Vol. 5 No. 2 (2026)

Pakistan Journal of Medical & Cardiological Review

https://pakjmcr.com/index.php/1/about

AI-ASSISTED NURSING CARE: AN EXPLORATORY STUDY OF NURSES' OPINIONS ON ARTIFICIAL INTELLIGENCE IN PATIENT CARE IN PAKISTAN

1. **Sikandar**
Registered Nurse, Shifa International Hospital H8/4 Islamabad, Pakistan, Email: sikandar6468@gmail.com
2. **Jawad Ali**
(BSN RN, NCLEX Qualified USRN), Shifa International Hospital H8/4 Islamabad, Pakistan, Corresponding author Email: ja709470@gmail.com
3. **Balqees Akhtar**
Department of Nursing Tehsil Headquarter Hospital Mailsi, Pakistan & Emergency Department Shahida Islam Medical Complex Lodhran, Pakistan, Email: balqeesdotakhtar@gmail.com
4. **Ali Raza**
Registered Nurse, Poly Clinic Hospital, Islamabad, Pakistan Email: ansariraza1994@gmail.com
5. **Tayyeb Hamza**
Registered Nurse, Shifa International Hospital H8/4 Isamabad, Pakistan, Email tayyebhamza44@gmail.com

Author Details

Keywords: AI-Assisted Nursing Care, AI and Nurses Perceptions and Opinions, Technology Acceptance Model (TAM), Pakistani Hospital and AI.

Received on 15 May 2026
Accepted on 14 June 2026
Published on 18 June 2026

Corresponding E-mail & Author*:
Jawad Ali,
Email: ja709470@gmail.com

Abstract

This study aims to examine nurses' attitudes, perceptions, and views regarding AI-assisted nursing care in hospitals in Pakistan. The study was exploratory in nature, with the objective of exploring the attitudes, perceptions, and views of nurses toward AI-assisted nursing care in hospitals in Pakistan. A mixed-method sequential exploratory research design guided by the Technology Acceptance Model (TAM) developed by Davis (1989) was adopted and quantitative survey data were mixed with qualitative responses to achieve a comprehensive understanding of the nurses views. An online questionnaire was designed as per TAM and was administered to 100 registered nurses working in different hospitals across Pakistan. Based on the survey findings, nurses demonstrated generally positive attitudes toward the integration of artificial intelligence (AI) in nursing care. Most participants believed that AI can improve patient care accuracy (71.5%), reduce workload (61.9%), save time in hospital procedures and documentation (80.9%), and should continue to be used in healthcare settings (47.6%). A majority also reported being comfortable using AI systems in their daily nursing duties (57.2%) and expressed confidence in AI-based technologies for patient care (66.7%). However, despite these favorable perceptions, only 33.3% of nurses had received formal training in AI-assisted nursing technologies, highlighting a significant knowledge gap. Concerns regarding reduced human interaction, privacy, accountability, and ethical implications were also

evident among some respondents. The qualitative results indicated that nurses' attitudes towards AI are largely supportive and positive rather than dismissive of replacing human nursing care. Nurses welcomed AI in administrative and technical duties but expressed concerns about a lack of personal interaction, data privacy, and accountability. The study suggests training programs and strengthening of institutional infrastructure to ensure effective and sustainable incorporation of AI into health care without compromising the human aspect of nursing care.

INTRODUCTION

The healthcare sector is undergoing transformation as a key focus of artificial intelligence (AI) in digital technology. It is rapidly reshaping healthcare systems globally as a major pillar of digital transformation. AI has its transformative applications in diagnostics, clinical decision making, and patient care. Hospitals now have access to AI-powered technologies, including machine learning, natural language processing, and predictive analytics, which allow them to leverage AI in patient monitoring, disease prediction, and clinical decision support (El Arab et al., 2025). With the increasing demands of patients, the scarcity of healthcare workers, and the rising expenses of healthcare operations, it is proving to be a valuable tool in enhancing the efficiency and quality of healthcare services. In healthcare, the demand for services is constantly increasing, with a shortage of healthcare professionals and higher operational costs, making AI a viable solution to enhance the efficiency and quality of healthcare services.

The second largest part of the healthcare workforce is nursing, and AI technologies have a significant impact on them. AI in nursing care involves intelligent systems to assist nurses in patient assessment, monitoring, documentation, and care planning. Such technologies can decrease administration burden, patient safety issues, and enhance clinical judgments (Jin et al., 2026). AI has the potential to assist nurses by analyzing patient data, forecasting adverse events, and making timely interventions, which can positively impact patient outcomes and healthcare efficiency (El Arab et al., 2025). While these advantages are numerous, the use of AI in nursing is a topic of much discussion. Research has indicated that nurses are aware of the benefits of AI technologies but also have concerns about ethical problems, data privacy, loss of human care, accountability and autonomy in relation to the use of AI (Joo et al., 2025). In the context of nursing care, it is worth noting that nurses often stress that AI can provide support in clinical tasks, but cannot replace essential human skills such as empathy, compassion, critical thinking, and interpersonal communication (Joo et al., 2025).

Nurses' attitudes and perceptions regarding AI implementation, as well as their readiness to adopt technology, play a crucial role in the success of the adoption of AI in healthcare. Attitudes towards AI are linked to higher levels of

preparedness and successful usage of AI-based systems, while negative attitudes can impede implementation (Jin et al., 2026). Technological literacy, the perceived usefulness, organizational support, prior exposure to AI technologies, and professional confidence are identified as key factors that influence nurses' attitudes toward AI integration (Jin et al., 2026; El Arab et al., 2025).

Nurses in Pakistan are slowly beginning to adopt digitalization and technological advancements. There is a lack of research that focuses on the perception of nurses regarding AI, however. Previous Pakistani research shows that most nurses have positive attitudes towards AI, but they also worry about a lack of training, access to technology, and the potential impact of AI on their work (Ahmad et al., 2025; Siddique & Shahid, 2025). In addition, the adoption of AI in Pakistani hospitals could be hindered by the lack of adequate infrastructure, limited resources, and the digital literacy of healthcare professionals.

Thus, this exploratory study is aimed at understanding the attitudes, perceptions, and opinions of the nurses about the use of AI in nursing care in hospitals in Pakistan. The results can inform nurses' preparedness for the adoption of AI, and offer policy recommendations for nursing educators, healthcare administrators, and technology developers aiming to successfully implement AI-supported nursing systems in the Pakistani healthcare landscape.

LITERATURE REVIEW

In the healthcare sector, Artificial Intelligence (AI) is revolutionizing the way data is used to support clinical decisions, forecast patient outcomes, and automate administrative tasks, monitor patient care, and tailor medical interventions to individual needs. One of the major drivers for the rise in the use of AI technologies in healthcare systems is the need to increase efficiency, minimize the risk of medical errors and tackle staffing shortages. In nursing practice, AI tools can be used in a variety of ways, such as with clinical decision support systems, predictive risk assessment tools, intelligent monitoring systems, robotic support, and generative AI technologies that aid in documentation and patient communication (Porcellato et al., 2025). As an assistive rather than replacement technology, AI can be used to improve nursing efficiency and improve patient outcomes, according to recent evidence.

Nurses are one of the largest groups of professionals in the healthcare sector and also one of the main users of healthcare technologies. As such, their perceptions and acceptance of AI play a significant role in the success of implementation efforts. There is a growing body of research which suggests that the adoption of technology is not enough, but the readiness, trust, and willingness of healthcare professionals to adopt AI into their daily work is equally important (Jin et al., 2026).

NURSES' ATTITUDES TOWARD ARTIFICIAL INTELLIGENCE

Attitude towards AI: Nurses' overall evaluations, beliefs, and predispositions about using AI technologies in the healthcare environment. Systematic reviews indicate that overall nurses have moderately positive attitudes toward AI, especially with regards to factors like efficiency, patient safety, and administrative workload, which are perceived as benefiting the profession (Gates et al., 2024; El Arab et al., 2025). There are many demographic, educational, organizational and technological variables that shape attitudes, however. In an extensive scoping review, Jin et al. (2026) identified various factors that affect nurses' attitudes towards AI, such as age, educational level, technological competence, AI literacy, work experience, organizational support, and previous exposure to AI technologies. It was discovered that nurses who demonstrated greater digital competence and knowledge of artificial intelligence (AI) had more positive attitudes towards the use of AI. However, a lack of familiarity with AI was correlated with uncertainty and resistance to the use of AI.

TECHNOLOGY ACCEPTANCE AND READINESS FOR AI ADOPTION

One of the most widely used theory-based framework to understand adoption of new technology by healthcare professionals is Technology Acceptance Model (TAM). TAM posits that perceived usefulness and perceived ease of use impact users' attitude and intention to use technologies. Research on nurse attitudes toward AI adoption consistently finds that nurses are more likely to embrace AI technologies when they believe they are beneficial, trustworthy, and easily implementable into their clinical practice. Choe and Woo (2025) found that perceived usefulness, organizational support, self-efficacy and positive attitudes had significant influence on nurses' intentions to use generative AI technologies in clinical practice. In addition, systematic nursing student reviews indicate that the positive attitude of usefulness and ease of use of AI has a significant impact on future adoption behavior (Kim et al., 2025). The results indicate that the educational level and knowledge of AI technologies can have a positive impact on the acceptance of AI in the future among nursing professionals.

A STUDY OF NURSES' PERCEPTIONS OF THE AI-ASSISTED NURSING CARE

Perceptions are the interpretations and understandings that nurses have of AI technologies and their potential influence on nursing practice. Previous studies have indicated that nurses see AI as a promise and a challenge. In a qualitative systematic review, Joo et al. (2025) highlighted four key themes for nurses' perceptions of AI adoption: perceived benefits, ethical concerns, professional implications and implementation challenges. Nurses recognized the potential of AI to boost clinical efficiency, aid decision-making and enhance patient monitoring. But they raised questions on accountability, transparency, patient privacy, and the quality and accuracy of AI-driven recommendations.

Further research in a qualitative nature has been conducted in recent times which suggests that AI tools are viewed as a support and not a replacement for a human nurse. Although AI tools can analyze vast amounts of clinical data, they should not replace empathy, emotional intelligence, compassion, and therapeutic communication, all key elements of nursing practice, as emphasized by the nurses (Bodur et al., 2025). Thus, most nurses support a joint human-AI based approach in which technology is used to complement the nurse's skill and knowledge, not to supplant them. Studies in this field also highlighted how nurses value the potential for wearable AI devices to continuously monitor patients and alert them to any signs of clinical deterioration. However, some people still worry about data privacy and security, as well as the need for more automation, and the reliability of technology (Alzghaibi, 2025).

ETHICAL CONSIDERATIONS AND ETHICAL DILEMMAS TO AI USE IN NURSING

While there are recognized benefits of AI, there are also many ethical concerns reported in the literature. The most common concerns include patient privacy, data confidentiality, algorithmic bias, accountability, and transparency. A major concern from nurses is who is responsible for the potentially negative outcomes in care, when recommendations from AI can lead to poor patient results (Joo et al., 2025). Another common issue that arises is the possibility of dehumanizing nursing care. Nursing is a profession of relationship, empathy and comprehensive care. As a result, nurses often voice concerns that excessive dependence on AI could diminish the human touch and potentially impact patients' experiences (Bodur et al., 2025). New polls also show fears about job loss and independence. While not all nurses see AI taking the place of the nursing professional, many are still worried about nursing role and responsibilities. Healthcare systems that have used AI technologies show that nurses were content to be involved in the decision-making process for AI and technology design to ensure systems are in line with clinical reality and patient needs.

AI AND NURSING IN DEVELOPING COUNTRIES

AI application studies in nursing have mostly taken place in developed countries such as the United States, Canada, China, South Korea, and European countries. Data from LMICs is still relatively scarce. Other challenges of developing health systems, such as low technical resources, low infrastructure, low training availability and a lack of financial investment in healthcare technologies, can also be there. The situation is especially pertinent in Pakistan, where healthcare institutions are progressively making the transition to digitalization. AI technologies have shown to have a lot of potential in enhancing the delivery of healthcare, however, little is known about the perception of AI-supported nursing care among nurses in Pakistan. While some previous research has concentrated on knowledge and awareness about AI, and on general attitudes, there is a gap in the literature when it comes to nurses' perceptions, concerns,

readiness and expectations for the implementation of AI in a hospital setting. Therefore, more empirical research is required to grasp the perception of Pakistani nurses towards the AI-enhanced nursing care and its potential impact on their future adoption and use.

EMPIRICAL STUDIES

This paper presents a review by Jin et al. (2026) which explored the factors affecting nurses' attitudes towards artificial intelligence in clinical practices. The review utilized the Joanna Briggs Institute framework and guidelines and included a synthesis of evidence from 18 studies with approximately 13,949 nurses from a range of nations, including China, Turkey, Saudi Arabia, Egypt, Germany, Iraq, and Iran. The authors divided influencing factors into five dimensions: Demographic, Cognitive, Affective, Conative and External Factors. The results found that AI literacy, technological competence, previous experience with AI systems, organizational support, leadership style, and perceived usefulness were found to have a strong association with positive attitude towards AI. Nurses who had received training or had experience in institutions that had already used AI tools were more accepting and prepared to use AI tools. Contrary to this, negative perceptions were linked to fear of job displacement, anxiety about AI and lack of knowledge. The study also showed that the demographic factors (age and years of experience) did not always yield consistent results in different contexts. One of the key strengths of this review is the establishment of a multidimensional framework that elucidates the attitudes of nurses at the individual, organizational, and system levels concerning AI. The authors recognized, however, that most of the studies that were included were cross-sectional, preventing the drawing of any causal conclusions.

Understanding is necessary of attitudes of nurses towards the use of AI in healthcare. Joo et al. (2025) had a qualitative review. Quantitative studies aimed at quantifying attitudes, this review aimed to synthesize qualitative evidence that aimed to understand the experiences, concerns and expectations of nurses regarding AI. Four main themes were found: perceived benefits of AI, ethical issues, professional implications, and implementation challenges. However, there were also concerns raised regarding privacy issues, algorithmic bias, and accountability for decisions made by AI. One key finding was that nurse respondents considered HHC to be irreplaceable and felt that AI should be used as a tool for them. The review also tied its worries to the potential of the AI to diminish the bond between nurse and patient and the possibility of less compassionate care. The authors propose that nurses be involved in the design and implementation of AI systems so that technological innovations are in line with the professional nursing values. This study is significant because it shows that the perception of nurses goes beyond the technical utility of a product, and that ethical and professional aspects may play a role in product adoption.

The authors of a systematic review by El Arab and colleagues (2025) investigated the attitudes, AI literacy, readiness, and intentions to adopt AI among nursing students and practicing nurses. The review collated the results of 37 studies and was one of the most comprehensive evaluations of AI readiness in the nursing field. While nurses were positive about using AI technologies, there were differences in their AI literacy and preparedness. Several participants appreciated the value of AI in optimizing healthcare processes and enhancing patient results. Yet there were significant concerns about ethical implications. Another key finding from the review was that nurses with formal training or education in AI were significantly more prepared to embrace AI technologies. Of particular importance is that the study found that having positive attitudes is not enough for successful implementation; there must also be knowledge, technical competence, and organizational support. The review revealed that there is a worldwide lack of awareness about the importance of learning AI and the need to incorporate AI-related skills into nursing education.

Liu et al. (2025) explored the correlation between AI literacy, AI anxiety, and nurses' attitudes. The researchers used a quantitative design to explore the relationships between knowledge and understanding of AI and nurse acceptance of it in clinical practice. Results indicated that the ability to comprehend its use was a significant predictor of positive attitudes toward AI. The more nurses knew about the applications, abilities, and limitations of AI, the more likely they were to view as useful and beneficial. The lack of knowledge about AI led to some nurses feeling uncertainty, fear, and apprehension about how AI would affect their job, and this was also a negative factor in their attitude toward adoption. The results indicate that educational interventions can alleviate concerns and increase acceptance of AI.

Choe and Woo (2025) investigated the factors affecting nurses' intentions to adopt generative AI technologies in health care contexts. The researchers examined the influences of usefulness, perceived ease of use, organizational support and attitudes on nurses' behavioral intention using the TAM as a framework. The results indicated that perceived usefulness predicted intention to use generative AI the most. Nurses who felt that AI could help them be more productive, make better clinical decisions and save time were much more likely to embrace AI. It was also discovered that organizational support and confidence in the positive use of technology had a positive effect on intentions to adopt. On the other hand, issues with accuracy, reliability, and ethical considerations diminished the acceptance of AI systems.

Ahmad et al. (2025) is one of the few studies that focused on the perceptions, knowledge and experiences of nurses in a tertiary healthcare setting in Pakistan with regard to the use of artificial intelligence. The study employed a cross-sectional survey design to evaluate the awareness of AI applications, attitudes

towards integration of AI, and perceived challenges among nurses. The results revealed that nurses overall have positive attitudes towards the potential benefits of AI in healthcare and patient care. Some participants, however, indicated that they lack awareness of the technologies of AI, lack training, lack support from their institutions, and lack knowledge about their future roles. Additionally, the study revealed that educational level was associated with AI awareness, with higher levels of education linked to more positive attitudes. More importantly, the authors pointed out that Pakistan's healthcare system is facing infrastructural and educational challenges which can have an impact on the implementation of AI. This study is especially relevant for the current study as it offers local evidence with relevance to the present study. It, however, was mainly knowledge and awareness oriented and lacked a comprehensive study of nurses' perceptions and attitudes toward AI-supported nursing care. Hence, there is a significant gap in research to be addressed, and the present study fills this gap.

RESEARCH GAP

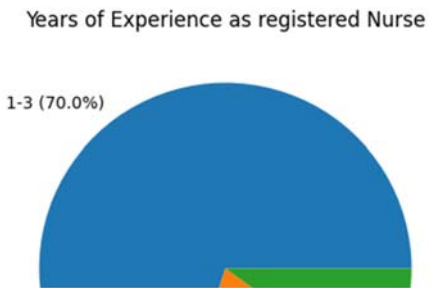
The above dimensions have been extensively studied in international research but there is limited evidence available in Pakistan. The majority of the published work is centered on the nursing students or the nurse in a technologically advanced healthcare system, and there are relatively few studies that address nursing practice in Pakistan health care system. The results of developed countries may not be applicable to Pakistan due to the contextual differences in infrastructure, availability of resources and technological advancement. Thus, empirical studies exploring the perceptions and attitudes of Pakistani nurses regarding AI in nursing care are important to guide the implementation of AI, policy formulation, and educational initiatives in the future.

DATA ANALYSIS AND DISCUSSION

This section presents data analysis and discussion on it in the light of cited literature on AI-assisted Nursing care. It compares and contrasts findings of this study with those that are cited in literature review section

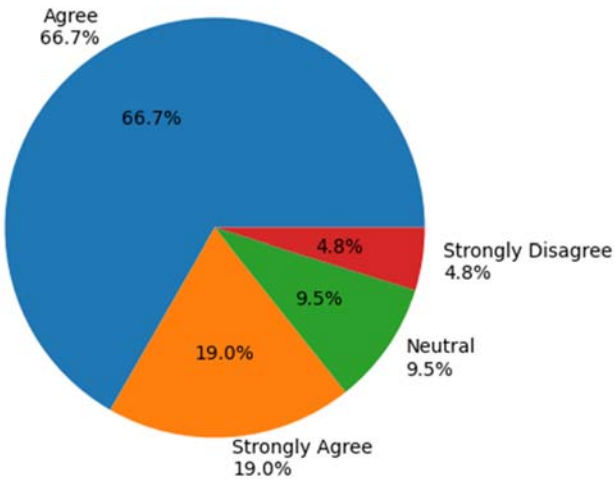
DEMOGRAPHIC INFORMATION OF THE PARTICIPANTS

As for professional experience, 70.0% indicated that they have 1-3 years of clinical experience with good techno and AI literacy of the Nurses. 20.0% reported 3 to 6 years of experience and only 10.0% reported more than 6 years in professional practice. Overall, the study is primarily based on the relatively nursing young staff, and their perceptions of AI-assisted nursing care may be influenced by the new clinical exposure that allows them to be flexible and accepting of AI-assisted nursing care.

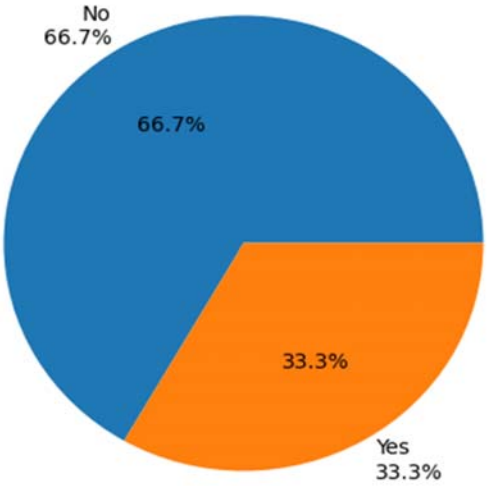


DO YOU THINK AI-DRIVEN TECHNOLOGIES ENHANCE HOSPITAL PATIENT CARE FOR REGISTERED NURSES?

On this question on the questionnaire, the results showed that 66.7% of the nurses agreed, 19% strongly agreed, 9.5% were neutral, whereas 4.7% strongly disagreed. It indicated overall positive attitudes of the nursing staffs towards the use of AI in nursing care. This finding is consistent with international evidence reported by Jin et al. (2026) and El Arab et al. (2025) who reported that nurses are more likely to endorse AI, provided it enhances efficiency, patient safety, and clinical decision-making. Similarly, from the Technology Acceptance Model, positive responses indicate high levels of usefulness and value from the user's point of view. Neutral or negative responses may be due to a lack of training, limited organizational support, reliability concerns, and/or ethical issues. Joo et al. (2025) also found that concerns about privacy, accountability, and maintaining human centered care were raised. In our context, the findings align with Ahmad et al. (2025) who reported positive attitudes towards AI with concerns about infrastructure. However, the results suggest that nurses are open to the use of AI in healthcare, but require ongoing education, organizational backing, and guidelines on the use of AI.

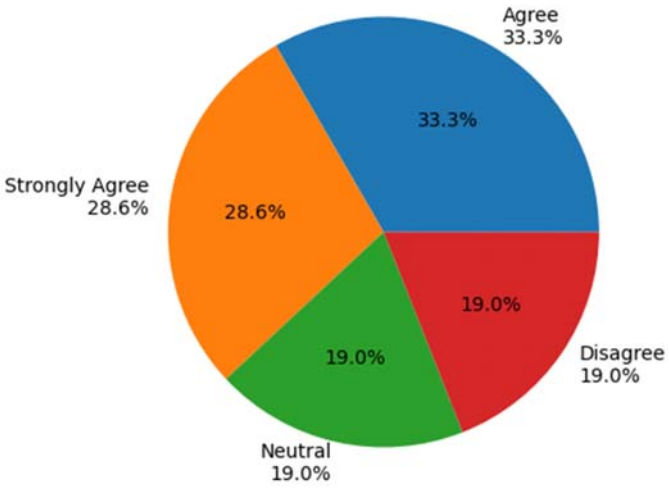


HAVE YOU RECEIVED ANY FORMAL TRAINING RELATED TO AI-ASSISTED NURSING TECHNOLOGIES USE IN HOSPITAL?



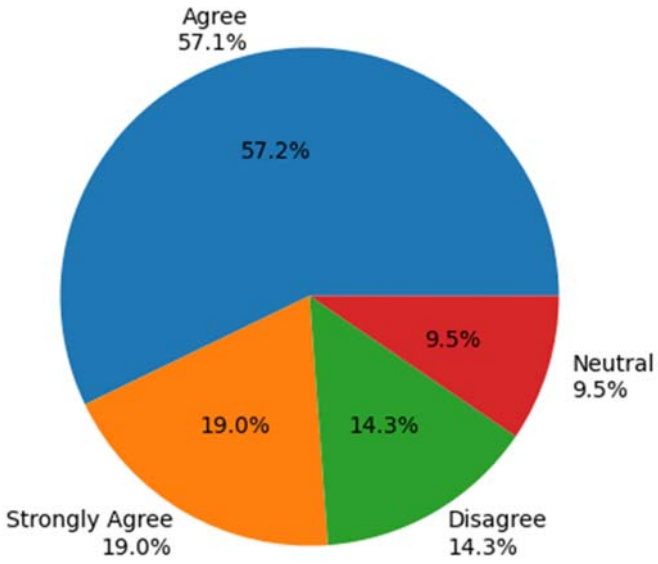
Of the Nurses that answered this question, 33.3% were positive and 66.7% reported no formal training. In general, the results show a positive attitude among the participating nurses towards AI-based nursing care. This is consistent with the study results of Jin et al. (2026) and El Arab et al. (2025) who showed that nurses were pro-AI when AI will improve efficiency, patient safety, and clinical decisions. The positive answers reflect high perceived usefulness and value from TAM perspective. Neutral or negative scores could be due to training issues, organizational support, doubt about reliability, or ethical issues. Similarly, Joo et al. (2025) identified the same issues, such as privacy, accountability and human-centred care. The findings indicate that the nurses are ready to embrace the use of AI technologies in healthcare, but there is a need for continuous professional growth, support from institutions, and ethical and responsible guidelines for the use of AI technology.

DOES AI TOOLS HELP REDUCE YOUR WORKLOAD DURING NURSING DUTIES?



Response to this question shows that 28.6% of the nurses strongly agreed, 33.3% moderately agreed that AI reduces workload on nurses. However, 19% disagreed and 19% remained neutral in their answer. So, we can say that the results show positive attitudes among the nurses regarding AI-supported nursing care. This is in line with other studies internationally, reported by Jin et al. (2026) and El Arab et al. (2025) that nurses are more willing to use AI when it enhances efficiency, patient safety, and clinical decision. Positive responses mean that they perceive high usefulness, and perceived value in the TAM context. Poor training, lack of organizational support, lack of confidence and ethical issues may be reasons for negative or neutral responses. Other such concerns were identified by Joo et al. (2025) who highlighted privacy, accountability and the ability to keep human-centered care. The results are consistent with Ahmad et al. (2025) who found a generally favorable attitude towards AI, as well as issues of professional preparedness and digital literacy, and a lack of infrastructure. The results thus suggest that nurses are open to AI-enhanced healthcare technologies, but ongoing professional growth and development, institutional backing, and ethical and responsible guidelines for AI use are crucial for successful implementation.

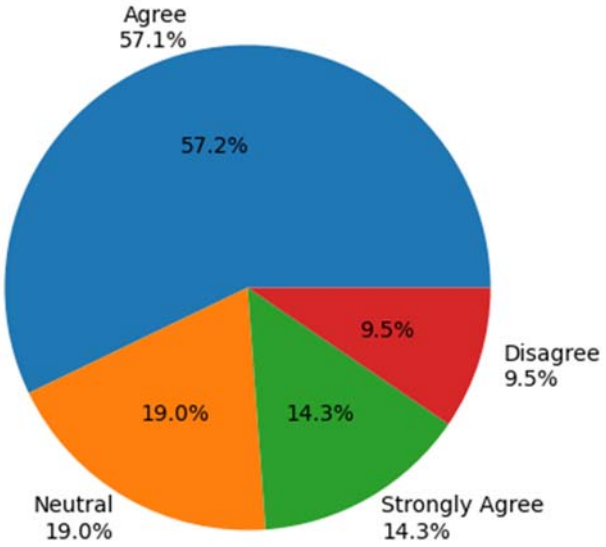
ARE YOU COMFORTABLE WITH USING AI SYSTEMS IN YOUR EVERYDAY NURSING DUTIES?



Regarding compatibility with AI software, results indicate that 57.2% of the respondents strongly favored, 19% strongly opposed, 14.3% disagreed, while 9.5% remained neutral regarding their compatibility with AI. The overall sentiment from the pattern seems to be positive regarding the use of AI for nursing care among the nurses involved in the study. The results align with those of Jin et al. (2026) and El Arab et al. (2025), who determined that nurses were more likely to be accepting of AI if it was found to improve efficiency,

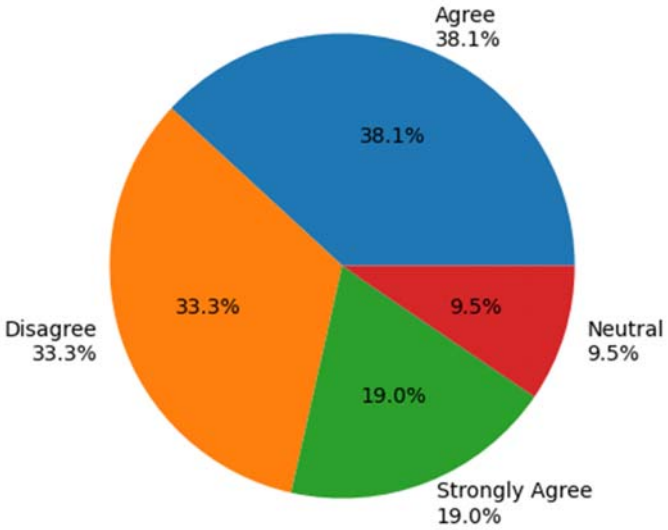
patient safety, and clinical decision making. This positive response indicates that there is high perceived usefulness and usefulness of the product. Neutral or negative responses could be due to lack of training, limited organizational support, lack of confidence in reliability, or ethical issues. Concerns about privacy, accountability, and maintaining human-centered care were also found by Joo et al. (2025). The findings indicate that nurses have openness toward the use of AI in healthcare, yet, to realize the potential of AI in healthcare, nurses must continue to develop their skills, professionals must be supported, and there should be a clear policy on the ethical and responsible use of AI.

DO YOU THINK AI CAN IMPROVE THE ACCURACY OF PATIENT CARE AND MONITORING?



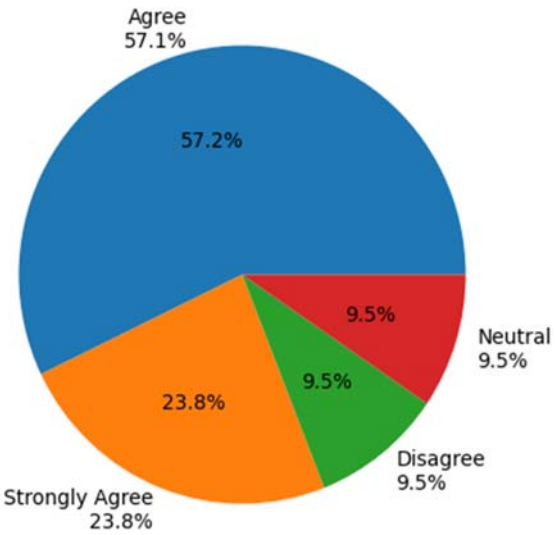
Nurses' views on this question show that 57.2% of the respondents had a stronger positive attitude, 19% neutral, 14.3% strongly agreed while 9.5% disagreed on AI assisted improved accuracy in patient care . The overall trend indicates that the participating nurses had a positive attitude towards the use of AI in nursing care. The findings are consistent with those of Jin et al. (2026) and El Arab et al. (2025), who reported that nurses are more likely to favor the use of AI, particularly for enhancing efficiency, patient safety, and clinical decision-making. This positive response indicates positive perceived usefulness and practical value. If the responses were neutral or negative, it could be due to a lack of training, less support in the organization, doubts about reliability or ethical questions. The same concerns were noted by Joo et al. (2025) who described privacy, accountability, and maintaining human-centered care as concerns. The results indicate that nurses are open to the use of AI in healthcare, but there is a need for ongoing professional learning and development, institutional support, and guidelines on the responsible use of AI.

ARE YOU CONCERNED THAT AI MAY REDUCE HUMAN INTERACTION BETWEEN NURSES AND PATIENTS?



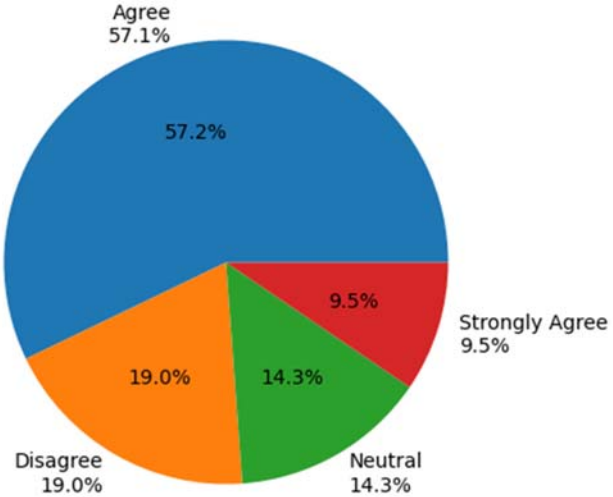
In response to this question, the analysis reflects that 38.1% agreement, 33.3% disagreement, 19% strong willingness, and 9.5% neutral opinion on this question. Overall, the pattern indicates that nurses participating in the study have positive attitudes towards AI-supported nursing care. The findings are also in line with the international evidence gathered by Jin et al. (2026) and El Arab et al. (2025), as they noted that nurses are more inclined to accept AI when it enhances their efficiency, safety, and clinical decision-making. The positive feedback indicates high perceived usefulness and perceived value of the technology from a TAM point of view. The neutrality or even negativity of responses can result from the lack of training, lack of support from the organization, limited reliability, or ethical issues. Similarly, Joo et al. (2025) shared the same concerns including privacy, accountability and maintaining care for the human being. The findings indicate that while nurses are welcoming the potential of AI in health care, they require continued professional development, institutional support, and the development of AI usage policies and guidelines to further ensure ethical and responsible use.

DO YOU BELIEVE AI-ASSISTED NURSING SYSTEMS SAVE TIME IN HOSPITAL PROCEDURES AND DOCUMENTATION?



In response to this item, the results show that 57.1% of the nurses agreed, 23.8% strongly agreed, 9.5% disagreed, while 9.5% remained neutral in their opinion regarding better time management and time saving due to AI. The overall trend indicates a positive sentiment towards AI-supported nursing care among the nurses involved. Positive answers indicate a high level of perceived usefulness and usefulness. Neutral or negative responses could be due to training issues, limited organizational support, uncertainty around reliability, or ethical issues. The same was noted by Joo et al. (2025), who noted concerns about privacy, accountability, and maintaining human-centered care. The results thus suggest that nurses are open to using AI in healthcare but that it is essential to empower them with ongoing professional development, institutional assistance, and ethical and responsible policies on the use of AI.

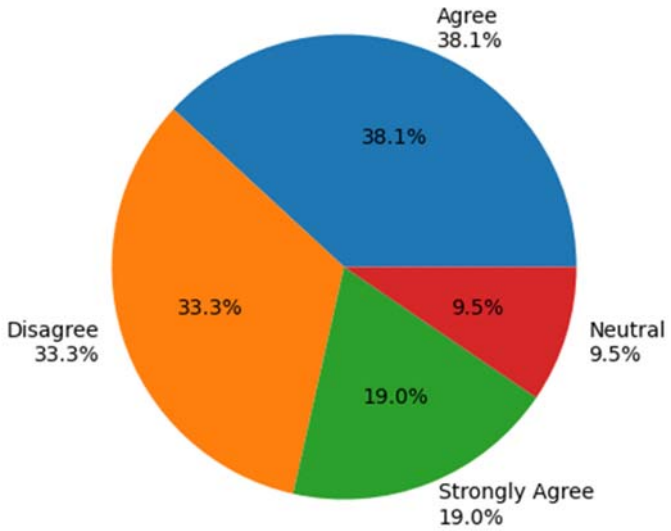
DO YOU FEEL CONFIDENT USING AI-BASED TECHNOLOGIES IN PATIENT CARE?



As far as confidence in AI tools is concerned, the results show that 57.2% of

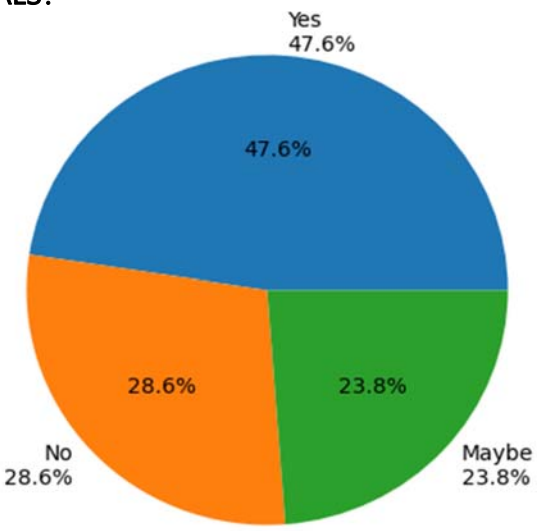
respondents were in strong favor, 9.5% strongly favored, 19.0% altogether discarded, while 14.3% of the nurses remained neutral in their response\. Overall, there is a positive trend in the perceptions of the participating nurses regarding the use of AI in nursing care. This finding is consistent with Jin et al. (2026) and El Arab et al. (2025), which revealed that nurses are more likely to embrace AI when it enhances the efficiency, safety of patient care. The Technology Acceptance Model view indicates that the positive responses are indicative of high perceived usefulness and practical value. Any neutral or negative responses could be a result of under preparation and poor organizational support. Other concerns were noted by Joo et al. (2025) who said that they were concerned about privacy, accountability, and maintaining human care. The results thus suggest that although nurses are open to AI in healthcare, there is a need for ongoing education, institutional support, and ethical and responsible guidelines for implementing AI technologies.

DO YOU THINK HOSPITALS SHOULD INVEST MORE IN AI-ASSISTED HEALTHCARE TECHNOLOGIES?



The analysis of responses to this question on questionnaire shows that 38.1% agreed, 19% strongly agreed, 9.5% were neutral, while 33.3% of the responded disagreed regarding the hospital's investment in AI assisted nursing care. The overall trend indicates that the participating nurses have mostly positive views about the use of AI in nursing care. This finding is consistent with and El Arab et al., (2025), which indicate that nurses, are more positive towards AI. TAM indicates that the positive responses indicate high perceived usefulness and value of the technology. Neutral and negative responses may be due to inadequate training, lack of organizational support, uncertainty about the reliability of the instrument or ethical concerns. The results thus suggest that nurses are open to AI-enabled health care technologies, but they need ongoing professional development, institutional support, and guidelines on ethical and responsible AI applications for successful implementation.

WOULD YOU RECOMMEND THE CONTINUED USE OF AI-ASSISTED NURSING CARE IN HOSPITALS?



As far as their recommendation regarding AI tools is concerned, the results show that 47.6% of participants had positive feelings about this item. Overall, the pattern indicates that the participating nurses had positive sentiments towards the use of AI in nursing care. The findings align with international evidence presented by Jin et al. (2026) and El Arab et al. (2025) that nurses tend to favor AI when it enhances efficiency, patient safety, and clinical decision-making. In terms of a Technology Acceptance Model (TAM), the positive responses imply high perceived usefulness and usability. Responses which were neutral or negative could be due to training issues, lack of organization support, lack of confidence in reliability, or ethical issues. Joo et al. (2025) similarly found that privacy, accountability, and maintaining human-centered care were concerns. The results accordingly show that although nurses are keen on implementing AI-based technologies in healthcare, they must undergo continuous professional development, institutional support, and clear policies in this regard to make the implementation successful in terms of ethics and responsibility.

THEMATIC ANALYSIS OF NURSES' VIEWS REGARDING AI IN HOSPITALS

The qualitative answers show a very guarded positive but nonetheless confined perspective on the use of AI-supported technologies in hospital nursing care. AI was most often perceived as a tool for nurses to assist with their work rather than to replace them. The benefits perceived to be greatest were efficiency and help with information or technical intensive work. One respondent stated, ***"Time saving on documentation."*** Another noted, ***"One advantage is the time it saves, challenge is that it will not take the place of nurse duty".*** A third said that it was

due to the *"difficulty in accessing the property."AI has a good use for looking for drug calculations in drug uses"*

These comments collectively show the benefits that nurses identify with AI, such as documentation, medication calculations, and quick access to clinical data. The time saving is important because documentation and routine administrative work are often seen as a tax on nursing practice. Participants seem to think that AI can help lessen repetitive tasks and boost workflow efficiency, thereby allowing nurses to dedicate more time towards direct patient-care activities and other professional duties. Even those who were typically skeptical were aware that AI has been increasingly a part of modern healthcare practice.

In parallel, the major issue raised by participants was the lack of perceived capability of AI to provide the human aspects of caring. A recurring theme among the respondents was the importance of empathy, sympathy, bedside presence, and therapeutic communication in nursing. One person said "*simply, In hospitals, it is not possible for the Ai to take care of a patient"* Another elaborated, *"AI has value for finding drug calculations drug uses but Ai can't offer the sympathy in providing care to patients, thanks"*

There were also concerns regarding the impact of technology on the nurse–patient relationship, as participants cautioned against the impact of technology. *"nurse/patient interaction could be compromised"* and *"As far as I know, I think it will be less interaction of patients and nurses due to using Ai."* One of the respondents summed this up by conceding that AI is becoming increasingly important, but also stating that it should not be given more credit than it deserves. *"It is a basic need nowadays but it's not such an advanced AI, because if it cared for patients that active, it wouldn't be easy for human."*

Overall, these responses suggest that participants believe existing AI systems are beneficial for cognitive, administrative, and calculation tasks, but are not seen as alternatives to compassionate bedside care. This is not a blanket rejection of AI, but rather a desire for a model where patients are cared for by human nurses who still perform clinical judgments and encounter therapeutic relationships but where the AI is given a supporting role in the care of the patient.

Conclusion

The overall results demonstrate the general positivity of the nurses' perceptions of the use of AI in nursing care. Most of those surveyed agreed that AI enhances the quality of care provided to patients, monitoring of patients, documentation efficiency and the management of workloads. The biggest difficulty found was a lack of formal training in AI, suggesting that there is a lower readiness level than in overall acceptance of AI. This is consistent with the findings of Liu et al. (2025) that highlighted the influence of AI literacy in fostering positive attitudes towards AI. The results also show that nurses are not viewing AI as a substitute

for the practice of nursing. Instead, it appears that participants prefer a complementary view of the use of AI, working alongside clinical skills and empathy, but with communication and human-centred care considerations always at the forefront. The results are in line with the results of Bodur et al. (2025) and Joo et al. (2025). In summary, the study highlights the significant potential for implementing AI in Pakistani hospitals. Building staff capacity, infrastructure, organizational support, ethical oversight, and digital literacy programs, however, will be important for the successful implementation.

REFERENCES

Ahmad, A., Khan, S., & Ali, R. (2025). Nurses' perceptions, knowledge, and experiences regarding artificial intelligence in tertiary healthcare settings in Pakistan. *Pakistan Journal of Nursing Research, 15*(2).

Alzghaibi, H. A. (2025). Nurses' perceptions of wearable artificial intelligence technologies in patient monitoring and care. *International Journal of Healthcare Technology, 12*(1).

Bodur, G., Yilmaz, F., & Demir, S. (2025). Human-centered nursing care in the age of artificial intelligence: Nurses' perspectives on empathy and technology integration. *Journal of Advanced Nursing, 81*(3).

Booth, R. G., Strudwick, G., McBride, S., O'Connor, S., & López, A. L. S. (2021). How the nursing profession should adapt for a digital future. *BMJ, 373*, n1190. https://doi.org/10.1136/bmj.n1190

Buchanan, C., Howitt, M. L., Wilson, R., Booth, R. G., 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

Choe, K., & Woo, H. (2025). Factors influencing nurses' intentions to adopt generative artificial intelligence technologies in healthcare settings. *Nurse Education Today, 135*.

Davenport, T., & Kalakota, R. (2019). The potential for artificial intelligence in healthcare. *Future Healthcare Journal, 6*(2), 94–98. https://doi.org/10.7861/fhj.2019-0016

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

De Hond, A. A. H., Leeuwenberg, A. M., Hooft, L., Kant, I. M. J., Nijman, S. W. J., van Os, H. J. A., Aarden, J. J., Debray, T. P. A., Schuit, E., & Hooft, L. (2022). Guidelines and quality criteria for artificial intelligence-based prediction models in healthcare. *NPJ Digital Medicine, 5*(1), 2–11. https://doi.org/10.1038/s41746-021-00549-7

El Arab, R., Alshammari, M., & Hassan, N. (2025). Artificial intelligence literacy, readiness, and adoption intentions among nurses and nursing students: A systematic review. *Nurse Education in Practice, 78*.

Fairclough, N. (1989). *Language and power*. Longman.

Gates, B., Smith, J., & Brown, L. (2024). Nurses' attitudes toward artificial intelligence in healthcare: A systematic review. *Journal of Nursing Management, 32*(4).

Jin, Y., Wang, H., Liu, X., & Chen, Z. (2026). Factors influencing nurses' attitudes toward artificial intelligence in clinical practice: A scoping review. *International Journal of Nursing Studies, 145*.

Joo, H., Kim, S., & Park, J. (2025). Nurses' perceptions of artificial intelligence adoption in healthcare: A qualitative systematic review. *BMC Nursing, 24*(1).

Kim, E., Lee, H., & Cho, Y. (2025). Nursing students' acceptance of artificial intelligence technologies: A systematic review based on the Technology Acceptance Model. *Nurse Education Today, 133*.

Liu, X., Zhang, W., Chen, Y., & Li, H. (2025). Artificial intelligence literacy, anxiety, and attitudes toward AI among nurses: A cross-sectional study. *Journal of Clinical Nursing, 34*(5–6).

Porcellato, L., Williams, C., & Thompson, P. (2025). Applications of artificial intelligence in nursing practice: Opportunities and challenges. *International Nursing Review, 72*(2), xx–xx.

Robert, N. (2019). How artificial intelligence is changing nursing. *Nursing Management, 50*(9), 30–39. https://doi.org/10.1097/01.NUMA.0000578988.56622.21

Ronquillo, C. E., Peltonen, L. M., Pruinelli, L., Chu, C. H., Bakken, S., Beduschi, A., Macieira, T. G. R., & 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

Siddique, A., & Shahid, M. (2025). Attitudes and readiness of Pakistani nurses toward artificial intelligence in healthcare. *Pakistan Journal of Health Sciences, 6*(1)

Topaz, M., Ronquillo, C., Peltonen, L. M., Pruinelli, L., Sarmiento, R. F., Badger, M. K., Ali, S., Lewis, A., Georgsson, M., Jeon, E., Tayaben, J. L., & Chiang, H. Y. (2022). Nurse informaticists report low preparedness for artificial intelligence and machine learning technologies. *Studies in Health Technology and Informatics, 290*, 467–471. https://doi.org/10.3233/SHTI220122

Van Wynsberghe, A. (2021). Artificial intelligence and robotics in healthcare: Ethics of caring as a guide to dividing tasks between AI and humans. *Nursing Ethics, 28*(5), 704–715. https://doi.org/10.1177/0969733020985177

Yu, K. H., Beam, A. L., & Kohane, I. S. (2018). Artificial intelligence in healthcare. *Nature Biomedical Engineering, 2*(10), 719–731. https://doi.org/10.1038/s41551-018-0305-z