea through the neck, and a hollow tube is inserted to maintain a patent airway (1). It is commonly performed to relieve respiratory obstruction, facilitate long-term ventilation, and provide an alternative airway when the natural airway is compromised (1,2). Although tracheostomy is an established and potentially life-saving procedure, inadequate or improper tracheostomy care can result in serious complications, including tube blockage, bleeding, infection, accidental decannulation, airway obstruction, and increased risk of mortality (2). Therefore, nurses must possess adequate knowledge and appropriate practical skills to provide safe and effective tracheostomy care.

Nurses play a critical role in the management of patients with tracheostomies because they provide continuous bedside care and are often the first healthcare professionals to identify and respond to complications (2,6). They are responsible for maintaining the cleanliness and integrity of the tracheostomy site, changing dressings, monitoring for signs of infection, assisting with or performing tube changes according to institutional protocols, and ensuring proper airway suctioning (7,8). Effective suctioning is essential for removing excessive respiratory secretions that may obstruct the tracheostomy tube and compromise ventilation (8). Nurses must also be competent in recognizing and managing emergencies such as tube displacement, bleeding, airway obstruction, and accidental decannulation, while promptly providing appropriate interventions and seeking medical assistance when required (9).

Evidence from previous studies indicates variations in nurses' knowledge and practices regarding tracheostomy care. A study conducted at a referral hospital in Rwanda reported that 71% of nurses had moderate knowledge, 26% had low knowledge, and only 2.5% demonstrated a high level of knowledge regarding tracheostomy care (3). Similarly, a study conducted in Lahore, Pakistan, in 2022 found that nurses' performance in tracheostomy care was inadequate despite having knowledge of basic tracheostomy principles. The absence of standardized guidelines for nurses working in intensive care units was identified as one of the factors contributing to inconsistent knowledge and practices (4). In contrast, a study conducted in Karachi reported that healthcare professionals had satisfactory knowledge regarding tracheostomy care and management, although gaps in practical practices were still identified (5).

The quality of tracheostomy care largely depends on the competence and preparedness of nursing staff. Nurses require appropriate knowledge, practical skills, and adherence to standardized protocols to prevent complications and ensure patient safety. They also play an important role in educating patients and their attendants about tracheostomy care and necessary precautions (2). Therefore, assessing nurses' knowledge and practices is essential for identifying gaps, improving nursing education, strengthening clinical practice, and ultimately enhancing patient outcomes.

Although some studies regarding tracheostomy care have been conducted in different regions of Pakistan, limited evidence is available regarding nurses' knowledge and practices in tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa. Therefore, the present study aims to **assess the level of knowledge regarding tracheostomy care among nurses working in tertiary care hospitals of Peshawar, assess their level of practice regarding tracheostomy care, and determine the socio-demographic factors associated with nurses' knowledge and practices regarding tracheostomy**

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care. The findings of this study may help identify existing gaps in nursing knowledge and practice and provide evidence for developing appropriate educational programs, clinical guidelines, and training interventions to improve the quality and safety of tracheostomy care.

METHOD AND METHOLOGIES

The study will use a quantitative, descriptive cross-sectional research design to assess the level of knowledge and practice regarding tracheostomy care among nurses working in tertiary care hospitals of Peshawar, Khyber Pakhtunkhwa. The study will be conducted at three tertiary care hospitals, including Lady Reading Hospital (LRH), Khyber Teaching Hospital (KTH), and Hayatabad Medical Complex (HMC). The study will be completed over a period of four months, from 15 June to 15 October.

The study population will consist of nurses working in selected departments, including the Intensive Care Unit (ICU), surgical wards, and internal medicine wards. The total population at the selected study sites was approximately 180 nurses, including 50 from Lady Reading Hospital, 37 from Khyber Teaching Hospital, and 38 from Hayatabad Medical Complex. Using a sample size calculator with a 95% confidence level and 5% margin of error, the required sample size for the study was calculated as 125 nurses (n=125). A convenience sampling technique will be used for participant selection. The inclusion criteria will include diploma- and degree-holder nurses with a valid PNC license and at least one year of professional experience. Nurses who are on probation, unwilling to participate, or undertaking internships will be excluded from the study.

Data will be collected using a structured questionnaire adapted from a previously published article. The questionnaire will consist of three main sections: demographic information, knowledge, and practice regarding tracheostomy care. The knowledge section will include questions related to the definition and types of tracheostomy, consisting of 9 items, and questions related to tracheostomy tubes consisting of 4 items. The practice section will include 16 items, while 4 items will assess suctioning practices. A pilot study will be conducted before the main data collection to assess the reliability and validity of the questionnaire.

For ethical considerations, a written permission letter will be obtained from the Principal of Farkhanda Institute of Nursing and Public Health, Gandhara University, Peshawar, followed by permission from the directors/administrations of HMC, LRH, and KTH. Written informed consent will be obtained from all participants before data collection. Participation will be voluntary, and participants will have the right to refuse or withdraw from the study at any time. The confidentiality and privacy of participants will be maintained, and all collected information will be used solely for academic and research purposes.

The collected data will be analyzed using SPSS. Descriptive statistics will be applied, and the findings will be presented through frequencies, percentages, tables, and graphs. The independent-samples t-test will be used, where appropriate, to determine the association between selected demographic characteristics and nurses' knowledge and practices regarding tracheostomy care. The primary research question will focus on determining the level of knowledge and practice regarding tracheostomy care among nurses working in tertiary care hospitals of Peshawar, KPK.

RESULTS

Gender of the Participants

The data was collected from 125 nurses according to the sample size calculator and the majority of the participants were female 91 (72.8%) and males

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were 34 (27.2%). The mean of male and female participant is 1.73 with a standard deviation of .447 (table 1).

Table 1. ***Demographics variable of the study.***

Variables N 125	Frequency N	N%	Mean	SD
Male	34	27.2%	1.73	.447
Female	91	72.8%	1.73	.447

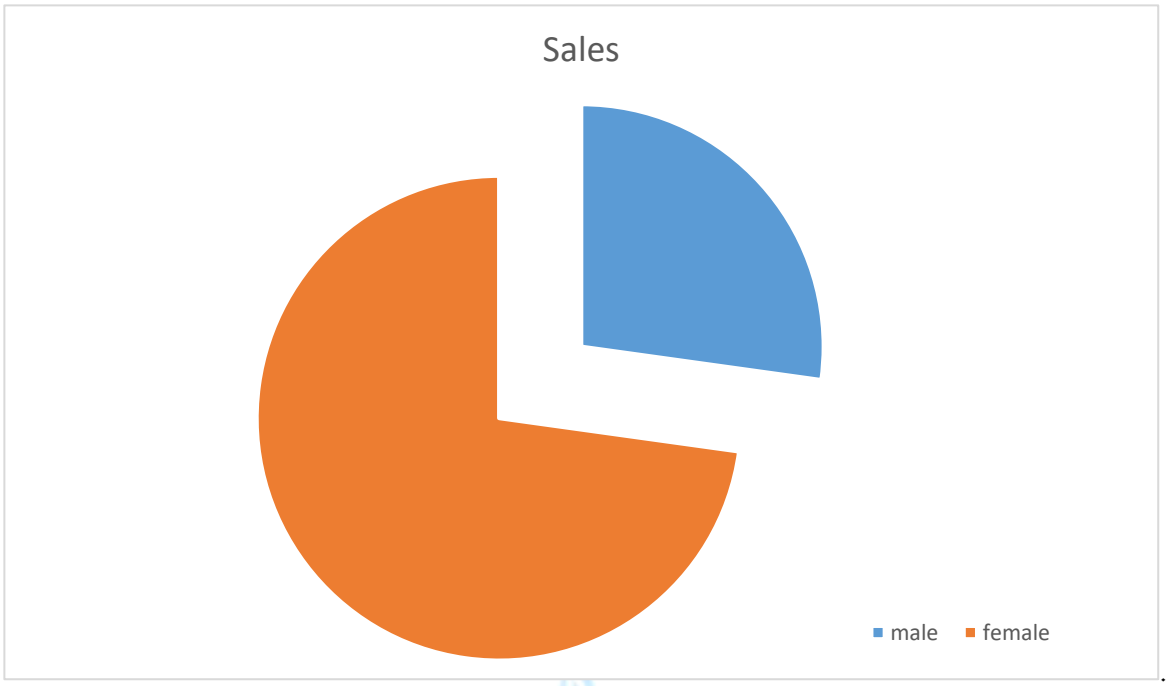


Figure1. Gender of the participants.

Age of the participants

Analysis of the study shows that about 70 (56%) participants were mostly and frequently having age between 25-30 years. 31(24.8%) were having age between 31-47 years and 24 (19.2%) were having age between 19- 24 years. The mean of the age of the participants is 28.75 and SD is 5.709 as shown in table2.

Table 2. ***Age of the Study Participants.***

Variable N 125	N frequency	N %
19-24	24	19.2%
25-30	70	56%
31-47	31	24.8%

Age mean	**28.75**
Age SD	5.709

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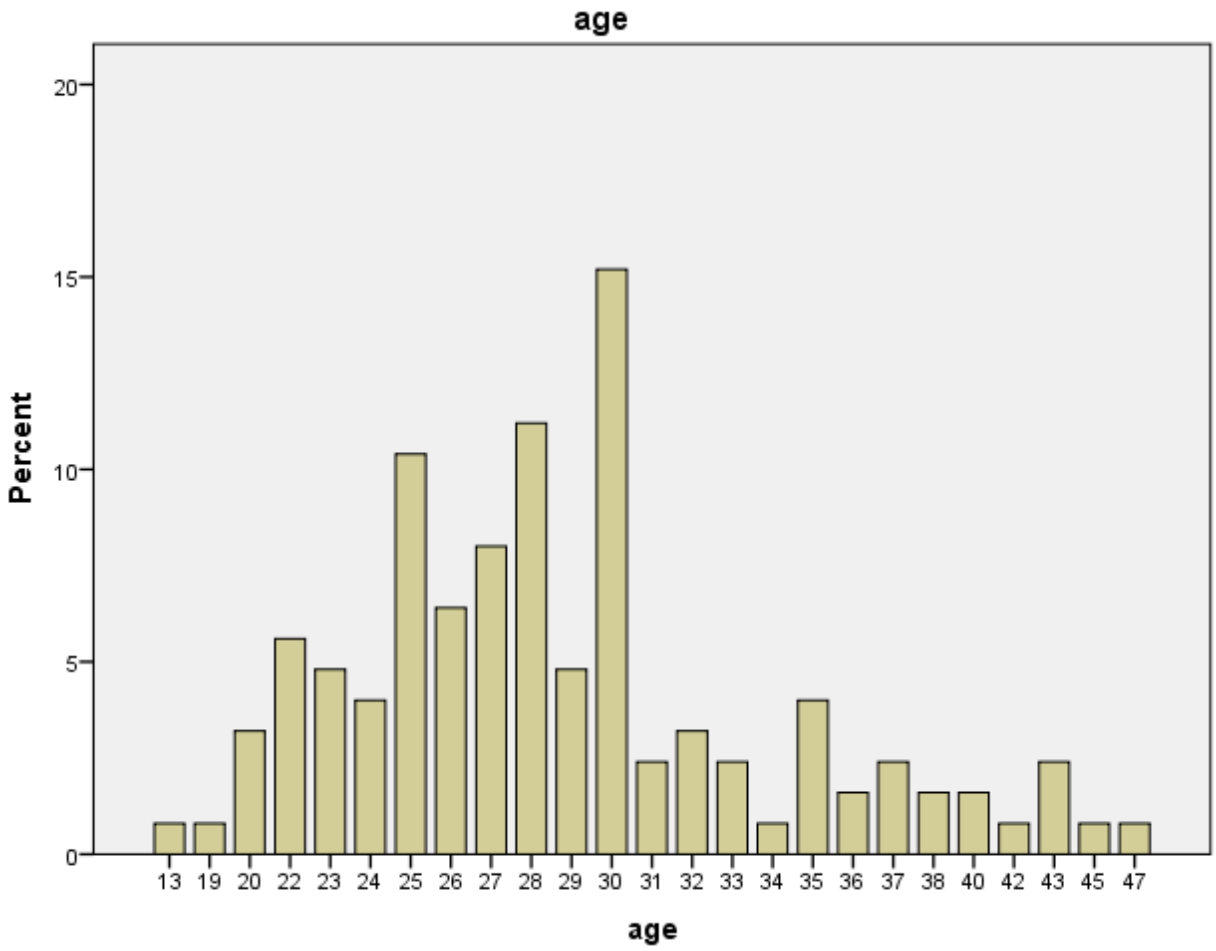


Figure2. Age of the Participants

4.3 Education level of the participants

According to data analysis 53 (42.2%) are diploma holders, 71 (56.8%) are BSN/ Post-RN degree holders and 1 (0.8%) is MSN degree holder. The mean of the education is 1.58 and standard deviation is 0.511.

Table3. ***Qualification of the study participants.***

Variable **N 125**	**N** **frequency**	**N %**
Diploma	53	42.2%
BSN/Post-RN	71	56.8%
MSN	1	0.8%
Age mean	**1.58**	
Age SD	0.511	

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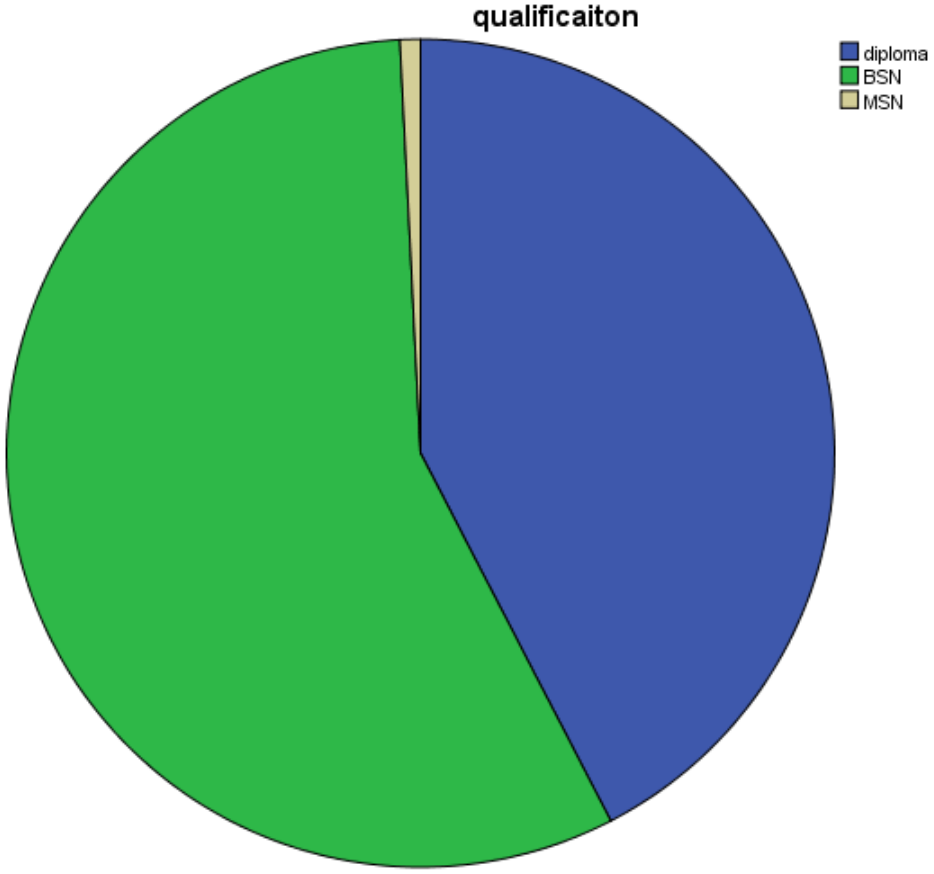


Figure3. Qualification of the participants.

4.4 DATA COLLECTION SETTING

According to data analysis, the data was collected from LRH, KTH and HMC nurses in Peshawar and according to the sample size calculator. 48(38.4%) nurses' data was collected from the LRH, 38(30.4%) nurses' data was collected from KTH and 39(31.2%) nurses' data was collected from the HMC Peshawar. The convenient sampling technique is used for the collection of data. The mean was 1.93 and SD was 0.834. At the time of data collection and few nurses refuse to participate in the research. The reason for their not participating in the research is that they are too much busy with patients due to the workload in the hospital and too much shortage of staff in the hospital.

Table 4. ***Hospitals of the Study Participants.***

Variable **N 125**	**N** **frequency**	**N %**
LRH	48	38.4%
KTH	38	30.4%
HMC	39	31.2%
Age mean	**1.93**	

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Age SD	0.834

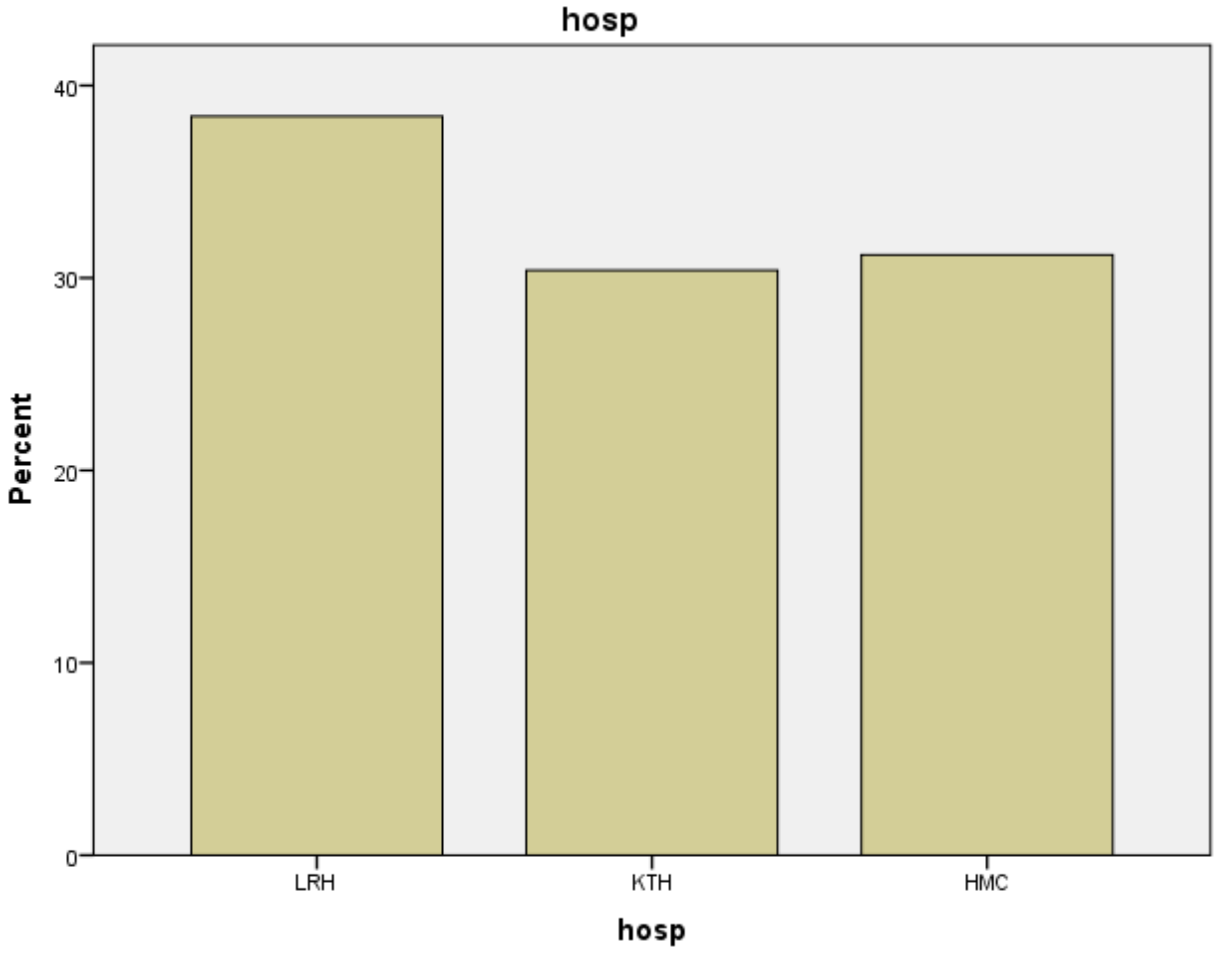


Figure 4. Hospitals of the study participants.

4.5 Working departments of the participants

The sample is collected from the units in the hospital and the sample from internal medical units was about 36 (28.8%), surgical units with 41(32.8%) nurses included and from ICU 47(37.6%) nurses were included in the sample collection as shown in table 4 and figure 4.

The mean of the units is 2.09 and SD is 0.817. The sample was conveniently collected from the mentioned department of the hospital. Few nurses refuse to participate in the study due to workload and shortage of staff. There is a lot of burden on staff that's why nurses take too much time in giving the response.

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Table 5. *Working departments of the study participants.*

Variable N 125	N frequency	N %
Inter medical	36	28.8%
Surgical ward	41	32.8%
ICU	47	37.6%

mean	2.09
SD	0.817

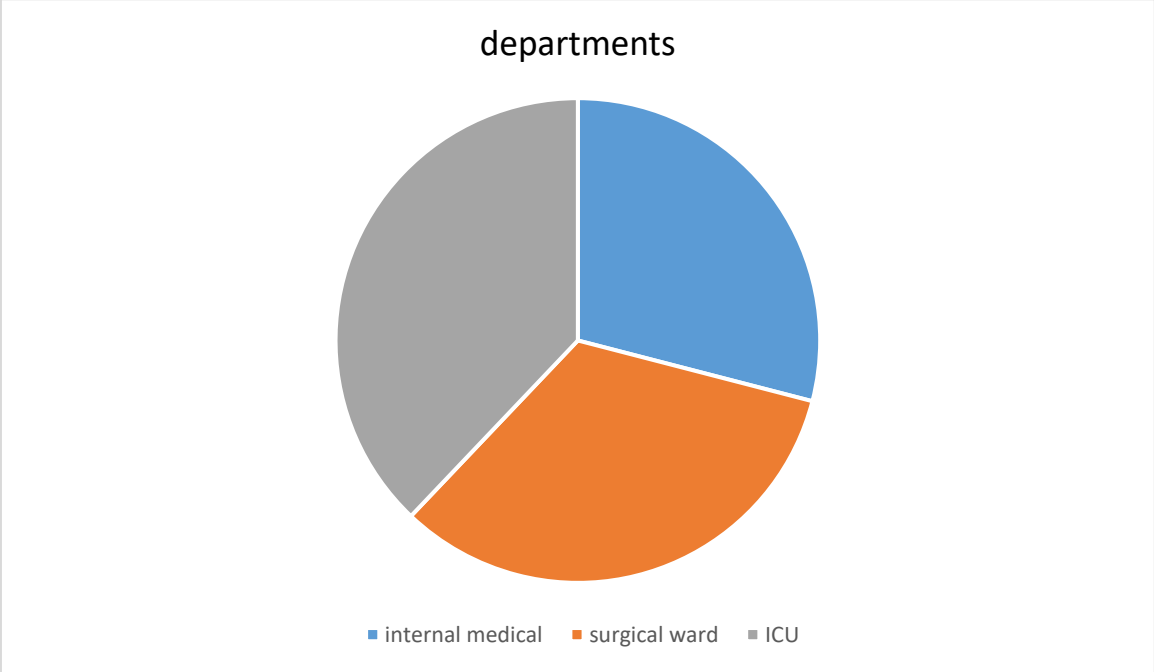


Figure 5. Departments of the study participants.

4.6 Experience level of the study participants

The experience level in the data was split into three categories first is one to five-years' experience (1-5 years), the second is six to ten-years' experience (6-10years) and the third one is greater than 10 years' experience (>10). When data analyzed the results show about 75 (60%) participant had one to five years of experience, 30(24%) participants have six to 10 years of experience and 20(16%) participants of the study have greater than ten years of experience. The mean is 1.55 and SD is 0.747.

Table 6. *Experience of the study participants.*

Variable N 125	N frequency	N %
1-5 yrs.'	75	60%
6-10 yrs.	30	24%

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more	20	16%

mean	**1.55**
SD	0.747

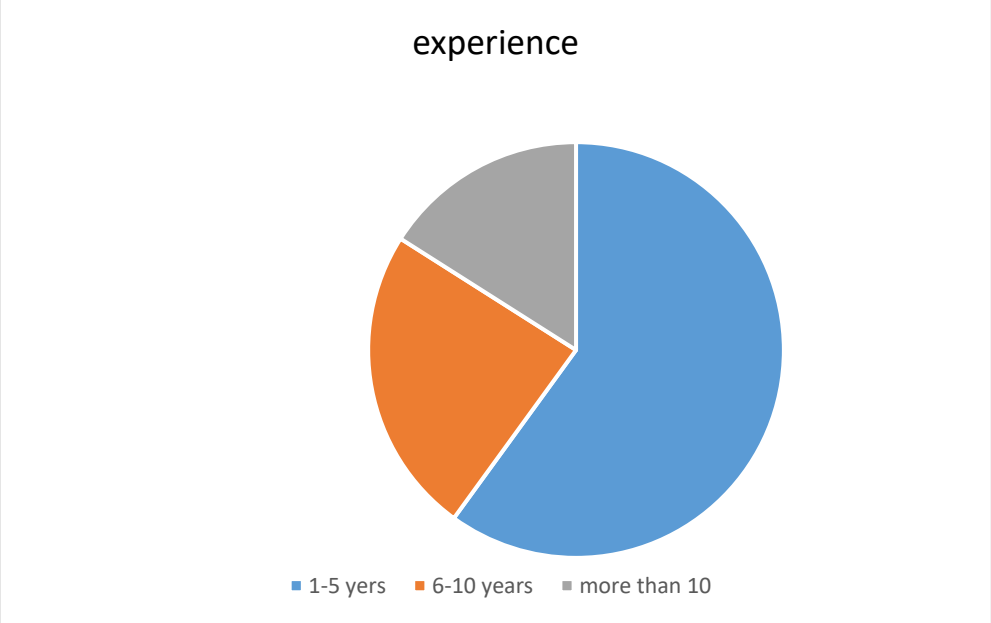


Figure 6. Experience of the study participants.

4.7 Knowledge level of study participants

The knowledge of the participants on tracheostomy, trachea, and tracheostomy tube is shown in Table 7 below. About 120(96.0%) of the individuals correctly answered the definition of trachea, whereas 5 (4.0%) did not. 34 (27.2%) did not know the trachea's extension level, while 91 (72.8%) knew. 43(34.4%) of the individuals provided an incorrect response to the trachea measurement, while 82 (65.5%) of the participants properly responded. Only 88 participants (70.4%) correctly identified the number of hyaline cartilages, while 37 people (29.6%) failed the test. While 37(29.6%) of people did not know how the trachea worked, about 88(70.4%) did knew.

In terms of the definition of a tracheostomy, 114 (91.2%) of the participants gave accurate answers, whereas 11 (8.8%) did not. More people [107(85.6%)] were aware of the many forms of tracheostomy.

While 18 (14.4%) were unsure. In terms of the sorts of tracheostomies used in chronic illnesses, about 103 (82.4%) people responded properly, while 22 (17.6%) people gave an inaccurate response. The minority, 19 (15.2%), failed the question, while the majority, 106 (84.8%), provided the appropriate tracheostomy indications. Regarding the tracheostomy tube, 39 (31.2%) failed to respond appropriately to the proper size of tracheostomy tube, while 86 (68.8%) did. 18 (14.4%) were unable to identify the criterion for selecting a tracheostomy tube, whereas 107 (85.6%) were. More participants 108 (86.4%) respond properly to tracheostomy-related questions than incorrectly 17 (13.6%). 15 (12.0%) did not know

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the tracheostomy cuff pressure, while 110 (88.0%) did.

Table 7. *Knowledge of nurses regarding tracheostomy (N=125).*

variables	Correct frequency	%	Incorrect frequency	%
Knowledge of nurses regarding Tracheostomy definition & types				
Trachea is known as the wind pipe	120	96.0%	5	4.0%
Trachea extends downward to level of the 6th thoracic	91	72.8%	34	27.2%
Trachea approximately measure 10 to 11cm	82	65.6%	43	34.4%
Number of hyaline cartilages that present in trachea are 16 to 20	88	70.4%	37	29.6%
Important function of trachea is cough reflex	88	70.4%	37	29.6%
Tracheostomy refers to indwelling tube inserted into the trachea	114	91.2%	11	8.8%
Types of tracheostomy are permanent and temporary	107	85.6%	18	14.4%
For long term disease, the type of tracheostomy used is long term	103	82.4%	22	17.6%
Tracheostomy is indicated severe burn, laryngeal obstruction and when Endotracheal tube cannot ins	106	84.8%	19	15.2%
Knowledge of nurses regarding Tracheostomy Tube				
The appropriate size of tracheostomy tube for adults is 10 to 12mm.	86	68.8%	39	31.2%
Length and inner diameter in millimeters are the criteria you base on while choosing a tracheostomy tube	107	85.6%	18	14.4%
Parts of tracheostomy tube are cuff, inner and outer cannula.	108	85.6%	17	13.6%
The normal measurements of tracheostomy tube cuff pressure are 20–25 mm of Hg	110	88.0%	15	12.0%

4.8 Practice level of the participants

The information in table 8 below details nurses' tracheostomy care practices. While 21 people (16.8%) disagreed, 104 people (83.2%) supported thorough family assistance and education regarding the complications of tracheostomy care. The majority [118(94.4%)] agrees that the patient should be in a supine position with their head extended during tracheostomy care, while only 7(5.6%] disagree. More people [104(83.2%)] believe that it is prudent to deliver analgesics and narcotics, and 90(72.0%) agree that the state of the stoma should be checked for redness before receiving tracheostomy care. The clean technique

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employed in tracheostomy care was endorsed by about 114 (91.2%) people. While 22 (17.6%) disagreed with using sodium chloride as a solution for tracheostomy care, 103 (82.4) agreed. With 21(16.8%) disagreeing, more over half [104(83.2%)] are in favor of letting go the space of two fingers for securing tracheostomy tape. Fresh stomas should be performed every 24 hours, according to 81 (64.8%), whereas 44 (535.2%) disagreed.

While 6 (4.8%) disagreed with the idea that cleaning your hands before and after getting a tracheostomy, 119 (95.2%) did. While the majority [112(89.6%)] agreed, 13 (10.4%) disagreed that the signs of respiratory trouble were nasal breath, restlessness, cyanosis, and intercostal retraction. More than half 97 (77.6%) agreed that the Fowler position was the ideal position for a patient with a tracheostomy to breathe more comfortably, while 28(22.4%) disagreed.

Approximately 15 (12.0%) objected with the idea of the patient with a tracheostomy being constantly observed, while about 110 (88.0%) agreed. Additionally, 96 (76.8%) agreed to follow the nurse's special instructions when feeding the patient with a tracheostomy tube. The majority [88(70.4%)] agreed, while the minority [37(29.6%)] disagreed with monitoring tracheostomy cuff pressure. A portion [38(30.4%)] disagreed with the notion that tracheostomy should be suctioned every two hours during the initial days, while [87(69.6%)] agreed. Last but not least, 109 (87.2%) agreed to having an obturator instrument available during tracheostomy decannulation, however 16 (12.8%) individuals objected.

Table 8. ***Practice of nurses regarding tracheostomy (N=125).***

Variables	Agree frequency	%	Disagree frequency	%
Practice of nurses regarding tracheostomy care				
For a comprehensive and family support the patient relatives should be explained about possible complications of tracheostomy such as inability to laugh	104	83.2%	21	16.8%
Supine position & head extended is the position given to the patient during tracheostomy care	118	94.4%	7	5.6%
Administer narcotics and analgesic drugs with precaution because it will cause Hypoxemia	104	83.2%	21	16.8%
Redness of stoma should be assessed before tracheostomy care	90	72.0%	35	28.0%
Clean technique is used in tracheostomy care	114	91.2%	11	8.8%
Sodium chloride is used to clean tracheostomy site	103	82.4%	22	17.6%
While fixing tracheostomy tape it recommended to be loose at least 2 fingers.	104	83.2%	21	16.8%
fresh stoma should be performed every 24 hours day	81	64.8%	44	35.2%
Practice of nurses regarding tracheostomy suction tube				
Size of suction catheter used for adult is 12 to 18 Fr	113	90.4%	12	9.6%
Suctioning should not be continued for more than15 seconds	103	82.4%	22	17.6%
Purpose of suctioning is to Maintain patent airway	118	94.4%	7	5.6%
Bleeding is the early complication of tracheostomy procedure	114	91.2%	11	8.8%

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in most patient				
Practice of nurses during tracheostomy care				
Hand washing is essential and should be done before and after tracheostomy procedure to reduce risk of infection to patient	119	95.2%	6	4.8%
Indication to watch for respiratory difficulty are nasal breath, restlessness cyanosis and Intercostal retraction	112	89.6%	13	10.4%
Fowler's position is the best position given patient with tracheostomy to breath better	97	77.6%	28	22.4%
Observe constantly patient with tracheostomy to avoid tube displacement	110	88.0%	15	12.0%
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	96	76.8%	29	23.2%
Tracheostomy tube cuff pressure should be monitored every 12 hours	88	70.4%	37	29.6%
During the first days of tracheostomy, the trachea should be suctioned every two hours	87	69.6%	38	30.4%
Obturator is the instrument should be kept ready during tracheostomy decannulation	109	87.2%	16	12.8%

Table 9. *Knowledge and practice of nurses regarding tracheostomy care (N=125).*

Perceived knowledge scores (13)	Knowledge score (%)	Frequency %	Level of knowledge
7	53.8%	5(4%)	Low
8	61.5%	16(12.8%)	
9	69.2%	21(16.8%)	
10	76.9%	14(17.5%)	Moderate
11	84.6%	17(13.6%)	
12	92.3%	22(17.6%)	
13	100%	26(20.8%)	High
Perceived practice scores(20)	**Practice score (%)**	**Frequency (%)**	**Level of practice.**
10	50%	0(0%)	Low
11	55%	1(0.8%)	
12	60%	1(0.8%)	
13	65%	5(4%)	
14	70%	16(12.8%)	
15	75%	12(9.6)	
16	80%	18(14.4%)	
17	85%	19(15.2%)	
18	90%	17(13.6%)	

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19	95%	15(12%)	
20	100%	11(8.8%)	High

Referring table9, the knowledge scores were categorized into low, moderate and high levels. During analysis only 38.4% has high knowledge, the majority 57.6% has moderate knowledge and just 4% has relatively lower knowledge of tracheostomy.

Regarding practice of nursing only 20.8% has high level of practice, the majority 72.6% has moderate and just 6.6 % has low level of practice regarding tracheostomy care.

DISCUSSION

Demographic variables

This study used a 125-person sample size with a majority of female participants (72.8%), which supports the findings of Nwakaego's (2016) study, which used an 80-person sample size with a female composition of 80%. Another study done by Mungan et al.(2019) used a sample size of 138 participants with approximately 88% nurses were female. A study by Pradhan, Neupane, Sah, Kuwar, and Shah (2018) employed a sample size of 80 nursing students, with a higher percentage of female participants (62%) than male students. Patil (2016), on the other hand, employed a sample size of 50 staff nurses, however 62% of the participants were female. These findings draw attention to a crucial gender issue—the persistence of female dominance in the nursing profession regarding age, the majority of participants (70, or 56%) were between the ages of 31 and 40, with only a few between 51 and 60. This supports the findings from Nwakaego (2016), who found that 52.5% of participants were between the ages of 25 and 30, and that only 10% were over 50. According to a survey by Patil (2016), 52% of staff nurses were between the ages of 20 and 25. In contrast to the findings of Pradhan et al. (2018), 50% of student nurses were between the ages of 15 and 18 and the remaining 50% were between the ages of 19 and 22. This is plausible given that the study was conducted on student nurses who were still in the early stages of their training. An estimated 57% of those having bachelor's degrees were found, supporting the findings of Mungan et al. (2019) and Patil (2016). Compared to Nwakaego's (2016) findings, where less than half (37.5% of participants) had bachelor's degrees, this outcome is different. In addition, just a fraction of nurses (1.3%) possessed master's degrees, according to a study by Nwakaego (2016), and only 6.25% had completed postgraduate coursework. According to the study's results on working experiences, the majority of participants have worked for between 0 and 5 years (42.5%) and 6 to 10 years (40%) while only a small number (3.8%) have worked for more than 16 years. These findings are similar to those of Mungan et al. (2019) and Patil (2016), who found that 52.2% and 86% of nurses, respectively, had cared for tracheostomized patients for less than 5 years. On the other hand, the study by Nwakaego (2016) noted that nurses in the study wards that were chosen had experience ranging from 11 to 20 years.

Level of knowledge regarding tracheostomy care

The current study's findings regarding nurses' understanding of tracheostomy care confirmed those of an Indian study that found that most (81.67%) of nurses had inadequate knowledge (Qadir, 2018), with the majority of nurses having moderate awareness (57.6%) of the topic.

Furthermore, Dhaliwal, Choudhary, and Sharma (2018) found that average knowledge was present in more than half of the study participants. Furthermore, only 46.4% of nurses in a research by Mungan et al. (2019) correctly answered seven questions, indicating a low level of awareness on

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tracheostomy care among nurses. In the current study, only 38.4% of nurses shown excellent knowledge of tracheostomy care, which contrasts with the findings of knowledge. Dhaliwal et al. (2018), who found that 43% of nurses had good.

In the current study, almost 44% of nurses were able to determine the size of the suctioning catheter, which is very identical to the findings of Pinto, D'silva, and Sanil (2020), who found that only 36% of nurses knew this information. According to the current study, roughly 59% of nurses have better knowledge than the 46% who were aware of the proper suction pressure to employ for endotracheal suctioning tubes (Pinto et al., 2020).

A different survey done in India in 2016 revealed that 40% of student nurses and 53.3% of staff nurses had somewhat good knowledge of tracheostomy care (Padma et al., 2016). According to Zeb, Ali, Hussain, Shah, and Faisal's (2017) study on tracheostomy suctioning, the majority of nurses had average understanding of endotracheal suctioning, at 83.5%, and roughly 72.1% knew how to employ a sufficiently sterile technique when aspirating from the trachea.

Hor, Hospital, and Hospital's (2017) post-operative tracheostomy care study in the intensive care unit revealed that 52% of nurses had average knowledge, 32% had good knowledge, and 16% had poor understanding on Tracheostomy care.

However, studies have shown that after tracheostomy care education material was implemented, understanding improved implementation of tracheostomy care teaching material. The post-test results for the study by Qadir (2018) show that most nurses have good knowledge, and roughly 47% of study participants even have highly adequate knowledge.

Level of practice regarding tracheostomy care:

While Dhaliwal et al. (2018) reported that 56% and 44% of nurses, respectively, had good and fair skills regarding tracheostomy care, the current findings only discovered (20.8%) nurses with a high degree of practice. Additionally, a higher percentage [79.2%)] showed poor tracheostomy care practice.

In research by Sardesai et al. (2016), nurses reported obtaining sufficient training and being happy with it, along with more work experience providing care for tracheostomies. As a result, several nurses' confidence in their abilities and practice skills in specific tracheostomy care routines, such as changing trach ties, handling mucus, and changing the inner cannula of the tracheotomy device, was questioned (Sardesai et al., 2016). However, Zeb et al. (2017)'s data showed that the mean practice level was 80.37%18.37%, showing good habits.

In contrast to a recent systematic review of the literature, which found that only 62% of nurses wash their hands before to suctioning (Pinto et al., 2020), the current study found that roughly 41% of the participants did. So only 41% of nurses in the current study were aware of the change in breathing as an indication for beginning suctioning to clear the patient's airway, which results in a relatively low score and necessitates action in determining the nurses' practical learning requirements.

Poor self-efficacy with tracheostomy and laryngectomy care undermines a nurse's ability to successfully treat these patients, according to a different study by Mcdonough et al. (2016)According to survey results from Mcdonough et al. (2016), 19% of respondents are unsure about their capacity to provide routine tracheostomy care, while 50% are unsure about providing normal laryngectomy care. Additionally, 62% of respondents and 40% of respondents,

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respectively, express doubt about their capacity to provide emergency laryngectomy treatment and tracheostomy care.

Additionally, as advised, 79% of nurses use continuous suctioning. The majority of nurses were found to be at ease with suctioning (77.1% of nurses) and cleaning the tracheotomy site (71.2% of nurses) in another study by Sardesai et al. (2016).

Limitations

There are several limitations in the study. The questions were formulated for just assessment of knowledge and practice regarding Tracheostomy care and most of the nurses refused to participate due to workload in their shift and patients. Most nurses answered in a hurry so there might be chances of error. For the proper answer to the questions, the participant needs a maximum of 25 minutes. Frequently nurses answer the question after taking too much time and mostly fill it quickly. Most of the participants cannot participate because they have a different view regarding Tracheostomy care.

Conclusion

The study's findings emphasize the lack of Knowledge and practices regarding tracheostomy care, which highlights the urgent need for theoretical and practical training in tracheostomy nursing care.

Encourage nurses to identify their learning needs so they can acquire the necessary knowledge and put it into practice. Nurses should have access to tracheostomy learning tools in the units to advance their skills. In order to enhance the practical skills of nurses, additional clinical hours of practice in tracheostomy care should be given throughout training. To identify the characteristics that affect nurses' knowledge and practice in providing tracheostomy care, more research is required.

Implications and Recommendations

The overall results show that nurses do have not enough knowledge and practice regarding Tracheostomy care. This is very difficult for the nurses to handle such a terminally ill patient. So, this is important for every nurse that they know about Tracheostomy care. Nurses should be trained in Tracheostomy care. This is very important to arrange a session on Tracheostomy care for nurses, so nurses should gain knowledge regarding Tracheostomy care. In the curriculum of the nursing students, Tracheostomy care in detail should be added so that the nurses gain knowledge and education regarding Tracheostomy care. If nurses are trained in Tracheostomy care, then they provide support to the family. Further studies should be performed in the Peshawar hospitals to carry out the problem that prevents the Tracheostomy care. This is very essential for nurses to have baseline knowledge and practice regarding Tracheostomy care and this educational session should be initiated. Further quantitative and qualitative studies should be conducted to find out the barriers and factors associated with Tracheostomy care to the patient and expose the factor that makes the gap in knowledge regarding Tracheostomy care.

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