

ASSESSMENT OF NURSING PRACTICES RELATED TO ORAL CARE IN MECHANICALLY VENTILATED PATIENTS IN INTENSIVE CARE UNIT

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Abstract

Background: Oral care in ventilated patients refers to the systematic approach to maintaining oral hygiene, as they are at a higher risk of developing VAP due to the accumulation of plaque and secretions, which can harbor pathogens. Oral care practices reduce it. However, oral health often deteriorates during hospital stays, especially in critical care settings like mechanical ventilation.

Aim: Aim of the study is to evaluate the current practices of nursing professionals regarding oral care in ICU in mechanically ventilated patients.

Methodology: This study was conducted in Ittefaq hospital after the permission of authority. Convenient sampling technique was used and duration was 6 months. Study design was descriptive cross-sectional study

Results: The research showed that majority of participants (77.2%) were aged 20–29 years, predominantly female (82%), single (58%), and diploma holders (67%). Nearly half (48%) had 1–3 years of work experience. Overall, most were young, moderately experienced nurses with diploma-level qualifications. Regarding oral care practices for mechanically ventilated patients, 97% of nurses demonstrated good practices, 2% had moderate practices, and only 1% showed poor practices, indicating strong adherence to oral care protocols in the ICU.

Conclusion: The study concluded that most participants were young (20–29 years), female, diploma-qualified nurses with moderate experience. Nearly all (97%) demonstrated good oral care practices for mechanically ventilated patients, indicating strong adherence to ICU care protocols.

INTRODUCTION

Oral care in mechanically ventilated patients is essential for maintaining hygiene and preventing ventilator-associated pneumonia (VAP), which results from the accumulation of dental plaque and secretions harboring pathogens (Sweeney et al., 2023). Prolonged intubation, mouth opening, and

dependence on healthcare staff for oral care contribute to rapid plaque formation within 48 hours (Niamh, 2023). In Pakistan, nearly 70% of ICU patients experience oral infections due to poor hygiene, with VAP incidence rates ranging from 20% to 40%, and mortality rates between 35% and 55%—

figures higher than many international averages (Ali et al., 2023; Ahmed et al., 2022).

Critically ill patients require specialized oral care to prevent infections that increase morbidity and mortality. Orotracheal intubation, while vital for airway management, elevates the risk of VAP—the most common and fatal healthcare-associated infection in ICUs (Xavier et al., 2023). Good oral hygiene significantly reduces the likelihood of developing pneumonia and other oral complications (Kelly et al., 2023). The World Health Organization (2018) emphasizes promoting oral health to minimize respiratory pathogen colonization, reduce infections, and lower healthcare costs. Nurses play a vital role in maintaining oral health, as the patient’s oral condition often reflects the quality of nursing care provided (Fatema, 2020).

Despite its importance, oral hygiene is often neglected in ICUs due to misconceptions about its value, shortage of supplies, and inadequate staffing (S. Kumar, 2023). Current guidelines recommend toothbrushing and antiseptic mouthwash, but consensus on the most effective ICU oral care methods remains limited (Xavier et al., 2022). Neglecting oral hygiene can lead to plaque buildup, periodontal disease, and increased risk of aspiration pneumonia. Therefore, this study aims to evaluate nurses’ current practices regarding oral care for mechanically ventilated patients, as effective oral hygiene is critical for preventing VAP and improving patient outcomes.

Objectives: To assess the current nursing practices related to oral care in intensive care unit patients with mechanical ventilation.

Methodology

A descriptive cross-sectional study design was employed to assess nurses’ practices regarding oral

Results

Table 1. Demographic characteristics of participants

Demographic Variables	Category	Frequency (f)	Percentage (%)
Age	20-29 Year	77	77.2
	30-39 Year	19	19.
	40-49 Year	3	3.0
Gender	Male	18	18.0
	Female	82	82.0

care for mechanically ventilated patients. The study was conducted at Ittefaq Hospital, Lahore, over a period of six months. The target population included staff nurses working in intensive care units (ICUs) with more than six months of experience, while student nurses, internees, head nurses, and non-bedside nurses were excluded. The sample size was determined using the Taro Yamane formula from a known population of 134 nurses, resulting in a sample of 100 ICU nurses. A purposive sampling technique was used for data collection. The study tool, adopted from Tefera et al. (2022), consisted of two sections: demographic information and 25 items assessing nurses’ oral care practices. The validity and reliability of the tool were confirmed by the first author. Data collection was carried out after obtaining permission from the concerned authorities and informed written consent from the participants. The purpose and objectives of the study were clearly explained, and confidentiality and anonymity were ensured throughout the process. Questionnaires were distributed personally by the researcher in a private setting, and participants were allowed to withdraw at any stage. Data were analyzed using SPSS version 25.0, applying descriptive statistics such as mean, standard deviation, frequencies, and percentages. The analysis covered demographic variables and five domains: practices prior to oral care, oral care event, post-oral care practices, and patient monitoring and care. Hypothesis testing was conducted using the Chi-square test, with a p-value ≤ 0.05 considered statistically significant. Ethical approval was obtained from the University of Health Sciences, Lahore, and all ethical principles, including informed consent, confidentiality, and voluntary participation, were strictly followed.

Marital Status	Single	58	58.0
	Married	42	42.0
Education Level	Diploma Holder	67	67.0
	Bachelor	29	29.0
	Masters	1	1.0
	Speciality	3	3.0
Working Experience	Less than 1 year	14	14.0
	1-3 years	48	48.0
	4-6 years	25	25.0
	More than 7 years	13	13.0

Table 1 presents the demographic characteristics of the study participants. The majority of participants (77.2%) were between 20–29 years of age, followed by 19% aged 30–39 years, and only 3% aged 40–49 years. Most of the respondents were female (82%), while 18% were male. More than half of the participants (58%) were single, and 42% were married. Regarding educational qualifications, the majority were diploma holders (67%), followed by those with a bachelor's

degree (29%), a small proportion with a specialty (3%), and only 1% with a master's degree. In terms of work experience, nearly half (48%) had 1–3 years of experience, 25% had 4–6 years, 14% had less than 1 year, and 13% had more than 7 years of experience. Overall, the data indicate that most participants were young, female, diploma-qualified nurses with moderate professional experience.

Table 4.2: Practices of nurses regarding oral care in mechanically ventilated patients

Category	Frequency	Percentage
Good Practices	97	97%
Moderate Practices	2	2%
Poor Practices	1	1%

Table 4.2 shows the overall distribution of nurses' practices related to oral care in mechanically ventilated patients. The majority of nurses (97%) demonstrated **good practices**, reflecting strong adherence to recommended oral care protocols in the intensive care setting. A small proportion (2%) showed **moderate practices**, while only 1% exhibited **poor practices**. These results indicate that most nurses followed appropriate oral care guidelines, ensuring the maintenance of oral hygiene and prevention of ventilator-associated complications among critically ill patients.

Discussion

The findings of the present study revealed that the majority of nurses (97%) demonstrated good practices regarding oral care for mechanically ventilated patients, while only 2% and 1% exhibited moderate

and poor practices, respectively. This high level of compliance indicates that nurses in the intensive care unit were well aware of the importance of maintaining oral hygiene to prevent ventilator-associated pneumonia (VAP) and other complications among critically ill patients. The results reflect effective adherence to evidence-based oral care protocols and highlight the positive impact of training, institutional policies, and clinical supervision on nursing practices. These findings are in line with Al-Bdairy and Hassan (2021), who reported that ICU nurses showed significant improvement in oral care performance following educational interventions. Similarly, Abdalraheem and Gendy (2020) found that most nurses had satisfactory levels of oral hygiene practice in mechanically ventilated patients, which reduced the incidence of oral infections and VAP. Consistent with these results, Kumar et al. (2024) and Kelly et al.

(2023) also observed high levels of compliance among ICU nurses, particularly in suctioning, maintaining head elevation, and ensuring cuff pressure regulation. Moreover, Karimi et al. (2023) demonstrated that supervised implementation of oral care protocols significantly enhanced compliance among nurses and reduced VAP rates. In a similar vein, Sweeney and Holman (2023) emphasized that consistent oral hygiene practices are a key component of infection prevention in critical care units. The present study also supports the findings of Senthil and Suresh (2022) and Bozkurt and Eşer (2024), who concluded that well-trained nurses perform oral care more effectively, ensuring patient safety and comfort.

Conversely, Ali et al. (2023) and Ahmed et al. (2022) highlighted that gaps in oral care practices and adherence to infection control measures still exist in some Pakistani ICUs due to workload, lack of standardized guidelines, and limited resources. Similarly, Aziz et al. (2020) reported that although nurses recognized the importance of oral care, inconsistent practices persisted due to shortages of time and supplies. These contrasts underline the variability in adherence levels across different healthcare settings.

Furthermore, evidence from international literature also supports the current findings. Mori and Hirasawa (2023) confirmed that routine oral care using antiseptic agents such as chlorhexidine plays a crucial role in preventing VAP. Munro and Grap (2022) emphasized that structured oral care protocols significantly lower infection rates among intubated patients. Tefera et al. (2022) and Xavier et al. (2023) also found that factors such as nurses' knowledge, attitudes, and institutional support greatly influence the quality of oral care practices.

Conclusions

The findings of this study indicate that the majority of nurses providing care to mechanically ventilated patients were young, female, and diploma-qualified, with moderate levels of professional experience. This demographic profile suggests that the ICU nursing workforce primarily consists of relatively early-career nurses who are actively engaged in patient care. Despite their limited years of experience, most nurses demonstrated excellent adherence to oral care protocols, as reflected by 97% exhibiting good

practices. This high level of compliance highlights nurses' awareness, competence, and commitment to maintaining oral hygiene and preventing complications such as ventilator-associated pneumonia in critically ill patients.

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