JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

"A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE REGARDING CARE OF PATIENT ON MECHANICAL VENTILATOR AMONG STAFF NURSES WORKING IN SELECTED HOSPITAL OF NORTH GUJARAT WITH A VIEW TO DEVELOP AN INFORMATION BOOKLET."

1. Mr. Bhargav Jagdishkumar Shrimali

Student Of M Sc. nursing, Medical & Surgical Nursing,Gokul Nursing College, Sidhpur, Gujarat, India

2. Dr. Arun Kumar VN

Principal,Gokul Nursing college,Gokul global University, Sidhpur, Gujarat India

ABSTRACT

BACKGROUND

Although mechanical ventilation is essential to maintain ventilation and oxygenation, it can cause adverse effects. Patients on mechanical ventilation are prone to develop complications. Most common complications are alveolar hypoventilation,alveolar hyperventilation, skin breakdown especially pressure ulcers, deformities,contractures,fluid and electrolyte imbalance, pneumothorax and ventilator- associated pneumonia (VAP) and so on. Nurses must be knowledgeable about the function and limitations of ventilator mode, causes of respiratory distress and dyssynchrony with the ventilator and appropriate management in order to provide high-quality patient-centered care.Survival among mechanically ventilated patients depends not only on the factors present at the start of mechanical ventilation, but also in the development of complications and patient's management in the intensive care unit. So when a patient receives continuous mechanical ventilation the nurse should take precautions to prevent complications.The patient can be prone to various complications while on a mechanical ventilator. Studies have shown that ventilator associated pneumonia is one of the most common infectious complication among patients admitted in intensive care units(ICU) and accounts for up to 47% of all infections among ICU patients. It prolongs ICU length of stay and increase the risk of death in critically ill patients. The data summary for 2021-2023 from the National Nosocomial Infections Surveillance System report reveals a median ventilator associated pneumonia rate of 2.2 to 14.7 cases per 1000 patient days of mechanical ventilation in adult ICUs.

AIM

This study aim to evaluate the effect of informative booklate on knowledge regarding care of patient on mechanical ventilator among staff nurse working in selected hospital of north Gujarat.

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding care of patient on mechanical ventilator among the staff nurses.
2. To find out the association of the knowledge with their selected demographic variables.

METHOD

A Quantitative research approach with Descriptive survey research design.The investigator used non probability convenient sampling technique for selecting 60 samples. A self structure knowledge questionnaire to assess the knowledge of the samples. Chi-square test will be used to analyze association between pre test knowledge with selected demographic variables.
Descriptive and inferential statistics was used to analyze the data.

RESULT:

in this study overall the highest percentage in the demographic data including the age group 43.33% (31-40), gender 80% (female), education status 43.33% (GNM), total work experience 36.66% (2-3 years), induction programme related to care of patient on mechanical ventilator 65% (yes), current work area 55% (ICU), work experience in CCU 56.66% (yes). Out of 60 samples poor knowledge is 30% and adequate is 60% and good is 10%.

Chi-square test to associate the level of knowledge and selected demographic variable.

CONCLUSION:

The finding of the study revealed that the staff nurse have lack of knowledge regarding care of patient on mechanical ventilator. Booklet is improving knowledge.

KEY WORDS:

Assess, knowledge, care of patient, mechanical ventilator, staff nurse, hospital, information booklet.

INTRODUCTION

Mechanical ventilator is a process by which gases are moved into and out of the lungs by means of a ventilator, a machine that delivers a flow of gas to a patient's airway. The indications for mechanical ventilation includes respiratory arrest, acute lung injury, critical illness and respiratory support following surgery.

Intubation, with subsequent mechanical ventilation, is a common life saving intervention in the emergency department. The Drinker and Shaw tank-type ventilator of 1929 was one of the first negative-pressure machines widely used for mechanical ventilation. Better known as the iron lung, this metal cylinder completely engulfed the patient up to the neck. A vacuum pump created negative pressure in the chamber, which resulted in expansion of the patient's chest. This change in chest geometry reduced the intrapulmonary pressure and allowed ambient air to flow into the patient's lungs. When the vacuum was terminated, the negative pressure applied to the chest dropped to zero, and the elastic recoil of the chest and lungs permitted passive exhalation.

A critically ill patient presents a major challenge and consequent reward to nursing. The nurse should provide essential individualized care directed towards the survival of the patient. Each individual nurse is accountable to take appropriate measures to save the life of the patient under her care the number of patients on mechanical ventilator is rapidly increasing. These patients may be conscious or unconscious. The nursing staffs have to assist or perform the various activities of living until the patient fully regains consciousness.

OBJECTIVES OF THE STUDY

1. To assess the knowledge regarding care of patient on mechanical ventilator among the staff nurses.
2. To find out the association of the knowledge with their selected demographic variables.

METHOD

A Quantitative research approach with Descriptive survey research design.The investigator used non probability convenient sampling technique for selecting 60 samples. A self structure knowledge questionnaire to assess the knowledge of the samples. Chi-square test will be used to analyze association between pre test knowledge with selected demographic variables.
Descriptive and inferential statistics was used to analyze the data.

RESULT:

in this study overall the highest percentage in the demographic data including the age group 43.33% (31-40), gender 80% (female), education status 43.33% (GNM), total work experience 36.66% (2-3 years), induction programme related to care of patient on mechanical ventilator 65% (yes), current work area 55% (ICU), work experience in CCU 56.66% (yes). Out of 60 samples poor knowledge is 30% and adequate is 60% and good is 10%.

Chi-square test to associate the level of knowledge and selected demographic variable.

ble no.1 :- chi- square value for association of knowledge of the staff nurses with their selected demographic variables.

			Knowledge score			Chi- square			Association
Sr. no	**Demographic variables**	**F**	**Poor**	**Average**	**Good**	**CV**	**TV**	**DF**	
1	**Age in years**								
	20-30	29	8	19	2	0.507	12.59	6	Not significant
	31-40	26	6	18	2				
	41-50	9	3	5	1				
	51 and Above	5	1	3	1				
2	**Gender**					0.345	5.99	2	Not significant
	Male	12	4	6	2				
	Female	48	14	30	4				
3	**Educational status**								

	General nursing and Midwifery	26	7	17	2	6.27	12.59	6	Not significant
	Post basic B.Sc. nursing	18	7	9	2				
	B.Sc. nursing	15	4	9	2				
	M.Sc. Nursing	1	0	1	0				
4	**Total work experience**								
	Less than 2 year	9	2	6	1	4.507	12.59	6	Not significant
	2-3 year	22	6	13	3				
	4-5 year	13	5	7	1				
	Above 5 year	16	5	10	1				
5	**Any induction programme related to care of patient on mechanical ventilator**								
	Yes	39	11	25	3	1.838	5.99	2	Not calculated
	No	21	7	11	3				
6	**Current work area**								
	O.P.D.	5	1	3	1	1.438	12.59	6	Not significant
	Emergency	11	4	6	1				
	Ward	11	2	7	2				
	I.C.U.	33	11	20	2				
7	**Work experience in CCU?**								
	Yes	34	12	20	2	1.386	5.99	2	

	No	26	6	16	4				Not significant

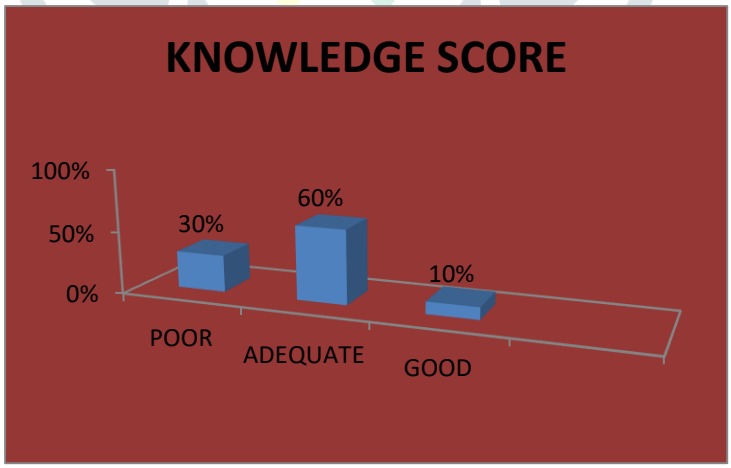
Association between the level of knowledge and socio demographic variable is show in table. Based on the Third objective use to chi-square test to associate the level of knowledge and selected demographic variable.

Table 2. Frequency and percentage distribution of knowledge score

LEVEL OF KNOWLEDGE	KNOWLEDGE SCORE	
	Frequency	**Percentage**
Poor	18	30%
Adequate	36	60%
Good	6	10%

The table showing that the knowledge score and percentage of sample. The poor knowledge is 30% and adequate is 60% and good is 10%.

Figure 1. Bar diagram representing percentage wise distribution of the sample according to level of knowledge score.



DISCUSSION: -

The present study aims to evaluate the knowledge on care of patient on mechanical ventilator. Descriptive study is using and selected area of north Gujarat is selected.
The sample size was 60 staff nurse.

CONCLUSION: -

The conclusions drawn from the finding of the study are as follows:

Out of 60 samples poor knowledge is 30% and adequate is 60% and good is 10%.

That indicate that the staff nurse have lower knowledge regarding care of patient on mechanical ventilator. After test give each nursing staff information booklet.

ACKNOWLEDGEMENT

I would like to thank, Dr. Arun Kumar VN (principal), Miss Meenakshi Roy (class coordinator), staff of Gokul Nursing college for them constant guidance, suggestions, immense knowledge and plenty experience have encouraged me in all the time of my academic research and daily life. They advised me such great research topic. They are supportive and encouraging right from the conception stage to its final report. Words are insufficient to offer thanks for them invaluable advice, continuous support, genuine concern and constructive suggestions. It is indeed a great and privileges to be supported and guided by them.

REFERENCES

1. Withers J. Criteria for using a nurse-led ventilator-weaning protocol. Available at http://www.nursingtimes.net/nursing-practice-clinical-research/criteria-for-using-anurse-led-ventilator-weaning-protocol/203803.article ; accessed on 28-07-2019.

2. Joseph C, Vijayakumar C, Augustine J, Dr. John G. Nursing Care of patients on mechanical ventilation. The nursing journal of India 2021 October; Vol. XCV (10): 231-232.

3. Black J.M., Hawks J. H. Medical Surgical Nursing – Clinical Management for positive outcomes. 8th ed. St. Louis, Missouri: Mosby Publications; 2019. 1638-52.

4. Jindal A. Ventilator Care. Nurses of India 2019 March: 8-9.

5. Lewis, Heitkemper, Dirksen, O'Brien, Bucher. Medical Surgical Nursing –Assessment and Management of Clinical Problems. 7th ed. St. Louis, Missouri: Mosby Publications; 2017. 1759-69.

6. Esteban A, Anzueto A, Frutos F et. al. Characteristics and Outcomes in Adult Patients Receiving Mechanical Ventilation.

7. Cason C L, Tyner T, Saunders S et. al. Nurses' Implementation of Guidelines for Ventilator-Associated Pneumonia From the Centers for Disease Control and Prevention.

8. Woodruff D.W. Pneumothorax. R. N. 2023 September; Vol. 62 (9): 62.

9. Hyunsoo O.H, Seo W. A Meta – Analysis of the Effects of Various Interventions in Preventing Endotracheal Suction – Induced Hypoxemia. Journal of Clinical Nursing 2023; 12: 912-24.

10. Bindu M. A study to assess the effectiveness of a planned teaching program on knowledge and practice of endotracheal suctioning among staff nurses in the different intensive care unit of a selected hospital, Bangalore. Unpublished Dissertation. RGUHS.

11. Bloos F., Muller S., Harz A. et. al. Effects of staff training on the care of mechanically ventilated patients: a prospective cohort study.

12. Manju V. A study to assess the practice and knowledge of staff nurses regarding care of immobilized patients in St. Johns Medical College Hospital, Bangalore with a view to develop a protocol. Unpublished Dissertation. RGUHS.

13. Jindal A. Ventilator Care. Nurses of India 2022 March: 8-9.

14. Joseph C, Vijayakumar C, Augustine J, Dr. John G. Nursing Care of patients on mechanical ventilation. The nursing journal of India 2021 October; Vol. XCV (10):
231-32.

15. Mol D. A, Villiers G. T, Classen A. J. Use and care of an endotracheal/ tracheostomy tube cuff — are intensive care unit staff adequately informed.

16. Woodruff D.W. Pneumothorax. R. N. 2021 September; Vol. 62 (9): 62.

17. Jindal A. Ventilator Care. Nurses of India 2019 March: 8-9.

18. Joseph C, Vijayakumar C, Augustine J, Dr. John G. Nursing Care of patients on mechanical ventilation. The nursing journal of India 2020 October; Vol. XCV (10):
231-32.

19. Mol D. A, Villiers G. T, Classen A. J. Use and care of an endotracheal/ tracheostomy tube cuff — are intensive care unit staff adequately informed.

20. Marine LP. The ICU Book. 3rd edition. Lippincott's William & Wilkins: Wolters Kluwer, New Delhi; 2017.

21. Clare M, Hopper K. Mechanical Ventilation: Ventilator Settings, Patient Management, and Nursing Care. Compendium. April 2019; 256-268. Available from: http://www.CompendiumVet.com/ Accessed Date: 08/11/2019.

22. Rose L. Clinical application of ventilator modes: ventilator strategies for lung protection. Australian college of critical care nurses. May 2022.

23. Demingo P. Professional nurses' knowledge regarding weaning the critically ill patient from mechanical ventilation. South Africa: Nelson Mandela Metropolitan University; November 2021.

24. Perrie HC. Knowledge of intensive care nurses in selected care areas commonly guided by protocols. Johannesburg: University of Witwatersrand; 2018.

25. Blackwood B, Wilson J. The impact of nurse directed protocolised weaning from mechanical ventilation on nursing practice: A quasi-experimental study. International Journal of Nursing Studies. February 2017.