

## Effect of visual communication board on the level of satisfaction regarding communication needs among communication compromised patients in critical care units

Ms. Mrityika Chakraborty<sup>1</sup>, Ms. Sutapa Das<sup>2</sup>, Ms. Bhaswati Das<sup>3</sup>

<sup>1</sup>(M.Sc. Nursing Student, Apollo Gleneagles Nursing College, Kolkata, West Bengal, India)

<sup>2</sup>(Associate Professor, Apollo Gleneagles Nursing College, Kolkata, West Bengal, India)

<sup>3</sup>(Associate Professor, Apollo Gleneagles Nursing College, Kolkata, West Bengal, India)

---

### Abstract:

**Background:** Communication is the exchange and flow of information and ideas from one person to another. Communication with all patients is very important for the provision of quality nursing care. Critically ill patients on mechanical ventilation in intensive care units often feel high levels of frustration in communicating their needs to their caregivers and experience an intensified need to communicate. The aim of the study was to assess the effectiveness of visual communication board on the level of satisfaction regarding communication needs of the communication compromised patients admitted in critical care units.

**Materials and Methods:** Quantitative evaluative approach was adopted for this study, with Non-equivalent only control group post test study design. 60 samples from Apollo Gleneagles Hospital, Kolkata were selected by purposive sampling technique and assigned to experimental and control group equally. A visual communication board was given to the experimental group patients as intervention. The data were collected by using a proforma assessing background information and a patient satisfaction scale.

**Results:** The data were analyzed by using descriptive and inferential statistics. The effectiveness of the visual communication board was computed by unpaired 't' test. The calculated 't' value was 1.9534 (at  $\alpha = 0.05$  and  $df = 58$ , 't' value 2.0), which was not statistically significant. So, Level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board.

**Conclusion:** After detailed statistical analysis, the generalization is drawn, that the level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board. There were several other factors which may influence the patients' satisfaction regarding communication needs.

**Key Word:** Effect, Visual Communication Board, Level of satisfaction, communication compromised patients, communication needs

---

Date of Submission: 02-01-2021

Date of acceptance: 15-01-2021

---

### I. Introduction

Communication is a basic need among humans. It is necessary in relationships, and represents a fundamental aspect for survival. [1] Communication with all patients is very important to the provision of quality nursing care. Communication cannot always be achieved using the speech modality. Nurses need to have tools and skills that will allow them to communicate with all of their patients whether or not they can speak. [2] Mechanically ventilated patients experience an intensified need to communicate. But it is often compromised as their condition prevents speech. Lack of ability to communicate with care providers and family during periods of mechanical ventilation results in increased anxiety and frustration because needs may not be met. Also, when patients cannot respond, communication between patients and caregivers is usually limited to short-term information related to physical care in the form of yes/no questions or commands. [3] In this study, the investigator emphasizes the use of communication board as an intervention to enhance communication of communication compromised clients. Various evidences have shown that use of communication board is helpful for improving level of satisfaction, relieving anxiety among patients with mechanical ventilation and other communication compromised situation. During the clinical postings, the investigator witnessed situations where the patient found difficult to communicate with the nurse. These kinds of situations would bring down the patients satisfaction over communication between themselves and staff nurses. Hence the investigator decided to find out whether the communication board has the potential to improve communication and satisfaction among mechanically ventilated patients.

## **II. Objectives of the Study**

- To assess the level of satisfaction regarding communication needs among communication compromised patients of both experimental and control group.
- To compare the levels of satisfaction between experimental and control group.
- To establish association between the levels of satisfaction regarding communication needs with selected demographic variables.

## **III. Material And Methods**

**Study Design:** Non equivalent only control group post-test design

**Study Setting:** Critical care units of Apollo Gleneagles Hospital, Kolkata, West Bengal

**Study Duration:** 1<sup>st</sup> December, 2019 to 30<sup>th</sup> December, 2019.

**Sample size:** 60 Communication compromised patients admitted in critical care units of Apollo Gleneagles Hospital, Kolkata. Among them 30 were assigned in experimental group and rest were assigned in control group.

**Sample selection method:** In this study subjects were selected by purposive sampling technique.

### **Inclusion criteria:**

1. Patients above 18 years age, admitted in critical care units.
2. Patients with mechanical ventilation and duration of intubation  $\leq 3$  days.
3. GCS Score 8-11.
4. RASS (Richmond Agitation Sedation Score) 0.
5. Patients in sedation vacation period.
6. Patients whose GCS Score  $\geq 13$  after extubation.
7. Patients who are able to read and understand English, Bengali, Hindi.

### **Exclusion criteria:**

1. Patients with tracheostomy.
2. GCS score below 8.
3. Patients with poor vision.

### **Description of data collection tools:**

Data were collected by using a proforma assessing background information and a patient satisfaction scale. The proforma assessing background information was developed to collect background Information of the patients. It consisted of 8 items to collect demographic and other clinical data of communication compromised patients admitted in critical care units by record analysis. The patient satisfaction scale was a five point Likert scale, consisted of 16 positive and negative items. In positive statements the score distribution were 5,4,3,2,1 and for negative statements the score distribution were 1,2,3,4,5. Minimum score of the tool was 16 and maximum score was 80. The satisfaction level was graded in the following grades: Highly satisfied (68-80), Moderately satisfied (55-67), Can't say (66-42), Moderately unsatisfied (29-41), Very unsatisfied (16-28). This tool was self reported in nature. In this study, the visual communication board was used as intervention, which was an one sided board contained pictorial illustration of different physical, safety and comfort needs. The experimental group patients were taught to indicate to the pictures as per their needs, and then the board was provided to them to communicate with the caregiver. Both the tools and intervention were validated by the experts of critical care and medical surgical nursing.

### **Ethical Consideration:**

Ethical clearance was taken from the institutional ethics committee of Apollo Gleneagles Hospitals. Written informed consent was taken from legally authorized representatives of the participants and anonymity of the subjects were maintained.

### **Data collection Procedure:**

Subjects were selected by reviewing patients' files to check the background information and to determine whether the patients meet the inclusion criteria. Patients who met the criteria were assigned to experimental and control group. Those two patients whose background information characteristics were almost same were assigned in experimental and control group respectively. Each day the duration of data collection was 8 hours. For experimental group, first the patients were explained about the visual communication board and how to indicate to the pictures of the board whenever they need. The visual communication board was provided to the patients by the investigator with the help of student nurses. For control group, all the standard care except that communication board was provided to the patients. These patients in control group, used conventional

methods (head nods, eye blinking, finger indications, and hand gestures) to communicate with the caregiver. After 24 hours of extubation when the patient's GCS Score was  $\geq 13$ , patient's satisfaction regarding communication needs was assessed by using patient satisfaction scale.

**Statistical analysis:**

The collected data were analyzed by using descriptive and inferential statistics according to the stated objectives.

.Frequency and percentage were used for the analysis of demographic variables and clinical parameters, Unpaired t test was done to compare the level of satisfaction between experimental and control group. Chi square test was done to find out the association between selected demographic variables and level of satisfaction of experimental and control group.

**IV. Result**

In the present study the obtained data was organized, tabulated, analyzed and interpreted under four sections.

**Section- I Background information of samples**

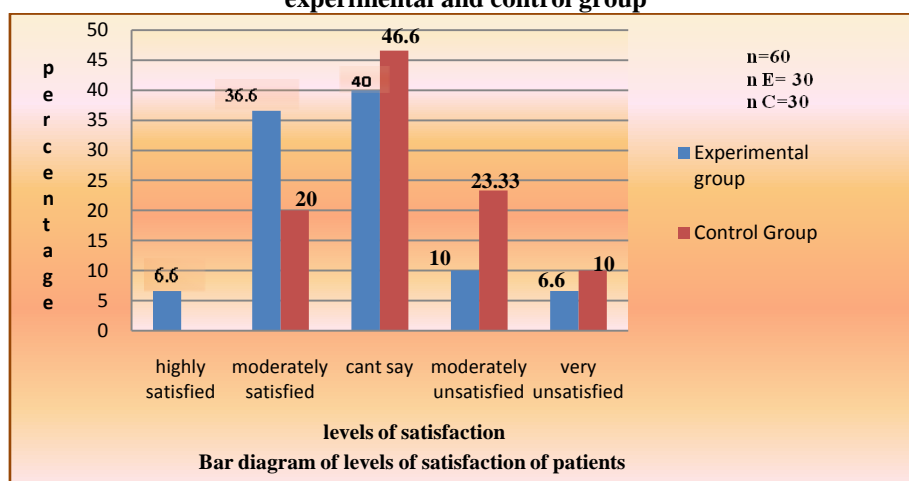
**Table 1: Findings related to frequency and percentage distribution of demographic and clinical characteristics of experimental and control group patients**

n= 60 (nE = 30, nC= 30)

Sl. No.	Variables	Experimental Group nE=30		Control Group nC=30	
		Frequency	Percentage	Frequency	Percentage
<b>Demographic Variables</b>					
1.	<b>Age</b>				
	26-38 yrs	6	20	3	10
	39-51 yrs	4	13	4	13.3
	52-64 yrs	10	33.33	8	26.66
	65-77 yrs	10	33.33	15	50
2.	<b>Gender</b>				
	Male	21	70	23	76.66
	Female	9	30	7	23.33
3.	<b>Religion</b>				
	Hindu	28	93.33	26	86.66
	Muslim	2	6.66	4	13.33
4.	<b>Clinical Variables</b>				
	<b>Diagnosis</b>				
	Respiratory	11	36.66	10	33.33
	Cardiology	5	16.66	8	26.66
	Neurology	7	23.33	5	16.66
	Gastroenterology	3	10	5	16.66
	Nephrology	4	13.33	2	6.66
5.	<b>GCS Score</b>				
	8-9	10	33.33	13	43.33
	10-11	20	66.66	17	56.66
6.	<b>Duration of communication compromised condition</b>				
	12-24 hours	2	6.66	4	13.33
	24-48 hours	15	50	16	53.33
	48-72 hours	13	43.33	10	33.33
7.	<b>Sedation vacation period</b>				
	2-4 hours	19	63.33	17	56.66
	5-7 hours	11	36.66	13	43.33

Data presented in Table 1 revealed that, 33.33% of patients of experimental group belonged to 65-77 years of age group. Another 33.33% of patients belonged to 52-64 years of age group. In control group 50% of patients belonged to 65-77 years of age group. Majority of the patients in both group were male and Hindu. 36.6% patients of experimental group and 33.33% patients of control group had diagnosis related to respiratory system, 66.66% patients of experimental group and 56.66% patients of control group had GCS score between 10-11. Majority of patients in both groups had 24- 48 hours of duration of communication compromised condition. In experimental group 63.33% patients and in control group 56.66% patients had 2-4 hours of sedation vacation period.

**Section II Comparison of satisfaction level regarding communication needs of the patients in experimental and control group**



**Fig 1 Bar Diagram showing comparison of satisfaction score between experimental and control group of communication compromised patients.**

Data presented in Figure 1 showed that in experimental group 40% patients and in control group 46.66% patients belonged to the group ‘can’t say’. The data highlighted that 36.66% patients in experimental group and 20% patients in control group belonged to moderately satisfied group.

**Section- III Findings related to effectiveness of visual communication Board**

**Hypothesis:**

- **H0:** Level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board at 0.05 level of significance.
- **H 1:** Level of satisfaction regarding communication needs of communication compromised patients depends on use of visual communication board at 0.05 level of significance.

**Table 2 Mean, mean difference, SD, t value of satisfaction scores between experimental and control group**

n = 60 (n E= 30, n C= 30)					
Group	Mean	Mean Difference	Standard Deviation	‘t’	Remarks
Experimental group	50.6		10.82		
Control group	45.33	5.27	10.04	1.9534	Not significant

‘t’ value at df(58)= 2.0, p>0.05

Data presented in Table 2 showed the calculated ‘t’ value was 1.9534 which was less than table value of ‘t’ (at  $\alpha = 0.05$  and  $df = 58$ , ‘t’ value 2.0), so the null hypothesis was accepted. So, Level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board at 0.05 level of significance.

**Section IV Association of level of satisfaction with selected variables of background information.**

**Table 3: Chi square test of association between selected demographic variables and satisfaction score of experimental group patients after providing the intervention**

n E=30

Sl. No	Demographic variables	Satisfaction score		$\chi^2$ value
		Below median	Above median	
1.	<b>Age</b>			1.20
	≥ Median (58.5 years)	10	5	
	< Median (58.5 years)	6	9	
2.	<b>Gender</b>			
	Male	13	8	

3.	Female	3	6	1.07
	<b>GCS</b>			
	8-9	4	6	
	10-11	11	9	0.15
4.	<b>Duration of communication compromised condition</b>			
	≥ Median (46 hours)	12	4	4.73*
	< Median (46 hours)	4	10	

$\chi^2$  value at df (1)= 3.841 , p<0.05

\*Significant

Data presented in Table 3 showed that, in experimental group, satisfaction scores of patients were associated with duration of communication compromised condition but were not associated with age, gender and GCS score.

## V. Discussion

The major findings of the present study are discussed in relation with the findings of other studies.

In this study 33.33% patients of experimental group and 50% patients in control group belonged to the age group 65 -77 years which were consistent with the findings of Rodriues O, A Raja who aimed to identify the efficacy of communication board on communication of verbally non communicative patients at selected hospital Mangalore. Their result showed that there were 40% patients in both experimental and control group belonged to 61-80 years of age group.<sup>[4]</sup>

In the present study majority of the patients of both experimental and control group belong to Hindu community which was supported by the study findings, conducted by Das D. who assessed the effectiveness of communication board on the level of satisfaction of communication pattern among patients on mechanical ventilator in Bombay Hospital at Indore. The study revealed that most of the patients of both experimental and control group belonged to Hindu community.<sup>[5]</sup>

In this present study, the calculated 't' value was 1.9534 at  $\alpha =0.05$  and df= 58, which was not statistically significant. So, Level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board. Factors such as Patients' poor clinical condition, anxiety, pain, fatigue can cause difficulty in indicating the needs on the visual communication board, which can affect patients' level of satisfaction. The reasons, for which communication of mechanically ventilated patients cannot be facilitated even after using a communication aid, can be explained by a phenomenological study conducted by Holm A, Dreyer P with an objective to modify, test and evaluate communication tools for the conscious mechanically ventilated patients in ICU. The result revealed two main themes 'when communication tools do not facilitate communication' and 'when communication tools are unnecessary'. Those theme explained ,due to acute disease condition, patients may experience fatigue, which can reduce the concentration, physical strength and the energy ,requires interacting by using the communication aid. Psychological factors like anxiety, agitation, depression, due to ICU admission can also be responsible for patients' poor communication effort and in acute phases of illness, communication can be facilitated by simple strategies rather than a communication tool.<sup>[6]</sup>

In the present study age of the patients was not associated with satisfaction score at 0.05 level of significance which was consistent with the study findings conducted by Rathi R, Bhaskaran M who investigated level of satisfaction in communication among clients on mechanical ventilation using communication board. In their study age of the patients of both experimental and control group were not associated with level of satisfaction perceived by communication compromised patients, at 0.05 level of significance.<sup>[7]</sup>

## VI. Conclusion

Patients admitted in critical care units often experience pain, anxiety, fear due to different medical and surgical interventions. Such patients tend to have barriers in communication such as endotracheal intubation. Improvement in communication can be achieved by use of a visual communication board to enhance and facilitated communication in intubated patients. In this study, after detailed statistical analysis, the generalization is drawn, that the level of satisfaction regarding communication needs of communication compromised patients does not depend on use of visual communication board. There were several other factors which may influence the patients' satisfaction regarding communication needs.

### References

- [1]. Banderia M, Faria P. Quality assessment of in hospital patients unable to speak who use alternative and extended communication. *Einstein* .2011; 9(4). Available from : <http://ccforum.biomedcentral.com>
- [2]. Finke EH, Light J. A systematic Review of the Effectiveness of Nurse Communication with Patients with Complex Communication needs with a Focus on the Use of Augmentative and Alternative Communication. *Journal of Clinical Nursing* . July 2008; 17(16) Available from : <http://www.researchget.net>
- [3]. Ashworth P. *Care to Communicate*. Whitefairs press.1980
- [4]. Rodrigues O, A Raja. Efficacy of communication board on communication of verbally non-communicative patients at selected hospital in Mangalore. *Research Education*. 2018;4(3). Available from: <http://scholarlyworks.lvhn.org>
- [5]. Das D. A Study to Assess the Effectiveness of Communication Board on the Level of Satisfaction of communication pattern among Patients on Mechanical Ventilation in Bombay Hospital at Indore in the Year 2014-2015. *International Journal for Advanced Research* .2016 October; 4(10): 1720-1747. Available from: [www.journalijar.com](http://www.journalijar.com)
- [6]. Holm A, Dreyer P. Use of communication Tools for Mechanically Ventilated Patients in the Intensive Care Unit. *CIN*.2018;36(8):398-405 Available from: [www.journals.iww.com](http://www.journals.iww.com)
- [7]. Rathi R, Bhaskaran M. Communication board satisfaction among clients on mechanical ventilation. *Asian Journal of Nursing Education and Research*.2014;4(4) Available from: [www.elsevier.com](http://www.elsevier.com)
- [8]. Patak L, Gswlinski A, Fung N, Doering L, Berg J. Patient's Report of Healthcare Practitioners Interventions that are Related to Communication during Mechanical Ventilation. *Heart & Lung*. 2004; 33(5). Available from: [www.heartandlung.org](http://www.heartandlung.org)
- [9]. Khalaila R, Zbidat W, Anwar K, Bayya A, Linton D, Sviri S. Communication difficulties and psychoemotional distress in patients receiving mechanical ventilation. *American Journal of Critical Care*.2011; 20-23. Available from: <http://ajcc.aaccnjournals.org>
- [10]. Happ M, Tuite P, Dobbin K, Thomas D, Kitutu J. Communication ability, method and content among non speaking patients treated with mechanical ventilation in the intensive care unit . *American Journal of Critical Care*. 2013;13(3) Available from: <http://ajcc.aaccnjournals.org>
- [11]. Bharadwaj K, Gorge M, Mitra L. A validated communication board reduces nurses' communication difficulties in the ICUs. *International Journal for Advanced Research* .2019;7(8): 83-90 Available from [www.journalijar.com](http://www.journalijar.com)
- [12]. Arora B, Bharadwaj U, Bansal P, Girdhar K. Visual communication board for communication compromised patients. *IOSR Journal for nursing and health science*.2017;6(3):1-7 Available from <http://www.researchget.net>
- [13]. Hemsley B et al. Nursing the patient with severe communication impairment. *Journal of Advanced Nursing*. 2001;35(6): 827-835 Available from : <http://academia.edu>
- [14]. Patak L et al. Communication boards in critical care: patients' view. *Applied Nursing Research*. 2006;19:182-190 Available from : [www.elsevier.com](http://www.elsevier.com)
- [15]. Muthuswamy M, Thomas B, Williams D , Dingley J. Utility of optical facial feature and arm movement tracking systems to enable text communication in critically ill patients who cannot otherwise communicate .*Science Direct*. 2013. Available from: [www.elsevier.com/locate/burns](http://www.elsevier.com/locate/burns)

Ms. Mrittika Chakraborty, et. al. "Effect of visual communication board on the level of satisfaction regarding communication needs among communication compromised patients in critical care units." *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, 10(1), 2021, pp. 48-53.