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**Research Article**

# Knowledge, Attitude, and Utilization of Artificial Intelligence among Nursing Professors: A Systematic Review

Cherry Ann Durante[1]*, Estrella San Juan[2]

[1]Nursing, Philippine Women's University, Manila City, NCR, Philippines
[2]Nursing, University of Perpetual Help – Dr. Jose G. Tamayo Medical University, Binan City, Laguna, Philippines

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**Corresponding author:*
E-mail:
professorcherrydurante@gmail.com

**ABSTRACT**

The use of artificial intelligence (AI) is one of the major disruptions in nursing education and research. This study aims to examine the knowledge, attitude, and utilization of AI among nursing professors. A systematic review of peer-reviewed research was conducted to identify the different factors that influence AI utilization among nursing educators. Based on the results of the study, even though professors express positive attitude towards AI use in the teaching and learning process, gaps in competence, ethical use, and institutional support in terms of access exist. Training, hands-on workshops, and guidelines on ethical use are proposed approaches that can strengthen the integration of AI in nursing education. This review concludes that curriculum revisions and AI integration can better prepare the nursing professors in the use of AI in hospital and community settings.

***Keywords***: *Artificial intelligence, Nursing education, Faculty development, Curriculum reform, AI ethics*

## Background

Artificial intelligence (AI) has reshaped nursing academe as we know it. Online learning platforms and other automation helped enhance the teaching and learning process (Buchanan et al., 2020a). It is, therefore, necessary for nursing educators to possess a foundational knowledge about AI and its capabilities as well as limitations. Furthermore, ethical implications of the use of AI in nursing education should also be investigated (Lattuca et al., 2023; Porter & Foronda, 2024).

Faculty knowledge and attitude strongly influence the adoption of AI educational tools in nursing curriculum and syllabi (Bozkurt et al., 2025; Oweidat et al., 2025). As key drivers of these changes, it is important to gauge their perceptions regarding AI integration in nursing education.

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This study investigated the global evidence about the knowledge, attitudes, and utilization of AI among nursing professors. It also described the different factors that serve as barriers to the integration of AI in the academe and proposes some interventions to address these identified barriers. The aim of this paper is to summarize these findings to inform nursing educators about curriculum innovations and faculty development strategies to prepare in the effective use of AI tools in the different educational contexts.

## Methods

The systematic review search was performed across three scholarly databases, namely: PubMed, CINAHL, and Scopus. The search included all articles that were published up to June 2025. The following search terms were included: "nursing faculty," "artificial intelligence," "knowledge," "attitudes," and "utilization."

### *Inclusion Criteria*

The following inclusion criteria were used to filter the different studies:

- Original, peer-reviewed research focusing specifically on nursing educators.
- Studies assessing AI-related knowledge, attitudes, or applications in teaching.
- English-language articles with clearly described methodologies.

These criteria were adapted from the studies of Bozkurt (2025) and Han (2022).

### *Data Extraction and Synthesis*

Extraction of relevant data which included study design, participants, AI utilization and faculty preparedness, was performed. Synthesis was made and the evidence focused on the following domains:

1. AI literacy and knowledge gaps (Hashish & Alnajjar, 2024; Sommer et al., 2024)
2. Attitudes and perceptions of AI utilization (Saleh et al., 2025; Oweidat et al., 2025)
3. Patterns of AI use and barriers to adoption (Sharpnack, 2024; Wang et al., 2024)

The studies that were included came from diverse educational and geographical contexts, highlighting trends, barriers, and other opportunities for AI utilization in the nursing academe worldwide.

## Result and Discussion

This study has identified seven key dimensions on AI utilization among nursing professors: (a) knowledge of AI, (b) attitudes toward AI use, (c) utilization of AI technologies, (d) educational interventions, (e) ethical considerations, (f) readiness and global comparisons, and (g) research gaps and future directions, as summarized in **Table 1**.

### *AI Knowledge Among Nursing Faculty*

There is a wide variation in AI knowledge among the nursing professors across the different studies. Higher confidence and technical understanding are reported among faculty who had independent trainings and exposure to digital educational tools (Hashish & Alnajjar, 2024; Sommer et al., 2024). Most faculty reported only basic knowledge with AI concepts and have mentioned deficient knowledge about AI bias, cybersecurity, and confusion on ethical implications of AI use (Bozkurt et al., 2025; Manzoor et al., 2023).

### *Attitudes Toward AI Use*

Most nursing faculty expressed positive attitudes towards AI use and its potential to enhance the teaching and learning process. Many academics stated its value in increasing student engagement, improving assessment strategies, and even help nursing research (Oweidat et al., 2025; Saleh et al., 2025).

Moreover, faculty also identified several concerns regarding reduced student connection and the possibility of dehumanizing care when AI is used in the clinical set-up (Dean et al., 2016; Wang et al., 2024).

Educators with limited knowledge of AI also tend to hold more cautious attitude toward AI integration in the nursing curricula (Saleh et al., 2025).

### *Utilization of AI Technologies in Nursing Education*

AI utilization in nursing education included the use of chatbots for personalized learning plans, adaptive learning management systems,

automated grading, and virtual simulations (Han et al., 2022; Sharpnack, 2024). However, the utilization of these tools remained inconsistent across the different studies. Identified barriers were limited access and knowledge of AI tools, lack of training, and lack of time to learn new AI tools (Sommer et al., 2024; Saleh et al., 2025). More efficient training programs and clearer guidelines on AI use were identified as factors to increase faculty utilization of AI (Oweidat et al., 2025; Wang et al., 2024).

### *Educational Interventions to Increase AI Competency*

Studies illustrated that training initiatives like faculty workshops, simulation sessions, and modular trainings improve the faculty's knowledge, attitudes and AI utilization (Gawad et al., 2024; Khalil et al., 2024). Lattuca et al. (2023) described that educational intervention like competency frameworks can be used as a guide to curriculum reform. The interventions support an increase in AI competency and proficiency. They also allow the faculty to have critical reflection on AI's role in patient care. Greater readiness to adopting AI and incorporating the tools in teaching was noted among faculty who underwent trainings (Lattuca et al., 2023; Turchioe et al., 2024).

### *Ethical Considerations in AI Integration*

One of the major concerns that arose across the different studies is ethical consideration in the use of AI in nursing education. Nursing faculty acknowledged the importance of establishing ethical guidelines prior to AI integration and use for both faculty and students. Themes of ensuring transparency in AI use and prevention of plagiarism were also noted (Porter & Foronda, 2024; Wang et al., 2024). Nursing educators further highlighted the need to ensure that AI should be used as a support and not replace critical thinking and original work (Dean et al., 2016). Informed policies were identified as essential prior to an institutional integration of AI use (Oweidat et al., 2025; Sharpnack, 2024).

### *Readiness and Global Comparisons*

Educator's readiness to utilize AI depended on a few factors, which included personal motivation and innovativeness, self-efficacy, access, and institutional support (Er & Ozpinar, 2025; Oweidat et al., 2025). Schools whose administration support AI use demonstrated a higher level of AI utilization in the teaching and learning environment (Sommer et al., 2024; Wang et al., 2024). A strong leadership backing also affect readiness in AI utilization among the different institutions.

### *Research Gaps and Future Directions*

There are several research gaps identified that could dictate future research. These include nursing faculty competence in AI use, specific AI used by nursing faculty and its relevance to the nursing curriculum, and impact of the large language models in teaching-learning and assessment in nursing (Qahman et al., 2024; Oweidat et al., 2025; Sharpnack, 2024; Turchioe et al., 2024). Another area that can be explored is nursing research. The use of AI in the conduct of nursing research may be beneficial if it could address the research hesitancy that exist among nursing faculty (Durante et al., 2023).

*Table 1. Summary Table of Findings*

| Theme | Key Findings | References |
|---|---|---|
| Knowledge of AI | • Variability in literacy<br>• Workshops, resources, exposure enhance knowledge<br>• Gaps in bias, privacy, ethics | [4,8]; [10,11]; [5,9] |
| Attitudes toward AI Use | • Overall positive view of AI's potential<br>• Concerns about dehumanization and job displacement<br>• Positive attitudes drive adoption | [13]; [5,14]; [6,13] |
| Utilization of AI Technologies | • Chatbots, adaptive platforms, simulations, automated grading | [6,16, 25]; [8]; [17,18] |

| Theme | Key Findings | References |
|---|---|---|
| | • Barriers: limited experience, infrastructure, support<br>• Strategies: training, guidelines | |
| Educational Interventions | • Workshops and simulation-based training improve knowledge and attitudes<br>• Competency frameworks proposed for curriculum reform | [17,19,20]; [1,3] |
| Ethical Considerations | • Rising bias awareness<br>• Educators' duty to balance technology with compassion<br>• Need for data-privacy, transparency, equitable-access policies | [5]; [15,22]; [3,5, 25] |
| Readiness and Global Comparisons | • Innovativeness and self-efficacy boost readiness<br>• Institutional infrastructure and leadership commitment matter<br>• Regional best practices vary | [10,11,23]; [7, 25]; [8,13,14,24] |
| Research Gaps and Future Directions | • Few longitudinal, faculty-specific studies<br>• Use of AI in nursing research to decrease hesitancy among faculty | [21,24]; [2, 6, 25] |

## Conclusion

For AI integration to be effective in the nursing education, there should be comprehensive faculty development, clear ethical guidelines, curriculum redesign, and a strong institutional support. Studies consistently show that educators support the potential of AI to improve and enhance the teaching and learning process, however, they still face important barriers related to AI mastery and competence, ethical preparedness, and institutional access (Bozkurt et al., 2025; Sommer et al., 2024). Educational interventions can potentially address these barriers through comprehensive training programs and hands-on simulations (Gawad et al., 2024; Khalil et al., 2024).

Ethical considerations remain the foremost concern among faculty. The necessity of an established policy prior to integration into nursing curriculum was highlighted by most institutions. (Porter & Foronda, 2024; Wang et al., 2024).

Because of the very fast evolution of AI technology, nursing curriculum should ensure that faculty are prepared and trained to evaluate which of these tools would uphold core nursing values of empathy, excellence, and patient-centered care. Leveraging the benefits of AI in nursing education is paramount, while making sure that ethics and patient rights are not violated.

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