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"Knowledge Regarding Ventilator-Associated Pneumonia Bundle Of Care Among Nursing Officers In Selected Index Hospital Indore''

[1]Kamal Nayn Saini, [2]Dr. Reena Thakur

[1]Ph.D Scholar (Nursing), [2]Research Supervisor & Professor, Medical Surgical Nursing Dept.
[1]Department of Nursing,[2]Index Medical College,Indore
[1]Malwanchal University, Indore, India

ABSTRACT: Background of the study: The IHI developed the "Ventilator Bundle," comprising four evidence-based practices, along with a methodology for implementation and compliance measurement. **The study objectives** to evaluate nursing officers' knowledge and practices related to ventilator-associated pneumonia (VAP) care. **Research methodology**: It employs a descriptive quantitative design with a sample of 100 participants selected through non-probability convenient sampling. The research tool consists of three parts: Part 1 covers socio-demographic information, Part 2 is a self-structured questionnaire with 24 items scored from 0 to 1, and Part 3 is a checklist containing 20 items, also scored from 0 to 1.**conclusion:** A study on ventilator-associated pneumonia (VAP) revealed that 67% of participants had excellent knowledge, 28% good knowledge, and 5% average knowledge. In terms of practices, 55% exhibited good practices, while 40% showed excellent practices, with no participants falling below fair practice levels. Overall, nursing officers implement appropriate VAP care practices.

Keywords: knowledge, practice, ventilator-associated pneumonia (VAP),bundle of care, nursing officers.

1.INTRODUCTION: It generally happens 48 hours following tracheal intubation. One of the most crucial safety concerns for severely sick patients on mechanical breathing is preventing VAP. Because they are at the patient's bedside around-the-clock, intensive care nurses are in the greatest position to implement the evidence-based recommendations. As a result, they are crucial in preventing VAP. In order to reduce patient risks, prompt and accurate decisions are made by knowledgeable and trained nurses. ICU staff education and knowledge of the issue, as well as the implementation of evidence-based treatments, are essential for preventing and controlling ventilator-associated pneumonia.

Bundles, which are described as "a compact, straightforward set of activities - often three to five—that have been shown to enhance patient outcomes when carried out consistently and collectively.

In order to enhance the outcomes of patients who need mechanical ventilation, the IHI created the "Ventilator Bundle," which consists of four evidence-based practices. They also supplied the methodology for implementing the bundle and measuring compliance.

The components of a ventilator bundle are as follows:

1. Raising the bed's head by 30 to 45 degrees
2. Daily "sedation vacation" and daily extubation readiness evaluation
3. Preventing peptic ulcer disease
4. Preventing deep vein thrombosis (DVT)
5. antibacterial chlorhexidine, 6. drainage of subglottic secretions

2. NEED OF THE STUDY: The study conducted by Thimmaiah, Guruprasad; Pandey, et.al. in the trauma ICU of PGIMER, Chandigarh, from October 2021 to December 2022 examined the incidence and costs associated with ventilator-associated pneumonia (VAP). Out of 494 admitted patients, 484 received mechanical ventilation, with 47 developing VAP, resulting in an incidence rate of 9.7% and an incidence density of 10.79/1000 MV days. The average length of stay (ALOS) for VAP patients was 21 days, compared to 8.2 days for non-VAP patients. The estimated health system cost was INR 25,927 per bed per day, with treatment costs of INR 544,467 for VAP patients versus INR 207,416 for non-VAP patients. The findings underscore the need for strategies to prevent VAP to reduce length of stay and associated costs.

Preventing ventilator-associated pneumonia is one of the most important safety issues for critically ill patients on mechanical ventilation. The American Association of Critical-Care Nurses' (AACN) recommended actions to reduce the occurrence of VAP are based on the "ventilator bundle," a collection of best-practice guidelines for patients on mechanical ventilation. Ventilator bundles have been strongly advised for ventilated patients who are at risk for ventilator-associated pneumonia. The increased mucus production and absence of cough reflex in patients on mechanical ventilation make the ventilator bundle simpler to use. The purpose of this study is to evaluate the knowledge and practices of nursing officers working in special units with reference to the ventilator-associated pneumonia bundle of care.

3.PROBLEM STATEMENT: A Descriptive Study To Assess Knowledge And Practice Regarding Ventilator Associated Pneumonia (VAP) Bundle Of Care Among Nursing In Selected Index Hospital Indore.

4.OBJECTIVES OF STUDY :

1. To assess the knowledge regarding ventilator associated pneumonia (VAP) bundle of care among nursing Nursing officers.
2. To assess the practice regarding ventilator associated pneumonia (VAP) bundle of care among nursing officers .

5.MATERIALS AND METHODS: Research methodology and design: A descriptive design and quantitative research methodology were employed. Sample Size and Sample approach: The sample size was 100, and the non-probability convenient sampling approach was chosen as the sample technique. Choosing and creating a research tool: Part 1: Sociodemographic information: This section examines four factors pertaining to the study's sociodemographic context. Section II: Self-structured questionnaire: There are 24 items in this section. The lowest score for each category is zero, and the maximum score is one. Part III: Checklist: There are 20 items in this section, with a maximum score of 1 and a minimum score of 0.

RESULTS:

Table-01 Frequency and percentage distribution of socio-demographic variables.

N=100

socio-demographic variables.		frequency	Percentage
Professional qualification	GNM	32	32%
	B.Sc. nursing	35	35%
	Post basic nursing	18	18%
	M.Sc. nursing	13	13%
	Ph.D. in nursing	2	2%
Gender	Female	63	63%
	Male	37	37%
Total experience	1-5 YEARS	63	63%
	5 TO 10 YEARS	25	25%
	MORE THAN 10 YEARS	12	12%
Area of experience	ICU	25	25%
	ICCU	22	22%
	SICCU	23	23%
	NICU	30	30%

Table no.1 :The data presents socio-demographic variables of a nursing officers . Among the professional qualifications, 35% hold a B.Sc. in nursing, followed by GNM

at 32%, post-basic nursing at 18%, M.Sc. nursing at 13%, and Ph.D. in nursing at 2%. Gender distribution shows 63% female and 37% male participants. In terms of total experience, 63% have between 1-5 years, 25% possess 5 to 10 years, and 12% have more than 10 years of experience. Experience is categorized by area, with 30% working in NICU, 25% in ICU, 23% in SICCU, and 22% in ICCU.

Table -02 Frequency and percentage distribution according to knowledge score regarding ventilator associated pneumonia (VAP) care bundle among nursing Officers .

N=100

Knowledge	score	Criterion measure	f %
Excellent	19-24	67	67%
Good	13-18	28	28%
Average	7-12	5	5%
Fair	1-6	-	-

Table No.02 shows the percentage distribution of the knowledge score based on the criterion measure. It shows that, with regard to ventilator-associated pneumonia (VAP), the majority of nursing officers (19–24) had excellent knowledge (67%), while (13–18) had good knowledge (28%), followed by (7–12) with average knowledge (5%). No one had fair knowledge. Therefore, it can be concluded that most research participants have a high level of understanding about ventilator-associated pneumonia (VAP).

OBJECTIVE 2: To assess the practice regarding ventilator associated pneumonia (VAP) bundle of care among nursing officers .

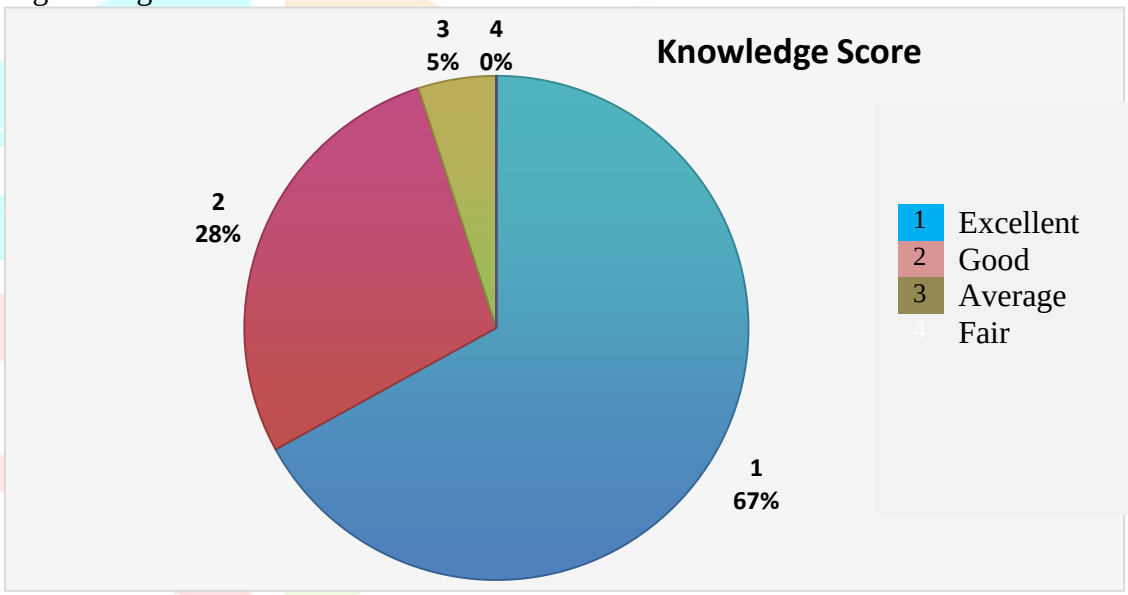

Figure 1:Pia-Diagram showing Knowledge score regarding ventilator associated pneumonia (VAP) critical care bundle among nursing officers.

Table-03 Frequency and percentage distribution according to Practice score regarding ventilator associated pneumonia (VAP) critical care bundle among nursing officers.

N=100

Practice	score	Criterion measure	f %
Excellent	16-20	40	40%
Good	11-15	55	55%
Average	6-10	5	5%
Fair	1-5	0	0%

Table No. 3 shows the percentage distribution of the practice score based on the criterion measure. It shows that, with regard to ventilator-associated pneumonia (VAP), the majority of nursing officers had (11–15)55% good practice, (15–20)40% excellent practice, (6–10)5% average practice, and no one had below fair practice. Therefore, it can be concluded that most research participants had appropriate practices with relation to the ventilator-associated pneumonia (VAP) care bundle among nursing officers.

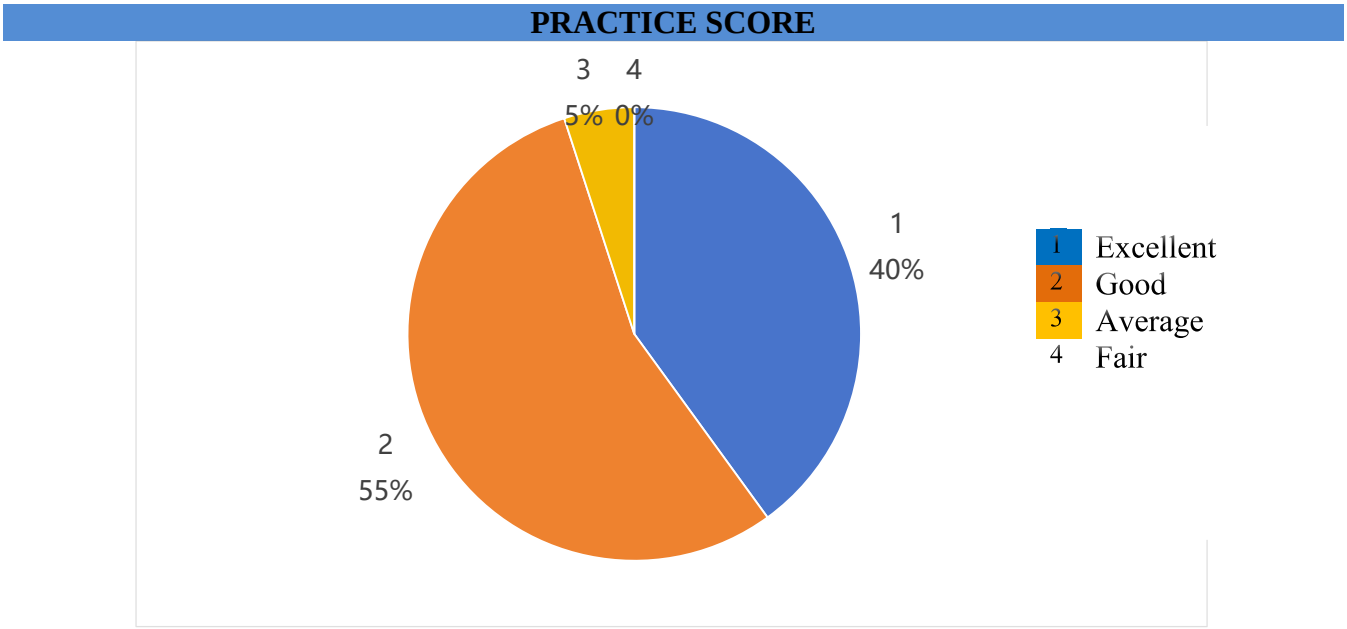

Figure 2:Pia-Diagram showing Practice score regarding ventilator associated pneumonia (VAP) critical care bundle among nursing officers.

6. DISCUSSION: The study on nursing officers' knowledge and practices regarding ventilator-associated pneumonia (VAP) reveals that 67% of participants had excellent knowledge of VAP, while 28% showed good knowledge, and 5% had average knowledge. In terms of practice, 55% demonstrated good practices, 40% exhibited excellent practices, and no participants performed below fair practice. The findings suggest that most nursing officers implement appropriate practices related to VAP care.

In a similar study on the knowledge and practices of intensive care unit nurses related to the prevention of ventilator-associated pneumonia, **Kalyan G, Bibi R, Kaur R, et al. (2020)** found that out of 108 ICU staff nurses, 82 (75.93%) had average knowledge, 24 (22.22%) had good knowledge, and only 2 (1.85%) had poor knowledge. Only 4 (5.55%) nurses had strong practices, whereas 68 (94.44%) nurses had ordinary practices. here was no correlation found between ICU nurses' knowledge and VAP preventive methods. ($\chi 2 = 0.14$, $p = 0.710$).

7.CONCLUSION: The socio-demographic profile of nursing officers indicates that 35% have a B.Sc. in nursing, 32% a GNM, 18% post-basic nursing, 13% an M.Sc., and 2% a Ph.D. Gender distribution shows 63% female and 37% male. Experience levels reveal that 63% have 1-5 years, 25% 5-10 years, and 12% over 10 years. Employment areas include NICU (30%), ICU (25%), SICCU (23%), and ICCU (22%). A study on knowledge and practices regarding ventilator-associated pneumonia (VAP) found 67% excellent knowledge, 28% good knowledge, and 5% average knowledge. Practice levels indicate that 55% demonstrate good practices, and 40% exhibit excellent practices, with no participants showing below fair practice levels. Overall, nursing officers generally implement appropriate VAP care practices.

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