



A DESCRIPTIVE STUDY TO ASSESS THE KNOWLEDGE REGARDING MECHANICAL VENTILATION AMONG CRITICAL CARE UNIT NURSES IN SELECTED HOSPITAL.

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Abstract: "A Descriptive study to assess the knowledge regarding mechanical ventilation among critical care unit nurses at selected hospital in Kelambakkam, Tamil Nadu, India". **Background/Aims:** To assess the knowledge of critical care unit staff nurses regarding mechanical ventilation. To find out association between the level of knowledge of critical care unit staff nurses regarding mechanical ventilation with their selected demographic variables. **Materials and Methods:** The study was conducted in a Critical care unit staff nurses from a selected hospital in Kelambakkam. Purposive sampling technique was used. The sample size was 30. Samples who met inclusion criteria were participated in the study. **Results:** The collected data was tabulated and analysed. Self- structured knowledge questionnaire was used to evaluate the level of knowledge regarding mechanical ventilation among critical care unit staff nurses. Self-structured questionnaire was used to assess the demographic variable. Study shows that while assessing the existing level of knowledge on mechanical ventilation among critical care unit staff nurse, it shows that 70% of critical care unit staff nurses had high level of knowledge and 30% of the critical care unit staff nurses had moderate level of knowledge. **Conclusion:** There is a statistically significant association between scores on level of knowledge regarding mechanical ventilation among staff nurses with demographic characteristics of total working experience in critical care unit has significant association with the level of knowledge ($\chi^2=0.008$) respectively at p 0.05 level

Key words: Knowledge, Mechanical Ventilation, Critical Care Nursing.

I. INTRODUCTION

“VENTILATION IS THE PROFOUND SECRET OF EXISTENCE” - PETER SLOTERIJK

Mechanical ventilation is an integral part of the care of many critically ill patients. It is also provided at sites outside the ICU and outside the hospital, including long term acute care hospitals and the home. A thorough understanding of the essentials of mechanical ventilation is requisite for critical care nurse.

Breathing requires the movement of air into and out of the lungs. This is normally accomplished by the diaphragm and chest muscles. A variety of medical conditions can impair the ability of these muscles to accomplish this task. In these medical conditions, external breathing support is required for savings of patient's life that is called mechanical ventilation.

Mechanical ventilation is a life supportive measure. Mechanical ventilation is provided by mechanical ventilator. Mechanical ventilator is a machine that helps patient breathe when they are not able to breathe enough on their own. The mechanical ventilator is also called a ventilator, respirator, or breathing machine.

Mechanical ventilator is an artificial, external organ that was conceived originally to replace, and later to assist, the respiratory muscles. The primary function of mechanical ventilators is to promote alveolar ventilation to maintain adequate oxygenation or carbon dioxide elimination.

Mechanical ventilation can be defined as the technique through which gas is moved toward and from the lungs through an external device connected directly to the patient.

OBJECTIVE:

- To assess the knowledge of critical care unit staff nurses regarding mechanical ventilation.
- To find out association between the level of knowledge of critical care unit staff nurses regarding mechanical ventilation with their selected demographic variables.

METHOD

RESEARCH APPROACH:

Descriptive research approach is used in this study

RESEARCH DESIGN:

Descriptive study design is used in this study

RESEARCH SETTING:

The study was conducted in a Critical care unit for staff nurses from a selected hospital in Kelambakkam.

POPULATION

Population of the study Critical care unit staff nurses from a selected hospital in kelambakkam

SAMPLE:

The participant will be the staff nurses who is working at ICU from a selected hospitals in Kesslambakkam.

SAMPLE SIZE

The participant size will be 30 ICU staff nurses

SAMPLING TECHNIQUE:

Staff nurses working in ICU and purposive sampling technique was used.

SELECTION CRITERIA INCLUSIVE CRITERIA

- Nurses who are willing to participate
- Nurses who are working in CCU.

EXCLUSIVE CRITERIA

- Nurses are not present at the time of data collection.
- Nurses are not willing to participate.

SELECTION AND DEVELOPMENT OF THE RESEARCH TOOL

A questionnaire will be developed as a tool for data collection. It will consist of the following section.

DESCRIPTION OF THE TOOLS:**PART I:**

Socio-demographic data consists of 5 variables include age in year, gender, professional qualification, total working experience, had exposure to any training programme in caring for client on mechanical ventilation.

PART II:

Structured questionnaire was used to assess knowledge regarding on mechanical ventilation among staff nurses consists of 25 question. Each question consist of 2 option. The participant should select any one answer mark It. Based on scoring the percentage was calculated by using the below formula.

TABLE 1 : Frequency Distribution and Percentage of Demographic Characteristics of the Sample.(N=30)

S. No	Variable	Frequency	Percentage
1.	Age in years		
	a) 21-25	14	47%
	b) 25-29	12	40%
	c) greater than 29	4	30%
2	Gender		
	a) female	20	67%
	b) Male	10	33%
3.	Professional qualifications		
	a) Diplamo nursing	6	20%
	b) Graduate nursing	24	80%
4.	No of year working in ccu		
	a) 2month-1year	8	27%
	b) 1year-2year	8	27%
	c) 2year-3year	6	20%
	d) more than 3year	8	27%
5.	Training session		
	a) yes	25	83%
	b) no	5	17%

TABLE 1 : Shows that demographic distribution of the significant participants age (47%) belongs to age group of 21-25 years as minority (13%) were in the age group

of >29years. Majority participants of gender (67%) belongs to female as minority (33%) were in Male. Majority of the professional qualification (80%) is belongs to graduate nursing as minority (20%) were in diploma nursing. Significant working year experience in CCU (27%) is belongs 2month – 1 year, 1 year – 2 year, more than 3 year as minority (20%) were in 2 year – 3 year and Majority training session (83%) is belongs to YES as minority (17%) were in NO

TABLE 2: Association of selected demographic variables with level of knowledge scores towards mechanical ventilation among critical care unit staff nurses.

S. No	Demographic variables	Category	No. Of sample	Level of knowledge			Chi square	P value
				Highlevel Knowledge	Moderate Level knowledge	low level knowledge		
1.	Age in years	21-25	14	8	6	0	3.107	0.2115 (NS)
		25-29	12	8	4	0		
		Greater than 29	4	4	0	0		
2.	Gender	Male	10	6	4	0	0.3	0.839 (NS)
		Female	20	14	6	0		
3.	Professional qualification	Diploma in nursing	6	6	0	0	3.75	0.528 (NS)
		Graduate in nursing	24	14	10	0		
4.	Total working experience in critical care unit	2month - 1 year	8	5	3	0	11.822	0.008 (S)
		1year-2year	8	5	3	0		
		2year-3year	6	4	2	0		
		more than 3year	8	8	0	0		
5.	Training session	No	25	7	18	0	2.571	0.109 (NS)
		Yes		2	3	0		

TABLE 2 : Shows that association between knowledge and demographic variables has $P = 0.05$. There is no significant association with demographic variables such as age, gender, professional qualification & training section. It reveals that, chi square and p-value regarding association between scores on level of knowledge regarding mechanical ventilation among staff nurses with demographic characteristics of total working experience in critical care unit has significant association with the level of knowledge ($\chi^2=0.008$) respectively at $p 0.05$ level.

TABLE: 3 SCORING INTERPRETATION:

Score range	Level of knowledge regarding mechanical ventilation among ccu staff nurses	Percentage
25-20	High level knowledge	>75%
20-10	Moderate level knowledge	50-70%
Below 10	Low level knowledge	<50%

Table 3 shows that 75% ccu nurses has high level knowledge ,50-70 % has moderate level knowledge and less than 50% has low level knowledge.

TABLE:4 FREQUENCY AND PERCENTAGE

LEVEL OF KNOWLEDGE REGARDING MECHANICAL VENTILATION AMONG CCU NURSES	FREQUENCY	PERCENT
High level knowledge	21	70%
Moderate level knowledge	9	30%
Low level up	0	0

Shows that,70% of critical care unit nurses has high level knowledge ,30%of critical care unit nurses has moderate level knowledge.

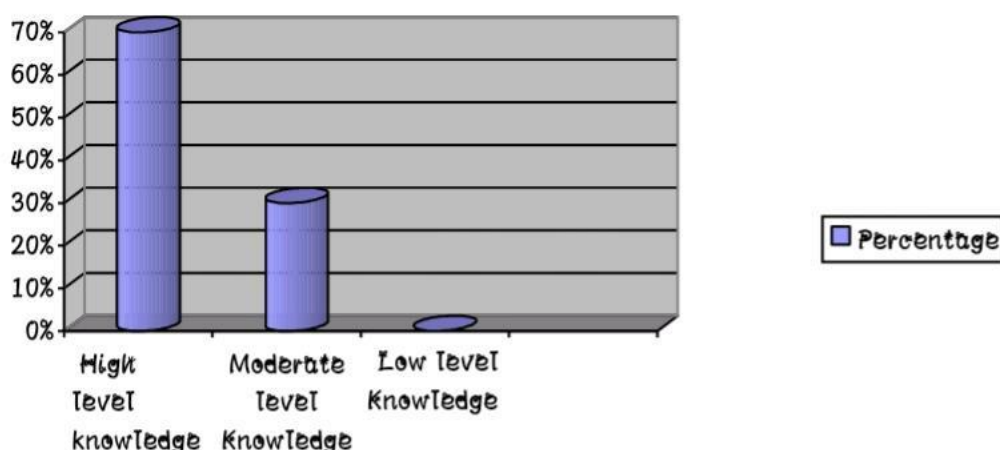


Figure 4.1 : Frequency and percentage on level of knowledge regarding mechanical ventilation among critical care unit nurses.

DISCUSSION:**Discussion of critical care unit staff nurses the level of knowledge regarding mechanical ventilation.**

While assessing the existing level of knowledge on mechanical ventilation among critical care unit staff nurse , it shows that 70% of critical care unit staff nurses are had high level of knowledge & 30% of the critical care unit staff nurses had moderate level of knowledge.

Discussion of associate between the level of knowledge of critical care unit staff nurses regarding mechanical ventilation with selected demographic variables.

Shows that association between on level of knowledge and demographic variables has $P = 0.05$.

Reveals that, chi square and p-value regarding association between scores on level of knowledge regarding mechanical ventilation among staff nurses with demographic characteristics of total working experience in critical care unit has significant association with the level of knowledge ($\chi^2=0.008$) respectively at p 0.05 level.

Conclusion : The results indicated that there is a significant variation in the knowledge towards mechanical ventilation among critical care unit staff nurses. A significant relationship was found to exist between knowledge of critical care unit staff nurses towards mechanical ventilation. The findings impart the need to update the knowledge of nurses by providing information on ventilator mechanics in the advance critical care course offered by nursing education services should be revised, update with modern technologies and improved the skill. Further research including large sample size and involving various study settings will add to the scientific evidence of continuous training session to improve critical care nurses' knowledge.

Reference :

1. Mohamed A. ZamZam, Nagia A. Saheem, Study of the characteristics and outcomes of patients on mechanical ventilation in the intensive care unit of EL-Mahalla Chest Hospital, in 2015
2. Maj soubaghaya, Captningluniang Ankitasingh ,MamitaGurung; Knowledge of nurses on care of patients on mechanical ventilator support in 2019
3. Mr. DayalalPatidar, Mr. Kaushal Patidar¹, M Hitesh Sharma²; 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 in 2019
4. Hersch M, Sonnenblick M, Karlic A, Einav S, Sprung C.L, Izbicki G (2007). Mechanical ventilation of patient hospitalized in medical wards vs. the intensive care unit-an observational, comparative study. Journal of critical Care. 13-17
5. Khimani, R., Ali, F., Rattani, S., & Awan, S. (2015).Practices of tracheal suctioning technique among healthcare professionals: literature review. InternationalJournal of Nursing Education
6. P. Raiju, Greesh, G. R Sachina, BT, Ann Barnes ; Effeteness of structured teaching programme on knowledge regarding modes of mechanical ventilator among staff nurses at selected hospital, in 2015
7. Mr. JoslinRumarchristie, Dr. Anil sharma, Dr.Divyajain ; A study to assess the competence level of staff nurses regarding mechanical ventilator in ICU in selected hospital .
8. Lynn botha, level of nurses competence in mechanical ventilation in ICU of two tertiary health care institution in Gawtong in 2012

9. Cason, C. L., Tyner, T., Saunders, S., & Broome, L.(2007). Nurses' implementation of guidelines for ventilator-associated pneumonia from the Centres for Disease Control and Prevention. *American journal of critical care*, 16(1), 28-37.
10. Day, T., Farnell, S., Haynes, S., Wainwright, S., &Wilson-Barnett, J. (2002). Tracheal suctioning: an exploration of nurses' knowledge and competence in acute and high dependency ward areas. *Journal of Advanced Nursing*, 39(1), 35-45.
11. Faidy, A., Ouesph, B., Yutuc, N., Melki, S., Tamonan,E., Jamaly, A., &Mohidi, S. (2014). Care of Mechanical Ventilated Patients in General Ward: Nurses Perspective. *GSTF Journal of Nursing and Health Care(JNHC)*, 1(2).
12. Fulbrook, P., & Mooney, S. (2003). Care bundles in critical care: a practical approach to evidence-based practice. *Nursing in critical care*, 249-255.
13. Grossbach I, Strasberg S, &Chlan L (2011). Promoting Effective Communication for Patient receiving Mechanical Ventilation. *Journal of Critical Care Nurse*, 46-61.

URL Reference:

1. <https://www.journalijar.com/article/32627/knowledge-of-nurses-on-care-of-patients-on-mechanical-ventilator-support/>
2. <http://www.recentscientific.com/assessment-knowledge-regarding-mechanical-ventilation-among-staff-nurses-working-selected-hospital-m>

