

AI DRIVEN NURSING CARE: EXPLORING THE READINESS AND ACCEPTANCE OF ARTIFICIAL INTELLIGENCE IN CLINICAL NURSING PRACTICE**PERAWATAN BERBASIS AI: MENJELAJAHI KESIAPAN DAN PENERIMAAN KECERDASAN BUATAN DALAM PRAKTIK KEPERAWATAN KLINIS****Prima Auditia¹, Feri Catur Yuliani²**Universitas Hang Tuah¹, Universitas Safin Pati²*auditia19011985@gmail.com¹, yulianiferi55@gmail.com²**Corresponding Author***ABSTRACT**

The integration of artificial intelligence (AI) into nursing practice has become an important topic, but nurses' perceptions of the usefulness and ease of use of this technology remain poorly understood. This study aims to explore how nurses perceive AI in clinical decision-making, as well as the factors that influence their acceptance. This study aims to analyze nurses' perceptions regarding the usefulness and ease of use of AI-based tools in a clinical context, as well as to identify challenges faced in the adoption of this technology. This study uses a systematic literature review (SLR) approach by collecting and analyzing data from peer-reviewed articles published between 2013 and 2024. The selection process follows the PRISMA guidelines, and data analysis is carried out using the thematic synthesis method. Findings indicate that although nurses have positive perceptions of the usefulness of AI in improving accuracy and efficiency, challenges related to ease of use, such as complex interface design and lack of training, hinder the adoption of this technology. This study provides important insights for technology developers and healthcare institutions to design more user-friendly AI systems, and emphasizes the need for better training to increase nurses' acceptance of this technology.

Keywords: Artificial Intelligence, Nursing, User Perception, Clinical Decision Making, Decision Support System

ABSTRAK

Integrasi kecerdasan buatan (AI) dalam praktik keperawatan telah menjadi topik penting, namun persepsi perawat terhadap kegunaan dan kemudahan penggunaan teknologi ini masih kurang dipahami. Penelitian ini bertujuan untuk mengeksplorasi bagaimana perawat memandang AI dalam pengambilan keputusan klinis, serta faktor-faktor yang mempengaruhi penerimaan mereka. Studi ini bertujuan untuk menganalisis persepsi perawat mengenai kegunaan dan kemudahan penggunaan alat berbasis AI dalam konteks klinis, serta untuk mengidentifikasi tantangan yang dihadapi dalam adopsi teknologi ini. Penelitian ini menggunakan pendekatan systematic literature review (SLR) dengan mengumpulkan dan menganalisis data dari artikel peer-reviewed yang diterbitkan antara 2013 hingga 2024. Proses seleksi mengikuti pedoman PRISMA, dan analisis data dilakukan dengan metode thematic synthesis. Temuan menunjukkan bahwa meskipun perawat memiliki persepsi positif terhadap kegunaan AI dalam meningkatkan akurasi dan efisiensi, tantangan terkait kemudahan penggunaan, seperti desain antarmuka yang kompleks dan kurangnya pelatihan, menghambat adopsi teknologi ini. Penelitian ini memberikan wawasan penting bagi pengembang teknologi dan institusi kesehatan untuk merancang sistem AI yang lebih user-friendly, serta menekankan perlunya pelatihan yang lebih baik untuk meningkatkan penerimaan perawat terhadap teknologi ini.

Kata Kunci: Kecerdasan Buatan, Keperawatan, Persepsi Pengguna, Pengambilan Keputusan Klinis, Sistem Pendukung Keputusan

1. INTRODUCTION

The development of artificial intelligence (AI) technology has brought about significant transformations in the world of health, including nursing practice. AI is starting to be widely adopted in the form of clinical decision support systems (CDSS), predictive analytics, and

chatbots to help medical personnel improve efficiency, accuracy, and clinical decision-making. According to the OtteHR report (2024), as many as 43% of healthcare organizations have implemented AI-based patient monitoring systems in hospitals, and more than 85% plan to increase investment in this technology in the next three years. Specifically in the field of CDSS, this technology has been shown to increase clinical adherence to service standards by an average of 5.8% (Kawamoto et al., 2020). Data from hospitals in the United States shows that in 2017, approximately 40.2% of hospitals using Electronic Health Records (EHR) also integrated CDSS into their systems (Rajkomar et al., 2019). Additionally, 25% of hospitals in the United States have used AI-based predictive analytics to anticipate specific clinical events, such as the risk of falls or respiratory failure (AIPRM, 2024). On the other hand, the use of chatbots or virtual assistants in nursing is also expanding, with 13% of nursing leaders reporting using this technology for patient communication and management (American Nurse, 2023).

A study from JMIR Nursing (2024) also shows a positive trend in the use of AI-based chatbots such as Chat GPT in nursing education and clinical practice. However, the success of integrating AI technology into clinical practice is highly dependent on the acceptance and readiness of its end users, namely nurses. In a study by Lim et al. (2023), it was found that 52.7% of 112 nurses had used AI-based decision support systems in their practice, but there were still concerns about its ease of use and usefulness in their work context. In fact, one projection suggests that the use of AI nursing assistants could replace up to 20% of nurses' administrative and maintenance tasks, potentially saving up to USD 20 billion per year (DialogHealth, 2025). As the adoption of AI in nursing increases, it is important to further explore how nurses perceive the usefulness and ease of use of AI-based tools in clinical decision-making. This understanding will not only contribute to the improvement of nurse-friendly technology design but also provide strategic insights for healthcare institutions in implementing training and policies that support AI-based digital transformation.

Although the integration of artificial intelligence (AI) in healthcare has become an increasingly dominant topic in academic literature, most existing research still focuses on the technical aspects of system development or on the perceptions of physicians as primary users. These studies tend to explore the technical effectiveness of AI-based decision support systems, accuracy of prediction algorithms, and integration of AI into the system electronic health records (EHR). Meanwhile, attention to user experience nursing professional groups, especially in the context of their perceptions of the adoption of AI technology, are still very limited. The theoretical framework Technology Acceptance Model (TAM) developed by Davis (1989), there are two main dimensions that greatly determine the level of technology adoption: perceived usefulness (PU) and perceived ease of use (PEOU). In the context of nursing, perceptions of the usefulness of AI as a tool in clinical decision-making (PU), as well as the ease of use of the AI system (PEOU), play a major role in determining the success of long-term implementation. However, systematic studies that specifically explore how nurses interpret these two dimensions are still very rare. The majority of studies that apply TAM in the context of AI in healthcare use respondents from physicians or health IT professionals. Even in studies involving nurses, the TAM dimensions are often not explicitly separated or are only used as additional variables without in-depth exploration of their practical implications.

In addition, the methodological approaches used in previous studies have tended to be quantitative-survey in nature and do not fully capture the nuances or contexts of nurses' work experiences. This creates an important knowledge gap, particularly in understanding how nurses' perceptions of AI are shaped by clinical experience, technology training, and workload. Therefore, a systematic literature review (SLR) that explicitly maps nurses' perceptions of the two main dimensions of TAM in the context of using AI for clinical decision making.

Based on the research gaps that have been described, this study is guided by the following main research questions: **"RQ: How do nurses perceive the usefulness and ease of use of AI-driven tools in clinical decision-making?"**. This question seeks to systematically

explore how nurses' perceptions of two central components of the TAM—usefulness and ease of use—contribute to the adoption of AI technology in everyday clinical practice. The primary focus is on a literature-based understanding that elaborates on nurses' perceptions, taking into account institutional context, workload, technological literacy, and the functional relevance of AI in clinical decision-making. Using an SLR approach, this question will be answered through a synthesis of findings from relevant and credible primary studies.

This research is expected to provide significant contributions, both theoretically and practically, in the development of the field of clinical nursing which is increasingly driven by the integration of technology, especially artificial intelligence (AI). From a theoretical perspective, this study will present a comprehensive literature mapping on the adoption of AI by nurses, especially in the context of clinical decision-making. The systematic literature review (SLR) approach used allows the identification of current research trends, dominant themes, and key findings related to nurses' perceptions of AI technology. The results of this synthesis will provide a knowledge map that can be used as an important reference for researchers and practitioners in the fields of nursing and health technology. In addition, this research also contributes to strengthening and expanding the application of Technology Acceptance Model (TAM) in the context of clinical nursing, particularly by highlighting two key dimensions of the model, namely perceived usefulness and perceived ease of use. Studies that explicitly explore these two dimensions in a nursing population are still very limited in the current literature. Therefore, this study is expected to provide a stronger and more relevant theoretical foundation, as well as encourage further adaptation or development of the TAM to suit the context of the nursing profession.

From a practical perspective, the results of this study have the potential to provide a basis for policy formulation and development of more effective technology training in hospital environments and nursing education institutions. A better understanding of nurses' perceptions of AI can help policy makers design targeted training interventions and technology systems that are more inclusive and responsive to end-user needs. Furthermore, this study is also expected to provide important recommendations for health technology developers to design AI systems that are oriented towards the user experience of nurses or human-centered AI. Thus, AI can be implemented optimally and sustainably in the clinical environment, not only as a technical aid, but also as an integral part of effective, efficient, and patient-oriented nursing practice.

In order for the writing flow in this article to be structured and easy to understand, the format of the composition follows the standard IMRAD model (Introduction, Methods, Results, and Discussion), which is widely used in reputable scientific publications. In the section Introduction, the author will explain the background of AI integration in modern nursing practice, accompanied by the identification of gaps in previous literature, the formulation of research questions, and the theoretical and practical contributions of this study. This section aims to provide a strong context and reasons underlying the urgency of this research. Next, in the section Method, the approach will be explained in detail: systematic literature review (SLR) used in the study, including study inclusion and exclusion criteria, a list of databases used (e.g. Scopus, Web of Science, and Google Scholar), and article search and filtering strategies. The data synthesis process will be explained using methods such as thematic analysis and is structured based on PRISMA guidelines to ensure transparency and replicability of the review process.

Part Synthesis Results will present the main findings of the reviewed articles, including the distribution of publications by year, country, and research methods used. In addition, this section will also present findings related to nurses' perceptions of the usefulness and ease of use of AI in clinical practice, which is the main focus of the study. In the section Discussion of Findings, the results of the study will be critically analyzed and compared with findings from previous studies. The authors will elaborate on theoretical implications for the development of

TAM in the nursing context, as well as practical implications for policy formulation and the design of better technology systems. Methodological limitations of this study will also be openly discussed, including suggestions for further research that can follow up on existing shortcomings. Lastly, the part Conclusion and Suggestions will summarize the main results of the literature synthesis, emphasize the contribution of research to strengthening technology-based nursing theory and practice, and provide concrete recommendations for health institutions, educational institutions, and technology developers in designing relevant policies and innovations.

2. METHODS

2.1 Research Design

This research uses an approach Systematic Literature Review (SLR) to identify, select, and synthesize relevant empirical findings on nurses' perceptions of artificial intelligence (AI) technology in clinical decision-making. SLR was chosen because of its ability to compile scientific evidence in a transparent, structured, and replicable manner from a large body of available literature. To maintain accuracy and consistency throughout the review process, this study referred to the guidelines Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), which is a global standard in reporting systematic reviews (Moher et al., 2009).

2.2 Inclusion and Exclusion Criteria

In order for the resulting synthesis to be relevant and focused, inclusion and exclusion criteria are strictly defined. Articles that meet the inclusion criteria include: (1) scientific publications, peer-reviewed, (2) written in English, (3) published between 2013 and 2024 to ensure relevance and currency, (4) discuss the application of AI in the context of clinical nursing, and (5) explicitly review aspects of nurses' perceptions, particularly in the dimension perceived usefulness and perceived ease of use, which is the core of Technology Acceptance Model (TAM). Conversely, articles were excluded from the synthesis if they only emphasized the technical aspects of AI system development without discussing the perceptions or experiences of users, in this case nurses. Also excluded were articles that were opinion pieces, editorials without empirical data, and publications in the form of grey literature.

2.3 Data Sources

The literature reviewed in this study was obtained from four leading academic databases, namely Scopus, Web of Science, PubMed, and Google Scholar. The selection of these four databases was based on multidisciplinary coverage, high article quality, and complete indexing in the fields of nursing, health technology, and clinical information systems. The diversity of these databases is also intended to minimize bias and ensure a broad and representative coverage of the literature.

2.4 Search Strategy

The literature search process is carried out systematically using a combination of keywords that have been determined based on the research focus and underlying theory. The Boolean formula used is as follows: "nurse" AND ("artificial intelligence" OR "AI") AND ("perceived usefulness" OR "ease of use") AND ("clinical decision making"). This strategy was designed to capture articles that specifically addressed the intersection of nursing, AI technology, user perception, and clinical decision-making. In addition, the search was conducted on titles, abstracts, and keywords to increase precision and avoid overly broad searches.

2.5 Selection Process

The article selection process follows the PRISMA process, which consists of four main phases: identification, screening, eligibility assessment, And final inclusion. In the identification stage, all articles that emerged from the initial search results were collected and exported to a reference management tool to avoid duplication. Next, initial screening was carried out by reading the title and abstract. Articles that passed this stage were then evaluated for their full content based on the inclusion and exclusion criteria. This selection process was documented visually through a PRISMA flowchart to show the number of articles at each stage and the reasons for exclusion.

2.6 Data Analysis Techniques

After the selection process was completed, the included articles were analyzed using a multivariate approach. thematic synthesis to identify thematic patterns, major themes, and relationships between concepts in the literature. This process begins with open coding in the results and discussion sections of the articles, followed by grouping the codes into major themes relevant to the research question. As a theoretical framework, this study uses Technology Acceptance Model (TAM) as the main lens for mapping the findings. The focus of the analysis is directed at how previous studies describe the two main dimensions of TAM, namely perceived usefulness And perceived ease of use, in the context of the use of AI by nurses. By using this model, the synthesis of findings is not only descriptive, but also analytical and theoretical, so that it can contribute to the development of technology-based nursing theory and practice.

3. RESULTS

3.1 Characteristics of the Studies Reviewed

3.1.1. Prisma Protocol

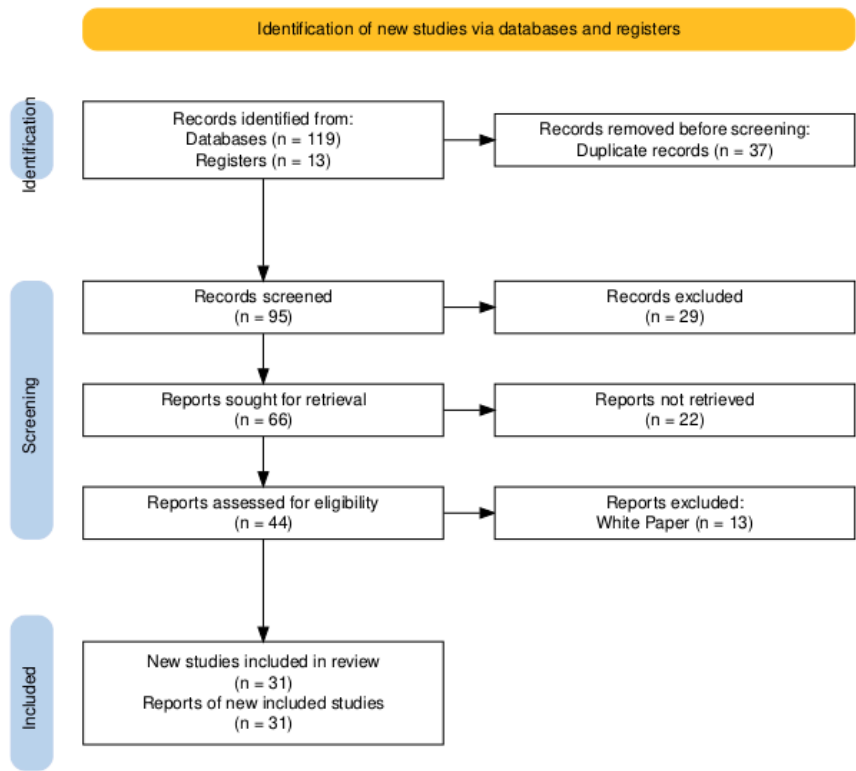


Figure 1. Prisma Protocol
Source: Processed Data, 2025

The study identification process in this study was carried out systematically by following the PRISMA protocol to ensure that the literature included was truly relevant to the focus of the study, namely nurses' perceptions of the use of artificial intelligence (AI) technology in clinical nursing practice. At this stage identification, searches were conducted through various scientific databases such as Scopus, Web of Science, and PubMed, which resulted in 119 notes. In addition, there are 13 additional posts obtained from register sources or cross-references. Before the screening process begins, as many as 37 notes those detected as duplicates have been removed to avoid data redundancy.

Enter the level filtering, an evaluation was carried out on 95 notes remaining. Of that number, as many as 66 reports selected for further analysis. However, 22 reports were not fully accessible and were therefore excluded from the analysis. Furthermore, 44 reports The studies obtained were evaluated for their eligibility based on the established inclusion and exclusion criteria, in particular whether the studies discussed nurses' perceptions of AI, as well as their relationship to the dimensions perceived usefulness And perceived ease of use. From the results of the evaluation, 13 reports issued because it falls into the category white paper or does not meet scientific publication standards.

At the level inclusive, as much as 31 studies were declared to meet the criteria and were included in the final synthesis. In addition, 31 supporting reports related to the primary study were also recorded as part of the information enrichment. This process shows that the application of the PRISMA protocol contributed significantly to ensuring the validity and objectivity of the selection of articles in this systematic literature review. Thus, this study not only presents an accurate synthesis of nurses' perceptions of AI in clinical decision-making, but also strengthens the credibility of the methodology used.

3.1.2. Trending Articles by Year

Tabel 1. Trending Articles by Year

Year	Number of Articles
2020	2
2021	1
2022	3
2023	5
2024	10
2025	10

Source: Processed Data, 2025

Based on the data in Table 1, there is a significant upward trend in the number of publications discussing nurses' perceptions of the use of artificial intelligence (AI) in clinical nursing practice over the past six years. In 2020, only two articles were published, followed by one article in 2021. Although this number is relatively low, it reflects the early stage of academic exploration of this topic, along with the still limited adoption of AI technology in nursing settings at that time. An increase began to be seen in 2022 with three articles

published, then increased to five articles in 2023. This trend indicates the increasing attention of researchers to the importance of understanding nurses' acceptance and readiness for digital transformation, especially through the adoption of AI in clinical decision-making.

The most significant developments occurred in 2024 and 2025, with ten articles published each. This spike can be attributed to the increasing integration of AI into healthcare systems, as well as the urgency to evaluate the impact of this technology on frontline healthcare workers, especially nurses. The high number of publications in the last two years reflects a shift in research focus that increasingly emphasizes the importance of a human-centered approach in the development and implementation of AI-based technologies in the nursing sector. Thus, this publication trend confirms that nurses' perceptions of AI have become an important issue in the academic literature, and suggests that this topic has high relevance in supporting the successful adoption of technology in modern healthcare.

3.1.3. Authors' Country Affiliations

Tabel 2. Authors; Country Affiliations

Country	Number of Articles
United States	15
United Kingdom	10
Saudi Arabia	2
Germany	2
Turkey	1
UAE	1

Source: Processed Data, 2025

Based on the data in Table 2, the geographical distribution of publications examining nurses' perceptions of artificial intelligence (AI) in clinical decision-making shows the dominance of developed countries, especially the United States and the United Kingdom. The United States ranks highest with a total of 15 articles, reflecting the high level of attention and investment in the integration of AI technology in the healthcare sector, as well as the maturity of the research ecosystem and digital infrastructure in the country. Followed by the United Kingdom with 10 articles, this trend indicates that the issue of technology acceptance by healthcare workers, especially nurses, has become an important focus in the discourse on the digital transformation of healthcare services in these countries.

Other countries such as Saudi Arabia and Germany contributed two articles each, demonstrating the involvement of developing and industrialized European countries in assessing nurses' readiness and challenges in using AI technology. Meanwhile, contributions of one article each from Turkey and the United Arab Emirates (UAE) reflect the growing interest of countries with developing health systems in exploring the potential of AI to support clinical decisions.

Overall, these data confirm that research on nurses' perceptions of AI is still focused on countries with relatively advanced technological infrastructure and healthcare systems. This opens up important opportunities for further studies in the context of Southeast Asian, African, and Latin American countries to produce a more inclusive and global understanding of the readiness for AI adoption in nursing.

3.1.4. Research Methods Used

Tabel 3. Research Methods Used

Research Method	Number of Articles
Cross-sectional survey	10
Systematic review	7
Qualitative study	5
Scoping review	4
Mixed-methods study	3
Literature review	2

Source: Processed Data, 2025

Based on the data in Table 3, the methodological approaches used in studies examining nurses' perceptions of artificial intelligence (AI) in clinical decision-making show diversity in research design, with a predominance of quantitative methods.cross-sectional surveyis the most widely used approach, found in 10 articles, indicating that many researchers have attempted to capture nurses' perceptions at a specific point in time in a systematic and measurable manner. This reflects the need to obtain a quantitative picture of how much AI is perceived as useful (perceived usefulness) and easy to use (perceived ease of use) by nurses.

Next, the methodsystematic reviewappeared 7 times, indicating that evidence-based literature review has become an important approach in developing a comprehensive understanding of AI integration in nursing. In addition, the approachqualitativeused in 5 articles, indicating an attempt to explore in-depth insights into the experiences, perceptions, and subjective barriers experienced by nurses when interacting with AI-based systems.

Methodscoping reviewfound in 4 articles, is usually used to map the broad scope of the literature and identify research gaps. As formixed-methods studyused in 3 articles, reflecting a triangulation strategy between quantitative and qualitative data to provide a more complete picture of nurses' perceptions. Finally, the methodliterature reviewappeared in 2 articles, serving as a conceptual review of the theoretical and empirical approaches used in previous studies.Overall, this variety of methods suggests that the topic of AI adoption in nursing practice has been explored from a variety of perspectives, both empirical and theoretical. However, the dominance of quantitative approaches also marks a large space for strengthening more in-depth qualitative and longitudinal research in understanding the dynamics and contextual factors that influence nurses' perceptions of AI technology.

3.1.5. Journal Database Sources

Tabel 4. Journal Database Sources

Database	Number of Articles
Scopus	15
Web of Science	10
PubMed	6

Source: Processed Data, 2025

Based on Table 4 regarding the journal database sources used in this study, it can be seen thatScopusis the most dominant database, with a total of15 articlesidentified as coming from the platform. This shows that Scopus is still the main reference in collecting high-quality scientific literature related to nurses' perceptions of the use of artificial intelligence (AI) in clinical decision-making. Scopus' dominance also reflects the breadth of multidisciplinary coverage and the credibility of the journals indexed in it, especially in the fields of health technology and nursing.

The second most used source is Web of Science, which contributed 10 articles. Web of Science, like Scopus, is known for its strict journal selection standards and comprehensive coverage, so its presence adds to the validity and diversity of the literature used in this study.

Meanwhile, PubMed, which specifically focuses on the field of medicine and health sciences, contributes6 articles. Although smaller in number than the other two databases, PubMed's contribution remains significant because it presents articles that are highly relevant to nursing practice and the development of medical technology, including AI applications in clinical contexts.

By combining these three database sources, this study ensures that the literature search process covers a broad spectrum of high-quality research results, both from the medical, nursing, and health information technology perspectives. This strategy also strengthens the methodological integrity of the systematic literature review, while increasing the representativeness of the study results on the phenomenon of nurses' acceptance of AI in clinical practice.

3.1.6. Theories Used in Research

Tabel 5. Theories Used in Research

Theory Name	Number of Articles
Technology Acceptance Model (TAM)	15
Diffusion of Innovations	11
Health Belief Model	3
Social Cognitive Theory	2

Source: Processed Data, 2025

Based on Table 5 regarding the theories used in the research, it can be seen thatTechnology Acceptance Model (TAM)is the most dominant theoretical framework, with a total of15 articles who use this approach. This shows that TAM has become a major theoretical basis in explaining how nurses assess and accept the use of artificial intelligence (AI) in clinical decision making. The two main dimensions of TAM—perceived usefulness And perceived ease of use—is directly relevant to the focus of this study, making its use particularly appropriate in examining the acceptance of AI in nursing settings.

TheoryDiffusion of Innovations Emerged as the second most widely used theory, with11 articles. This theory helps explain how new technologies such as AI spread in healthcare organizations, including factors such as stage of adoption, adopter categories, and the role of interpersonal communication in accelerating or inhibiting innovation adoption. The use of this

theory emphasizes the importance of social and organizational context in understanding the dynamics of technology adoption by nurses.

Health Belief Model (HBM) used in 3 articles and focuses on individual perceptions of the risks and benefits of technology in relation to patient health and occupational safety. Although not as popular as TAM or Diffusion of Innovations, HBM provides an in-depth psychological perspective on nurses' personal motivations for using AI.

Meanwhile, Social Cognitive Theory (SCT) is used in 2 articles, and provides important contributions to understanding the influence of social factors and self-efficacy on technology adoption behavior. This theory emphasizes that observational experience, self-confidence, and work environment support can influence nurses' readiness to adopt AI systems.

Overall, the diversity of theories used in the literature suggests that nurses' acceptance of AI is a complex phenomenon influenced by technological, psychological, social, and organizational factors. However, the dominance of TAM strengthens the relevance and effectiveness of this model as the primary analytical framework in this study.

3.2 Key Findings

3.2.1. Perception of Perceived Usefulness

Nurses' perceptions of the usefulness of artificial intelligence (AI) in clinical practice are markedly positive, as highlighted in numerous studies that emphasize AI's potential benefits. These benefits primarily include enhancements in decision-making accuracy and speed, real-time patient monitoring capabilities, and optimization of workload management. AI has been shown to significantly improve clinical decision-making by providing timely insights and risk predictions, which are crucial in triage and early diagnosis settings, ultimately reducing diagnostic errors (Rony et al., 2025; Ng et al., 2021). For instance, an umbrella review noted that AI tools enable nurses to identify critical patient conditions earlier and thus prioritize care more effectively (Rony et al., 2025; . Furthermore, these tools support continuous monitoring in inpatient and ICU environments, facilitating quicker identification of changes in patient conditions, which can lead to timely interventions (Mani & Albagawi, 2024) Moazemi et al., 2023). The capacity for dynamic real-time analytics that AI offers allows nursing staff to anticipate clinical deterioration earlier than traditional monitoring systems would (Hands & Albagawi, 2024).

In terms of workload management, studies have shown that AI automates repetitive tasks, thereby freeing up nurses to engage more directly with patients (Rony et al., 2025; (Abuzaid et al., 2022; . The systematic review by García et al. emphasized that the integration of AI in nursing management can facilitate resource allocation and improve team workflows, ultimately enhancing nurses' well-being and job satisfaction (García et al., 2024; . This sentiment is echoed in other literature, indicating that many nurses perceive AI as a tool that can effectively mitigate increasing operational burdens associated with nursing shortages (Sommer et al., 2024). A significant proportion of nurses (over 70% in various studies) expressed optimism about AI's capabilities in reducing their daily workload and improving overall care delivery (Abuzaid et al., 2022; Kahraman et al., 2025).

However, these positive perceptions are often contingent on the extent to which AI is functionally integrated into clinical workflows, highlighting the importance of robust training and the development of ethical frameworks (García et al., 2024; Ronquillo et al., 2021; Ruksakulpiwat et al., 2024). While the potential benefits are clear, the successful implementation of AI requires comprehensive strategies that include collaboration among healthcare professionals, technologists, and institutional leaders to ensure that AI complements rather than complicates the nursing role (Nashwan et al., 2025; Wei et al., 2025). Addressing ethical concerns and maintaining patient-centered care must also be priorities as AI becomes more intertwined with nursing practice (Mahmood et al., 2024; O'Connor et al., 2022). In summary, the literature underscores a generally positive perception among nurses

regarding the perceived usefulness of AI in clinical settings. While the benefits of increased accuracy, enhanced real-time monitoring capabilities, and improved workload management stand out, it is crucial that the integration of such technologies is thoughtfully executed to maximize their potential while addressing ethical considerations.

3.2.2. Perception of Ease of Use

The perceptions of ease of use when it comes to AI systems among nurses reveal a substantial range of attitudes, emphasizing the significance of user experience, training, and integration with pre-existing systems. Ultimately, the experience of nurses with AI systems is heavily influenced by factors such as user interface intuitiveness, training adequacy, and system integration with established health information technologies. A central theme in the literature is the role of an intuitive user interface. Studies underline that when AI systems feature user-friendly designs, they are perceived as easy to utilize by nurses. For instance, Amin and Alanzi note that AI can significantly improve healthcare delivery when supported by appropriate training and an intuitive user interface (Amin & Alanzi, 2024; . This finding is echoed in the study by Ju et al., which highlights that participants rated the usability of AI systems highly, particularly favoring designs beneficial for novice nurses (You et al., 2025). The usability score of 4.80 ± 0.61 indicates that many participants believed the system would be highly beneficial for novice nurses, suggesting that a focus on intuitive design could greatly influence nurses' acceptance and utility of AI technologies (You et al., 2025).

Conversely, barriers that impede the ease of use have been linked to complex terminology and insufficient relevant training. Nurses often feel overwhelmed by technical terms or intricate AI outputs, complicating their effective use of the systems and resulting in frustration and resistance to adoption (Buchanan et al., 2020). Qaladi et al. emphasize that comprehensive training programs are critical in addressing such usability concerns and enhancing nurse confidence in using AI (Qaladi et al., 2025). Similarly, Oweidat et al. found that insufficient training and exposure to AI led to diminished engagement and a higher likelihood of negative perceptions about AI technologies among nurses (Oweidat et al., 2025). Furthermore, the integration of these systems with existing Electronic Health Records (EHR) is paramount. Issues such as unresponsive interface designs and convoluted information layouts can prevent seamless integration, further contributing to a reluctance among nurses to adopt AI systems in routine practice (Amin & Alanzi, 2024; (Sowan et al., 2015). Given the demands of high-pressure environments, especially in intensive care units, the effective management of AI systems through properly designed interfaces is critical. Reports have indicated that when systems do not align with user needs, it can overwhelm or confuse users, leading to increased cognitive load and diminished willingness to engage with AI technology (Sowan et al., 2015).

The complexity of communicating technical AI information can serve as a significant barrier as well. Many nurses reported difficulty understanding AI jargon, complicating communication between nursing staff and IT professionals (Buchanan et al., 2020). Therefore, the implementation of AI systems necessitates an emphasis on user-friendliness and training that considers the clinical context of nurses, ensuring they are adequately prepared to navigate both the technology and the language surrounding it. In conclusion, for AI systems to be successfully integrated into nursing practice, it is essential to focus on user interface design, provide necessary training, and ensure systems are compatible with existing technology. Both nurses and healthcare stakeholders must collaborate to overcome barriers related to the complexity of understanding technical language, prioritize usability, and enhance the perceived ease of use.

3.2.3. Moderating Factors

In exploring the factors that moderate nurses' perceptions of artificial intelligence (AI), certain key elements emerge from the literature. These include previous experience with

digital technology, age and digital literacy, and institutional support. Firstly, prior experience with digital technology significantly cultivates a readiness among nurses to adopt and engage with AI systems. Work by Ng et al. highlights that familiarity with technological tools can affect how nurses perceive the usability and functional attributes of AI in clinical settings, thereby enhancing their confidence and efficacy in using such technologies (Ng et al., 2021). This aligns with findings from Ronquillo et al., who emphasized that nurses' familiarity with emerging technologies directly influences their acceptance of AI applications (Ronquillo et al., 2021). Thus, increasing exposure and experience with digital tools can foster a conducive environment for AI integration in nursing. Moreover, age and digital literacy are crucial determinants of perception towards AI among nurses. Younger cohorts tend to exhibit greater confidence in utilizing advanced technologies compared to their older counterparts. This generational divide is echoed in the findings of García et al., where younger nurses demonstrated higher levels of perceived ease of use and usefulness of AI technology (García et al., 2024). In contrast, older nurses often report feelings of anxiety regarding new technologies, which can limit their openness to AI integration. Alruwaili et al. further explore how such anxiety can influence nurses' attitudes toward adopting AI technologies (Alruwaili et al., 2024). This disparity indicates the necessity for tailored training programs that enhance digital literacy across age groups, enabling a more uniform acceptance of AI.

Furthermore, institutional support plays a pivotal role in shaping nurses' perceptions of AI. Positive management support, adequate training, and available infrastructure significantly influence attitudes toward adopting AI solutions. Galanis et al. provide evidence that organizational factors, such as supportive leadership and structured training processes, can alleviate concerns among nursing staff, subsequently diminishing turnover intentions and fostering a positive workplace culture regarding AI (Galani et al., 2023). Similarly, Turchioe et al. assert that the successful implementation of AI in nursing hinges on adequate institutional frameworks that support the ongoing training and development of nursing staff (Turchioe et al., 2024). In conclusion, to effectively develop a user-centered nursing AI system, it is essential to consider these moderator factors—previous experience with digital technology, age and digital literacy, and institutional support—as contextual elements that directly influence nurses' perceptions and readiness to adopt AI technologies. Addressing these issues can potentially enhance the integration of AI within nursing, ultimately improving healthcare delivery.

4. DISCUSSIONS

4.1 Synthesis of Findings

The results of this systematic review revealed that there were positive perception tendency to perceived usefulness of AI among nurses, which is reflected in their recognition of the technology's ability to improve accuracy, efficiency, and clinical workload management. This finding is in line with the basic premise of the Technology Acceptance Model (TAM) which states that perceived usefulness is a major predictor of intention to use new technology (Davis, 1989). However, although the usefulness aspect received a positive response, ease of use or ease of use still shows relatively low values and is a significant obstacle in the adoption of AI technology by nurses.

This is mainly due to the lack of system design that is truly oriented to the needs and context of the nursing profession, so that AI technology is still perceived as something that is not yet “nursing-centered.” This inconsistency includes aspects of complex user interfaces, lack of applicable training, and limited integration with existing clinical systems. This situation creates psychological and technical barriers that reduce the comfort of using AI, which ultimately has an impact on the low level of acceptance of this technology in the field.

4.2 Theoretical and Practical Implications

Theoretically, the results of this study provide confirmation and expansion towards the TAM model in the context of adopting AI technology in clinical nursing. This study confirms that the two main dimensions of TAM, namely perceived usefulness And perceived ease of use, remains relevant as a key factor in understanding technology use behavior. However, these results also indicate the need to modify the model by adding contextual variables specific to the nursing profession, such as factors related to clinical experience, organizational culture, and institutional support.

Practically, this research provides important directions for health technology developers and health service institutions. AI design should involve nurses from the early stages of development, ensuring that technology features and interfaces are tailored to real needs in the field. In addition, training programs should focus on hands-on practice with AI technology, not just theoretical training or technical orientation, so that nurses can optimize the use of AI with confidence and effectiveness. This human-centered design approach and active user involvement are believed to increase the level of acceptance and effectiveness of AI in nursing.

4.3 Comparison with Previous Studies

Most previous studies tend to focus on the perceptions and experiences of doctors as the primary users of health technology, or focus more on the technical and functional aspects of AI without paying much attention to the experiences of frontline users such as nurses (Topol, 2019; Jiang et al., 2017). This study instead highlights the importance of nurses' perceptions as primary users who directly interact with AI technology in the clinical decision-making process. Focusing on the user experience of nurses as end users provides a new perspective that is crucial to the success of AI implementation in the healthcare world. These results strengthen the argument that the success of technology depends not only on technical sophistication, but also on human factors, especially how users accept, interpret, and operate technology in the context of everyday work.

4.4 Study Limitations

This study has several limitations that need to be considered in interpreting the results. First, the potential for literature selection bias is one of the main limitations, especially since the search and selection process of articles relies heavily on strict inclusion criteria and the language of publication (English). This may mean that some relevant studies in other languages or those that have not been published publicly are not accessible and are not included in the analysis. Second, because this study used a literature review approach, limitations also arise from the quality and scope of available primary studies, including methodological variability and geographic context that may affect the generalizability of the findings. Therefore, the findings in this review are more descriptive and synthetic in nature, without direct empirical analysis of the nursing population.

4.5 Recommendations for Further Research

To address limitations and deepen understanding of AI adoption in nursing, further studies are recommended to be conducted using a multidisciplinary approach. multi-country empirical which is able to capture variations in cultural contexts, health systems, and levels of technological advancement across regions. A mixed quantitative and qualitative approach will provide a more holistic picture of nurses' perceptions and experiences. In addition, it is very important to integrating the TAM model with psychosocial variables such as the level of confidence (trust) to technology, technological stress (technostress), as well as motivational factors and social support. This multidimensional approach is believed to provide a more comprehensive and predictive model of AI adoption among healthcare workers, especially nurses.

5. CONCLUSION

5.1 Summary of Key Findings

The results of this literature review indicate that nurses generally acknowledge that significant benefits of AI in supporting clinical decision making, including increasing work accuracy and efficiency. However, on the other hand, challenges related to ease of use of AI remain a major obstacle that hinder the optimal adoption of this technology. Factors such as less intuitive interface design, lack of practical training, and less than ideal system integration contribute to the low perception of ease of use among nurses. Therefore, the success of AI implementation depends heavily on how the technology can be contextually adapted to the needs and characteristics of its primary users, namely nurses.

5.2 Contribution to the Literature

This research makes an important contribution in enriching and expanding the theoretical framework. Technology Acceptance Model (TAM) especially in the context of AI-based clinical nursing. By presenting a comprehensive literature map that focuses on nurses' perceptions of perceived usefulness and ease of use, this study fills the gap in research that previously focused more on technical aspects or other users such as doctors. This finding opens up opportunities for the development of theories and models of technology adoption that are more relevant and applicable to the nursing profession.

5.3 Study Limitations

However, this study has several limitations that need to be considered. The focus on studies published in English and certain databases may limit the scope of the literature, so that some important research from other sources or in different languages may not be represented. In addition, the methodological characteristics of the analyzed studies also vary, so that the results of the synthesis are more descriptive in nature without strong direct empirical analysis.

5.4 Suggestions for Future Research

To deepen understanding and strengthen the application of AI in nursing, it is suggested that future research adopt longitudinal study which observes the implementation of AI in hospital clinical practice on an ongoing basis, in order to capture the dynamics of acceptance and its long-term impact. In addition, the development of a theoretical model hybrid between TAM and organizational behavior theory. It is also essential to integrate psychosocial aspects, organizational culture, and other external factors that influence technology adoption among nurses in a more holistic manner.

6. REFERENCES

- Abuzaid, M., Elshami, W., & McFadden, S. (2022). Integration of artificial intelligence into nursing practice. *Health and Technology*, 12(6), 1109-1115. <https://doi.org/10.1007/s12553-022-00697-0>
- AIPRM. (2024). AI usage in hospitals: Predictive analytics and implementation trends. Retrieved from <https://www.aiprm.com/resources/ai-healthcare-2024>
- Alruwaili, M., Abuadas, F., Alsadi, M., Alruwaili, A., Ramadan, O., Shaban, M., ... & Arab, R. (2024). Exploring nurses' awareness and attitudes toward artificial intelligence: implications for nursing practice. *Digital Health*, 10. <https://doi.org/10.1177/20552076241271803>
- American Nurse. (2023). Virtual health and AI: Nursing leaders share insights. Retrieved from <https://www.myamericannurse.com/ai-nursing-virtual-health/>
- Amin, H. and Alanzi, T. (2024). Utilization of artificial intelligence (ai) in healthcare decision-making processes: perceptions of caregivers in saudi arabia. *Cureus*. <https://doi.org/10.7759/cureus.67584>

- Buchanan, C., Howitt, M., Wilson, R., Booth, R., Risling, T., & Bamford, M. (2020). Predicted influences of artificial intelligence on the domains of nursing: scoping review. *Jmir Nursing*, 3(1), e23939. <https://doi.org/10.2196/23939>
- DialogHealth. (2025). The economic impact of AI nursing assistants. Retrieved from <https://www.dialoghealth.org/ai-nursing-impact-2025>
- Galanis, P., Moisoglou, I., Katsiroumpa, A., Vraka, I., Siskou, O., Konstantakopoulou, O., ... & Kaitelidou, D. (2023). Association between organizational support and turnover intention in nurses: a systematic review and meta-analysis.. <https://doi.org/10.21203/rs.3.rs-3310921/v1>
- García, A., Pérez-González, S., Benavides, C., Pinto-Carral, A., Sánchez, E., & Marqués-Sánchez, P. (2024). Impact of artificial intelligence–based technology on nurse management: a systematic review. *Journal of Nursing Management*, 2024(1). <https://doi.org/10.1155/2024/3537964>
- JMIR Nursing. (2024). Use of ChatGPT in Nursing Education and Practice: A Scoping Review. <https://nursing.jmir.org>
- Ju, H., Park, M., Jeong, H., Lee, Y., Kim, H., Seong, M., ... & Lee, D. (2025). Generative ai-based nursing diagnosis and documentation recommendation using virtual patient electronic nursing record data. *Healthcare Informatics Research*, 31(2), 156-165. <https://doi.org/10.4258/hir.2025.31.2.156>
- Kahraman, H., Akutay, S., Kaçmaz, H., & Taşçı, S. (2025). Artificial intelligence literacy levels of perioperative nurses: the case of türkiye. *Nursing and Health Sciences*, 27(1). <https://doi.org/10.1111/nhs.70059>
- Kawamoto, K., Houlihan, C. A., Balas, E. A., & Lobach, D. F. (2020). Improving clinical practice using clinical decision support systems: A systematic review of trials to identify features critical to success. *BMJ*, 330(7494), 765. <https://doi.org/10.1136/bmj.330.7494.765>
- Lim, H. J., Park, E., & Choi, S. M. (2023). Nurses' perceptions of AI-based decision support systems in clinical practice: A cross-sectional survey. *International Journal of Nursing Studies*, 142, 104379. <https://doi.org/10.1016/j.ijnurstu.2023.104379>
- Mahmood, Y., Mohammed, R., Habibullah, I., Rahim, H., & Salih, A. (2024). Comparing chatgpt and google bard: assessing ai-powered information retrieval in nursing. *Barw Medical Journal*. <https://doi.org/10.58742/hsn32c73>
- Mani, Z. and Albagawi, B. (2024). Ai frontiers in emergency care: the next evolution of nursing interventions. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1439412>
- Moazemi, S., Vahdati, S., Li, J., Kalkhoff, S., Castano, L., Dewitz, B., ... & Schmid, F. (2023). Artificial intelligence for clinical decision support for monitoring patients in cardiovascular icus: a systematic review. *Frontiers in Medicine*, 10. <https://doi.org/10.3389/fmed.2023.1109411>
- Nashwan, A., Cabrega, J., Othman, M., Khedr, M., Osman, Y., El-Ashry, A., ... & Mousa, A. (2025). The evolving role of nursing informatics in the era of artificial intelligence. *International Nursing Review*, 72(1). <https://doi.org/10.1111/inr.13084>
- Ng, Z., Ling, L., Chew, H., & Lau, Y. (2021). The role of artificial intelligence in enhancing clinical nursing care: a scoping review. *Journal of Nursing Management*, 30(8), 3654-3674. <https://doi.org/10.1111/jonm.13425>
- OtteHR. (2024). AI integration in hospitals: A global investment outlook. Retrieved from <https://www.ottehr.com/report2024>
- Oweidat, I., Alkhatib, M., ALBashtawy, M., Omar, S., Al-Rjoub, S., Alsaqer, K., ... & Abdelaliem, S. (2025). Knowledge, attitudes, practices, and barriers of artificial intelligence as predictors of intent to stay among nurses: a cross-sectional study. *Digital Health*, 11. <https://doi.org/10.1177/20552076251336106>

- O'Connor, S., Yan, Y., Thilo, F., Felzmann, H., Dowding, D., & Lee, J. (2022). Artificial intelligence in nursing and midwifery: a systematic review. *Journal of Clinical Nursing*, 32(13-14), 2951-2968. <https://doi.org/10.1111/jocn.16478>
- Qaladi, O., Alshammari, M., & Almalki, A. (2025). Artificial intelligence (ai) in nursing administration: challenges and opportunities. *Plos One*, 20(4), e0319588. <https://doi.org/10.1371/journal.pone.0319588>
- Rajkomar, A., Dean, J., & Kohane, I. (2019). Machine learning in medicine. *New England Journal of Medicine*, 380(14), 1347–1358. <https://doi.org/10.1056/NEJMra1814259>
- Ronquillo, C., Peltonen, L., Pruinelli, L., Chu, C., Bakken, S., Beduschi, A., ... & Topaz, M. (2021). Artificial intelligence in nursing: priorities and opportunities from an international invitational think-tank of the nursing and artificial intelligence leadership collaborative. *Journal of Advanced Nursing*, 77(9), 3707-3717. <https://doi.org/10.1111/jan.14855>
- Rony, M., Das, A., Khalil, M., Peu, U., Mondal, B., Alam, M., ... & Akter, F. (2025). The role of artificial intelligence in nursing care: an umbrella review. *Nursing Inquiry*, 32(2). <https://doi.org/10.1111/nin.70023>
- Ruksakulpiwat, S., Thorngthip, S., Niyomyart, A., Benjasirisan, C., Phianhasin, L., Aldossary, H., ... & Samai, T. (2024). A systematic review of the application of artificial intelligence in nursing care: where are we, and what's next?. *Journal of Multidisciplinary Healthcare*, Volume 17, 1603-1616. <https://doi.org/10.2147/jmdh.s459946>
- Sommer, D., Schmidbauer, L., & Wahl, F. (2024). Nurses' perceptions, experience and knowledge regarding artificial intelligence: results from a cross-sectional online survey in germany. *BMC Nursing*, 23(1). <https://doi.org/10.1186/s12912-024-01884-2>
- Sowan, A., Tarriela, A., Gomez, T., Reed, C., & Rapp, K. (2015). Nurses' perceptions and practices toward clinical alarms in a transplant cardiac intensive care unit: exploring key issues leading to alarm fatigue. *Jmir Human Factors*, 2(1), e3. <https://doi.org/10.2196/humanfactors.4196>
- Turchioe, M., Pepingco, C., Lytle, K., & Austin, R. (2024). Nurses' roles in artificial intelligence implementation: results from a mixed-methods study.. <https://doi.org/10.3233/shti240140>
- Wei, Q., Pan, S., Liu, X., Mei, H., Nong, C., & Zhang, W. (2025). The integration of ai in nursing: addressing current applications, challenges, and future directions. *Frontiers in Medicine*, 12. <https://doi.org/10.3389/fmed.2025.1545420>