

Limitations of Patients' Communication with Mechanically Ventilated Patients: A Scoping Review

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Abstract

Aims: This review aimed to examine the effects of communication barriers, identify effective communication strategies, and determine appropriate interaction content for patients receiving mechanical ventilation.

Methods: A scoping review approach was conducted using four databases: EBSCOhost, Elsevier, PubMed, and ProQuest, selected for their extensive health-related collections. Eligible studies were published between 2015 and 2025, written in English, and utilized quantitative or qualitative designs. The search incorporated keywords related to communication barriers, ventilated patients, intensive care, and critical care. Data was synthesized through systematic collation, summarization, and reporting.

Results: Of 1,239 records identified, 20 studies met the inclusion criteria. Findings indicated that communication challenges affected patients, nurses, and family members, with consequences categorized as psychological and care-related impacts. Two primary communication approaches were identified: unaided and aided methods, with aided strategies further divided into low-technology and high-technology tools. Communication content clustered into three domains: expressing patient needs and desires, conveying complaints, and facilitating care-related interactions.

Conclusion: Communication barriers significantly influence the well-being of patients, nurses, and families in intensive care settings. Both unaided and aided communication strategies can enhance interactions with mechanically ventilated patients. Structured communication focusing on patient needs and desires, concerns, and caregiving elements is essential to promote care quality and support patient well-being.

Keywords: communication, communication impact, communication strategy, communication content, mechanical ventilated patient

Introduction

The main causes of distress experienced by patients on mechanical ventilation are pain, discomfort, and communication problems (Alasad et al., 2015; Holm & Dreyer, 2018). Good communication between patients and nurses is fundamental to providing the best care services in the Intensive Care Unit (ICU). It facilitates accurate assessment, shared decision-making, and emotional support, especially for critical patients. However, patients who receive mechanical ventilation often face significant communication barriers due to intubation or tracheostomy, leaving them temporarily unable to speak. This impairment in communication can lead to feelings of isolation, anxiety, and frustration, adversely affecting patient outcomes and satisfaction (Brambilla et al., 2025; Kolcak et al., 2023).

Healthcare workers only are appropriately accepted and understand 5% of the messages communicated by mechanically ventilated patients. This communication challenge is also experienced by 50% of patients on mechanical ventilation (Guttormson et al., 2015). This condition affects patient care. A total of 47% of patients on mechanical ventilation reported a lack of participation in their care. In one study, 64% of patients considered the information they received about their health condition to be unsatisfactory (Alasad et al., 2015). In addition, communication limitations in caring are linked to increased patient safety concerns (Handberg & Voss, 2018; Sharpe & Hemsley, 2016).

Despite the importance of patient-nurse communication, research shows that communication limitations among mechanically ventilated patients are still prevalent. Studies have shown that nurses spend only 1.5% to 2.8% of their shifts communicating with nonverbal ventilated patients (Tate et al., 2012). An observational study showed that the time spent by nurses communicating with patients was only approximately 7-13 minutes on each shift (Happ et al., 2015). According to a study, nurse-patient communication events lasted an average of 1-5 minutes and most of these contacts were task-oriented, with limited emotional or personal exchanges (ten Hoorn et al., 2016). A study showed that nurses avoided communicating with mechanically ventilated patients and only performed routine care (Kuyler & Heyns, 2024).

Factors contributing to these limitations of communication among patients on mechanical ventilation include physical inability to speak due to illness, cognitive impairment, and environmental barriers in the ICU. In addition, ICU nurses often face obstacles such as time constraints, lack of training in communication methods, and limited access to communication tools, which can hinder effective interactions with patients on mechanical ventilation (Salem & Ahmad, 2018).

Critical care nurses can address these issues by implementing various communication strategies and developing communication tools, such as augmentative and alternative communication (AAC) methods. AAC includes boards for communication, writing aids, and sound-generating devices. While these tools have improved patient-nurse communication, their implementation has been irregular and non-standardized across ICU settings, and barriers to their use still exist (Karlsen et al., 2023).

Given the important function of communication in caring for patients and the challenges faced by patients and nurses, it is necessary to scientifically explore the impact of communication limitations, identify effective communication methods and strategies, and determine the most appropriate content for interactions with patients on mechanical ventilation. A scoping review of these aspects will hopefully

provide a comprehensive understanding of the current evidence base, highlight gaps in knowledge, and inform the development of tools for improving communication practices in the ICU. Therefore, this scoping review maps the existing literature and identifies the impact of communication limitations, methods, and content in patients on MV.

Research Design

This study used a scoping review design and followed a five-step procedure. The five steps are as follows: 1) determine the research question, 2) identify appropriate studies, 3) select research that meets the inclusion criteria, 4) extract and map the data, and 5) summarize, analyze, and present the outcome in a report (Levac et al., 2010; Mak & Thomas, 2022). The results of this research are reported in a flowchart that follows the PRISMA-ScR scoping review reporting guidelines (Page et al., 2021).

Determining the research question

The research question of this scoping review was as follows: 1) What is the impact of communication disruption on patients undergoing mechanical ventilation? 2) What methods are used? 3)What is the communication content of patients with mechanical ventilation?

Identifying relevant studies

The Population/Participant, Concept, and Context framework was used to tailor the selection of studies to the research questions (Population: Adult patients on mechanical ventilation; Concept: communication limitations; Context: critical care).

Keywords were developed with reference to the established PCC framework. Word similarities were searched using MeSH and free-text. The keywords were combined using Boolean OR or AND (Table 1).

Table 1. Keywords used in article searches

Population	Concept	Context
“mechanical ventilation patient” OR “ventilated patient” OR “mechanically ventilation patient”	“communication limitation” OR “communication difficulty” OR “communication impairment”	“critical care” OR “intensive care” OR ICU

The keywords used were communication limitation, communication difficulty, mechanical ventilation patients, ventilated patients, critical care, and intensive care. Four databases were used in this study: EBSCOhost, Elsevier, PubMed, and ProQuest. This review only included articles published between 2015 and 2025, using qualitative, quantitative, and mixed methods of research and written in English.

Table 2. Use of keywords for searching articles in a database

Database	Search Date	Keywords	Number of Articles
EBSCOhost	April 2025	5, “mechanical ventilation patients” AND “communication limitation” AND “critical care” Search location: Title/abstract	108
Elsevier	April 2025	5, (“mechanical ventilation patients”OR “ventilated patient”) AND (“communication difficulty” OR “communication limitation”) AND (“critical care” OR “intensive care”) Search location: Title/abstract	244
PubMed	April 2025	5, “mechanical ventilation patient” AND “communication difficulty” OR “communication limitation” AND “critical care” Search location: Title/abstract	66
ProQuest	April 2025	5, (“mechanical ventilation patient” OR “ventilated patient”) AND (“communication difficulty” OR “communication limitation”) AND (“critical care” OR “intensive care”) Search location: Title/abstract	821

Study selection

Articles were selected based on the inclusion criteria. The selection process (review of titles, abstracts, and full texts) was conducted independently by the authors. The results of the article search are reported in the form of a PRISMA Scoping Review diagram. The participants included mechanically ventilated patients, post-extubation patients, their families, and ICU nurses. The main concerns were communication with patients on mechanical ventilation, communication limitations, the impact of communication limitations on mechanically ventilated patients, communication methods, and communication content. The research design included quantitative, qualitative, and mixed-method studies, written in English, published from 2015 to 2025.

Mapping the data

The mapping of all the article data used in this study is presented in tabular form. This table contains details such as authors, year of study publication, study setting, participant/sample details, methods and key findings.

Summarizing, analyzing and reporting results

Data analysis was performed to answer the research objectives. Data were analyzed by summarizing, analyzing, and reporting. The data collected for this study were coded and organized inductively. The data from each study that answered the scoping review questions were collected and grouped according to the objectives. This resulted in the review results, which are a collection of data from various studies according to the categorical groups of the research questions and objectives of this review.

Results

The search initially yielded 1,239 articles that were screened. After title and abstract screening, resulting in 30 studies being assessed further. After eligibility assessment, a further 10 studies were excluded as they did not meet the research criteria. No additional eligible articles were found in the reference search, resulting in 20 studies being included in this study (Figure 1).

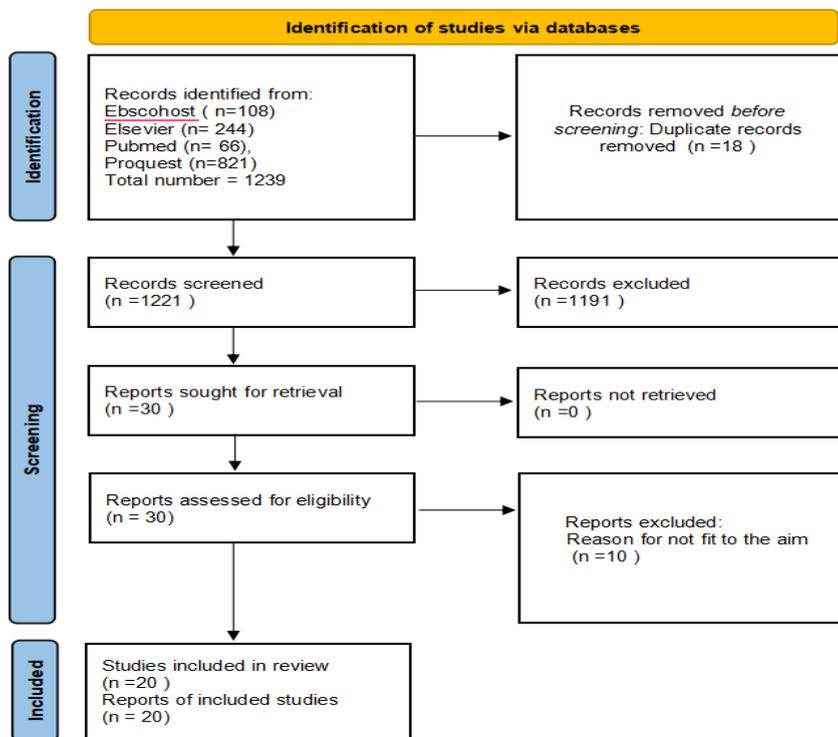


Figure 1. PRISMA Diagram

Overview of Included Articles

This study reviewed 20 articles, consisting of eight qualitative studies, 11 quantitative studies, and one mixed-method study. The studies were conducted in various countries, including Australia (1), the USA (3), Iran (3), Indonesia (1), Belgium (1), Brazil (1), Italy (1), Turkey (1), Norway (1), the Netherlands (1), Hong Kong (1), Africa (1), and India (1). Iran and the USA contributed the most studies, with three studies each. The other countries had one study each. The articles were published between 2015 and 2025, with the highest number published in 2022. All studies explored communication issues in mechanically ventilated patients in the ICU, in terms of its impact, methods, and communication content. This scoping review found that communication limitations in patients with mechanical ventilation have various psychological impacts on patients and nurses. Communication methods were found both with tools and conventions (without tools) and various aspects of communication content expressed by patients with mechanical ventilation (Table 3).

Tabel 3. Description of included articles

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Kuyler, et al., 2024, Critical Care Nurses' Experiences of Communication-Vulnerable Patients in The Intensive Care Unit and The Influence on Rendering Compassionate Care	ICU/ Afrika	To explore nurses' experiences with patients who are communication-vulnerable in ICU and how they affect nurses' ability to provide appropriate care	Qualitative explorative descriptive design using focus group discussions to collect data. Thirty critical care nurses from four hospitals in Africa. They are diploma (80%), bachelor' degree (10%) and master degree (10%).	<ol style="list-style-type: none"> 1. Communication content: patient needs and desires 2. The impact of communication difficulties for nurses is frustration, stress, and anger, resulting in nurses avoiding communicating with patients and only doing routine care. 3. Communication strategy: writing message
Fathonah, et al., 2023, Communication Experiences of Conscious Indonesian Patients Who Underwent Mechanical Breathing in an Intensive Care Unit: A Phenomenological Approach	ICU/ Indonesia	To identify nurses' experiences the communication needs of conscious mechanical ventilated patients	Qualitative study with a phenomenological approach using in-depth interviews to collect data. The participants were three female patients aged between 31 and 71 years, who were using mechanical ventilation for 14–60 days in a conscious state. They were recruited from a hospital in Yogyakarta, Indonesia.	<ol style="list-style-type: none"> 1. Communication Content: patient need, example drink; patient want, example want to be suctioned, want the company of family, relaying patient complaints, for example pain 2. The impact of communication on patients is frustration and unmet needs. Communication for nurses is challenging because they cannot understand the patient's communication and cannot meet the patient's needs. 3. Communication strategies: using sign language, such as using gestures while drinking, but the nurse did not understand; the patient wrote the message, but it took a long time and the nurse could not read it; using finger movements to communicate.
Sidhu, et al., 2024, Effectiveness of	ICU/India	To determine the effectiveness of	The research method was a quasi-experimental	The communication strategy used in this study was a communication board. This

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Communication Board on Level of Satisfaction among Mechanically Ventilated Patients at Intensive Care Unit in a Tertiary Hospital		communication board on satisfaction level of mechanical ventilated patients	study, with a communication board as an intervention. Eighty mechanically ventilated patients were enrolled in this study and divided into the experimental (n=40) and control (n=40) groups.	study proved that the use of communication boards was effective in improving patient satisfaction.
Ull, et al., 2022, Approach To The Basic Needs In Patients on Invasive Ventilation Using Eye-Tracking Devices For Non-Verbal Communication	ICU/ German	To analyze the facilitation of communication in mechanical ventilated patient	Cross-sectional electronic survey study of 81 patients on mechanical ventilation. All patients without delirium, a history of invasive ventilation for >48 h, and difficulty in nonverbal communication were included. Patient satisfaction data collection using a standardized questionnaire	The communication strategies found in this research are writing/using board (19%) and using sign language (81%) Patient communication content included pain during repositioning (69%), thirst (69%), sleep disorder (66%), fatigue (64%), and anxiety (64%).
Prime, et al., 2015, Patient Experiences During Awake Mechanical Ventilation.	ICU/USA	To identify the experiences of communication mechanical ventilated patient	This qualitative study used interviews with mechanically ventilated patients who received minimal sedation.	Frustration was an impact of communication difficulty (89%), and fear was an impact of not being able to communicate with others.
Karlsen, et al., 2022, Caught between ideals and reality- Phenomenological-hermene	ICU/ Norwegia	To explore health care provider' experience of their interaction	Qualitative research with a phenomenological-hermeneutical approach, using	Strategies used to communicate with conscious patients on mechanical

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
<p>utic study of healthcare providers' experiences while interacting with mechanically ventilated patients</p>	ICU/Iran	<p>and communication to conscious mechanical ventilated patient</p>	<p>individual interviews for data collection. The participants included ten conscious mechanical ventilation and 60 healthcare providers.</p>	<p>ventilation include using facial expressions, communication boards, and mobile phones.</p>
<p>Divani, et al., 2022, Evaluating the Use of Communication Board on Cortisol Level and Physiological Parameters in Mechanically Ventilated Patients</p>	ICU/Iran	<p>To evaluate the effectivity of communication board on cortisol and physiology parameter on patients with mechanical ventilation</p>	<p>The research method was a randomized clinical trial study that involved 60 mechanically ventilated patients in the ICU. They were divided into two groups: the intervention group, which received communication using a communication board, and the control group, which received routine communication, each with 30 respondents.</p>	<p>Communication strategy: Communication board. This study concluded that the communication board effectively decreased cortisol levels and physiological parameters in patients on mechanical ventilation.</p>
<p>Kyranou, et al., 2022, Communicating with mechanically ventilated patients who are awake. A qualitative study on the experience of critical care nurses in Cyprus during the COVID-19 pandemic</p>	ICU/ Brazil	<p>To explore the nurse strategy to communicate with mechanical ventilated patients in ICU</p>	<p>Qualitative study using semi-structured interviews to collect data. The participants were 14 critical care nurses from four different hospitals in Cyprus.</p>	<p>Communication strategies are aided and unaided methods. Aided methods such as pen and paper, mobile phones, frames and markers, boards, and tablets. Unaided methods include eye contact, head nodding, hand and leg movements, touching, and closed-ended questions.</p>
<p>Hosseini, at al., 2018, The Effect of Using Communication Boards on Ease of Communication and Anxiety in Mechanically</p>	ICU/ Iran	<p>To evaluate the effectiveness of using communication board to reduce</p>	<p>This quasi-experimental study included 30 conscious patients undergoing mechanical</p>	<p>1. Impact of communication difficulty: anxiety of patients 2. Communication strategy is communication board</p>

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
<p>Ventilated Conscious Patients Admitted to Intensive Care Units</p> <p>Kuruppu, et al., 2024, Evaluating the Feasibility of A Communication Board to Enhance Communication Interactions of Mechanically Ventilated Patients in Sri Lanka Intensive Care Units: A Pilot Randomised Controlled Trial</p>	<p>ICU/ Srilanka</p>	<p>anxiety on mechanical ventilated patients</p> <p>To determine the effect of using communication board</p>	<p>ventilation who were assigned to the intervention and control groups.</p> <p>This experimental study was a randomized controlled trial involving 60 adult patients on conscious mechanical ventilation. They were divided into two groups: the intervention group, which received communication using a communication board, and the control group, which received routine communication intervention.</p>	<ol style="list-style-type: none"> 1. Impact :100% patient experience anxiety in mild level 2. Communication contents are pain,, thirsty, need to family, and up/down head of bed
<p>Kolcak, et al., 2023, The Effect of Using Illustrated Materials for Communication on the Anxiety and Comfort of Cardiac Surgery Patients Receiving Mechanical Ventilator Support: A Randomized Controlled Trial</p>	<p>ICU/Turki</p>	<p>To identify the outcome of using illustrated communication material on anxiety and comfort level of patient with mechanical ventilation</p>	<p>This was an experimental study with a controlled clinical trial. Patients were randomly allocated to either an intervention group that received illustrated communication aids or a control group that received standard communication. Pain intensity (numeric rating scale), hemodynamic parameters, and facial</p>	<ol style="list-style-type: none"> 1. Impact of difficulty communication was patient anxiety 2. Communication strategy: illustrated communication material 3. Communication content: I want to drink, I can not breathe, I am going to vomit, I am pain, saliva accumulated, I have a rush, I am hungry, I want to sleep, very hot, too cold, I need toilet, light is disturb, there is too much noise, can you fix my pillow, did you inform my family, pain assessment

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Szymkowicz, et al., 2023, Comparison of Communication Interfaces For Mechanically Ventilated Patients in Intensive Care	ICU/ Belgia	To evaluate the effectiveness of conventional low-technology communication boards versus eye-tracking devices in enhancing communication among mechanically ventilated patients.	<p>anxiety scores were measured during the first minute of ICU contact and again at 30 and 60 min. Communication satisfaction and perianesthesia comfort scale scores were assessed on the day after surgery.</p> <p>A prospective randomized crossover study using a mixed-methods design was conducted, with quantitative analysis as the primary approach and qualitative analysis as a complementary component to compare two technologically distinct communication interfaces.</p>	<ol style="list-style-type: none"> 1. Communication strategies: conventional low tech board and eye tracking device 2. Communication content: breathing, pain, nutrition-hydration, installation, psychological state, hygiene, rest, thermoregulation, and environment
Ijssennagger, et al., 2018, Caregivers' Perceptions Towards Communication With Mechanically Ventilated Patients: The Results of A Multicenter Survey	ICU/ Netherland	To investigate ICU healthcare providers' communication and associated problems related to mechanically ventilated patients.	This study was a multicenter survey. The respondents were 334 nurses, 59 residents, and 63 intensivists. The participants were healthcare workers from 15 ICUs in the Netherlands. Data were	<ol style="list-style-type: none"> 1. Impact: for nursing care : provision unadequate care (>75%), psychoemotional care (91%), general care (80%), job satisfaction (47%), feeling unfulfillment (76%), frustration (72%), and symptom assessment (73%) 2. Communication strategy: basic gestures

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Guttormson,et al., 2015, "Not Being Able To Talk Was Horrid": A Descriptive, Correlational Study Of Communication During Mechanical Ventilation.	ICU/ USA	To explore the experience patients during use mechanical ventilation	collected using an online questionnaire. A descriptive study was conducted on 31 patients undergoing mechanical ventilation. Data were collected using interviews and filling the Intensive Care Experience Questionnaire method, which was conducted after extubation.	Impact of difficult communication: 1. Inability to communicate needs was associated with helplessness 2. Lack of information associated to make feeling uncontrol and helplessness 3. Ineffective communication associated to be negative impact on satisfaction in care 4. Failed communication and lack of information make frustration
Leung, et al., 2018, Exploring The Scope Of Communication Content Of Mechanically Ventilated Patients	ICU/ Hongkong	This study aimed to describe the scope of communication content of patients on mechanical ventilation.	This study used semi-structured interviews with the stimulated recall technique. The participants were ten conscious and oriented adult patients who had previously used mechanical ventilation.	1. Impact of communication difficulty : frustration, helplessness, and un happiness 2. Communication content : Non medical subject matter : request for service, expression of thought, feeling and emotion to the others, psychoemotional need; Medical subject matter : requests for service and for information of their condition
Tembo, et al., 2015, The Experience of Communication Difficulties in Critically Ill Patients in and Beyond Intensive Care: Findings From A Larger Phenomenological Study	ICU/ Australia	This study was conducted to explore the experience of patients who experienced critical ill in ICU	This study used a hermeneutic phenomenological approach, which involved in-depth face-to-face interviews. The participants were 12 mechanically ventilated patients, with a stay ranging from 3 to 36	Impact of communication difficulty: frustration, loneliness, aggression, feeling hopeless, loss of control, feeling uncertain, anger, fear, and heightened sense of death.

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Mommennasab, et al., 2019, Quality of Nurses' Communication With Mechanically Ventilated Patients in A Cardiac Surgery Intensive Care Unit	ICU/ Iran	To evaluate the quality of communication between nurse and patient who using mechanical ventilation	days. Interviews were conducted two weeks after ICU discharge and six to eleven months later. An observational study was conducted. The respondents were 10 nurses and 35 patients. The sampling method for nurse respondents was simple random sampling, and the sampling method for patients was convenience sampling. The researcher observed communication between nurses and patients. Data were collected using a six-item Likert scale.	<ol style="list-style-type: none"> 1. Communication methods: hand gestures, head nods, and purposeful stares. Communication satisfaction using the conventional method: Most nurses and patients fall under the very low satisfaction category (nurse (45.7%); patients (54.7%). 2. Communication content: Physical need (50.3%), pain (23.5%), ET therapy question (17.2%), emotions (1.1%), and other symptoms (1.1%).
Brambilla, et al., 2024, Communication difficulties in mechanically ventilated voiceless patients in intensive care units: A qualitative study	ICU/ Italia	To explore negative effect of inability to communicate verbally among voiceless patient in ICU	A Qualitative study was conducted. Data were collected through semi-structured interviews. The participants included 10 patients on mechanical ventilation, 13 family members, 13 nurses, and 7 physicians.	<p>Impacts:</p> <ol style="list-style-type: none"> 1. Negative impacts on relationship: patients isolation and lack of interaction 2. Negative impact on emotion: psychoemotional distress on patients and nurses 3. Negative effect on care : un personalized care, missed care and over treatment

Author, year, title	Study setting	Aim/purpose	Methods	Results/Findings
Shin, et al., 2021, VidaTalk™ patient communication application “opened up” communication between nonvocal ICU patients and their family	ICU/USA	To describe the effect of inability to communicate of mechanically ventilated patient	This was a qualitative study using semi-structured email interviews after discharge. The participants were seven family members of patients who used the VidaTalk™ app for communication in the ICU.	The impact of the inability to communicate with the family was frustration and stress.

Table 4. Data mapping of the impacts of communication limitation, communication strategies and contents of mechanical ventilation patients

No	Themes	Category	Sub category	Codes	Sources
1	Difficulty communication impact	Impact for patients	Psychologies impact	Frustration Anxiety and distress Helplessness Aggression and loss of control Unhappiness Loneliness, Isolation and lack of interaction Anger Fear Unmet need	(Kuyler, Heyns, 2024), (Fathonah et al., 2024), (Prime et al., 2016), (IJsennagger et al., 2018), (Guttormson et al., 2015), (Leung et al., 2018), (Tembo et al., 2015) (Hosseini et al., 2018), (N. Kuruppu et al., 2024), (Kolcak et al., 2023), (Brambilla et al., 2025), (Kuyler, Heyns, 2024) (Guttormson, et al., 2015), (Leung, et al., 2018) (Tembo, et al., 2015) (Leung, et al., 2018) (Brambilla et al. 2025) (Tembo, et al., 2015) (Tembo, et al., 2015) (Tembo, et al., 2015), (Prime et al. 2016) (Fathonah, et al., 2024)
			Caring impact	Unsatisfaction	(Guttormson, et al., 2015)

No	Themes	Category	Sub category	Codes	Sources
		Impact for nurses	Psychologies impact	Confused	(Fathonah, et al., 2024)
				Distress	(Brambilla et al. 2025)
				Frustration	(Ijssennagger et al. 2018)
			Caring impact	Can not meet patients need	(Fathonah, et al., 2024), (Ijssennagger et al. 2018)
				un personalized care, missed care and over treatment	(Brambilla et al. 2025)
				Provision un adequate care	(Ijssennagger et al. 2018)
				Unsatisfaction in care/job satisfaction	(Ijssennagger et al. 2018)
				Impaired in symptoms assessment	(Ijssennagger et al. 2018)
		Impact for family	Psychologies impact	Frustration and stress	(Shin et al., 2021)
	Communication methods	Un aided Method	Sign language	Using gesture	(Fathonah, et al., 2024) (Ull et al. 2022), (Ijssennagger et al. 2018), (Momennasab et al. 2019), (Wallander Karlsen et al., 2022)
			Using finger		(Fathonah, et al., 2024)
			Eye contact		(Kyranou et al., 2022)
			hand and leg move		(Kyranou et al., 2022), (Momennasab et al., 2019)
		Aided method	Low tech	Board and marker	(Ull et al. 2022), (Kyranou, et al., 2022)
				Using paper and pen	(Fathonah, et al., 2024), (Ull et al. 2022), (Kyranou, et al., 2022)
				Illustrated communication material	(Kolcak, et al., 2023)
				Conventional board	(Szymkowicz et al. 2024), (Wallander Karlsen et al., 2022)

No	Themes	Category	Sub category	Codes	Sources
			High tech	digital board	(Sidhu, et al., 2024), (Divani 2022), (Hosseini, et al., 2018)
				Eye tracking device	(Szymkowicz et al. 2024)
				Mobile phone/tablet	(Kyranou, et al., 2022), (Wallander Karlsen et al., 2022)
	Communication contents	Patient need/want	Basic need	Drinking water	(Kuyler, Heyns 2024), (Fathonah, et al., 2024), (Kolcak, et al., 2023), (Szymkowicz et al. 2024), (Momennasab et al. 2019)
				Thirsty	(Kuruppu et al. 2024)
				Hungry	(Kolcak, et al., 2023), (Szymkowicz et al. 2024), (Momennasab et al. 2019)
				Need to toilet	(Kolcak, et al., 2023), (Momennasab et al. 2019)
				Need to sleep/rest	(Kolcak, et al., 2023), (Szymkowicz et al. 2024), (Momennasab et al. 2019)
			Comfort need	Up/down of head, fix the pillow	(Kuruppu et al. 2024), (Kolcak, et al., 2023)
				Thermoregulation	(Szymkowicz et al. 2024)
			Social need	Need to family	(Kuruppu et al., 2024), (Kolcak, et al., 2023), (Fathonah, et al., 2024)
			Psychological need	Expression of feeling, emotion and thought	(Szymkowicz et al. 2024), (Leung et al. 2018), (Momennasab et al. 2019)
				request for information related to their condition	(Leung et al. 2018)(Ull et al., 2022)
		Complaint relaying	Physical problems	Pain	(Fathonah, et al., 2024), (Kolcak, et al., 2023), (Szymkowicz et al., 2024), (Momennasab et al. 2019)
				Breathing problem	(Kolcak, et al., 2023), (Szymkowicz et al. 2024)
				Nausea and vomit	(Kolcak, et al., 2023)
				Saliva and secrets accumulated,	(Kolcak, et al., 2023), (Fathonah, et al., 2024), (Kuyler, Heyns 2024), (Momennasab et al. 2019)
			Environment problems	very hot, too cold	(Kolcak, et al., 2023), (Szymkowicz et al. 2024)
				Disturbing light	(Kolcak, et al., 2023), (Szymkowicz et al. 2024)

No	Themes	Category	Sub category	Codes	Sources
				There is too much noise	(Kolcak, et al., 2023), (Szymkowicz et al. 2024)
			Caring	Pain assessment	(Kolcak et al., 2023)

This study answered three research questions: 1)the impact of communication limitations, 2)communication methods, and 3)communication content on patients undergoing mechanical ventilation.

1. Impact of Communication Limitations

The impact of this communication limitation can be divided into three aspects : impact on the patient, impact on nurses and impact on the patient's family.

Two impacts on patients were found: psychological impact and treatment impact. Psychological impacts include frustration, which was found in seven qualitative and quantitative studies. Five articles found that anxiety and distress were the psychological impacts of patients caused by communication limitations. Helplessness also emerged as a result of communication problems in patients on mechanical ventilation (Guttormson et al., 2015; Leung et al., 2018). Patients also feel fear as a result of communication limitations due to the impact of using mechanical ventilation (Prime et al., 2016; Tembo et al., 2015). Patients also feel loneliness, isolation, and a lack of interaction with others (Brambilla et al., 2025; Tembo et al., 2015). Other psychological impacts that were only reported by one study each include anger (Tembo et al., 2015), unhappiness (Leung et al., 2018), and loss of control (Tembo et al., 2015). Treatment impact was felt by patients as a result of limited patient and nurse communication is that patient needs are not met (Fathonah et al., 2024), and patients feel dissatisfied with the care provided by nurses (Guttormson et al., 2015).

Two impacts on nurses were found: psychological impact and impact of patient care. The psychological impact felt by nurses is that they feel confused because they cannot understand patient communication and cannot meet patient needs (Fathonah et al., 2024). Survey research shows that 72% of nurses experience frustration due to limited communication with patients (Ijssennagger et al., 2018). Nurses also experience distress due to communication difficulties with patients (Brambilla et al., 2025). The impact on patient care includes the effects of limited communication on various aspects of care delivery. One of the impacts is that nurses tend to avoid communication with patients and only carry out routine care (Kuyler & Heyns, 2024). This situation results in care that is not necessarily in accordance with the needs and problems of the patient. The inability to meet patient needs due to communication limitations was reported in two studies, i.e. qualitative research in Indonesia and survey research in the Netherlands (Fathonah et al., 2024; Ijssennagger et al., 2018). Ineffective communication between nurses and patients on mechanical ventilation can result in impersonal, incorrect, or excessive care (Brambilla et al., 2025). This shows that obstructed patient communication impacts ineffective and efficient care. Survey research on health care providers in the ICU, consisting of nurses, doctors, and intensivists, reported inadequate care, unsatisfactory care, and obstacles to symptom assessment in patients with mechanical ventilation (Ijssennagger et al., 2018).

Impact on the patient's family found that only one study reported the impact of communication limitations of patients on their families, where the family members felt frustrated and stressed when they could not understand the patient's communication (Shin et al., 2021).

2. Communication Methods

The communication methods found in this scoping review were grouped into two types: methods without tools (unaided method) and methods with tools (aided

method). Communication without tools has been achieved using several methods, namely sign language (body gesture) (Fathonah et al., 2024; Ijssennagger et al., 2018; Momennasab et al., 2019; Ull et al., 2022), finger movements (Fathonah et al., 2024), eye contact, and hand and foot movements (Kyranou et al., 2022). An observational study reported that the use of conventional methods without tools provided very low satisfaction for both patients and nurses (Momennasab et al., 2019).

Communication methods with tools are categorized into two groups: low-tech and high-tech. Low tech methods include using a board and marker to write (Kyranou et al., 2022; Ull et al., 2022), paper and pen to write (Fathonah et al., 2024; Kyranou et al., 2022; Ull et al., 2022), paper with illustrated communication content, so that the patient just shows as desired, illustrated communication material (Kolcak et al., 2023) and conventional boards (Szymkowicz et al., 2024) which have a list of written communication content, so that the patient just has to choose. Digital board is a high-tech method that is most widely found and used, from this scoping review obtained 3 studies that use digital boards. A digital board is a digital communication board that contains various communication contents and is used with a touch screen to select one of the communication contents desired by the patient (Divani et al., 2022; Hosseini et al., 2018; Sidhu et al., 2024). These digital boards have been shown to be effective in increasing the ease of communication and decreasing anxiety. Another high-tech method found in this scoping review is the use of eye-tracking devices, which have been studied by comparing them with conventional low-tech boards. A comparison of the two methods showed that the use of eye-tracking devices is more effective in facilitating patient communication than the conventional low-tech board method (Szymkowicz et al., 2024). The last high-tech method is the use of a mobile phone or tablet that is not specifically set up as a communication medium. However, this method is still considered helpful for the communication of ventilated patients (Kyranou et al., 2022).

3. Communication Contents on patients undergoing mechanical ventilation

The scoping review revealed that patient on mechanical ventilated communicated a variety of needs and concerns, which were thematically categorized into three major domains: 1) patient needs and desires, 2) complaint expression, and 3) care patient aspect

In domain of patient needs and desires, it was found that patients frequently attempted to express basic *physiological needs*, including requests for drinking water (Fathonah et al., 2024; Kolcak et al., 2023; Kuyler & Heyns, 2024; Momennasab et al., 2019; Szymkowicz et al., 2024), as well as expressions of thirst (Kuruppu et al. (2024), hunger (Kolcak et al., 2023; Momennasab et al., 2019; Szymkowicz et al., 2024), the need to use the toilet (Kolcak et al., 2023; Momennasab et al., 2019), and the desire to sleep or rest (Kolcak et al., 2023; Momennasab et al., 2019; Szymkowicz et al., 2024). *Comfort-related needs* include requests for assistance with positioning, such as adjusting the head or pillow (Kolcak et al., 2023; N. R. Kuruppu et al., 2023), and concerns related to thermoregulation, such as feeling too hot or too cold (Szymkowicz et al., 2024). *Social needs* were also identified, with several patients expressing the desire to be in contact with family members (Fathonah et al., 2024; Kolcak et al., 2023; Kuruppu et al., 2024). In addition, *psychological needs* were communicated, including emotions, thoughts, and feelings (Leung et al., 2018; Momennasab et al.,

2019; Szymkowicz et al., 2024), as well as the need for information regarding their condition (Leung et al., 2018).

In complaint expression domain, it was found that patients used the available means of communication to relay various physical complaints, including pain (Fathonah et al., 2024; Kolcak et al., 2023; Momennasab et al., 2019; Szymkowicz et al., 2024), breathing difficulties (Kolcak et al., 2023; Szymkowicz et al., 2024), nausea and vomiting (Kolcak et al., 2023), and accumulation of saliva and secretions (Fathonah et al., 2024; Kolcak et al., 2023; Kuyler, Heyns, 2024; Momennasab et al., 2019). Environmental discomforts were also commonly reported, including complaints about room temperature (too hot or too cold), disruptive lighting, and excessive noise (Kolcak et al., 2023; Szymkowicz et al., 2024).

In the domain of patient care, it was found that some patients participated in care-related communication, particularly in the pain assessment process (Kolcak et al., 2023).

Discussion

Communication limitations in mechanically ventilated patients have become a central issue in critical care, with a widespread impact on patients, caregivers, and families. Over the past decade, studies have shown the importance of communication in the ICU to ensure the safety, comfort, and success of patient care.

Impact of Communication Limitations

The inability to speak due to intubation leaves patients undergoing mechanical ventilation vulnerable to psychological distress. Patients perceive the inability to speak as the most frightening experience during ICU care (Happ et al., 2014). Recent studies have confirmed that patients experience frustration, anxiety, loneliness, and even loss of control due to communication barriers (Brambilla et al., 2025; Szymkowicz et al., 2024). Other studies have also identified that patients not only experience emotional distress but also difficulty communicating basic needs such as thirst, hunger, or toileting (Kuruppu et al., 2024). These needs are often not addressed quickly, resulting in discomfort to the patients. This phenomenon also increases the risk of Post-Intensive Care Syndrome (PICS), in which patients experience emotional and cognitive impairment after leaving the ICU (Davidson et al., 2017). Therefore, communication interventions are not just aids but an important part of supportive therapy in the ICU.

As the primary care providers in the ICU, nurses are also significantly impacted by patients' communication limitations. Approximately 72% of ICU nurses experience frustration when they are unable to understand the messages of patients who cannot speak (Ijssennagger et al., 2018). This lack of clarity in communication causes nurses to feel anxious, confused, and lack confidence in providing appropriate nursing actions. Kuyler and Heyns also pointed out that nurses' inability to understand patients' needs tends to make them limit communication and only perform routine actions (Kuyler, Heyns, 2024). Ineffective communication reduces the quality of patient care. Ineffective communication increases the risk of errors in the assessment of pain and other physical complaints that can only be conveyed through non-verbal expressions (Zaga et al., 2023).

Although the number of studies is still limited, some studies have highlighted the importance of patient communication for family well-being. One study reported that

families of mechanically ventilated patients experienced high emotional stress when they were unable to understand or assist in communicating with the patient (Shin et al., 2021). It also hinders family involvement in clinical decision-making and exacerbates the psychological burden during intensive care (Alharbi et al., 2022). A meta-analysis found that families of ICU patients have several needs in order to find peace of mind, including the need of information about condition of patient, the need to be included in the caring of patients, and the need to be visited by their family (Ismail, et al., 2024).

Communication Methods

Research on the communication of mechanically ventilated patients shows that communication methods are a significant aspect of improving the quality of care and reducing psychological distress for both patients and healthcare workers. The two main approaches used are unaided and aided communication methods. Nonverbal communication, such as hand gestures, facial expressions, eye contact, and body movements, are the most accessible methods but also have major limitations in effectiveness. Although body cues can convey basic emotions, they are highly dependent on the subjective understanding of the caregiver and often lead to misunderstandings (Pina et al., 2020). Previous study also noted that nurses' lack of training in the interpretation of patients' nonverbal gestures exacerbates communication barriers (ten Hoorn et al., 2016). The scoping review showed that the reliability of tool-less communication is low in conveying complex needs, such as pain or emotional needs (Karlsen et al., 2019).

Communication methods with tools are low-technology and high-technology tools. Low-tech methods include whiteboards, writing instruments, pictures, and pictorial communication boards. The use of pictorial tools helps patients express basic needs, such as thirst, hunger, or wanting to change body position, more quickly than using gestures alone (Pina et al., 2020). Illustrated communication boards are more effective when designed with patient and caregiver participation, as the content becomes more relevant and user-friendly (Yava, 2020).

Digital devices, such as digital communication boards, eye-tracking devices, and mobile applications, are increasingly becoming options. The use of digital boards significantly improves communication clarity, speeds up nurse response time, and reduces patient anxiety in clinically significant ways (Pina et al., 2020; Dumas, 2020). There are still issues, though, like the requirement for training, cost limitations, and patient technology adoption (Divani et al., 2022; Shilpa et al., 2024). Therefore, although high-tech methods are effective, hospital policies, and training are needed to ensure their optimal use.

Communication Content of Mechanically Ventilated Patients

Patients on mechanical ventilation are vulnerable not only physiologically but also emotionally and socially. Verbal communication difficulties are a significant obstacle but recent research has demonstrated that patients can communicate with healthcare workers using nonverbal or aided techniques. The three main themes of patient communication content—patient needs, complaints, and aspects of care—demonstrate the complexity of these interactions.

Communication related to basic needs, such as hunger, thirst, the need to relieve oneself, or changing body position, is the most frequently conveyed content by intubated patients. A study showed that most patients who are conscious during mechanical ventilation want to communicate their basic needs but are often

frustrated by the limited communication tools or strategies available (ten Hoorn et al., 2016).

In addition to physical needs, social and psychological aspects arise. These results are consistent with the context of holistic nursing, which views patients as physical, psychological, social and spiritual beings (Ismail et al., 2024). Patients often express a desire for information about their family or express their fears and anxieties about their medical condition (Fager et al., 2021). Communication is also related to patient complaints and satisfaction. Patient complaints generally include pain, nausea, tightness, and disturbances due to the ICU environment, such as noise, excessive light, or uncomfortable room temperature. A study found that patients who could not speak were more likely to keep their complaints to themselves if health workers did not actively open communication spaces (Karlsen et al., 2019).

Complaints regarding the physical environment of the ICU cannot be ignored. A study showed that environmental discomfort contributes to patients' psychological stress, sleep disturbances, and even prolonged ICU length of stay (Rustam et al., 2018). Therefore, nurses' ability to recognize complaints is crucial for preventing stress and improving patient comfort.

Although patients have limited speech, communication in the context of care still occurs, especially when nurses perform interventions such as pain assessments or other nursing actions. The care process can be an important moment for patients to convey their wants or needs through eye contact or gestures. Thus, nurses need to develop sensitivity to nonverbal signals as a form of communication of patient needs. However, both low- and high-tech communication aids are still needed to facilitate the efficient communication of needs.

Limitations

This scoping review had some limitations. First, despite conducting a thorough literature search, relevant publications may have been missed due to a lack of database sources, the use of keywords, or papers not available in English. Second, as this study did not conduct a methodological quality assessment (critical appraisal) of the articles, the findings should be read descriptively and not to draw causal implications. Third, the geographical distribution of publications is uneven, with certain countries, such as Iran and the United States, dominating, while other countries' cultural contexts and health systems may be underrepresented.

Implications for Global Nursing Practice

This scoping review makes a significant contribution to global nursing practice, particularly in the context of caring for patients on mechanical ventilation in the ICU. By identifying the various psychological and nursing impacts of communication limitations on patients, caregivers, and families, this review emphasizes the importance of strengthening therapeutic communication competencies in the ICU. Mapping the communication content needed by patients undergoing mechanical ventilation also provides an opportunity to design more personalized, culturally relevant, and globally accessible communication aids.

Conclusion

The communication limitations of patients on mechanical ventilation have a significant psychological and caring impact on patients, nurses, and families. Communication methods included techniques without tools (gesture, eye contact) and with tools (whiteboard, digital board, eye-tracking device). High-tech methods are more effective in facilitating communication. Communication content that is widely used in communication includes conveying patient needs and desires, and complaints and messages related to patient care. These findings emphasize the importance of appropriate communication interventions to increase the quality of care and patient comfort in the ICU setting.

Author Contributions

WW: Conceptualization, methodology, and investigation. SI: data curation, formal analysis, writing original draft. RR: methodology, data curation, formal analysis. AM: writing-review & editing, validation. MAS: writing-review & editing, visualization.

Conflict of interest

The authors declare no conflicts of interest.

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