
Assessment of the Knowledge regarding Ventilator Care Bundle among Final Year BSc. Nursing Students of Mysuru City

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Abstract

Background: Ventilator-associated pneumonia (VAP) is nosocomial pneumonia found in 9–27% of patients on mechanically assisted ventilator and is also a major threat to the recovery of patients receiving mechanical ventilation. It usually occurs within 48 h after tracheal intubation. Preventing VAP is one of the important safety issues in critically ill patients receiving mechanical ventilation. Intensive care nurses are in the best position to put the evidence-based guidelines into practice as they are at the patient's bedside 24 hours a day and therefore, they play an important role in the prevention of VAP. Knowledgeable and skilled nurses are crucial in providing patient care, timely and correct decision minimizes the risks to patient.¹ Prevention and control of ventilator associated pneumonia are dependent on education and awareness of ICU staff towards the problem and on the application of evidence-based strategies

Aim: The aim of the present study was to assess the knowledge regarding ventilator care bundle among Final year BSc. Nursing students of selected nursing colleges at Mysuru city

Design: Descriptive, non-experimental research design

Sample and sampling technique: Convenience sampling technique was adopted to select 60 final year BSc nursing students of selected nursing colleges at Mysuru city. Structured Knowledge questionnaire was used to assess the selected personal variables and to assess the Knowledge regarding ventilator care bundle among final year BSc nursing students

Results: The study findings revealed that Majority 19(75%) of nursing students got information through health personnels, 05(25%) from electronic mass media and study findings also revealed the findings revealed that majority 41(68.4%) B.SC nursing students had average knowledge.

Conclusion: Analysis of findings revealed that majority nursing students 50(83.3%) had average knowledge regarding ventilator care bundle. Hence there is need to conduct educational programme to enhance the knowledge and develop desirable attitude regarding Preventing the ventilator associated pneumonia.

Keywords: VAP: ventilator associated pneumonia, VCB: ventilator care bundle

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Introduction

Mechanical ventilation is an essential medical intervention in the context of critical illness. However, the intervention is associated with a risk of significant, potentially preventable complications.²

Ventilator-associated pneumonia (VAP) is a common healthcare-associated infection (HCAI) occurring in 10–20% of patients mechanically ventilated in the ICU.^{1,2} It usually occurs within 48 h after tracheal intubation. 86% of nosocomial pneumonia is associated with ventilation.³ Although the exact attributable mortality has proved difficult to define, it has significant consequences with increased mortality, the length of ICU stay and hospital stay and an increase in healthcare costs.^{3–5} Furthermore, within a global setting of worsening antimicrobial resistance, the treatment of respiratory tract infections represents a significant burden of antimicrobials in the ICU.^{1,2}

Preventing VAP is one of the important safety issues in critically ill patients receiving mechanical ventilation. The American Association of Critical-Care Nurses (AACN) recommended steps for reducing the incidence of VAP and these steps are based on the best-practice guidelines for patients receiving mechanical ventilation called the “ventilator bundle.”

Intensive care nurses are in the best position to put the evidence-based guidelines into practice as they are at the patient’s bedside 24 hours a day and therefore, they play an important role in the prevention of VAP.

Many studies reported that incidence of VAP in the VAP care bundle group (0.281 cases per 1000 ventilator days) was significantly lower than that in the control group (0.495 cases per 1000 ventilator days).⁵

Regarding ventilator care bundle Studies also reported that more than half (56.7%) of the staff nurses had excellent knowledge regarding ventilator care bundle and 43.3% of them had good knowledge regarding ventilator care bundle It shows that knowledge and compliance of staff nurses regarding ventilator care bundle were found to have significant association. Knowledgeable and skilled nurses are crucial in providing patient care, timely and correct decision minimizes the risks to patient.¹

Lack of knowledge about the prevention of infection and proper nursing care may become barrier to prevent VAP. The occurrence of ventilator acquired Pneumonia indicates inadequacy of experienced nurses, insufficient knowledge and understanding about the pathophysiology and prevention of VAP.² Student nurses need to have an awareness of the problem as well as knowledge on evidence-based guidelines to improve in the quality of nursing care.

Statement of the Problem

“A Study to assess the knowledge regarding ventilator care bundle among Final year BSc. Nursing students of selected colleges at Mysuru city with a view to conduct an educational Programme.”

Objectives

1. To assess the knowledge regarding ventilator care bundle among final year BSc. Nursing students of selected colleges at Mysore city.
2. To find the association between level of knowledge regarding ventilator care bundle among final year BSc. Nursing students and their selected personal variables

Hypotheses

H₁: There will be significant association between the level of knowledge regarding ventilator care bundle among final year nursing students and their selected personal variables.

Research Methodology

This descriptive, non-experimental research study was conducted to assess the knowledge regarding ventilator care bundle among final year nursing students and approved by the institutional ethic committee at JSS Medical College, Mysuru. The study topic was not in the curriculum of nursing students and care bundles were implemented in the tertiary health care settings. The study sample comprised of 60 final year nursing students of Mysuru city. Using convenience sampling technique, 60 final year nursing students were selected from selected Nursing colleges. Structured Knowledge Questionnaire was administered to measure level of knowledge regarding ventilator care bundle. Five medical surgical nursing professionals with over

15 years of experience validated the tool, confirming its reliable. Pilot study was conducted. After the data collection the educational Programme on ventilator care bundle was conducted.

Results

Section 1

Section 1: Description of selected personal variable of final year B.Sc. Nursing students

Table 1: Frequency and percentage distribution of nursing students according to their selected personal variables. n=60

Sl No	Sample characteristics	Frequency (f)	Percentage (%)
1	Age in years		
	1.1 18-20 years	60	100
2	Gender		
	2.1 Male	10	16.7
	2.2 Female	50	83.3
3	Religion		
	3.1 Hindu	18	30
	3.2 Christian	34	56.6
	3.3 Muslim	08	13.4
4	Have you had previous knowledge about ventilator care bundle		
	4.1 yes	19	31.67
	4.2 No	41	68.33

Table 3: Mean, Median, Range and Standard deviation of knowledge score of nursing students regarding ventilator care bundle

Variable	Mean	Median	Range	Standard Deviation
Knowledge	16.11	14	11 -18	±4.073

Table 3 shows that the mean knowledge score of nursing students is 16.11, ranged 11- 18 with standard deviation of ± 4.073 and the median 14.

SECTION 3

Section 3: Association between level of knowledge of final year BSc. Nursing students

5	Source of Information		
	5.1 Electronic mass media	05	25
	5.2 Health Personal	14	75

Table1 shows that majority (83.3%) of the samples were female and were in age group of 18-20 yrs. Most of the samples (56.6%) belonged to Christian religion. 31.67% of the sample had Previous knowledge. Majority of the samples (75%) got the information or knowledge from the health personnels.

SECTION 2:

Section 2: Level of Knowledge of final year B.Sc. Nursing students regarding ventilator care bundle

Knowledge scores were categorized according to Bloom’s cut-off points as 80.0-100.0% (good, 20-25 points), 60.0-79.0% (average, 15-19points), and ≤59.0% (poor 0-14 points). Mentioned in table 2

Table 2: Frequency and percentage distribution of nursing students according to their level of knowledge regarding ventilator care bundle n=60

Knowledge level	Frequency	Percentage (%)
Poor	14	23.3
Average	41	68.4
Good	05	8.3

Table 2 shows that majority of nursing students 50(68.4%) had average knowledge regarding ventilator care bundle 05 (8.3%) had good knowledge and 14 (23.3%) had poor knowledge regarding ventilator care bundle.

regarding ventilator care bundle and their selected personal variables

Discussion

Findings of the present study showed that 60(100%) of nursing students were in the age group of 18-20 years, majority 50(83.3%) of females and

10(16.7%) of nursing students were male. 68.4% of students had previous knowledge regarding ventilator care bundle in that majority 19(75%) of nursing students got information through health person, 5(25%) from electronic mass media, 7(11.66%) from friends and 6(10%) from family members

The above findings were supported with findings of other study conducted to assess level of knowledge regarding ventilator care bundle in prevention of ventilator-associated pneumonia majority of the students 28.3% gained knowledge regarding VAP from electronic media and hospital health information as a source of information.¹¹

Majority of nursing students 41 (68.4%) had average knowledge regarding ventilator care bundle, 05 (8.3%) had good knowledge and 14(23.3%) had poor knowledge. The above findings are supported with the findings of another quasi-experimental one group pre-test post-test study conducted to assess the effectiveness of an educational intervention on the knowledge and practice of the staff nurses regarding prevention of VAP among neonates in Neonatal Intensive Care Unit (NICU). The results of the study revealed that, the mean knowledge score of the participants had increased from 21.44±3.06 (pre-test) to 30.26±2.46 (post-test) and the median score for practice prior to the intervention was 21 (interquartile range, Q1=20, Q3=22.5) and after the intervention it was 24 (interquartile range, Q1=23, Q3=25). The educational intervention was found to be effective in terms of improvement in the knowledge.¹²

Conclusion

Ventilator-associated pneumonia (VAP) is a common nosocomial infection in critically ill patients, preventing VAP is one of the important safety issues in critically ill patients receiving mechanical ventilation. Implementation of Ventilator care bundle reduces the risk of VAP. Nurses play a unique role in the implementation of the bundles. Enhancing student nurses' understanding of evidence-based practices is crucial for raising the standard of healthcare. Study findings recommending that there is need to conduct educational programme for final year students who are ready to entering the nursing practice, education programme will enhance the knowledge and develop desirable attitude regarding preventing the ventilator associated pneumonia.

Conflict of Interest: Nil

Ethical Clearance: Obtained from the Institutional ethical committee at JSS Medical college, Mysuru.

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