International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582-2160 ● Website: www.ijfmr.com ● Email: editor@ijfmr.com

A Study to Assess Effectiveness of Communication Board on the Level of Satisfaction of Communication Pattern Among Patients on Ventilator in Selected Hospital of Kanpur

Ms. Sweta Sharma[1], Mrs. Ranjna Singh Rajpoot[2]

MSc Nursing Student, Medical Surgical Nursing-CTVS, L.P.S Institue Of Cardiology

ABSTRACT

The present study entitled, Effectiveness of communication board on communication pattern and level of satisfaction among mechanically ventilated patients at **KANPUR, UTTAR PRADESH** was undertaken during the year 2024-2025 in partial fulfillment of the requirement for the degree of **Master of Science in Nursing at KANPUR, UTTAR PRADESH** that is affiliated to the **ABVMU.**

The objectives of the study were to:

1. To assess the post-test levels of satisfaction among ventilator patients in experimental group and control group in selected hospital at Kanpur.
2. To evaluate the effectiveness of utilizing a communication board on level of satisfaction of communication patterns among patients on ventilator in experimental group.
3. To find out the association between the post-test level of satisfaction in the patients on ventilator with their selected demographic variables in experimental and control group.

Design: **True Experimental-Post test only control research group design**. **Samples**: Thirty mechanically ventilated patients including males and females who are conscious and oriented at KANPUR, Probability purposive sampling was used to select samples.

Conceptual framework: - This study was based on Kings Goal attainment transaction model. In this nurse- patients relationship, will meet the goals towards good health.

Method: The study has been conducted in GSVM Medical College, Kanpur

30 samples were taken for Experimental group and 30 for Control group. Probability Purposive sampling technique is used to select desire sample.

Initially the communication pattern and satisfaction level were checked among the control group. Later this was assessed in the experimental group. Communication pattern scale was completed by both the investigator and the patient whereas the satisfaction scale was filled by the patient himself after intubation. The data was analyzed by using both descriptive and statistical methods. “The association between patient response, and the satisfaction level of the patient based on the Chi square analysis, the study is useful for ventilator patients. The intervention used in the experimental group seems to improve satisfaction across all patients. In experimental all variables are not statistically significant. In control group, Age in year and Gender is significant whereas Education, Occupation,

Disease condition is not significant.

Results: There was a significant improvement of communication pattern among patients and also showed increased level of satisfaction among patients who used communication board than those who didn't use communication board the association between patient response, and the satisfaction level of the patient based on the Chi square analysis, the study is useful for ventilator patients. The intervention used in the experimental group seems to improve satisfaction across all patients .In experimental all variables are not statistically significant.in control group, Age in year and Gender is significant whereas Education, Occupation, Disease condition is not significant.

Conclusion: Communication board can significantly improve the communication pattern and level of satisfaction among patients.

INTRODUCTION

"Good communication is the bridge between confusion and clarity."

In recent years, the utilization of Ventilation in ICUs worldwide has escalated significantly. Over half of ICU admissions involve ventilation within the initial 24 hours, primarily because of severe respiratory acidosis or alkalosis, cardiac arrest, respiratory arrest, and abrupt respiratory failure. However, despite its life-saving capabilities, ventilated patients often face distressing symptoms such as depression, anxiety, and loneliness[1].

In our lives, communication is essential, and everyone communicates differently in different contexts. The act of communicating is commonplace, nevertheless, and challenging to examine. Their complexity seems to increase as we get greater insight into their workings. Ventilation is a technique that uses a ventilator to replace or mechanically assist spontaneous breathing. This procedure involves inserting a tube into the trachea to allow air to enter and exit; an endotracheal tube that passes through the vocal cords prevents speech, which significantly changes the way people communicate. In order to enhance the interpersonal relationship between nurses and patients, it became necessary to devise a strategy that would facilitate the communication of patient needs. However, there has been a dearth of systematic research on the use of communication boards, which could potentially enhance communication. [2]

Life-threatening treatment Nurses are essential to the treatment of patients on mechanical ventilation, yet many lack specialized training in communication with intubated patients. Consequently, there is a pressing need to equip nurses with effective communication tools to enhance patient care and satisfaction. In this context, the use of Communication Boards emerges as a promising strategy to facilitate communication between nurses and mechanically ventilated patients. These boards, though initially devised by experts, require further refinement through patient input to address individual communication needs comprehensively.[3]

It is impossible to overestimate the value of communication in nursing practice, especially in critical care settings where nurses act as patients' primary caretakers and advocates. Therefore, it becomes essential to incorporate effective communication tactics in order to improve nursing care quality and patient outcomes. Examining how well Communication Boards improve patient satisfaction and nurse-patient communication in critical care settings is the goal of this study. We want to further patient-centered care for patients on mechanical ventilation by assessing the effects of these boards on nurse care quality and communication aptitude.[4]

The ability of communication boards to address unmet patient demands and lessen anxiety and

frustration in patients on mechanical ventilation was evaluated by numerous researchers. In order to determine the impact of the communication board on communication patterns and satisfaction levels, the researcher was interested in doing so. The majority of patients admitted to critical care units have conditions that could be fatal. Modern facilities, invasive and non-invasive methods, and technology support are necessary to measure, monitor, and regulate physiological functions in their critical condition. The patients' capacity to express themselves and communicate in their normal ways would undoubtedly be impacted by this situation[5].

Our social environment is reflected in and created by communication. There are other significant forms of nurse-patient communication in critical care settings, but verbal communication was the main emphasis of the study presented here. Effective communication is crucial for evaluation, which many nursing leaders consider to be the foundation of nursing. Stress and anxiety levels rise as a result of poor nurse-patient communication. Patients who communicate verbally are better able to maintain their sense of self and self- worth, which improves their wellbeing and optimism.[6]

The goal of this study is to enhance patient-provider communication in order to raise the standard of care given to patients in the intensive care unit (ICU). In order to breathe, a sizable portion of patients in the intensive care unit require artificial ventilation, which includes tracheostomy and endotracheal intubation (ET tube). Because the vocal cords are bypassed during mechanical ventilation, speech is temporarily impeded. Patients' mental health, fatigue, and incapacity from critical illness further impede communication, in addition to the use of sedative drugs to maintain these devices. In ventilated conscious patients, anxiety and frustration are common and can intensify negative emotions such as futility, dehumanization, and dependence. There was discomfort for the patient on mechanical ventilation.[7]

Communication is a vital and important component of nursing in all domains, as it is necessary to carry out all of its interventions, including prevention, therapy, rehabilitation, education, and health promotion. As a scientific method of nursing practice and performance, the nursing process is carried out through conversation in a setting where verbal communication skills are both interpersonal and individual. A range of nurse evaluation and diagnosis methods can be combined with team member and other medical services interviews. Patients on mechanical ventilation cannot speak due to the placement of the tube and the inflation of the tube's cuff, which stops air from traveling across the vocal cords. This makes it difficult for the critical care staff to communicate with the patients, one of the most basic human needs. It may be challenging for medical and nursing personnel to communicate with intubated patients while attending to their psychological and comfort needs.[8]

Reducing the communication barrier is one of the worst things that may happen to someone who is using a mechanical ventilator. Communication issues are common. Anxiety and frustration are common in ventilated conscious patients, which exacerbates negative emotions such as dehumanization, reliance, and futility. The mechanically ventilated patient was not comfortable. In the healthcare setting, it is also quite difficult to establish a computer connection. To increase communication satisfaction among individuals on mechanical ventilation, supplemental communication techniques should be widely adopted. It's critical to have efficient communication with patients who are on a ventilator. Managing active patient nurses requires a wide variety of sophisticated technology skills and is challenging on many levels. The communication board can help improve communication with certain patients.[9]

More than one-third of individuals who are on mechanical ventilation for two or more days in an intensive care unit (ICU) do not survive their stay. The communicative abilities of patients nearing the end of their life in an intensive care unit are not documented. Patients in the intensive care unit (ICU) who are on mechanical ventilation suffer from severe communication impairment, which puts them at risk for negative physical and mental consequences. To improve communication, patient communication techniques including voice restorative devices and augmentative and alternative communication (AAC) are advised.[10]

Nurses must communicate with patients on artificial ventilation in order to maintain their respect and dignity and to treat them more like human beings than like physical objects. Communicating with hospitalized patients is crucial to improving the quality and safety of medical care. Critical care nurses are vital to the management of critically sick patients and the surmounting of challenges. involves the use of advanced technologies, ventilators, alarms, and a number of lab tests. They must successfully communicate with and care for patients on mechanical ventilation (MV), a life- saving therapy for those in need of ventilation support and oxygenation, in order to ensure patient satisfaction.[11]

1.1 Background of the study

Communication, derived from the Greek word "Communes" meaning "to make common," encompasses various interactive behaviors facilitating the transmission of messages between individuals. From reading and writing to nonverbal cues, communication serves as the cornerstone of human interaction (Aristotle, 384-322 B.C). However, patients with physical impairments, such as those undergoing endotracheal intubation and mechanical ventilation, encounter significant barriers in communicating with healthcare providers.[12]

Mechanical ventilation is frequently used as a critical supporting measure in intensive care units (ICUs), which are devoted to handling life- threatening diseases. Recent years have seen a significant increase in the prevalence of mechanical ventilation, underscoring the necessity for efficient communication techniques catered to the particular difficulties experienced by ventilated patients. Although communication is essential to patient care, little is known about how patients view initiatives by healthcare professionals meant to improve communication. Patients using mechanical ventilation often feel anxious and frustrated because they can't verbally communicate their demands, which can cause misunderstandings and communication problems.[13]

Nonverbal methods of communication, such as mouthing, gesticulating, and writing, though utilized, prove exhausting and emotionally draining for patients. Consequently, healthcare practitioners have proposed the use of communication boards to facilitate communication in these patients .[14]

To investigate the viewpoints and experiences of nurses in relation to contact with MVPs in Pakistan's Islamabad ICUs. There are 220 intensive care units (ICUs) in various hospitals in Pakistan, with 2166 approved beds and 1473 ventilators working simultaneously. The Pakistani government is having difficulty adding new ventilators to the ICUs in accordance with demand. If all approved ICU beds had mechanical ventilators, the majority of patients admitted to those ICUs would be unable to speak because of their mechanical ventilation[15].

Intensive care unit (ICU) nurses face unique challenges when communicating with patients who are very ill, unconscious, on medication, or on mechanical ventilation. Nursing professionals must possess certain knowledge, skills, and commitment to effectively communicate with these patients. Despite the fact that nurses spend more time at the patient's bedside in multidisciplinary teams of healthcare professionals

(including doctors, speech therapists, physiotherapists, dieticians, etc.), communication skills training has historically been reserved for medical professionals such as doctors. Contact with patients and their families is thus often ignored and insufficient.[8]

Nurses often handle these communication problems with their non- speaking patients by using traditional communication methods such as head nods, gestures, facial expressions, and lip reading. Although these methods may assist close the communication gap to some extent, they can be excessively time-consuming and fail to satisfy all of the communication needs of patients and nurses, which irritates both sides.[16]

In critical care units, the poor use of contemporary and standardized communication techniques exacerbates these patients' incapacity to adequately express themselves. Although there are assistive communication tools available, they are rarely employed to supplement the treatment of intensive care unit patients, as previously stated, which leads to insufficient nurse-patient contact. Patients in the intensive care unit receiving MV support most frequently complain of communication issues, and having a mechanical ventilator may make it more difficult for the patient and nurse to communicate. Thus, the use of a communication board is one of the effective communication strategies that clinical practice must implement to address patient satisfaction issues and promote patient-centered care in the management of mechanically ventilated patients in the intensive care unit.[17].

1.2 Need and justification of the Study

Communication is essential for effective care, and assessments should consider the patient's level of consciousness and cognitive abilities, as well as their ability to absorb and process information through touch, hearing, and sight, as well as any potential adverse drug reactions. Although alternative communication techniques for intubated but conscious patients are widely accessible, it is important to evaluate each patient's suitability for them. Many things can hinder communication, such as a tube placed in the neck to clear the airway, diseases that weaken the hand and voice muscles, strokes, trauma, and many neurodegenerative diseases.[18]

ICU patients who are unable to express themselves vocally may employ nonverbal cues to express their demands, such as writing, gesturing, or mouthing phrases. These methods, however, can be subjectively disrupted by communication styles, which could result in misunderstandings of the intention and exacerbate patient annoyance and distress. In order to maximize the efforts of both the patient and the nurse in overcoming communication impairment, all necessary communication devices should e listed in the patient's plan of care. When available, these tools should be evidence-based.[19]

The results were highly significant at the $p<0.001$ level, indicating that the communication board is beneficial for patients on mechanical ventilators. When the board is used, success rates are 28.8%, but when it is not used, success rates are 75.8%. A communication board is a customized instrument that functions as a visual representation for a patient on mechanical ventilation, assisting them in communicating with family members and medical professionals. Through the use of this communication board, they express themselves and their opinions. Their anxiety is also lessened. Visual method of communication is especially for those who are on mechanical ventilator. Critically ill patients often endure overwhelming communication challenges, exacerbated by sedation and physical restraints, impeding their ability to express their needs and preferences.[20]

According to a study on communication-related responses from non-speaking patients receiving ventilation, patients indicated that speaking with their family members was the most challenging.

Despite the importance of effective communication, its systematic study and measurement in ICU settings remain limited. Research is essential to assess the level of frustration will be experienced by ventilated patients and to be evaluated the effectiveness of communication boards in addressing their communication needs. Furthermore, understanding patients' perceptions of communication aids can inform the development of patient-centered interventions to enhance communication satisfaction.[21]

Observations of communication difficulties during clinical rotations underscore the urgency of implementing effective communication aids for mechanically ventilated patients. Addressing these challenges through innovative interventions like communication boards holds the potential to improve patient satisfaction and overall communication patterns in critical care settings. Research at the international level regularly shows that the use of communication boards boosts the ability of mechanically ventilated patients to express their requirements and have meaningful interactions, hence improving patient satisfaction with communication patterns. According to recent research, communication boards considerably improve satisfaction and communication between patients on mechanical ventilation and those receiving standard care.[22]

The Joint Commission on Accreditation in Health Care Organizations (JCAHO) actually ranked "communication" as the root cause of "sentinel events" in hospitals in six-year (1997-2002) research. The statement "The patient has a right and need for effective communication" is emphasized by the Joint Commission on the Accreditation of Healthcare Organizations (JCAHO). The ability of the nurse to decipher and interpret the messages of critically ill patients is crucial. Choosing a course of treatment at the end of life is another benefit of effective communication. For both nurses and patients to receive and provide high-quality care, communication is essential. In order to increase client communication while on mechanical ventilation and, consequently, the quality of care, the nurse investigator highlights the usage of communication boards as an intervention.[23]

Many researchers assessed the effectiveness of communication board to meet the unmet needs of patient to reduce their anxiety and frustration and see the satisfaction level of patients by utilizing the communication board and solve out their challenges. As a nurse I have seen ventilated patients face difficulties in communicating with nurses and their family members they use paper and pen to make nurses and family to understand their needs and how do they feel in ICU on ventilator. I can feel that I am unable to build a bond with patients and families, when I tell them about patient's daily routine and care. So, I have an interest to assess the effectiveness of communication board on communication pattern and see the level of satisfactions.

Statement of Problem

A STUDY TO ASSESS EFFECTIVENESS OF COMMUNICATION BOARD ON THE LEVEL OF SATISFACTION OF COMMUNICATION PATTERN AMONG PATIENTS ON VENTILATOR IN SELECTED HOSPITAL AT KANPUR.

Objectives

1. To assess the post-test levels of satisfaction among ventilator patients in experimental group and control group in selected hospital at Kanpur.
2. To evaluate the effectiveness of utilizing a communication board on level of satisfaction of communication patterns among patients on ventilator in experimental group.
3. To find out the association between the post-test level of satisfaction in the patients on ventilator

with their selected demographic variables in experimental and control group

1.3 Operational definitions

Effectiveness: Effectiveness refers, to the degree to which a program, intervention, or activity achieves its intended outcomes or goals**.**

In this study effectiveness refers to outcome of the communication board in improving the communication pattern of ventilated patients, will be assessing using a checklist.

Communication Board: A communication board, often called an augmentative and alternative communication (AAC) device, is a visual aid that allows people who have little or no spoken language to express their needs, feelings, and ideas by pointing to or choosing words, pictures, or symbols.

In this study, communication display board, such as the Vidatak EZ board, comprising pictures representing basic needs, wants, and pain charts. Patented in the United States used, it facilitates communication between nurses and mechanically ventilated patients.

Communication Pattern: Communication patterns, which include styles, conventions, and workflows, are the arrangements and modes of communication that exist inside a group or organization**.**

The process of exchanging messages between mechanically ventilated patients, nurses, and investigators. Assessing using a scale developed by the investigator, encompassing patient responses and staff responses.

Level of Satisfaction: Level of satisfaction" refers to the degree of enjoyment or fulfillment that an individual feels**.**

In this study the degree of contentment will be expressing by ventilated patients upon full filament of their needs and wants post-estuation. Measured using a satisfaction scale will be developed by the investigator.

Patient: An individual receiving health care services, frequently sick or injured and in need of medical attention

In this study patient is defined as one who is critically ill, injured impaired or life-threatening deterioration in the patient’s condition.

Ventilator: A medical device that assists or replaces the breathing process by pumping air into and out of a patient's lungs when their breathing is insufficient or impossible

In this study ventilator is a medical device that delivers a controlled flow of gas into the patient's airway to support breathing.

1.4 Hypothesis-

H1: There will be a significant difference in the level of satisfaction with communication patterns among patients on ventilator in experimental & control groups.

H2: There will be a significant association between the post test level of satisfaction with selected demographic variables among patients on ventilator in the experimental & control group.

Assumption– this study assumes that-

Ventilator patients have problems in verbal communication.

Communication board is effective forpatients on ventilator.

1.5 Conceptual Framework

According to **Miles and Huberman (1994)**, a conceptual framework in research is a written or visual output that describes the main ideas, variables, or elements and the assumed connections between them, directing the investigation. Understanding a study problem and directing the research's progress and analysis are two goals of a conceptual framework. It acts as a guide for organizing and conceptualizing

the work by offering a framework that links various theories, concepts, and ideas within the subject of study.

Conceptual framework for this study was developed on the basis of Modified King's goal attainment theory. This was developed by **Imogene King (1981).**

Kings' theory of goal attainment focuses on the relationship between nurse and the patient. Kings' theory explains how the nurse — patient relationship can influence goals that are set and their level of achievement. She describes a situation in which two people, usually strangers, come together in a health care organization to help or be helped to maintain a state of health.

According to King, perception is a process in which data obtained through senses and from memory are organized, interpreted and transformed, which are related to past experience, concept of self and educational background. Individuals come together for a purpose, each person makes a judgment, takes mental or physical action and reacts to other individuals and the situations. Interactions are defined as the observable behavior of two or more persons in mutual presence. Transaction is defined as observable behavior of human beings, interacting with environment. When interaction occurs, goals are attained.[24]

The present study based on Modified Imogene Kings goal attainment transaction model focuses on interpersonal relationship between the patients and the nurse and this interaction is influenced by the perception from both the patients and the nurse. The investigator and intubated patients perceived the need of improving communication. Both the investigator and intubated patients make the judgment and set the goal to improve communication pattern between nurse and the patient by using the communication board.

During the reaction phase, the investigator will teach the staff about the way of using the communication board and regarding the responses to be given back to the patient. During the interaction phase, the investigator will assess the effectiveness of communication board by patient response, staff response, and level of satisfaction. By implementing the communication board, the investigator, nurse and intubated patients will enter into transaction phase.

Key Elements of Framework-

1. **Perception-** The nurse is aware of the patient's communication difficulties brought by mechanical ventilation.

❖ The patient becomes frustrated because they can't communicate what they require.

2. **Judgment-** After evaluating the communication gap, the nurse chooses to implement a communication board. Offering a different approach to patient-nurse interaction is the aim**.**
3. **Goal Setting-** Improving communication is the patient's and nurse's mutual goal. The purpose of the communication board is to assist patients in more effectively expressing their requirements.
4. **Reaction-** The patient receives instruction from the nurse on how to operate the communication board. In order to communicate their basic needs and feelings, the patient begins using the board.
5. **Interaction-** The more successfully the patient uses the board, the more effective the communication becomes. In accordance with the patient's board selections, the nurse attends to their requirements**.**
6. **Transaction-** When the communication board is used effectively, both the patient and the nurse experience less frustration and more satisfaction. Effective communication empowers the patient and enhances their care**.**
7. **Feedback-** Refinement and improvement of communication methods are achieved by ongoing evaluation. The board is modified to increase its efficacy in patient-nurse interactions. This framework shows how nurses and patients on mechanical ventilation can engage more effectively

when using a communication board in an organized manner, which will ultimately improve patient outcomes and care.

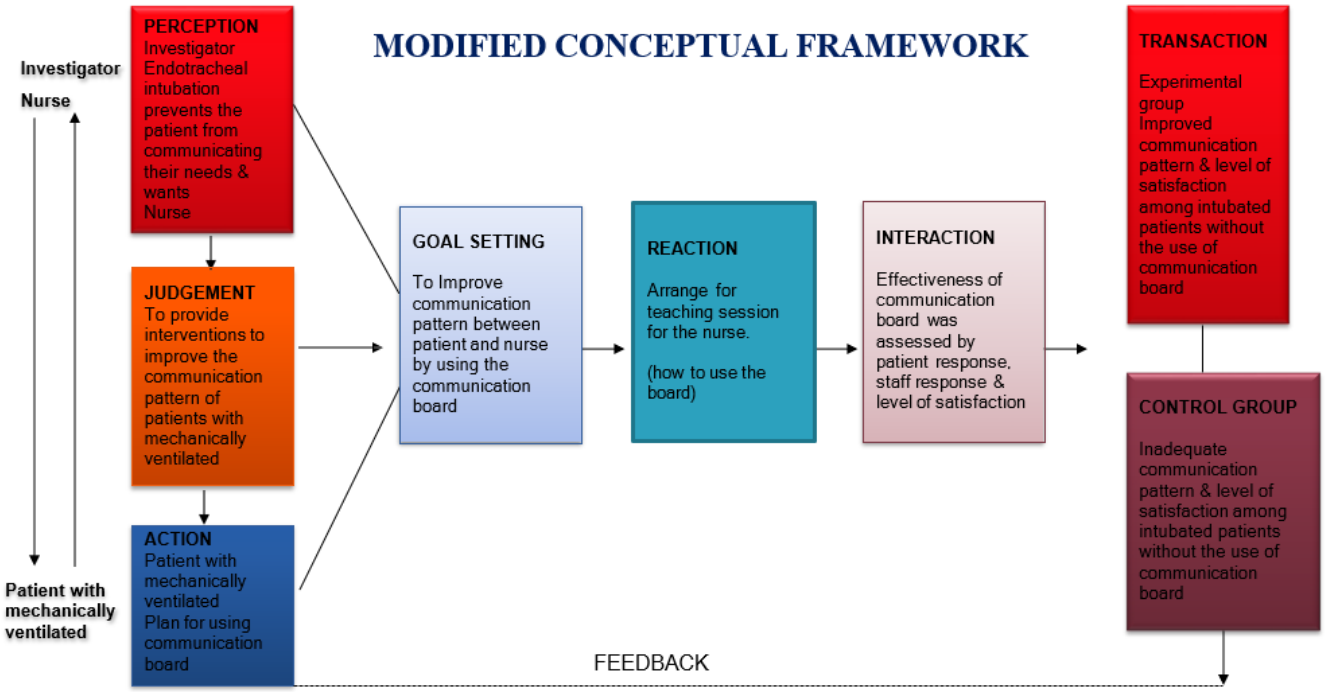


Fig.1 Based on Modified King's Goal attainment transaction model

TRANSACTION

Experimental group Improved communication
pattern & level of satisfaction among intubated patients without the use of communication board

CONTROL GROUP

Inadequate communication pattern & level of satisfaction among intubated patients without the use of communication board

REVIEW OF LITERATURE

A literature review is a crucial component of every research undertaking. A literature review is a type of academic work that summarizes the state of knowledge on a given subject, including significant discoveries as well as theoretical and methodological advancements.

According to **Polit and Hungler (2004)** "Literature review is a critical summary of research on a topic of interest often prepared to put a research problem in the context or as the basis for an implementation project.

"According to **Creswell (2005).** A review of the literature "is a written summary of journal articles, books, and other documents that describes the past and current state of information, organizes the literature into topics, and documents a need for a proposed study,"

Literature generally refers to written works used for cultural transmission. However, literature is typically not limited to written language. Both oral traditions and visual literature, such as plays intended for public performance, can be classified as literature. In a literature review, primary or original

scholarship is used as its database; new primary scholarship is not reported. Although the primary accounts utilized in the literature are often written documents, they can also be conversational. Scholarship can be of several types, including methodological, theoretical, critical, analytical, and empirical. The purpose of a literature review is to describe, assess, elucidate, and incorporate the information found in primary sources.

The literature reviewed for the present study was organized under following headings:

2.1 ROL related to a communication board works to improve client satisfaction with communication while using a mechanical ventilator.

2.2 ROL related to Communication pattern and problems of mechanically ventilated patients.

2.3 ROL related Communication pattern and problems as observed by the nurses who take care of the patients with mechanical support.

2.4 ROL related to Effectiveness of communication boards

2.5 ROL related to a communication board works to improve client satisfaction with communication while using a mechanical ventilator.

A study was conducted on experimental group study, with 60 Sample. 30 experimental group and 30 control group admitted in selected hospital, Punjab. Experimental group was provided with communication board with an intervention to meet their communication needs by researcher, until they are extubated. Control group was not provided with communication board, they relied on standard care and on the experience of nurses. Study findings & revealed that, according to association of post-interventional satisfaction level regarding Communication pattern in experimental and control group with duration of stay on ventilator was Significant as computed by chi-square at $p<0.05$, in whereas, in control group it was statistically non-significant. It concludes that the communication between patient view to improve interpersonal relationship between nurses and patients. Research study highlighted the importance of communication board for ventilated patients meet then unmet needs and reduce their frustration level Ventilation had significant associated with Post interventional satisfaction level regarding Communication pattern among mechanically ventilated patients in experimental groups.[25]

A quasi-experimental study to assess the effect of modified communication board on communication ability of post-operative CABG patients at selected hospital Bhopal, Madhya Pradesh, India .The study subjects were 60 post- operative CABG patients, 30 in each group; control group and experimental group selected through purposive sampling .The results concluded that there was significant relation found between modified communication board and communication ability of postoperative CABG patients. Since the acquired 't' value of 12.15** is greater than the table value, it may be concluded that the modified communication board is beneficial in improving post-operative CABG patients' communication abilities. Age and gender were shown to be significantly correlated in the experimental group, and the clinical profile of postoperative CABG patients revealed a high correlation between communicative skills and the history of prior surgery in the control group.[26]

A study was done on the use of communication board among patients with ventilated device who are admitted in ICU of Imam Khomeini Hospital, Urmaic Iran. Its experimental study with 30 patients under mechanical ventilation were recorded using a continues samples methods, among them, experimental control was with 15 patients each and. control patients used as routine methods. Prior to the intervention, the patients' communication scores showed no discernible difference between the experimental and control groups ($z = -1.7$; $p = 0.070$). But following the intervention, the two groups' communication scores differed significantly ($z = -4.69$; $p = 0.001$). Following the intervention, the

experimental group's anxiety scores greatly outperformed the control group, and the experimental group's anxiety levels had dramatically dropped (z = -2.98; p = 0.003).

The findings demonstrated that aware patients on mechanical breathing could utilize the communication board, which could facilitate communication and lessen stress in these patients.[27]

A quasi –experimental study conducted to assess the effectiveness of visual communication board on satisfaction for communication compromised patients in selected hospitals of New Delhi. 60 samples were total taken 30 in each experimental and 30 control group were selected by using purposive sampling. The results in experimental group maximum of study subjects i.e.13 (43.33%) was satisfied and only 2(6.6%) were unsatisfied. In control group maximum of the study subjects were unsatisfied i.e.11(36.6%) and only 2(6.67%) were satisfied. The level of satisfaction perceived by study subjects in experimental group was significantly higher and gives positive results than the control group.[25]

A quasi-experimental study to assess the effectiveness of communication board on communication process among aphasic patients admitted in CCU & ICU of Apollo Main Hospital, Vanagaram, Chennai. Total 60 communication compromised patients 30 in each experimental and control group were selected by using purposive sampling. The results show that in post –test: maximum experimental group study subjects i.e.13 (56.67%) was satisfied and in control group maximum of the study subjects were unsatisfied (55.69%) were satisfied. The communication process in the experimental group had high mean score in posttest (M=27.03, SD= 5.64) as compared to control group (M=10.01. SD =5.08)[29]

A quasi-experimental study to assess the effectiveness of communication board on the level of satisfaction of communication pattern among patients on mechanical ventilator. The total sample size was 20 the sample was divided into control and experimental group by used non- probability convenience sampling. The findings of the study revealed high significant level of satisfaction of communication pattern among experimental group, and the unpaired (t test) computed between mean posttest of experimental and control group score computed as 7.00.[30]

2.1 Communication pattern and problems of mechanically ventilated patients -.

The study was carried out to evaluate the methods for speaking with critically sick patients who are conscious and on mechanical ventilation. Depending on the severity of their clinical condition and other comorbidities, critically ill patients admitted to the intensive care unit (ICU) may need ventilator assistance. Additionally, critically sick patients sometimes develop ICU-acquired weakness, which can impair their motor and gestural communication skills. The patient's incapacity to communicate with medical professionals and/or family members in this situation leads to psychological changes, social isolation, and a decline in self-esteem. To enhance the communication between patients and clinicians, numerous tools have been created. Some authors have divided the tools into two categories: low-technology AAC and high-technology.[31]

A systematic study to investigate the experiences of patients in Jordan who were kept on mechanical ventilation (MV) during their stay in the intensive care unit (ICU). 15 patients participated in a phenomenological hermeneutic study. Their experiences in the critical care unit were evaluated through interviews. Patients who got mechanical ventilation support throughout their stays in the intensive care unit suffered from physical and psychological issues, according to the study.[32]

Qualitative study focused on critical care nurses' experiences communicating with patients who were at risk for harm and how that affected their ability to provide compassionate care. Numerous factors may affect the nurses' capacity to deliver compassionate care, and the study demonstrates that they need

assistance in order to deliver person-centered care. These elements may consist of the actual surroundings, the patient's level of awareness and attention, and institutional obstacles. Communication partner training may be necessary to assist nurses in delivering compassionate care.[33]

A study to describe the characteristics of communication opportunities for critically ill mechanically patients They used video recording to acquire the data because it allowed us to watch every move that nurses and patients took and to view the data on a regular basis. Video recording while observing is recognized as a practical and effective data collection method. Critically sick individuals on mechanical ventilation frequently have communication difficulties with their healthcare personnel. This leads to a number of psychological issues and a decline in the general health of the patient. Thankfully, both high-tech and low-tech AAC solutions are available, which could improve patient-centered outcomes and communication. Improvements in short- and long-term outcomes for this patient population are anticipated as a result of additional study, technology development, and ICU communication protocols.[34]

A qualitative study described many communication strategies between clinicians and patients on mechanical ventilation in the intensive care unit that are intended to avoid, recognize, and manage symptoms. Individual interviews and participant observation are used in tandem for the fieldwork investigation. When it is feasible, patient verification is necessary for both proactive and reactive symptom assessment of nonspeaking patients. A combination of good clinical judgment and symptom awareness, the use of pertinent assessment instruments, and the use and development of augmentative and alternative communication skills are necessary for better symptom prevention, detection, and management.[35]

A study was conducted with, pre- and post-test quasi-experimental research design was done for this investigation in, Purposive sampling was used to choose 30 patients who were admitted to ICU and were on mechanical ventilation. Each patient's attendant gave their own consent.

Using an interview schedule, demographic data was gathered. Using self- structured questionnaires, the pre-test level of communication pattern and the degree of satisfaction with addressing the basic needs of the patients on mechanical ventilators admitted to the intensive care unit were assessed., post-test evaluation of communication style, and degree of satisfaction with basic needs of ICU patients on mechanical ventilators. According to the results, the majority of patients (18, or 60%) had bad communication patterns before the test, whereas the majority of patients 22 (73.33%) had strong communication patterns after the test. The majority of patients 28 (93.3%) had low levels of satisfaction before the test, while the majority of patients.19 (63.33%) of the patients expressed high levels of satisfaction, and there is a positive association between communication pattern and contentment[36].

2.2 Communication pattern and problems as observed by the nurses who take care of the patients with mechanical support

To overcome the communication challenges, various Augmentative and Alternative Communication strategies have been implemented people on mechanical ventilation frequently have a hard time communicating, which can cause them to feel frustrated, anxious, and alone found in their systematic review that these patients often have difficulty communicating their wants and feelings, which can lead to a decline in their level of satisfaction with care and possibly negative consequences. It includes communication boards, speaking valves and high-tech AAC Devices. The majority of communication techniques may be useful in enhancing patient-healthcare professional communication with patients who

are mechanically ventilated, notwithstanding the paucity of available data. A mix of approaches is recommended. To standardize the process for choosing a communication technique, we created an algorithm.[37]

A descriptive observational study using videos. Seven registered nurses (seven pairs) and seven critically ill, mechanically ventilated, and cognizant patients from the intensive care unit, coronary care unit, or high care unit participated. Continuous video recording took place., and the tape was then descriptively examined. Data was collected for 1 year. We discovered that patients exhibited Patient-Intentional-Action by doing a range of movements with different body parts, and that nurses tended to initiate communication more frequently than patients.

When nurses recognized and responded to the Patient-Intentional- Action or initiated conversation, they generated opportunities for patients to communicate. Our results show that nurses must be aware of patient-intentional action, react to it at all times, and initiate communication rather than waiting for the patient to do so[38].

A quantitative, retrospective descriptive, and exploratory research design was employed. This was enhanced by conducting further interviews with nurses to assess their expertise and abilities in interacting with ventilated patients in Botswana's two intensive care units. The study was guided by the American Association of Critical Nurses Synergy Model. The files of 159 patients were examined, and 50 nurses selected by selective sample answered a 42-item self-administered survey. 90% of the reviewed files included an assessment of the patients' communication skills. Only the most important information was conveyed by 4% of the respondents; no additional techniques or tools were employed to facilitate communication.[39]

A quantitative, retrospective descriptive, and exploratory research design was employed. This was enhanced by conducting further interviews with nurses to assess their expertise and abilities in interacting with ventilated patients in Botswana's two intensive care units. Following an assessment of the records of 159 patients, 50 nurses selected through purposive sampling answered a 42-item self-administered questionnaire. The evaluation of patients' communication skills was documented in over 90% of the inspected files. Four percent (4%) of the respondents merely shared the most important information; no other tools or techniques were employed to facilitatecommunication.[40]

A study done in the intensive care units, evaluated nurses' experiences communicating with patients on mechanical ventilation. Only a small percentage of nurses are aware of the significance of communication with patients on mechanical ventilation, according to the study's findings. Many nurses grow frustrated and act as a communication barrier due to their poor capacity to speak up. The situational nature of critical care nurses' responsibilities significantly affects their experiences and perspectives on communicating with patients on mechanical ventilation. However, the nurse demonstrated a need to accept the acquisition of information and skills[41].

2.3 Research related to Effectiveness of communication boards :

A quasi-experimental study to assess how communication boards affected the anxiety and communication ease of conscious patients on mechanical ventilation. Thirty patients were split into experimental and control groups for the investigation. Standard care was given to the control group, while communication boards were employed by the experimental group. Comparing patients using communication boards to the control group, the results showed a significant improvement in communication ease and a decrease in anxiety levels[42].

A study evaluated the impact of communication boards on patient satisfaction among patients on mechanical ventilation in an intensive car e unit at a tertiary hospital. There were two groups of 80 patients: the intervention group and the control group. While the control group received standard treatment, the intervention group made use of communication boards. The pre-test showed that the intervention and traditional groups had mean satisfaction levels of 32.47 ± 6.48 and 33.95 ± 6.41, respectively. The mean difference between the two groups was 1.47, which is deemed statistically non significant (t78 = 1.023, P = 0.310). On the other hand, the intervention and conventional groups' post-test scores were 37.85 ± 8.23 and 34.32 ± 6.18, respectively, with a mean difference of 3.53, showing statistical significance (t78 = 2.164, P = 0.034). According to post-intervention data, the intervention group's satisfaction score[43].

A comprehensive review in which they examined randomized controlled trials to ascertain how communication boards can help patients on mechanical ventilation connect with nurses and feel less anxious. Eleven research were included in the evaluation, which concluded that communication boards were linked to lower patient anxiety levels and greatly increased the quantity and caliber of nurse-patient interactions. In patients on mechanical ventilation, communication boards significantly improved nurse-patient contact.[44]

An experimental study was carried out to evaluate the impact of a communication board on the communication process among patients in particular hospitals who are on mechanical ventilation. Sixty individuals using mechanical ventilators were the subjects of the data collection. The mean difference between the experimental and control groups' patient response scores was determined to be significant ($p<0.01$). The experimental group's mean patient reaction score was 22.6, while the control groups was 8.8. In comparison to the control group, the experimental group's patient response score was noticeably greater.[45]

A randomized controlled study conducted by to assess the feasibility of implementing a communication board to improve communication interactions among mechanically ventilated intensive care at hospital in Sri Lanka. The study was conducted among 60 participants and equally randomized into control and experimental group.[46]

The study was designed in quasi-experiment**.** The study was carried out in intensive care units connected to 3 Ministry of Health public hospitals. 60 nurses who worked in the aforementioned scenario were selected through purposive sampling. The nurses' practical skill competency checklist and a structured self-administered questionnaire were used as data collection instruments. According to the study's findings, nurses who participated in the follow-up phase learned and practiced more than those who participated in the pre-test phase (85% and 80%, respectively) With a highly statistically significant positive correlation between cumulative total knowledge and practice regarding the care of mechanically ventilated patients during pre, post, and three-month follow-up phases (r = 0.987 and P = 0.000), the majority of nurses under study are encouraged to increase their level of practice and knowledge. Provide continuing education programs on caring for patients on mechanical ventilation, which should be required for recently hired nurses. The need for training to update nurses' knowledge and practice is determined by the emergence of a regular rating.[47].

A study by evaluated the impact of a high-tech communication board on the reaction and degree of satisfaction of patients in Tamil Nadu who are on mechanical ventilation. 60 patients participated in the trial. Among patients on mechanical ventilation, the experimental group (66.7%) had a very good

response, the control group (90%) had a moderate response, and the control group (10%) had a light reaction.[48]

SUMMARY

On evaluating the effectiveness of communication boards in improving patient satisfaction with communication patterns, specifically among patients on ventilators. Patients who are on ventilators often experience difficulty in verbalizing their needs, making communication challenging. Communication boards serve as a tool to bridge this gap by allowing patients to point to symbols, words, or pictures to express themselves. The effectiveness of such boards is assessed by measuring patient satisfaction, which may include ease of use, clarity, and the ability to convey essential information. The goal is to determine these boards enhance the communication experience, reduce frustration, and improve the overall quality of care for ventilated patients. Studies may also explore the impact on caregivers and healthcare providers, considering the efficiency of patient-provider interactions and the emotional well-being of the patient.

METHODOLOGY

According to **Bouchrika (2022)** A research methodology outlines the methods and processes used to find and examine data related to a particular study topic. Researchers use this method to plan their study so that they can use the chosen research tools to accomplish their goals. It encompasses all of the crucial elements of research, such as the data collection and analysis techniques, the research design, and the general framework in which the study is carried out. These principles can assist you in understanding what research methodology is, but you also need to understand why selecting the appropriate technique is crucial.

This chapter deals with description of technique and different processes which were performed for obtaining and organizing data for research. It includes description of research approach, research design, setting, sample and sampling technique, preparation of blue print, development of data collection tools and technique, development of structured knowledge questionnaire, preparation of communication board, pilot study, data collection procedures, and plan for data analysis for determining the effectiveness of communication board.

RESEARCH APPROACH -

A research approach instructs the investigator on what information to gather and how to interpret it. It is the overarching strategy or blueprint decided upon to conduct the research. It also implies the potential inference that could be made from the information. An evaluative research approach was thought to be the most appropriate given the goals of the current investigation.

An evaluation study's objective is to compare the results of a program to the objectives it was designed to achieve in order to help make future program decisions and enhance existing programming. **(Haber and Wood (2002).**

Polit and Hungler (2004) state that "evaluative research is an applied form of research that involves finding out how well a program, practice, procedure, or policy is working."

Research approach is Quantitative research study, which focus on collecting and analyzing numerical data to understand and describe phenomena, test hypothesis, and make predictions, often using statistical methods to draw objective conclusions**.**

3.1 Research design

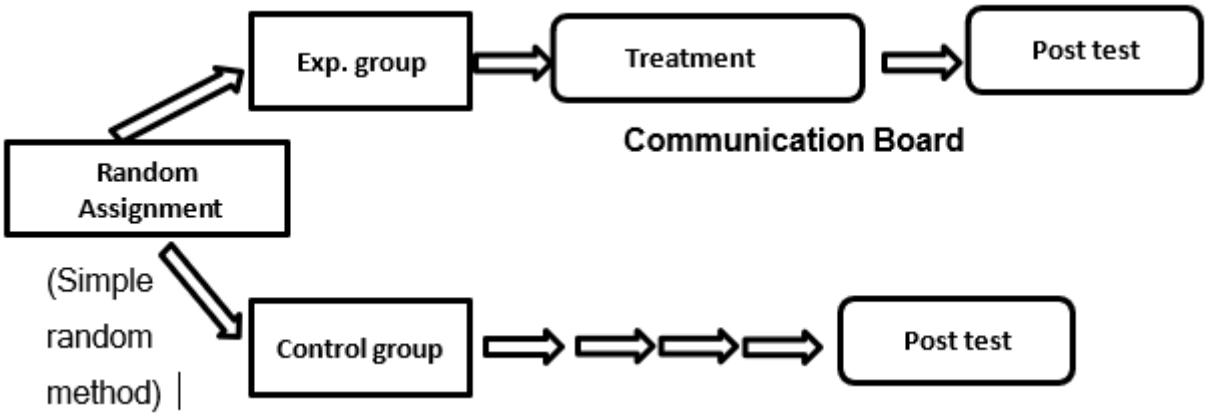
The research design adopted for the study was **True Experimental- post test only control group research design.**

E X O1
C O2

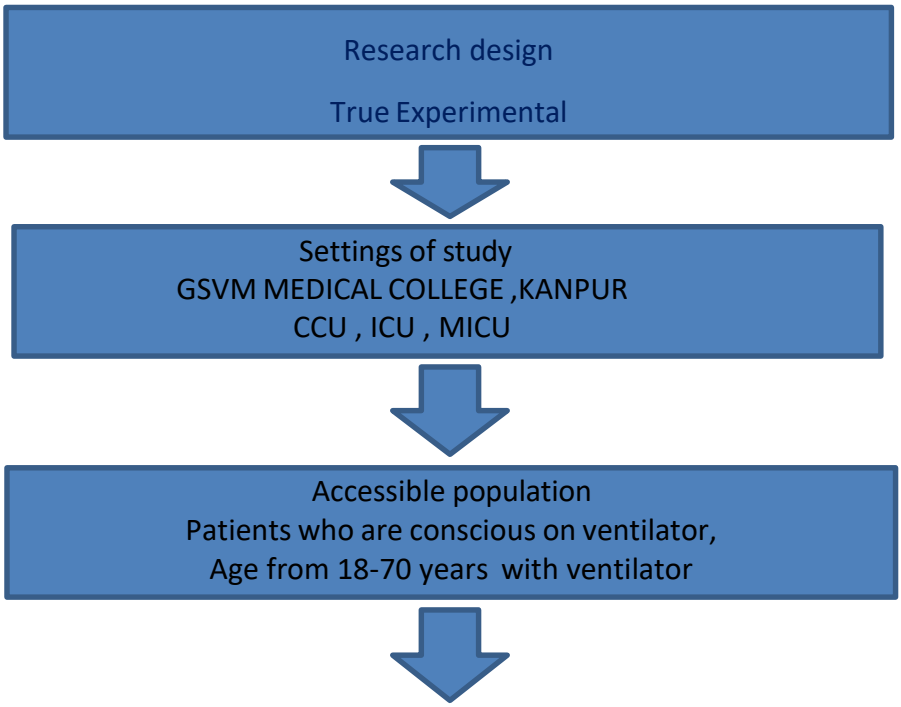
KEY WORDS

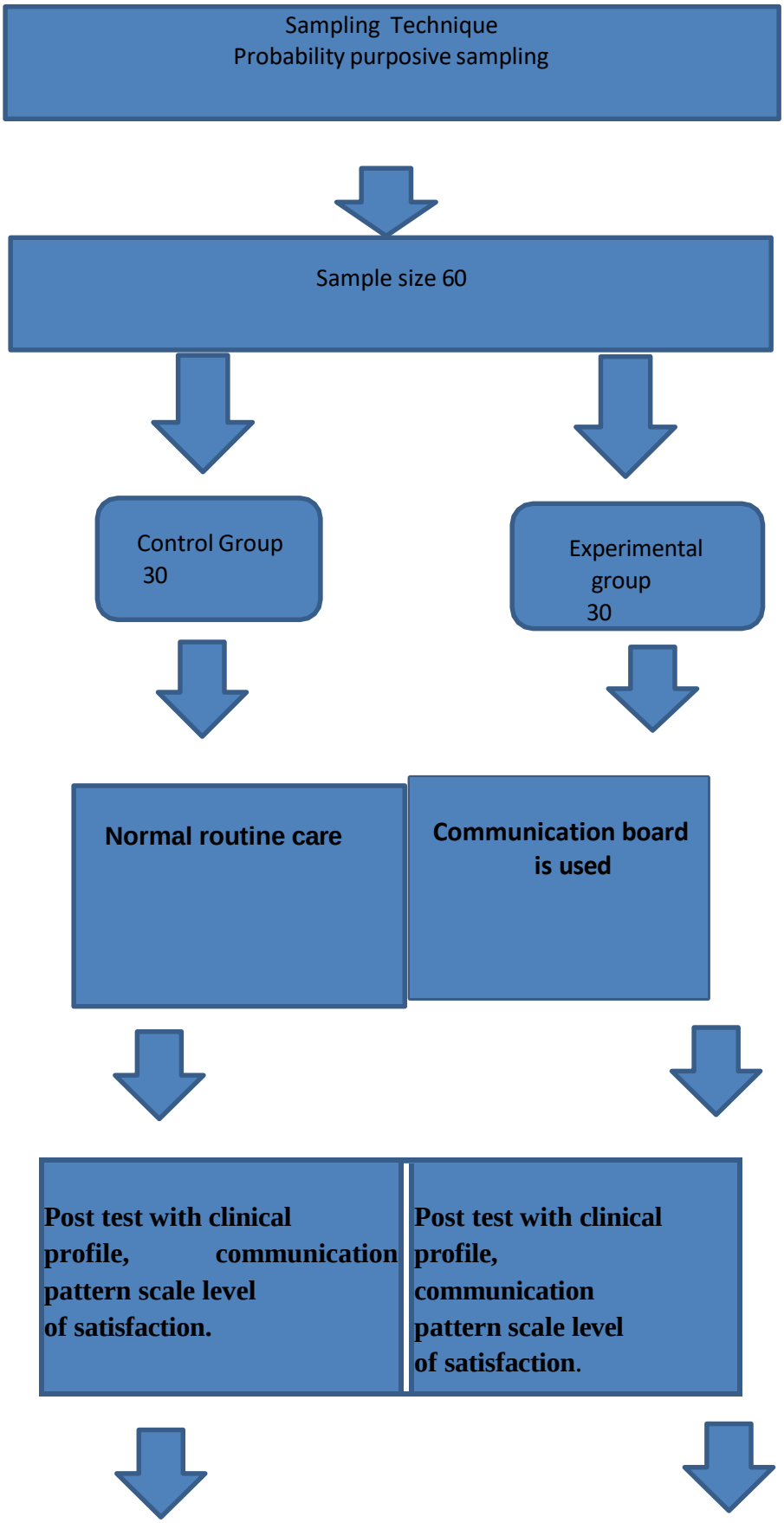
E- Experimental group C-Control group X- Intervention
O1- Post test assessment of patient with communication board O2 - Post test assessment of patient without communication board

Post-Test Only Control Design

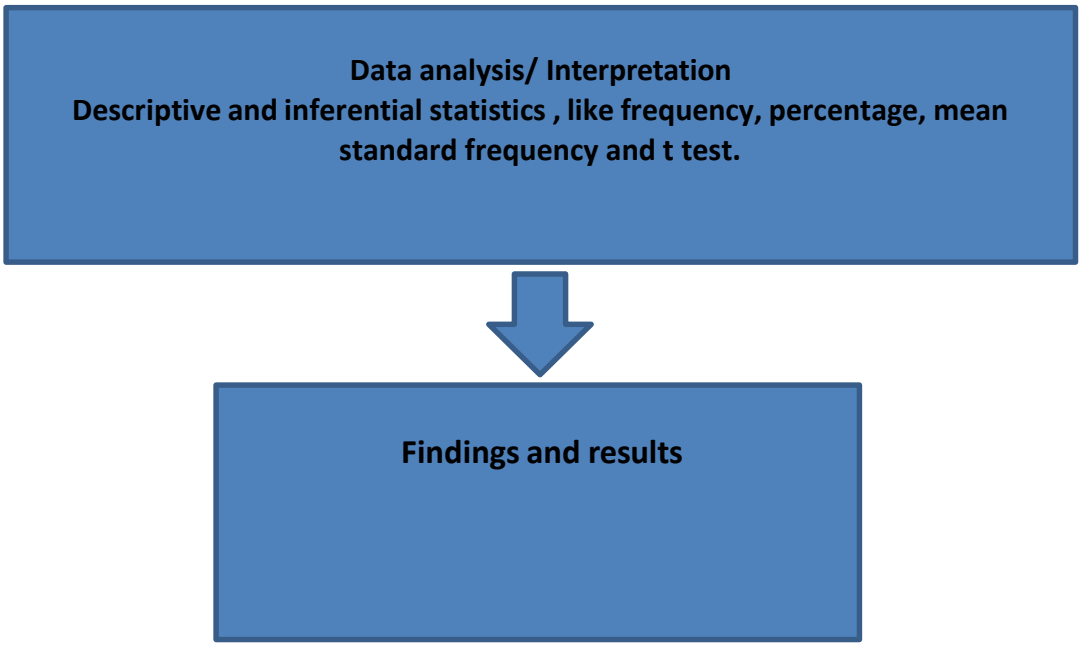


THE SCHEMATIC REPRESENTATION OF THE STUDY DESIGN SHOWS THE STUDY CONDUCTED IN ONE PHASE.




Sampling Technique
Probability purposive sampling
Sample size 60
Control Group
30
Experimental
group
30
Normal routine care
Communication board
is used
Post test with clinical
profile, communication
pattern scale level
of satisfaction.
Post test with clinical
profile,
communication
pattern scale level
of satisfaction.

s



Variables Under Study-

According to Creswell (2012), the dependent variable is an attribute or characteristic that is dependent on or influenced by the independent variable, while the independent variable is an attribute or characteristic that influences or affects an outcome on the dependent variable**.**

A variable in research is a property or characteristic that is subject to change and is frequently tested or altered in order to examine relationships or consequences. In order to formulate research questions, test hypotheses, and interpret findings, researchers employ variables.

1. **Independent variables**–A variable that is altered or modified in an experiment to observe its effects on other variables is known as an independent variable.

- In this study the independent variables was Communication board used for patients.

2. **Dependent variable**-The variable that is altered as a result of manipulating the independent variable is known as the dependent variable.

- In this study dependent variables was levels of satisfactions among ventilator patients.

Settings of the Study

The study was conducted in LLR Hospital, at Kanpur Intensive Care Units (ICUs), Surgical Intensive Care Unit (SICU).

The advanced medical technology and skilled healthcare professionals in this hospital ensure high standards of care for critically ill patients, providing an optimal setting for assessing the effectiveness of communication boards in enhancing patient satisfaction with communication patterns.

Population

The term "population" describes all of the members of the same species that are able to mate together and reside in a particular location. The total group of people or things meeting the designated criteria of interest of the research.

According to Jilcha Sile yew, (2020) The entire group of individuals, objects, or events that share a common characteristic and are the focus of the study.

The researcher specifies the broad population (target population) as well as the actual population that is

available for study (accessible population).

3. Target Population –

The large group of people or things that researchers are interested in examining and to which they hope to apply their findings is referred to as the target population**.**

All the patients who are unconscious and admitted in the **MICU, SICU& CCU,ICU LLR hospital** in **Kanpur**.

4. Accessible Population –

The segment of the target population that the researcher can actually reach and use to find study participants is known as the accessible population.

All the conscious and oriented patients who will be ventilated in **MICU, SICU &CCU,ICU at LLR** hospital in **Kanpur.**

The conclusion of research study is based on the data obtained from the accessible population and the statistical inferences will be made only to the group from which the sample are selected.

Criteria for Sample Selection Inclusion criteria

- Patients who was conscious and oriented to person, place and time during ventilation on CPAP with Pressure Support mode
- Patients who had required of ventilation from18-72 hours of intubation
- Patients of age between 18 & 68 years

Exclusion criteria

- Patients who were ventilated through tracheotomy.
- Patients who was hemodynamically unstable at the time of ventilation.
- Patients who had gone under any surgery.
- Patients who have psychiatric problems, depression.

SAMPLE SIZE

A sample is a portion of a larger population chosen to reflect the features of that population. By examining this smaller group, researchers are able to make deductions and findings that apply to the broader population**.**

The sample size is 60. First 30 subjects assigned to the control group and the remaining 30 subjects considered to be the experimental group.

$$n = \frac{2(\sigma_1^2 + \sigma_2^2/r) * (Z_{1-\alpha/} + Z_{1-\beta})}{(\mu_1 - \mu_2)^2}$$

SAMPLING TECHNIQUE

The samples will be selected using Probability purposive sampling technique for this study.

Probability Purposive sampling, a subset of Probability sampling, chooses participants not by chance but by other criteria, such availability, convenience, or certain traits, instead of trying to get a representative sample of the total population.

Simple random sampling is a type of probability sampling in which the researcher randomly selects a subset of participants from a population. Each member of the population has an equal chance of being

selected. Data is then collected from as large a percentage as possible of this random subset.

DESCRIPTION OF THE TOOL

This tool consists of 4 sections;

Section-A Demographic profile. It includes age, gender, education occupation and disease conditions.

Section-B Clinical profile It includes duration of mechanical ventilation, previous history of mechanical ventilation, length of ICU stays.

Section-C Modified communication pattern scale. The investigator has prepared the tool after intensive review of related literature and will be prepared accordingly to suit the study. The maximum score for communication pattern scale was 30 and the least score was 0.

It is a 4-point observational rating scale which consisted of 10 items for patient response

SCORE INTERPRETATION

The scores were; Communication pattern scale -

ASPECT	SCORE
0	NOT AT ALL
1	QUITE A BIT
2	MODERATELY SO
3	VERY MUCH

Section-D Levels of satisfaction scale

This includes assessing the level of satisfaction, of patients on communication pattern. The maximum score for level of satisfaction was 60 and the minimum score considered to be 15. It is a 4-point Likert scale which will be constituted of 15 items. Among the 15 items, 5 items scores will be reversed.

ASPECTS	SCORES
STRONGLY DISAGREE	1
DISAGREE	2
AGREE	3
STRONGLY AGREE	4

Description Of Interventions Communication board

On the front of the communication board, on the left side, is a box containing the letters of the alphabet and the numbers 0-9. It contained two folders on the right side with the headings —I AM and —I WANT, —with descriptive words listed accordingly under each. On the back of the board to the left side have two drawings: one anterior view and one posterior view of a human body within a box entitled —pain chart. To the right of the pain chart are descriptive expressions of physical experiences relating to parts of human body. In addition, to the right of those words is a vertical pain scale from 0- 10.

On the far right is a box which consisted of conversational phrases and questions.

VALIDITY AND RELIABILITY OF THE TOOL VALIDITY-

According to **Bannigan & Watson**, it refers to the accuracy and appropriateness of a study's findings,

ensuring that it measures what it intends to measure and that conclusions drawn are logical and meaningful.

An instrument's content is the extent to which it measures the things it is supposed to measure. Experts in nursing were provided the instruments to ensure their content validity. Every idea, remark, and correction were taken into account and determined to be valid.

Eleven experts from Medical and Nursing field English and Hindi translators & Statistician. The experts were asked to go through the content, modified scale and questions and provide their valuable suggestion on the criteria scale given along with it. The response columns for validating the tool were satisfactory or non-satisfactory. Twelve members has validated the tools,2 Doctors and 7Nursing Experts ,and 2 Language experts and statistician .

The All recommendations and criticisms were taken into consideration, and after revisions, they were determined to be valid.

RELIABILITY

Reliability is defined as the ability of an instrument to create reproducible results. Therefore, reliability is concern with consistency of the measurement tools.

The reliability of the communication pattern scale and the level of satisfaction scale are tested using the split-half method. The communication pattern scale is made up of staff and patient answer questionnaires.

Reliability scores for the level of satisfaction scale have a reliability of 0.86. The tool was feasible and reliable for the main study.

PILOT STUDY

Pilot study is a small-scale version or trial run for the study between 04/10/2024 to 18/10/2024. The function of the pilot study is to obtain information for and improving the Research study for assessing the effectiveness of communication board on the level of communication satisfaction among ventilator patients Total six samples were taken for the study by non-probability purposive sampling technique, by using the Simple random method. These samples were not included in main study, within 2 weeks the pilot study was carried out 3 patients in Experimental group and 3 patients for Control group. Data collected were tabulated and analyzed using descriptive and inferential statistical methods. The analysis of the pilot study revealed the feasibility and practicability of the designed methodology and the study.

ETHICAL

The ethical clearance was obtained from the Institutional Ethics Committee (IEC). After getting content validity from the Medical Surgical Nursing and Research experts, the pilot study was conducted on – L.P.S. Institute of Cardiology, Kanpur Uttar Pradesh. The purpose of pilot study is to determine the effectiveness of the communication board, and see the level of satisfaction on ventilated patients. Pilot study was conducted among ICU, Ventilator Patients, to see the effectiveness of communication board on communication pattern and level of satisfaction among mechanically ventilated patients. Mechanically Ventilated patients were selected as inclusive criterion and others were selected purposive sampling technique in LPS Institute of Cardiology, in Kanpur.

Communication pattern scale was used to collect the data of ventilated patients to see the effectiveness of communication board on communication patter level of satisfaction.

Split half method was used to find out the reliability for level of satisfaction scale r=0.86.

PROCEDURE FOR DATA COLLECTION

Formal permission was obtained from the Director and HOD of the ICUs by submitting an application to assure compliance with the hospital's rules and regulations. The first step in selecting subjects for the study was involve the investigator reviewing patients' files to check factors such as demographic variables and duration of intubation, ensuring that the patients meet the inclusion criteria. Additionally, the investigator was discussing the patients' physical and psychological status with the nursing staff to determine any limitations in cognition and emotional state.

Subsequently, the control group, which will receive standard care, was assessed by the investigator. In this regard, the patients were evaluated using a communication pattern scale. Furthermore, the patients' satisfaction with the communication pattern was assessed using a satisfaction scale. Similarly, the same scales will be used to evaluate the experimental group, which receive the communication board.

Data was collected while the investigator remains with the patient for 8 hours. During this time, the board was used equally by the investigator, based on the gestures evoked from the patient. The investigator was observing the patient's response to the communication mode as facilitated by the investigator, using an observational rating scale. After 24 hours of extubating, the patients' satisfaction levels with the communication mode were evaluated using a Likert scale. Patients were given 30 minutes to score the 15 items on the scale.

Furthermore, feedback on the communication board (experimental group) was collected through 5 quantitative questionnaires. These Modified Scales were designed to gather insights into the merits, demerits, and suggestions for improvement of the communication board. This feedback will be obtained alongside the satisfaction scale after 24 hours of extubation, with patients allotted 30 minutes for completion.

SUMMARY-

This chapter dealt with description of methodology and different steps which were taken for gathering and organizing data for investigation. It includes research approach, research design, variables under study, setting, population, sample and sampling technique, development of the tool and, content validity, established reliability, pilot study, procedure for data collection and plan of data analysis.

ANALYSIS AND INTERPRETATION AND DISCUSSION

This chapter deals with the description of demographic characteristics and clinical profile of the participants, analysis and interpretation of the data collected to evaluate the effectiveness of communication board among mechanically ventilated patients. The data collected was compiled, analyzed, and interpreted as follows.

SECTION A: Description of subjects based on the demographic variable

SECTION B: Description of subjects based on clinical profile

SECTION C: Description of subjects based on patient response and Level of satisfaction over communication pattern.

SECTION D: Comparison of patient response on communication pattern in Experimental and control group

SECTION E: Comparison of level of satisfaction on communication pattern in experimental and

control group.

SECTION F: Association between patient response, and level of satisfaction over communication pattern.

SECTION A: Description of subjects based on the demographic variable

Table 1: Distribution of subjects according to demographic characteristics N=60

S. No.	Demographic variables	Groups			
		Experimental		Control	
		F	%	F	%
1.	**Age**				
	18-34 years	6	20.0	5	16.7
	35-51 years	13	43.3	18	60.0
	52-68 years	8	26.7	7	23.3
	> 68 years	3	10.0	0	0
2.	**Gender**				
	Male	26	86.7	26	86.7
	Female	4	13.3	4	13.3
3.	**Education**				
	Illiterate	12	40.0	10	60.0
	Secondary Education	18	60.0	20	40.0
	Higher secondary & above	**0**	**0**	**0**	**0**
4.	**Occupation**				
	Employed	12	40.0	18	60.0
	Unemployed	18	60.0	12	40.0
5.	**Disease condition**				
	COPD	12	40.0	14	46.7
	Covid-19	6	20.0	4	13.3
	Cardiac disease	6	20.0	4	13.3
	RTA	2	6.7	3	10.0
	Poisoning	2	6.7	2	6.7
	Others	2	6.7	3	10.0

Table 1, describes the distribution of subjects in experimental and control group according to Age, Gender, Education, Occupation and Disease condition.

- Of the 30 subjects in the experimental group, 43% belong to 35-51 years of age and 27% between 52 and 68 years of age, whereas 30 subjects in control group (60%) belong between 35 and 51 years of age and 17% belong to 18-34 years of age.
- Considering the gender of subjects in experimental group 87% are the males and
- 13% are females. In control group 87% are males and 13% are females.

The most common primary diagnosis among the participants both in experimental & control group was COPD that is 40% and 47% respectively.

Demographic Variables Figures

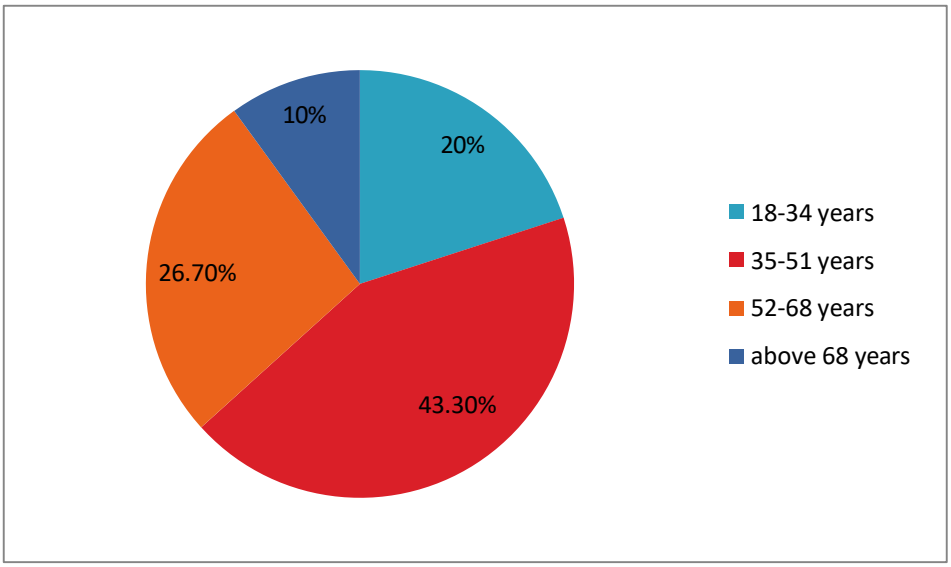


Figure 2: Pie diagram shows percentage distribution of Age in Experimental group.

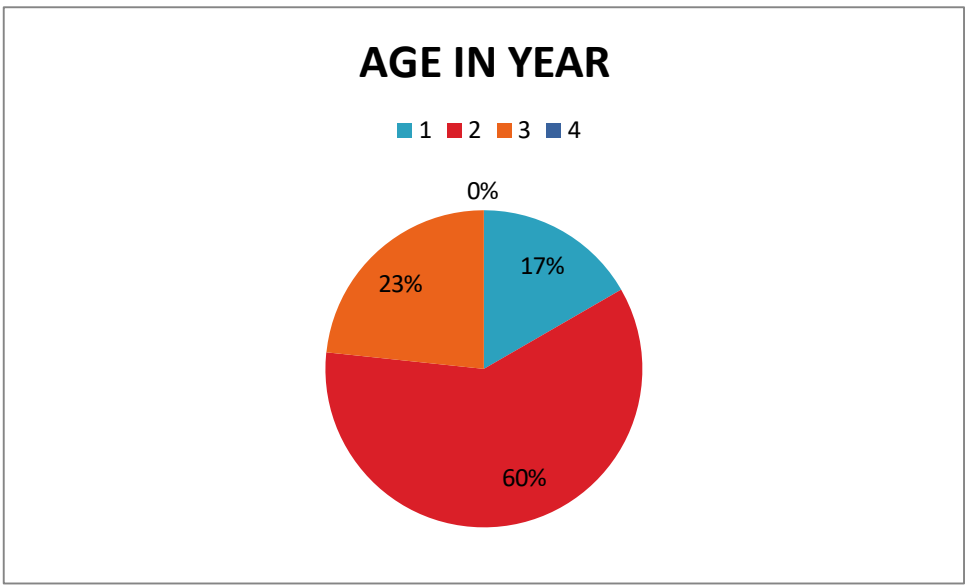


Figure 3: Pie diagram shows percentage distribution of Age in Control group

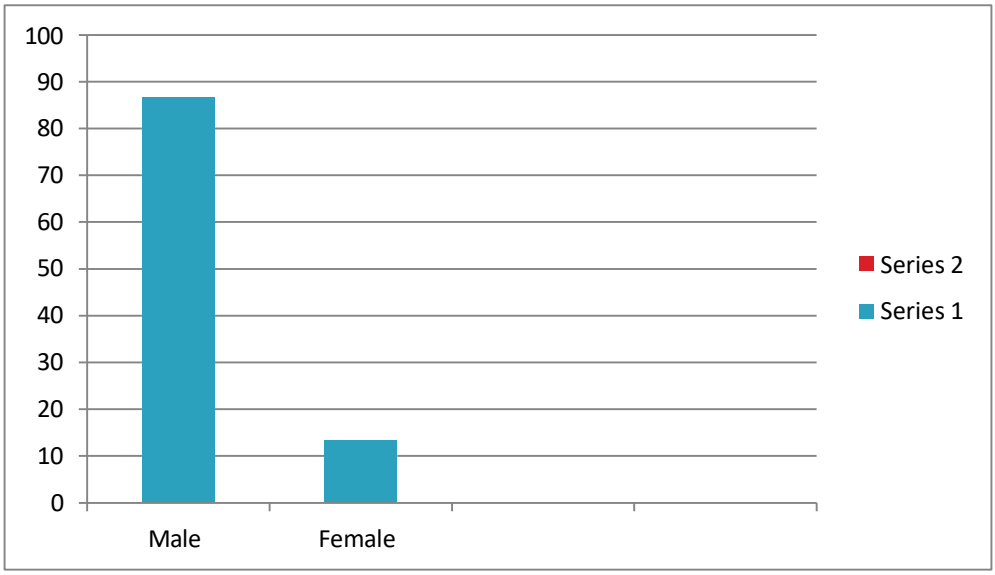


Figure 4: Bar diagram shows percentage distribution of Gender in Experimental group

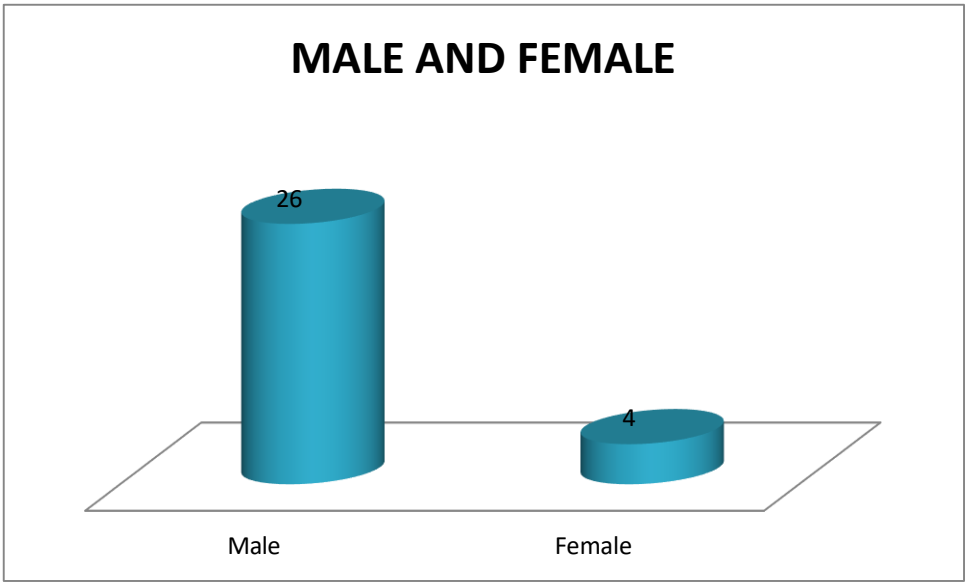


Figure 5: Cylinder diagram shows percentage distribution of Gender in Control group

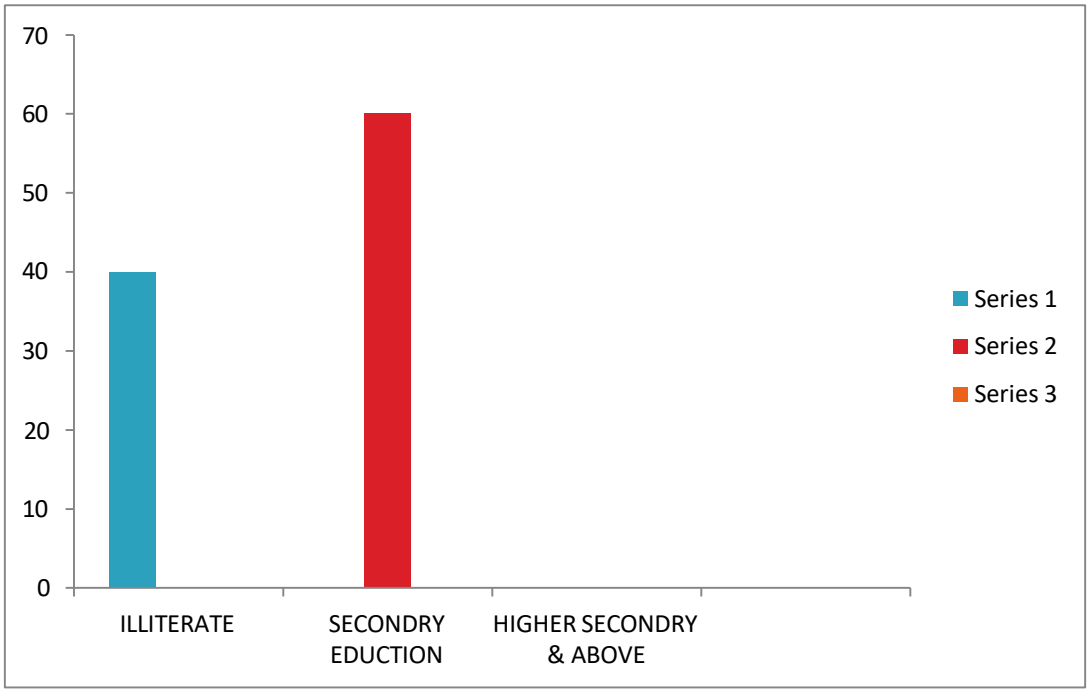


Figure 6: Bar diagram shows percentage distribution of Education in Experimental group

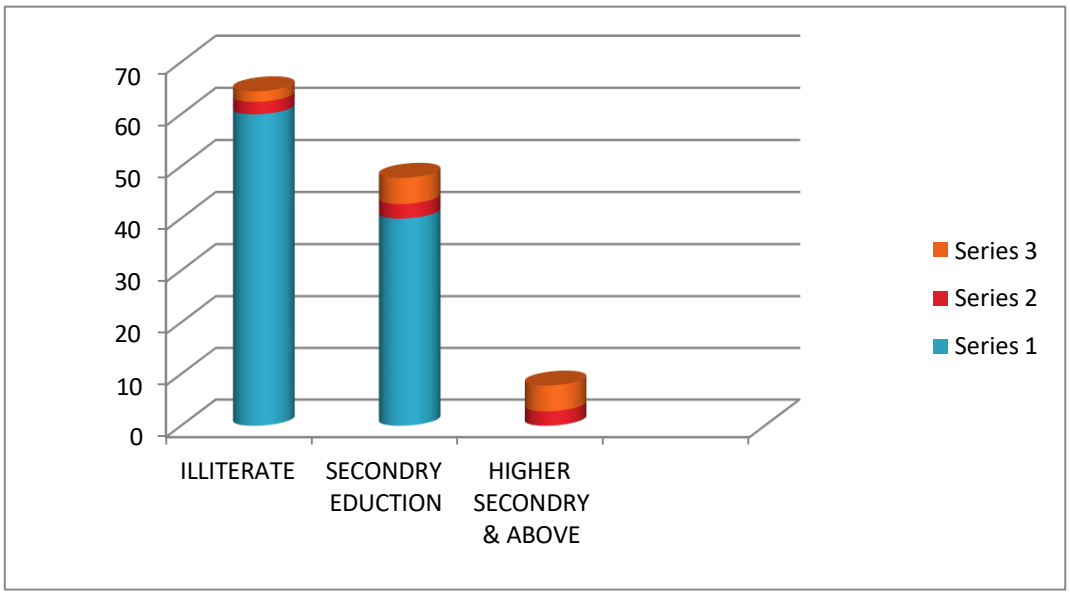


Figure 7: Cylinder diagram shows percentage distribution of Education in Control group

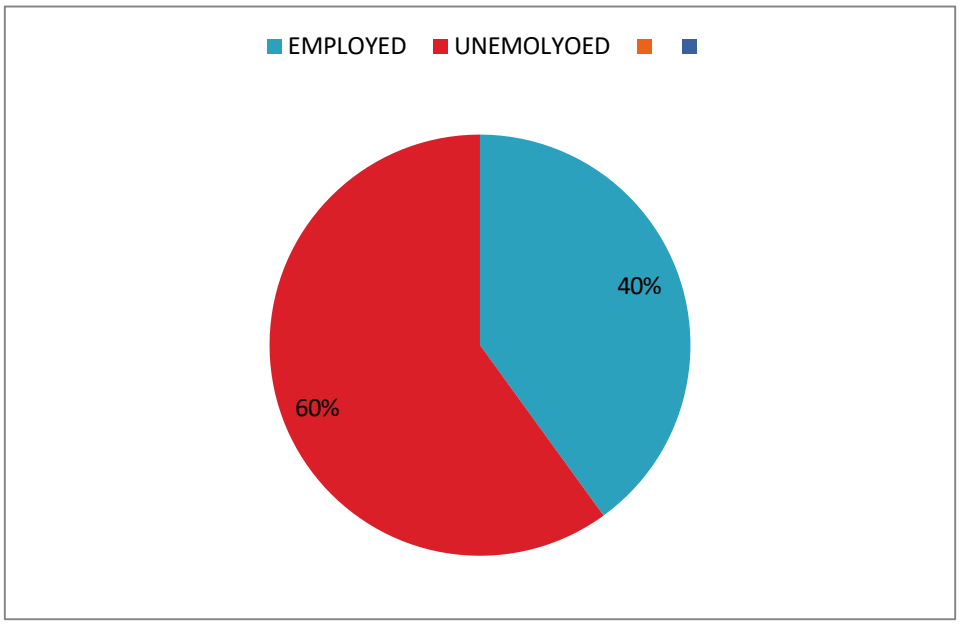
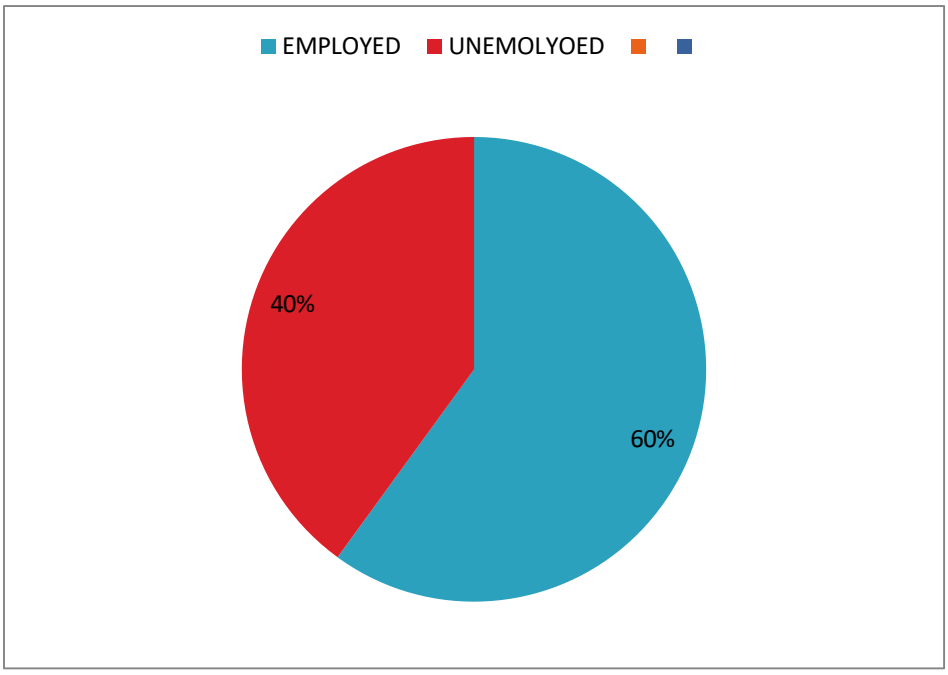


Figure 8: Pie diagram shows percentage distribution of Occupation in Experimental group



.Figure 9: Pie diagram shows percentage distribution of Occupation in Experimental group

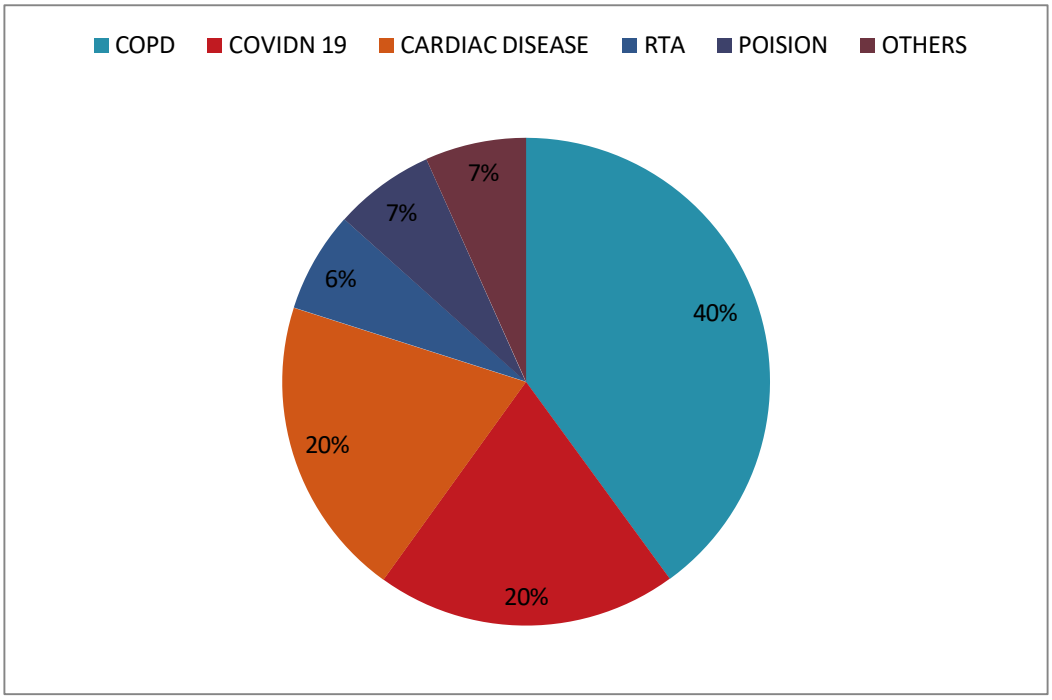


Figure 10: Pie diagram shows percentage distribution of Disease condition in Experimental group

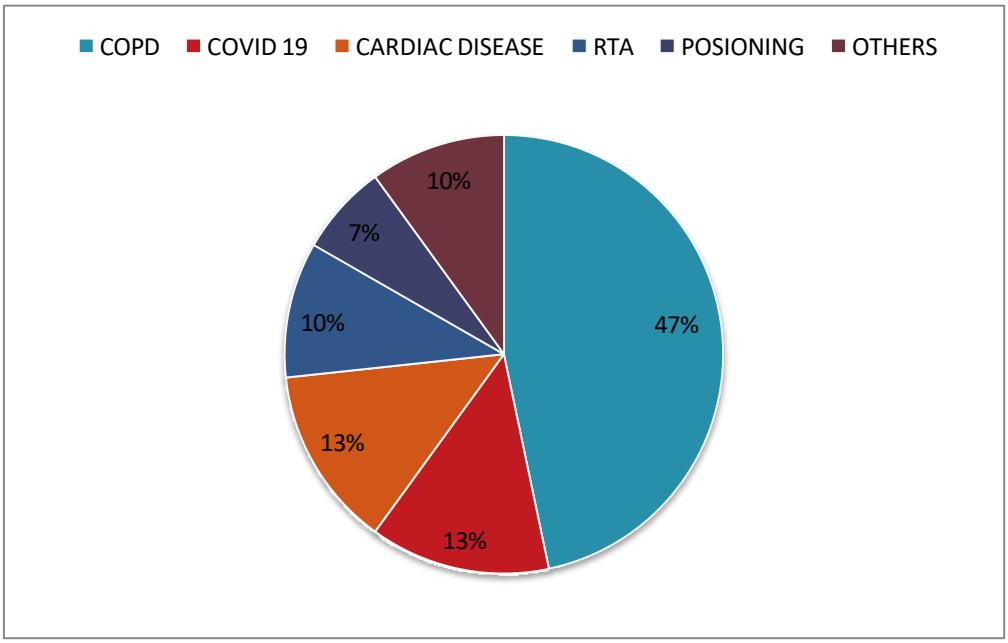


Figure 11: Pie diagram shows percentage distribution of Disease condition in Control group

SECTION B: Description of subjects based on clinical profile Table 2: Distribution of subjects according to clinical profile

S. No.	Clinical Profile	Groups			
		Experimental		Control	
		F	%	F	%
1.	**Duration of Mechanical ventilation**				
	18 hrs	14	46.7	17	56.7
	36 hrs	5	16.7	2	6.7
	54 hrs	4	13.3	4	13.3
	72 hrs	7	23.3	7	23.3
2.	**Previously on Mechanical Ventilation**				
	Yes	2	6.7	2	6.7
	No	28	93.3	28	93.3
3.	**Length Of ICU Stay**				
	2 days	13	43.3	13	43.3
	3 days	3	10.0	3	10.0
	4 days	5	16.7	5	16.7
	5 days	9	30.0	9	30.0

Table 2, describes the subjects according to the clinical profile.

- In the experimental group 47% and 23% received ventilator support for 18 hours and 72 hours respectively.
- In control group most subjects (57%) secured the ventilator treatment for 18 hours and the rest 6.7% received the ventilator treatment for 36hours, (13%) for 54 hours and (23%) receive ventilator treatment for 72 hours respectively.

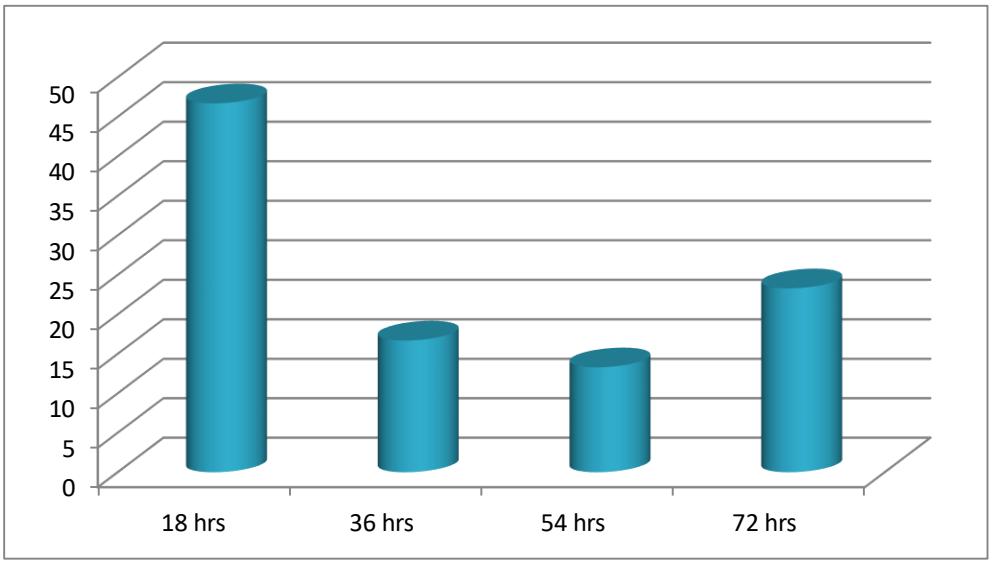


Figure 12 : Cylinder diagram shows percentage distribution of Duration of Mechanical Ventilation in Experimental group

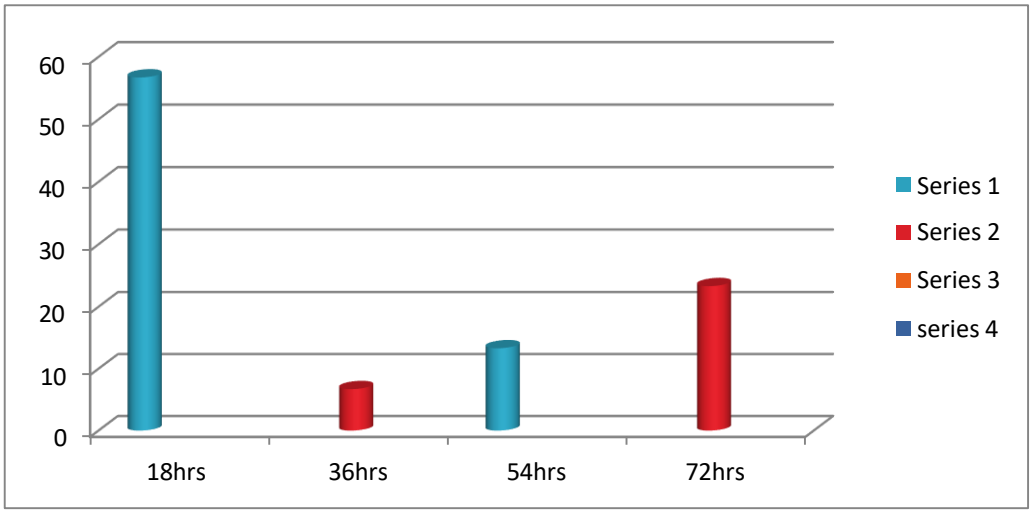


Figure 13 : Cylinder diagram shows percentage distribution of Duration of Mechanical Ventilation in Control group

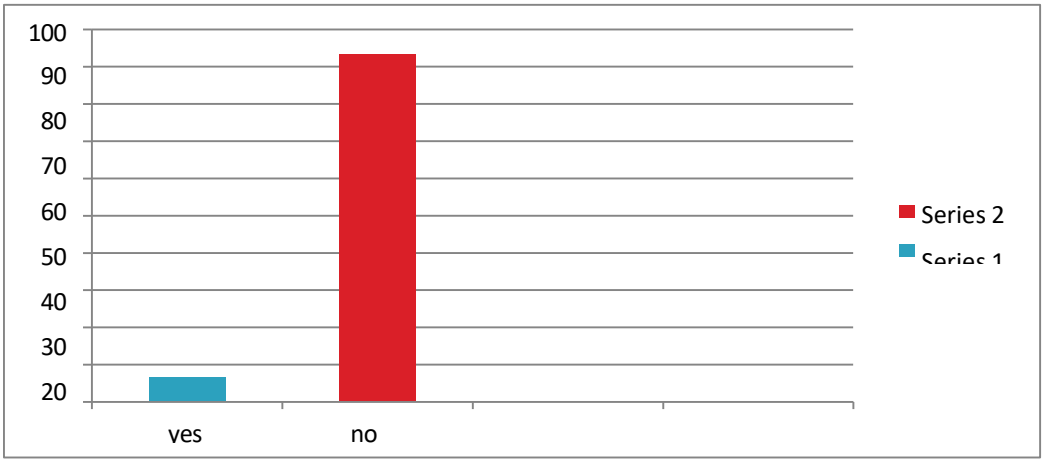


Figure 14 : Bar diagram shows percentage distribution of Previous on Mechanical Ventilation in Experimental group

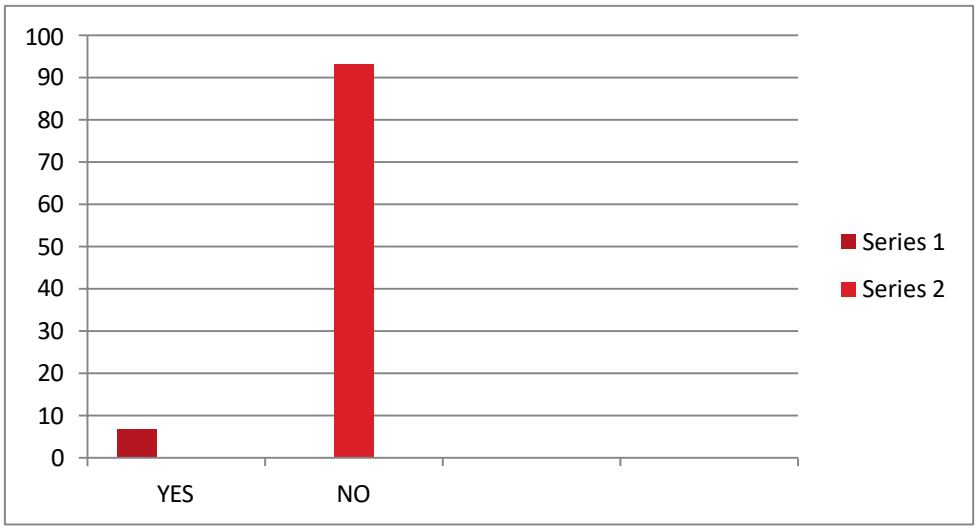


Figure 15 : Bar diagram shows percentage distribution of Previous on Mechanical Ventilation in Control group

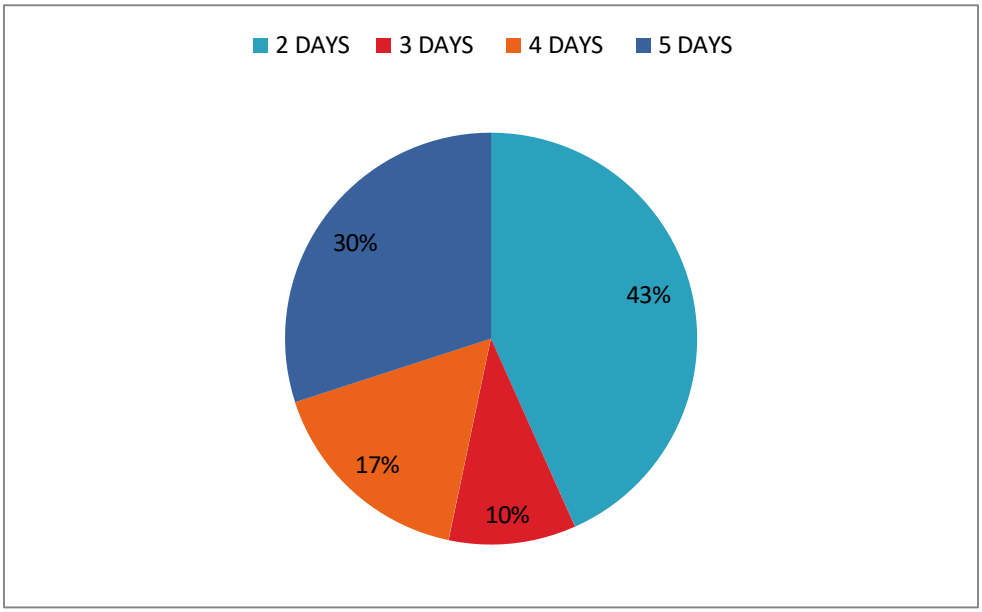


Figure 16 : Pie diagram shows percentage distribution of Length of ICU stay in Experimental group

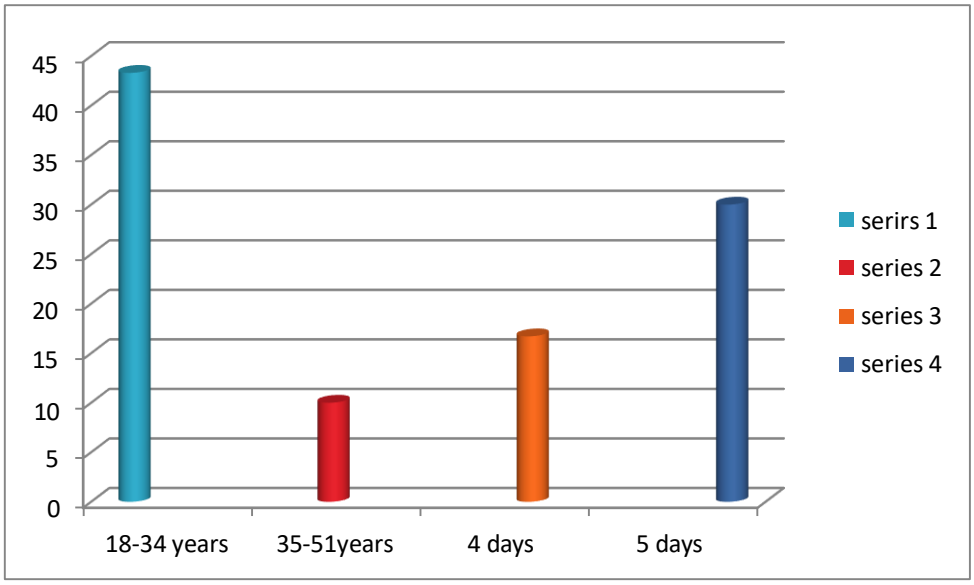


Figure 17 : Cylinder diagram shows percentage distribution of Length of ICU stay in Control group.

SECTION C: Description of subjects based on patient response, and Level of satisfaction over communication pattern.

Table 3: Distribution of subjects based on patient response, and level of Satisfaction

S. No	Variables	Experimental Group	Control Group		
		Mean	SD	Mean	SD
1	Patient Response	20.93	2.303	8.47	3.857
2	Level of Satisfaction	54.73	1.507	25.93	**1.413**

Table 3, depicts the mean values for patient response, level of satisfaction. The mean value for patient

response in experimental group was 20.93 but in control group it fell down to 8.47. Like patient response, the experimental group had shown high level of satisfaction (54.73) than the control group (25.93).

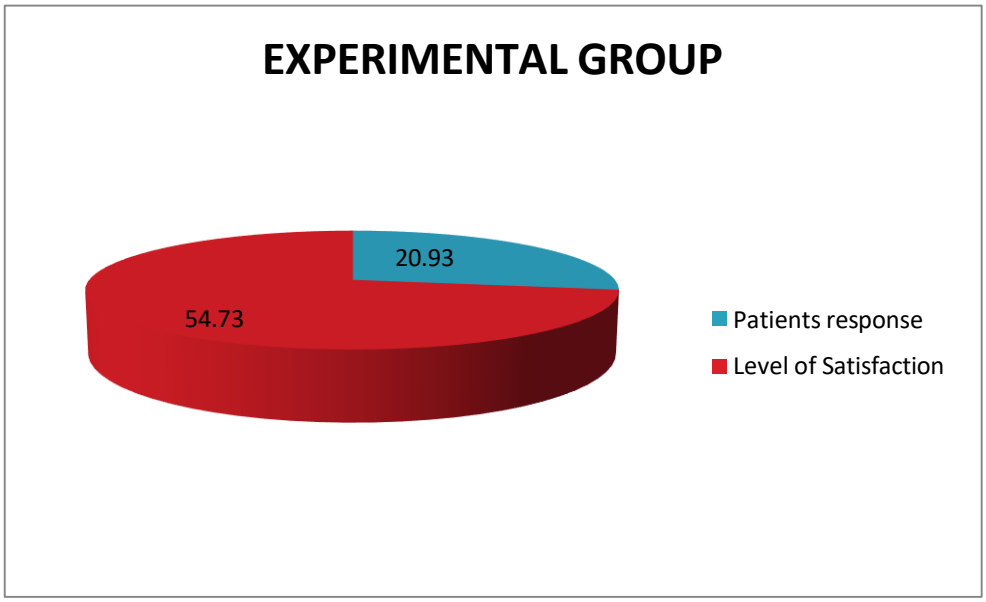


Figure 18 : Pie diagram shows distribution of Subjects based on patient response and Level of satisfaction in Experimental group.

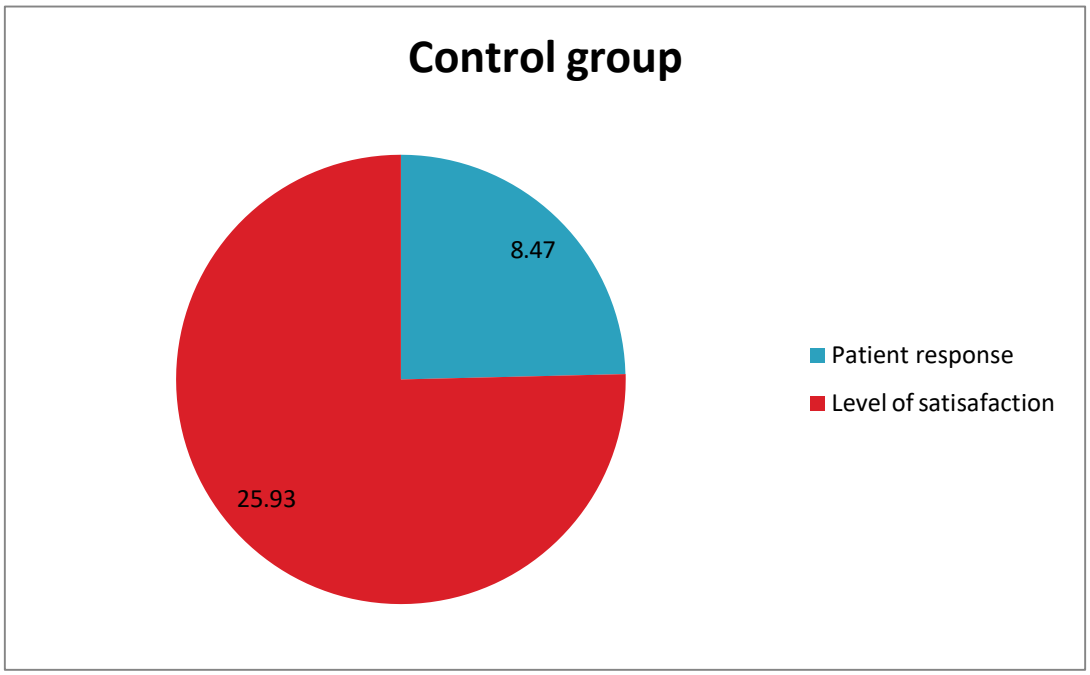


Figure 19 : Pie diagram shows distribution of Subjects based on patient response and Level of satisfaction in Control group.

SECTION D: Comparison of Patient Response on Communication Pattern in Experimental and Control Group

TABLE 4: Comparison of patient response on communication pattern in experimental and control group.

SI. No	Group	Mean	SD	Mean difference	Unpaired 't'test value		df	P value P<0.05
					Cal. v	Tab.v		
1	Experimental	20.9	2.303	12.43	15.199	2.00	58	Significant
2	Control	8.47	3.857					

Table 4, the 't' value is 15.199, for the mean difference in patient response score of the experimental and control group is significant (p<0.05). The mean response score of the experimental and control group were 20.9 and 8.47 respectively. It can be inferred that the patient response score is significantly higher in experimental group when compared to control group. The calculated t -value (15.199) is much higher than the tabulated t-value (2.00).

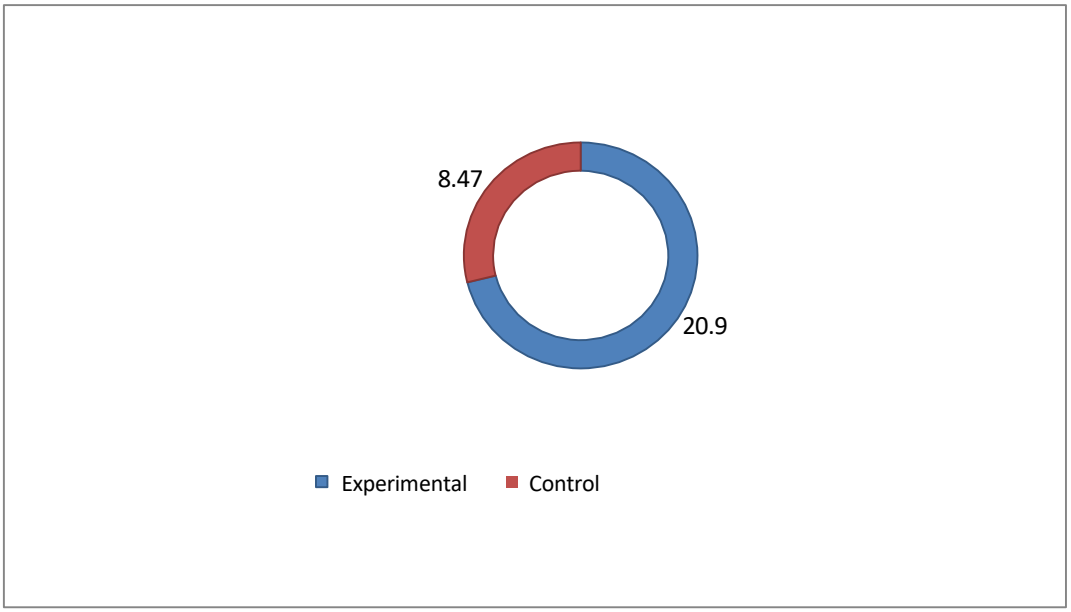


Figure 20 : Pie diagram shows comparison of Patient response on Communication pattern in Experimental group and Control group.

SECTION E: Comparison of Level of Satisfaction on Communication Pattern in Experimental and Control Group.

TABLE 5: Comparison of level of satisfaction over communication pattern in experimental and control group

SI. No	Group	Mean	SD	Mean difference	't' value cv	Df tv	p-value	
1	Experimental	54.73	1.507	28.8	48.47	2.00	58	S
2	Control	25.93	1.413					

Table 5, the 't' value is48.47, for the mean difference in satisfaction score of the experimental and

control group is significant ($p<0.05$). The mean satisfaction score of the experimental and control group were 54.73 and 25.93 respectively. It can be inferred that the level of satisfaction is significantly higher in experimental group when compared to control group. Mean difference is28.8. "t value" whereas cumulative value is 48.47 and tabular value is 2.00, whereas df value is 58, hence it is proved that it is significant.

The calculated t- value cumulative value is (48.47) is significantly greater than the tabulated t-value (2.00).

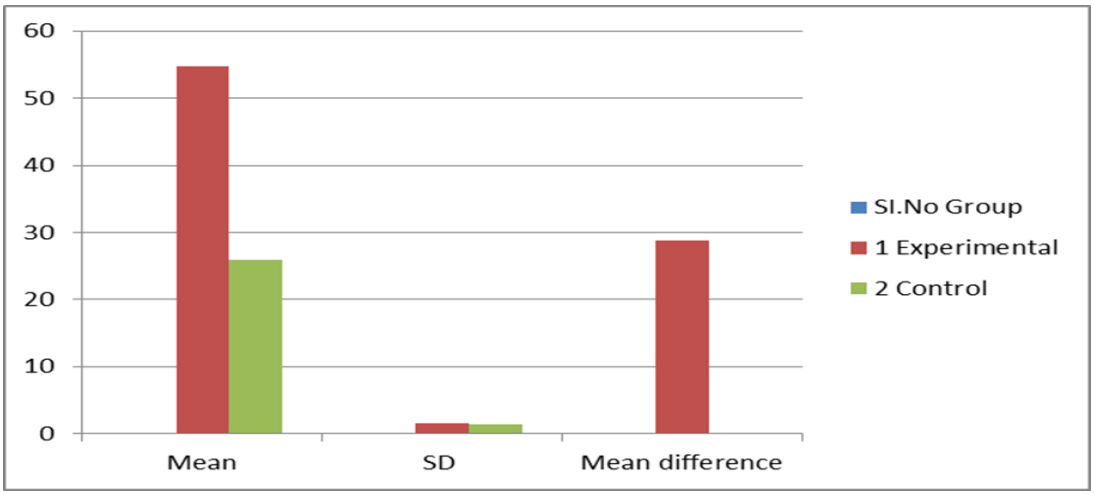


Figure 21: Comparison of level of satisfaction over communication pattern in experimental and control group.

SECTION F: Association between the posttest level of satisfaction in patients over ventilator with demographic variables in experimental and control group.

TABLE 6: Experimental Group **N=30**

Sr. No.	Demographic value	Strongly Disagree	Disagree	Agree	Strongly Agree	d. f	Computed x2 value	Tabulated x2 value	Significant & non-significant
1	**Age In Year**								
	18-34	0	0	0	6				Not-significant
	35-51	0	0	4	9	6	0.04	12.82	
	52-68	0	1	4	3				
	> 68	0	2	2	0				
2	**Gender**								
	Male	0	2	9	15	2	0.07	0.57	Not-Significant
	Female	0	0	1	3				
3	**Education**								
	Illiterate	0	0	2	10	2	0.09	4.81	Not-significant
	Secondary education	0	2	8	8				
	Higher education	0	0	0	0				

4	**Occupation**								
	Employed	0	0	2	10	2	0.09	4.81	Not-significant
	Unemployed	0	2	8	8				
5	**Disease Condition**								
	COPD	0	1	4	7	10	0.0209	13.27	Not-significant
	COVID-19	0	1	0	5				
	CARDIA	0	0	4	2				
	Disease								
	RTA	0	0	2	0				
	Poison	0	0	0	2				
	Others	0	0	0	2				

Table F. tells the value of the association between demographic variables and post test satisfaction levels in ventilator patients for both experimental and control group. Significance is determined by comparing the computed Chi- square value to the Tabulated Chi square value. All variables in experimental group are not statistically significant.

TABLE 7: Control group **N=30**

Sr. No.	Demographic value	Strongly Disagree	Disagree	Agree	Strongly Agree	d.f	Computed x2 value	Tabulated x2 value	Significant & non-significant
1	**Age in Year**								
	18-34	0	0	0	6	4	2.412	0.66045	Significant
	35-51	0	0	4	9				
	52-68	0	1	4	3				
	> 68	0	2	2	0				
2	**Gender**								
	Male	0	2	9	15	3	0.945	0.37	Significant
	Female	0	0	1	3				
3	**Education**								
	Illiterate	0	0	2	10	4	0.11	7.53	Not-significant
	Secondary education	0	2	8	8				
	Higher education	0	0	0	0				
4	**Occupation**								
	Employed	0	0	2	10	1	0.29	1.118	Not-significant
	Unemployed	0	2	8	8				
5	**Disease Condition**								
	COPD	0	1	4	7	5	0.28	6.27	Not-significant
	COVID-19	0	1	0	5				

	CARDIA C Disease	0	0	4	2				
	RTA	0	0	2	0				
	Poison	0	0	0	2				
	Others	0	0	0	2				

In control group Age in year and Gender, is significant. Non-significant variables are Education, Occupation, Disease Condition.

Summary –

This chapter deals with the analysis and interpretation of data collected from 2 groups to see the satisfaction level of patients based on the chi –square test, with significance determined by comparing computed Chi-square values to tabulated Chi-square. Descriptive and inferential statistics were used for analysis. Experimental group (N=30), the chi-square tests revealed that there was no statistically significant association between the post-test level of satisfaction and any of the demographic variables examined (Age, Gender, Education, Occupation, and Disease Condition) where as, Control group(N=30) based on the chi-square analysis Age in year and Gender is significant , and education ,occupation, disease condition is not significant.

DISCUSSION

The data collected for the study were analyzed statistically and discussed below based on the objectives. The sample size was 60. Of the 30 subjects in the experimental group, 43% belong to 35-51 years of age and 27% between 52 and 68 years of age, whereas 30 subjects in control group (60%) belong between 35 and 51 years of age and 17% belong to 18-34 years of age.

Considering the gender of subjects in experimental group 87% are the males and 13% are females. In control group 87% are males and 13% are females.

The most common primary diagnosis among the participants both in experimental & control group was COPD, that is 40% and 47% respectively.

Based on Clinical profile analysis, the experimental group 47% and 23% received ventilator support for 18 hours and 72 hours respectively. In control group most subjects (57%) secured the ventilator treatment for 18 hours and the rest 6.7% received the ventilator treatment for 36hours, (13%) for 54 hours and (23%) receive ventilator treatment for 72 hours respectively.

The first objective of the study was, to assess the post-test levels of satisfaction among ventilator patients in experimental group and control group in selected hospital at Kanpur.

The mean values for patient response, and level of satisfaction. The mean value for patient response in experimental group was 20.93 but in control group it fell down to 8.47. Like patient response, the mean value for staff response in experimental group found to be higher that is 25.13 whereas in control group it dipped down to 6.60. Similarly, the experimental group had shown high level of satisfaction (54.73) than the control group (25.93).

In the present study, its clear's that level of satisfaction in the experimental group is more when compare to patient response, staff response post ventilation care. The mean value for patient response in experimental group was 20.93 but in control group it fell down to 8.47. Experimental group found to be higher that is 25.13 whereas in control group it dipped down to 6.60. Similarly, the experimental group had shown high level of satisfaction (54.73) than the control group (25.93).

The second objective of the study was, to evaluate the effectiveness of utilizing a communication board on level of satisfaction of communication patterns among patients on ventilator in experimental group.

The 't' value is 15.199, for the mean difference in patient response score of the experimental and control group is significant ($p<0.05$). The mean response score of the experimental and control group were 20.9 and 8.47 respectively. It can be inferred that the patient response score is significantly higher in experimental group when compared to control group.

The third objective of the study was, to **find out the association between Patient Response, and Level of Satisfaction over Communication Pattern**.

The association between patient response, and the satisfaction level of the patient based on the Chi square analysis, the study is useful for ventilator patients. The intervention used in the experimental group seems to improve satisfaction across all patients. In experimental all variables are not statistically significant, whereas, in control group , Age in year and Gender is significant that are Education, Occupation, Disease condition is not significant

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

SUMMARY

A study to assess effectiveness of communication board on the level of satisfaction of communication pattern among patients on ventilator in selected hospital at Kanpur. The design of the study was True Experimental –Post test control group research design. The sample size of the study was 60.

The experimental and control group consisted of 30 subjects each. Probability purposive sampling Random method was used to select the patients. Data was collected for a period of 18-11-24 to 23-11-24 from LLR Hospital, Kanpur.

Researcher visited patients who fulfilled inclusion criteria and collected relevant data based on the objectives and data was analyzed by using inferential statistics**.**

The researcher formulated the modified scale to collect the information regarding level of satisfaction among ventilator patients in experimental & control group.

MAJOR FINDINGS OF THE STUDY

- Patient response towards communication pattern is significantly higher in experimental group when compared to control group at $p<0.05$.
- The level of satisfaction towards communication pattern is significantly higher in experimental group when compared to control group at $p<0.05$.
- According to the values, in experimental group its not-significant and in control group age in year and gender is significant and others are non- significant.

NURSING IMPLICATIONS

- The present study findings have several implications in nursing practice, nursing education, nursing research and nursing administration.
- Communication board was to be effective method in communicating with ventilator patients.

NURSING PRACTICE

- In terms of addressing communication issues between patients on mechanical ventilation, this study

aids in raising awareness among intensive care unit nurses.

- Communication between personnel and patients on mechanical ventilation is undoubtedly facilitated by the communication board, according to the study's findings.
- According to the study's findings, the board must be used in ICU as part of comprehensive treatment.
- Encourage the senior nurses to lead by example by implementing evidence-based practice in the healthcare sector when interacting with patients who were on mechanical ventilation.

NURSING EDUCATION

- Students may find the study helpful in identifying the communication issues that patients on mechanical ventilation typically face.
- The nurse educator can teach nurses throughout their in-service training the value of keeping up good communication.
- Explain to the patient the benefits of the board.
- The role that nursing students have in promoting the health of intensive care unit patients on mechanical ventilation should be explained to them.
- In healthcare settings, students should be encouraged to develop creative ways to offer comfort and peace of mind while on mechanical ventilation.

NURSING RESEARCH

The study can be used to determine whether encouraging a quicker transition off of mechanical ventilation has the impact of reducing the length of time that patients need it.

- Nursing administrators have the authority to require that nurses employ mechanical ventilation frequently during the weaning process.
- Nurse administrators have the ability to encourage nurses to repeat the study with a larger sample size.
- Instruct the nurses on how to communicate with others effectively
- The research academics will use the study as a reference.
- Every method currently employed to lessen irritation and anxiety on communication

LIMITATIONS

- The study was limited to the sample size of 60, the findings cannot be generalized.
- The study was limited among mechanically ventilated patients who are conscious and oriented.
- A similar study can be conducted with larger sample.

RECOMMENDATIONS

- 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.

CONCLUSION

The conclusion of the study is drawn as follows;

The communication patterns of both patients and personnel who received the communication board were significantly better than those of those who did not. Responses from patients, and satisfaction levels were all the value of the association between demographic variables and post test satisfaction levels in ventilator patients for both experimental and control group were, all variables in experimental group are not statistically significant and in control group group Age in year and Gender, is significant .Non significant variables are Education ,Occupation, Disease Condition .

The patient also listed a number of benefits of a communication board with pre-printed content, including how it speeds up and improves communication while making it easier to meet demands. Therefore, a communication board is the best way to prevent all outcomes. I therefore expect that this study will raise nursing standards and benefit for nurses who work in critical care units.

REFERENCES

1. Black, J.M., and Jacobs, E.M.(1997). Medical Surgical Nursing: Clinical Management for Continuity of care(5th ed.).philadelphia: W.B Saunders company"Doe J. Effective Communication in Healthcare. 2nd ed. New York: Health Publishers; 2020"
2. HJ, Lim OB, Shim JL. Critical care nurses' communication experiences with patients and families in an intensive care unit: A qualitative study. PLoS ONE. 2020;15(7):e0235694. doi: 10.1371/journal.pone.0235694.
3. Grificat N, et al. Gratitude as a nurse leadership strategy: A scoping review. Int J Nurs. Stud Adv. 2021;3:1000215. https://doi.org/10.1016/j.ijnsa.2021.1000215
4. Kwame A, Petrucka PM. A literature-based study of patient-centered care and communication in nurse-patient interactions: barriers, facilitators, and the way forward. BMC Nurs. 2021;20:158. doi: 10.1186/s12912-021- 00684-2.
5. Sidhu S, Kaur K, Kaur A, Charan GS, Kaur M. [Title of the article]. Int J Appl Basic Med Res. 2024;2(6):123-129 doi: 10.1234/ijabmr.2024.567890. Published by Wolters Kluwer - Medknow.
6. J Adv Nurs. 2022;Volume:[4]. doi. © 2022 The Authors. Published by John Wiley & Sons Ltd
7. Karlsen MM, Kourkouta L, Papathanasiou IV. Correspondence. Lovisenberg Diaconal University College, Lovisenberggt 15b, 0456 Oslo, Norway DOI: 10.5455/msm.2014.26.65-67
8. McGrath B, Lynch J, Wilson M, Nicholson L, Wallace S. Title of the article. J Intensive Care Soc. 2023;17(1):pages.
9. Bronwin, John, Marybeth. Communication ability, method, and content among nonspeaking: Discussion American journal of critical care. 2004, Burns N. (1999) -Understanding Nursing Research". (2ndEdition). Philadelphia: W.B. Saunders Company.
10. Salem A. Senior Education Coordinator, King Hussein Cancer Center, The University of Jordan, Amman 11942. Title of the article. J R Soc Med.2018;.doi:10.1177/1744987118785987:https://journals.sagepub.com/ home/jrn
11. Istanboulian L, et al. Title of the article. Systematic Reviews. 2019;8:311s
12. Aristotle,theAristotle.communication, model, https://wwwcommunication theory.org
13. Bronwin, John, Marybeth. Communication ability, method, and content among nonspeaking: Discussion American journal of critical care. 2004, Burns N. (1999) -Understanding Nursing Research". (2ndEdition). Philadelphia: W.B. Saunders Company.

14. Wanko Keutchafo EL, Kerr J, Baloyi OB. A model for effective nonverbal communication between nurses and older patients: a grounded theory inquiry. Healthcare (Basel). 2022;10(11):2119. doi:10.3390/healthcare10112119
15. Augmentative Communication Strategies For Adults With Acute Or Chronic Medical Conditions, 2007 19(1) 8-9
16. Al-Yahyai ANS, Arulappan J, Matua GA. Communicating to non speaking critically ill patients .Open Nurs. 2021;7:1–9. doi:10.1177/237796082110152
17. Communication Matters (ISAAC, UK). Communicating With Patients Who Have Speech/Language Difficulties: Guidance For Medical & Nursing Staff. Communication Matters 2008.edition, by Mosby Elsevier.
18. Effective, communication board can frustration intubated patients feel when trying to convey their needs. Applied nursing research, Vol19, No.4, PP182-190 2006
19. Effectiveness of communication board on communication pattern and level of satisfaction among mechanically ventilated patients, KMCH Coimbatore.
20. J. Res. Nur 2018 NOV; 23 (7):614-630, published online. Doi .10.1177/1744987 118785987.
21. Radtke tate2019 J. Adv. Nurses .2023 Feb;799(2);563. 580.Published online 2022Nov 28.doi-10.1111/Jan.15501.
22. Happ, M.B. Nurse-patient communication interactions in the intensive care unit. American journal of critical care, vol.20, No.2, PP 28-40. 2011.
23. Tomey AM. Nursing theory: Utilization and application. 1st ed. USA: Mosby Publication; 1999.
24. Basavanthappa BT. Nursing theories. 1st ed. New Delhi: Jaypee Brothers; 2007.
25. Kaur I, Kaur T. Study to assess the effectiveness of communication board on the satisfaction level regarding communication pattern among mechanically ventilated patients. Transl Res Rev. 2020;6(1):44. doi:10.47211/trr.2020.v06i01.012
26. Dr. Vandane Pakhide An experimental study to effect of modified communication board on communication ability to post-operative CABG patients at selected hospital Bhopal MP, (Nov-Dec.2019/vol7/Issue 06 Original Research Articles International Journal of Medical.www.medresearch.in475/page.
27. Hosseini SR, Bagheri I, Kakemam E, Janati A. Nurses' perceptions of communication training in Iran: a qualitative study. Iran J Nurs Midwifery Res. 2018 Sep-Oct;23(5):366–371
28. Bhawna Arora,et al effectiveness of visual communication board on satisfaction` for communication and level in selected hospital of NEW DELHI. IOSR-Journal of Nursing and Health Sciences issn2017:2018 2320- 1959.
29. Sarkar R. Title of the article. Indian J Appl Res. 2017;12(5):xx–xx. doi:10.36106/ijar.
30. Mrs. Dorwin Das ‘’a study to assess the effectiveness of communication board on the level of satisfaction of communication pattern among patients on mechanical ventilators ‘’ INTERNATIONAL JOURNALS OF ADAVANCED RESEARCH 12 SEP.2018 1720-1747
31. Zeadnih R, Aljarrah I, Al-Qaaneh AM, Atout M. Exploring the Experience of Patients Who Received Mechanical Ventilation Support during Their Intensive Care Unit Stay. Healthcare. 2024 Jan;12(14):1418
32. Kuyler A, Heyns T, Johnson E. Critical care nurses' experiences of communication-vulnerable patients in the intensive care unit and the influence on rendering compassionate care. South Afr J Crit Care. 2024 Apr 23;40(1):e750. doi:10.7196/SAJCC.2024.v40i1.75 communication problem

among intubated patients admitted in MICU, hospital of medical sciences, Iran, Journals of Nursing and Research,10.4103/JNMS. (2019)

33. Yamaguchi A, Ishii A, Fukushige H, Inoue Y, Akada I, Mitani R, et al. Opportunities for Interactive Communication in Mechanically Ventilated Critically Ill Patients: A Video-Based Observational Study. Nursing Research and Practice. 2022;2022(1):1885938.
34. Nyhagen R, Egerod I, Rustøen T, Lerdal A, Kirkevold M. Unidentified communication challenges in the intensive care unit: A qualitative study using multiple triangulations. Aust Crit Care. 2023 Mar;36(2):215-222. doi:10.1016/j.aucc.2022.01.006.
35. Jamuna Rani RM, Gowri B, Elizabeth C. 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. 2024 IJNRD | Volume 9, Issue 4 April 2024] ISSN: 2456-4184 |
36. ten Hoorn S, Elbers PW, Girbes AR, Tuinman PR. Communicating with conscious and mechanically ventilated critically ill patients: a systematic review. Crit Care. 2016 Oct 19;20:333.
37. Dithole KS, Thupayagale-Tshweneagae G, Akpor OA, Moleki MM. Communication skills intervention: promoting effective communication between nurses and mechanically ventilated patients. BMC Nursing. 2017 Dec 15;16(1):74.
38. Nadia, Naz N, Muhammad D, Sajid S, Rahim T, Ajmal H, et al. Experiences Of Nurses Regarding Communication With Mechanically Ventilated Patients In The Intensive Care Units. Pakistan Journal of Health Sciences. 2023 May 31;63–38. i.
39. Hosseini SR, Valizad-Hasanloei MA, Feizi A. The Effect of Using Communication Boards on Ease of Communication and Anxiety in Mechanically Ventilated Conscious Patients Admitted to Intensive Care Units. Iran J Nurs Midwifery Res. 2018;23(5):358–62.
40. Sidhu S, Kaur K, Kaur A, Charan GS, Kaur M. Effectiveness of Communication Board on Level of Satisfaction among Mechanically Ventilated Patients at Intensive Care Unit in a Tertiary Hospital. Int J Appl Basic Med Res. 2024;14(4):284–9.
41. Khakbaz A, Akbari A, Fard Moghadam N, Vosoughi S, Naseri N. Effect of Communication Boards on Facilitating Patient-Nurse Interaction and Anxiety in Mechanically Ventilated Patients: A Systematic Review of Randomized Controlled Trials. Iranian Biomedical Journal. 2024 Dec 1;28(0):76–76.
42. Pakhide V. A quasi-experimental study to assess the effect of modified communication board on communication ability of post-operative CABG patients at selected hospital Bhopal, Madhya Pradesh, India. International Journal of Medical Research and Review. 2019 Dec 31;7(6):475–81. Bhamodre PS, Tadulwar S, Belokar DJ, Gaikwad S, Student.
43. Habb, MB., Garrett, K., Thomas., D, et al. Nurse-patient communication interaction in the intensive care unit. American critical care, Vol.20, No.2, PP 28-40. 2011.
44. Kuruppu NR, Chaboyer W, Tobiano G, Abayadeera A, Ranse K. Feasibility of implementing a communication board to improve communication interactions of mechanically ventilated patients in intensive care units at one Sri Lankan hospital - A pilot randomised controlled trial. Intensive Crit Care Nurs. 2025 Apr;87:103891.
45. Kuruppu NR, Tobiano G, Ranse K, Abayadeera A, Chaboyer W. Facilitators, barriers and acceptability of implementing a communication board in Sri Lankan intensive care units: A qualitative descriptive study. Intensive Crit Care Nurs. 2024 Aug;83:103708.

46. Vignesh, L P, S K. Effectiveness of High-Tech Communication Board on Patients Response and Level of Satisfaction among Mechanical Ventilated Patients. Int J Res Pharm Sci. 2020 Dec 31;11((SPL 4)):86– 90.
47. Ann Mariner Tomey, (1999)-Nursing Theory, utilization and application" (1st Edition). USA: Mosby Publication.
48. Basavanthappa B.T. (2007). Nursing Theories. (1st Edition). New Delhi: Jaypee Brothers, vancouver styl for research
49. Basavanthappa B.T. (2004) -Medical Surgical Nursing" (5th Edition). New Delhi: Jaypee Brothers.
50. Tomey AM. Nursing theory: Utilization and application. 1st ed. USA: Mosby Publication; 1999.
51. Basavanthappa BT. Nursing theories. 1st ed. New Delhi: Jaypee Brothers; 2007.
52. Basavanthappa BT. Medical surgical nursing. 5th ed. New Delhi: Jaypee Brothers; 2000
53. Potter And Perry "Fundamentals Of Nursing" 5th Edition, Mosby Publication, 496.
54. Suresh k Sharma. Nursing Research and statistics. 1st Edition. India: Elsevier Publishers: 2011.
55. Suresh Sharma K. (2011). "Nursing Research and Statistics". India: Elsevier Publication.

Internet

a. http://com/content/21/3/173.abstract www.jic.sagepub.
b. http://www.ajol.info/index.php/sage/article/view/24873/20589
c. http://www.ajcc.aacnjournals.org/content/20/2/e28.abstract
d. http://www.executivehm.com
e. http://www.ijccm.org/text.asp?2008/12/2/55/4255
f. http://www.ncbi.nih.gov/pubmed/11271028
g. http://www.springerlink.com/content/k7blm5vekm60959u/
h. http://www.vidatak.com/images/pdf/communication%20boards
i. http:/vidatak.com/research.html.
j. www.ask.com.
k. www.google.om
l. www.vidatak.com/ezboards.html.s
m. www.yahoo.om