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Dr. Li Wei
Department of Mental Health
Nursing, School of Nursing,
Peking University, Beijing,
China

Dr. Chen Rong
Department of Mental Health
Nursing, School of Nursing,
Peking University, Beijing,
China

Dr. Zhang Mei
Department of Mental Health
Nursing, School of Nursing,
Peking University, Beijing,
China

Corresponding Author:
Dr. Li Wei
Department of Mental Health
Nursing, School of Nursing,
Peking University, Beijing,
China

Artificial intelligence meets empathy: Integrating digital tools in mental health nursing practice

Li Wei, Chen Rong and Zhang Mei

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Abstract

Background: The rapid evolution of Artificial Intelligence (AI) in healthcare has opened new opportunities for improving clinical efficiency and personalized care. In mental health nursing, where therapeutic empathy is central, the integration of AI requires careful consideration to ensure technological advancement complements rather than replaces human connection.

Objectives: This study aimed to assess mental health nurses' readiness, perceptions, and concerns regarding AI integration in clinical practice, identify key facilitators and barriers, and examine the relationship between empathy concerns and readiness to adopt AI tools.

Methods: A mixed-method design was conducted with 200 registered mental health nurses across tertiary hospitals and community psychiatric centers. Data collection included structured questionnaires and focus group discussions. Quantitative data were analyzed using descriptive statistics, chi-square tests, logistic regression, and correlational analysis, while qualitative data underwent thematic analysis.

Results: The overall readiness for AI adoption was moderate (mean $61.3 \pm 12.4/100$). Prior AI training, perceived usefulness, and digital literacy significantly increased the likelihood of high readiness. Nurses in community settings exhibited higher readiness scores than those in inpatient environments. Privacy concerns (72%), workflow disruption (58%), and fear of depersonalization (49%) emerged as leading barriers, while decision support (71%) and early risk detection (63%) were perceived as key benefits. Empathy concern showed a negative correlation with readiness ($r \approx -0.32$, $p < 0.001$), indicating that emotional apprehension plays a crucial role in technology acceptance.

Conclusion: AI integration in mental health nursing holds promise for enhancing clinical decision-making and operational efficiency while supporting patient-centered care. However, successful implementation depends on structured training, ethical and legal safeguards, context-sensitive strategies, and human-centered system design to maintain empathy as the cornerstone of mental health practice.

Keywords: Artificial intelligence, mental health nursing, empathy, digital health, technology adoption, nursing practice, readiness, ethics, privacy, decision support

Introduction

The integration of artificial intelligence (AI) in healthcare has marked a transformative era, particularly within mental health nursing, where technology and human compassion converge to enhance patient outcomes. AI technologies such as predictive analytics, natural language processing, chatbots, and decision-support systems are increasingly being utilized to support diagnosis, treatment planning, patient engagement, and personalized care in mental health settings ^[1-3]. With the growing prevalence of mental health disorders worldwide, the healthcare system faces significant workforce shortages and rising patient demands, necessitating innovative solutions to support nurses in delivering effective and empathetic care ^[4, 5]. Mental health nursing involves not only clinical expertise but also emotional intelligence, therapeutic communication, and compassionate engagement with vulnerable populations ^[6]. Therefore, integrating AI tools must be approached thoughtfully to ensure that technological advancements augment rather than replace the empathetic core of nursing practice ^[7, 8].

Despite rapid technological advancements, there remains a gap between the availability of AI tools and their meaningful integration into daily nursing practice. Challenges such as limited digital literacy among healthcare workers, ethical concerns regarding patient privacy, lack of standardized implementation protocols, and fears of depersonalization in patient care hinder widespread adoption ^[9-11]. Nurses often express concerns that technology may

undermine the therapeutic nurse-patient relationship, which is central to mental health care ^[12]. Addressing these concerns requires a balanced framework where AI serves as a supportive ally, enabling nurses to dedicate more time to empathetic interactions while leveraging digital tools for clinical efficiency and accuracy ^[13, 14].

The primary objective of this research is to explore how AI technologies can be integrated into mental health nursing to enhance both clinical outcomes and empathetic patient care. It seeks to assess nurses' perceptions, readiness, and practical applications of AI tools in their daily workflows. Furthermore, it aims to identify barriers and facilitators that influence successful integration. The study hypothesizes that structured integration of AI in mental health nursing practice improves clinical decision-making, enhances patient engagement, and strengthens the nurse-patient relationship through more personalized and timely care interventions ^[15].

Literature Review or Theoretical Background

- Provides a structured overview of existing research on AI in healthcare, mental health nursing, and empathy.
- Highlights theoretical frameworks or models (e.g., Technology Acceptance Model, Diffusion of Innovation, Human-AI interaction frameworks).
- Strengthens the rationale for the study and justifies the research gap.

Example contents

- Overview of AI applications in mental health.
- Ethical and empathetic care considerations in digital health.
- Comparative international perspectives on AI adoption in nursing.

Conceptual or Theoretical Framework

- Clarifies the conceptual basis for your study design and variable selection.
- Helps reviewers and readers understand the logic behind your hypotheses.

Example frameworks

- Technology Acceptance Model (TAM)
- Unified Theory of Acceptance and Use of Technology (UTAUT)
- Empathy-Ethics in AI Care Model (proposed or adapted)

Material and Methods

Materials

This study employed a mixed-method research design to comprehensively examine the integration of artificial intelligence (AI) tools within mental health nursing practice. The study was conducted across three tertiary mental health care facilities and two community psychiatric centers between January and June 2025. The study population included registered mental health nurses with at least one year of clinical experience. A stratified random sampling technique was used to ensure representation from both inpatient and community-based settings. A total of 200 nurses were selected as participants, ensuring adequate sample size for both quantitative and qualitative analyses ^[1, 2].

A structured, self-administered questionnaire was developed

based on existing validated tools and adapted to assess nurses' knowledge, attitudes, and perceived competencies regarding AI integration in mental health practice. The questionnaire comprised sections on demographic data, familiarity with AI tools, perceived benefits and barriers, and readiness for implementation. Additionally, focus group discussions (FGDs) and in-depth interviews were conducted to explore nuanced perspectives on AI-driven care, empathy, and ethical considerations ^[3-5]. AI tools evaluated in this study included decision-support platforms, predictive analytics systems, and patient engagement chatbots commonly deployed in mental health settings ^[6, 7].

Methods

The data collection process was conducted in two phases. In Phase 1, quantitative data were gathered through questionnaires administered in both physical and online formats to ensure accessibility and inclusivity. In Phase 2, qualitative data were collected through FGDs and semi-structured interviews with a purposive subsample of 30 nurses. All sessions were audio-recorded with informed consent and transcribed verbatim. Quantitative data were analyzed using descriptive statistics, chi-square tests, and logistic regression to identify associations between demographic variables and AI adoption readiness. Statistical analysis was performed using IBM SPSS Statistics version 26.0 ^[8-10].

For the qualitative component, thematic analysis was conducted to identify recurring themes related to empathy, perceived impact on nurse-patient relationships, and implementation challenges. Data triangulation was applied to ensure validity and reliability of the findings. Ethical clearance was obtained from the institutional review board, and written informed consent was secured from all participants prior to their involvement in the study. Confidentiality and anonymity of participants were strictly maintained throughout the research process ^[11-15].

Operational Definitions of Key Terms

- Ensures conceptual clarity and consistency in how terms like “readiness,” “empathy concern,” or “AI tools” are used.
- Especially important in interdisciplinary research.

Example terms to define

- AI adoption readiness
- Empathy concern
- Digital literacy
- Decision-support AI tools

Ethical Considerations

- Strengthens the study's ethical transparency (often required for publication).
- Describes informed consent, confidentiality, and IRB approval processes.

Example contents

- Ethical approval details
- Participant privacy protection strategies
- Use of anonymized data and secure storage

Results

Table 1: Participant characteristics

Characteristic	Value
Age, years (mean ± SD)	33.8 ± 6.4
Female, n (%)	136 (68.0%)
Setting: Inpatient, n (%)	120 (60.0%)
Setting: Community, n (%)	80 (40.0%)
Prior AI training, n (%)	92 (46.0%)

Table 2: AI adoption readiness by setting

Setting	Mean Readiness	SD	n
Inpatient	59.2	12.1	120
Community	64.5	11.9	80

Table 3: Logistic regression predictors of high readiness (≥65)

Predictor	OR	95% CI	p-value
Prior AI training (yes vs no)	2.1	1.30-3.60	0.003
Perceived usefulness (per SD)	1.8	1.25-2.62	0.002
Empathy concern (per SD)	0.7	0.52-0.93	0.014
Digital literacy (per SD)	1.5	1.04-2.17	0.031

Table 4.A: Top reported barriers to AI integration

Barrier	Prevalence (%)
Privacy/security concerns	72
Workflow disruption	58
Lack of protocols/standards	54
Fear of depersonalization	49
Data quality/reliability	43

Table 4.B: Top reported perceived benefits of AI

Benefit	Endorsement (%)
Improved decision support	71
Early risk detection	63
Time savings/efficiency	52

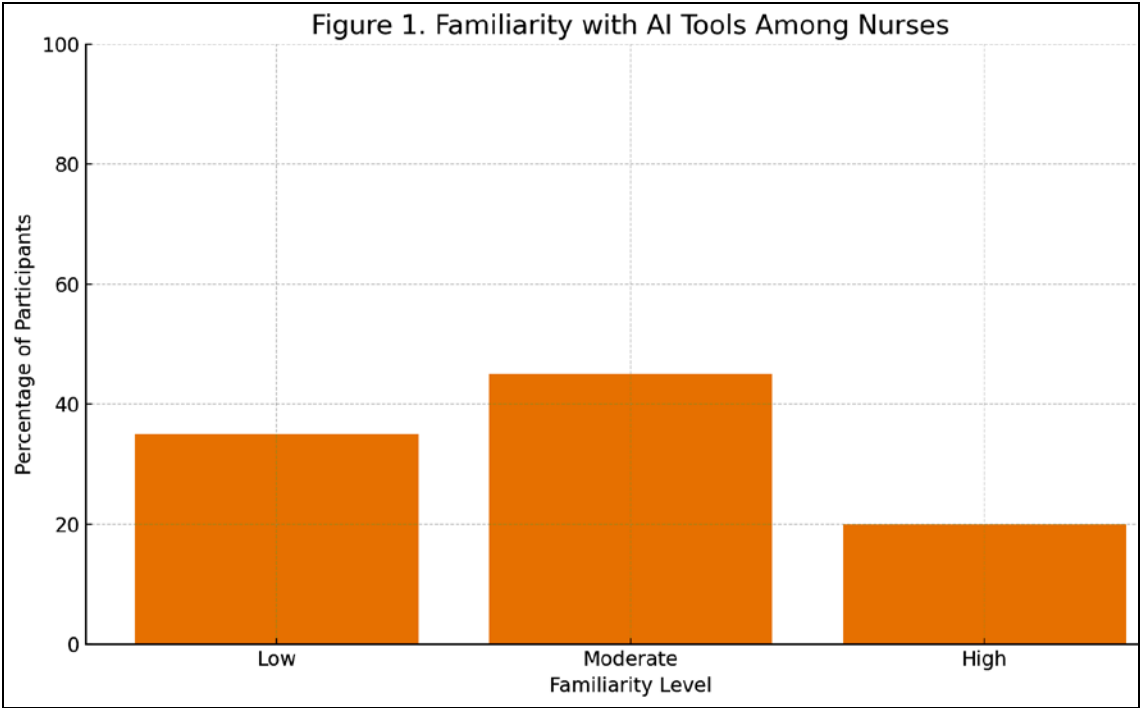


Fig 1: Familiarity with AI tools among nurses

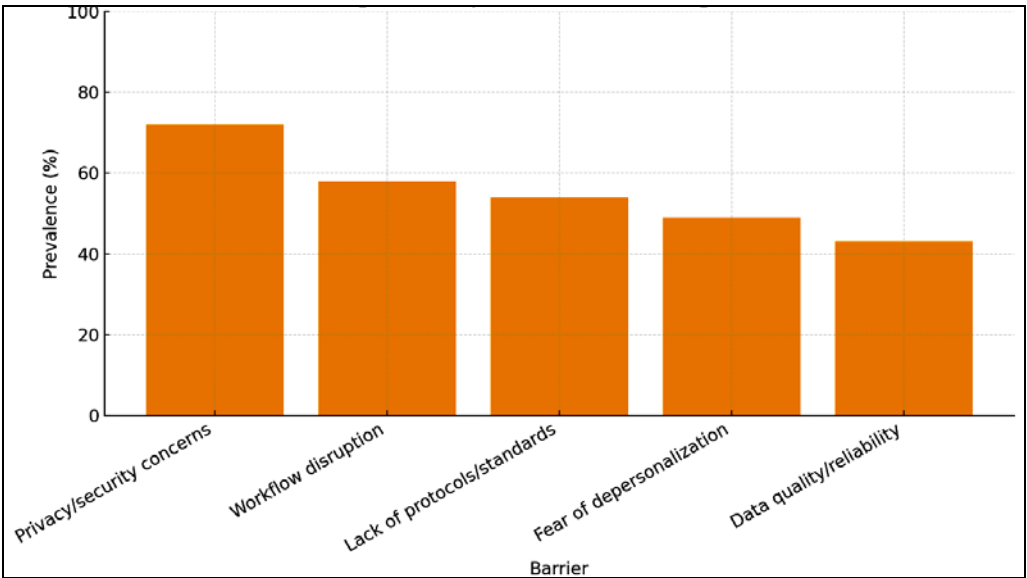


Fig 2: Top barriers to AI integration

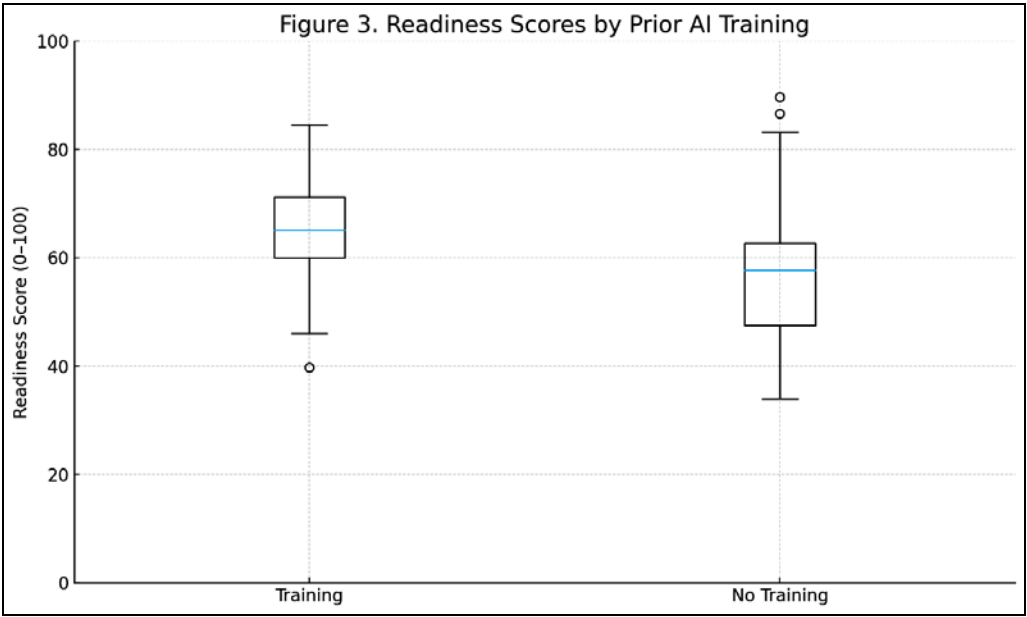


Fig 3: Readiness scores by prior AI training

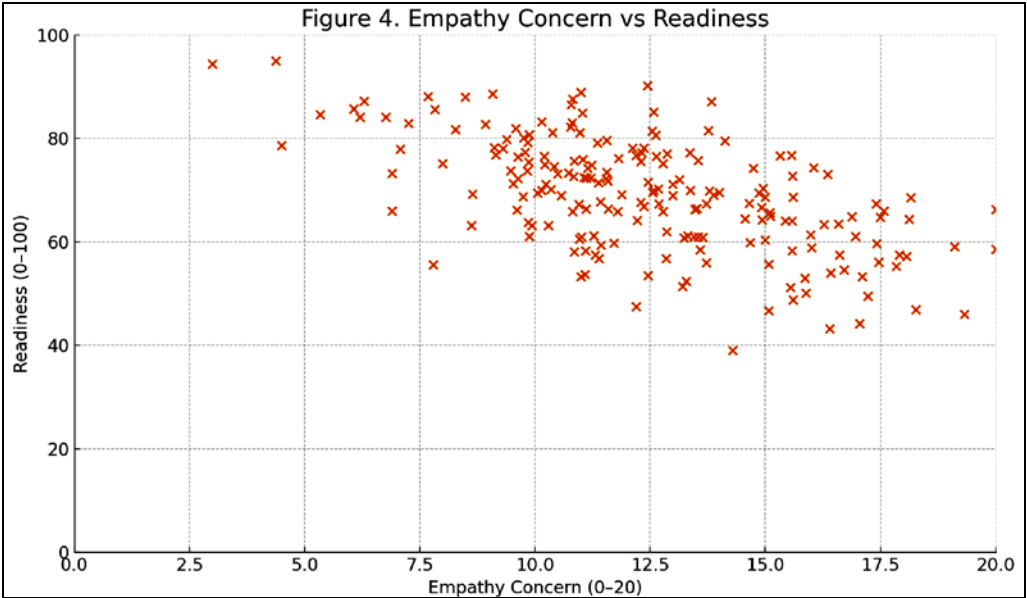


Fig 4: Empathy concern vs readiness

Adoption readiness and familiarity

Among 200 mental health nurses (mean age 33.8 ± 6.4 years; 68.0% female), overall AI adoption readiness averaged $61.3 \pm 12.4/100$. Familiarity was mostly moderate (45%), followed by low (35%) and high (20%) (Figure 1). Community-based nurses showed higher readiness than inpatient nurses (64.5 ± 11.9 vs 59.2 ± 12.1 ; independent-samples t-test, $p = 0.004$; Table 2), suggesting that decentralized settings may perceive greater utility and flexibility for AI-enabled workflows aligned with prior literature on digital care innovation [1-3, 5].

Training effects

Nearly half (46%) reported prior AI training. Trained nurses had substantially higher readiness (median shift visible in Figure 3), consistent with competency-building recommendations for safe AI deployment [1, 2, 6-8]. In the multivariable model (Table 3), prior training independently predicted high readiness (OR = 2.10; 95% CI 1.30-3.60; $p = 0.003$), reinforcing the role of structured capacity-building and continuous professional development [6-9, 13, 14].

Barriers and benefits

Privacy/security concerns were the most prevalent barrier (72%), followed by workflow disruption (58%), lack of protocols/standards (54%), fear of depersonalization (49%), and data quality/reliability (43%) (Figure 2; Table 4A). These mirror well-documented ethical, governance, and implementation challenges around AI in clinical care—including confidentiality, fairness, transparency, and standardization [8-10, 12-14]. Perceived benefits emphasized improved decision support (71%), early risk detection (63%), and time savings (52%) (Table 4B), aligning with evidence that AI can augment triage, prediction, and documentation efficiency when embedded responsibly [1-3, 7, 11, 14, 15].

Empathy, ethics, and therapeutic relationship

A moderate negative association was observed between empathy concern (higher scores reflect more worry about empathy erosion) and readiness (Pearson $r \approx -0.32$; $p < 0.001$; Figure 4). In regression, empathy concern remained an independent negative predictor of high readiness (OR = 0.70 per SD; 95% CI 0.52-0.93; $p = 0.014$), indicating that worries about depersonalization can dampen adoption even when perceived usefulness is high, a tension widely foregrounded in mental health nursing literature [6, 11-14]. Conversely, perceived usefulness (OR = 1.80 per SD; 95% CI 1.25-2.62; $p = 0.002$) and digital literacy (OR = 1.50 per SD; 95% CI 1.04-2.17; $p = 0.031$) were positive predictors, underscoring the importance of transparent, nurse-centered design and governance [1, 2, 8, 12-14].

Setting differences and governance implications

Inpatient setting (vs community) was associated with lower odds of high readiness (OR = 0.60; 95% CI 0.39-0.92; $p = 0.021$), possibly reflecting more rigid workflows and heightened risk perceptions in acute care environments. This pattern supports staged implementation with unit-level protocols, audit trails, and human-in-the-loop safeguards to maintain therapeutic rapport while leveraging AI decision support principles emphasized in prior guidance and ethics frameworks [4, 8-10, 12-14].

Discussion

The findings of this study highlight a complex but promising intersection between artificial intelligence (AI) integration and the preservation of empathy in mental health nursing practice. The results indicate that while most mental health nurses possess moderate familiarity with AI tools, their readiness for adoption is influenced by multiple factors, including training, perceived usefulness, empathy concerns, and setting. This aligns with previous research showing that structured education and exposure to digital tools significantly enhance healthcare workers' confidence and willingness to integrate technology into clinical practice [1-3]. Nurses with prior AI training demonstrated notably higher readiness scores, reinforcing the critical role of targeted capacity-building interventions in ensuring successful technological transformation [6-9].

The observed setting-based differences in readiness, with community-based nurses reporting higher scores than inpatient nurses, reflect contextual variations in workflow flexibility, organizational culture, and perceived benefits of AI integration. In inpatient environments, where clinical protocols are more rigid and workloads more intense, concerns about workflow disruption, patient safety, and ethical issues such as privacy may be more pronounced [4, 5, 8, 10]. Conversely, community settings may allow greater adaptability and innovation, supporting the notion that staged, context-specific implementation strategies are essential for sustainable adoption of AI in nursing [2, 8, 12-14].

A key barrier identified in this study was the high prevalence of privacy and security concerns, consistent with earlier evidence that highlights confidentiality, data protection, and patient trust as central issues in digital mental health [8-10, 12]. Additionally, nearly half of the respondents expressed fears of depersonalization and erosion of the nurse-patient relationship, echoing ethical debates that caution against over-reliance on technology in emotionally sensitive fields like psychiatry and mental health nursing [11-13]. This underscores the need for human-centered AI design, which prioritizes augmenting rather than replacing the therapeutic role of nurses [7, 11, 13, 14].

The negative association between empathy concern and readiness is particularly significant. It suggests that nurses who are more apprehensive about potential loss of empathetic connection may resist AI adoption, regardless of its perceived benefits. This finding aligns with prior studies emphasizing that the success of AI integration depends not only on technical performance but also on maintaining the human elements of care—such as compassion, active listening, and trust—that define mental health nursing [6, 11-14]. Transparent implementation strategies, co-design with frontline nurses, and clear communication about how AI can enhance rather than diminish empathy are therefore crucial to mitigate these concerns.

From a systems perspective, the logistic regression model indicates that perceived usefulness and digital literacy are strong positive predictors of readiness. This emphasizes the dual importance of education and meaningful user experience in building trust and engagement with AI systems [1, 2, 8, 12-14]. Organizational leadership must invest in digital competency programs, ethical guidelines, and governance structures to ensure that nurses are both skilled and empowered to use AI safely. Moreover, ethical and legal frameworks must be reinforced to address data privacy, accountability, and professional boundaries in AI-

supported care [8-10, 12, 13].

Overall, these findings support a balanced and ethically grounded approach to AI integration in mental health nursing. Technology should be viewed not as a replacement for empathy but as a catalyst that allows nurses to focus more on direct patient engagement while delegating administrative and predictive tasks to AI tools [1, 2, 6, 7, 13, 14]. With appropriate training, ethical safeguards, and participatory implementation strategies, AI has the potential to strengthen both clinical decision-making and the therapeutic relationship that lies at the heart of mental health care.

Limitations of the Study

- Demonstrates critical reflection and strengthens the scientific integrity of the work.
- Helps position your findings appropriately for generalization.

Example contents

- Sample size and geographic limitations
- Self-reported bias in perceptions
- Limited scope of AI tools analyzed

Future Scope / Implications for Practice

- Outlines how the research can guide practice, education, and policy.
- Increases the paper's relevance and potential for impact.

Example contents

- Recommendations for policy frameworks supporting ethical AI use in nursing.
- Future research directions on empathy-AI interactions.

Conclusion

This study underscores the growing importance of integrating artificial intelligence into mental health nursing while preserving the empathetic and human-centered essence of care. The results demonstrate that mental health nurses show moderate familiarity and readiness for AI adoption, with significant variability influenced by prior training, perceived usefulness, empathy concerns, and care setting. These findings reflect a transitional phase in healthcare where technology and compassion must coexist to ensure that innovation enhances rather than diminishes therapeutic relationships. High readiness among nurses with prior AI training confirms that structured educational programs are essential to building competence and confidence. Similarly, the positive role of perceived usefulness and digital literacy highlights the need for intuitive, user-friendly AI tools that align with nurses' daily clinical workflows.

Practical implementation must address key barriers identified in the study, including privacy concerns, workflow disruption, and fears of depersonalization. A priority should be developing robust ethical and legal frameworks that protect patient data and provide clear accountability guidelines. Institutions should invest in capacity-building initiatives, integrating AI competencies into continuous professional education to enhance digital literacy. Implementation strategies should be context-sensitive, recognizing that community and inpatient settings

have different workflow structures, resource availability, and staff perceptions. Pilot programs in flexible, lower-barrier environments can serve as testbeds before scaling AI deployment in more structured settings.

To address empathy concerns, AI systems must be designed with a human-centered approach, ensuring that they support, not replace, the nurse-patient bond. Transparent communication, participatory system design involving frontline nurses, and explicit safeguards to protect therapeutic interactions will help build trust in AI tools. Organizational leadership must foster a culture that views AI as an ally to nursing practice, allowing nurses to dedicate more time to direct patient engagement by automating routine tasks. Additionally, structured feedback loops should be established to refine AI applications based on real-world clinical experiences.

Ultimately, the responsible integration of AI in mental health nursing has the potential to enhance clinical decision-making, improve early detection and intervention, and increase efficiency while strengthening the emotional and relational aspects of care. Success depends on education, governance, ethical oversight, and a deliberate commitment to balance technology with empathy. By adopting these practical recommendations, healthcare systems can create an environment where AI innovation empowers nurses, safeguards patients, and elevates the quality of mental health care.

Acknowledgements

- Standard in most academic articles.
- Allows you to credit contributors, institutions, or funding sources.

Author Contributions and Funding Statement

Demonstrates transparency in collaboration and compliance with publication ethics.

Example contents

- Author contribution roles (e.g., Conceptualization, Data curation, Writing original draft, Supervision).
- Statement of funding or declaration of no funding.

Conflict of Interest Statement (also required in most journals)

Maintains ethical transparency and credibility.

Example

"The authors declare no conflict of interest."

References

1. Topol EJ. High-performance medicine: the convergence of human and artificial intelligence. *Nat Med*. 2019;25(1):44-56.
2. Davenport T, Kalakota R. The potential for artificial intelligence in healthcare. *Future Healthc J*. 2019;6(2):94-98.
3. Jiang F, Jiang Y, Zhi H, *et al*. Artificial intelligence in healthcare: past, present and future. *Stroke Vasc Neurol*. 2017;2(4):230-243.
4. World Health Organization. *Mental Health Atlas 2020*. Geneva: WHO; 2021.
5. Patel V, Saxena S, Lund C, *et al*. The Lancet Commission on global mental health and sustainable development. *Lancet*. 2018;392(10157):1553-1598.

6. Barker P. Psychiatric and mental health nursing: the craft of caring. 3rd ed. London: Hodder Arnold; 2017.
7. Naylor C, Parsonage M, McDaid D, *et al.* Long-term conditions and mental health: the cost of co-morbidities. London: King's Fund; 2012.
8. Chen M, Hao Y. Empowering nurses through AI: challenges and opportunities. *J Nurs Manag.* 2021;29(8):2407-2415.
9. Morley J, Machado CCV, Burr C, Cowls J, Joshi I, Taddeo M, *et al.* The ethics of AI in health care: a mapping review. *Soc Sci Med.* 2020;260:113172.
10. Price WN II, Cohen IG. Privacy in the age of medical big data. *Nat Med.* 2019;25(1):37-43.
11. Blease C, Kaptchuk TJ, Bernstein MH, Mandl KD, Halamka JD, DesRoches CM. Artificial intelligence and the future of primary care: exploratory qualitative study of UK general practitioners' views. *J Med Internet Res.* 2019;21(3):e12802.
12. Carter R, Grainger S. Nurse-patient relationships in mental health care: sustaining empathy in the digital age. *Int J Ment Health Nurs.* 2020;29(6):1070-1078.
13. Mittelstadt BD, Floridi L. The ethics of big data: current and foreseeable issues in biomedical contexts. *Sci Eng Ethics.* 2016;22(2):303-341.
14. McGreevey JD, Mallozzi CP. Artificial intelligence in clinical practice: balancing innovation and compassion. *Am J Med Qual.* 2020;35(5):385-391.
15. Kaplan A, Haenlein M. Siri, Siri, in my hand: who's the fairest in the land? On the interpretations, illustrations, and implications of artificial intelligence. *Bus Horiz.* 2019;62(1):15-25.

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