



Original Article

Knowledge of Nurses Regarding Airway Suctioning in Tertiary Care Karachi Pakistan

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ABSTRACT

Proper suctioning is too essential to clear the patient's airway. Nurses should have correct knowledge regarding proper suctioning according to current recommendations to prevent complications. **Objective:** To assess nurses' knowledge regarding proper suctioning for adult patients. **Methods:** This cross-sectional study was conducted at a tertiary care hospital in Karachi, Pakistan. A 50 males and females were selected through convenient sampling by using a cross-sectional study. A self-made questionnaire was used for the data collection. **Results:** The study findings revealed that 50 participants participated, of which 60% were male and 40% were female. The findings also show that 40% had poor knowledge, 20 had moderate and 40% had high knowledge regarding g airway suctioning. **Conclusions:** Specifically, 40% of the staff demonstrated poor knowledge, 20% had moderate knowledge, and 40% exhibited a high level of knowledge concerning airway suctioning techniques. Further training and educational interventions may be necessary to improve the overall knowledge and standardize proper suctioning practices among the nurses in the hospital.

INTRODUCTION

In most care settings, including acute care, subacute care, long-term care, and home settings, airway suctioning is commonly performed. When the patient cannot efficiently clear secretions from the respiratory tract, suctioning is done. This can happen when the body produces too many secretions or when they are not removed quickly enough, which causes secretions to build up in the upper and lower respiratory tract. This may result in airway blockage and inadequate airflow. Ultimately, this results in a compromised exchange of gases like oxygen and carbon dioxide, which are essential for the best cellular function [1]. While often essential for preserving airway patency, tracheal suctioning has also been linked to several adverse

side effects, including tissue trauma, hypoxia, and cardiac dysrhythmias [2]. Therefore, it is crucial to guarantee the proficiency of healthcare practitioners who use this procedure. Suction is a way used to remove the excess secretion from the patient airway, which the patient cannot clear. Keeping the patient's airway clear is vital [3]. Inappropriate suctioning has a negative effect on the patient, which might increase the infection rate and prolong the patient's stay in the hospital [4]. Inappropriate knowledge about proper suctioning, like unawareness about the correct pressure for suctioning, may lead to injury of the patient airway and may cause short and long-term complications. Similarly, delay in suctioning may

cause various problems like airway obstruction, decreased oxygen saturation level, pneumonia, and even death [5]. Similarly, Ventilator-associated pneumonia (VAP), which is hospital-acquired pneumonia, is usually caused by inappropriate suctioning of the staff, which increases two times death rates, morbidity rates and extra charges on patient treatment [6]. Prolonged oxygen suctioning may lead to hypoxia which may cause severe heart problems; deep suctioning stimulates vagus nerve stimulation, leading to bradycardia and hypotension [7]. To avoid these complications, nurses should be aware of the risks and adhere to the American Association of respiratory care's (AARC) recommendations. These recommendations include employing a tight system with high positive end-expiratory pressure, increasing FIO₂, administering 100% oxygen before, during, and after endotracheal suction, avoiding the instillation of normal saline before ES, and more. The catheter's diameter in adult patients is half that of the endotracheal tube. The maximum suction time is between 10 and 15 seconds [8]. According to a study, medical professionals' ignorance of suctioning recommendations impacted practice. Additionally, there was a gap between optimum performance and actual suction practice. Because healthcare professional spends more time with patients, preserving patient safety and preventing suctioning complications is essential. This is accomplished by giving health care professional enough information on suggested guidelines to do suction effectively without endangering patients [8]. Different studies suggested Up to Date knowledge for the nurses on airway suctioning [9-12]. Consequently, this study aimed to assess the nurse's knowledge of airway suctioning.

METHODS

This study assessed nurses' knowledge regarding proper suctioning in the Tertiary Care Hospital in Karachi, Pakistan. It was a quantitative cross-sectional study conducted from September to December 2022 among hospital nurses using a self-made questionnaire regarding proper suctioning. The questionnaire was based on assessing nurses' knowledge about proper adult suctioning in the hospital. This study uses a convenient sampling method, and the sample size is (n=50) participants, calculated using Open Epi version-3 with a 95% confidence interval. The inclusive criteria are the nurses who have experience of more than a year, and the exclusive criteria contain the outsider staffs who have experience of less than a year and the staff of ICUs. The pilot study was conducted on 5% participants for the tool's reliability which was 0.81. The pilot study was not included in the final results. To gather data, the researchers used a self-made questionnaire designed to assess the nurses' knowledge about proper suctioning techniques for adult

patients in the hospital. The tool total score was converted into the percentage. Those participants who score below 50% considered low level of knowledge 50% to 70% considered moderate and above e70% considered high level of knowledge. The questionnaire likely contained various questions about the correct procedures, equipment, and safety measures for suctioning. Researchers obtained informed consent from all participants before including them in the study. Since the study involves human participants, it is essential to ensure that the nurses are fully aware of the study's purpose, procedures, potential risks, and benefits and voluntarily agree to participate without coercion. Finally, the data were analyzed by Statistical Package for Social Science (SPSS version 26.0). Data were presented through graphs and charts.

RESULTS

Figure 1 shows the result of gender distribution in which 40% were female and 60% were male.

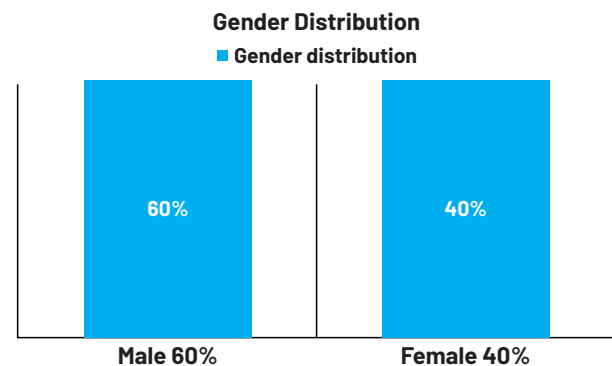


Figure 1: Gender Distribution

Figure 2 shows the result of age distribution in which 70% had below 25 years and above 25 years were 30%.

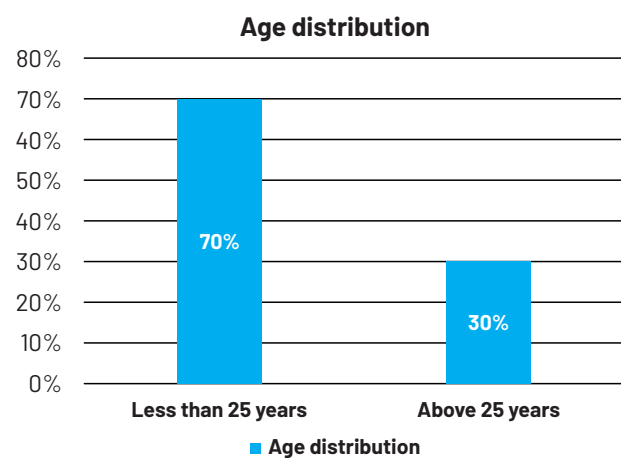


Figure 2: Age distribution

Figure 3 shows the overall levels of knowledge in which 40% had a high level of knowledge, 40% had a low and 20% had a moderate level of knowledge regarding airway

suctioning.

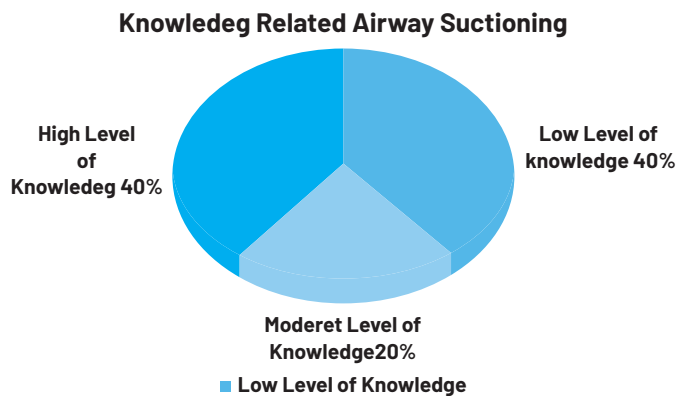


Figure 3: Levels of knowledge

DISCUSSION

Maintaining the patency of the airways and ensuring that patients receive enough oxygen and ventilation depend on proper airway suctioning [13]. Serious consequences include aspiration pneumonia, hypoxia, and respiratory distress can result from using inadequate or inappropriate suctioning techniques [14]. The study aims to detect any knowledge gaps in nurses that might influence patient safety by evaluating their expertise in this area. The present finding revealed that 40% of the participants had a low level of knowledge regarding airway suctioning. Similarly, a study conducted in China shows discrepancies between intensive care nurses' existing practice and the suggestions made by the guidelines and that they were unaware of certain critical evidence-based endotracheal suctioning practices [15]. Another study demonstrated that nearly one-fifth of the nurses scored favorably on knowledge of suctioning based on evidence [16]. Poor airway suctioning method knowledge can seriously endanger the health and safety of patients. Maintaining a clean airway and avoiding consequences like aspiration and respiratory distress depends on effective suctioning. Low knowledge levels could result in improper treatment, compromising patient results [17]. Furthermore, the present findings show that 40% had a high level of knowledge. A study from Peshawar shows that Only 1.8% of participants had outstanding knowledge, compared to 70.9% who had weak knowledge, 22.7% who had fair knowledge, and 4.5% who had very good knowledge [18]. Another study's findings show that the students' average knowledge score was 36.86, 14.45, making up 85.8% of the overall knowledge scores [19]. Additionally, in-service education should be encouraged about the proper way of suctioning [20].

CONCLUSIONS

Specifically, 40% of the staff demonstrated poor knowledge, 20% had moderate knowledge, and 40%

exhibited a high level of knowledge concerning airway suctioning techniques.

Authors Contribution

Conceptualization: MHS

Methodology: AB

Formal Analysis: RA

Writing-review and editing: MHS, AB, RA, S, SR

All authors have read and agreed to the published version of the manuscript.

Conflicts of Interest

The authors declare no conflict of interest.

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