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A STUDY TO ASSESS THE EFFECTIVENESS OF COMMUNICATION BOARD ON COMMUNICATION PATTERN AND LEVEL OF SATISFACTION IN MEETING THE BASIC NEEDS OF THE PATIENTS ON MECHANICAL VENTILATOR ADMITTED IN ICU AT SELECTED HOSPITAL, PUNE.

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ABSTRACT

Background: Communication is the process of sharing ideas, thoughts, opinion, message, feelings and information. Communication problems are caused by intubations and cognitive, sensory or language deficits that distance the patients from care givers and loved ones. Mechanical ventilation and use of paralytic and sedative agents impair communication between patients and others. Critical care nurses working in intensive care units (ICUs) care for critically-ill patients, and their work scope can include communicating with patients' loved ones and care givers. In such settings, nurses must make timely judgments based on their expertise, and this requires a high level of communication competency to comprehensively evaluate the needs of patients and their families.

Statement of the Problem: The aim of this study was to assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU at selected hospital, Pune.

Objectives: (1) To assess the level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU. (2) To assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU. (3) To correlate level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU. (4) To associate the pre test level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU with their selected demographic and clinical variables.

Methodology: A Quasi-experimental one group pre and post -test research design was selected for this study. A total of 30patients on Mechanical Ventilator admitted in ICU selected by using purposive sampling technique. Individual consent was obtained from patient's attender. Demographic variables were collected using Interview schedule. Assessment of the pre test level of communication pattern and level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU were collected by using self-structured questionnaires. After intervention communication board, Post test assessment of level of communication pattern and level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. The collected data were computerized and analyzed.

Results: The result shows pre test, majority of patients 18 (60%) had poor level of communication pattern and in post test, majority of patients 22 (73.33%) had good level of communication pattern and in pre test, majority of patients 28 (93.3%) had low level of satisfaction and in post test, majority of patients 19 (63.33%) had high level of satisfaction and Correlation between the communication pattern and satisfaction indicates the positive correlation.

Conclusion: The study concludes that the information offers insight into the effectiveness of communication board in facilitating communication. Patient also described several advantages of communication board with pre- printed text, it increases the efficiency and speed of communication and it facilitates meeting of needs.

Keywords: Communication board, communication pattern, satisfaction, patients on Mechanical Ventilator.

INTRODUCTION

Communication is the process of sharing ideas, thoughts, opinion, message, feelings and information. Communication problems are caused by intubations and cognitive, sensory or language deficits that distance the patients from care givers and loved ones. Mechanical ventilation and use of paralytic and sedative agents impair communication between patients and others. Physical restraints used to prevent disruption of medical devices further limit patients' ability to gesture or use alternative communication techniques. **(Darwin Das, 2016)**

Mechanical ventilator is a method of mechanically assisting or replacing spontaneous breathing with machine known as mechanical ventilator. This procedure requires a tube to be introduced into the trachea for air to flow in and out, endotracheal tube passing through the vocal cords make speech impossible, thus dramatically altering the communication process. Some patient receiving mechanical ventilator experience an intensified need to communicate while their ability to do so is comprised as the endotracheal tube prevents speech, although the use of communication. Mechanically ventilated patients experience an intensified need to communicate. Also, when patients cannot respond, communication between patient and caregivers is usually limited to short term information related to physical care in the form of yes/no question or commands. **(Bhawna and Santosh Kumar Gurjar, 2021)**

The patient has a right and need for effective communication". It is very important for the nurse to understand and interpret the messages of critically ill patients. Effective communication also helps the patient to select their treatment during the end of their life. Communication between nurses and patients is critical in providing and receiving quality care. The nurse investigator emphasizes the use of communication board as an intervention to enhance the communication of clients on mechanical ventilation thereby it improves the quality of care. **(R. Rathi and M. Baskaran, 2014)**

NEED FOR THE STUDY

In India, the incidence of prolonged mechanical ventilation in our study was 3.91% of total 1130 ICU admissions and 11.3% of the 397 patients requiring invasive mechanical ventilation. **(Chakor S Vora et al., 2015)** Communication board was effective as change in pre-test to post-test in meeting orientation needs (20% vs. 100%), emotional needs (30% vs. 100%), emergency needs (47.5% vs.62.5%) and basic needs (57.5% vs. 62.5%), respectively. The Communication board was found effective in improving level of satisfaction in communication among mechanically ventilated conscious patients. **(Kapil Sharma, 2020)**

In Coimbatore, Tamil Nadu, the experimental group the mean value was 83.5 ± 5.5 whereas in the comparison group the mean value was 65 ± 3.6 with the 't' value of 14 which was statistically highly significant at $p<0.001$ level which showed that the communication board was effective among the clients on mechanical ventilator. Communication board had significantly improved the level of satisfaction in communication than the routine method. Communication board could be used for the patients on mechanical ventilator in order to enhance their satisfaction with communication. **(R. Rathi and M. Baskaran, 2014)**

Though many studies are conducted in the area of basic needs of the patients on mechanical ventilator admitted in ICU, the researcher could not find any valid study to communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted

in ICU. Hence, the researcher felt the need to assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.

STATEMENT OF THE PROBLEM

A study to assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU at Hospital, Pune.

OBJECTIVES

1. To assess the level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.
2. To assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.
3. To correlate level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.
4. To associate the pre test level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU with their selected demographic and clinical variables.

HYPOTHESES

H_1 : There will be a significant difference between pre test and post test level of communication pattern in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.

H_2 : There will be a significant correlation between level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.

H_3 : There will be a significant association between the pre test level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU with their selected demographic and clinical variables.

RESEARCH APPROACH

The research design was used in this study is **Quantitative research approach.**

RESEARCH DESIGN

The research design is the plan, structure and strategy of investigation of answering the research question. It is the overall plan or blue print; the researcher selects to carry out the study. In this study**, Quasi-experimental one group pre and post -test research design** was used.

RESEARCH VARIABLES

DESIGN	PRE – TEST	INTERVENTION	POST -TEST
Quasi-experimental one group pre and post -test research design	Level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU	communication board	Level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU

A variable is anything that can change or anything that is liable to vary. Two types of variables are identified in this study. They are independent, dependent and extraneous variables.

Dependent Variable

Dependent variable is the outcome or response that the researcher wants to predict or explain. Changes in the depended variables are presumed to be caused by independent variable. **(Moore and Dolan Sky, 2014)**

The level of communication pattern and level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.

Independent Variable

Independent variables are a stimulus or activity that is manipulated or varied by the researcher to create on effect on the dependent variables. **(Moore and Dolan Sky)**

In this study independent variable is communication board.

STUDY SETTING

The study will be conducted in the patients on mechanical ventilator admitted in ICU at Pune Adventist Hospital, Pune.

POPULATION

The population is defined as the entire aggregation of cases that meet a designed criterion. Population included in this study comprised of the patients on mechanical ventilator admitted in ICU.

- **Target population:** The target population of this study is patients on mechanical ventilator admitted in ICU at Pune Adventist Hospital, Pune.
- **Accessible population:** The patients on mechanical ventilator admitted in ICU at Pune Adventist Hospital, Pune.

SAMPLE

The study sample is the patients on mechanical ventilator admitted in ICU at Pune Adventist Hospital, Pune and those who meet the inclusion criteria.

SAMPLE SIZE

Sample size is the number of subjects involved in the study. Sample size consists of 30 patients on mechanical ventilator admitted in ICU at Pune Adventist Hospital, Pune.

SAMPLING TECHNIQUE

Sampling is the process of selecting a portion of the population to obtain data regarding a problem. In this study the investigator was used non-probability purposive sampling technique.

DESCRIPTION OF RESEARCH TOOL TECHNIQUE

The tool was developed and standardized from extensive review of literature, internet research and discussion with experts. The tool consists of three sections.

- **Section: A -** Demographic and clinical Variables
- **Section: B -** Assessment of the level of communication pattern in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.
- **Section: C -** Assessment of the level of satisfaction in meeting the basic needs of the patients on mechanical ventilator admitted in ICU.

SECTION - I - DESCRIPTION OF THE DEMOGRAPHIC VARIABLES AMONG PATIENTS ON MECHANICAL VENTILATOR ADMITTED IN ICU.

Table - 1

Frequency and Percentage wise Distribution of demographic variables among patients on Mechanical Ventilator admitted in ICU.

(N = 30)

Demographic variables	Frequency	Percentage
1. Age (in years):		
18-29 years	6	20
30-44 years	11	36.67
45-59 years	8	26.67
>60 years	5	16.67
2.Gender:		
Male	10	33.3
Female	20	66.7
3.Religion:		
Hindu	21	70
Muslim	6	20
Christian	3	10
others	0	0
4.Educational qualification:		
Primary	8	26.67
Higher secondary	11	36.67
Graduate and above	7	23.33
No formal education	4	13.33
5.occupation :		
Employed	26	86.67
Unemployed	4	13.33
6.Disease condition:		
Trauma accident injury	11	36.67
Cardiac arrest	11	36.67
Respiratory arrest	4	13.33
Renal disorders	4	13.33
7. Duration of mechanical ventilation:		
18 hours	5	16.67
36 hours	10	33.33
54 hours	10	33.33
72 hours	5	16.67
8. Previous history of mechanical ventilation:		
Yes	2	6.67
No	28	93.3
9. Length of ICU stay:		

Less than 1 week	20	66.67
1 week to 2 weeks	5	16.67
More than 2 weeks	5	16.67
10. Duration of intubation:		
Less than 2 days	5	16.67
2 to 5 days	15	50
More than 5 days	10	33.33
11. Duration of weaning:		
2 days	7	23.33
3 days	7	23.33
4 days	16	53.33
12. Glasgow coma scale:		
Mild (13-15)	14	46.67
Moderate (9-12)	7	23.33
Severe (3-8)	9	30

Table 1 shows frequency and percentage wise distribution of demographic variables among patients on mechanical ventilator admitted in ICU.

- Out of 30 patients, Majority of the patients 11 (36.67%) were in the age group of 30-44 years.
- Most of the patients were female 20 (66.7%).
- Majority of the patients were folowed by Hindu religion 21 (70%).
- Most of the patients were completed higher secondary level 11 (36.67%).
- Majority of the patients were employed 26 (86.67%).
- Most of the patients were admitted for reason in trauma accident injury 11 (36.67%).
- Majority of the patients were 72 hours for duration of mechanical ventilation 5 (16.67%).
- Most of the patients were had no previous history of mechanical ventilation 28 93.3%).
- Majority of the patients had less than 1 week in ICU stay 20 (66.67%).
- Most of the patients were duration of intubation from 2 to 5 days 15 (50%).
- Majority of the patients were duration of weaning 3 days 7 (23.33%) and
- Most of the patients were severe level of glassgow coma scale 9 (30%).

SECTION - II: ASSESSMENT OF LEVEL OF THE COMMUNICATION PATTERN AND THE LEVEL OF SATISFACTION IN MEETING THE BASIC NEEDS OF THE PATIENTS ON MECHANICAL VENTILATOR ADMITTED IN ICU

Table - 2

Frequency and percentage wise distribution of level of the communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

(N = 30)

Level of communication pattern	Pre test		Post test	
	f	%	f	%

Poor (1-10)	18	60	0	0
Average (11-20)	12	40	8	26.67
Good (21-30)	0	0	22	73.33
Total	**30**	**100**	**30**	**100**

Table 2 shows that frequency and percentage wise distribution of level of the communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

In pre-test, Majority of patients 16 (60%) had poor level of communication pattern and 12 (40%) had average level of communication pattern. In post-test, Majority of patients 22 (73.33%) had good level of communication pattern and 8 (26.67%) had average level of communication pattern respectively.

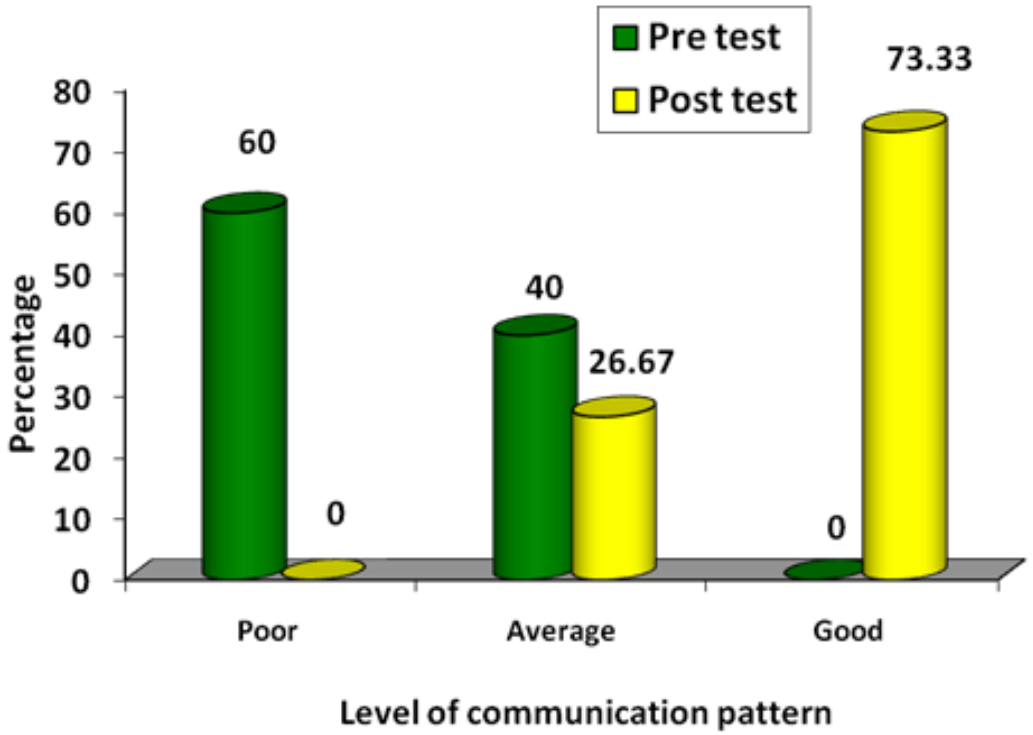


Fig. 1: Percentage wise distribution of level of the communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

Table - 3

Frequency and percentage wise distribution of level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

(N = 30)

Level of satisfaction	Pre test		Post test	
	f	%	f	%
Low (1-25)	28	93.3	0	0
Moderate (26-50)	2	6.67	11	36.67
High (51-75)	0	0	19	63.33
Total	**30**	**100**	**30**	**100**

Table 3 shows that frequency and percentage wise distribution of level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

In pre-test, Majority of patients 28 (93.3%) had low level of satisfaction and 2 (6.67%) had moderate level of satisfaction. In post-test, Majority of patients 19 (63.33%) had high level of satisfaction and 11 (36.67%) had moderate level of satisfaction respectively.

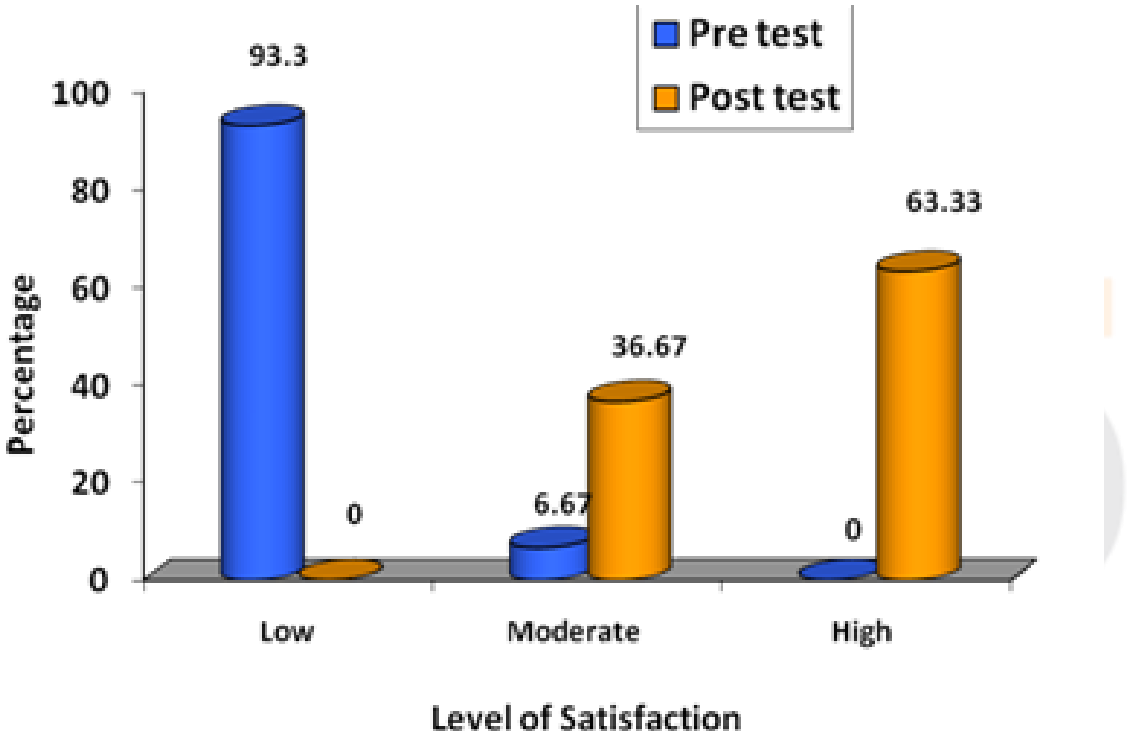


Fig. 2: Percentage wise distribution of level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

SECTION - III: EFFECTIVENESS OF COMMUNICATION BOARD ON COMMUNICATION PATTERN AND LEVEL OF SATISFACTION IN MEETING THE BASIC NEEDS OF THE PATIENTS ON MECHANICAL VENTILATOR ADMITTED IN ICU.

Table - 4

Mean and standard deviation of the Comparison of the effectiveness of communication board on communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU

(N = 30)

Test	Mean	Standard deviation	Mean difference	't' Value Paired t test	Df	'p' Value
Pretest	9.87	3.17	13.6	20.82	29	**P<0.001*** (HS)**
Posttest	23.47	5.29				

***p<0.05 significant, ** p<0.01 & ***p<0.001 Highly Significant**

** *-p < 0.001 Highly significant**

Table .4 shows that, the knowledge score calculated **paired 't' test value of t = 20.82** shows ***statistically highly significant*** difference between Comparison of the effectiveness of communication board on communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU respectively.

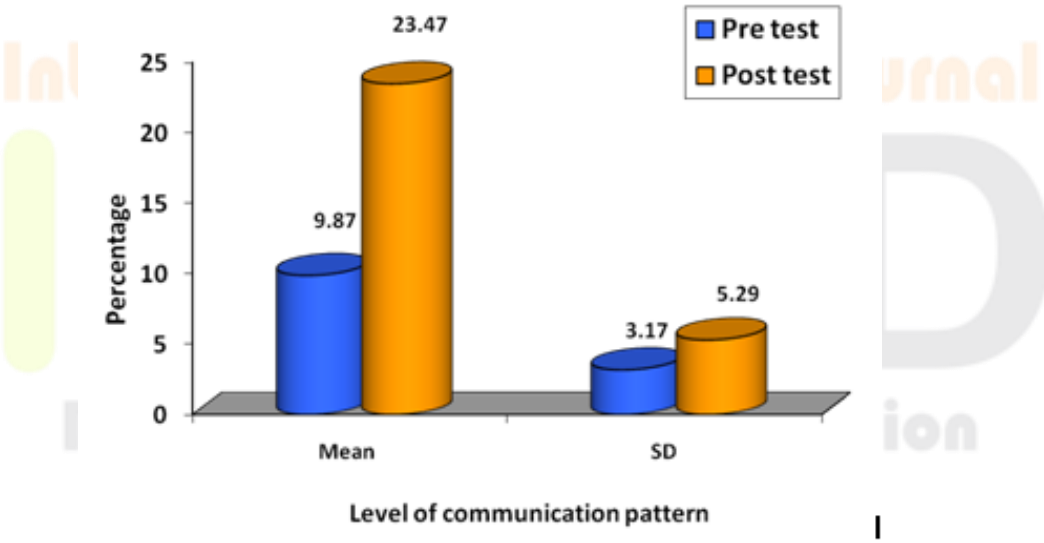


Fig. 3: Mean and standard deviation of the Comparison of the effectiveness of communication board on communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU

Table - 5

Comparison of the effectiveness of communication board on satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

(N = 30)

Test	Mean	Standard deviation	Mean difference	't' VALUE paired t test	df	'p' VALUE
Pretest	18.27	4.33	36.83	15.16	49	**P<0.001*** (HS)**
Posttest	55.1	13.39				

*** *-p < 0.001 Highly significant**

Table - 5 shows that, the knowledge score calculated **paired 't' test value of t = 15.16** shows **statistically highly significant** difference between Comparison of the effectiveness of communication board on satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU respectively.

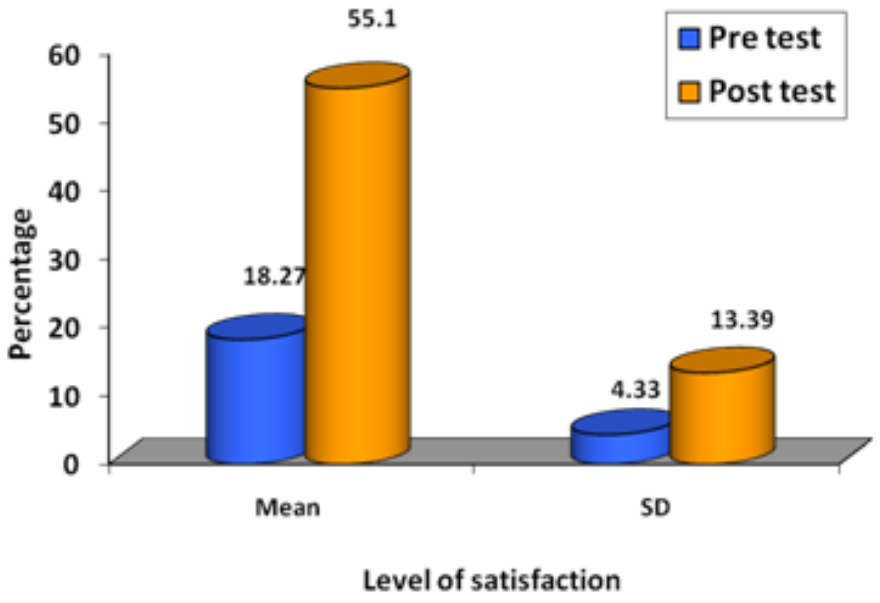


Fig. 4: Mean and standard deviation of the Comparison of the effectiveness of communication board on satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

SECTION - IV: CORRELATION BETWEEN COMMUNICATION BOARD ON COMMUNICATION PATTERN AND SATISFACTION IN MEETING THE BASIC NEEDS OF THE PATIENTS ON MECHANICAL VENTILATOR ADMITTED IN ICU.

Table - 6

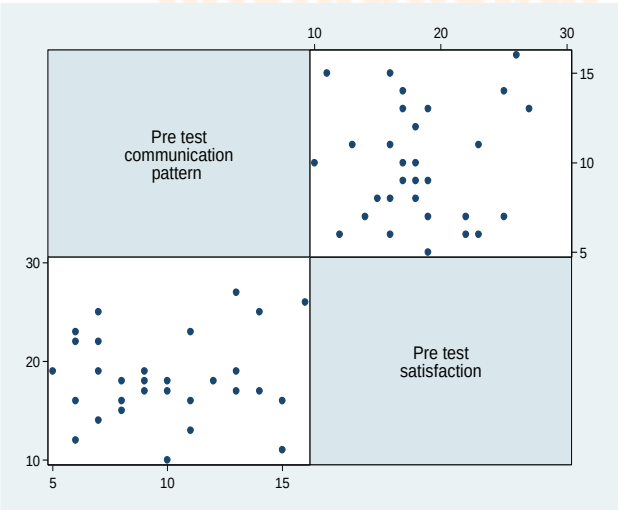
Correlation between communication board on communication pattern and satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU.

(n = 30)

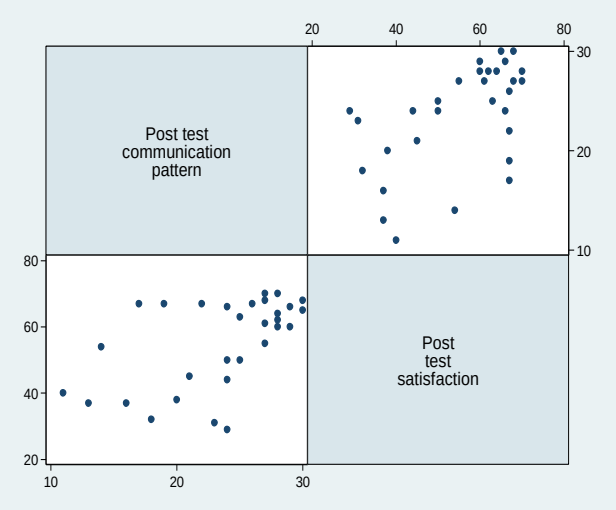
Test	Correlation between communication pattern and satisfaction	Mean	Standard deviation	'r' value	'p' value
PRE TEST	Communicationpattern	9.87	3.17	0.075	0.692 (NS)
	Satisfaction	18.27	4.33		
POSTTEST	Communicationpattern	23.47	5.29	0.551	0.002** (HS)
	Satisfaction	55.1	13.39		

Table 6 shows Correlation between communication board on communication pattern andsatisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In mean and standard deviation of communication pattern and satisfaction is (9.87) and (18.27). Correlation between the pre test communication pattern and satisfaction indicates the **positive correlation** and shows the results **Pearson correlation r- value is (0.075), p-value is (p=0.692)** are not statistically significant respectively.

Correlation between communication board on communication pattern and satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In mean and standard deviation of communication pattern and satisfaction is (23.47) and (55.1). Correlation between the post test communication pattern and satisfaction indicates the **positive correlation** and shows the results **Pearson correlation r- value is (0.551), p-value is (p=0.002)** are not statistically significant respectively.



Pre Test



Post Test

SUMMARY AND FINDINGS

The frequency and percentage wise distribution of demographic variables among patients on Mechanical Ventilator admitted in ICU. Out of 30 patients, Majority of the patients 11(36.67%) were in the age group of 30-44 years. Most of the patients were female 20 (56.7%). Majority of the patients

were followed by Hindu religion21 (70%). Most of the patients were completed higher secondary level 11 (36.67%). Majority of the patients were employed 26 (86.67%). Most of the patients were admitted for reason in trauma accident injury 11 (36.67%). Majority of the patients were 72 hours for duration of mechanical ventilation 5 (16.67%). Most of the patients were had no previous history of mechanical ventilation 28 (93.3%). Majority of the patients had less than 1 week in ICU stay 20 (66.67%). Most of the patients were duration of intubation from 2 to 5 days 15(50%) Majority of the patients were duration of weaning 3 days 7 (23.33%) and Most of the patients were level of Glasgow coma scale 9(30%).

The frequency and percentage wise distribution of level of the communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In pre-test, Majority of patients 37 (74%) had poor level of communication pattern and 13 (26%) had average level of communication pattern. In post-test, Majority of patients 39 (78%) had good level of communication pattern and 11 (22%) had average level of communication pattern respectively.

The frequency and percentage wise distribution of level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In pre-test, Majority of patients 18(60%) had low level of satisfaction and 12(40%) had moderate level of satisfaction. In post-test, Majority of patients 22 (73.33%) had high level of satisfaction and 8(26.67%) had moderate level of satisfaction respectively.

The knowledge score calculated paired ‘t’ test value of t = 20.82shows statistically highly significant difference between Comparison of the effectiveness of communication board on communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU respectively.

The knowledge score calculated paired ‘t’ test value of t = 15.16shows statistically highly significant difference between Comparison of the effectiveness of communication board on satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU respectively.

Correlation between communication board on communication pattern and satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In mean and standard deviation of communication pattern and satisfaction is (9.87+_3.17) (18.27±4.33). Correlation between the pre-test communication pattern and satisfaction indicates the positive correlation and shows the results Pearson correlation r- value is (0.075), p-value is (p=0.692) are not statistically significant respectively. Correlation between communication board on communication pattern and satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU. In mean and standard deviation of communication pattern and satisfaction is (23.47_+5.29) and (55.1±13.39). Correlation between the post-test communication pattern and satisfaction indicates the positive correlation and shows the results Pearson correlation r- value is (0.551), p-value is (p=0.002) are statistically significant respectively.

The demographic and clinical variables Age (in years) and Duration of mechanical ventilation had shown statistically significant association between the pre-test level of the communication pattern in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU with chi-square value at $p<0.05$ level.

The demographic and clinical variables religion and disease conditions had shown statistically significant association between the post-test level of the satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU with chi-square value at $p<0.001$ and $p<0.05$ level.

CONCLUSION

The present study was to assess the effectiveness of communication board on communication pattern and level of satisfaction in meeting the basic needs of the patients on Mechanical Ventilator admitted in ICU at Pune Adventist Hospital. The result shows in pre-test, Majority of patients 18(60%) had poor level of communication pattern and in post-test, Majority of patients 22 (73.33%) had good level of communication pattern and in pre-test, Majority of patients 28 (93.3%) had low level of satisfaction and In post-test, Majority of patients 19 (63.33%) had high level of satisfaction.

This finding shows that the information offers insight into the effectiveness of communication board in facilitating communication. Patient also described several advantages of communication

board with pre- printed text; it increases the efficiency and speed of communication and it facilitates meeting of needs.

NURSING IMPLICATIONS

The findings of study have scope in following area nursing education, nursing practice, nursing administration and nursing research.

Nursing Education

- The study can be useful for students to identify the communication problems faced usually by the mechanically ventilated patient ‘s.
- The nurse educator can give an in-service education to nurses about the importance of maintaining an effective communication.
- Teach the patient about the advantages of the board.

Nursing Practice

- This study helps to provide awareness towards ICU nurses in terms of resolving communication problems among mechanically ventilated patients.
- The findings of the study showed the communication board definitely facilitates the communication between mechanically ventilated patient and staff.
- The study results revealed the need of implementing the board in ICU S as a part of holistic care.

Nursing Administration

- Nursing administrator can insist the nurses to use often in mechanically ventilated patients during weaning period.
- Nurse administrator can motivate nurses to repeat the study on large sample.
- Teach the nurses about the effectiveness of interpersonal communication.

Nursing Research

- The study can be used to find out the effect on shortening the duration of mechanical ventilation by promoting a more expedient weaning from mechanical ventilation.
- This study results can be utilized to conduct a study on large samples.

LIMITATIONS

- This study is limited to patient on mechanical ventilator.
- This study is limited to conscious patient under mechanical ventilator.
- The study was limited to 30 patients on Mechanical Ventilator admitted in ICU.
- Data collection period was limited to 6 weeks.

RECOMMENDATIONS

Based on findings of the present study, the following recommendations have been made,

- A similar study can be conducted with larger sample.
- A similar study can be repeated to understand the advantage of preoperative teaching in elective surgical patients.
- A similar study can be conducted with tracheostomy patients to know the effectiveness of communication pattern.

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