

## **ACCEPTANCE AND USE OF ARTIFICIAL INTELLIGENCE (AI) AMONG NURSING STUDENTS: A SCOPING REVIEW**

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### **ABSTRACT**

Artificial intelligence (AI) had the potential to transform nursing education and practices. Nursing students need to be prepared to understand, accept, and use AI. However, nursing students experienced various challenges in using AI. This scoping review aimed to map the literature related to the acceptance and use of AI among nursing students. This scoping review followed the framework by Arksey and O'Malley. Inclusion criteria were AI-related studies involving nursing students, published in English (2015-2025), and available in full text. The search and selection of articles were shown in the PRISMA-SR flow diagram. Data extraction was done by creating a table. This research identified nine articles. Most studies reported positive attitudes and high readiness among nursing students to accept and use AI. Students used AI for learning, completing academic assignments, and supporting clinical practice. Influencing factors included AI literacy, personality, smart device addiction, and prior technology experience. Main challenges identified were lack of AI-focused training and curriculum, financial barriers, and concerns about data reliability. Nursing students generally demonstrated positive acceptance and use of AI, but significant gaps remained in training, curriculum integration, and access. These challenges are addressed through structured education, financial support, and ethical guidelines to optimize AI in nursing education and practices.

**Keywords:** artificial intelligence, attitude, nursing education, nursing students

### **ABSTRAK**

Kecerdasan buatan (AI) memiliki potensi untuk mengubah pendidikan dan praktik keperawatan. Mahasiswa keperawatan perlu dipersiapkan untuk memahami, menerima, dan menggunakan AI. Namun, mahasiswa keperawatan mengalami berbagai tantangan dalam menggunakan AI. Tinjauan cakupan ini bertujuan untuk memetakan literatur terkait penerimaan dan penggunaan AI di kalangan mahasiswa keperawatan. Tinjauan cakupan ini mengikuti kerangka kerja oleh Arksey dan O'Malley. Kriteria inklusi adalah studi terkait AI yang melibatkan mahasiswa keperawatan, diterbitkan dalam bahasa Inggris (2015-2025), dan tersedia dalam teks lengkap. Pencarian dan pemilihan artikel ditunjukkan dalam diagram alir PRISMA-SR. Ekstraksi data dilakukan dengan membuat tabel. Penelitian ini mengidentifikasi sembilan artikel. Sebagian besar studi melaporkan sikap positif dan kesiapan yang tinggi di kalangan mahasiswa keperawatan untuk menerima dan menggunakan AI. Mahasiswa menggunakan AI untuk pembelajaran, menyelesaikan tugas akademik, dan mendukung praktik klinis. Faktor-faktor yang memengaruhi meliputi literasi AI, kepribadian, kecanduan perangkat pintar, dan pengalaman teknologi sebelumnya. Tantangan utama yang diidentifikasi adalah kurangnya pelatihan dan kurikulum yang berfokus pada AI, hambatan keuangan, dan kekhawatiran tentang keandalan data. Mahasiswa keperawatan umumnya menunjukkan penerimaan dan penggunaan AI yang positif, tetapi masih terdapat kesenjangan yang signifikan dalam pelatihan, integrasi kurikulum, dan akses. Tantangan-tantangan ini diatasi melalui pendidikan terstruktur, dukungan finansial, dan pedoman etika untuk mengoptimalkan AI dalam pendidikan dan praktik keperawatan.

**Kata kunci:** kecerdasan buatan, mahasiswa keperawatan, pendidikan keperawatan, sikap

## **INTRODUCTION**

The era of rapid technological development has made artificial intelligence (AI) increasingly important in the health world, especially in nursing education (Labrague, AL Sabei and AL Yahyaei, 2025). Currently, nursing students are expected to be able to understand, accept, and use AI during the learning process and clinical practice (Han et al., 2025). AI has the potential to transform nursing education and practices (El Arab et al., 2025). AI can improve the learning experience of nursing students, assist in clinical decision making, and prepare students for high-tech education and healthcare environments (Jiang and Kong, 2024). Nursing students must be prepared to adopt AI in nursing education (Salameh et al., 2025).

AI can be integrated into nursing education through an AI-focused curriculum and AI training. This can increase students' acceptance and ability to use AI (Al Omari et al., 2024). However, some students and faculty may refuse to use AI because of a lack of understanding, as well as doubts about the reliability of the data (Salama et al., 2025). The main challenges faced in utilizing AI in nursing education include a lack of training and absence of an AI-focused curriculum (Salama et al., 2025). Limited access to AI

## **METHODS**

This study uses a scoping review approach. This scoping review aims to map the literature related to the acceptance and use of artificial intelligence (AI) among nursing students.

The steps for compiling this scoping review follow the five stages outlined in the framework by Arksey and O'Malley: 1) specify the research questions, 2) identify relevant literature, 3) select studies, 4) extracting, mapping, and charting data, and 5) summarize and report the results (Westphahn et al., 2021).

### **Step 1: specify the research question**

is also a financial challenge (Han et al., 2025). Concerns felt by nursing students regarding privacy, declining interpersonal skills, and data bias are challenges in using AI (Vieriu and Petrea, 2025).

The integration of AI has the potential to improve the quality of learning, increase efficiency, and prepare students for technological developments in nursing practice (Syafriati et al., 2024; Unibertsitatea, 2024). Nursing students should adapt to the development of AI technology (Wei et al., 2025). Therefore, systematic mapping is needed to prevent knowledge gaps related to nursing students' readiness to implement AI. This scoping review is important for systematically summarizing existing studies, providing an overview, identifying research gaps, and making recommendations for the development of AI-based nursing education.

Based on the article search, there has been no mapping focusing on the acceptance and use of AI among nursing students, which includes knowledge, attitudes, practices, and factors that influence the acceptance of AI. This scoping review aims to map the literature related to the acceptance and use of artificial intelligence (AI) among nursing students.

The research question used in this scoping review is how is the acceptance and use of artificial intelligence (AI) among nursing students?

### **Step 2: identify relevant literature**

The inclusion criteria for selecting articles were as follows: 1) AI-related research; 2) studies involving nursing students; 3) written in English; 4) cross-sectional/survey studies was chosen because this design is most relevant to the research objective of mapping the acceptance and use of AI at a single point in time; 5) published between 2015 and 2025; and 6) open access and available in full text.

The exclusion criteria were as follows: 1) review articles, and 2) qualitative studies. The literature sources were obtained through a search of the Scopus, ScienceDirect, and PubMed databases. The keywords used for the search were “artificial intelligence” AND “nursing student” AND “nursing education” AND “attitude”.

### Step 3: select studies

The articles obtained from step two were exported to Rayyan for data management. The first screening step involved removing duplicates. Further screening was performed in these stages. The titles were checked to ensure that the articles were relevant to the research topic. Further screening was performed by reading abstracts to improve the accuracy of article selection. Articles were selected based on the inclusion and exclusion criteria. Full-text screening was performed to determine the articles included in the review.

### Step 4: extracting, mapping, and charting the data

The process of searching and selecting articles was created using the Preferred Reporting Items for Systematic Reviews and Meta-Analysis for Scoping Review (PRISMA-SR) flowchart. Data extraction was performed by creating a table containing author, year, title, research objectives, research design, research sample, and findings. The purpose of creating a data extraction table was to make it easier to describe the results of the review.

### Step 5: Summarize and report the results

The studies were summarized descriptively by comparing the reviewed articles. This step aimed to present the overall findings. The results were then reported in a structured manner to highlight the acceptance and use of AI among nursing students based on the evidence collected.

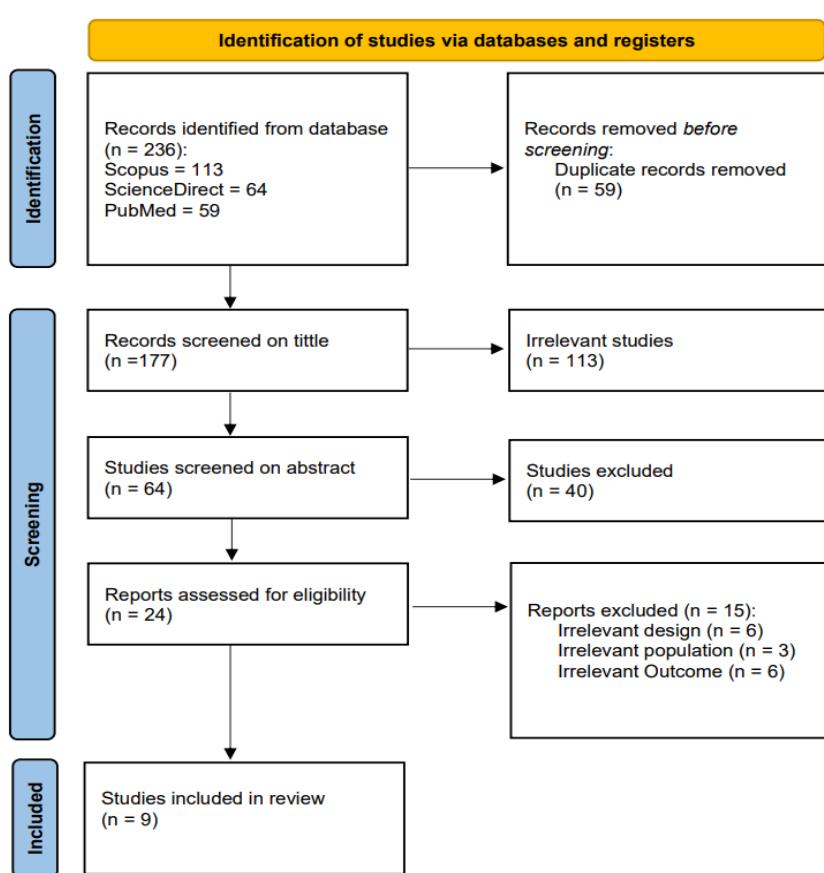


Figure 1. PRISMA Flowchart

## **RESULTS**

This study identified nine articles related to the acceptance and use of artificial intelligence (AI) among nursing students. The findings were grouped into four categories: AI acceptance, AI usage, influencing factors, and challenges faced in the acceptance and use of AI among nursing students.

### **Acceptance of AI among nursing students**

Several studies have reported that most nursing students are aware of AI, feel comfortable using AI, and support the integration of AI into the nursing curriculum. Nursing students have a positive attitude toward the use of AI in nursing, demonstrating an intention to adopt AI technology. Studies have also shown that nursing students have a high level of readiness to implement AI in academic and practical settings.

### **The use of AI among nursing students**

Nursing students use AI to search for information, understand nursing concepts, assist with academic assignments, and check grammar. Students also utilize AI to support clinical tasks such as diagnosis and health assessments, as well as health

promotion. GenAI has become an alternative for supporting the learning process.

### **Factors influencing the acceptance and use of AI**

The use and acceptance of AI by students are affected by several factors, such as personality, level of smartphone addiction, and creativity. Openness to use technology can also increase the acceptance of AI. The use of AI is also influenced by students' knowledge, attitudes, perceptions, and intentions toward AI. Other influencing factors, such as age, academic achievement, and higher AI literacy can enhance positive attitudes toward AI.

### **Challenges in the acceptance and use of AI**

The challenges faced by nursing students in the acceptance and use of AI include lack of training, financial constraints for subscription fees, concerns about data reliability and accuracy, and absence of an AI-focused curriculum. Students expect financial support, AI modules, training on AI use, and the integration of AI into the nursing curriculum.

**Table 1.** Summary of Review Results

Author (year)	Design	Sample	Acceptance of AI	Use of AI	Influencing Factors	Barriers / Challenges
Nisreen Salama, Rebhi Bsharat, Abdallah Alwawi, Zuheir N. Khlaif (2025) (Salama et al., 2025)	Cross-sectional	304 nursing students from 8 universities in the West Bank, Palestine	Most nursing students are aware of AI technology (84.5%), support the integration of AI into the nursing curriculum (79%), and feel comfortable using AI technology.	-	-	Lack of training, no curriculum that focus on AI, financial constraints, concern about the reliability of AI.
Sally Farghaly Mohammed Abdelaliem, Wireen Leila Tanggawohn Dator, Chandrakala Sankarapandian (2023) (Farghaly Abdelaliem et al., 2023)	Descriptive quantitative, correlational, and cross-sectional	697 nursing students at Princess Nourah Bint Abdulrahman University, Riyadh, Saudi Arabia	Most nursing students have high level of perception of AI (83.6%), moderate technological readiness (75.5%), and high technology acceptance (89.4%).	Most nursing students have high level of AI technology adoption (65.1%).	Smart device addiction had a significant correlation with perception of AI (72.7%).	-
Leodoro J. Labrague, Rheajane Aguilar-Rosales, Begonia C. Yboa, Jeanette B. Sabio, Janet A. de Ios Santos (2023) (Labrague et al., 2023)	Cross-sectional	200 nursing students from 2 universities in the Philippines	Nursing students have a good perception of the use of AI in nursing practice, have a positive attitude towards AI, and good intention to adopt AI technology.	Nursing students use AI in nursing practice.	-	-
Gihan Mohamed Mohamed Salem, Heba Emad El-Gazar, Abeer Yahia Mahdy, Talal Ali F. Alharbi, Mohamed Ali Zoromba (2024) (Salem et al., 2024)	Multicenter cross-sectional online survey	218 nursing students from 3 universities in Saudi Arabia	Positive attitudes toward AI	-	Student personality characteristics influence attitudes toward AI. Nursing students' positive attitudes toward AI are highly correlated with their openness to technological developments.	-

ShinHi Kang, Philip Gimber, Sunghyun Lim (2025) (Han et al., 2025)	Hee Sun	Online survey	99 nursing students in New York City	-	Most nursing students (92%) use GenAI tools to access information, clarify nursing concepts, support clinical tasks such as health diagnosis and assessment, help with academic assignments, grammar checks, and health promotion.	-	- Subscriptions fees, reliance on AI, data accuracy issues. - Students expect financial support, modules, and guidance to integrate AI into nursing education.
Kubra Belgin (2025) (Gülirmak Güler and Sen Atasayar, 2025)	Gulirmak Guler, Sen Atasayar	Descriptive and correlational	492 nursing students in Turkey	-	-	Creative personality aspects. The importance of developing creative personality traits to improve students' ability to utilize AI technology effectively.	-
Aylin Akca Sumengen, Damla Ozcevik Subasi, Gokce Naz Cakir (2024) (Akca Sumengen et al., 2024)	Sumengen, Subasi, Cakir	Descriptive, correlational, and cross-sectional	205 nursing students at a private foundational university in Turkey	Increasing AI literacy among nursing students increases positive attitudes toward AI, while increasing awareness and use of AI reduces negative attitudes.	-	AI literacy	Integrating AI into the educational curriculum is essential to prepare nursing students for developments in the health sector.
Basma Salameh, Jamal Qaddumi, Bahaaeddin Hammad, Faida Eqtit, Ahmad Juma Ibraheem Ayed, Imad Fashafsheh, Mohammed ALBashtawy, Fadia Reshia, Ivan Lukic (2025) (Salameh et al., 2025)		Cross-sectional	325 nursing students from the Faculty of Nursing at Arab American University	Nursing students have positive attitudes toward AI integration in nursing.	Students have intentions to use AI in nursing practice.	-	There is a need for training and curriculum that focuses on AI.

<p>Omar Al Omari, Muna Alshammari, Wafa Al Jabri, Asma Al Yahyaei, Khalid Abdullah Aljohani, Hala Mohamed Sanad, Mohammed Baqer Al-Jubouri, Ibrahim Bashayreh, Mirna Fawaz, Mohammed AlBashtawy, Abdullah Alkhawaldeh, Jamal Qaddumi, Samah Anwar Shalaby, Haitham Mokhtar Abdallah, Loai AbuSharour, Mohammad Al Qadire, Maen Aljezawi (2024) (Al Omari et al., 2024)</p>	<p>Descriptive cross-sectional multi-centre</p>	<p>1713 university nursing students from Bahrain, Egypt, Iraq, Jordan, Kuwait, Lebanon, Oman, Palestine, Saudi Arabia, and The United Arab Emirates</p>	<p>Most nursing students in Saudi Arabia have moderate levels of knowledge, attitudes, perceptions, and intentions towards the use of AI.</p>	<p>-</p>	<ul style="list-style-type: none"> <li>- Knowledge, attitudes, perceptions, and intentions have a positive relationship with the use of AI.</li> <li>- Understanding of AI, self-perception as a tech-savvy individual, age, academic achievement history, and knowledge of AI are positively correlated with the intention to use AI.</li> </ul>	<p>The importance of educational interventions or strategies tailored to nursing education to provide skills and knowledge related to the effective use of AI in nursing.</p>
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## **DISCUSSION**

Based on this review, most nursing students have knowledge of AI, accept it, and use it in academic learning and nursing practice. This is in line with a study showing that most nursing students exhibit positive attitudes toward AI (Labrague et al., 2023). Nursing students also have basic AI knowledge (Al Omari et al., 2024; Salama et al., 2025). A systematic review and meta-analysis examined the attitudes and knowledge of medical, dental, and nursing students regarding AI. The study found that 44% of the respondents had good knowledge of AI, both theoretically and practically. Furthermore, 65% of respondents agreed with the use of AI (Amiri et al., 2024). Students support the integration of AI into the nursing education curriculum and intend to adopt AI in nursing practice (Salameh et al., 2025).

The use of AI in nursing education helps students with their lecture activities. AI is used to support learning, complete academic assignments, understand concepts, improve grammar, organize ideas, and perform other tasks (Han et al., 2025). Research on nursing students in South Korea has found that AI helps increase interest in learning and assists the self-learning process. The AI program also helped improve nursing students' skills in online learning situations (Han, Park and Lee, 2022). A study of nursing students in Australia found that AI helped bridge the gap between theory and practice, as well as streamlining time and facilitating cultural and language adaptation. However, this study highlighted the need for AI integration in nursing education, as students actively use AI despite institutional resistance (Ghimire and Qiu, 2025).

Students' acceptance of and positive attitudes toward AI are influenced by their level of AI literacy, experience using the technology, and AI-related training (Akca Sumengen et al., 2024). Students' use of AI is also supported by their intentions. Students' intentions to adopt AI are influenced by several factors such as addiction to smart devices, academic achievement, age, and educational level (Al

Omari et al., 2024). The use of AI in nursing education is supported by students' openness to technology and strengthened by their creative personalities (Salem et al., 2024; Gülirmak Güler & Sen Atasayar, 2025). Nursing students' attitudes and intentions to use AI are positively correlated with their perceptions of the ease of use and benefits of AI (Labrague et al., 2023b). These interrelated factors indicate that AI acceptance is multidimensional and influenced by both intrinsic and extrinsic motivators.

In addition, the use of AI in nursing education faces challenges such as limited AI training for nursing students (Salama et al., 2025). This training is important for improving knowledge and skills in the use of AI. Additionally, some AI have limited access and require subscriptions. This is a financial barrier (Han et al., 2025). Overuse of AI can reduce interpersonal skills. The data provided by AI also requires validation to ensure the correctness of the data provided (Vieriu and Petrea, 2025). A study of nurses in Jordan found that AI was helpful in streamlining work, but there were still concerns regarding privacy, data security, and lack of training, which limited the integration of AI into nursing practice (Almagharbeh et al., 2025).

Students' expectations regarding the use of AI in nursing education include the integration of AI into the nursing curriculum (Akca Sumengen et al., 2024). Students also need guidance and financial support to use AI optimally (Al Omari et al., 2024). Lecturers' openness is also needed, as well as a companion, to avoid misuse of AI. Qualitative research explored nursing students' experiences of learning AI as a dynamic process. This dynamic process requires lecturers to guide students on the positive use of AI (Kong et al., 2024).

## **CONCLUSION**

This literature review found that most nursing students exhibited positive attitudes and a high level of readiness toward the acceptance and use of AI. Nursing students use AI in both academic and clinical

settings, which helps them search for information, understand concepts, complete assignments, and check grammar. Nursing students' use of AI is influenced by several factors, such as AI literacy, personality, use of smart devices, experience with technology, age, and academic achievement. In addition to these positive aspects, several challenges are associated with the use of AI by nursing students. The main challenges include a lack of AI-focused training and curriculum integration, financial barriers to optimal AI access, concerns about reliability, accuracy, data privacy, and potential decline in interpersonal skills due to overreliance on AI. Based on these findings, it is crucial to implement structured educational programs on AI, integrate AI into the nursing curriculum, provide institutional support, and develop ethical guidelines for AI use to ensure optimal benefits. Educators must

also play an active role in guiding nursing students in the use of AI, so that they become more responsible and can use AI effectively in both academic and clinical practice.

This literature review was compiled comprehensively, but there were some research limitations. First, this review only includes studies published in English, which may exclude relevant research in other languages. Second, the number of studies was limited by the selected years, which restricts the amount of research found. Third, most of the included studies used a cross-sectional design, which provided only a snapshot of the acceptance and use of AI. These limitations highlight the need for further research incorporating diverse methodologies and broader populations to deepen our understanding of AI integration in nursing education.

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