Jurnal
Manajemen Kesehatan Indonesia

Volume 13 Nomor 2 Agustus 2025

RELATIONSHIP BETWEEN COMMUNICATION OF NURSES AND PATIENTS' SATISFACTION WITH MECHANICAL VENTILATORS IN THE ICU

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Article History:
Received: 06/07/2025
Accepted: 21/08/2025
Available Online: 23/08/2025

ABSTRACT

Communication between nurses and patients is one of the keys success of health services in hospitals. Patients who are treated in the Intensive Care Unit (ICU) and using mechanical ventilators need to communicate with nurses and other health workers. However, these patients often experience communication barriers, which may negatively affect their satisfaction. This study aimed to determine the relationship between nurse communication and the patients satisfaction using mechanical ventilators in the ICU. This was a quantitative research with a cross-sectional design. The sampling technique used was consecutive sampling with forty-three respondents who had been discharged from the ICU. The research used patients' satisfaction and Nurse Quality of Communication with Patient (NQCPQ) questionnaires as the instruments. The data in this research was analyzed by Pearson correlation test. According to the assessment, communication of nurse in the ICU was included in the good category by 81.4%, while satisfaction of patient satisfaction with the nursing services in the ICU was in the satisfied category, reaching 55.8% of respondent. Moreover, the Pearson correlation analysis produced a p-value of 0.013 and a correlation coefficient (r) of 0.378. There was a positive relationship between communication of nurses and patients with mechanical ventilators in the ICU. Future researchers are advised to further explore communication techniques with ventilated patients using larger samples.

Keywords: Communication, ICU, Nurse, Patient, Mechanical Ventilator

INTRODUCTION

Intensive Care Unit (ICU) is a treatment room designed for observation, care, and therapy of patients who are injured, sick, or have life-threatening complications [1]. There were at least four million people admitted to the Intensive Care Unit (ICU) each year in America, indicating an increasing demand for ICU services and care[2]. During

the Covid 19 pandemic, the need for ICU increased. It is proven by the data that patients admitted to the ICU due to Corona virus increased to 32% more at 32,741 participants[3].

Patients in the ICU will be treated by professional health workers who have experience in carrying out intensive measures, such as inserting mechanical ventilator, tracheostomy, irrigation/drainage, infusion or CVC, nutritional tube, and urine tube[3].

Mechanical ventilator insertion can harm patient, including causing pain and agitation[4], increasing the risk of Ventilator-Associated Pneumonia (VAP)[5], weakening the function of the diaphragm[6], causing panic[7], discomfort, sleep disturbances, and difficulties in communicating with family and health workers. Patients have difficulties in expressing their thoughts, desires, and needs in normal language [8–10].

When nurses communicate with patients using mechanical ventilators, they also encounter several problems, including difficulties in receiving feedback from patients [11], reading patients' lips, reading patients' writing, understanding patients' characteristics in communicating, and lack of education in the field of communication, high workload and lack of self confident [12]. Lack of education in communication techniques for mechanically ventilated patients is a major barrier to effective nurse–patient interaction in the ICU, as these patients rely on alternative methods such as lip reading, writing, gestures, or augmentative and alternative communication (AAC) devices. Without targeted training, nurses may struggle to interpret patient cues, leading to frustration and reduced satisfaction. Insufficient education also undermines self-confidence, decreasing nurses' willingness to initiate communication, persist through misunderstandings, or use unfamiliar tools, thereby worsening communication barriers. Education and confidence are mutually reinforcing training enhances both skill competence and confidence, while a lack of training diminishes them, creating a cycle of ineffective communication[13,14].

Communication between nurses and patients is one of the keys to achieve the success of health services carried out and to produce maximum outcomes in health services. Communication is one of the methods adopted by nurses to carry out nursing interventions such as interventions for pain, anxiety, and other conditions that require treatment [15,16]. Besides, communication is also an important component in fulfilling patient satisfaction which can be considered as customer satisfaction in health services. Fulfilling patient satisfaction is one of the keys in terms of the sustainability of a health organization, including hospitals[17].

Patient satisfaction is an important aspect of health care, and in recent years has been the focus of hospital services. Health services performed by nurses are important aspects that affect patient satisfaction, such as nurses' behavior and attitude when meeting patients[17].

The increase of patient satisfaction can have an impact on several aspects, such as reducing lawsuits against malpractice cases, increasing hospital profits, and increasing patient involvement in their health care[18].

Patients with difficulties in communication may have a worse condition. Negative emotions and confusion patients experience when receiving treatment can be a cause of their difficulty in expressing their feelings, and then this will affect their decision to re-

select the hospital, as well as their loyalty[18,19]. The main objective of this research is to find out the relationship between the communication of nurse and patient satisfaction with nursing services in the ICU.

RESEARCH METHOD

This was quantitative research with a correlational research type. The research design was cross sectional. The independent variable was the nurse communication in the ICU, while the dependent variable was the patient satisfaction with the nursing services in the ICU. The sampling was performed using a consecutive sampling technique. Consecutive sampling was used, enrolling all eligible patients during the study period until the target sample size was reached. This approach was chosen for its feasibility in the ICU setting and to enhance sample representativeness within the study's time and resource constraints.

The research was conducted from June to October 2022. The data was collected on patients who had been discharged from the ICU and were in the inpatient room at the type B hospitals, namely at a teaching hospital in Yogyakarta and at a religious hospital in Yogyakarta.

The respondents in this study were 43 patients who had been discharged from the ICU. The minimum sample size was determined using the formula proposed by Dahlan[20]. During the data collection period, the COVID-19 pandemic and hospital restrictions limited recruitment to only 5–10 eligible patients per month. Consequently, the researcher adopted the minimum sample size calculated using Dahlan's formula, resulting in a total of 43 respondents.

The inclusion criteria for respondents were patients who had completed treatment in the ICU with a good level of composmentist or cognitive consciousness (GCS 14-15), still remembered their experiences in the ICU, were at least 17 years old or older, used mechanical ventilators while in the ICU, and were able to communicate well. Those who refused to be respondents in the research and patients who did not remember their experiences while in the ICU were excluded from the research.

The data was collected by two questionnaires, including patient satisfaction questionnaire comprising 22 items with categories ranging from very satisfied (75-100%), satisfied (56-75%), fairly satisfied (40-55%), and dissatisfied (<40%) and Nurse Quality of Communication with Patient (NQCPQ) questionnaire consisting of 23 items with a score of 25-65 indicating poor nurse communication; a score of 66-105 indicating moderate nurse communication; a score of 106-150 indicating good nurse communication.

Content and construct validity tests were carried out for the NQCPQ questionnaire with thirty patient respondents who had been discharged from the ICU. The NQCPQ was declared valid for use if the (r) value > 0.361 and the Cronbach's alpha value was 0.907. The statistical analysis to test the research hypothesis used numerical data with the Pearson correlation test.

The ethical test in this research has passed and been approved by the ethical commission of Faculty of Medicine, Public Health, and Nursing of Universitas Gadjah Mada number KE/FK/0537/EC/2022.

RESULTS AND DISCUSSIONS

1. The Characteristics of Respondents

Tabel 1 displays data on the characteristics of the respondents from the two hospitals and bivariate analysis of the relationship between demographics and satisfaction of patients with mechanical ventilators in the ICU is shown in the following table.

Tabel 1. Characteristics of Respondents (n=47)

Characteristic of respondent	(%)	Patient Satisfaction	
		Mean ±SD	*p-value*
Age (years)			
17-25	11,6		
26-35	7		0,933
36-45	14		
46-55	23,3		
55-65	44,2		
Gender		72,65±10,37	
Female	58,1		0,108
Male	41,9	78,48±4,813	
Education			
Elementary, Middle School or equivalent	32,6	76,64±9,337	
High School or equivalent	44,2	74,00±8,769	0,495
College	23,2	75,26±8,774	

Based on Table 1, it was found that the youngest respondent was 20 years old, while the oldest was 65 years old. The number of male respondents was higher by 58.1% than female respondents. Their educational level was dominated by high school education, which was equivalent to 44.2%.

2. Communication Level Between Nurses and Patients with Mechanical Ventilators in the ICU

The level of nurse communication is shown in Table 2 below.

Tabel 2. The Level of Communication between Nurses and Patients with Mechanical Ventilators (n=43)

Nurse Communication	Frequency (%)
Moderate	8 (18,6)
Good	35 (81,4)

Based on Table 2 above, this research showed that the communication between nurses and patients with mechanical ventilators in the ICU was in the good category by 81.4%.

3. Satisfaction Level of Patients with Mechanical Ventilators in the ICU

The satisfaction level of patients with mechanical ventilators is shown in the following table.

Tabel 3. The Satisfaction Level of Patients with Mechanical Ventilators in the ICU

Patient Satisfaction	Frequency (%)
Very Satisfied	19 (44,2)
Satisfied	24 (55,8)

Based on Table 3, the satisfaction score of patients with mechanical ventilators in the ICU was 55.8% indicating that the satisfaction level of patient was high.

4. Relationship between Communication of Nurses and Satisfaction of Patients with Mechanical Ventilators in The ICU

Based on the main objective of this research, the finding is presented in the following table.

Tabel 4. Relationship between Communication of Nurses and Satisfaction of Patients with Mechanical Ventilators

Variable	Mean ±SD	r	p-value	CI 95%
Nurse Communication	119,32 ±12,396	0,378	0,013*	0,126-0,676
Patient Satisfaction	74,14± 8,711			

Table 4 shows the significance of the p value was 0.013 indicating a significant correlation between communication of nurses and patients with ventilators in the ICU. The Pearson correlation value of 0.378 indicated a positive correlation with moderate correlation strength.

5. Relationship between Demographics and Satisfaction of Patients with Mechanical Ventilators in The ICU

Based on Table 1, the p value for age, gender, and education variables was >0.05 meaning that there was no significant relationship between patient satisfaction with age, gender, and educational level.

The findings showed that the communication by nurses in the ICU was in the good communication category by 81.4%. Based on this research, it was found that nurses in the ICU used verbal and non-verbal languages when communicating with patients with ventilators in the ICU. This was in line with the study of Aktas YY, et al (2017) [21], stating that nurse communication in the ICU was good with a value of 67%. The better the nurse communication with patients using mechanical ventilators in the ICU, the faster their healing process [14].

The use of mechanical ventilators by patients in the ICU can cause speech impairment, so they have to use non-verbal communication or use their bodies to communicate[21].Non-verbal communication here is using body parts such as nodding the head, blinking the eyes, or moving the fingers to indicate patients' wishes [11,21].

Information given by patients with mechanical ventilators is sometimes not well received by nurses because it is difficult to understand patients' wishes [11]. Thus, one of the efforts to reduce communication barriers between nurses and patients is communication training for nurses in the ICU[22,23]. With communication training for nurses, it is expected that they will be able to improve their ability to communicate with patients using the skills or tools provided[14,24].

Based on the results of data analysis, the satisfaction of patients with mechanical ventilators in the ICU was 55.8% indicating that their satisfaction was high. It was because patients felt that nurses provided good service when giving treatment and provided emotional support for patients and their families.

Patients who are in the ICU and using mechanical ventilators feel pain and discomfort [13,14]. Nurses in the ICU have the authority to provide pain management nursing interventions to patients [14,26]. Therefore, when patients feel pain, nurses are able to provide assistance to them. In this case, they feel that nurses are very helpful and attentive because nurses are willing to help reduce their discomfort [27,28]

In addition to disease management provided by nurses, this research also finds that nurses provide assistance in the form of

emotional support, such as encouraging and giving confidence to patients that they will recover [28]. With motivational words given by nurses, patients feel that they have support to boost their strength when they are sick and unable to communicate properly [27,29]. Nurses' emotional support such as giving attention and providing positive words can provide reinforcement to patients so that patients feel comfortable and recover faster [30].

There was a significant relationship between the communication of nurses and satisfaction of patients with mechanical ventilators in the ICU, with p-value = 0.013. The finding was obtained because patients were satisfied with the communication established between them and nurses, in which patients felt that nurses were very patient and friendly to them when caring for and communicating.

The satisfaction of patients with mechanical ventilators in the ICU was caused by several factors, one of which was the relationship between nurses and patients, in line with the findings of research conveyed by Johannessen *et al*, (2011)[32]. Communication between nurses and patients with mechanical ventilators in the ICU in a conscious condition greatly affects patient satisfaction. This can show how the communication between nurses' and patients is when the patients cannot actively participate in communication [9,34].

Some of the communications often made by nurses when communicating with patients who are conscious and using mechanical ventilators in the ICU are by using verbal and non-verbal communication and using aids or AAC[21,35]. The use of Augmentative and Alternative Communication (AAC) aids to communicate with patients with mechanical ventilators in the ICU was a method adopted by health workers, especially nurses who often interact with patients in the ICU[24,34]. However, in this research, it was found that nurses in the ICU did not use assistive devices such as communication boards or pictures to communicate with patients, so they patients only relied on body language or non-verbal communication and listened to what nurses said.

Even though nurses did not use AAC when communicating with patients with mechanical ventilators, they were still satisfied with the communication made by nurses because nurses used verbal and non-verbal language. The use of non-verbal language can increase the satisfaction of patients with mechanical ventilators[26,36,37]. The respondens in this research revealed that in addition to using verbal language, nurses used non-verbal language when communicating in the ICU. This caused them to feel comfortable and felt that nurses understood their condition in which they were unable to communicate properly because of their barriers. Therefore, they were satisfied with the way nurses communicated with them. The way nurses communicate using non-verbal language can increase patient satisfaction in the ICU even though the use of mechanical ventilators is a barrier to communication between nurses and patients [26,39].

Based on the result of the correlation test, it was found that there was no significant relationship between satisfaction of patients with mechanical ventilators and respondents' age, gender, and educational level with the p-value for all variables >0.05.

Based on the finding, it is found that age has no relationship with patient satisfaction. This is because older people have more experience and have more frequent

interaction with health workers during their lives, thus they can eceive information more easily and do not put excessive expectations for the services and communication carried out by nurses[40,41].

Gender was also reported to have no relationship with patient satisfaction, and similar studies also reported that gender has no relationship with patient satisfaction [40,41,43]. This can be related to each individual's previous experience in accessing health facilities or previous experience in obtaining health information, so when the respondents interact and communicate with nurses, they feel what nurses or other health workers conveyed is good and perceive that nurses are attentive and able to understand their conditions [44].

The respondents' educational level was also reported to have no relationship with patient satisfaction. Similar results were also shown by Romero-García's (2019) study stating that the educational level has no effect on the patient satisfaction[42]. Rademarkers *et al* (2012) explain that a person's educational level does not affect the patient satisfaction level specifically, but it affects how an individual is able to receive explanations or how that person can receive information better[45].

Nurses have a role in providing services and information through communication and interaction with patients [46]. How patients receive information and how they take action or decisions can be affected by their educational level [42,44]. On top of that, each patient's experiences and perceptions also affect how they perceive the information they receive[45,46].

CONCLUSION

Based on the findings, it was concluded that there was a significant relationship between communication of nurses and satisfaction of patients with mechanical ventilators in the ICU with moderate correlation strength. For future researchers, it is expected that they can explore communication techniques to patients with ventilators more appropriately and with a larger number of respondents.

ACKNOWLEDGEMENT

The researcher extends sincere gratitude especially to Universitas Gadjah Mad**a** for the opportunity to pursue academic learning. Special thanks also go to all the nurses at the hospital where the research was conducted, as well as to all the respondents who participated in this study. Deepest appreciation is also extended to everyone who provided support, both morally and spiritually.

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