

NURSES' PERCEPTIONS REGARDING THE USE OF ARTIFICIAL INTELLIGENCE IN HOSPITAL CARE

PERCEPÇÃO DE ENFERMEIROS SOBRE O USO DA INTELIGÊNCIA ARTIFICIAL NA ASSISTÊNCIA HOSPITALAR

PERCEPCIÓN DE ENFERMEROS SOBRE EL USO DE LA INTELIGENCIA ARTIFICIAL EN LA ASISTENCIA HOSPITALARIA

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ABSTRACT

Objective: to understand nurses' perceptions regarding the use of artificial intelligence as a resource for patient care in a hospital setting, identifying its contributions, challenges, and implications for professional practice. **Methods:** a qualitative, descriptive, and exploratory study conducted between July 2024 and January 2025 with 17 nurses who use artificial intelligence in hospital care. Data were collected through individual online interviews guided by a semistructured interview guide. The analysis followed Bardin's method, encompassing the stages of pre-analysis, exploration of the material, and processing of the results. **Results:** participants reported using artificial intelligence tools for clinical decision support, monitoring vital signs, early identification of clinical complications and sepsis, as well as managing care indicators and monitoring adverse events. The perceptions were organized into the following categories: perceptions and expectations, potential benefits, relationship with the work process, and professional education and training. **Final considerations:** the nurses' perceptions showed that the incorporation of artificial intelligence is recognized as a potential resource for improving hospital care, provided it is accompanied by professional training, adequate infrastructure, and ethical use.

Keywords: Nursing Care; Nursing; Hospital Care; Nurses; Artificial Intelligence; Biomedical Technology.

RESUMO

Objetivo: compreender a percepção dos enfermeiros acerca da utilização da inteligência artificial como recurso para a assistência ao paciente no contexto hospitalar, identificando contribuições, desafios e implicações para a prática profissional. **Métodos:** estudo qualitativo, descritivo e exploratório, realizado entre julho de 2024 e janeiro de 2025, com 17 enfermeiros que utilizam inteligência artificial na assistência hospitalar. A coleta de dados foi realizada por meio de entrevistas individuais online, guiadas por roteiro semiestruturado. A análise seguiu o método de Bardin, abrangendo as etapas de pré-análise, exploração do material e tratamento dos resultados. **Resultados:** os participantes relataram o uso de ferramentas de inteligência artificial para apoio à decisão clínica, monitoramento de sinais vitais, identificação precoce de agravos clínicos e sepse, além do gerenciamento de indicadores assistenciais e controle de eventos adversos. As percepções foram organizadas nas categorias: percepções e expectativas, potencialidades, relação com o processo de trabalho e formação e capacitação profissional. **Considerações finais:** as percepções dos enfermeiros evidenciaram que a incorporação da inteligência artificial é reconhecida como potencial recurso para qualificar a assistência hospitalar, desde que acompanhada de capacitação profissional, infraestrutura adequada e utilização ética.

Palavras-chave: Nursing Care; Nursing; Hospital Care; Nurses; Artificial Intelligence; Biomedical Technology.

RESUMEN

Objetivo: comprender la percepción de los enfermeros acerca del uso de la inteligencia artificial como recurso para la atención al paciente en el contexto hospitalario, identificando contribuciones, desafíos e implicaciones para la práctica profesional. **Métodos:** estudio cualitativo, descriptivo y exploratorio, realizado entre julio de 2024 y enero de 2025, con 17 enfermeros que emplean inteligencia artificial en la asistencia hospitalaria. La recolección de datos se realizó mediante entrevistas individuales en línea, guiadas por un guion semiestructurado. El análisis siguió el método de Bardin, abarcando las etapas de preanálisis, exploración del material y tratamiento de los resultados. **Resultados:** los participantes informaron el uso de herramientas de inteligencia artificial para apoyar la toma de decisiones clínicas, monitorear signos vitales, identificar precozmente complicaciones clínicas y sepsis, así como para la gestión de indicadores asistenciales y el control de eventos adversos. Las percepciones se organizaron en las siguientes categorías: percepción y expectativas, potencialidades, relación con el proceso de trabajo; formación y capacitación profesional. **Consideraciones finales:** las percepciones de los enfermeros evidenciaron que la incorporación de la inteligencia artificial es reconocida como un recurso potencial para calificar la asistencia hospitalaria, siempre que vaya acompañada de capacitación profesional, infraestructura adecuada y utilización ética.

Palabras clave: Atención de Enfermería; Enfermería; Atención Hospitalaria; Enfermeras y Enfermeros; Inteligencia Artificial; Tecnología Biomédica.

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INTRODUCTION

The rise in emerging technologies has driven significant advances in nursing, with relevant impacts in both clinical and operational domains. In this context, tools such as intelligent monitoring systems, sensors, and real-time alert platforms enable early detection of physiological changes, enabling early identification and analysis of essential clinical signs⁽¹⁾. Furthermore, using alert algorithms has contributed to more timely clinical responses, promoting greater patient safety and improved outcomes⁽²⁾.

Artificial intelligence (AI) can be defined as a machine-based system capable of making predictions, providing recommendations, or supporting decision-making based on objectives previously established by humans. This technology encompasses different approaches, such as machine learning, natural language processing, and pattern recognition, enabling the analysis of large volumes of data, the automation of complex tasks, and support for evidence-based decision-making⁽³⁾.

AI has begun to have a significant impact on healthcare, promoting transformations in care and management processes. Its main benefits include improved communication among professionals, increased diagnostic accuracy, expanded access to telemedicine, and support for clinical decision-making, contributing to greater efficiency, safety, and effectiveness in healthcare services^(4,5).

In the Brazilian context, innovative solutions have been developed, such as Robô Laura®, a technology designed for early sepsis detection that assists in identifying clinical signs and supports clinical judgment⁽⁶⁾. International studies have demonstrated that AI-based systems facilitate early sepsis recognition and other critical conditions through real-time analysis of clinical data, optimizing monitoring, supporting care-related decision-making, and contributing to patient safety^(7,8). These initiatives highlight AI's potential to enhance clinical practice and strengthen patient safety, while also driving research development and innovation in nursing⁽⁶⁻⁸⁾.

Within nursing, AI integration has the potential to enhance professional practice, contributing to optimized documentation, clinical practice support, and reduced adverse events. This can occur through automating care documentation, identifying inconsistencies in records, and issuing alerts based on clinical data analysis, supporting faster and evidence-based decisions⁽⁹⁾. Technologies such as speech recognition and decision support systems can also enhance documentation and promote information standardization⁽⁶⁾. Furthermore, expanded data

analysis enables more accurate assessments, strengthening care quality and safety^(10,11).

However, AI integration into nursing also poses challenges, particularly those related to education and the development of specific competencies. It is necessary to incorporate AI-related content into academic education and continuing education processes, encompassing technical, ethical, and legal aspects⁽³⁾. Adopting these technologies can enhance nurses' ability to work in clinical practice, management, education, and research, as well as to implement and evaluate healthcare innovations⁽⁶⁾.

Despite AI's innovative potential, its integration into nursing practice requires critical analysis, considering its impacts on the work process. As nurses constitute the largest healthcare professional group and play a central role in clinical assessment, continuous patient monitoring, care documentation, and decision-making, they are among the professionals most directly impacted by adopting these technologies. This occurs because many applications are developed to support, optimize, or automate activities inherent to the nursing work process, with the potential to transform care organization, clinical reasoning, and management of care practices⁽⁷⁾.

Studies have demonstrated that AI can support clinical assessment, facilitate complex pattern identification in patient data, and contribute to short- and long-term care planning⁽¹²⁾. Furthermore, recent evidence indicates that AI use can improve workflows, reduce occupational workload, and increase time available for direct patient care, thereby strengthening care quality and promoting greater patient safety⁽²⁾. These advances highlight AI's potential to expand nursing capacity by enhancing clinical decision-making and supporting more individualized, safe, and evidence-based care.

Although studies have demonstrated AI's potential benefits for healthcare, evidence remains scarce regarding how nurses perceive its integration into clinical practice, particularly within the Brazilian hospital setting. In this context, this study addresses the following guiding question: what are nurses' perceptions regarding AI use in patient care?

In light of the above, this study aimed to understand nurses' perceptions regarding AI use as a resource for patient care in the hospital setting, identifying its contributions, challenges, and implications for professional practice.

METHOD

This was a qualitative, descriptive, and exploratory study. The investigation sought to understand nurses' perceptions regarding AI use in patient care within a hospital setting, considering their professional experiences and practices. The thematic analysis proposed by Bardin⁽¹³⁾ was adopted as a methodological framework for data interpretation. Study conduct and reporting followed the guidelines from the Consolidated Criteria for Reporting Qualitative Research (COREQ)⁽¹⁴⁾, aiming to ensure methodological quality and transparency.

The study was conducted at a high-complexity private hospital located in Southern Brazil. The institution was selected for integrating AI tools into care and management practices, providing an appropriate setting for investigating nurses' perceptions regarding these technologies in patient care.

The hospital had 98 eligible nurses, 17 of whom participated in the study because they used AI tools in care practice. During data collection, these tools were incorporated into the institutional routine and included systems for monitoring clinical deterioration, algorithms for searching electronic health records, and virtual simulation resources.

Participants were selected purposively, considering their relevance to the phenomenon under investigation. Participant numbers were determined based on theoretical saturation, which was reached with the 17th participant, when interviews began to show repeated information and no new relevant elements for understanding the phenomenon, as proposed by Minayo⁽¹⁵⁾. Saturation was independently assessed by two researchers through reading and coding the interviews in an electronic spreadsheet designed to identify, compare, and categorize units of meaning and emerging thematic categories, reaching consensus on discontinuing the inclusion of new participants⁽¹⁵⁾.

The inclusion criteria were: Nurses who had worked at the institution for at least six months and used at least one AI tool provided by the hospital in their clinical practice (e.g., systems for monitoring clinical deterioration and sepsis, algorithms for automated adverse event searches, or other institutional resources employed in patient care) in adult intensive care units, emergency department, operating room, and inpatient units. The minimum period of six months was adopted as sufficient for professionals to become familiar with the work environment and technologies used, enabling their autonomous application in care practice. Participants who withdrew from the study

during data collection or whose interviews contained insufficient content for analysis were excluded.

Participants were invited by the principal researcher via institutional email. After acceptance, interviews were scheduled for a previously agreed date and time. Data collection took place between July 2024 and January 2025 through individual online interviews conducted by two researchers, one nurse and one PhD in Nursing, both with experience in qualitative research, based on a semi-structured interview guide developed by the authors. The instrument included sociodemographic data and questions related to perceptions regarding AI use in patient care and its impacts on professional practice. The interview guide was previously tested to ensure clarity and suitability.

The interviews, with a mean duration of 45 minutes, were recorded with prior consent, transcribed in full, and stored for organization and subsequent analysis, constituting the study corpus. After transcription, the content was sent to the respective participants to verify information accuracy and indicate any need for corrections or additions, with no requests for substantial changes.

The study was conducted in sequential stages: (1) project development and ethical approval; (2) data collection instrument development and testing; (3) participant recruitment; (4) interviews; (5) empirical material transcription and organization; and (6) data analysis and interpretation.

Data were analyzed using thematic content analysis, according to Bardin's proposal⁽¹³⁾, operationalized in three stages: pre-analysis, material exploration, and results treatment, including inference and interpretation. During pre-analysis, floating reading, corpus organization, and systematization of initial ideas were conducted, with analytical hypotheses defined and data prepared in an electronic spreadsheet (Microsoft Excel®). Corpus organization and analysis were performed manually, supported by Microsoft Excel®, used exclusively for data systematization, without qualitative analysis software. Methodological rigor was ensured through the criteria related to homogeneity, exclusivity, comprehensiveness, and pertinence.

The analysis resulted in four thematic categories: (1) Expectations regarding AI in nursing; (2) AI potential in patient care; (3) Relationship between AI and the nursing work process; and (4) Education and training for AI use.

The study was conducted in accordance with Resolutions No. 466/2012 and No. 510/2016 issued by the Brazilian National Health Council and was approved by the Research Ethics Committee at Universidade do Vale do Rio dos Sinos under Opinion No. 6,925.908, dated July

2, 2024. Participation was voluntary, and participants were duly informed about the study objectives and assured their right to withdraw at any time without any harm. After agreeing to participate, all participants signed the Informed Consent Form and received a copy signed by the researcher.

Research risks were related to potential loss of anonymity, privacy invasion, and breaches in information confidentiality. To minimize these risks, participants' identities were kept confidential. Data were used exclusively for academic purposes and accessed only by the researchers responsible for the study, who ensured information confidentiality. Participants were identified using alphanumeric codes (E1, E2...). Interviews were conducted in a private setting, recorded with consent, and will be stored for five years on a password-protected device under the researcher's responsibility.

RESULTS

A total of 17 (17.35%) nurses working at a high-complexity private hospital in Porto Alegre, Rio Grande do Sul, Brazil, participated in the study. Female gender predominated (n=12), with ages ranging from 24 to 46 years (mean age: 33 years).

Regarding academic background, 13 participants held specialization in areas such as intensive care, urgent and emergency care, cardiology, oncology, teaching, auditing, and healthcare management, while four had no specialized training at the time data were collected. Regarding employment status, most participants (n=15) held a single employment relationship, while two worked at more than one institution.

Regarding their work setting, high-complexity units, such as intensive care and emergency care, predominated (n=11), followed by inpatient units (n=5) and the quality and risk management sector (n=1). Time working at the institution ranged from one to 16 years. Regarding AI training, 13 nurses reported having no specific training, while four reported having completed courses, institutional training programs, or other training in AI applied to healthcare or nursing. Table 1 presents an overview of participants' profiles.

Participants reported that AI is mainly used to support clinical decision-making, particularly in monitoring vital signs and enabling early identification of clinical changes and sepsis. Applications such as real-time alert systems, adverse event monitoring, and care indicator management were highlighted in their statements. In addition, AI-based administrative processes

were mentioned, including electronic auditing, workflow organization, and billing support. Despite the benefits, participants emphasized the need for human supervision, continuous system validation, and caution regarding dependence on data. Thematic analysis resulted in four categories: (1) Perceptions and expectations regarding AI in nursing; (2) AI potential in patient care; (3) Relationship between AI and the nursing work process; and (4) Education and training.

Table 1 – Profile of nurses participating in the study. Porto Alegre, RS, Brazil, 2025 (n=17)..

Variable	n (%)
Gender	
Female	12 (70.6)
Male	5 (29.4)
Age	
Mean	33 -
Median	32 -
Range	24–46 years
Academic Qualification	
Specialization	13 (76.5)
No specialization	4 (23.5)
Employment Status	
Single employment relationship	15 (88.2)
More than one employment relationship	2 (11.8)
Work Setting	
High-complexity care (ICU and emergency care)	11 (64.7)
Medium-complexity care (inpatient units)	5 (29.4)
Quality and risk management	1 (5.9)
AI-Related Training	
No specific AI-related training	13 (76.5)
With AI-related training or coursework	4 (23.5)

Legend: Intensive Care Unit (ICU).

Source: Research data.

1) Perceptions and expectations regarding AI in nursing

This category reflects participants' perceptions and expectations regarding potential impacts from AI on nursing practice, both currently and in the future. Participants recognized AI as an emerging technology with potential to transform nursing practice, particularly regarding safety, accuracy, and timeliness in clinical decision-making

AI tends to be a tool that can greatly assist us in patient clinical assessment, particularly by bringing together information [...] through these data, it guides us more effectively in clinical reasoning and decision-making regarding patient management. (E5)

Ideally, we should have the most advanced technology possible in every area, right? Because human beings can make mistakes, so when you have technology, artificial intelligence that enables early identification of potential clinical instability in patients [...] that is fantastic. (E1)

Although participants recognize several AI applications in care practice, they consider its integration to still occur gradually, with its potential remaining underutilized across different contexts. This perception is illustrated by the following statements:

I perceive that we use different AI-based technologies in our daily practice, although they are often so integrated into the care process that we do not always recognize them as AI applications. These tools support care planning, organization of care workflows, and clinical decision-making, facilitating communication among teams and timely access to specialized support. (E12)

I believe AI still has substantial development potential. Although it is perceived as beneficial, its integration into professional practice still tends to occur gradually. (E1)

In addition to positive expectations, ambivalent perceptions emerged, associating AI's innovative potential with concerns related to its integration into practice. Concerns about technological dependence and potential distancing from patient-centered care were highlighted.

There is a very fine line between the benefits and potential risks associated with artificial intelligence. Although it represents an important advancement, caution is necessary when using it. (E2)

It is essential to broaden discussion on the topic, considering that technology tends to facilitate professional practice and will play an even more relevant role in the future, requiring professionals to master it. (E5)

I am somewhat concerned that people may start focusing more on numbers than on the patient as a person [...] you need to treat the person along with the condition, not just the condition. (E7)

The statements demonstrate that, although AI is viewed as a promising tool, its integration still requires further maturation, particularly regarding professionals' critical appropriation and the balance between technology and humanized care.

2) AI potential in patient care

According to participants' accounts, AI is considered an important support for clinical reasoning, contributing to higher-quality nursing care. Participants highlighted its potential to support decision-making, optimize care time, and enable early identification of clinical changes through alert systems.

AI serves as support for nurses' clinical reasoning [...] it is a tool to assist, add value, streamline care, and optimize time. (E6)

Through vital sign input, it generates red and yellow alerts [...] which prompt the nurse to request medical assessment, allowing greater attention to patients experiencing clinical deterioration. (E12)

The following statement presents AI as a tool that enables a broader patient understanding, fostering a more comprehensive approach to care.

A Technology enables a more comprehensive patient analysis, providing different perspectives for diagnosis. (E9)

Technology was also associated with enhanced patient safety, particularly through alerts based on clinical parameters, supporting timely interventions.

When technology enables early identification of potential clinical instability in patients, it reduces the likelihood of failures and supports more timely interventions. (E1)

The tool identifies potential adverse events in electronic health records and, following validation by the team, this information supports institutional indicators and actions aimed at improving care. (E3)

According to the interviewees, AI can contribute to anticipating clinical complications and enhancing care effectiveness, provided that its results are critically interpreted and integrated into nurses' clinical judgment. They also emphasized that using these tools requires

professional validation and continuous monitoring to ensure their effectiveness.

I view AI as a tool designed to provide support. The key is knowing how to use it according to work-related needs so that it contributes to care, enables greater attention to the patient, and supports the anticipation of clinical complications. However, nothing replaces the professional's clinical assessment. (E2)

I recognize AI's contribution through institutional indicators and case studies demonstrating its potential to identify clinical deterioration at an early stage, thereby contributing to patient safety and preventing unfavorable outcomes. (E4)

AI was seen as a tool capable of supporting the monitoring of care indicators and informing actions aimed at improving care quality. This statement was derived from the following account:

We use an AI-based tool that performs automated searches in electronic health records to identify potential adverse events. These cases are then validated by the team, enabling more reliable indicators and supporting the implementation of actions aimed at improving care. (E3)

3) Relationship between AI and the nursing work process

Participants reported AI applications across different care settings, aimed at supporting clinical decision-making and monitoring care indicators. In the emergency department, they highlighted predictive systems used to estimate the likelihood of hospital admission. In the ICU, they mentioned a tool for monitoring pressure injury indicators, used to track these events and plan care improvements.

In the emergency department, AI is used, although it remains more closely associated with the medical team. The system performs assessments based on previously defined predictors and determines the likelihood that a patient will require hospital admission, thereby supporting the clinical decision-making process. (E11)

The use of an AI-based tool for monitoring pressure injuries in the ICU was perceived as capable of supporting indicator monitoring and informing strategies aimed at improving care. (E5)

We use integrated systems during multidisciplinary rounds, in which clinical data and information regarding anticipated discharge are recorded. This information is shared across departments, facilitating patient transfer planning and care flow organization. (E12)

Participants acknowledged that AI can facilitate work organization and support prioritization in care activities. However, they also reported difficulties related to initial adaptation, system instability, and temporary increases in workload resulting from integration of these technologies.

I think it facilitates care and helps us organize our work as well. The system already provides an alert, so you can go directly to that patient and assess them, without wasting time reviewing all vital signs. [...] It greatly supports our work because we are able to prioritize. (E3)

At first, there is an increased workload because we remain focused on performing tasks correctly and meeting management expectations [...] until we become accustomed to the AI system. (E15)

It keeps crashing, so we have to go there all the time to restart it, and we lose time dealing with that [...] sometimes it does not locate the patient, sometimes it does not update [...] and then, before long, the patient has died [...] and the system remains frozen. (E17)

Therefore, AI can contribute to supporting different care and management activities. However, its effectiveness depends on adequate infrastructure, proper system functioning, and integration into care practice.

4) Education and training

Participants acknowledged that AI remains underexplored in academic education, highlighting the need to expand teaching strategies that promote its critical application in care practice.

AI remains underexplored in academic education, which hinders its effective application in professional practice. (E6)

In addition to academic education, participants mentioned training initiatives developed within healthcare services, such as active learning methodologies mediated by digital technologies, including virtual simulation, aimed at developing competencies for care practice.

We currently use virtual simulation in some training activities, such as PICC insertion. This type of technology brings professionals closer to clinical practice and facilitates learning before direct contact with patients. (E1)

Although these strategies are considered important, participants acknowledged that AI integration also depends on professional engagement and overcoming resistance to adopting new technologies.

There is some resistance among professionals because, in many cases, they do not understand the purpose of the tool or are required to make additional entries. As a result, not everyone uses the technology as intended. (E2)

They also advocated incorporating the topic into undergraduate and graduate curricula, as well as strengthening continuing education and institutional training, in order to promote safe and critical adoption of these technologies.

It should be included in academic curricula, as it is important for professional education and learning [...] I think it should start there. (E16)

As early as possible, starting during undergraduate education [...] as a course [...] this would allow professionals to become more familiar with the technological environment and apply this knowledge in professional practice (E12)

Continuing education is essential for understanding the importance of technology and using it as an ally in care practice and in a safe manner. (E16)

Training sessions need to take place more frequently so that everyone understands the process, its importance, and its relevance to care. (E14)

Taken together, the statements demonstrate that integrating AI into nursing requires actions aimed at strengthening academic education, continuing education, institutional training, and professional engagement.

DISCUSSION

The findings from this study demonstrated that nurses perceive AI as a tool supporting care practice, particularly for monitoring clinical conditions, supporting clinical reasoning, monitoring care indicators, and organizing the work process. At the same time, participants recognized

important limitations related to the still incipient use of these technologies, the need for human supervision, operational difficulties within the systems, and insufficient professional training. These findings allow discussion about AI integration into nursing from the perspective of potential and challenges identified by the professionals themselves.

From an ethical perspective, AI adoption requires critical reflection on the limits of automation in healthcare. Technology should be understood as a support tool, whose use requires ethical responsibility, human supervision, and alignment with person-centered care principles. In this context, professionals' trust in AI is directly related to its capacity to respect human and clinical values^(11,16).

The results demonstrated different levels of familiarity with AI among nurses, as only some participants reported having specific training. Although this study did not assess whether such training influenced nurses' perceptions, the literature indicates that prior knowledge and education promote greater understanding and confidence when using AI in professional practice⁽¹⁷⁾.

Within care practice, the findings from this study suggest that AI has the potential to support clinical decision-making, particularly through real-time data analysis and early clinical deterioration identification. Recent studies corroborate these findings by demonstrating that machine learning-based predictive models can enhance clinical surveillance and anticipate risks such as delirium in hospitalized patients thereby contributing to more timely and personalized interventions.^(18,19)

Nurses' perceptions regarding AI's potential to identify clinical changes at an early stage are consistent with studies associating these technologies with improved clinical surveillance and support for adverse event prevention, particularly through early identification of conditions such as sepsis and respiratory failure^(20,22). However, this study did not assess the effectiveness of these technologies regarding clinical outcomes, but rather how they are perceived by professional.

Within the Brazilian context, tools such as Robô Laura have demonstrated relevant applicability in early sepsis detection, contributing to enhanced clinical surveillance and reduced response time to interventions⁽⁶⁾. Such evidence reinforces AI's potential as a strategic ally in patient safety and care efficiency.

Within the management context, the results also demonstrated that AI is perceived as a tool supporting care indicator monitoring and institutional decision-making. These findings are consistent with the literature, which attributes to AI the potential to support real-time

data analysis, identify weaknesses in care processes, and inform improvement actions in healthcare service management^(7,12).

The findings demonstrated that integrating AI into the work process facilitates the organization of care activities and care prioritization, particularly through alert and clinical monitoring systems. However, its use requires professional adaptation and competencies to critically interpret information generated by these systems, while preserving clinical judgment and human supervision. These findings are consistent with the literature, which highlights the need to integrate digital competencies into nursing practice without replacing professionals' clinical assessment⁽²¹⁾.

On the other hand, difficulties related to daily use of these technologies were also identified, such as system instability, failures in updating information, and temporary increases in workload during the adaptation period. These findings demonstrate that AI integration depends not only on technological availability, but also on adequate infrastructure, professional training, and the integration of systems into care workflows, aspects likewise described in the literature^(2,21,23).

Although international literature describes experiences with AI integration across different care settings, participants in this study reported that its use remains gradual, accompanied by limitations related to technological infrastructure, professional training, and adaptation to the systems, highlighting challenges in integrating AI into daily practice^(7,21,24,25).

The potential attributed to AI by nurses is also supported by the literature, which describes applications for care planning, prediction of clinical events and organization of workflows. Although this study did not assess these outcomes, such evidence reinforces AI's potential to support care management and the organization of healthcare services⁽²³⁾.

Despite advances, professional education remains a major challenge to the effective integration of AI. The findings from this study reveal gaps in academic education and continuing education, which may compromise critical adoption of these technologies. Recent studies reinforce that insufficient training negatively affects professionals' confidence and engagement with technological innovations^(17,23).

In this regard, incorporating AI-related content into nursing curricula and strengthening continuing education strategies are essential for developing technical, analytical, and ethical competencies. Furthermore, institutional leadership plays a key role in fostering an organizational

culture conducive to innovation and responsible technology use^(24,25).

Thus, AI integration into nursing should be understood as a complex process involving not only technological adoption, but also professional development, work reorganization, and strengthening ethical principles that ensure patient-centered care.

The study presents limitations that should be considered when interpreting the findings. Heterogeneity in participants' familiarity with AI-based technologies may have influenced the reported perceptions. In addition, operational difficulties, such as system instability, may have affected the experience of using these technologies. Finally, conducting the study at a single hospital institution limits transferability of the findings to other care settings.

The findings contribute to nursing by demonstrating AI's potential to support clinical decision-making and enhance care quality. Within care practice, the importance of integrating these technologies into workflows is highlighted, together with investments in infrastructure, professional training, and human supervision, thereby promoting their critical and safe use. Within education and institutional policy, incorporating this topic into curricula and continuing education is important, alongside investments in infrastructure, professional training, and guidelines for ethical and safe use. Thus, AI integration represents a strategy for strengthening nursing leadership in care management, aligned with evidence-based practice and patient-centered care.

FINAL CONSIDERATIONS

The findings from this study demonstrate that participating nurses perceive AI as a technology with potential to contribute to hospital care practice, particularly by supporting clinical decision-making, optimizing work processes, and enhancing patient safety. From the participants' perspective, possibilities related to clinical prediction, early identification of health deterioration, and organization of care workflows stand out, although these aspects represent perceived potential rather than effects directly assessed in this study.

At the same time, participants identified challenges to AI integration into professional practice, including structural limitations within the systems, absence of institutional protocols, need for investments in technological infrastructure, insufficient professional training, and heterogeneous perceptions influenced by familiarity with digital technologies.

In this context, the findings reinforce the importance of initiatives focused on professional education and continuing education for nurses, as well as developing institutional guidelines to guide ethical, critical, and safe AI use in healthcare services.

One limitation of the present study was its single-institution setting, which may limit the transferability of the findings to other care settings. Therefore, qualitative studies across different settings are recommended, along with multicenter investigations and complementary methodological approaches that may broaden understanding regarding nurses' perceptions about AI and deepen knowledge about its integration into hospital nursing practice.

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