

Descriptive Study Evaluating Nurses Knowledge and Practices Regarding Tracheostomy Care in ICU patients

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ABSTRACT

Background: ICU patient tracheostomy care is a fundamental nursing procedure. The tracheostomy might result in difficulties and causes a great deal of anxiety in patients. A low level of care can have negative consequences such as longer hospital stays, slower recovery times, and greater mortality rates.

Aim: To evaluate nurses' tracheostomy care knowledge and practises in ICU patients.

Study Design: The descriptive research study design was used.

Methodology: 75 nurses who worked in the ICU of three public hospitals in Lahore—Mayo Hospital, Jinnah Hospital, and Shaikh Zayed Hospital—were included in the study's sample. Nurses' practises were assessed by direct observation using a checklist, and their knowledge was assessed using a self-structured questionnaire. The analysis of the data was done using SPSS v 20.0.

Results: All participants in the study were ICU nurses. This data makes clear that 0 - 49% of nurses have low knowledge, while 50 - 64% of nurses have average knowledge, and >65% of nurses have adequate knowledge. Conclusion: The majority of participants had sufficient understanding of tracheostomy care. Additionally, it demonstrates that out of 75 nurses, only 0–59% had insufficient skill and > 60% had a sufficient level of performance.

Practical Implementation: This study assisted researchers in examining the risk variables related to Tracheostomy treatment in ICU patients because of the increasing number of patients in the ICU.

Conclusion: It was concluded that, despite having sufficient information, nurses performed poorly when providing tracheostomy care. Therefore, for the safety of patients, health care facilities must provide organized clinical guidelines and practices.

Keywords: Assessment, Knowledge, Practice, Nursing Care and Tracheostomy.

INTRODUCTION

In hospitals, tracheostomy tubes are implanted. To secure upper airway obstruction, it may be done in the operating room or intensive care unit¹. The earliest recognised surgical operation since antiquity is tracheostomy. On Egyptian tablets from 3600 B.C., it was scored. Both acute care hospitals and long-term care facilities routinely provide tracheostomy care. The patients benefit significantly from quality tracheostomy care².

Therefore, it is crucial that nurses are well-prepared with the necessary skills and knowledge for caring for tracheostomies in order to avoid any potential difficulties that may arise from poor nurse management. Typically, the nurses are the ones to analyse the issue initially and contact the attending doctor or surgeon right once if there is a problem. Most ICU patients require tracheostomies for long-term ventilation, about one-third of them. Tracheostomy care is crucial in both the intensive care setting and the general ward, as the prevalence of tracheostomies is rising globally³.

It is increasingly crucial that qualified nurses have the necessary training, knowledge, and support to address each patient's specific needs in a safe and effective manner. Lack of education and training can result in a number of major problems. The larynx and the bronchi of the lungs are joined by the trachea, a large resonant tube. Beginning from the base of the larynx, it terminates at the carina. The trachea is encircled by cartilage rings, and an adult's trachea measures 1.5 to 2cm in inner diameter. The wind pipe, which is a fundamental component of the airway and essential to breathing, is around 10 to 12cm long⁴.

In order to maintain airway integrity and remove upper airway obstruction, tracheostomies are performed by creating an opening between three and four cartilage rings on the front wall of the trachea. To maintain an airway, a tracheostomy tube is inserted. The tracheostomy tube enables the patient to alternate between breathing via their mouth and nose and their windpipe directly. Airway obstruction, bilateral vocal cord paralysis, laryngeal

cancer, chronic obstructive pulmonary disease, congenital airway obstruction, head injury, and burn patients with airway injury are among the conditions that call for tracheotomies. When oral or nasal intubation is not an option, it is often required in neurological illnesses such as trauma, coma, head and neck surgery, and acute airway obstruction. It could be temporary or permanent and might be carried out as a scheduled procedure or in an emergency^{4,5}.

To prevent potential complications, tracheostomy patients need intensive and specialised nursing care. Emergencies that could happen right away during a tracheostomy procedure include bleeding from the skin, tube displacement and airway loss, and tube obstruction. When all necessary equipment is readily available at the bedside, such emergencies can be handled more effectively by a qualified medical team⁶. Tracheal stenosis, tracheal esophageal fistula, and tracheomalacia are examples of late complications.

In addition to adequate and timely suction, stoma cleaning, control of tracheostomy cuff pressure, avoidance of skin infection, and balanced diet are all aspects of nursing care for tracheostomy patients. Patients who have had a tracheostomy may require oral care due to the altered upper airway. A knowledgeable nurse should evaluate the oral care. Since nurses constantly take care of the patients, they are in charge of the care's quality⁷.

One study revealed that normal saline instillation lower respiratory tract infection⁸. It is usually a misconception that it helps in liquefying secretions. The potential hazards of normal saline instillation include a fall in PaO₂; a survey found that 33% of nurses still use saline before and during suctioning. It is vital that the nurses should be adequately trained and competent enough in the care of a patient with a tracheostomy⁹. One of the practices that create anxiety among many nurses is tracheostomy care. Persistent demand for critical care bed means that standardized information should be provided because newly formed tracheostomies require sufficient time in the formation of stoma. It is necessary that the tube should not be change for the first 7-10 days¹⁰. According to reports, nurses working in intensive care units and regular wards lack the knowledge, confidence, and skills necessary to provide tracheostomy care⁶. Due to lack of research and debate on this important health issues, we planned current

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project as this study will assist researchers in examining the risk variables related to tracheostomy treatment in ICU patients because of the increasing number of patients in the ICU. The use of standardised nursing care recommendations can prevent many issues caused by this professional competency gap¹¹.

The objective of the study was to evaluate nurses' tracheostomy care knowledge and practises in ICU patients.

METHODOLOGY

All Registered Nurses (population) at Mayo Hospital Lahore, Shaikh Zayed Hospital Lahore, and Jinnah Hospital Lahore were included in this descriptive cross-sectional study (study design). Based on inclusion and exclusion criteria, a sample of 75 ICU nurses from three institutions was chosen. Data from the study setting were gathered using a non-probability convenient sampling approach. Data collection: A self-structured questionnaire was used in the current study to gauge knowledge. To evaluate nurses' practises, a checklist is created. The first section dealt with demographic information. Closed-ended questions about tracheostomy care for ICU patients are included in the second segment. The observational check list for tracheostomy care in ICU patients is in the third section. The study was approved by hospital ethical committee.

Statistical analysis: Data will be entered and analyzed in SPSS version 20.0. At descriptive analysis, for categorical variables, frequency and percentages were figured like experience and knowledge. Chi-square test was applied with p-value of less than 0.05 was considered significant.

RESULTS

Table 1 Association between experience and practice

Experience	Practices		Total
	Inadequate skills	Adequate skills	
<5 years	20(42.6%)	27(57.4%)	47(100%)
5 –10 years	9(40.9%)	13(59.1%)	22(100%)
>10 years	2(33.3%)	4(66.7%)	6(100%)
Total	38(50.7%)	37(49.3%)	75(100%)

Fisher's exact test = 2.395 p-value = 0.358

When the expected numbers are small fisher's exact test is used. Table 1 reveals that of the 47 nurses, 27(57.4%) had less than five years of experience with sufficient skills, while 22 nurses and 13(59.1%) had between five and ten years with sufficient skills. Only six nurses and four (66.7%) had more than ten years with sufficient abilities. The relationship between experience and practice is covered by Fisher's exact test. With a p-value of 0.358, the results showed that there is no correlation between experience and practice.

Figure 1: Frequency between experience and practice

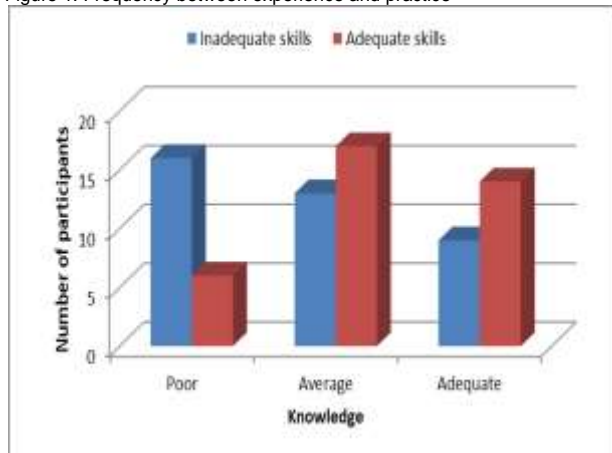


Table 2: Frequency distribution of nurses according to their overall knowledge

Knowledge	Frequency	Percent
Poor (<50%)	22	29.3%
Average (50-64%)	30	40%
Adequate (>=65%)	23	30.7%
Total	75	100%

Table 2 reported that majority of the nurses (40%) have average knowledge regarding tracheostomy care.

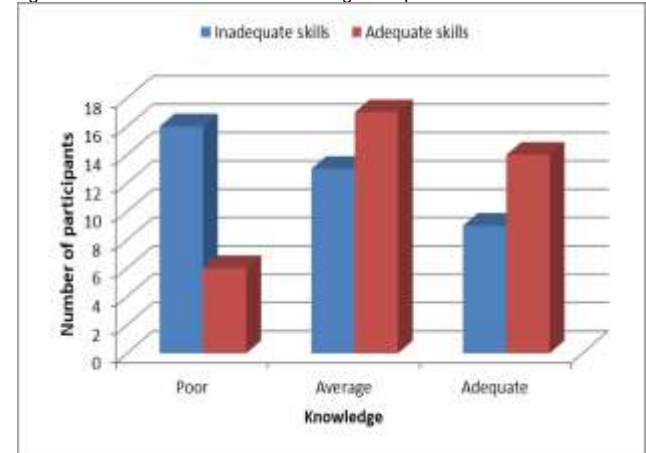
Table 3: Association between knowledge and practice

Knowledge	Practices		Total
	Inadequate skills	Adequate skills	
Poor	16(72.7%)	6(27.3%)	22(100%)
Average	13(43.3%)	17(56.7%)	30(100%)
Adequate	9(39.1%)	14(60.9%)	23(100%)
Total	38(50.7%)	37(49.3%)	75(100%)

Chi square test = 6.154 p-value = 0.046

Table 3 demonstrates that only 23 nurses out of 75 had adequate knowledge, while 14 nurses (60.96%) had adequate skills. However, only 30 nurses out of 75 had average knowledge, while 17 nurses (56.7%) had adequate skills, and only 6 nurses (27.3%) had adequate skills out of 22 nurses with poor knowledge. The relationship between knowledge and practise is determined using the chi square test. The findings indicated a strong correlation between knowledge and practise, with a p-value of 0.046.

Figure 2: Association between knowledge and practice



DISCUSSION

The current study discovered a relationship between experience and skill level and practice, but not between experience and skill level. Less experienced research participants (5 years) demonstrate a sufficient degree of competence (P=0.358). Similarity to the findings of Haider Mohammad's 2017 study was discovered. This was evident by the fact that even though the majority of nurses had little experience, they provided excellent tracheostomy care in the intensive care unit. Best practices may exist due to degree level of education and in-service training sessions.

The majority of the nurses routinely attended tracheostomy care-related lectures and seminars. The findings are at odds with one previous conducted in Finnish hospital ICUs regarding the practices used in tracheotomy care. Their study demonstrated that nurses do not attend workshops or seminars in service education linked to tracheostomy care due to a number of factors, including a scarcity of nurses, a lack of awareness, and an excessive amount of work¹².

The current study demonstrates the inadequacy in this area, demonstrating how basic education in service training, ongoing nursing education, workshops, and seminars help nurses become

more skilled at providing tracheostomy care, but in the absence of standardized guidelines and ongoing professional training, nurses remain perplexed despite having some prior experience.

The study's findings indicate a significant relationship between "knowledge and practice regarding tracheostomy care" (P-value=0.046). Our results agreed with another study which reported that nurses with strong tracheostomy care knowledge outperformed those whose knowledge was judged as having a low level of proficiency¹³. These results, however, contradicted with one study that showed no meaningful correlation between nursing knowledge and practice. In order to limit variation in practice, it was also shown that healthcare facilities lack written tracheostomy care procedures¹⁴.

Another study revealed a disparity in "Nurses' knowledge and practice of tracheostomy care" had similar findings. The results of nurses' knowledge were significantly better than their performance but did not show up in their practice¹⁵. Implementing standardized rules may help to close the knowledge and practice gap. Additionally, ongoing nursing education through seminars, workshops, and practical experience will undoubtedly be helpful in enhancing nurses' practices for providing tracheostomy care.

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Limitations of study: This study was only conducted on a small group, hence a larger study is required to extrapolate the results to larger populations. The limitations include financial ones, a lack of genetic testing, and protracted follow-ups.

CONCLUSION

It was concluded that, despite having sufficient information, nurses performed poorly when providing tracheostomy care. Additionally, it was noted that there was no standard operating procedure for nurses working in the intensive care unit. Therefore, among nurses working in ICUs, there is a discrepancy between knowledge and

practice. As a result, it was considered that this process needed specific training.

Authors' Contribution: AK&GZ: Conception and design of work.
MO&GF: Collecting and analyzing the data. **FMB&SN:** Drafting the manuscript

Conflict of Interest: None to declare

Financial Disclosure: None

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