A STUDY TO ASSESS THE ATTITUDE AND PRACTICES OF CARDIAC NURSES ON ORAL CARE IN CARDAIC SURGICAL INTENSIVE CARE UNIT, SCTIMST

PROJECT REPORT

Submitted in partial fulfillment of the requirements

For the

Diploma in Cardiovasular and Thoracic Nursing

Submitted by

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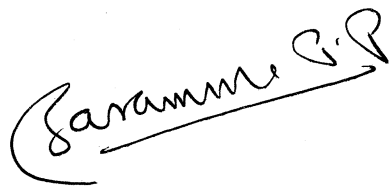
(November 2011)

CERTIFICATE FROM SUPERVISORY GUIDE

This is to certify that Ms. Anjana. S. R has completed the project work on `***A study to assess attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit'***, under my direct supervision for the partial fulfillment for the Diploma in Cardiovascular and Thoracic Nursing in the University of Sree Chitra Tirunal Institute for Medical Science and Technology, Trivandrum. It is also certified that no part of this report has been included in any other thesis for processing any other degree by the candidate.



Dr. Saramma. P. P, MN, PhD
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Trivandrum,
November 2011.

CERTIFICATE FROM THE CANDIDATE

This is to certify that the project on ` ***A study to assess attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit',*** is a genuine work done by me under the guidance of Dr. Saramma .P.P, M.N, PhD, Senior Lecturer in Nursing, SCTIMST, Trivandrum. It is also certified that this work has not been presented previously to any other university for award of degree, diploma or other recognition.

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APPROVAL SHEET

This is to certify that Ms. ANJANA.S. R, bearing Code No: 6202, has been admitted to Diploma in Cardiovascular and Thoracic Nursing, January 2011 and she has undertaken the project entitled, **'A study to assess attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit,'** which is approved for the Diploma in Cardiovascular and Thoracic Nursing, awarded by Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum as it is found satisfactory.

EXAMINERS

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GUIDE

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ABSTRACT

A study to assess the attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit

Background: Patients' oral care is a key component of nursing care. Oral care is often considered primarily an intervention for patients' comfort, a characteristic that may reduce its priority and thus its frequency. Oral care is an important intervention in the intensive care to reduce the dental plaque. Dental plaque provides a repository for respiratory pathogens contributing to ventilator associated pneumonia. **Objectives**: (1) To assess the oral care practices in CSICU (2) To assess the cardiac nurses' knowledge on risk factors of ventilator associated pneumonia, attitude regarding oral care in CSICU. (3) To assess the cardiac nurses opinion regarding introducing toothbrushing in CSICU. ***Method:*** This survey used both self administered questionnaire and observational checklist. Thirty cardiac nurses were selected for the study. The observation period included selected shifts over three weeks in October 2011**. Result**: Majority of the cardiac nurses have positive attitude towards providing oral care. 57% of the cardiac nurses suggest aspiration of contaminated secretions from the oropharynx as the common risk factor of ventilator associated pneumonia. 67% of the cardiac nurses doesn't prefer toothbrush for giving oral care in intubated patients in CSICU. ***Conclusion***: Oral care was a routine procedure in the CSICU, but none of them practiced tooth brushing as no child toothbrushes were supplied. Although nurses had a positive attitude to oral hygiene, this study found no intensive care units incorporated a soft toothbrush in oral care protocols which is recommended in best practice guidelines. There is a need for all ICUs to update their oral care protocols and stocks to include tooth brushing and chlorhexidine mouth wash.

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LIST OF ABBREVATIONS

VAP	Ventilator associated pneumonia
CSICU	Cardiac surgical intensive care unit
CDC	Center for Disease Control and prevention
GNM	General Nursing and Midwifery
BSc Nursing	Bachelor of Science(Nursing)
MSc Nursing	Masters of Science (Nursing)
PBNC	Post Basic Nursing Course
DCN	Diploma in Cardiovascular and Thoracic nursing
ICU	Intensive Care Unit

CHAPTER-I

INTRODUCTION

Chapter. I

INTRODUCTION

1.1 Introduction

An important goal of oral care is to promote oral hygiene among hospitalized patients in an effort to prevent or reduce the colonization of dental and oropharynx plaque by bacteria that may lead to hospital-associated infections (HAIs; Feider, Mitchell, & Bridges, 2010). Oropharyngeal colonization has been found to be associated with cardiovascular disease (Fowler, Breault, & Cuenin, 2001), endocarditis (Hoen, 2002; Seymour & Whitworth, 2002), and bacteremia (Kerr, 2000) and is a risk factor of ventilator-associated pneumonia (VAP; Nesley, 1986).

In the intensive care unit (ICU), oral care is a nursing intervention that has been found to lessen the incidence of HAIs like VAP (Center for Disease Control and Prevention & the Healthcare Infection Control Practices Advisory Committee, 2004). The literature suggests, however, that critical nurses are not performing oral care in accordance with CDC guidelines (Cutler & Davis,2005; Grap et al., 2003). The CDC guidelines recommend the following as best practice: (a) oropharyngeal cleaning, (b) oropharyngeal decontamination, (c) use of an antiseptic agent as an option, and (d) use of oral chlorhexidine gluconate (0.12%) rinse during the perioperative period for adult patients undergoing cardiac surgery. Unresolved issues in the 2003 guidelines were the use of topical antimicrobial agents for oral decontamination and the routine use of oral chlorhexidine rinse.

Intubated mechanically ventilated patients are at risk for VAP and other HAIs because ororpharyngeal microorganisms are transiently or forcibly passed through the endotracheal tube into the trachea during processes like suctioning or bronchoscopy. Mechanically ventilated adults normally have the cuff of the endotracheal tube inflated to secure the airway and to decrease the potential for secretions to leak around the cuff. Unintentional cuff deflation may occur facilitating leakage and

introduction of secretions with bacteria into the lower respiratory tract and the lungs. The CDC recommendations include the reduction of oropharyngeal bacterial colonization by developing and implementing an oral care program that may include the use of an antiseptic agent (Tablan, Anderson, Besser, Bridges, & Hajjeh, 2004).

This recommendation applies to patients in acute-care settings or residents of long-term facilities who are at high risk of developing health care associated pneumonia. Current literature supports this recommendation and includes specific components for comprehensive oral care for critically ill patients (Cutler & Davis, 2005). The recommended components include daily assessment of oral dysfunction, routine brushing of teeth, oral cleansing every 2 to 4 hr and as needed, use of an alcohol-free antiseptic oral rinse, routine suctioning of the mouth and pharynx, and application of a water based mouth moisturizer.

Dental plaque forms a film on the teeth and oral mucosa, providing a growth for microorganisms, particularly in patients with poor oral hygiene. Researchers have found greater amounts of pathogenic colonization in patients undergoing all types of nasogastric tubes and gastric tubes feedings. Oral care is given low priority by nurses in all settings. Information about the frequency and type of oral care provided to critically ill patients will guide the development of nursing interventions that may improve outcomes in these patients (Weitz et al, American journal of nursing,september2006).

Oropharyngeal colonization is associated with several systemic diseases, including cardiovascular disease, chronic obstructive pulmonary disease, and in the intensive care unit (ICU), ventilator-associated pneumonia (VAP).Dental plaque may serve as a reservoir for pathogens in patients with poor oral hygiene and dental plaque of patients in the ICU is colonized by potential respiratory pathogens such as methicillin-resistant *Staphylococcus aureus* and *Pseudomonas aeruginosa*. This process of oral colonization usually precedes pulmonary colonization, which leads to

VAP. Reducing the number of microorganisms in the mouth reduces the pool of organisms available for translocation to and colonization of the lung. Previous research indicates that vigorous oral hygiene is necessary to reduce oral colonization. (Fourrier et al, critical care med 1998).

1.2 Background

Patients' oral care is a key component of nursing care. Oral care is often considered primarily an intervention for patients' comfort, a characteristic that may reduce its priority and thus its frequency. Oral care is fundamental aspect of nursing (DoH, 2001), impacting on the health, comfort and well-being of patients in the short and long term (Barnett, 1991; Kite and Pearson, 1995). Providing adequate oral care for patients in intensive care units (ICU) is particularly challenging, not least because of the problems of caring for very sick patients in a busy stressful environment which may result in oral care having a low priority for nurses than other aspects of care (McNeil, 2000).ICU patients are often totally dependent on nursing staff for their personal and oral care (Jones, 2004).

Maintaining a healthy oral environment in an ICU patient can be problematic due to the presenting condition of the patient, and the medical treatment provided. Inadequate oral care may predispose ICU patients to infections. For example, ventilator associated pneumonia(VAP) is a life-threatening nosocomial infection and is associated with aspiration of bacteria from the oropharynx and leakageof the tube (Grap and Munro,1997). It has been demonstrated that bacteria responsible for VAP colonise on the oral mucosa and in the dental plaque of intubated patients (Dennesen et al,2003;Scannapieco et al.,1992),thus providing adequate oral care is of paramount importance. The use of chlorhexidine products for oral care in ventilated patients has been shown to significantly reduce the incidence of nosocomial respiratory infections (DeRiso et al., 1996; Fourrier et al., 2000; Houston et al., 2002).

It is important to provide an oral care plan appropriate to an individual patient's needs, there are some oral hygiene practices which should be provided for all intubated patients,relating to the need to keep the oral cavity most clean, and prevent nosocomial infections. Such practices involve the regular moisturising of the oral cavity with water or moisturising gels, the regular lubrication of the lips with a lip balm, and regularly using tooth brush to clean the oral cavity (British Society of Disability and Oral Health[BSDH],2000;McNeil,2000).

Studies examining oral care methods of ICU nurses have found that many nurses do not use evidence-based oral care methods. For instance, it has been shown that many nurses are reluctant to use toothbrushes for cleaning the oral cavity of intubated patients, favoring foam sticks (Kite, 1995). The foam sticks has been shown to be inefectual for plaque removal (Addems et al., 1992) although it is useful for moisturising the oral cavity between brushings (Barnason et al., 1998), whereas a small headed soft toothbrush is the most effective plaque removal tool (Browsher et al., 1999), and even edentulous intubated patients should have their oral mucos and tongue gently brushed to help maintain a healthy oral environment (BSDH, 2000).

The original protocol included the following:

Policy:

- Assess the oral cavity upon admission and daily thereafter.
- Administer oral care every 2 to 4 hours; brush teeth twice daily.
- Assess intubated patients every 2 hours and prior to repositioning the tube or deflating the cuff to determine the need for removal of oropharyngeal secretions.

Procedure:

- Set up suction equipment.
- Position patient's head to the side or place in semi-fowler position.
- Provide deep oropharyngeal suction as needed to remove secretions that may migrate down the tube and settle on top of the cuff.
- Brush teeth using suction toothbrush with alcohol-free, antiseptic oral

rinse.

- Brush for approximately 1 to 2 minutes.
- Exert gentle pressure while moving in short horizontal or circular strokes.
- Gently brush the surface of the tongue.
- Use a suction swab to clean the teeth and tongue between brushing or if brushing causes discomfort or bleeding.
- Place swab perpendicular to gum line, applying gentle mechanical action for 1 to 2 minutes.
- Turn swab in clockwise rotation to remove mucous and debris.
- Apply mouth moisturizer.
- Apply lip balm if needed.

Since the origination of this protocol in 2001, variations have developed, but the basic premise the need to perform oral care is solid. In 2006, the American Association of Critical Care Nurses (AACN) introduced the current practice alert, "Oral Care in the Critically Ill." The goal of the AACN Practice Alerts is to help healthcare practitioners carry their bold voices to the bedside to directly impact patient care.

The alert states:

- Develop and implement a comprehensive oral hygiene program for patients in critical care and acute care settings who are at high risk for healthcare-associated pneumonia.
- Brush teeth, gums and tongue at least twice a day using a soft pediatric or adult toothbrush.
- In addition to brushing, provide oral moisturizing to oral mucosa and lips every 2 to 4 hours.
- Use an oral chlorhexidine gluconate (0.12%) rinse twice a day during the perioperative period for adults.

Evidenced based oral care protocols can help to improve the quality of care provided (DoH, 2001). A study by Munro found that oral health of critically ill patients is often compromised at the time of admission and detoriates over time (Munro etal.,2006). Many oral care protocols recommend toothbrushing every 12 hours, with few or no specifics regarding the procedure. Fields conducted a study that directed the nursing staff to brush patients' teeth, tongue, and palate with a toothbrush and toothpaste for atleast one minute every 8 hours supplemented by the use of a toothette and moisturising ointment every 4 hours and compared this usual care. VAP rate decreased to zero. When the patients were removed from the study, developed VAP when the nurses no longer followed the 8 hour schedule for tooth brushing(Fields .,2008). Protocols should also include who should be excluded from tooth brushing, such as those with severe ulcerations or profound clotting disturbances that can result in gingival hemorrhage(Schelder et al.,2010).

In the critically ill, palaque becomes colonized with in three days by potential pathogens such as gram negative bacteria,and so is able to act as a source of infection for VAP(Schwartz et al.,1978). A toothbrush is a the most effective method of cleaning the mouth and removing plaque or other debris from the teeth, gums and hard palate.(Grady etal.,2002). Therefore a toothbrush should be used in all patients, eveen the edentulous (Reilly.,2003).

Chlorhexidine gluconate, a broad spectrum antibacterial agent, may also be effective in reducing plaque. A study using oral chlorhexidine gluconate(0.12%) rinse preoperatively on cardiac surgery patients showed a decreased incidence of nosocomial infection and is recommended by AACN in the preoperative period(American Association of Critical care Nurses.,www.aacn.org).

1.3 Need and significance of the study

In a recent comprehensive research review of evidence-based practice related to strategies to prevent VAP, Hixson et al noted that even though oral hygiene

is considered standard nursing care, it is often neglected in critically ill patients or performed by quickly swabbing the mouth. Recent progress in identification of oral microorganisms has shown that the oropharynx can be a site of origin for dissemination of pathogenic organisms to distant body sites, such as the lungs. Oral care is an important nursing activity in the ICU. This activity traditionally has been focused on patient comfort and hygiene rather than specially addressing plaque removal. Although cotton swabs are effective for stimulating the mucosal tissues, they are ineffective for removing plaque in between the teeth. Oral care is frequently designated a low priority in highly pressured and technological critical care setting. Nurses may not be aware of the importance of tooth brushing for critically ill patients. Tooth brushing is effective in reducing the number of oral micro organisms, but tooth brushing, even though it is an independent nursing action, is not routinely performed in critically ill patients. Education and focus on good oral care strategies are required. The study began with an expansive literature review to determine the state of the science as it related to oral care practices of ICU nurses caring for critically ill patients. Current nursing practices were evaluated against CDC recommendations for hospital-acquired infection prevention.. Therefore, the purpose of this study was to determine the oral care practices of CSICU nurses.This study investigates the type of oral care provided to patients in cardiac surgical intensive care unit which include both ventilated and non ventilated patients in CSICU, nurses' attitude to providing oral care and their knowledge on risk factors of VAP.

1.4 Statement of the problem

A study to assess the attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit.

1.5 Objectives of the study

- To assess the oral care practices in CSICU
- To assess the cardiac nurses knowledge on risk factors of ventilator associated pneumonia, attitude regarding oral care in CSICU

- To assess the cardiac nurses opinion regarding introducing tooth brushing in CSICU

1.6 Operational definition

Oral care practices

It is the skill or experience in giving oral care through studies and experience measured by an observational schedule**.**

Attitude

- An attitude is a hypothetical construct that represents an individual's degree of like or dislike for something. In this study we refer to positive or negative views of cardiac nurses towards oral care.

Knowledge

- It is the state o awareness or understanding with conscious mind. In this study knowledge refer to awareness or understanding the risk factors of ventilator associated pneumonia . This mainly assessed by using a single questionnaire.

Cardiac nurses

- It means permanent and temporary staff nurses working in cardiac surgical unit.

1.7 Methodology

This study will be conducted in CSICU of Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum. A validated self administered

questionnaire will be used to assess the nurses' knowledge, attitude and practices of oral care practice in the CSICU. The survey and observational method is also used. Data will be collecting from staff nurses working in CSICU, cardiac nursing students with a self-report questionnaire and patient's medical record.

1.8 Delimitation

Study is limited to staff nurses working in CSICU, SCTIMST and also cardiac nursing students.

1.9 Summary

This chapter deals with introduction, background of study, need and significance, statement of problem, definition of the terms, objectives of the study.

1.10 Organization of report

Chapter II deals with summary of the related review. Chapter III deals with methodology of the study. Chapter IV deals with analysis and interpretation. Chapter V consists of summaries, conclusions, implications and limitations of the study and recommendations. This report also includes a selected bibliography.

CHAPTER-II

REVIEW OF LITERATURE

CHAPTER-II
REVIEW OF LITERATURE

2.1 Introduction

Review of related literature is an integral component of any study or research project. It enhances depth of knowledge and inspires a clear insight into the crux of the problem, literature review throws light on the studies and their findings reported about the problem understood.

The literature review relevant for this study is presented on the following sections.

- Studies on the oral care practices in critical care unit its frequency and documentation
- Studies to assess the knowledge, attitude regarding oral care for critically ill patients.
- Studies to assess the nurses opinion regarding introducing tooth brushing in intubated patients

2.2 Studies on the oral care practices in critical care unit its frequency and documentation

Ross and Crumpler (2007)., conducted a study to assess the impact of an evidence-based practice education program on the role of oral care in the prevention of ventilator-associated pneumonia. The aim of the study was to determine if an evidence-based practice (EBP) educational programme would improve the quality of oral care delivered to mechanically ventilated patients; thereby, reducing the VAP rate. The result of the study was improvement in oral health demonstrated by a decrease in median scores on the Oral Assessment Guide (pre (11.0), post (9.0)). A t-test analysis revealed a statistically significant difference (p=0.0002). The frequency of oral care documentation also improved as demonstrated by a positive shift to the more frequent timeframes. The VAP rates have decreased by 50% following the EBP education intervention.

Goss et al (2007)., conducted a study on a review of documented oral care practices in an intensive care unit This study examined the practice and frequency of oral care among mechanically ventilated and nonventilated patients. A retrospective record review was conducted of patients admitted to an intensive care unit (ICU) between July 1, 2007 and December 31, 2007. Data were analyzed using bivariate and multivariate analyses to determine the variables related to patients receiving oral care. Frequency of oral care documentation was found to be performed, on average, every 3.17 to 3.51 hr with a range of 1 to 8 hr suggesting inconsistencies in nursing practice. The study concluded that although oral care is a Center for Disease Control and Prevention (CDC) recommendation for the prevention of hospital-associated infections like ventilator-associated pneumonia (VAP), indication of documentation of the specifics are lacking in the patients' medical record.

Grap et al (2003)., conducted a study to assess the frequency and documentation of oral care done by the nurses in the critical care unit.It was a survey method with a sample size of 170. Staff members completed a written survey describing their oral care practices, and oral care interventions were recorded from the unit's flow sheet for the previous 24 hours for all patients at 5 randomly selected times during one month. Most respondents (75%) reported providing oral care two or three times daily for nonintubated patients, and 72% reported providing care five times daily or more for intubated patients. However, oral care was documented on the unit's flow sheet a mean of 1.2 times per patient. Reported use of toothpaste and a toothbrush was significantly greater in nonintubated patients ($P < .001$), and use of a sponge toothette was significantly greater in intubated patients ($P < .001$). Nurses' mean rating of oral care priority was 53.9 on a 100-point scale. The study concluded that the sponge toothettes remain the primary tool for oral care, especially in intubated patients in intensive care units. Nurses reported frequent oral care interventions, but few were documented.

2.3 Studies to assess the knowledge, attitude regarding oral care for critically ill patients.

Chan et al (2011)., conducted a questionnaire survey on Oral care practices among critical care nurses. The aim of the study was to assess local nurses' knowledge, attitudes, and practices regarding oral care for critically ill patients. A descriptive cross-sectional design was used .The tool covers three domains: beliefs and attitudes, prevailing practices, and knowledge. The researchers sampled all nurses who worked in five intensive care units and high dependency during a 2-week period. The study finding showed that total of 244 nurses (97%) returned the surveys. More than 80% of the respondents believed that good oral care has a significant impact on the patients' clinical outcomes. However, practices varied with regard to the frequency, requisites, and methods used for oral care. Only 66.3% perceived that they have adequate oral care training. Nurses' oral health knowledge varied with education level ($p = .019$). Nurses' knowledge did not differ statistically across different specialities, job functions, and type of shift work. The findings indicated that local nurses lacked adequate knowledge related to oral health and generally were ill equipped to deliver proper oral hygiene for critically ill patients.

Rello et al (2007),conducted a study on oral care practices in intensive care units with an aim to describe type and frequency of oral practices in intensive care units . An anonymous questionnaire was distributed to representatives of European ICUs. The result was that oral care practices were carried out once daily (20%), twice (31%) or three times (37%). Oral care consists principally of mouth washes (88%), mostly performed with chlorhexidine (61%). Foam swabs (22%) and moisture agents (42%) were used less frequently as well as manual toothbrushes (41%) although the literature indicated that these were more effective for thorough cleaning of the oral cavity. The study concluded that it is difficult to perform, and that does not necessarily succeed in ensuring oral health in patients with prolonged intubation. Oral care consists primarily of mouth washes. The use of toothbrushes should be given more attention.

Jones et al (2004)., conducted a survey of the oral care practices of intensive care nurses to describe the knowledge and practice of oral needs assessments and oral care methods. Self-administered questionnaire survey of all nurses working in adult ICU (n = 160) was given. From the survey it is found that an average oral care was given a similar priority to other aspects of personal care. 13.5% nurses rated oral care as a low priority. Whilst 98% nurses routinely performed an oral needs assessment, only 26% used a written assessment tool. Toothbrushes were used at least once a day by 85.5% nurses and chlorhexidine products were routinely used by 50.5% nurses. The oral care practices of most nurses matched the local ICU protocol. 23.5% nurses had received no training in oral care and 58% nurses requested initial/further training. The survey concluded that a small minority of nurses gave oral care a low priority and were not using evidence-based oral care methods recommended in the local ICU protocol. Encouraging the general use of oral needs assessment tools is a priority, and further oral care training is required.

Allen et al (2004), conducted a study on the factors affecting quality of oral care in intensive care units. This study was done mainly to assess the nurses' attitudes and practices concerning oral care and to determine predictors of the quality of oral care in intensive care units.A random and national sample of 420 intensive care unit directors were asked to participate and 102 institutions returned 556 surveys. The result showed that nurses' oral care education, having sufficient time to provide care, prioritizing oral care, and not viewing oral care as unpleasant had direct effects on the quality of provided care. The study concluded that reinforcing proper oral care in education programmes, de-sensitizing nurses to the often-perceived unpleasantness of cleaning oral cavities, and working with hospital managers to allow sufficient time to attend to oral care are recommended.

2.4 Studies to assess the nurses' opinion regarding effectiveness of the different methods used for oral care

Prendergast et al (2011)., conducted a study to evaluate electric versus manual toothbrushing in neuroscience intensive care unit which concern that oral care could

raise intracranial pressure (ICP) may cause nurses to use foam swabs to provide oral hygiene rather than tooth brushing as recommended by the American Association of Critical-Care Nurses. ICP and cerebral perfusion pressure (CPP) during oral care with a manual or electric toothbrush in intubated patients in a neuroscience intensive care unit (ICU). A 2-year, prospective, randomized clinical trial, 47 adult neuroscience ICU patients with an ICP monitor received oral care with a manual or electric toothbrush. ICP and CPP were recorded before, during, and after oral care over the first 72 h of admission. The result was there were no significant differences in ICP (P = 0.72) or CPP (P = 0.68) between toothbrush methods. Analysis of pooled data from both groups revealed a significant difference across the three time points (Wilks' lambda, 12.56; P < 0.001; partial η(2), 0.36). ICP increased significantly (mean difference, 1.7 mm Hg) from before to during oral care (P = 0.001) and decreased significantly (mean difference, 2.1 mm Hg) from during to after oral care (P < 0.001). The study concluded that tooth brushing, regardless of method, was safely performed in intubated neuroscience ICU patients.

Munro etal (2009), conducted a study on chlorhexidine,toothbrushing and preventing ventilator associated pneumonia in critically ill patients. The study examined the effects of mechanical (toothbrushing), pharmacological (topical oral chlorhexidine), and combination (toothbrushing plus chlorhexidine) oral care on the development of ventilator-associated pneumonia in critically ill patients receiving mechanical ventilation. The critically ill adults in three intensive care units were enrolled within 24 hours of intubation in a randomized controlled clinical trial with a 2 × 2 factorial design. Patients with a clinical diagnosis of pneumonia at the time of intubation and edentulous patients were excluded. Patients (n = 547) were randomly assigned to oneof four treatments: 0.12% solution chlorhexidine oral swab twice daily, toothbrushing thrice daily, both toothbrushing and chlorhexidine, or control (usual care). The result was when data on all patients were analyzed together, mixed models analysis indicated no effect of either chlorhexidine (P = .29) or toothbrushing (P = .95). However, chlorhexidine significantly reduced the incidence of pneumonia

on day 3 (CPIS ≥6) among patients who had CPIS <6 at baseline (P = .006). Toothbrushing had no effect on CPIS and did not enhance the effect of chlorhexidine. The study concluded that Chlorhexidine, but not toothbrushing, reduced early ventilator-associated pneumonia in patients without pneumonia at baseline.

O'Reilly et al (2003), conducted a study on the oral care of critically ill. The literature reviews that the use of the toothbrush in the mechanical removal of plaque, even in the intubated patient, has been proven to be superior to the swab. Brushing of the gums in edentulous patients is of benefit. Although electric toothbrushes are preferable, their cost, size and the potential for cross-infection limits their use. Chlorhexidine has long been the gold standard for mouthwashes and provides up to 24 hours of antimicrobial activity; therefore infrequent applications are adequate. Sodium bicarbonate and hydrogen peroxide are of limited use due to lack of convincing evidence regarding their safety and antimicrobial effects in the critically ill population. Saliva stimulants or substitutes including lemon and glycerine are also inappropriate for moistening the oral cavity in the critically ill patient. The study concludes that regular oral assessment and individualized oral care, along with the use of a standardized protocol for oral care (incorporating proven modalities) is vital for optimal oral care in the critically ill patient.

Kite etal (1995), conducted a study on the changing mouth care practices in intensive care units. The purpose of the study was to identify the prerequisites for achieving research-based mouth care practice in a district general hospital intensive care unit. A convenience sample of 10 qualified nurses was studied; an in-service teaching and support programme was introduced. After which the identification of any change in practice was made by re-interviewing the same nurses and observing for any change in the availability and use of suitable toothbrushes. Data analysis consisted of comparing information from the before teaching and after teaching observation schedules, and performing content analysis on the before and after teaching interview data. The results indicated that the use of toothbrushes had

increased as had the knowledge of oral hygiene after the teaching programme. Factors which were identified as facilitating a change in practice included eliciting the perceptions of those experiencing change so that information and support could be tailored to meet the nurses' needs as they perceived them, the importance of context relevant information and practical instruction, the influence of role models and the availability of suitable brushes. Inhibiting factors included misconceptions about the risk to patient safety associated with toothbrushing.

2.5Conclusion

This chapter deals with review of literature regarding studies related to assess the oral care practices in critical care unit, studies related to assess knowledge, attitude regarding oral care for critically ill patients and also assess the nurses' opinion regarding effectiveness of the different methods used for oral care.

CHAPTER-III

METHODOLOGY

CHAPTER-III
METHODOLOGY

3.1 Introduction

Research methodology is the systemic way to solve the research problem. It includes the step that researchers adopt to study his problem with the logic behind (Kothari 1990). It indicates the general pattern of organizing the procedure of gathering valid and reliable data for an investigation. This chapter provides a brief description of the method adopted by the investigator to conduct the study. This chapter includes the research approach, research design, setting of the study and sampling technique. It further deals with the development of the tool, procedure for the data collection and plan for data analysis.

3.2Research approach

The survey was selected as the objectives of the study were (1) to assess the oral care practices in CSICU (2) to assess the cardiac nurses knowledge on risk factors of ventilator associated pneumonia, attitude regarding oral care in CSICU (3) to assess the cardiac nurses opinion regarding introducing toothbrushing in CSICU. More over survey approach is suitable for educational fact finding in a relatively small sample.

3.3 Research design

To accomplish the objectives of the study a descriptive design is used for data collection and analysis of the data. Inorder to assess the knowledge particularly about attitude and practices of oral care given by cardiac nurses in CSICU data were collected from nurses by self prepared questionnaire including 20 questions based on the oral care, importance, opinion of nurses regarding toothbrushing in ventilated patients and also risk factors of VAP etc.

3.4 Setting of the study

This study was conducted in cardiac surgical intensive care unit of Sree Chitra Tirunal Institute For Medical Sciences and Technology, is an institution of national importance where there is a separate department for cardiac surgery and medical unit, which include cardiac medical and cardiac surgical wards, comprehensive cardiac medical and cardiac surgical intensive care unit. It is 246 bedded specialty referral hospital. CSICU is a surgical unit comprises 14 beds. The study was conducted over 3 months (August 2011- November 2011). There are two ICUs 1st and 2nd. An average of ventilator patients in CSICU was 110 per month.

3.5 Study population

The target population of the study was both male and female permanent, temporary staff nurses and also DCN students in the cardiac surgical intensive care unit.

3.6 Sample and sampling techniques

A purposive convenient sampling method is used to select the samples for the study. In the first stage, three samples were selected for the pilot study. 30 samples were selected for the final study. The total duration of the study was from August 2011 to October 2011. The observational study was conducted by the student nurse, trained in the study protocol. The observation period a selected shift over three weeks in October 2011. No changes were made to the questionnaire following the pilot study as the respondents felt the questions to be sufficiently clear.

3.7 Criteria for sample selection

The samples were based on the following criteria.

- Inclusion criteria
  - Nursing staff working in CSICU

- ❖ Cardiac nursing students working in CSICU
- ❖ Nurses who are willing to participate

➢ Exclusion criteria

- ❖ Nurses working in other departments other than CSICU

3.8 Development of tool

Data collection tool refers to the instrument, which is used by the investigator to obtain relevant data. An extensive review and study of literature helped in preparing items for the tool. A self prepared questionnaire was used as a tool for the study to collect data. A validated tool and an observational scale is used as the tool for this study .The research tool was finalized according to expert's opinion.

3.9 Description of the tool

The structured questionnaire consists of two sections

Section I: General information or Demographic data

Section II: It consist of total questions regarding attitude, knowledge and opinion regarding oral care practices

Section I

Part one consists of socio economic data such as age, sex, professional qualifications, place of work, experience in years and experience in ICU.

Section II

Knowledge and attitude was assessed by using a self-prepared questionnaire with multiple choice questions with responses was developed for each item on the list. For each test item, the response alternatives included the phrase "neutral" to avoid gambling by the respondents.

Section II consists of three sections

PART A: Attitude of cardiac nurses on oral care

PART B: Oral care practices and knowledge on risk factors on ventilator associated pneumonia.

PART C: Observational Check list to assess the oral care practices

The first part includes 13 questions and the rest two parts includes 7 questions.15 minutes was given to answer the questionnaire, each accurate answer in the attitude carry four marks and least accurate answer carry one mark. Out of 13 questionnaires, 10 questions are positive questions and 3 are negative type questions. The rest 7 questions are regarding oral care practices and knowledge on risk factors on ventilator associated pneumonia. Five marks is given for each correct answer, wrong answers carry one marks. Marks are converted in to percentage.

3.10 Pilot study

A pilot study was conducted to find out the feasibility and practicability of the tool and methodology. A split half method is used for the pilot study. Three nursing students were taken for pilot study. The aim of the pilot study was to find out the practicability and feasibility of the tool. The pilot study gave more information about research study. The time taken for answering the questionnaire was about 10-15 minutes. The finalized tool was used to assess the attitude and practices on oral care by cardiac nurses. The pilot study reveals that the study was feasible and practicable.

3.11 Data collection

Survey

Data collection was undertaken over three weeks in the month of October 2011.For data collection, formal permission was obtained from the authorities. Data was collected during the month of October 2011. The investigator first introduced and explained the need and purpose of study. The nursing staff was interviewed with the self prepared tool. All nurses were informed verbally and in writing about the study,

and their participation was voluntary and anonymous. No reminders or incentives were provided to nurses to complete the data. The nurses were requested to return their questionnaire, completed or incomplete with in 10 minutes time.

Observation

The second type of data collection was by observation. The observation of actual oral care provided was made on one shift a day – either morning, afternoon or night – for twenty consecutive days. After the questionnaire was distributed, student nurse observed the oral care provided in CSICU. Data were collected on contextual factors in the ICU environment during the observation period including: activity level; number of intubated patients; nurse patient ratio and type and frequency of oral care provided to the patient. Every nurse posted in the ICUs was observed only once, without them knowing about the observation. Observation of practice occurred during the five hours morning and five hours afternoon shifts and an 11-hours night shift.

3.12 Plan of analysis

The investigator developed a plan for data analysis after the pilot study. The data obtained from the nursing staff was analyzed by descriptive statistics and is presented in the form of bar and pie diagram.

3.13 Summary

The chapter presented the research approach used for the study research design of the study, setting of the study, sample and sampling techniques development of description of tool, pilot study, data collection procedure and plan of analysis

CHAPTER-IV

ANALYSIS AND INTERPRETATIONS

Chapter. IV

ANALYSIS AND INTERPRETATION OF DATA

4.1Introduction

Analysis is a process of organizing and synthesizing data in such a way that research questions can be answered. The questionnaire was based on knowledge, attitude and practices of oral care by nurses. Interpretation refers to a process of making sense of the result and examining the implications of the findings in a boarder context. This chapter will analyse and interprets data collected from 30 staff nurses working in CSICU of SCTIMST, Trivandrum. The aim of the study was to assess th nurses attitude, practice of oral care its documentation and also knowledge on risk factors on ventilator associated pneumonia.

The findings of the study was arranged and analyzed under the following sections

4.2 Distribution of sample according to demographic data

4.3 Distribution of sample according tooral care practices

4.4 Cardiac nurses attitude on oral care and knowledge on risk factors of ventilator associated pneumonia

4.5Cardiac nurses opinion regarding introducing toothbrushing in intubated patients.

4.6 Distribution of samples according to oral care practices observed and documented.

4.2 Distribution of sample according to demographic data

4.2(a)Distribution of sample according to age

Age of sample ranged from 23 to 52 years of age with a median of 26 and mean of 28.5.The data presented in the table denotes maximum number of cardiac nurses were under the age group of 22-31 years.

Table 4.2a: Distribution of samples according to age

Age Group	Frequency	Percentage
<30	25	83.3%
30-40	2	6.7%
>40	3	10%
Total	30	100%

Same data shown in bar diagram

The data given Table 4.2a shows that majority of nurses (83.3%) were below the age of 30 years.

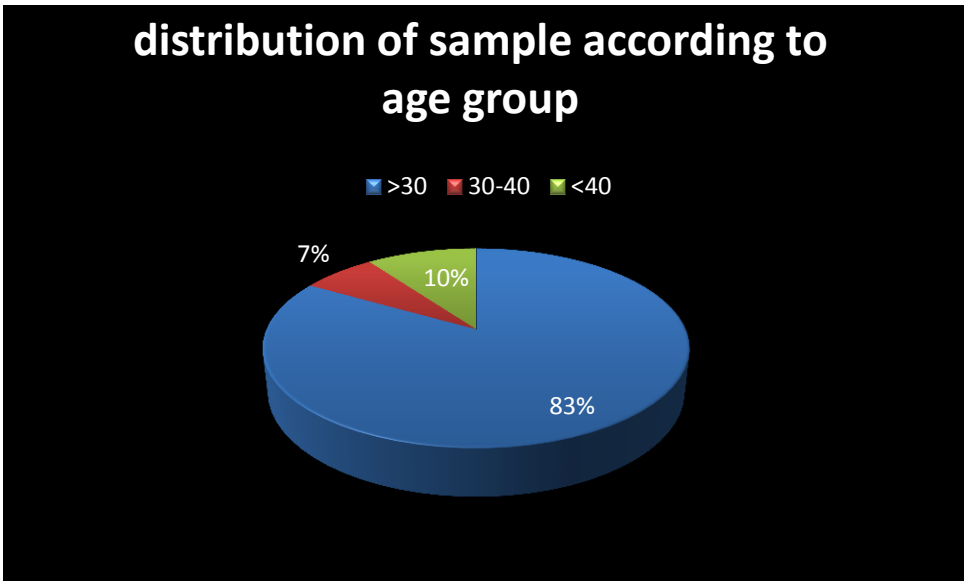

Figure 4.2a

4.2(b) Distribution of sample according to professional qualification

The data presented in the table 4.2b denotes that the 60% of samples having professional qualification of GNM, 33.3% having B.Sc(N) and 6.7% having PBNC/DCN.

Table 4.2b: Distribution of samples by professional qualification

Professional experience	Frequency	Percentage
GNM	18	60%
BSc.Nursing	10	33.3%
PBNC/DCN	2	6.7%
Total	30	100%

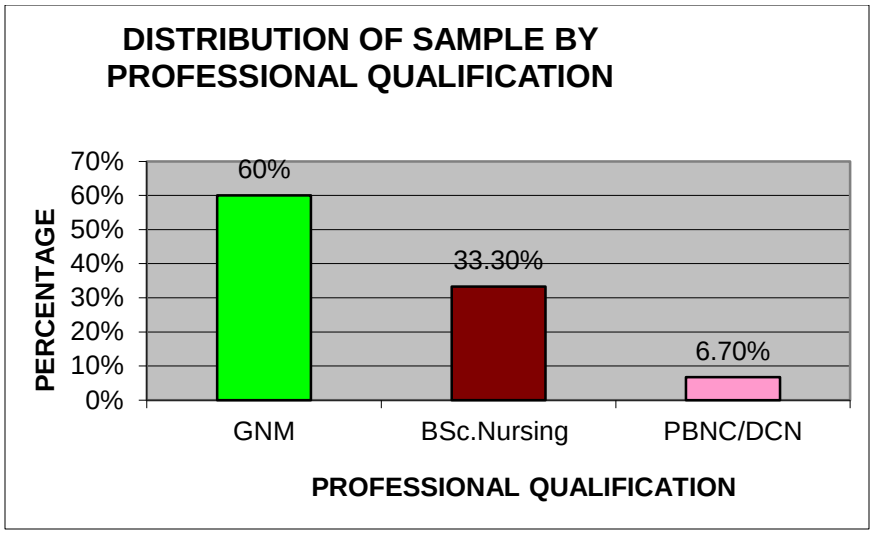

Figure 4.2b

4.2(c) Distribution of samples according to professional experience

The data presented in the table 4.2c denotes that the (73.3%) of cardiac nurses having professional experience less than 5 years.

Table 4.2c: Distribution of samples by professional experience

EXPERIENCE IN NURSING	FREQUENCY	PERCENTAGE
<5 years	22	73.3%
5-15 years	5	16.7%
>15	3	10%
TOTAL	30	100%

Same data shown in bar diagram

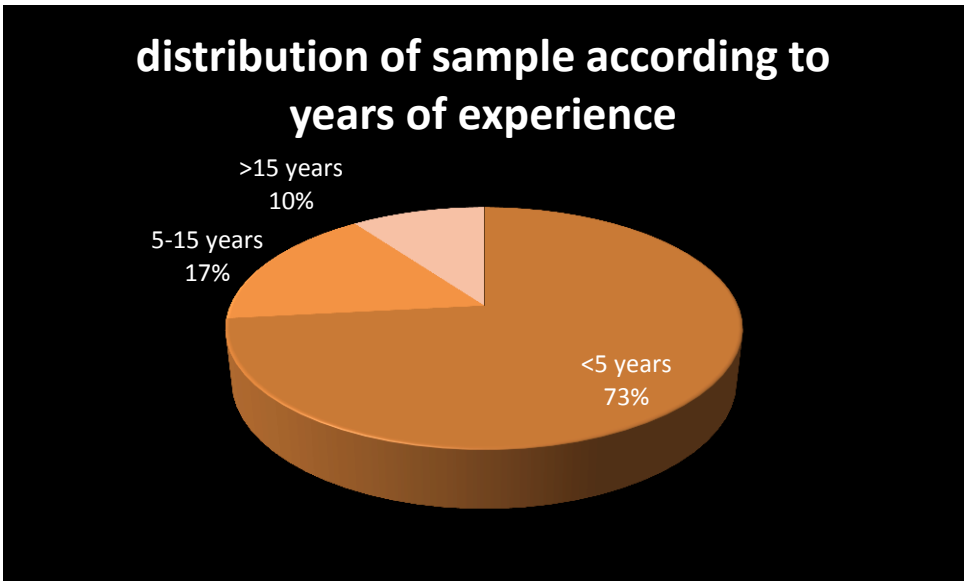

Figure 4.2c

4.2(d) Distribution of samples according to professional experience in ICU

The data presented in the table 4.2d denotes that the (80%) of cardiac nurses having ICU experience under 0-5 years.

Table 4.2d: Distribution of samples by professional experience in ICU

ICU EXPERIENCE IN YEARS	FREQUENCY	PERCENTAGE
<5 years	24	80%
5-15 years	5	16.7%
>15 years	1	3.3%
TOTAL	30	100%

Same data shown in bar diagram:

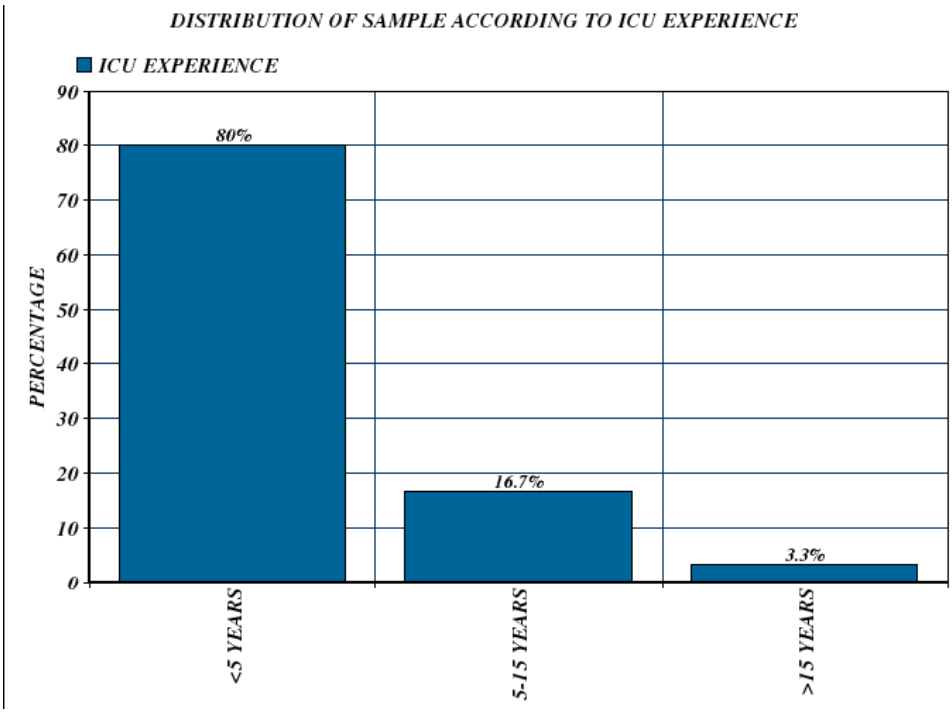

Figure 4.2d

4.3Distribution of sample according to oral care practices

4.3a Distribution of sample according to unit protocol for oral care

The data presented in the table 4.3a denotes that the (43.3%) of cardiac nurses says that the CSICU doesn't have any oral care protocol and (33.3%) says that there is a formal oral care protocol in the unit and (23.3%) of the cardiac nurses were not sure of the oral care protocol.

Table: 4.3a Unit protocol for oral care

Formal unit protocol	Frequency	Percentage
Yes	10	33.3%
No	13	43.4%
Not sure	7	23.3%
Total	30	100%

Same data shown in bar diagram:

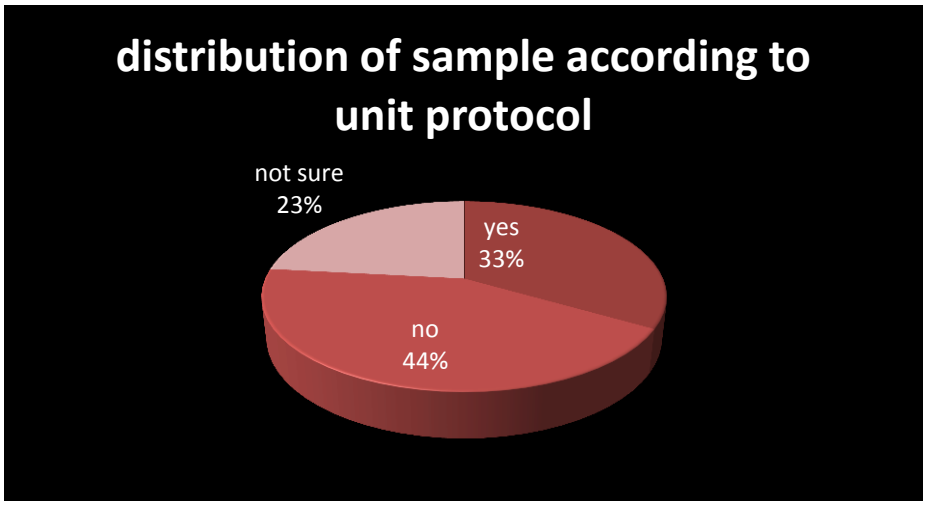

Figure 4.3a

4.3bDistribution of sample by frequency of oral care

The data presented in the table 4.3b denotes that the (43%) of cardiac nurses agree that oral care should be provided every shift per day and (26.7%) of cardiac nurses says that oral care should be done once per day or twice per day.

Table: 4.3b Frequency of oral care

Frequency of oral care	Frequency	Percentage
Once per day	8	26.7%
Twice per day	8	26.7%
Every shift per day	13	43%
More than three times a day	1	3.3%
Total	30	100

Same data shown in bar diagram:

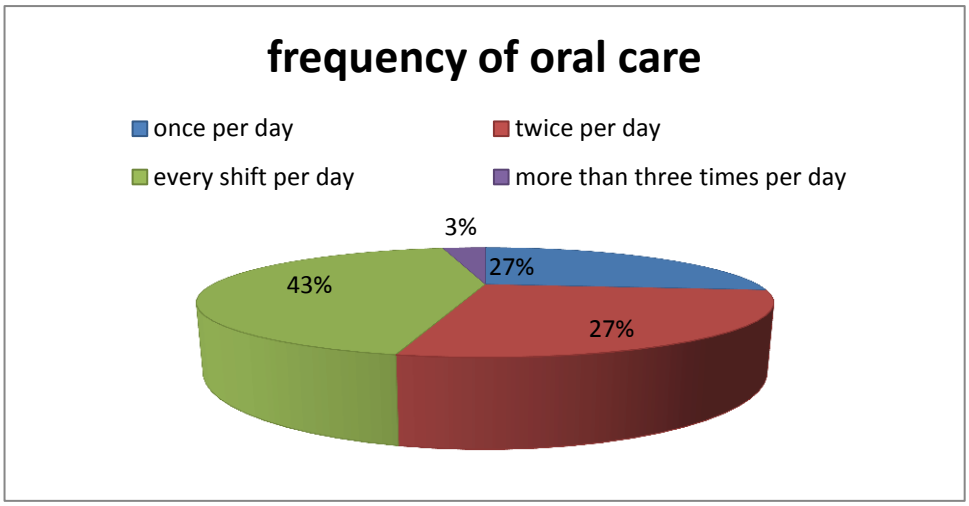

Figure 4.3b

4.3cDistribution of sample according to time spent on oral care

The data presented in the table 4.3c denotes that the (50%) of cardiac nurses give oral care between one and five minutes and (47%) of cardiac nurses give oral care between five and ten minutes.

Table: 4.3c Time spent on oral care

TIME	Frequency	Percentage
Less than one minute	1	3%
Between one and minutes	15	50%
Between five and ten minutes	14	47%
Total	30	100%

Same data shown in bar diagram:

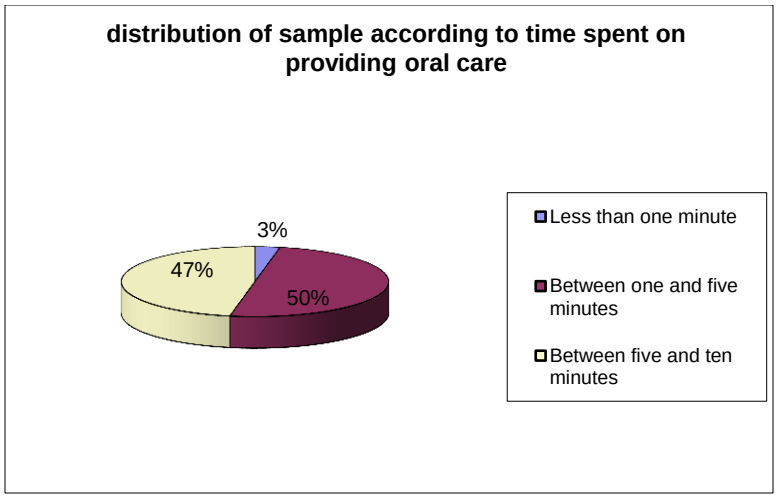

Figure 4.3c

4.3d Distribution of sample according to solutions used for oral care

The data shows that (100%) of cardiac nurses used chlorhexidine mouthwash for giving oral care in both intubated and non intubated patients

4.3e Distribution of sample according to commonly used chlorhexidine solutions in CSICU

The data presented in the table 4.3e denotes that (73%) of cardiac nurses use chlorhexidine .2% mouthwash for giving oral care in both intubated and non intubated patients in CSICU

Table 4.3d shows commonly used chlorhexidine solution in CSICU

SOLUTIONS	FREQUENCY	PERCENTAGE
Chlorhexidine .12%	2	7%
Chlorhexidine .2%	22	73%
Chlorhexidine 2%	6	20%
Total	30	100%

Same data shown in bar diagram:

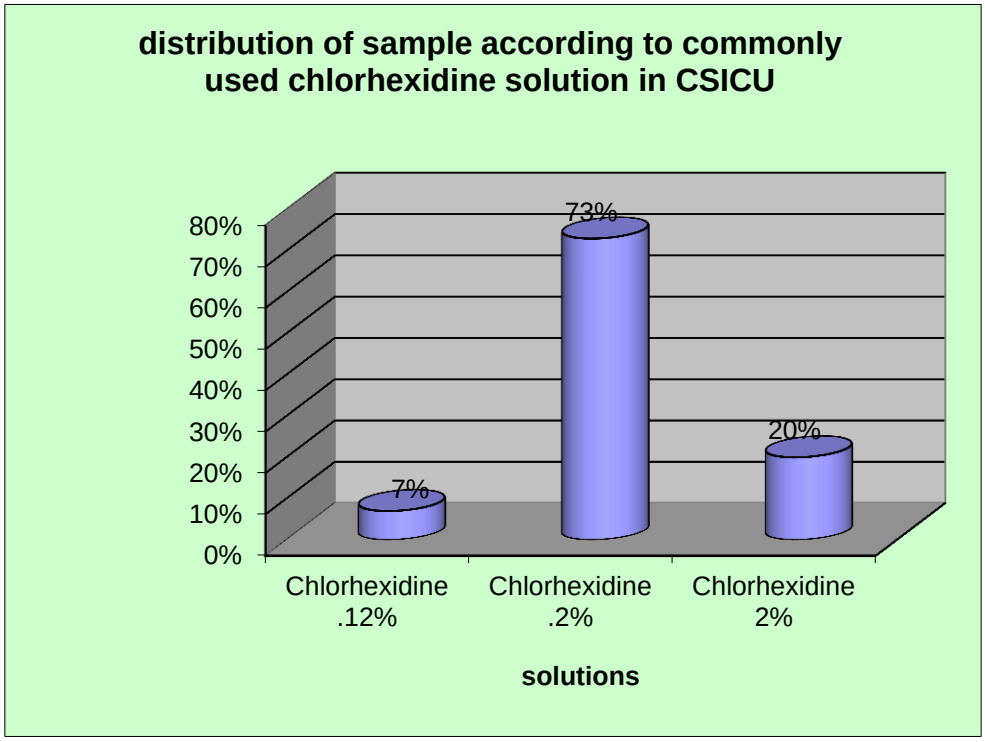

Figure4.3d

4.3f Distribution of sample according to oral care method used in CSICU

The data presented in the table 4.3f denotes that (80%) of cardiac nurses use forceps and gauze for giving oral care in intubated patients in CSICU.

Table: 4.3e Oral care method used for intubated patients in CSICU

ORAL CARE METHOD	FREQUENCY	PERCENTAGE
Forceps and gauze	24	80%

Forceps and cotton	6	20%
Total	30	100%

Same data shown in bar diagram

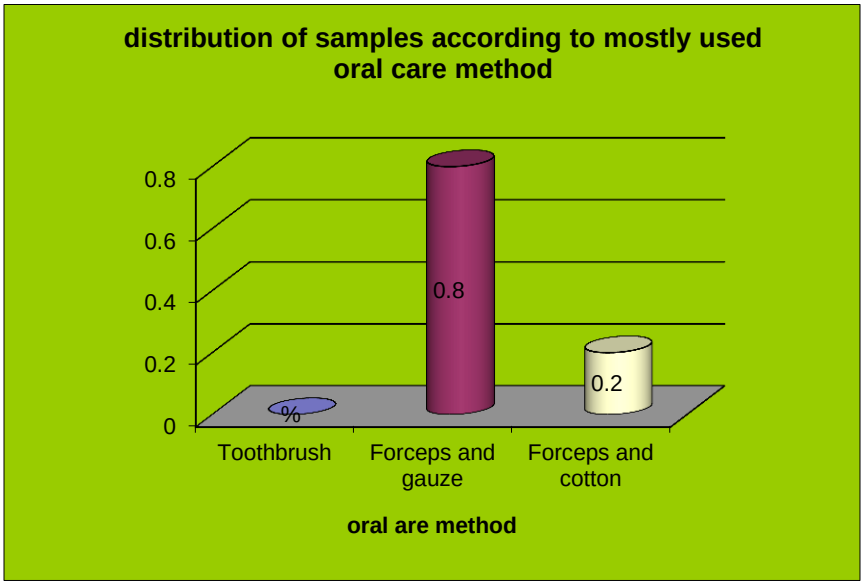

Figure 4.3e

4.4 CARDIAC NURSES ATTITUDE ON ORAL CARE PRACTICES AND KNOWLEDGE ON VENTILATOR ASSOCIATED PNEUMONIA

4.4a Distribution of sample according to cardiac nurses' attitude towards oral care

Table 4.4a shows that 80% have adequate training for providing oral care. More than 93% of the nurses strongly agreed that oral care is very important for mechanical ventilated patients. More than 96% of the nurses strongly agreed that oral care is also important for valve patients. However 60% felt that cleaning oral cavity is not an unpleasant task. More than 60% felt that oral cavity is somewhat difficult to clean; more than 53% felt that there are adequate supplies and equipments; More than 96% strongly agreed that oral care is must in intensive care unit. 93% nurses strongly

agreed that bleeding gums increases the chances of bacteremia. 56% of the nurses strongly agreed that oral care is a documented assessment. Overall, the majority of nurses had a positive attitude towards providing oral care.

Table 4.4a cardiac nurses attitude towards oral care.

no.	Question	SA n(%	S n(		S n'	S ,
	I had adequate training to provic Oral care	2 4(80)	5 (16.7)	(0)	2 (6.7)	0 (0)
	Oral care is high priority for Mechanically ventilated Patients	2 8(93.)	2 (6.7)	(0)	0 (0)	0 (0)
	Oral care is high priority for Valve patients	2 9(96.7)	1 (3.3)	(0)	0 (0)	0 (0)
	Adequate time to provide Oral care once a day	2 2(73.3)	8 (26.7)	(0)	0 (0)	0 (0)
	Cleaning oral cavities is an unpleasant task	1(3.3)	6 (20)	(3.3)	4 (13.3)	1 8(60)
	Oral cavities are difficult to clea	3(10)	2 0(66.7)	(10)	2 (6.7)	2 (6.7)
	The mouth of most patients get worse no matter what I do	0(0)	4 (13.3)	(13.3)	9 (30)	1 3 (43.3)
	Need better supplies and Equipments	1 6(53.3)	9 (30)	(3.3)	4 (13.3)	0 (0)
	Prefer using a forceps and gauze cotton to a toothbrush for cleaning patient's teeth	2 0(66.7)	5 (16.7)	(10)	0 (0)	2 (6.7)
	Oral care is a must in intensive c unit	2 9(96.7)	0 (0)	(3.3)	0 (0)	0 (0)
	Assessment of a patients oral ca needs take place with in 24 hours of the admission	2 2(73.3)	5 (16.7)	(10)	0 (0)	0 (0)

	Chances of bleeding gums incre the chances of bacteremia	28(93.3)	1 (3.3)	(3.3)	0 (0)	0 (0)
	Oral care is a formal or documented assessment	17 (56.7)	4 (13.3)	(10)	3 (10)	3 (10)

4.4b Distribution of sample according to cardiac nurses' knowledge on risk factors of ventilator associated pneumonia

The data presented in the table 4.4b denotes that (57%) of cardiac nurses suggest aspiration of contaminated secretions from the oropharynx as that the common risk factor of ventilator associated pneumonia, (20%)of cardiac nurses suggest preadmission colonization as the common risk factor of ventilator associated pneumonia, (17%) of cardiac nurses suggest contaminated respiratory equipments as the common risk factor of ventilator associated pneumonia and (7%) of the cardiac nurses suggest health workers as the common risk factor of ventilator associated pneumonia

Table: 4.4b Knowledge on risk factors on ventilator associated pneumonia

Mechanism	Frequency	Percentage
From health care workers	2	7%
Aspiration of contaminated secretions from the oropharynx	17	57%
From contaminated respiratory	5	17%

equipments		
Preadmission oral colonization	6	20%
Total	30	100%

Same data shown in bar diagram

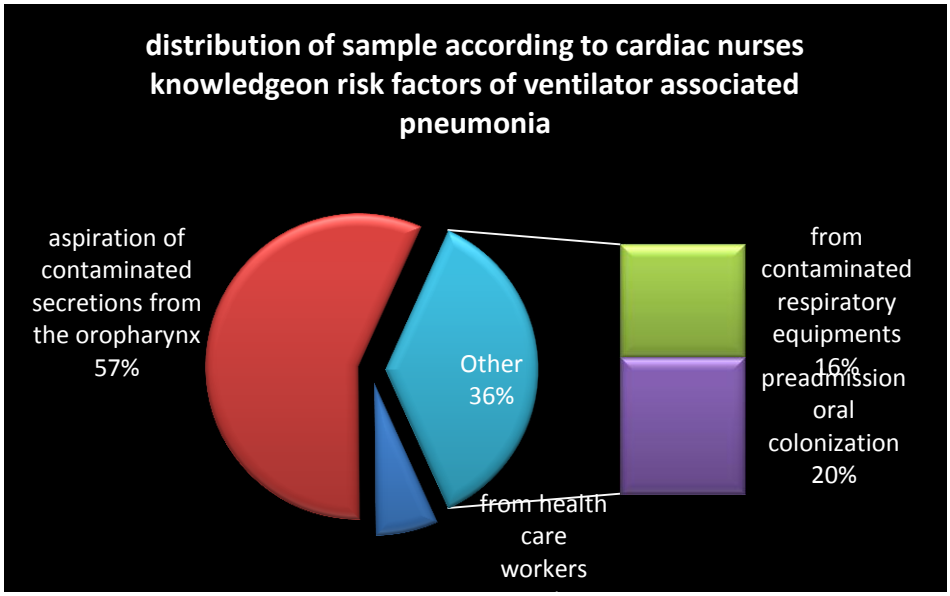

Figure 4.4a

4.5 Distribution of sample according to cardiac nurses' opinion regarding introducing tooth brushing in intubated patients

The data presented in the table 4.5a denotes that (67%) of cardiac nurses doesn't prefer toothbrush for giving oral care in intubated patients in CSICU.

Table: 4.5a Preference to toothbrush in intubated patients

Prefer to use toothbrush than forceps and gauze for giving oral care in intubated patients	Frequency	Percentage

Strongly agree / some what agree (SA/SWA)	2	6.7 %
Neutral	3	10%
Strongly disagree/Some what disagree (SD/SWD)	25	83.3 %
Total	30	100 %

Same data shown in bar diagram

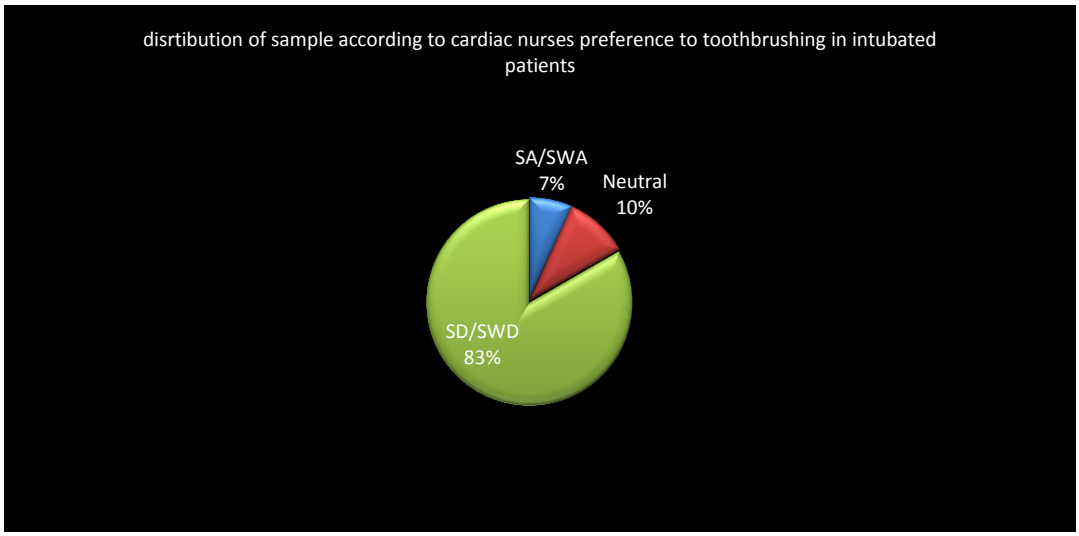

Figure 4.5

4.6 Distribution of samples according to observation of oral care practices

4.6(a) Distribution of sample according to reported oral care in CSICU

The data presented in the table 4.6a denotes that the (16.7%) of intubated patients oral care are reported and (2.2%) of non intubated patients oral care reported.

Table: 4.6a Reported oral care in CSICU

Patient category	Total patients reported	Oral care documented	Percentage
Intubated	36	6	16.7%
Non intubated	134	3	2.2%
Total	170	9	18.9%

Same data shown in bar diagram

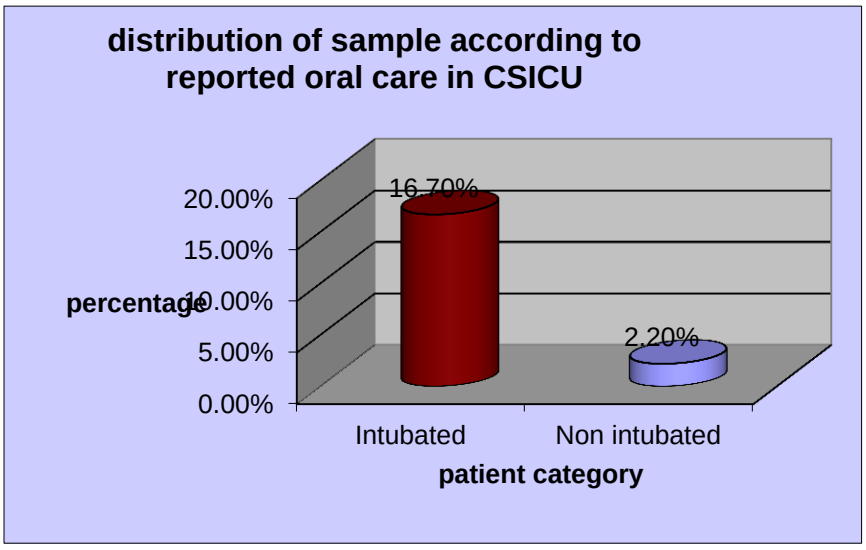

Figure 4.6a

4.6 (b) Distribution of samples according Oral care observed in CSICU

The data presented in the table 4.6b denotes that the (25.3%) of intubated patients received oral care and (23.8%) of non intubated patients receive oral care.

Table: 4.6b Distribution of sample according Oral care observed in CSICU

Patient category	Total patients observed	Oral care received	Percentage
Intubated	63	16	25.3%
Non intubated	122	29	23.8%
Total	185	45	49.1%

Same data shown in bar diagram

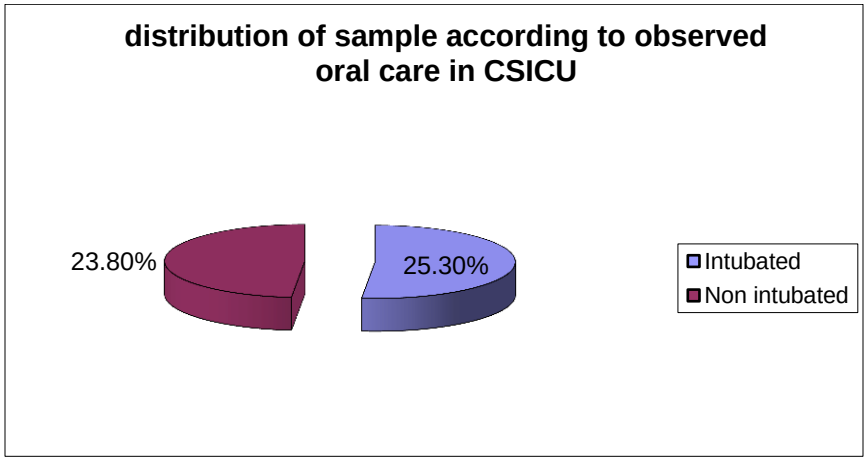

Figure4.6b

4.6(c) Distribution of sample according reported oral care in CSICU during morning shift

The data presented in the table denotes that the (2.5%) of non-intubated patients oral care is reported during morning shift**.**

Table 4.6©: Documented oral care in CSICU during morning shift

Patient category	Total patients reported	Oral care documented	Percentage
Intubated	0	0	0%
Non intubated	40	1	2.5%
Total	40	1	2.5%

4.6(d) Distribution of sample according to observed oral care in CSICU during morning shift

The data presented in the table4.6d denotes that the (0%) of both intubated and non intubated patients doesn't receive oral care during morning shift.

Table: 4.6(d) observed oral care in CSICU during morning shift

Patient category	Total patients observed	Oral care received	Percentage
Intubated	18	0	0%
Non intubated	27	0	0%
Total	45	0	0%

4.6e.Distribution of sample according reported oral care in CSICU during evening shift

The data presented in the table 4.6e denotes that the (13%) of intubated patients and (5.3%) of non intubated patients oral care has been reported by the cardiac nurses during evening shift.

Table 4.6e: Reported oral care in CSICU during evening shift

Patient category	Total patients reported	Oral care documented	Percentage
Intubated	23	3	13%
Non intubated	76	4	5.3%
Total	99	7	18.3%

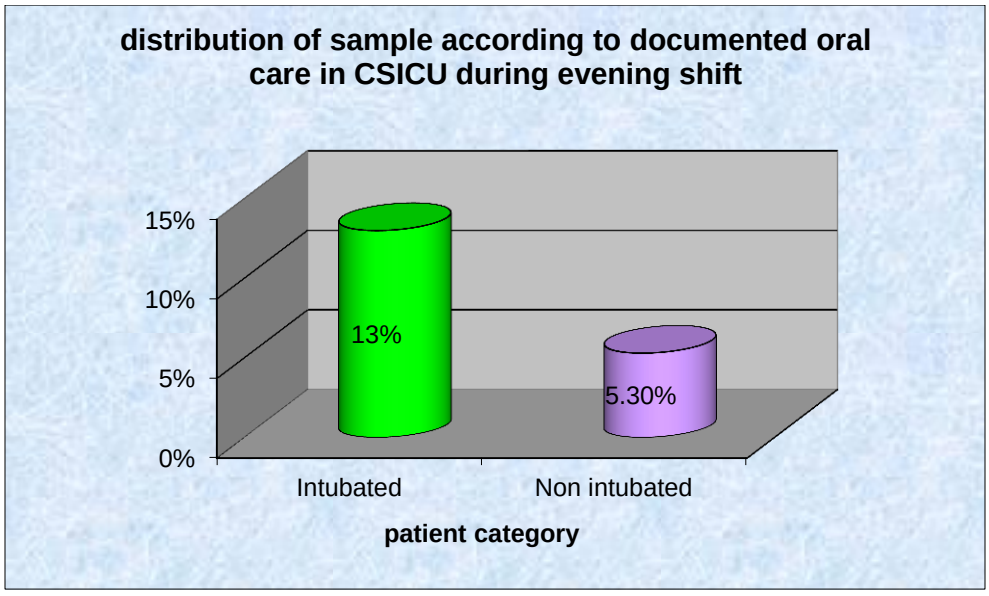

Figure 4.6c

4.6(f) Distribution of sample according observed oral care in CSICU during evening shift

The data presented in the table 4.6f denotes that the (21.6%) of intubated patients and (5.7%) of non intubated patients received oral care during evening shift.

Table 4.6f: observed oral care in CSICU during evening shift

Patient category	Total patients observed	Oral care received	Percentage
Intubated	37	8	21.6%
Non intubated	70	4	5.7%
Total	107	12	27.3%

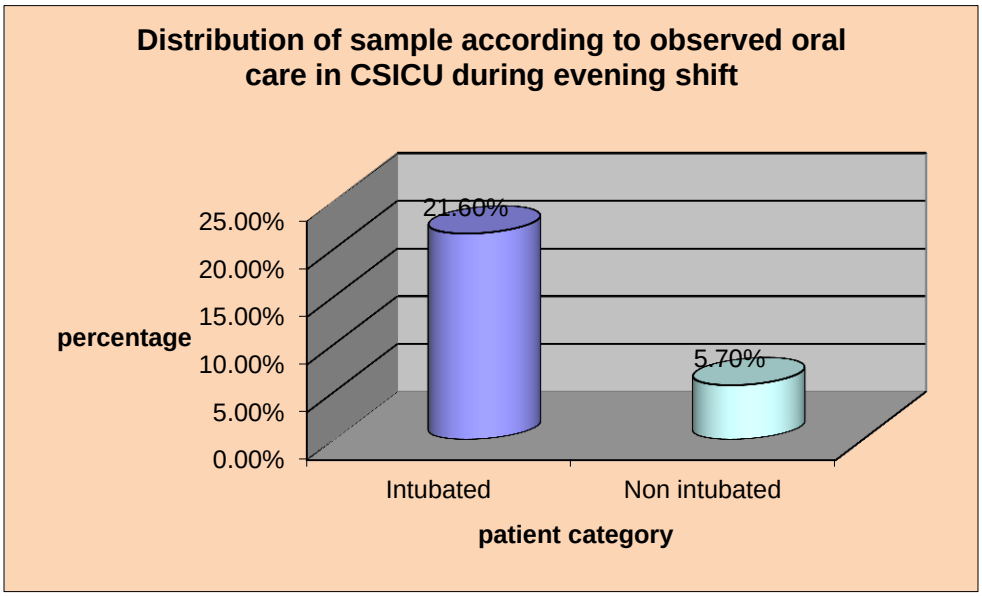

Figure4.6d

4.6g Distribution of sample according reported oral care in CSICU during night shift

The data presented in the table 4.6g denotes that the (23.1%) of intubated patient's and (0%) of non intubated patient's oral care has been reported by the cardiac nurses during evening shift.

Table 6g: Reported oral care in CSICU during night shift

Patient category	Total patients reported	Oral care documented	Percentage
Intubated	13	3	23.1%
Non intubated	18	0	0%
Total	31	3	23.1%

4.6h Distribution of sample according observed oral care in CSICU during night shift

The data presented in the table 4.6h denotes that the both (100%) of intubated patient's and non intubated patients received oral care during evening shift.

Table 4.6h: Observed oral care in CSICU during night shift

Patient category	Total patients observed	Oral care received	Percentage
Intubated	8	8	100%
Non intubated	25	25	100%
Total	33	33	100%

Same data shown in bar diagram:

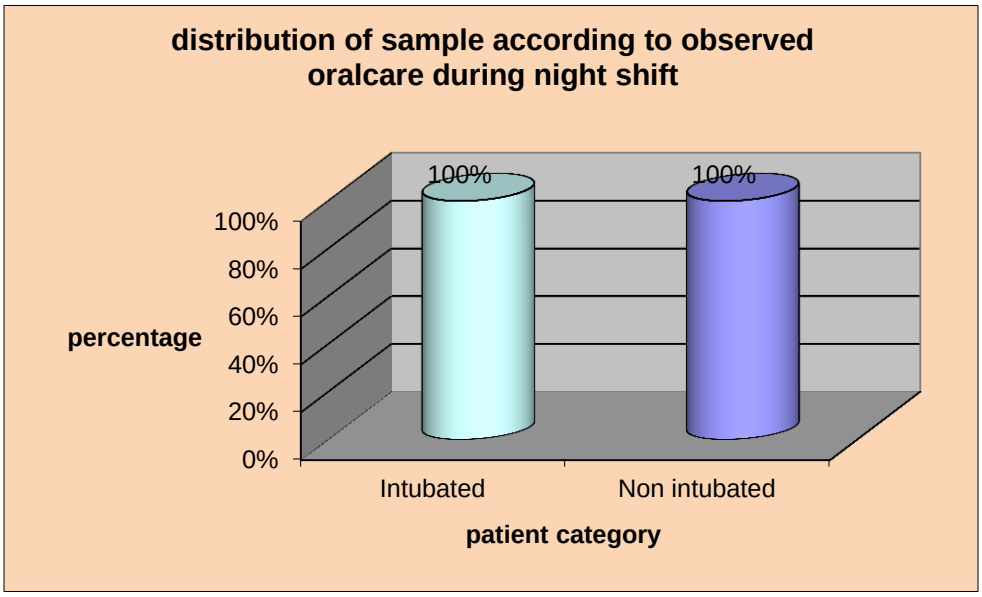

Figure 4.6e

4.6i Distribution of sample according reported oral care method in CSICU

The data presented in the table 4.6i denotes that the (16.7%) of the cardiac nurses documented forceps and gauze for oral care and (23.8%) of the cardiac nurses uses chlorhexidine mouthwash for non intubated patients.

Table 4.6i: Reported oral care method used in ICU

Oral care method	Total patients observed	Oral care documented	Percentage
forceps and gauze	36	6	16.7%
Chlorhexidine mouthwash	122	29	23.8%
Total	158	35	40.5%

Same data shown in bar diagram:

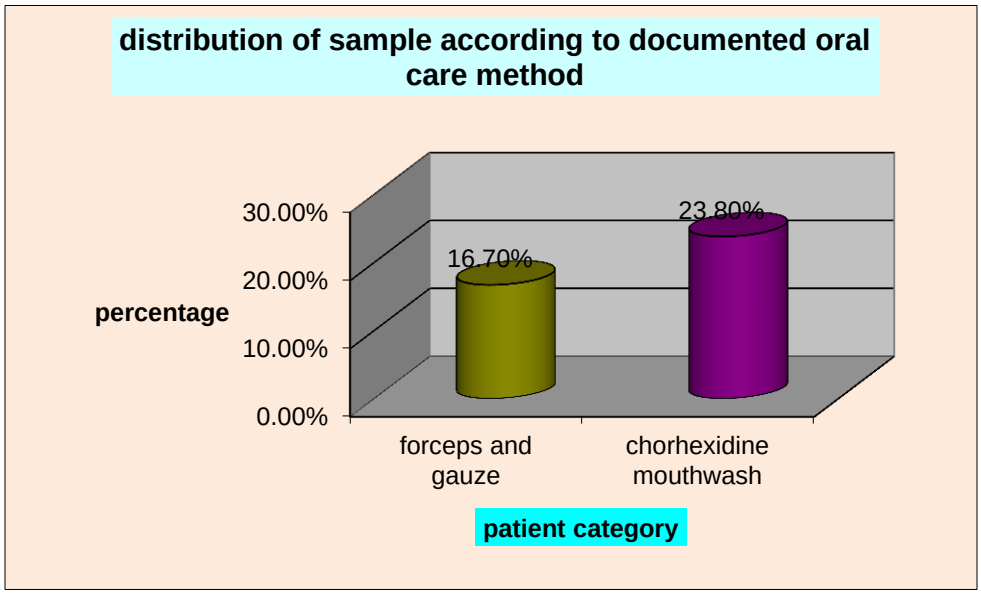

Figure 4.6f

4.6j Distribution of sample according to observed oral care method used in CSICU

The data presented in the table 4.6j denotes that the (25.4%) of the intubated received oral care with forceps and gauze and (2.20%) of the non intubated patients received oral care with chlorhexidine mouthwash.

Table 4.6j: Observed oral care method used in CSICU

Oral care method	Total patients observed	Oral care received	Percentage
Forceps and gauze	63	16	25.4%
Chlorhexidine mouthwash	134	3	2.2%
Total	197	19	27.6%

Same data shown in bar diagram:

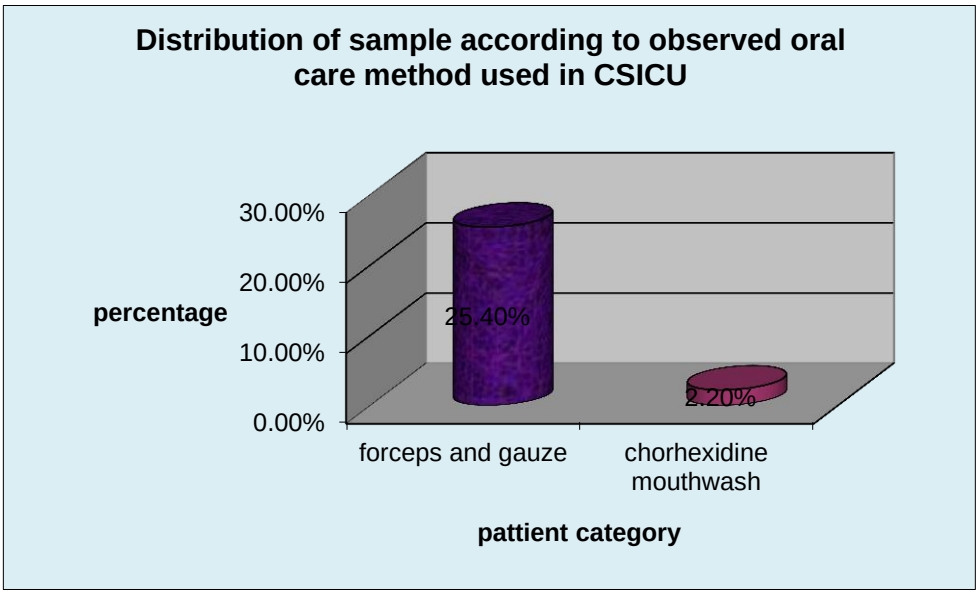

Figure 4.6g

CHAPTER –V

SUMMARY, CONCLUSIONS, DISCUSSIONS AND RECOMMENDATIONS

Chapter. V

SUMMARY, CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

5.1 Introduction

A brief account of the study is given in this chapter, which covers objectives, findings of the study and possible applications of the result. Recommendations for future research and suggestions for improving the present study are also presented.

5.2 Summary

This study was conducted to assess the frequency and documentations of oral care practices also nurses' knowledge and attitude regarding oral care and to assess the nurse's opinion on introducing tooth brushing in CSICU. A review of related literature helped the investigator to get a clear concept about the topic under taken, as well as to develop tools, methodology of the study and decide plan of data analysis.

The study was conducted in CSICU of SCTIMST; the size of the sample was 30. Both permanent and temporary staff nurses including sister in charge were included in this study. The duration of this study was from August 2011 to October 2011. A self-prepared questionnaire was used for collecting data; it contains 20 questions regarding nurse's knowledge, attitude and practice on oral care and demographic data were also collected. The data was analyzed and interpreted using descriptive statistics.

5.3 Objectives of the study

1. To assess the oral care practices in CSICU
2. To assess the cardiac nurses knowledge on risk factors of ventilator associated pneumonia, attitude regarding oral care in CSICU.

3. To assess the nurses opinion regarding introducing tooth brushing in intubated patients.

5.4 Limitation

The study is limited to staff nurses working in CSICU of SCTIMST

5.5 Major Findings

Attitude of the 30 cardiac nurses regarding the oral care ranged from 60-100.This shows that mean attitude of cardiac nurses with regard to oral care is above average. Cardiac surgical intensive care unit nurses (n = 30) participated in the study.

Attitude for providing oral care

Nurses' attitudes were assessed by responses to a thirteen-item Likert Scale. More than 93% of the nurses agreed that oral care is very important for mechanically ventilated patients. More than 80% had adequate oral care training and 73.3% of the nurses had adequate time to provide the care at least once a day. However, more than 66% felt that the oral cavity is somewhat difficult to clean and that it is also an unpleasant task. Overall, the majority of nurses had a positive attitude towards providing oral care for ventilated patients.

Frequency and mode of oral hygiene

Of 30 nurse respondents, all of them used chlorhexidine mouthwash for oral care. The majority of cardiac nurses provided forceps and gauze/cotton for oral care at least once a day –forceps and gauzes (80%), forceps and cotton (20%).50% of the cardiac nurses provide oral care between one and five minutes and 47% of the cardiac nurses give oral care between five and ten minutes. 43% of the cardiac nurses provided oral care every shift per day and 26.7% of them provide oral care both one per day or twice per day.

Knowledge on risk factors for VAP in the ICU

There was approximately 57% (n = 17) cardiac nurses indicated that aspiration of contaminated oropharyngeal secretion as the most likely transmission of bacteria into the lung of ventilated patients as opposed to respiratory pathogens from other sources.

Observation

G shift

Beginning of the duty

During the three weeks of observation, most of the CSICU nurses used Forceps, gauze, cotton. No intubated patients were there at the beginning of G shift. No oral care is documented for the intubated patients in the beginning of the duty. Number of non intubated patents at the beginning of the duty was 40. One non intubated patient got oral care at the beginning of the shift.

At the end of the duty

Number of intubated patients at the end of the duty was 18. Number of non intubated patients was 27. No intubated and non intubated patients received oral care during that shift.

B shift

Beginning of the duty

Intubated patients were there at the beginning of B shift were 23. Three intubated patients (13%) oral care is documented in the beginning of the duty. Number of non intubated patents at the beginning of the duty was 76. Four non intubated patients oral care was documented at the beginning of the shift.

End of the shift

Number of intubated patients at the end of B shift was 37. Eight (21.6%) intubated patients oral care is documented in the end of the duty. Number of non intubated patents at the beginning of the duty was 70. Four non intubated patients received oral care at the end of the shift.

C shift

Beginning of the duty

Number of intubated patients at the beginning of C shift was 13. Three intubated patients (13%) oral care is documented in the beginning of the duty. Number of non intubated patents at the beginning of the duty was 18. No non intubated patients oral care was documented at the beginning of the shift.

End of the shift

Number of intubated patients at the end of C shift was 8. Eight (100%) intubated patients received oral care in the end of the duty. Number of non intubated patents at the beginning of the duty was 25. 25(100%) of non intubated patients received oral care at the end of the shift.

The majority of nurses provided oral care to most of the patients at least once per shift .

Method used for oral care

The majority of nurses provided oral care to most of the patients at least once per shift with forceps, gauze or cotton nurses as the highest risk factor for ventilator-associated pneumonia. Toothbrushes were not used in any of the study sites. This study has identified a failure to adhere with evidence-based practice. Implementing and evaluating protocols for oral hygiene in the intensive care unit has the potential to improve patient outcomes.

5.6 Recommendations

Keeping in mind the findings and limitations of the study, the following recommendations were made for future study

1. Similar study would be conducted in other intensive care units and wards of this institute.
2. Similar study can be conducted by increasing the size of the sample

5.7 Discussion

This study describes the method and frequency of oral care provided for both intubated and non intubated patients in CSICU of SCTIMST, Trivandrum. The results indicated that the frequency and method of oral care differed among nurses. Based on the study findings, it is likely that the implementation of protocols may help nurse provide evidence-based oral care to patients and reduce the risk of VAP. Nurses' attitudes were assessed by responses to thirteen-item likert scale. Jones et al (2004) found that there was an increased uptake in the use of toothbrushes following introduction of an oral care protocol. Implementing a protocol for tooth brushing has been shown to improve oral care (Fitch et al.1998), as well as the attitudes and knowledge of cardiac nurses in the ICU .In his study 43% of cardiac nurses indicated that they were unaware of an oral care protocol of using cotton or gauze and forceps; tooth brushing was not included in the unit. 43% of the cardiac nurses suggest that oral care should be given every shift per day. 100% of the cardiac nurses in the CSICU indicated the use of used chlorhexidine .2%mouthwash for oral care. (67%) of cardiac nurses doesn't prefer toothbrush for giving oral care in intubated patients in CSICU.

One of the important causes of VAP is aspiration of oral colonisation. In this study, 56% nurses indicated that aspiration of contaminated secretions as the most likely transmission of bacteria in to the lung of ventilated patients as opposed to respiratory sources from other pathogens. Oral colonisation is increased in patients

with poor oral care (Ohman *et al.* 2003, Solh *et al.* 2004, Jones & Munro 2008). The nurses did not use toothbrush because a big head toothbrush is not easy to be used on the intubated patients, preferring instead forceps and gauze or forceps and cotton – the techniques they were taught in their nursing schools. Previous studies also found that many nurses prefer foam sticks to toothbrushes for oral care (Kite 1995, Grap *et al.* 2003) which may predispose the patients to potentially life-threatening nosocomial infections caused by the ineffectual cleaning (McNeill 2000). The results of nurses' oral care practice in this study reflected that they are not adhering with evidence-based practice recommendations. During the observation phase of this study, none of the nurses were observed using toothbrush for cleaning their patient teeth. Most of the cardiac nurses' preferring forceps and gauze to a toothbrush.

This study only examined the nurses' knowledge on the risk factors of VAP, and no question was asked about the best practice for oral hygiene to minimize VAP. Thus, the question of whether the nurses knew about tooth brushing as the recommended oral care to reduce the risk of VAP is unknown. Intubation and aspiration of contaminated secretion were recognized as the most likely mechanisms of bacterial transmission into the lungs, resulting in pneumonia in the scenario presented in this survey. Other factors, such as contamination from the ventilator equipment, microorganism transmission from the staff hands, precolonisation and host factors, are also important risks, but secondary to intubation and aspiration (Visnegarwala *et al.* 1998).

The nurses in this study were generally happy to provide oral care to their patients. However, they were over optimistic about the quality and standard of care they provided. Approximately 43% of the nurses indicated that they provide oral care every shift per day. In CSICU oral care is provided to all patients only during the night shift. However, approximately half of the intubated patients did not receive regular oral care during the observation period. Grap *et al.* (2003) found nurses likely to report providing more care than what they actually did. They discovered that 75%

of 77 nurses claimed providing oral care five times per day or more for the intubated patients. Cutler and Davis (2005) found that without a protocol for oral hygiene oral care was performed infrequently. In their study, although the nurses thought oral care to be very important for mechanically ventilated patients and had the training and time to provide it, 40–46% found it an unpleasant and difficult task, and the mouths of their patients deteriorated if the patient needs prolonged ventilation although oral care was provided. These results were similar to those of Binkley *et al.* (2004). Furr *et al.* (2004) stated that having sufficient time to provide oral care, seeing it as priority and not unpleasant is associated with providing better oral care for patients. Grap *et al.* (2003) in their survey of oral care intervention in ICU also found oral care to have been accorded low priority as the greater importance was to stabilise the condition of critically ill patients. During the twenty-days observation, most of the CSICU nurses used forceps, gauze and chlorhexidine for giving oral care for the patients.

5.8 Conclusion

The majority of respondents knew that aspiration of contaminated secretions from the oropharynx is the main cause of risk factors of VAP and identified the importance of oral hygiene. Oral care was a routine procedure in the CSICU, but none of them practised tooth brushing as no child toothbrushes were supplied. Although nurses had a positive attitude to oral hygiene, this study found no intensive care units incorporated a soft toothbrush in oral care protocols which is recommended in best practice guidelines. A review of strategies to implement evidence-based practice in the intensive care unit is warranted. Therefore, there is a need for all ICUs to update their oral care protocols and stocks to include tooth brushing and chlorhexidine mouth wash. Evaluation of implementation of these protocols should be undertaken to improve patient outcomes.

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APPENDIX

INFORMED CONSENT

I here by agree to participate in the research study " A study to assess the attitude and practices of cardiac nurses on oral care in cardiac surgical intensive care unit" of SCTIMST, Trivandrum. I understand that the data conducted by Anjana.S.R, first year Diploma in Cardiovascular and Thoracic given by me will be kept confidential and be used only for research purpose.

Place Signature of staff

Date

QUESTIONNAIRE

TEST TO ASSESS THE ATTITUDE AND PRACTICES OF CARDIAC NURSESB ON ORAL CARE IN CARDIAC SURGICAL INTENSIVE CARE UNIT

Fill up or (✓) mark appropriately

SECTION –I

Age:

Professional Qualifications:

□GNM □ Bsc.Nursing □ PBNC/DCN □ Msc.Nursing □ Any other

Professional experience in years:

Total ICU Experience in years:

SECTION-II

o	QUESTION	Strongly Agree	Some What Agree	Neutral	Some What Disagree	Strongly Disagree
*	I had adequate training to provide my patients with oral care					
*	Oral care is high priority for mechanically ventilated patients					
*	Oral care is high priority for valve patients					
*	I have adequate time to provide my patients with oral care at least once a day					
*	Cleaning oral cavities is an unpleasant task					
	Oral cavities are					

*	difficult to clean in a intubated patient					
*	The mouth of most patients get worse no matter what I do					
*	Need better supplies and equipment for oral care					
*	I prefer using a forceps and gauze/cotton to a toothbrush for cleaning patients' teeth					
0*	I feel that adequate oral hygiene is a must in the intensive care patient					
1*	Assessment of a patient's oral care needs take place with in 24 hours of their admission					
2*	Chances of bleeding gums increases the chances of bacteremia					
3*	Oral care is a formal or documented					

	assessment					

14* Is there a formal unit protocol for the assessment of oral care?

A. Yes
B. No
C. Not sure

15*How frequently is a patient's oral care provided each day in CSICU?

A. Not at all
B. Once per day
C. Twice per day
D. Every shift per day
E. More than three times per day

16*How much time is spent on providing oral care at each sitting?

A. Less than one minute
B. Between one and five minutes
C. Between five and ten minutes

17* Solutions used routinely for oral care in CSICU?

A. Isotonic sodium chloride solution
B. Toothpaste
C. Hydrogen peroxide mixture
D. Sodium bicarbonate

E. Lemon and glycerin

F. Chlorhexidine mouthwash

18* Mostly used chlorhexidine solution in CSICU?

A. Chlorhexidine 0.12%

B. Chlorhexidine 0.2 %

C. Chlorhexidine 2%

19*Equipment which is most commonly used in CSICU?

A. Cotton/forceps

B. Gauze/forceps

C. Toothbrush

20*Most common cause of ventilator associated pneumonia?

A. From healthcare workers

B. Aspiration of contaminated secretions from the oropharynx

C. From contaminated respiratory equipment

D. Preadmission Oral colonization

E. From other patients

OBSERVATION CHECKLIST

Date:

Shift: **A** **B** **C**

Sl no:	Beginning of shift			End of shift			Method used
		Oral care given	Oral care not given		Oral care given	Oral care not given	
1	Number of patients in ventilator			Number of patients in ventilator			
2	Patients not on ventilator			Patients not on ventilator			
3	Total number of patients that get oral care			Total number of patients that get oral care			
4	Total number of patients			Total number of patients			

Method key: -

1* Lemon and glycerine
2* Chlorhexidine Mouth wash
3* Toothbrush
4* Forceps and Gauze
5* Forceps and cotton