

Research Article

Exploring Communication Needs and Challenges in the Intensive Care Unit: A Survey Study From Providers' and Patients' Perspectives

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ARTICLE INFO**Article History:**

Received October 14, 2023

Revision received January 6, 2024

Accepted May 3, 2024

Editor-in-Chief: Rita R. Patel

Editor: Sarah Elizabeth Wallace

https://doi.org/10.1044/2024_AJSLP-23-00385

ABSTRACT

Purpose: Effective communication between nonspeaking patients and providers is critical for the quality of care in intensive care units (ICUs). This study aims to evaluate perspectives of health care providers and nonspeaking patients on effective communication and communication barriers in the ICU.

Method: Qualitative and quantitative survey methodologies were employed to evaluate providers' and patients' perspectives on effective communication. Rating scales were utilized to measure patients' frustration levels and communication effectiveness. Open-ended questions were employed to reflect on barriers to communication in the ICU, instances of ineffective communication, and recommendations for enhancing effective communication.

Results: The results of the study suggest that nonspeaking patients experienced high levels of frustration due to ineffective communication. However, the data reveal that access to appropriate augmentative and alternative communication (AAC) strategies and materials could help mitigate patients' frustration. Providers mainly communicated via asking yes/no questions, which largely limited the information patients conveyed, leading to frequent communication breakdowns. Providers expressed a desire to participate in training programs to utilize appropriate AAC strategies and promote effective communication.

Conclusions: This study provides preliminary survey results on perspectives of patients and providers on effective communication in the ICU. Both providers and patients reported experiencing challenges and frustration during their communication, due to barriers such as providers' insufficient training experience and lack of access to AAC materials. Skill training is warranted to promote effective patient-provider communication in intensive care settings.

Supplemental Material: <https://doi.org/10.23641/asha.26339623>

Many patients in intensive care units (ICUs) are often unable to communicate using speech and/or writing due to temporary intubation, mechanical ventilation, neurological damage (e.g., traumatic brain injury, stroke), facial trauma, and other medical conditions (Dithole et al., 2016; Handberg & Voss, 2018; Happ et al., 2004; Martinho & Rodrigues, 2016). Most recently, the

COVID-19 pandemic has highlighted a critical need for effective communication in ICU, as a significant number of individuals required temporary mechanical ventilation. Patients who can write or use gestures for communication may also face challenges if their hands are restrained or if they have an intravenous drip in place (Handberg & Voss, 2018; Zubow & Hurtig, 2013). These barriers compromise effective communication between patients and health care providers. Patients encounter frequent communication breakdowns, increasing the risk of adverse medical events and diminishing patients' quality of care (Costello, 2000; Martinho & Rodrigues, 2016; Patak et al., 2006; Ten

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Hoorn et al., 2016). Instead of being actively involved in their recovery, patients become passive participants in their care, resigned to anxiously anticipating what will happen next (Beukelman & Light, 2020). Additionally, several research studies indicate that patients with communication difficulties also experience heightened feelings of anxiety, fear, frustration, depression, and an overall sense of loss of control (Griffiths et al., 2007; Happ et al., 2014; Holm & Dreyer, 2022; Hurtig et al., 2019).

To ensure quality of care and to reduce adverse mental and physical health effects, The Joint Commission has mandated effective communication for nonspeaking patients as part of their standards for health care organizations (The Joint Commission, 2010). Specifically, The Joint Commission standard stipulates effective communication occurs when “providers understand and integrate the information gleaned from patients, and when patients comprehend accurate, timely, complete, and unambiguous messages from providers in a way that enables them to participate responsibly in their care” (The Joint Commission, 2010, p. 1). Additionally, the American Speech-Language-Hearing Association (ASHA) recommends that health care providers contact a speech-language pathologist in their unit to provide the appropriate augmentative and alternative communication (AAC) strategies, methods, and techniques to help patients with communication challenges (ASHA, n.d.).

Recent studies have provided strong evidence in support of the feasibility of AAC interventions in intensive care settings (Dietz et al., 2020; Gormley & Light, 2019; Light et al., 2019; Murray & Hopf, 2022). It is essential to integrate AAC strategies and techniques from the moment that patients are admitted, allowing them to participate actively and effectively in their medical care (Beukelman & Light, 2020; Costello, 2000; Happ, 2021). Speech-language pathologists play a pivotal role in providing AAC support in the ICU. Their expertise in assessing communication needs, implementing AAC strategies, and promoting interdisciplinary efforts is vital for facilitating effective communication and improving the overall quality of care in the intensive care settings (Beukelman & Light, 2020; Blackstone, 2015). Additionally, appropriate use of AAC tools and strategies has multiple beneficial outcomes for patients. These include reduced medical errors (Hurtig et al., 2019), lower health care costs (Hurtig et al., 2018), expedited transitions to lower levels of care (Wieczorek et al., 2015), less patients’ emotional distress (Baumgarten & Poulsen, 2015), and enhanced well-being with improved quality of care (Happ, 2021; Hosseini et al., 2018).

Despite the many advantages to using AAC strategies and techniques, the existing protocols for implementing bedside AAC intervention in hospitals are far

from optimal. It is unacceptable that effective communication, despite its crucial importance, does not receive sufficient attention in intensive care settings (Santiago et al., 2021). Several barriers prevent bedside AAC intervention from becoming a regular protocol in the ICU. For example, most frontline staff is not equipped with the knowledge and skill to communicate effectively with their nonspeaking patients due to limited to no preservice training (Happ, 2021; Happ et al., 2014). Furthermore, speech-language pathologists typically engage with patients on a consultative basis, often allocating less than 15 min per session to address issues related to swallowing function or speech valves (Beukelman & Light, 2020; Blackstone, 2015). Additionally, resource barriers are a substantial issue as providers do not have easy access to AAC materials and devices in ICU settings (Beukelman & Light, 2020).

Numerous survey studies investigated providers’ communication experience with their nonspeaking patients in intensive care settings. The provider participants in Gropp (2019) reported difficulties related to establishing effective information exchange with their nonspeaking patients. Specifically, providers noted difficulties in clearly comprehending their patients’ concerns and addressing the issues they raised, resulting in decreased patient outcomes and satisfaction. They also reported feeling unprepared to communicate effectively with their nonspeaking patients, due to a lack of training and limited access to communication materials such as communication boards and devices. Grossbach et al. (2011) indicated that ineffective communication tends to detrimentally affect the establishment of a trusting and collaborative relationship between patients and their health care providers.

Magnus and Turkington (2006) conducted a pilot survey study to determine both providers’ and patients’ experiences and perceptions of communication interactions in the ICU. They surveyed nine providers and eight patients in the ICU. Patients reported feelings of anger and low mood, which led to reduced participation in managing their care. Providers also reported frustration and challenges when communicating with nonspeaking patients, noting substantial demands imposed on them to address communication breakdowns while they had limited preservice AAC training.

A number of training programs have been designed and implemented to educate and equip health care providers with knowledge and skills to better communicate with nonspeaking patients (e.g., Happ et al., 2008; Noguchi et al., 2019; Tate et al., 2020; Trotta et al., 2020). The Study of Patient–Nurse Effectiveness with Assisted Communication Strategies (SPEACS) was a comprehensive training program developed by Happ et al. (2008, 2010). Although there is strong evidence for effectiveness of

SPEACS with nurses in ICU settings, it has not been widely integrated into training programs within hospital systems (Happ, 2021).

There are several studies that provide data on providers' perceptions related to effective communication in ICU (e.g., Gropp et al., 2019; Momennasab et al., 2023). However, there is a scarcity of studies that encompass a large sample and offer data from both providers' and patients' perspectives within the same health care setting (e.g., Magnus & Turkington, 2006). Furthermore, the provider participants included in the previous studies were limited to nursing professionals (Gropp et al., 2019; Happ et al., 2014; Momennasab et al., 2023); other health care providers (e.g., physical therapists and respiratory therapists) who also engage in patient communication frequently were not included. Thus, the research aims of the current study are to (a) evaluate and compare providers' and patients' perspectives on communication needs and barriers in the ICU using a relatively larger sample size; (b) examine the AAC strategies most commonly employed in present-day intensive care settings; (c) understand providers' perceived competence and comfort levels in communicating with nonspeaking patients in practice; and (d) identify recurring themes and analyze patterns related to experiences of communication breakdowns, as well as suggestions for future service provision shared by providers and patients.

Method

This study employed both quantitative and qualitative survey approaches. The quantitative aspect involved analysis of rating scale data to measure participants' perspectives on effective communication in the ICU. A qualitative approach was used to analyze answers and identify themes to open-ended questions from participants across the two groups.

Participants

Purposive sampling was employed to recruit patient and provider participants from a teaching hospital in the urban area of Austin, Texas. Data collection took place from June 2020 to December 2022. Each participant received monetary compensation for their involvement in the study. All aspects of this study were approved by the institutional review board.

A total of 52 health care providers consented to participate in this study and met the following inclusion criteria: served as health care providers who had experience working with nonspeaking patients in the medical and surgical ICU and demonstrated proficiency in spoken and

written English. Specifically, 30 nurses, two physician assistants, six respiratory therapists, five occupational therapists, three speech-language pathologists, and six physical therapists participated in the current study.

To gain perspectives on effective communication from both providers and patients, 25 adult patients (15 female and 10 male) were also recruited for this study. They were aged between 18 and 80 years ($M = 51.29$, $SD = 19.88$). They met the following inclusion criteria: (a) current or recent admission to the medical or surgical ICU; (b) unable to speak for at least 24 hr during their stay at ICU; (c) unable to speak due to respiratory interventions (e.g., intubation, tracheostomy), neurological conditions (e.g., stroke), or other medical conditions (e.g., burn injury, facial trauma, tongue cancer); (d) able to recall their experiences as nonspeaking patients in the ICU; (e) medically stable at the time of their participation in the study; and (f) demonstrated ability to understand the survey questions and provide reliable responses, using either speech or AAC strategies (e.g., writing, pointing). Patient participants' demographic and clinical data including age, gender, reason for hospitalization, intubation and/or tracheostomy history, and writing ability are depicted in Table 1.

Procedure

Questionnaire

Survey questionnaires (see Supplemental Materials S1 and S2) were developed to investigate providers' and patients' perspectives on communication needs and barriers in the ICU. Survey questions included rating scales, multiple-choice, and open-ended questions were generated after reviewing existing literature (e.g., Gropp et al., 2019; Magnus & Turkington, 2006; Patak et al., 2004) on providers' and patients' perspectives on communication needs and barriers in the ICU. Additionally, to address critical clinical gaps, we added questions to seek insight on areas such as essential messages conveyed by patients, communication strategies employed by providers, types of patients referred for speech-language pathology services, preferences of providers and patients regarding AAC, as well as recommendations from providers concerning training programs. The draft of the survey was reviewed by three speech-language pathologists who provided services and led training programs on promoting patient-provider communication at major hospitals. They piloted the survey with ICU patients and providers to test for clarity and appropriateness of survey length. Based on their feedback, appropriate revisions were made, and the survey was finalized.

Survey questions for providers focused on (a) frequency of communication with nonspeaking patients, (b)

Table 1. Demographic and clinical characteristics of patient participants (*N* = 25).

Participant #	Age	Gender (M/F)	Reason for hospitalization	Records of intubation and tracheostomy in charts	Ability to write as reported by patients
P1	70	F	Surgical head and neck oncology	Trached	Yes
P2	27	F	Trauma	Trached	Yes
P3	49	F	Surgical oncology	Trached	Yes
P4	52	M	Trauma	N/A	Yes
P5	48	F	Trauma	N/A	No
P6	19	M	Trauma/spinal cord injury	N/A	Not sure
P7	60	M	Trauma	Intubated	Not sure
P8	59	M	Head and neck oncology	Intubated	Yes
P9	72	M	Trauma/spinal cord injury	Intubated then trached	No
P10	35	M	Trauma	Intubated	Yes
P11	70	M	Surgical etiology or complication	Intubated then trached	No
P12	38	M	Trauma/burn	N/A	Yes
P13	68	F	Surgical etiology or complication	Intubated	No
P14	37	F	Surgical etiology or complication	Intubated	Yes
P15	54	F	Surgical etiology or complication	Intubated	No
P16	68	F	Surgical etiology or complication	Intubated	No
P17	28	M	Trauma	N/A	No
P18	72	F	Surgical head and neck oncology	Trached	Not sure
P19	79	F	Oncology complicated by sepsis	Trached	Yes
P20	18	F	Trauma	Intubated	Yes
P21	81	F	Surgical head and neck oncology	Trached	Yes
P22	38	F	Trauma	Trached	No
P23	26	M	Trauma	Intubated then trached	Not sure
P24	80	F	Trauma	Intubated	No
P25	50	F	Surgical etiology or complication	Intubated	No

Note. M = male; F = female; N/A = no information in the chart.

success of communication attempts, (c) providers' perceptions of patient's frustration due to ineffective communication, (d) access to AAC strategies, (e) confidence in utilizing AAC techniques and strategies to facilitate communication and alleviate patient frustration, and (f) overall perspective about the significance of effective patient-provider communication in providing appropriate medical care in the ICU. Additionally, the survey also included a series of open-ended questions. These questions were designed to obtain information about the nature of messages patients conveyed and types of communication barriers encountered in the ICU. Furthermore, providers were asked to rank the top five AAC strategies that they employed in the ICU. Data were also collected on providers' willingness to participate in an AAC training program focused on promoting effective communication in an ICU. They were also asked to offer suggestions concerning the content of training programs.

The questions directed at patients primarily focused on the following: (a) the level of frustration stemming from their inability to communicate, (b) frequency of communication breakdowns and the number of times those

breakdowns were successfully resolved, and (c) overall support they received from providers in facilitating communication. Patients were also asked to respond to open-ended questions about the nature of the messages they attempted to convey and the communication obstacles they encountered in the ICU. Similar to providers, patients were requested to rank the top five AAC strategies frequently used by providers in the ICU and share their thoughts on potential ways to improve patient-provider communication.

Data Collection Procedure

Convenience sampling was used by the sixth author to select potential participants who met the inclusion criteria and could feasibly complete the survey. Data collection was conducted by the first, second, third, and fifth authors. They explained to each participant the purpose of the research and an estimate of the time required to complete the survey, and provided an overview of the procedures. Participants were given the option to choose between a traditional paper-and-pencil questionnaire and an electronic web-based questionnaire presented in the Qualtrics platform.

A total of 52 providers signed the informed consent forms and completed the survey questionnaires. Within this participant group, 16 of the 52 (30.8%) providers opted for the traditional paper-and-pencil version, while 36 (69.2%) chose to complete the survey online via the Qualtrics platform. All 52 providers completed the survey independently and at their own pace.

Twenty-five patients signed the informed consent forms and completed the survey questionnaires. Two of the 25 (8%) participants selected the paper-and-pencil version, while the remaining 23 (92%) completed the electronic web-based survey. Patients were allowed to seek assistance from their caregivers while completing the questionnaire; however, it was emphasized that the responses must reflect the patients' perspectives. Specifically, four of the 25 (16%) patient participants completed the questionnaires independently at their own pace. However, 10 of the 25 (40%) participants required researchers to read questions aloud to them, and they provided verbal responses. For two of the 25 (8%) participants, researchers read the questions aloud, and they responded by writing on a whiteboard.

Data Analysis

Quantitative Analysis

Participant responses to the Likert scale questions were recorded, and descriptive statistical analyses were conducted to determine providers' and patients' perspectives on communication in the ICU. The nonparametric Mann-Whitney *U* test analysis was conducted to determine significant differences between providers' and patients' perspectives.

Additionally, ranking data on the top five AAC strategies used in the ICU were analyzed using the following process: If a participant ranked a strategy, such as asking yes/no questions, as their first choice, the strategy was assigned 5 points. If a participant ranked the strategy as their second choice, it received 4 points and so forth, and the strategy ranked fifth was assigned 1 point. Finally, the total and mean scores were calculated for participants in each of the two groups to determine the top five AAC strategies frequently utilized in the ICU, from the perspectives of providers and patients.

Qualitative Analysis

Provider and patient participants' responses to open-ended questions were analyzed according to Braun and Clarke's (2006) protocol for thematic analysis. The protocol involves six distinct phases: familiarization, coding, searching for themes, reviewing themes, defining and naming themes, and writing the report. The thematic analysis was completed by the first and the fourth author.

Following the protocol established by the first author, the fourth author received training on coding and identifying themes. Both authors independently coded all responses and then reviewed the coding line by line until a consensus was reached. Once coding was finalized, themes were generated, reviewed, and named based on the discussion between the two authors.

Results

Providers' Perspectives

Fifty-two providers' survey responses were analyzed using a combination of quantitative and qualitative statistical methods. The provider participant group encompassed participants across range of health care professions, including nurses, physician assistants, respiratory therapists, speech-language pathologists, occupational therapists, and physical therapists. The following paragraphs present the results of providers' responses to Likert scale questions (see Supplemental Material S1 for survey questions; see Table 2 for item description, frequency, percentage, mode, median, and mean).

Patients' Frustration Levels Perceived by Providers

Among the 52 providers surveyed, 69.2% ($n = 36$) reported that patients experienced very high to extremely high levels of frustration due to their communication difficulties. However, if patients had access to effective AAC strategies, 92.3% ($n = 48$) of the providers agreed or strongly agreed that patients' frustration levels would decrease, indicating a strong consensus.

Communication Initiations and Breakdowns

Among the providers, 51.9% ($n = 27$) stated that patients always or most of the time initiated interactions when they were in the unit. A higher percentage, specifically 76.9% ($n = 40$) of providers, reported that they initiated conversations with their nonspeaking patients. However, it is worth noting that a significant majority of providers (80.7%, $n = 42$) reported that communication breakdowns or misunderstandings occurred at least half of the time. Additionally, when communication breakdowns occurred, 75% ($n = 39$) of providers reported that they could resolve only half or less than half of the breakdowns. When experiencing communication breakdowns, 63.4% ($n = 33$) of providers noted that their patients gave up on communication about or more than half of the time, highlighting the frustration and difficulties faced by both providers and nonspeaking patients. These data are indicative of significant challenges in overcoming communication barriers in ICU settings.

Table 2. Summary of Likert scale question responses from provider participants (*N* = 52).

Item description	Participant response	Frequency (<i>n</i>)	Percentage (%)	Mean	Median	Mode
Q2a. Please rate the perceived level of frustration your nonspeaking patients experienced when they were unable to speak or communicate effectively.	<i>Not at all frustrated</i>	0	0	3.9	4	4
	<i>Slightly frustrated</i>	1	1.9			
	<i>Moderately frustrated</i>	15	28.8			
	<i>Very frustrated</i>	23	44.2			
	<i>Extremely frustrated</i>	13	25.0			
Q2b. Do you believe that your patients' frustration would decrease if they had access to alternative communication strategies?	<i>Strongly disagree</i>	0	0	4.3	4	4
	<i>Disagree</i>	2	3.8			
	<i>Neither agree nor disagree</i>	2	3.8			
	<i>Somewhat agree</i>	25	48.1			
	<i>Strongly agree</i>	23	44.2			
Q2c. How often did your nonspeaking patients attempt to initiate or initiate conversations?	<i>Never</i>	0	0	3.4	4	4
	<i>Sometimes</i>	13	25.0			
	<i>About half the time</i>	12	23.1			
	<i>Most of the time</i>	22	42.3			
	<i>Always</i>	5	9.6			
Q2d. How often did you attempt to initiate or initiate conversations with your nonspeaking patients when they were unable to speak?	<i>Never</i>	0	0	4.0	4	4
	<i>Sometimes</i>	4	7.7			
	<i>About half the time</i>	8	15.4			
	<i>Most of the time</i>	25	48.1			
	<i>Always</i>	15	28.8			
Q2e. How often was your communication with nonspeaking patients ineffective?	<i>Never</i>	0	0	3.3	3	4
	<i>Sometimes</i>	10	19.2			
	<i>About half the time</i>	19	36.5			
	<i>Most of the time</i>	23	44.2			
	<i>Always</i>	0	0			
Q2f. How often were you able to resolve these communication breakdowns or experiences with ineffective communication?	<i>Never</i>	0	0	2.9	3	2
	<i>Sometimes</i>	20	38.5			
	<i>About half the time</i>	19	36.5			
	<i>Most of the time</i>	13	25			
	<i>Always</i>	0	0			
Q2g. How often did your patients give up conveying their needs, wants, and thoughts when they were struggling to communicate?	<i>Never</i>	0	0	3.0	3	2
	<i>Sometimes</i>	19	36.5			
	<i>About half the time</i>	18	34.6			
	<i>Most of the time</i>	14	26.9			
	<i>Always</i>	1	1.9			
Q2h. How important do you think effective communication is to the care of your nonspeaking patients in the intensive care unit?	<i>Not at all important</i>	0	0	4.4	5	5
	<i>Slightly important</i>	1	1.9			
	<i>Moderately important</i>	6	11.5			
	<i>Very important</i>	15	28.8			
	<i>Extremely important</i>	30	57.7			
Q2i. You are confident that you used the most appropriate strategies when communicating with your nonspeaking patients.	<i>Strongly disagree</i>	0	0	3.4	4	4
	<i>Disagree</i>	10	19.2			
	<i>Neither agree nor disagree</i>	13	25.0			
	<i>Somewhat agree</i>	25	48.1			
	<i>Strongly agree</i>	4	7.7			

(table continues)

Table 2. (Continued).

Item description	Participant response	Frequency (n)	Percentage (%)	Mean	Median	Mode
Q2j. Do you believe that you received sufficient training on how to communicate effectively with your nonspeaking patients?	<i>Strongly disagree</i>	3	5.8	2.9	3	2
	<i>Disagree</i>	21	40.4			
	<i>Neither agree nor disagree</i>	12	23.1			
	<i>Somewhat agree</i>	10	19.2			
	<i>Strongly agree</i>	6	11.5			
Q2k. You have the appropriate resources to implement effective communication strategies with your nonspeaking patients.	<i>Strongly disagree</i>	10	19.2	2.9	3	4
	<i>Disagree</i>	13	25.0			
	<i>Neither agree nor disagree</i>	6	11.5			
	<i>Somewhat agree</i>	20	38.5			
	<i>Strongly agree</i>	3	5.8			

Note. The first point on the scale = 1; the fifth point on the scale = 5.

Providers' Competence in Supporting Effective Communication

A substantial majority, specifically 86.5% ($n = 45$) of providers, believed that effective communication played an extremely or very important role in patients' care and well-being, underlining its critical significance in health care settings. However, there was a lack of confidence among providers in their ability to select appropriate strategies to support patient-provider communication. Only 55.8% ($n = 29$) of providers strongly agreed or somewhat agreed that they possessed confidence, while 25.0% ($n = 13$) neither agreed nor disagreed, and 19.2% ($n = 10$) disagreed, indicating a range of confidence levels in using appropriate strategies. Regarding training on communicating with nonspeaking patients, 30.7% ($n = 16$) of providers strongly or somewhat agreed that they received sufficient training in this area, while 46.2% ($n = 24$) of providers did not feel adequately trained, suggesting potential gaps in training program in health care settings. When asked about their access to communication materials like picture boards or communication devices, only 44.2% ($n = 23$) of providers agreed that they had an easy access, while 44.2% ($n = 23$) indicated difficulty in accessing communication resources.

Patients' Essential Messages Reported by Providers

Provider participants' responses to open-ended questions were analyzed using thematic analysis. Providers identified several key concerns related to effective communication among patients. This included communication related to (a) pain management, (b) discomfort (e.g., hunger, cold), (c) receiving family updates, (d) discussing plan of care, and (e) addressing emotional distress. However, only 23% ($n = 12$) of providers believed that their patients were able to effectively convey these messages.

Communication Barriers Identified by Providers

In addition to the listed concerns, provider participants identified a range of both patient-related and provider/hospital-related barriers that hindered effective communication (see Supplemental Material S3 for providers' coded responses and related quotes). The patient-related barriers pertained to their medical condition and were composed of following: (a) unable to speak due to factors like breath support (e.g., tracheostomy, intubation) or other medical conditions (e.g., facial trauma; $n = 17$, 32.7%); (b) unable to write due to weakness, impaired coordination or restraints ($n = 17$, 32.7%); (c) delirium after sedation ($n = 12$, 23.1%); (d) emotional distress leading to frustration and fear, resulting in refusal to communicate ($n = 7$, 13.4%); (e) weakness ($n = 5$, 9.6%); (f) unable to point ($n = 2$, 3.8%); (g) unable to type ($n = 1$, 1.9%); (h) limited literacy skills ($n = 1$, 1.9%); and (i) vision issues ($n = 1$, 1.9%).

The provider/hospital-related barriers included the following: (a) limited access to AAC materials ($n = 10$, 19.2%); (b) challenges related to reading patients' lips ($n = 8$, 15.4%); (c) language barrier ($n = 7$, 13.5%); (d) ineffective yes/no questions ($n = 3$, 5.8%); (e) skills barriers regarding providers' limited education and training on communicating with nonspeaking patients using AAC strategies ($n = 3$, 5.8%); (f) difficulty understanding patients' gestures ($n = 2$, 3.8%); (g) resources barrier ($n = 2$, 3.8%), including limited interdisciplinary staffing and processes; (h) time limit ($n = 2$, 3.8%); and (i) policy barrier ($n = 1$, 1.9%).

Communication Breakdowns Reported by Providers

A large percentage (82.7%, $n = 43$) of surveyed providers shared instances in which patients gave up on communication attempts due to their inability to effectively convey their messages (see Supplemental Material S4 for providers' coded responses and related quotes). During

these situations, patients demonstrated varied emotions such as anger, frustration, fear, and a reluctance to communicate. Two overarching themes emerged regarding how providers addressed communication breakdowns and the adverse effects resulting from unresolved communication issues. Providers attempted to respond to communication breakdowns in several ways, including (a) asking yes/no questions and walking through possible options to understand what patients might mean ($n = 14$, 26.9%), (b) attempting to read patients' lips while patients were mouthing words ($n = 12$, 23.1%), (c) providing patients with markers and whiteboards to write ($n = 10$, 19.2%), (d) providing patients with communication boards to point ($n = 6$, 11.5%), (e) elaborating on questions or providing more details ($n = 4$, 7.7%), (f) asking patients to point ($n = 1$, 1.9%), and (g) asking other providers for help ($n = 1$, 1.9%). Providers also suggested adverse outcomes resulting from unaddressed communication breakdowns, including (a) patients experiencing emotional distress (e.g., frustration) and giving up communication attempts ($n = 14$, 26.9%), (b) cost of extra time ($n = 5$, 9.6%), and (c) providers experiencing emotional distress and apologizing for their inability to fully comprehend patients' messages ($n = 4$, 7.7%).

Several participants shared specific instances highlighting the challenges patients faced during their stay in the ICU. One provider recounted a scenario where they engaged in a prolonged back-and-forth interaction akin to a game of charades, only for the patient to eventually close their eyes in resignation. Another provider described an evaluation where they struggled to discern the patient's concerns, leading to the patient disengaging for the rest of the session.

Among the surveyed providers, 61.5% ($n = 32$) reported encountering situations in which patients struggled to understand the information they were conveying. Several patient-related factors contributing to these communication breakdowns were identified: (a) level of sedation impacted their ability to attend to and process information effectively; (b) difficulties in asking clarifying questions due to patients' inability to communicate; and (c) concomitant conditions, including hearing impairment, visual deficits, cognitive impairment, and language-related issues. Additionally, provider/hospital-related factors included (a) providers' occasional use of medical terminology and jargon that were unfamiliar to patients and (b) a lack of bilingual providers and ineffective use of interpreter iPads (e.g., issues with volume in presence of background noise), posing additional challenges to effective communication.

Providers also shared strategies that they employed to enhance patients' understanding: (a) reexplaining

information to patients and offering clarification; (b) avoiding the use of medical terms and opting for simpler language to facilitate understanding; (c) asking yes/no questions as a means to understand patients' needs and preferences; and (d) providing patients with visuals (e.g., pictures, written instructions) to help them comprehend medical procedures, thus making the information more accessible.

Referral for Speech-Language Pathology Services

Providers indicated that they would consult a speech-language pathologist for patients who fell into the following categories: (a) stroke/aphasia patients (identified by 59.6% of the providers [$n = 31$]); (b) tracheostomy patients in need of a speaking valve (identified by 32.7% of the providers [$n = 17$]); (c) dysphagia patients requiring swallow evaluation and treatment (identified by 30.7% of the providers [$n = 16$]); (d) patients with cognitive impairment, such as individuals with traumatic brain injuries (identified by 21.2% of the providers [$n = 11$]); (e) patients with neurodegenerative diseases (identified by 5.7% of the providers [$n = 3$]), such as amyotrophic lateral sclerosis; and (f) postextubating patients (identified by 4.8% of the providers [$n = 2$]).

Communication with Non-English-Speaking Patients

When asked what strategies providers employed to communicate with patients who speak languages other than English, providers responses were as follows: (a) interpreter iPad (reported by 40.4% of the providers [$n = 21$]), (b) translation support from bilingual family members (reported by 34.6% of the providers [$n = 18$]), and (c) translation assistance from in-person interpreters/providers/staff (reported by 19.2% of the providers [$n = 10$]). Providers also complained that using the iPad interpreter limited communication to yes/no questions, and frequently, it was difficult for the online interpreter to hear patient clearly over audio/video due to noise levels in the unit. It was worth noting that only 3.8% ($n = 2$) of the providers mentioned the use of visuals (e.g., pictures), which could have facilitated bilingual interaction.

Providers' Knowledge and Implementation of AAC Strategies

Providers were asked to rank their five most frequently used AAC strategies with nonspeaking patients from a list of 12 options. The highest-ranked strategy was asking yes/no questions. This strategy received a total of 228 points with a mean score of 4.4 out of 5.0. This was followed by reading patients' lips, which received 160 points with a mean score of 3.0. The third was providing patients with markers and whiteboards to write, which scored 142 points in total, with a mean score of 2.7. Reading patients' gestures was the next preferred strategy, accumulating a total of 90 points, with a mean score of

1.7. Last, speaking with caregivers instead of patients ranked fifth, receiving a total of 74 points with a mean score of 1.4. In contrast, the use of picture communication board, which makes it easier for nonspeaking patients to effectively convey various medical needs, only received 37 total points with an average score of 0.7, while letter communication boards, which helps literate patients to communicate novel (not only prestored messages), only scored 31 total points, with an average rating of 0.6.

To promote patient-provider communication in the ICU, providers were asked about their preferences for various materials to facilitate patient-provider communication. These responses were as follows: (a) communication applications with images on smartphones and/or tablets (preferred by 82.7% of the providers [$n = 43$]); (b) communication applications with messages on smartphones and/or tablets, with large letters for individuals with decreased vision (preferred by 42.3% of the providers [$n = 22$]); (c) keyboards on electronic devices (preferred by 38.5% of the providers [$n = 20$]); (d) picture boards (preferred by 32.7% of the providers [$n = 17$]); (e) no-tech communication displays, allowing patients to select messages using eye gaze (preferred by 11.5% of the providers [$n = 6$]); and (f) eye-tracking communication devices (preferred by 5.7% of the providers [$n = 3$]).

Providers also highlighted several factors that contribute to the limited utilization of AAC tools and strategies in the ICU. These factors include (a) time constraints, (b) lack of training and experience in using AAC tools and strategies, (c) insufficient availability of materials for communication, and (d) limited knowledge of AAC tools.

Training Content Suggested by Providers

Seventy-eight percent ($n = 40$) of the providers expressed interest in participating in an online training program aimed at understanding and implementing effective AAC strategies for communicating with nonspeaking patients. They provided following valuable suggestions related to the program design: (a) introduction to AAC strategies, (b) guidance on matching strategies to patient profiles and capabilities, and (c) practice opportunities with case studies and simulation exercises. Importantly, providers emphasized the need for the training modules to be concise and flexible, allowing them to easily integrate learning into their busy schedules. Specifically, providers licensed as speech-language pathologists indicated need for educating other health care providers on speech-language pathology scope of practice including seeking immediate consultation for nonspeaking patients. This feedback provided valuable insights into the preferences and priorities of providers. These insights are vital to developing accessible and effective online training programs designed to enhance patient-provider communication.

Patients' Perspectives

The survey responses of 25 patients were analyzed using both qualitative and quantitative analysis. With respect to Questions 2a–2h (see Supplemental Material S2), patient participants were asked to rate various aspects of communication, including frustration levels, initiation of conversation, frequency of communication breakdowns, and the importance of effective communication. The results are summarized in Table 3, providing the item description, frequency, percentage, mode, median, and mean to rating scale questions.

Patients' Response to Likert Scale Questions

Regarding patients' frustration levels, 80% ($n = 20$) of patients reported experiencing very or extremely high levels of frustration due to their inability to communicate. However, 100% ($n = 25$) of surveyed patients agreed or strongly agreed that their frustration levels would decrease if their communication was supplemented with AAC strategies. For questions related to initiation of interactions, only 44% ($n = 11$) of patients reported initiating conversations with their providers when they were in the unit, 24% ($n = 6$) indicated that they initiated interactions half of the time, and as many as 32% ($n = 8$) of the patients only did so sometimes or never initiated. Sixty percent of the patients reported that their providers initiated conversations always or most of the time while they were nonspeaking. In terms of communication breakdowns, 64% ($n = 8$) of the patients experienced communication breakdowns or misunderstandings at least half of the time. It was worth noting that when communication breakdowns occurred, 64% ($n = 8$) of patients reported that only half or less than half of the misunderstandings were resolved. Sixty-four percent ($n = 16$) of patients gave up on attempting communication attempts at least half of the time when communication breakdowns occurred.

Ninety-two percent ($n = 23$) of surveyed patients believed that effective communication played a very or extremely important role in their care and well-being. In addition, 80% ($n = 20$) of patients agreed that providers were moderately supportive or beyond in facilitating their communication when they were unable to speak.

Essential Messages Conveyed by Patients

Patient participants' responses to open-ended questions were analyzed using thematic analysis. Patients identified several communication topics that are essential for care in the ICU. These are as follows: (a) pain management, (b) discomfort (e.g., hunger, thirst, feeling of cold), (c) receiving family and work updates, (d) expressing emotion (e.g., frustration, fear), and (e) discussing plan of care. However, only 24% ($n = 6$) of the patients believed

Table 3. Summary of Likert scale question responses from patient participants ($N = 25$).

Item description	Participant response	Frequency (n)	Percentage (%)	Mean	Median	Mode
Q2a. When you were not able to speak, how frustrated did you feel about your inability to effectively communicate your wants, needs, and thoughts?	<i>Not at all frustrated</i>	1	4	4.0	4	4
	<i>Slightly frustrated</i>	1	4			
	<i>Moderately frustrated</i>	3	12			
	<i>Very frustrated</i>	11	44			
	<i>Extremely frustrated</i>	9	36			
Q2b. Do you believe that you would have felt less frustrated if you had access to alternative communication strategies?	<i>Strongly disagree</i>	0	0	4.6	5	5
	<i>Disagree</i>	0	0			
	<i>Neither agree nor disagree</i>	0	0			
	<i>Somewhat agree</i>	10	40			
	<i>Strongly agree</i>	15	60			
Q2c. How often did you attempt to initiate or initiate conversations when your doctors or nurses were in the room when you were unable to speak?	<i>Never</i>	1	4	3.3	3	2
	<i>Sometimes</i>	7	28			
	<i>About half the time</i>	6	24			
	<i>Most of the time</i>	5	20			
	<i>Always</i>	6	24			
Q2d. How often did your doctors and nurses attempt to initiate or initiate conversations with you when you were unable to speak?	<i>Never</i>	0	0	3.5	4	4
	<i>Sometimes</i>	7	28			
	<i>About half the time</i>	3	12			
	<i>Most of the time</i>	11	44			
	<i>Always</i>	4	16			
Q2e. How often did you encounter communication breakdowns?	<i>Never</i>	1	4	3.0	3	3
	<i>Sometimes</i>	8	32			
	<i>About half the time</i>	10	40			
	<i>Most of the time</i>	4	16			
	<i>Always</i>	2	8			
Q2f. How often could these misunderstandings be resolved?	<i>Never</i>	2	8	2.8	2	2
	<i>Sometimes</i>	11	44			
	<i>About half the time</i>	3	12			
	<i>Most of the time</i>	7	28			
	<i>Always</i>	2	8			
Q2g. How often did you give up conveying a message due to communication difficulties?	<i>Never</i>	3	12	3.0	3	3
	<i>Sometimes</i>	6	24			
	<i>About half the time</i>	7	28			
	<i>Most of the time</i>	5	20			
	<i>Always</i>	4	16			
Q2h. How important do you think effective communication was between you and your doctors and nurses in the intensive care unit?	<i>Not at all important</i>	0	0	4.9	5	5
	<i>Slightly important</i>	0	0			
	<i>Moderately important</i>	0	0			
	<i>Very important</i>	3	12			
	<i>Extremely important</i>	22	80			
Q2i. How supportive do you think your doctors and nurses were when you were trying to understand them or convey messages?	<i>Not at all supportive</i>	1	4	3.7	4	4
	<i>Slightly supportive</i>	4	16			
	<i>Moderately supportive</i>	3	12			
	<i>Very supportive</i>	11	44			
	<i>Extremely supportive</i>	6	24			

Note. The first point on the scale = 1; the fifth point on the scale = 5.

that they were able to convey messages on these topics. A majority, 56% ($n = 14$) of them, were uncertain, while 20% ($n = 5$) disagreed that they were able to effectively communicate these essential messages.

Communication Barriers Identified by Patients

Similar to providers, patient participants reported both patient-related and provider/hospital-related factors that hindered effective communication in the ICU (refer

to Supplemental Material S5 for patients' coded responses and quoted feedback). Analysis of the data indicated two broad themes encompassing lack of access to communication supports and opportunity barrier related to policy, resources, practice, knowledge, and skills (Beukelman & Light, 2020). Patient-related barriers that fell under the theme of lack or inadequate communication capabilities included: (a) inability to speak due to assistance for breath support (e.g., intubation, ventilation) or medical conditions ($n = 7$, 28%); (b) emotional distress, including feelings of frustration, fear, and panic ($n = 6$, 24%); (c) inability to write due to weakness, pain, or other factors ($n = 6$, 24%); (d) unable to point ($n = 1$, 4%); and (e) delirium and experiencing confusion as a result of sedation ($n = 1$, 4%). Provider/hospital-related barriers that fell under opportunity barriers theme included: (a) challenges related to provider reading patients' lips ($n = 3$, 12%); (b) providers' negative attitude ($n = 3$, 12%); (c) limited access to alternative communication materials ($n = 2$, 8%); (d) time constraints, resulting in limited time at bedside for providers to resolve communication breakdowns ($n = 1$, 4%); and (e) limited communication support from speech-language pathologists ($n = 1$, 4%); patients mentioned that speech-language pathologists mainly focused on swallowing and speaking valve-related concerns and did not provide sufficient communication support.

Communication Breakdowns Reported by Patients

Seventeen out of the 25 (68%) patient participants responded to the question regarding their experiences with communication breakdowns and giving up on communication attempts. Eight patients (32%) were unable to complete this open-ended question as they experienced fatigue during administration of survey. Forty percent ($n = 10$) patient participants reported instances where they gave up on communication attempts due to their inability to effectively convey their messages and/or emotional distress (e.g., frustration). Refer to Supplemental Material S6 for providers' coded responses and quoted feedback. Patients shared examples of instances when they experienced communication breakdowns: (a) obtaining necessary items such as a mirror or glasses ($n = 5$, 20%); (b) communicating vital medical messages, such as difficulty breathing, issues with the BiPap machine causing pain, discomfort from tape placement on the eyelid, or the need for positional adjustments ($n = 4$, 16%); (c) communicating with family members ($n = 3$, 12%); (d) giving up communication attempts due to frustration ($n = 2$, 8%); and (e) trying to avoid further questions ($n = 1$, 4%).

Of the 25 patients, 10 (40%) responded to the question regarding whether they experienced difficulties in understanding their providers. Among these 10 patients, seven (28%) acknowledged having this difficulty and provided additional details: (a) reported specific times when

they were not fully prepared to comprehend their providers' questions (this was particularly true when they had just woken up from a nap or during the early morning hours); (b) expressed challenges in understanding the details of their care plans; and (c) reported receiving conflicting or different information, which might be attributed to a lack of effective communication between different providers.

AAC Strategies Used by Providers Reported by Patients

Patients were asked to rank their top five most frequently used communication strategies from a list of twelve options. The highest ranked strategy was answering yes/no questions, receiving a total of 100 points with a mean score of 4.0 of 5.0. This was followed by gesturing, which received 50 total points with a mean score of 2.0. The third was writing on a whiteboard, which scored 46 points in total, with a mean score of 1.8. Mouthing words for providers to read was the next frequently used strategy, accumulating a total of 45 points, with a mean score of 1.8; caregivers talking to providers ranked fifth, receiving a total of 43 points, with a mean score of 1.7. Additionally, four patients reported using a letter communication board. This strategy received a total of 6 points with a mean score of 0.24. Only one patient participant recalled using a picture communication board, earning it a total of 2 points with a mean score of 0.08.

Among the 25 patients surveyed, 20 provided a list of preferred communication supports to use when they were unable to speak and/or write. Following are the list of communication supports along with the percentage of patients who suggested them: (a) 40% ($n = 10$) preferred communication applications on electronic devices (e.g., smartphone or tablet), (b) 28% ($n = 7$) preferred picture communication boards, (c) 28% ($n = 7$) preferred whiteboard/paper and pen, (d) 28% ($n = 7$) preferred keyboards on electronic devices, and (e) 12% ($n = 3$) preferred communication devices with alternative input access (e.g., eye gaze, head movement).

Speech-Language Pathology Services

Regarding speech-language pathology services, only 16% ($n = 4$) of patients recalled receiving treatment from speech-language pathologists. Additionally, it was noted that the focus of speech-language pathology services was primarily related to speaking valve intervention and swallowing evaluation. Furthermore, 12% ($n = 3$) of patients expressed a need for increased communication support at the bedside.

Providers' Perspectives and Patients' Perspectives

The responses of patients and providers to the eight scale questions (Questions 2a–2h, see Supplemental Materials

S1 and S2) were analyzed using the nonparametric Mann–Whitney *U* test for comparison. The results, as shown in Tables 2 and 3, revealed that the perceptions of the two groups were largely comparable for seven of the questions. These questions covered areas such as patients’ frustration levels, the impact of easier access to communication materials, the frequency of initiating conversations by both providers and patients, the frequency of experiencing communication breakdowns, the effectiveness of resolving breakdowns, and the frequency of patients giving up on communication attempts.

However, there was a significant difference in the responses to one question. Specifically, patients (mean rank of 47.30) rated effective communication as significantly more important than providers (mean rank of 35.01), $U = 414.5$, $z = -2.740$, $p < .05$. This indicates a divergence in the perceived importance of effective patient–provider communication between the two groups, with patients placing higher emphasis on its importance compared to providers.

Discussion

This study investigated the perspectives of both providers and patients concerning communication needs and barriers in ICU settings. Additionally, the survey evaluated providers’ self-assessed competence and comfort levels in communicating with nonspeaking patients. Feedback was gathered from both participant groups, regarding suggestions on enhancing patient–provider communication. The following discussions were organized based on grouped survey questions.

Patients’ Frustration Levels

Both provider and patient groups recognized that nonspeaking patients experienced very high levels of frustration due to their inability to speak and/or write. This finding aligns with previous research, affirming that the inability to communicate increases patients’ emotional distress and sense of losing control (Baumgarten & Poulsen, 2015; Blackstone, 2015; Gropp et al., 2019). This finding also emphasizes the critical importance of using AAC strategies in ICU settings to enhance the overall well-being and experience of nonspeaking patients.

Access to AAC Materials

The results indicated agreement between both provider and patient groups that nonspeaking patients would experience reduced levels of frustration if they had access to effective AAC strategies. These findings align with

previous research (Holm et al., 2020; Khalaila et al., 2011; Nordness & Beukelman, 2017; Santiago et al., 2021; Ten Hoorn et al., 2016; Zaga et al., 2019), which emphasized the vital role of offering appropriate AAC tools and techniques to enable successful interactions between patients, health care providers, and caregivers. The availability of communication support has been associated with patients reporting of improved feelings of control and decreased frustration (Gormley & Light, 2019; Happ et al., 2004). Additionally, with effective AAC supports, providers tend to experience fewer communication breakdowns and gain adequate information to effectively address patients’ needs and overall health care outcomes (Gropp et al., 2019; Holm & Dreyer, 2022; Magnus & Turkington, 2006). These findings underscore the significant benefits of effective use of AAC strategies for both patients and providers in ICU settings. Providing patients with access to such tools is essential for enhancing patient–provider interactions and overall quality of care.

Communication Initiations and Breakdowns

The study results highlight the need for effective reciprocal communication between providers and patients to exchange essential messages, regardless of patients’ inability to speak and/or write. Providers need to gain important information that will allow them to address patients’ needs adequately and patients need to ask pertinent questions, make requests, and express their thoughts and feelings. This is only possible if the patients are provided adequate communication support to initiate communication and effectively resolve communication breakdowns. The majority of providers and patients reported that the breakdowns occurred at least half of the time during their interactions. Additionally, only half of these breakdowns were resolved, even after multiple communicative attempts. As a result of these communication breakdowns, both providers and patients indicated that nonspeaking patients gave up on communication attempts more than half of the time. These frequent breakdowns led to increased frustration and dissatisfaction with the quality of care.

This underscores the critical impact of communication breakdowns on both the emotional well-being of patients and the quality of care they receive. It also highlights the potential for preventable medical errors in situations where effective communication is compromised. These results strongly align with previous findings (Costello, 2000; Santiago et al., 2023; Ten Hoorn et al., 2016).

Implementation of AAC Strategies

Despite the crucial nature of messages related to pain, discomfort, emotional distress, medical status, family

updates, and so forth, both providers and patients expressed uncertainty about whether patients were able to effectively communicate these essential and often complex messages. This highlights the significant challenges faced by nonspeaking patients in conveying critical information about their well-being and needs.

Providers consulted speech-language pathologists mainly for swallowing evaluations and help with speaking valves, potentially overlooking a broader range of communication needs for all types of nonspeaking patients. Additionally, both patients and providers indicated that they wished to have easier access to communication applications, communication boards (e.g., picture, message, and spelling boards), and keyboards to facilitate effective patient-provider communication. This indicates a shared recognition of the potential benefits of these tools in facilitating more effective patient-provider communication. Most patients thought that their providers were supportive in trying to understand them and agreed that sustaining life is the top priority in the ICU; however, they wished that they could have received communication support, including access to communication materials and services from speech-language pathologists.

It's notable that both providers and patients expressed a preference for communication applications on smartphones or tablets when asked about their desired AAC tools if given access to all options. This inclination could stem from their familiarity with the high-tech devices, such as touchscreen interfaces and speech output features. The next favored option among respondents was communication boards. Providers found these easier to implement, especially considering potential challenges with funding and policies related to the use of high-tech devices in ICUs. Thus, when choosing AAC aids, it is important to consider the preferences of both providers and patients.

In summary, developing and implementing intervention protocols that include patient and caregiver education preferably before or upon admission facilitates better communication practices (Costello, 2000). However, such protocols are largely absent from the vast majority of pediatric and adult ICUs (Santiago et al., 2023).

Importance of Effective Patient-Provider Communication

Both patients and providers emphasized the critical importance of effective communication in the ICU, considering it to be very or extremely important. However, patients rated effective communication as significantly more important than providers rated it. This suggests a gap in perception between the two groups, which could be attributed to the following: (a) providers may heavily

focus on medical procedures or interventions, potentially overshadowing the importance of communication; (b) ICU providers often face time constraints with a high patient-to-provider ratio. This can lead to a perceived lack of time for extensive communication, and (c) insufficient training or awareness about effective communication techniques with nonspeaking patients may lead to the perception of communication as less important.

Provider and patient participants both acknowledged the vital messages patients needed to convey regarding their pain and medical status. However, the majority of participants from both groups did not agree that patient participants were able to convey these messages effectively. Providers expressed a lack of confidence in using the most appropriate methods to communicate with their patients, hindering their ability to understand patients' concerns and address their needs. The heavy reliance on yes/no questions and lipreading further limited the information patients could convey, increasing the likelihood of misunderstandings. Providers also reported limited knowledge and access to alternative AAC methods, techniques, and strategies. Given these findings, it is important that accessible, feasible training be more widely available to ICU providers.

Speech-Language Pathology Services in the ICU

Consistent with existing literature (Beukelman & Light, 2020; Blackstone & Pressman, 2016; Santiago et al., 2021), our study reaffirms that speech-language pathologists often work with ICU patients on a consultative basis, typically with limited time available (e.g., 10–15 min). During these brief interactions, speech-language pathologists primarily focus on addressing patients' swallowing and cognitive functions, and the use of speaking valves to support the transition from mechanical ventilation. The three speech-language pathologist respondents expressed their willingness to provide AAC support for patients and educate providers on basic communication assessment, AAC selection and implementation as well as referrals. However, SLPs' involvement in communication support was impeded by multiple barriers, such as resource limitations related to funding and equipment acquisition, interdisciplinary staffing and training, lack of site/network policies and processes, and so forth. Additionally, patients and their caregivers expressed a desire for more comprehensive communication support from speech-language pathologists.

These findings underscore the critical need for system-level change and effective interprofessional collaboration to address communication needs of ICU patients. Overcoming resource limitations and fostering a cooperative approach among health care professionals are essential steps toward

improving communication outcomes in the ICU setting. Furthermore, health care providers should be trained to consider speech-language pathology services not only for patients with conditions, such as aphasia, dysphagia, and cognitive impairments, but also for every patient who requires communication support irrespective of the underlying cause of the medical condition.

Clinical Implications

There are three major clinical implications stemming from the current study. First, patients experience heightened levels of frustration due to ineffective communication, while providers continue to face challenges related to deciphering patients' messages. The limited access to both low-tech and high-tech AAC tools within ICUs impedes the successful integration of AAC methods. This aligns with previous findings from studies conducted by Magnus and Turkington (2006) and Patak et al. (2004), nearly 2 decades ago. Despite advancements in AAC preprofessional training and rapid developments in AAC intervention strategies, techniques, and technologies, the impact on clinical care within ICUs continues to remain limited.

Second, both participant groups believed that effective implementation of AAC can significantly expand the range of information patients can communicate, extending beyond simple yes/no questions. For example, patients can communicate pain levels and location by using communication boards with rating levels and body parts, allowing providers to administer appropriate pain relief and reduce patients' emotional distress. The utilization of AAC strategies can also aid health care providers in gathering precise information from patients regarding their symptoms, medical history, and care-related concerns. Consequently, having access to accurate information contributes to more accurate diagnoses, facilitates treatment planning, and enhances the management of risks associated with adverse events during hospitalization.

Third, changes at the system level are required for implementation of AAC intervention in the ICU. These include mandatory specialized training in AAC strategies, techniques, and technologies for health care providers. It is also essential for providers to adhere to best interprofessional practices and to ensure referrals of nonspeaking patients to speech-language pathologists. Health care institutions must mandate effective collaboration among various providers to facilitate seamless teamwork and communication. Existing policies and procedures within health care institutions must be updated to incorporate use of AAC methods with nonspeaking patients by all health care providers in the ICU. Additionally, health care facilities must allocate adequate resources, such as time, finances, and staff to the implementation of AAC.

Limitations and Future Research

Although the present study provides important insights into providers' and patients' perspectives on effective communication in the ICU, the results should be interpreted with caution. In this survey study, a convenience sample was utilized, with all provider and patient data being gathered from the ICU of a teaching hospital located in the urban area of Austin, Texas. This might limit the generalizability of the findings to other settings or populations. Most of our provider participants were nurses; no physicians were included in our current sample. This introduces a potential bias in the perspective represented in the study.

Additionally, the patient sample was specifically drawn from individuals without cognitive impairments who were proficient in English. Thus, these survey results do not fully represent the experiences of all ICU patients. Furthermore, the emotional distress experienced by some patients, such as panic attacks or grieving the loss of loved ones, understandably affected their willingness to participate. This may have contributed to participant selection bias. Responding to open-ended questions presented a challenge for patients experiencing weakness and fatigue, resulting in a reduced data set for thematic analysis and potentially impacting the depth of insights gathered from those patient participants.

Finally, it is important to state that survey methodologies can introduce research bias and, in this case, providers who were willing to participate in the study might have a heightened appreciation for effective patient-provider communication, potentially skewing the results. In summary, these limitations should be taken into consideration when interpreting the findings of this study.

In terms of future research directions, it is crucial to ensure a representative sample that encompasses a diverse range of patients, providers, and health care settings. This should include patients with cognitive conditions or those who speak different languages. Additionally, it is advisable to increase the sample size for each professional group to facilitate meaningful comparisons. The health care facilities involved should span hospitals, clinics, and long-term rehabilitation centers, as well as varied demographic profiles and geographic locations. Moreover, it is imperative to ensure that the findings can be applied to and benefit broader population.

Effective training in AAC for providers is essential. The training module should prioritize high interactivity to actively engage providers in the learning process (Martin-Harris et al., 2008; Merriel et al., 2019). This interactivity should involve diverse elements such as AAC strategy quizzes, activities to assess patients' capabilities across

various domains, decision-making frameworks, and real-life case studies. Comprehensive feedback with explanations should be included to reinforce learning and address any potential gaps. Moreover, the training should facilitate goal setting and evaluation of changes implemented during clinical practice.

Conclusions

Effective communication plays a vital role in patient care and well-being in ICU settings. The findings of the current survey study highlight significant levels of frustration experienced by nonspeaking patients due to inability to communicate effectively. It is evident that, with access to appropriate AAC strategies and resources, patients' frustration levels could be potentially mitigated. Despite providers' efforts and patients' acknowledgment of their support, communication breakdowns are prevalent in the ICU. Patients often give up on communication after multiple unsuccessful attempts. This has a profound negative impact on their physical and emotional well-being, as well as the quality of care they receive. We recommend that health care facilities enhance access to AAC materials and supports in the ICU and require that providers receive interactive training on strategies that facilitate providers' communication with nonspeaking patients.

Data Availability Statement

The data sets analyzed during the current study are available from the corresponding author on reasonable request.

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