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KNOWLEDGE ATTITUDE AND PRACTICE AMONG NURSES TOWARDS ORAL CARE OF INTUBATED PATIENTS IN SHEIKH ZAYED HOSPITAL, RAHIM YAR KHAN

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Abstract

BACKGROUND

Oral care is a critical component of nursing management in intensive care units, particularly for intubated patients who are at increased risk of compromised oral hygiene due to mechanical ventilation, reduced salivary flow, and limited self-care ability. The accumulation of dental plaque, colonization by pathogenic microorganisms, and the use of medications causing xerostomia contribute to deterioration of oral health in critically ill patients. These changes significantly increase the risk of ventilator-associated pneumonia (VAP) and other nosocomial infections. Despite its clinical importance, oral care is often perceived as a low-priority task in critical care settings, leading to inconsistencies in practice. Nurses' knowledge, attitudes, and adherence to evidence-based protocols play a vital role in ensuring effective oral care and improving patient outcomes.

OBJECTIVES

The study aimed to assess the level of knowledge, attitude, and practices among nurses regarding oral care of intubated patients in the intensive care units. Additionally, the study sought to identify gaps in knowledge, evaluate attitudes toward oral care provision, and examine routine practices followed by nurses in a tertiary care hospital setting.

METHODOLOGY

A descriptive cross-sectional study design was conducted over a period of three months in the intensive care units of Sheikh Zayed Hospital, Rahim Yar Khan. The study included 180 registered nurses (RNs) and licensed practical nurses (LPNs), selected through purposive sampling. Data were collected using a structured and validated questionnaire developed through expert review, including an infection control nurse, a periodontist, and a critical care physician. A pilot test was conducted to assess clarity and feasibility. The questionnaire consisted of sections assessing knowledge, attitude, and practice related to oral care. Participation was voluntary and anonymous, with implied consent through questionnaire completion. Data were analyzed using SPSS version 23, applying descriptive statistics and Likert scale analysis at a 95% confidence interval.

RESULTS

The findings indicated that the majority of nurses (78%) strongly recognized the importance of oral care in critically ill patients. However, gaps were identified in specific areas of knowledge, particularly regarding the appropriate use, concentration, and frequency of antiseptic agents. Attitudinal assessment revealed generally positive perceptions toward oral care, although a notable proportion of

nurses considered it an unpleasant task and demonstrated variability in prioritizing oral care in clinical practice. In terms of practice, most nurses reported providing routine oral care and acknowledged its role in reducing infection rates. Chlorhexidine use was commonly reported; however, adherence to standardized evidence-based practices, such as the use of powered toothbrushes, was limited. A discrepancy between knowledge and actual clinical practice was observed, indicating barriers such as lack of training, absence of standardized protocols, and fear of dislodging endotracheal tubes.

CONCLUSION

The study concludes that although nurses possess adequate knowledge and generally positive attitudes toward oral care of intubated patients, their clinical practices are not consistently aligned with evidence-based guidelines. Significant gaps exist between knowledge and implementation, influenced by institutional and individual barriers. Strengthening continuous education programs, establishing standardized oral care protocols, and enhancing clinical training are essential to improve nursing practices, reduce the incidence of nosocomial infections, and ensure better patient outcomes in critical care settings.

INTRODUCTION

Definition: Patient oral care is defined as practices that keep the oral cavity healthy by cleaning the tongue, gums, lips, teeth and dentures (Better, 2024; Bonetti, 2023). Poor oral health can cause mouth discomfort, pain, difficulty chewing and swallowing, and affect nutrition and fluid intake. It impairs quality of life and personal dignity, especially in hospitalized patients (Ibrahim, Mudawi, & Omer, 2023), and adversely affects nutritional status, respiratory disease, chronic infections. Good patient oral care increases comfort and reduces the incidence and mortality of aspiration pneumonia, side effects of dehydration, and commonly used drugs (Sjögren, 2022). During hospitalization, the chance of dental plaque accumulation and gingival infection is increased (Terezakis, 2011). This helps the pathogen to be trapped to lower respiratory tract and serve as a source of hospital-acquired infection (Williams & Genco, 2016).

PROBLEM STATEMENT:

Several mechanisms may contribute to a decrease in oral health in critically ill intubated patients.

Dental Plaque: Dental plaque is a dynamic and complex system that associates microorganisms embedded in an extracellular matrix. It results from colonization and growth of aerobic, anaerobic, and filamentous microorganisms on the surface of teeth and soft tissues and is not easily removed. (Vincent JL, Bihari DJ, 2019) Bacterial plaque builds upon teeth within 72 hours after cessation of an adequate oral hygiene regimen.14 Formation of a biofilm appears to play an important role in bacterial replication and for bacteria to overcome host defense mechanisms.15 Singh et al16 found that lactoferrin, a natural antimicrobial protein found in the saliva, blocks the formation of an initial biofilm; nevertheless, an established 5-day-old biofilm was not affected.

Scannapieco compared the colonization of dental plaque by respiratory pathogens in patients in medical ICUs with that in age-matched, untreated control subjects visiting the preventive dentistry clinic for the first time and found that levels of dental plaque were higher in the ICU patients. Dental plaque may be an important reservoir for pathogens, and dental plaque of ICU patients can be colonized by potential respiratory pathogens. Yet, oropharyngeal flora not necessarily isolated from dental plaque are important in the pathogenesis of respiratory tract infections as well.

Drugs: Several drugs that are frequently used in the ICU may cause xerostomia (dryness of the mouth because of lack of normal secretions) that has a damaging impact on oral health. In this regard, Barnett listed the following drugs: anti hypertensives, anti cholinergics, antihistamines, antipsychotics, anorectics, anticonvulsants, anti neoplastics, sympathicomimetics, antidepressants, and diuretics. As some of these drugs are regularly

used in the intensive care setting, it is no surprise that many critically ill patients suffer from a dry mouth. It has also been demonstrated that exposure to antibiotics can cause colonization of the oral cavity by opportunistic pathogens. (Vincent JL, Bihari DJ, 2019)

Oral Flora:

Although the oropharynx of a healthy person predominantly consists of Gram-positive streptococci and dental microorganisms, the flora changes into a predominance of Gram-negative organisms and *Staphylococcus aureus* within 48 hours of hospital admission.1,8,19 The decrease of resistance to patients' colonization, induced by critical illness, makes them more vulnerable for being colonized with exogenous microbes. Increased levels of proteases in their oral secretions cause a depletion of fibronectin, a glycoprotein that interferes with binding of Gram-negative bacteria to epithelial cells and that acts as a reticuloendothelial-mediated host defense system.20 Because of this, receptors are exposed for the attachment of organisms such as *Pseudomonas aeruginosa* to the buccal and pharyngeal epithelial cells.5 The association between increased activity of proteolytic enzymes, such as elastases and proteases, and loss of fibronectin, followed by adherence of Gram-negative bacteria, has been demonstrated.21–23 Length of stay in a critical care environment also plays a major role in the colonization of the oral cavity. With increasing severity of illness and length of stay in a critical care environment, the degree of colonization with respiratory pathogens such as *Staphylococcus aureus*, *Streptococcuspneumoniae*, *Haemophilus influenzae,* and *Acinetobacter baumannii* increases to more than 70%.24 In their landmark paper, Johanson et al25 demonstrated that oropharyngeal colonization was rare in healthy volunteers and patients with moderate sickness, whereas it was frequently observed in more severely ill patients.25 Severely ill patients have reduced amounts of galactose and sialic acid on their upper-airway epithelial cells, and loss of these 2 monosaccharides may explain the high prevalence of Gram-negative bacterial colonization and pneumonia in the critically ill.

For patients with serious illnesses and respiratory failure, mechanical ventilation is a crucial, life-saving treatment that seeks to maintain proper gas exchange (Stayt et al., 2019). Despite mechanical intubated significance as a life-saving treatment had several widespread consequences and recurring illnesses affect patients, such as intubated patients. (Morris et al., 2022; Sedwick, et al., 2022). Oral hygiene is seen as a crucial nursing practice in the ICU. Historically, this action has focused more generally on patient comfort and hygiene dealing with removing plaque (Soh, et al., 2022). Apart from Life-saving treatment, importance as an intubated patient had many common complications and systemic illnesses. Oral care is considered an important nursing activity.

Within the same ICU. Similarly Oral care protocols can be inconsistent and impractical. Hard to understand or non-existent. A study conducted. Exploring Jordan's Critical Care Capabilities Nurses are using intubated for mechanical ETT and oral care practices. None of the participants observed 40% of them compared to not using a toothbrush was observed. Place in patient's mouth every 2-4 hours. According to the literature, the majority of nurses tested were positive. 2022), not standardized. The effectiveness of oral care is often underestimated.

Patients are at higher risk of poor oral hygiene, especially elderly patients Malnutrition, dehydration, weakened immunity. Other causes may interfere with oral care practice, Factors such as smoking, alcohol history, incubation period, patient maintenance of good oral hygiene oxygen therapy. Oral hygiene is an essential component of care and makes sense for all patients, especially this one seriously ill. Maintaining good oral hygiene in critically ill patients is very important to reduce oral hygiene. Risk of nosocomial infection. Therefore, oral care of critically ill patients prevents the spread of infection and improves the patient's condition. Comfort (Terezakis, 2022). Oral hygiene rates and performance were based on oral assessment results. nurse offering mouth Hygiene managers are instructed to apply oral hygiene when patients suffer from multiple comorbidities (Nancy, 2022).

Oral care is an integral aspect of care and relies on the nurse's knowledge of the patient's oral hygiene. However, oral hygiene is often neglected and is not a priority in nursing daily activity schedules, even when oral problems are evident (Salamone et al., 2024a, 2024b). Continuous training Education and hands-on training help improve nurses' knowledge and attitudes towards oral care

(Lindqvist & Seleskog, 2024); Khme, 2014; Horror, 2023. Janssen, 2016. Blum et al., 2022). In hospitals in northern Taiwan, Pakistan, Texas, and Croatia, nurses' knowledge of oral care was above 0.5% (Lin, 2011; Salamone et al., 2024a; Jordan, 2014). Also, 78% of nurses Good knowledge of oral care in Indian medical colleges (Agarwal, 2022). However, in Iran, nurses had low knowledge levels and oral care was a priority (Hajbaghery, Ansari & Fini, 2024), and 51.3% of Indian nurses had low knowledge levels (Lindqvist & Seleskog, 2024; Pai and Ongole 2023). In addition; nurses did not have sufficient knowledge of oral health especially in ICU and were not competent enough to care for it. Oral hygiene needs of patients in the Netherlands and Singapore are good (Hollaar, 2023; Chan & Ng, 2024). In Africa; nurses' knowledge of patient oral care was highest in Sudan (97%), followed by South Africa (32%) (Ibrahim et al., 2023; Tembo, 2016). Approximately 47% of nurses find managing the oral health of patients in India an uncomfortable task (Monica & Koppula, 2022). Nurses from Sweden (Jonsson, Wiktro & Wa, 2011) and northern Taiwan (Lin, 2011) showed positive attitudes towards oral care. On the other hand, 80% of her nurses believed that good oral care leads to better clinical outcomes for patients. Results in Singapore (Chan & Ng, 2024), 40% of nurses did Positive attitudes towards oral care are found in Iran, Malaysia and Pakistan (Salamone et al., 2024a; Saddki, 2014). However, nurses's attitudes were inadequate in the Netherlands (Hollaar, 2023). In Africa, the mean rating of nurses' attitudes towards oral care in a cross-sectional study in South Africa was 60% of hers. (Pace, 2016).

Nurses' knowledge and attitudes towards patient oral care were considered. It is influenced by nurse qualifications, on-the-job training of staff, sources of learning, and the existence of oral care protocols/guidelines (Chan & Ng, 2024; Salamone et al., 2024a; Tembo, 2016; Blum et al. 2022). nurse knowledge was influenced by designation and years of work experience. No associations were found between knowledge and age, gender, qualifications, special education, and units of work (Pai and Ongole, 2023). In addition; there was a highly significant correlation between knowledge and attitudes (Ibrahim et al., 2023). Correct knowledge and posture are very important to perform oral care for patients. However, there is no documented evidence to support nurses' knowledge and attitudes towards patients and their oral care. Relevant factors for Ethiopia.

Therefore, this study assessed nurses' knowledge and attitudes towards intubated patients' oral care. The results of this study may help nurses become more aware of their patients' oral care. In addition, in Ethiopia where there are few dentists, it is said that it firmly supports oral health. Additionally, the results can be used as a resource for other research. Traditionally, this activity emphasis on patient comfort and hygiene rather than specifics Plaque removal therapy. Oral Care Policy and Practice Varies by country and even hospital to hospital. Most nurses often lack evidence-based information to practice proper oral hygiene (Chan et al., 2019). Many nurses view oral care in adults in need of care only as a means of comfort and as a result oral hygiene should be practiced Low clinical priority. Changing healthcare provider perceptions from oral hygiene as a means of convenience to oral hygiene Nursing as needed helps bring about positive social change by improving nursing performance and improving the quality of nursing Improve patient outcomes by increasing patient availability, providing comfort and reducing the risk of aspiration. Additionally, the use of oral assessment tools and evidence-based oral care practice guidelines has been shown to yield results. Patients' oral hygiene was significantly improved (Dickson, 2022).

OBJECTIVES: To assess the level of knowledge and difficulties concerning hospitalized patients regarding preventive intubated / oral health measures among staff nurses of a tertiary care hospital's Intensive Care Units (ICUs).

Chapter 2
LITERATURE REVIEW

Intensive care unit (ICU) is the a part of any health facility that handles seriously sick and subconscious sufferers. Some of those sufferers could in some unspecified time in the future of their time on the ICU require mechanical air flow which entails taking on a patient's respiratory via an endotracheal tube (ETT) this is exceeded via the oral hollow space into the trachea. Under those circumstances, the oral care of such sufferers turns into a difficult issue. Oral take care of those sufferers stays a

completely crucial factor of nursing care provided to such paients (Stonecypher K. 2022)

The aim of oral care is to hold the oral infection of those sufferers in a clean, snug and contamination free. ICU patients may also require oral intubation to be in a good condition. The ETT, that is frequently used for this role, has been strongly related to Ventilator Associate Infections (VAI), that is one of the maximum not un usual place reasons of nosocomial infections amongst mechanically-ventilated sufferers with inside the ICU. Four Hospital-received intubated (HAP) is one of the most typical headaches visible amongst ICU sufferers five VAI is a subdivision of HAP and it's far described via way of means of the American Thoracic Society as intubatedhappening in mechanically-ventilated sufferers after not >forty eight Hours (Chacko R, Rajan A, 2022). In the United States, VAI has been suggested as the second one maximum not unusual place health facility-received contamination and the most common nosocomial contamination amongst mechanically-ventilated sufferers (Vincent JL, Bihari DJ, 2019). The prevalence of nosocomial infection in intensive care units in Europe. 210 Results of the European Prevalence of Infection in Intensive Care. The VAI amongst growing nations is located at 5 to 41.7 in step with a thousand intubated-days VAI is seemed as a prime morbidity predictor amongst seriously sick sufferers. It has been proven that there's a alternate with inside the oral flowers of intubated sufferers to predominantly gram-terrible flowers which incorporates organisms with excessive virulence which have been implicated in VAI. All this is going to reveal the significance of oral care in ICU sufferers on mechanical air flow, and this oral care is sort of solely supplied to those sufferers via way of means of the ICU nursing staff. The nursing staffs also are in price of all of the oral care wishes of such sufferers and this lead them to relevant to any attempt geared closer to lowering VAI. Studies have been done involving Saudi Arabian and Malaysian nurses, and it has also been reported that VAI among ICU patients results in a significant increase in the mean duration of ICU stay as well as the cost and duration of hospitalization, indicating the economic impact of VAI not just on the Intensive care unit (ICU) is the part of any hospital that handles critically ill and unconscious patients. Some of these patients would at some point in their time at the ICU require mechanical ventilation which involves taking over a patient's breathing through an endotracheal tube (ETT) that is passed through the oral cavity into the trachea. Under these circumstances, the oral care of such patients becomes a challenging issue. Oral care for these patients remains a very vital aspect of nursing care offered to such paients. The goal of oral care is to maintain the oral state of these patients in a clean, comfortable and moist manner that is infection-free. ICU patients may require oral intubation to help them maintain a patent airway. The ETT, that is frequently used for this role, has been strongly related to intubated-related intubated (VAI), that is one of the maximum not un usual place reasons of nosocomial infections amongst mechanically-ventilated sufferers with inside the ICU3. Hospital-obtained intubated (HAP) is one of the most common patients VAI is seemed as a prime morbidity predictor amongst significantly unwell patients. It has been proven that there is extra with inside the oral flowers of intubated sufferers to predominantly gram-bad flowers which incorporates organisms with excessive virulence which have been implicated in VAI12, thirteen. All this is going to reveal the significance of oral care in ICU sufferers on mechanical ventilation, and this oral care is sort of completely supplied to those sufferers via way of means of the ICU nursing staff. The nursing staffs are also in charge of all the oral care needs of such patients and this make them central to any effort geared towards reducing VAI. Studies have been done involving Saudi Arabian and Malaysian nurses, and it has also been reported that VAI among ICU patients results in a significant increase in the mean duration of ICU stay as well as the cost and duration of hospitalization, indicating the economic impact of VAI not just on the patients but also on their families and friends. Local literature is sparse in this critical area. The current study was planned to assess the knowledge, attitude and practices of ICU nurses regarding oral care delivery to mechanically-ventilated patients.

METHODOLOGY

Study design:

The study design was cross sectional study.

Study area:
The area of the study: Sheikh Zayed Hospital Rahim Yar Khan

Study duration:
The study duration was 3 months

Study population:
The population of the study was hospital Registered Nurses, Licensed Practice Nurses.

Inclusion criteria:
The study included all RNs and LPNs of selected hospital.

Exclusion Criteria
All doctors, Lab Technician and other Hospital Employee

Sample size:
The sample size of the study was 180 staff nurses

Sample size technique;
The sample size technique was purposive technique.

Statistical Analysis
The participants were asked to record their responses by keeping the above scenario in mind. Baseline characteristics of the nurses and responses to knowledge, attitude, and practice related questions were noted. Data was analysed at 95% confidence interval (CI) using SPSS 27.

Questionnaire Validation. Content validation of the survey was obtained by using a panel of 3 persons: an infection control nurse, a periodontist with knowledge about oral infection control, and a critical care expert physician. Each person was familiar with the oral care guidelines, and each received a copy of summary of the research published regarding oral care guidelines. Each commented on the adequacy of the match between the guidelines and the questions on the survey. No additional items were suggested, and no items were suggested for deletion or revision. The survey was then distributed to 10 paramedical and medical staff workers in ICU from SZH employed in a variety of ICU settings to evaluate readability of questionnaire and time to complete the survey.

Survey. The survey was distributed to 180 Staff Nurses from Sheikh Zayed Hospital, Rahim Yar Khan. specially working in ICU settings.

Blinding. A cover sheet on each survey instructed nurses to protect anonymity by placing no identifying information like name, address, and designation on the survey.

Consent. Nurses also were informed that completion and return of the surveys implied their consent to participate.

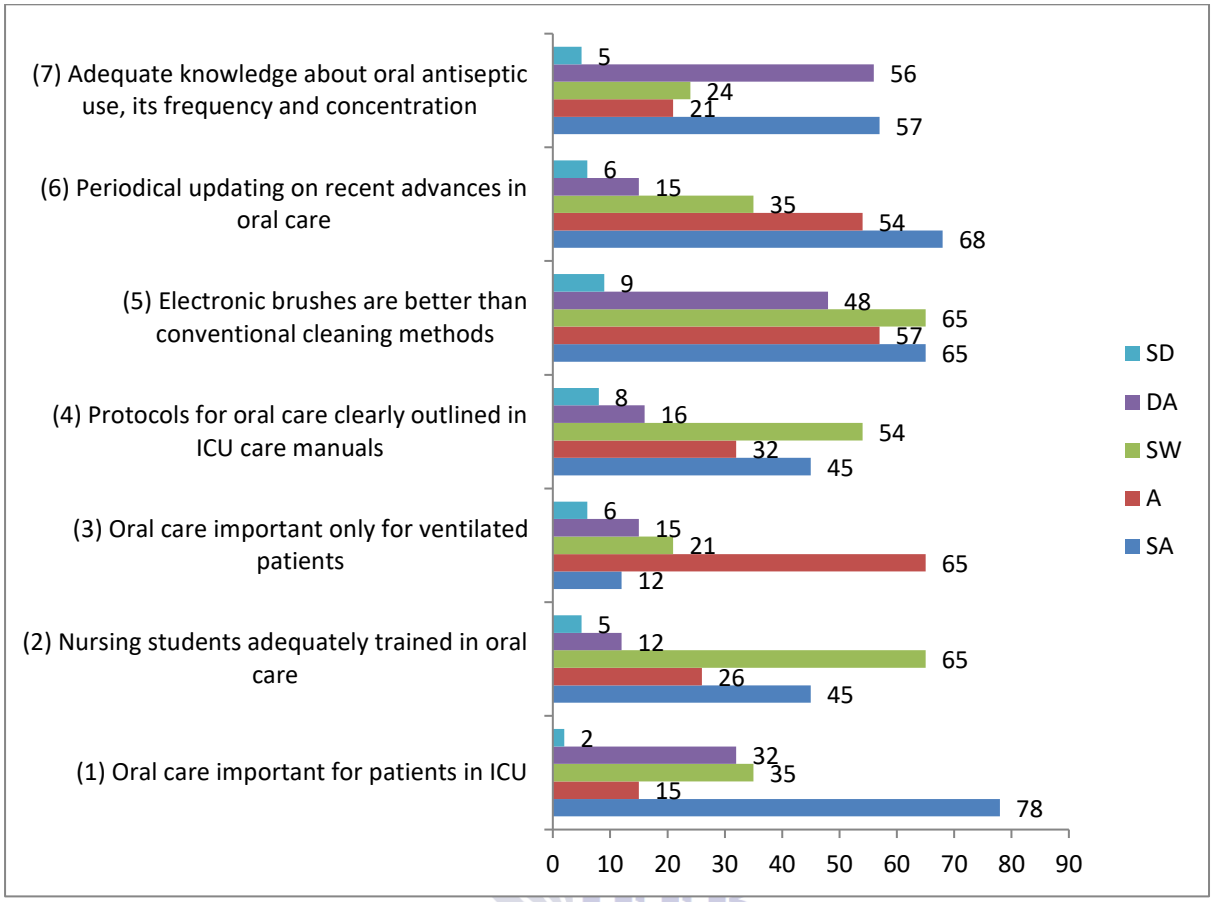
Instrument Distribution and **Collection**. The permission to carry out the survey was taken from the ICU in charge of the unit concerned. The survey questionnaire was given to the nurses and they were asked to complete the form at that time only. Therefore, we were able to assess the spontaneous response rather than manipulated response if the survey questionnaire was left with the nurses to return at their leisure.

Data Collection and Analysis. The collected data was compiled electronically. The Likert scale analysis was done and percentage calculated for each response. Thus, each item was analysed separately. Further, a summative analysis was done on three parameters:
(1) Knowledge
(2) Attitude
(3) Practice.

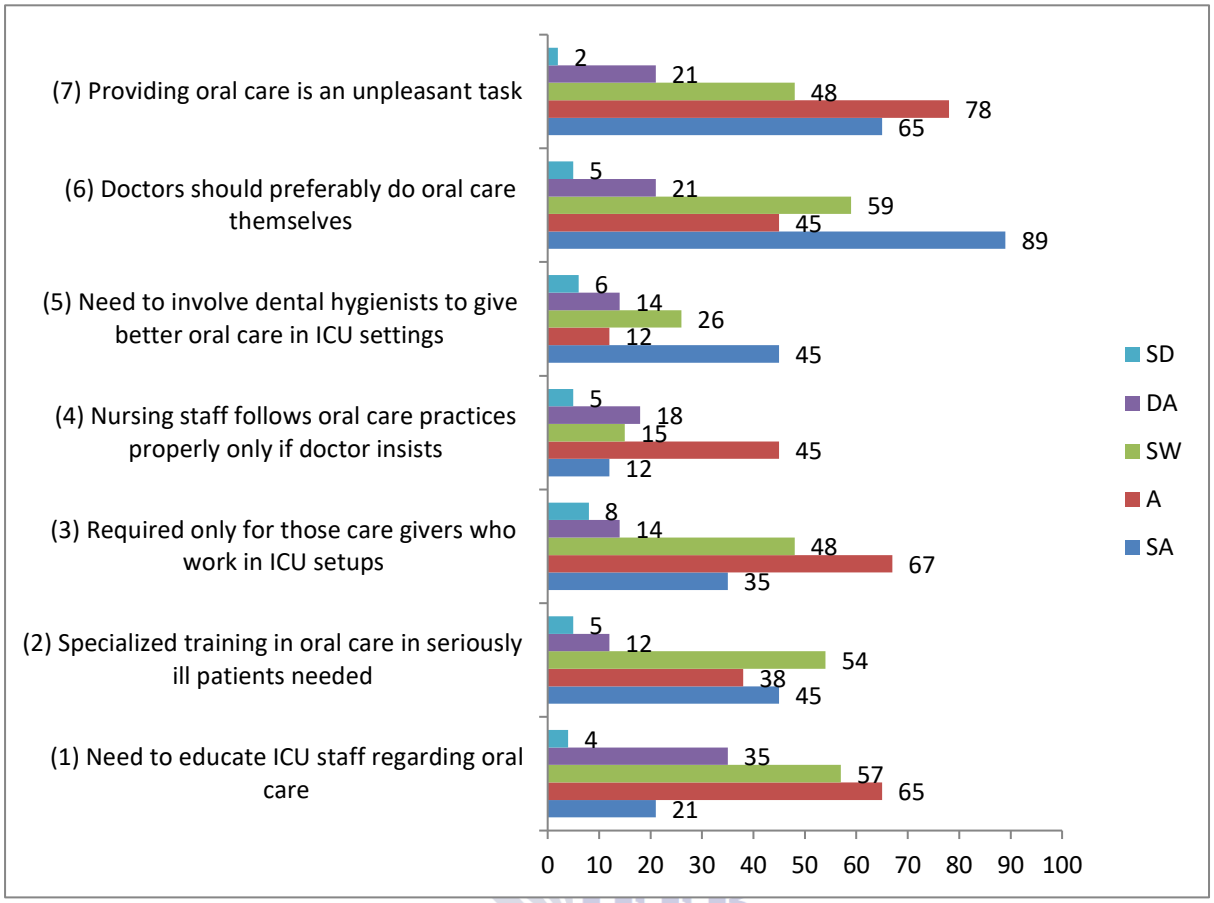
Results

ASSESSMENT OF KNOWLEDGE REGARDING INTUBATED PATIENTS IN ICU SETTING.	SA	A	SW	DA	SD
(1) Oral care important for patients in ICU	78	15	35	32	2
(2) Nursing students adequately trained in oral care	45	26	65	12	5
(3) Oral care important only for ventilated patients	12	65	21	15	6
(4) Protocols for oral care clearly outlined in ICU care manuals	45	32	54	16	8
(5) Electronic brushes are better than conventional cleaning methods	65	57	65	48	9
(6) Periodical updating on recent advances in oral care	968	54	35	15	6
(7) Adequate knowledge about oral antiseptic use, its frequency and concentration	57	21	24	56	5
ASSESSMENT OF ATTITUDE TOWARDS INTUBATED PATIENTS IN ICU SETTING					
(1) Need to educate ICU staff regarding oral care	21	65	57	35	4
(2) Specialized training in oral care in seriously ill patients needed	45	38	54	12	5
(3) Required only for those care givers who work in ICU setups	35	67	48	14	8
(4) Nursing staff follows oral care practices properly only if doctor insists	12	45	15	18	5
(5) Need to involve dental hygienists to give better oral care in ICU settings	45	12	26	14	6
(6) Doctors should preferably do oral care themselves	89	45	59	21	5
(7) Providing oral care is an unpleasant task	65	78	48	21	2
ASSESSMENT OF PRACTICES TOWARDS INTUBATED PATIENTS IN ICU SETTING					
(1) Oral care given to all patients in ICU	15	86	45	18	6
(2) Oral care given only to artificially ventilated and comatose patients	14	75	12	12	5
(3) Chlorhexidine 0.12% is best for oral car	45	42	56	15	8
(4) Frequency of oral care is at least twice daily	21	53	53	18	9
(5) Nosocomial infections reduced in patients who receive adequate oral care	32	65	58	14	6
(6) Electronic brushes used more frequently for daily oral care	23	54	57	15	5
(7) Tooth pastes used along with brush for oral cleaning	35	51	12	12	8

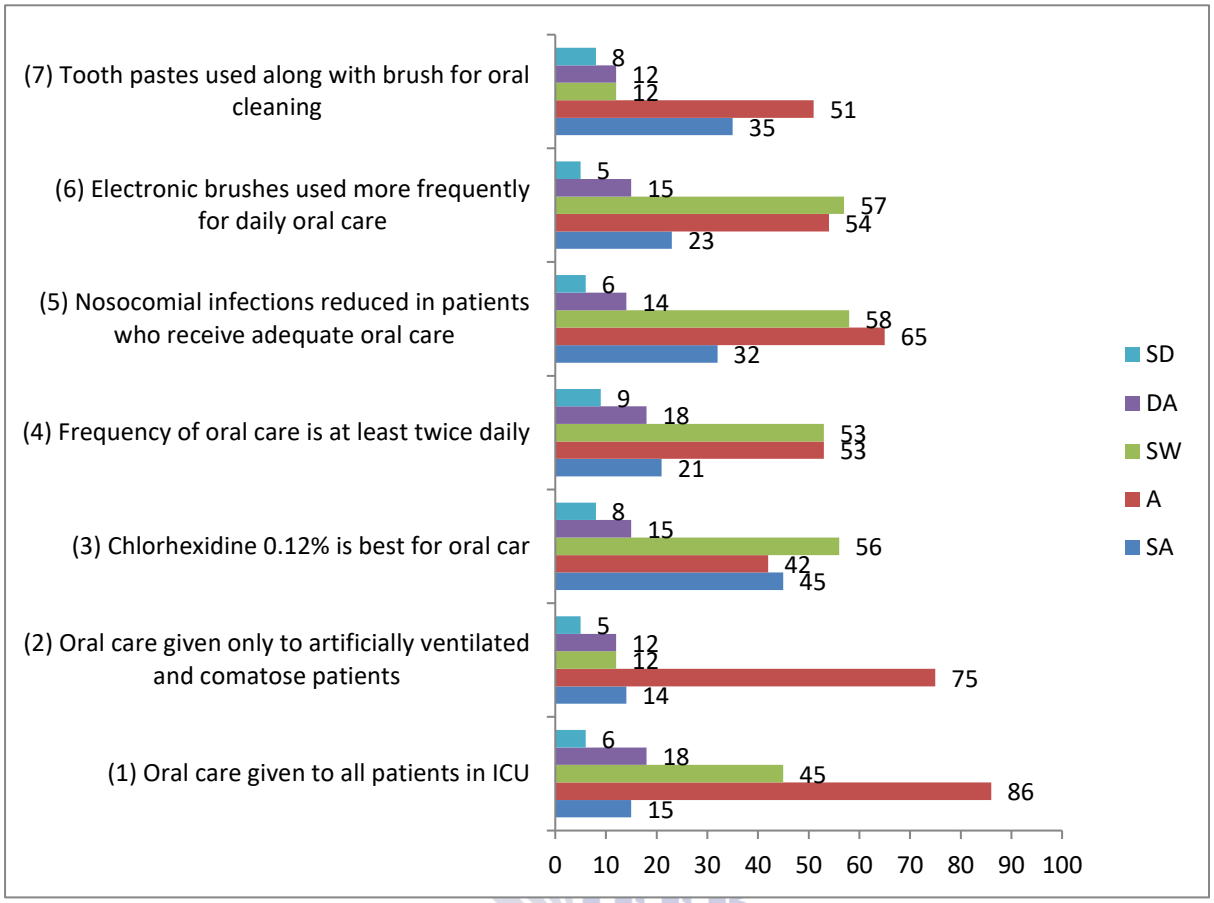
1.1 Knowledge Assessment. The results suggest that maximum number (78%) strongly agrees that oral care is important in seriously ill patients admitted in ICU. The education regarding oral care is not adequate for ICU patients. There is mixed feeling among nurses regarding importance of oral care only for ventilator ridden patients (20 agree; 20 disagree; and 10 somewhat agree). Most nurses agree with clear cut oral care outlined manuals. Most agree with the use of electronic brushes over manual brushes. However most disagree with clear guidelines, concentration, and frequency of antiseptic use. Most nurses also disagree about being periodically updated regarding recent advances in oral care in ICU (Table 1).



1.2. Attitude Assessment. Most nurses believe there is a need for training ICU staff for oral care especially specialized training. There is agreement regarding the training only for workers in ICU setups but the agreement is not strong. There is no consensus regarding the oral care being provided only after doctor's insistence (50% agree and 40% disagree). Most agree that dental hygienistsmay be employed for carrying out oral care; however most disagree with doctors providing oral care themselves. Majority of nurses believe providing oral care to be an unpleasant job (Table 2).



1.3 Practice Assessment. Regarding oral care practices, most nurses agree with oral care provided to all seriously ill patients in ICU and majority somewhat agree with it being provided to only ventilator associated patients. Majority agree with the use of chlorhexidine gluconate 0.12% at a frequency of twice daily to be used for oral care practise in ICU. Nurses agree with the reduction of nosocomial infections in patients receiving adequate oral care. However, electronic brushes are not used frequently. Majority of nurses believe in having adequate knowledge regarding oral care in ICU patients but the practice of the same is not adequate (Table 3).



Discussion:

The present survey describes a questionnaire based assessment of the knowledge, attitude, and practise among healthcare workers in a critical setup for increased prevalence of nosocomial infections. Little information is available in the literature regarding oral care practices, and only one validated instruments could be found to address the research questions presented in our study. Binkley et al. survey was conducted in US ICU setting. The present survey was designed to assess work practices, nursing training, and practices in Indian scenario. Nursing programs today ensure that nursing students master awide variety of complex and technology-driven skills that supersede the simple task of oral care. This research was designed to assess the current knowledge and practices in ICU nursing staff working in Sheikh Zayed hospital, Rahim Yar Khan. The information gathered here in may be utilized for formulating protocols for enhanced training and practice of oral care in ICU setups. According to the nurses' self-reports from various studies, evidence based best practices for the prevention of nosocomial infections are not consistent and uniform in their implementation. In the present study, the knowledge assessment showed that the nurses are aware of the importance of oral care in seriously ill patients at Sheikh Zayed hospital's ICU. They are well taught about oral care and have clearly defined manuals. They are also aware about electronic brushes being better in proving oral care than manual brushes. The antiseptic concentration and frequency of use is a point of confusion among most of the nurses (somewhat agree 42%). The lacuna in their education regarding oral care protocols is lack of knowledge regarding recent advances and participation in continuing education programs. The efficacy of the electric toothbrush for dental plaque removal and promotion of gingival health has been well proven. A review of the certified nursing curriculum indicates that oral care is a focused skill. The activities involved in the process are not well defined and are guided by the individual procedures protocol of the hospital. Although the basic skills are reinforced in a professional setting and rationale for actions

emphasized but they still need to be incorporated in the certified nursing program at Sheikh Zayed hospital where initial impressions are made. This research results shows that nurses have a positive attitude towards providing oral care practice to mechanically ventilated patients. The finding is similar to the survey by (Binkley, 2022). In another study 40% to 46% of nurses reported that oral care is an unpleasant and difficult task, and the mouth of the patient who needs prolonged ventilation deteriorates even after oral care. In our survey 78% of the nurses regarded oral care as very important for the seriously ill patients and had the training and time to provide it. These results are similar to those of a study by (Binkley et al, 2022). Having sufficient time to provide oral care, prioritizing oral care and not finding it unpleasant are associated with better oral care practices. Another survey on oral care interventions in the ICUs found that oral care was accorded low priority while greater importance was given to stabilizing the condition of the critically ill patients. Nurses are hesitant to provide oral care or use toothbrush for patients who are intubated as endotracheal tubes may limit access to the oral cavity. Nurses also fear dislodging/ displacing the endotracheal tube. Nurses' hesitation in using toothbrushes is due to their lack of knowledge of recent research findings. Therefore, nurses were not providing a variety of oral care interventions designed for patient's comfort rather than plaque removal [20]. The gap between what we know and the way we practice continues to be larger than desired. Nearly 70% of nurses agree with the same (54%strongly agree and 16%agree). Nurses' compliance with recommendations about oral care must be improved. Few nurses did not use toothbrushes in their practice but followed the oral care protocol learned during their nursing training. It shows that they have positive attitude in providing oral care. The nurses also practiced oral care as a routine procedure. Chlorhexidine is an easily applied and relatively inexpensive preventive measure with minimal side effects. Tooth brushing at least twice per day has been shown to reduce pneumonia in dependent patients and is more cost-effective than routine use of foam swabs. The present survey suggests that most nurses strongly agree with the use of chlorhexidine (64%) with a frequency of twice daily (44%). Oral care is an important component of nursing and various protocols for oral care practices have been proposed [21–25]. Powered toothbrushes have been shown to improve the quality of care and are easier to use than manual brushes [26]. In the present study 68% of nurses did not use powered toothbrushes in their practice. The major reason could be the cost involved in procuring electric toothbrushes.

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