Vol. 5 No. 1 (2026)

Pakistan Journal of Medical & Cardiological Review

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

Online ISSN 3007-2387

Print ISSN 3007-2379

Kumar et al - 2026

Knowledge, Attitude and Practice about Artificial Intelligence among Nursing Students Studying in Different affiliated colleges of Shaheed Mohtarma Benazir Bhutto Medical University Larkana

Dileep Kumar
Clinical Instructor, College of Nursing (Female) Sukkur. dileepkumar.duhs@gmail.com
Agha Habib Ur Rehman Maitlo
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. Email. maitlohabib230@gmail.com
Zahid Hussain Kalhoro
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. zahidhussainmop@gmail.com
Mushraf Ali
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. mushrafalipitafi91@gmail.com
Bahram Lund
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. Email. bahramlund576@gmail.com
Zaman ul Haq Lund
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. zamanbalochi12345@gmail.com
Falak Sher Langah
BS Nursing (Generic), Zaib-Un-Nisa Institute of Nursing & Allied Health Science Ghotki Affiliated with SMBBMU Larkana. fsher2272@gmail.com

Author Details

Received on 21 Jan, 2026
Accepted on 11 Feb, 2026
Published on 13 Feb, 2026

Corresponding E-mail & Authors*:

Abstract

Background: AI is also penetrating the healthcare and nursing education, yet student readiness is not certain.

Purpose: The proposed study is aimed at evaluating knowledge, attitude and practice (KAP) of AI among BS Nursing students in the affiliate colleges of SMBBMU Larkana.

Methods: Descriptive cross-sectional survey (n=170) of questionnaire (knowledge 8 yes/no), attitude (10 Likert) and practice (8 yes/no). Convenience sampling was used to recruit participants from four affiliated nursing colleges in Sindh.

Findings: Knowledge on AI was good (94.7% were aware of AI). The majority (87.1) thought that AI is a necessity in nursing and it should be part of the curriculum (78.2). The attendance rate of 28.8% at an AI course was low. AI was popularly used in assignments (92.4%) and 83.5% wanted to use AI in future, but 51.5% believed that AI would make accurate clinical decisions.

Conclusion: AI educational acceptance and use are very high among students, although there are low levels of formal training and limited clinical trust which is a sign that structured competency-based AI education with a focus on ethics, verification and patient-centred care is needed.

Keywords: Artificial intelligence, Nursing students, Knowledge, Attitude, Practice, Nursing education, Pakistan

BACKGROUND

AI technology is currently revolutionizing healthcare systems and educational institutions across the globe. AI defines computer systems which can execute tasks that normally require human intelligence to complete, such as reasoning, learning, decision-making, and problem-solving.[1] Healthcare organizations now use AI technologies to improve clinical decision support systems and create disease prediction tools and patient monitoring systems and documentation automation tools and educational simulation programs.[2] The transition of healthcare systems into a digital operational model has created a need for nurses to acquire new skills because the profession is undergoing a technological transformation.[3]

Nursing education institutions use AI-based tools which include adaptive learning platforms and virtual simulations and generative AI systems (e.g., ChatGPT) to improve student learning outcomes.[4] Worldwide research studies show that nursing students maintain a favorable attitude towards the implementation of artificial intelligence technologies in both educational settings and clinical environments. Developing countries face a major problem because AI tools have become more available yet there exist insufficient training programs which teach ethical principles and develop AI skills.[5]

The investigation of Artificial Intelligence in nursing education in Pakistan has just begun its research phase.[6] International research studies document that students show

understanding and positive attitudes about AI technology yet local research has not measured how nursing students in academic institutions understand and use AI technology.[7] The three areas of study need to be explored because they support the development of nursing education programs, development of training methods, and creation of rules for using AI technology in nursing education programs.[8]

Research Question

What is the level of knowledge, attitude, and practice regarding Artificial Intelligence among undergraduate nursing students studying in different affiliated nursing colleges of Shaheed Mohtarma Benazir Bhutto Medical University (SMBBMU) Larkana?

Purpose of the Study

The purpose of this study is to assess and analyze the knowledge, attitudes, and practices related to Artificial Intelligence among undergraduate nursing students in affiliated colleges of SMBBMU Larkana, in order to determine their readiness for AI integration in nursing education and clinical practice.

Objectives of the Study

1. To assess the level of knowledge about Artificial Intelligence among nursing students.
2. To evaluate students' attitudes toward the integration of AI in nursing education and clinical practice.
3. To determine the extent of AI-related practices among nursing students.
4. To identify gaps between awareness, formal training, and practical application of AI.

Research Gap

Research about AI literacy among nursing students in Pakistan remains unaddressed because AI usage in healthcare and education has grown worldwide. Existing studies primarily focus on developed countries and emphasize perceptions rather than comprehensive KAP assessments. The research protects students' right to structured AI education while proving students need informal methods to learn AI. The nursing programs require localized research because they need fundamental evidence to design their AI training programs through competency-based training and curriculum development.

Contributions of the Study

The study adds to existing research through its essential contributions to the field:

1. The first research study which tested AI knowledge, attitudes, and practices among nursing students at SMBBMU Larkana affiliated colleges established this study as its first contextual investigation.
2. The study shows that students have high awareness but they lack formal AI education, which schools should use to plan their courses.
3. The research provides proof which nursing programs can use to create educational systems that teach students ethical AI skills through hands-on training methods.
4. The program helps nurses develop their technological skills, which they need to deliver patient-centered care that adheres to ethical standards.

LITERATURE REVIEW

Artificial Intelligence (AI) has rapidly transformed healthcare and education systems worldwide. AI describes computer systems which can execute tasks which require human intelligence because they can reason and learn and solve problems and make decisions [9]. AI technologies are applied in healthcare settings to forecast diseases and create clinical decision support systems and track patients and enable robotic systems and enhance operational productivity. Nursing students and professionals need to learn about artificial intelligence because healthcare systems adopt more advanced technological solutions.

AI functions as the main technology for Education 4.0 because it enables digital transformations to replace conventional teaching methods and learning strategies [10]. The AI-powered educational tools enable students to receive customized learning paths while they receive real-time learning assessments and engage in interactive classroom settings. AI enhances medical and nursing education by providing simulation training virtual learning environments automated exam systems and evidence-based medical knowledge access [11]. The researchers state that successful integration requires three essential elements which include sufficient infrastructure and ethical standards and trained faculty members.

The research results show that students have gained better understanding of AI tools which include ChatGPT and machine learning systems used for academic work [12]. Students employ AI technology to help them with their schoolwork and their research writing and their need to understand different concepts. The widespread use of informal educational methods indicates that academic institutions have started to accept AI technology as a common practice. Students understand that AI technology can help them in clinical situations by analyzing patient symptoms and assisting with medical decision-making [12].

A systematic review of AI applications in nursing and midwifery research showed that testing and implementation of AI technologies requires engagement from multiple professionals but current participation remains restricted [13]. The majority of AI systems which operate in nursing provide solutions for patient treatment through systems that detect falls and assess risks and monitor patient conditions. Research studies on AI applications in nursing administration and education and healthcare management remain limited. The review identifies critical problems which include data bias and privacy violations and AI systems that lack transparency and healthcare workers who have insufficient understanding of AI technology. The existing problems demonstrate that nursing students need formal AI training through their nursing education programs.

Research conducted worldwide shows that nursing students and registered nurses possess positive views about using AI technology in their work. A study conducted in Turkey reported that nurses showed supportive attitudes toward incorporating AI programs, including ChatGPT, to improve patient care outcomes [14]. The qualitative study showed that undergraduate nursing students experienced confusion and uncertainty during their first encounters with AI tools but they developed competence through time [15]. These findings suggest that proper guidance and structured instruction significantly influence successful AI adoption.[16]

The literature shows that existing knowledge and positive public opinion about the topic matter but there remain significant empty spaces. The nursing field falls behind biomedical sciences because it has conducted less research about AI and its implementation.[17] The evaluation of AI systems for nursing practice face challenges

because of two factors which include unpredictable research methods and the absence of actual clinical testing. The existing research does not adequately study the knowledge, attitudes, and practices (KAP) of nursing students who study in developing countries like Pakistan.[18] The responsible AI integration process requires understanding of these three dimensions. The existing research shows that nursing students possess high AI awareness and positive AI attitudes. Nursing students exhibit ethical concerns while doubting their ability to trust AI systems and navigate clinical situations.[19] The study results show that AI education which centers on competency development results in greater ethical responsibility and better evaluation skills and patient-centered care and professional responsibility. The development of training programs will help future nurses learn to use AI technology while preserving the core human values that define their profession.[20]

Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

METHODOLOGY

Study Design

The study used a quantitative descriptive cross sectional study design which involved research conducted at SMBBMU Larkana affiliated colleges which enrolled both male and female students from their nursing programs. The study included two private nursing colleges which were Sindhu ION and AHS Khirpur Mirs and Zaib Un Nisa ION and AHS Ghotki and two public government colleges which were Female CON Sukkur and Female CON Shikarpur. The two private colleges admitted both male and female students while the public colleges accepted only female students.

Study Duration

The researchers spent four months conducting the study which involved visiting different colleges to gather data and develop their research synopsis and results.

Sampling Techniques

The study used convenient sampling to select participants who were chosen randomly from various semesters.

Sample Size

The researchers used simple random sampling methods to determine the sample size which resulted in a total of 170 participants. The researchers selected participants through their visits to various nursing colleges that were affiliated with SMBBMU Larkana.

Inclusion Criteria

Only Undergraduate student was added in our study and the participant belongs to different semester of BS Nursing.

Method of Data Collection

A questionnaire was developed from previous conducted study. Which include demographic data along with KAP Survey Questions.

Recruitment of Subjects

The permission was taken from the Principles of these colleges and official latter was dispatches to principles office for information and took permission. For conducting research & data collection in their colleges.

Design of Study Instrument

The researchers built the questionnaire from a prior study which served as their foundation for their work. The study assessed participant demographics together with their KAP knowledge of artificial intelligence applications in nursing. The demographic issues involved the name, age, Gender, semester of study, and affiliated nursing college. The questionnaire had three sections which included section A that tested AI knowledge through eight questions about healthcare-related AI knowledge and section B that assessed participant perceptions of AI implementation in nursing through ten questions and section C which evaluated current AI usage and participant experiences with AI in nursing through eight questions. The questions were designed to be both clear and brief.

Ethical Considerations

The study conducted its research according to the Declaration of Helsinki ethical standards The research team informed participants about their objectives and research strategies before they collected data. Participants voluntarily took part in the study after they received written consent which allowed them to complete the questionnaire. The research team maintained participant secrecy through their work which achieved high standards of confidentiality The survey did not collect any personal information about participants and their responses remained confidential because the research team stored all data in a secure location which they used for academic purposes The study allowed participants to withdraw from research activities without facing consequences for their decision. The research experiment did not create any harmful effects which could affect the participants psychological state or social interactions or their physical well-being All data analysis was done in a fair manner and the results were presented without fabrication and manipulation. The sources were properly cited and the results served only as an educational resource for research purposes..

RESULTS AND OBSERVATIONS

Data Screening

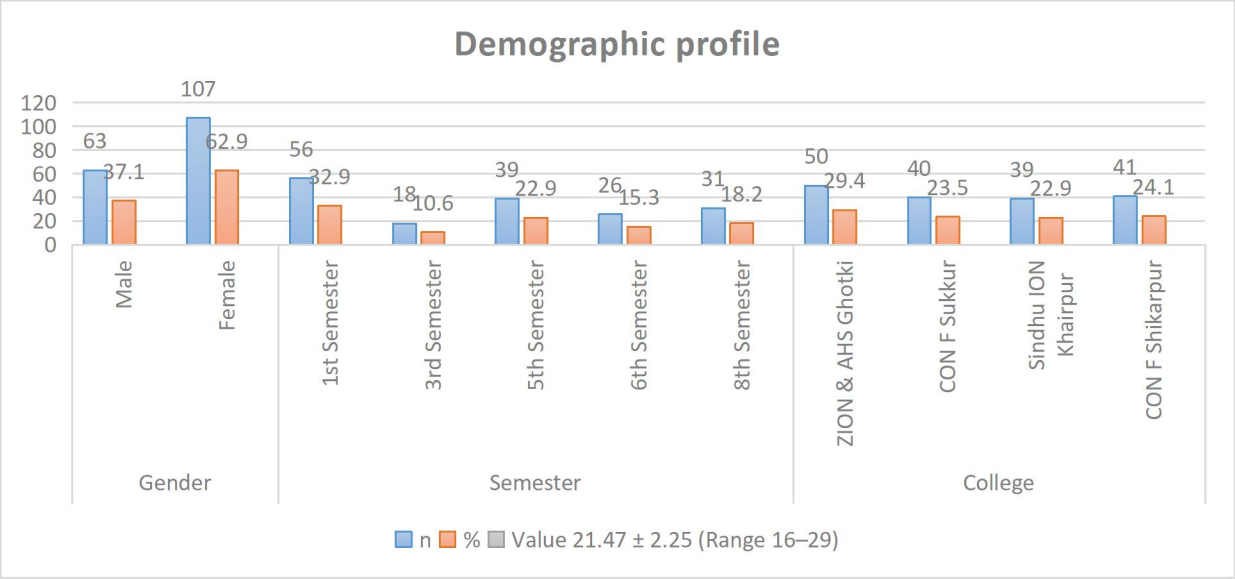
Demographic Characteristics of Participants (n = 170)

Table 4.1: *Demographic Profile of Nursing Students (n = 170)*

Variable	Category	n	%	Value

Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

Age (years)	Mean ± SD			21.47 ± 2.25 (Range 16–29)
Gender	Male	63	37.1	
	Female	107	62.9	
Semester	1st Semester	56	32.9	
	3rd Semester	18	10.6	
	5th Semester	39	22.9	
	6th Semester	26	15.3	
	8th Semester	31	18.2	
College	ZION & AHS Ghotki	50	29.4	
	CON F Sukkur	40	23.5	
	Sindhu ION Khairpur	39	22.9	
	CON F Shikarpur	41	24.1	



Knowledge about Artificial Intelligence (AI)

Overall, students demonstrated **high general awareness of AI**. The majority reported knowing about AI (**94.7%**) and believed AI is essential in nursing (**87.6%**). However, **formal training was low**, as only **28.8%** had attended any online/offline AI course.

Table 4.2: *Knowledge items (Yes/No) about AI*

Item	Knowledge question	Valid N	Yes n (%)	No n (%)
K1	Do you know about Artificial Intelligence?	170	161 (94.7%)	9 (5.3%)

K2	Do you know about machine learning/deep learning?	170	97 (57.1%)	73 (42.9%)
K3	Do you know any application used in nursing field?	170	143 (84.1%)	27 (15.9%)
K4	Have you ever been taught about AI in nursing college/field?	169	97 (57.4%)	72 (42.6%)
K5	Do you think AI is essential in the field of nursing?	169	148 (87.6%)	21 (12.4%)
K6	Have you attended any previous online/offline course about AI?	170	49 (28.8%)	121 (71.2%)
K7	Do you know about AI tools used in nursing practice/education?	170	125 (73.5%)	45 (26.5%)
K8	Is the use of AI beneficial for patient care?	170	133 (78.2%)	37 (21.8%)

Attitude toward AI in Nursing

Students showed a **generally positive attitude** toward AI integration. A large majority agreed/strongly agreed that AI is essential in nursing (**87.1%**) and should be included in nursing curriculum (**78.2%**). About AI replacing nurses, opinions were **mixed**: **41.8%** agreed/strongly agreed, while **42.9%** disagreed/strongly disagreed.

Table 4.3: *Attitude items (Likert 1–5)*

SD = Strongly Disagree, D = Disagree, Unc = Uncertainty, A = Agree, SA = Strongly Agree

Item	Attitude statement	Valid N	SD	D	Unc	A	SA	Mean ± SD
A1	AI is essential in the field of nursing	170	1 (0.6%)	9 (5.3%)	12 (7.1%)	80 (47.1%)	68 (40.0%)	4.21 ± 0.83
A2	AI should be included in nursing curriculum/training	170	5 (2.9%)	21 (12.4%)	11 (6.5%)	82 (48.2%)	51 (30.0%)	3.90 ± 1.06
A3	AI will replace human/nurses' effort in patient care	170	18 (10.6%)	55 (32.4%)	26 (15.3%)	53 (31.2%)	18 (10.6%)	2.99 ± 1.22

A4	Comfortable using AI technology in daily work	170	2 (1.2%)	8 (4.7%)	12 (7.1%)	106 (62.4%)	42 (24.7%)	4.05 ± 0.78
A5	Confident about competency in AI technology for patient care	170	3 (1.8%)	20 (11.8%)	33 (19.4%)	87 (51.2%)	27 (15.9%)	3.68 ± 0.94
A6	AI can disrupt nurse–patient relationship	170	6 (3.5%)	50 (29.4%)	34 (20.0%)	54 (31.8%)	26 (15.3%)	3.26 ± 1.14
A7	Nurses should keep updating their AI skills over time	170	2 (1.2%)	22 (12.9%)	16 (9.4%)	79 (46.5%)	51 (30.0%)	3.91 ± 1.01
A8	AI can reduce workload in clinical practice	170	4 (2.4%)	26 (15.3%)	13 (7.6%)	80 (47.1%)	47 (27.6%)	3.82 ± 1.07
A9	AI will help nurses in clinical decision-making	169	4 (2.4%)	25 (14.8%)	21 (12.4%)	74 (43.8%)	45 (26.6%)	3.78 ± 1.07
A10	Nursing students should learn basics of AI	170	3 (1.8%)	7 (4.1%)	11 (6.5%)	92 (54.1%)	57 (33.5%)	4.14 ± 0.84

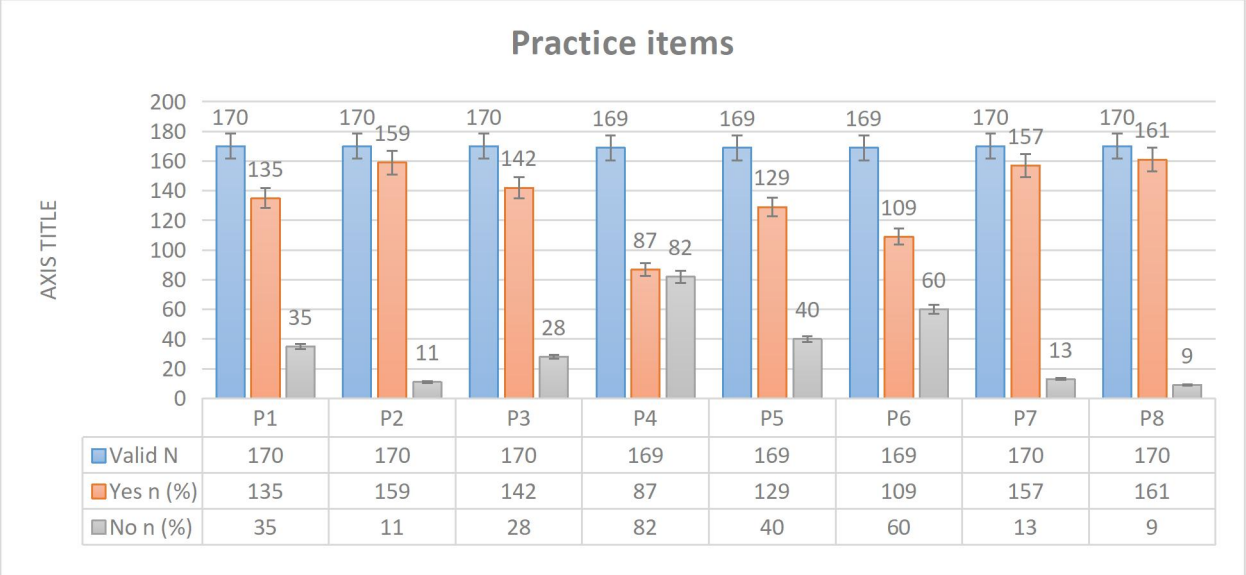
Practice Regarding AI

Practice responses indicate **frequent use of AI in education**. Most students reported that AI made tasks easier (**93.5%**), they use AI for assignments/homework (**92.4%**), and they think AI is helpful in nursing education (**94.7%**). Confidence in AI making accurate clinical decisions was comparatively lower (**51.5% yes**).

Table 4.4: *Practice Items (Yes/No) Regarding AI*

Item	Practice question	Valid N	Yes n (%)	No n (%)
P1	Have you ever used AI technology in nursing	170	135 (79.4%)	35 (20.6%)

	education?			
P2	Has AI made your tasks easier?	170	159 (93.5%)	11 (6.5%)
P3	Would you like to work with AI in the future?	170	142 (83.5%)	28 (16.5%)
P4	Confident in AI's ability to make accurate clinical decisions?	169	87 (51.5%)	82 (48.5%)
P5	Use AI for personality development/skill enhancement?	169	129 (76.3%)	40 (23.7%)
P6	Use AI for personal choices/career guidance?	169	109 (64.5%)	60 (35.5%)
P7	Use AI to prepare assignments/homework?	170	157 (92.4%)	13 (7.6%)
P8	Is AI helpful in your nursing education?	170	161 (94.7%)	9 (5.3%)



Overall KAP scores (descriptive summary)

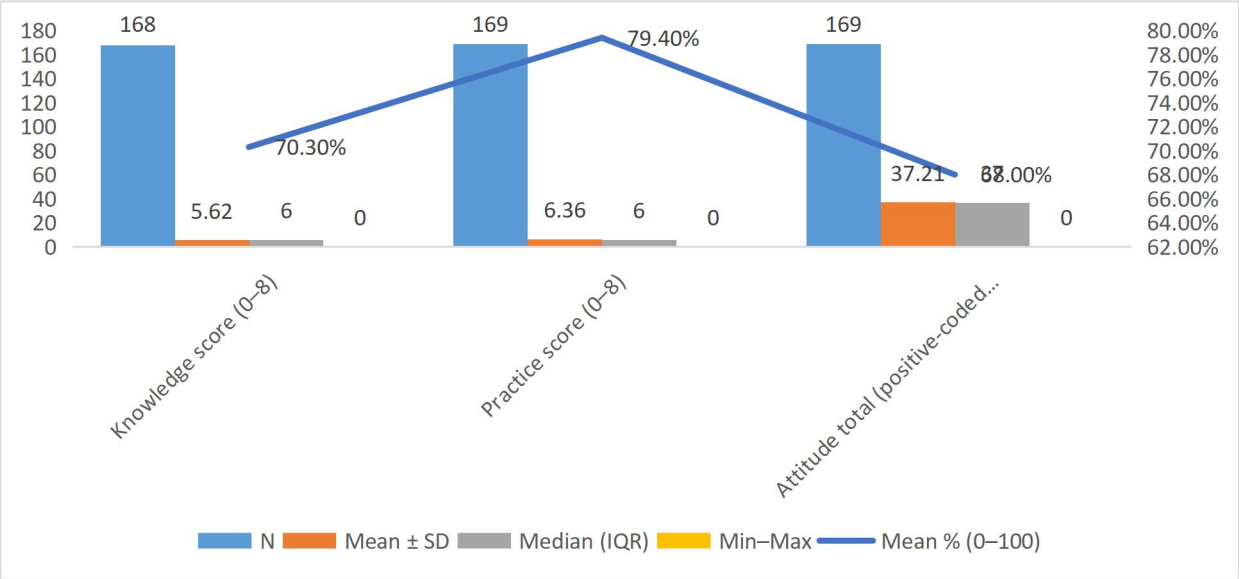
Scores were computed as:

- **Knowledge:** total "Yes" across 8 items (0–8)
- **Practice:** total "Yes" across 8 items (0–8)
- **Attitude:** total across 10 items (10–50) with **negative items reverse-coded** *(A3, A6)* so higher score indicates **more positive attitude**.

Table 4.5: *Overall Knowledge, Attitude and Practice Scores*

Scale	N	Mean ± SD	Median (IQR)	Min–Max	Mean % (0–100)

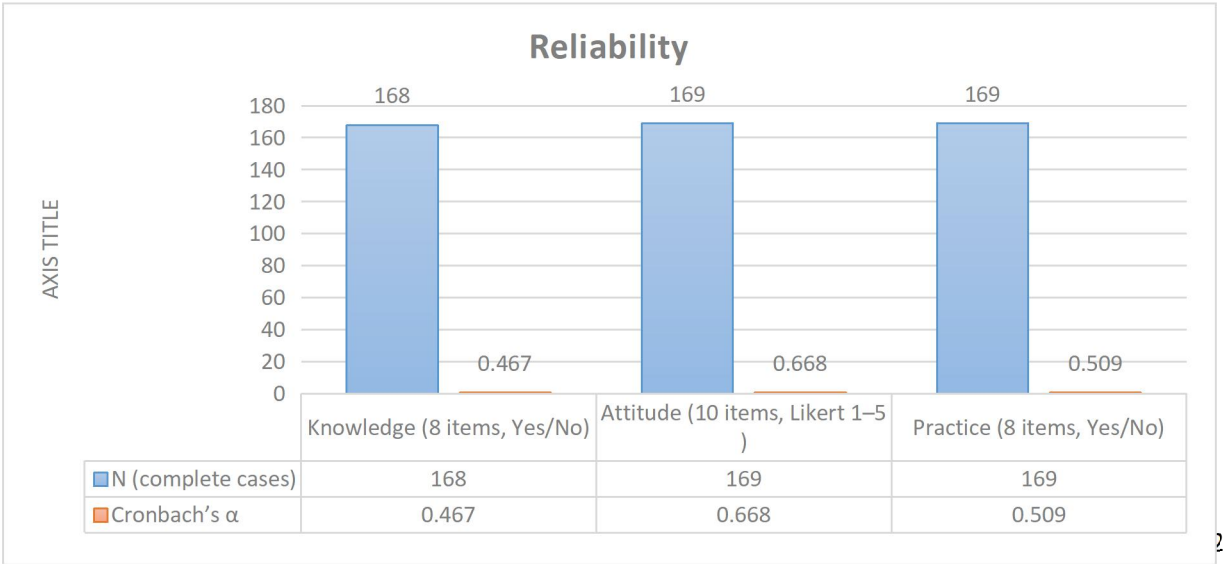
Knowledge score (0–8)	168	5.62 ± 1.51	6 (5–7)	1–8	70.3%
Practice score (0–8)	169	6.36 ± 1.44	6 (6–7)	0–8	79.4%
Attitude total (positive-coded, 10–50)	169	37.21 ± 4.59	37 (34–40)	18–49	68.0%



Reliability of the KAP instrument

Table 4.6: *Reliability (Internal Consistency)*

Scale	N (complete cases)	Cronbach's α
Knowledge (8 items, Yes/No)	168	0.467
Attitude (10 items, Likert 1–5)	169	0.668
Practice (8 items, Yes/No)	169	0.509



Pakistan Journal of Medical & Cardiological Review
https://pakjmcr.com/index.php/1/about
Online ISSN 3007-2387
Print ISSN 3007-2379

DISCUSSION

Nursing students in this descriptive cross-sectional survey were very familiar with AI (94.7% said they were aware of AI) and have a generally positive view of its implementation in the field (87.1% said AI is necessary in nursing; 78.2% said they wanted AI included in the curriculum). But these were based on informal preparation: only 28.8% had studied an AI course, suggesting that knowledge acquisition primarily occurs through informal exposure rather than formal training.

This perceived value, low structured training tendency is consistent with the evidence indicating that perceived usefulness and ease of use become the primary factors in influencing the intention of nursing students to adopt AI, and the curricula usually lag behind the emergent technologies (Labrague and Al Harrasi, 2025). This perceived usefulness, in our sample, is reflected in the endorsement of AI as easing tasks (93.5%), and readiness to work with AI in the future (83.5%).

Meanwhile, professional identity and relational care were also approached ambivalently. There were significant percentages that accepted that AI would substitute the energy of nurses and it may interfere with the bond between the nurse and the patient. Multi-centre nursing student research also reports similar ambivalence (Lukić et al., 2023). We thus argue in favor of our results, which shows the need to incorporate AI literacy that will deal with privacy, bias, and communication and accountability and affirm the final decision and accountability of clinical actions to nurses and the healthcare team.

The responses of the practice indicate that AI is already integrated into academic practices (92.4% used AI in assignments; 94.7% found it useful in nursing education), although confidence in relying on AI in making clinical decisions was lower (51.5% were confident). This gap reflects the fact that students primarily use generative AI for learning assistance but remain hesitant about its accuracy and over-reliance (Han et al., 2025). Nursing education commentaries suggest that these tools are used to teach students to critique their outputs, check evidence, reveal AI assistance, and pursue explicit integrity policies rather than just ban them.

Lastly, internal consistency was moderate for attitude (0.668) but low for knowledge/practice (0.4751), which may have been due to dichotomous items and

mixed domains. Other issues raised in reviews include technical obstacles and the absence of realistic experience, which endorse competency-based evaluation and supervised simulation in translating positive attitudes into safe clinical practice.

CONCLUSION

The paper evaluated the knowledge, attitude and practice related to Artificial Intelligence (AI) among undergraduate students of BS Nursing (n=170) in related nursing colleges of Larkana SMBBMU. The results show that students are quite well-informed about AI in general and understand its increased applicability to nursing education and future healthcare provision. The vast majority of participants said that they were aware of AI and believed that it will be highly important to the nursing profession, which is a sign of willingness to use the technology-driven learning and care processes.

Even with such a good awareness level and overall positive attitude, formal exposure and systematic training was minimal. It is indicated by the fact that only a small percentage of students had gone through any course related to AI, indicating that informal use is the primary driver of learning now than what is taught in the curriculum. The outcomes of the practice also indicate that AI has already become extremely popular with educational activities, especially assignments and learning support, and most students found it helpful and time-saving. Nevertheless, the level of trust in the capability of AI to make the correct clinical judgment was relatively lower, which speaks of reluctant acceptance in the cases where the safety of patients and the accountability of the clinical setting are concerned.

There were comparatively higher practice and positive attitude in overall KAP scores than in structured knowledge development. The reliability pattern (moderate with regard to attitude; lower with regard to knowledge and practice) implies the necessity of additional measurement improvement as well as implies the variety of the student perception and interaction with the items related to AI.

According to such findings, nursing education must not rely solely on the general awareness but also incorporate structured, ethical and competency based AI training. This must incorporate essential AI concepts, responsible and safe use, verification abilities, bias and privacy awareness, and useful applications to nursing activities.

Enhancing formal preparation will assist in making sure that students will be able to apply AI as a supportive tool without losing professional judgment, care based on the patient, and accountability in clinical practice.

REFERENCES

[1] B. J. Copeland, "Artificial intelligence," *Encyclopaedia Britannica*, Mar. 6, 2025. [Online]. Available: https://www.britannica.com/technology/artificial-intelligence. [Accessed: Feb. 18, 2025].

[2] World Economic Forum, "The future of learning: How AI is revolutionizing Education 4.0," Apr. 28, 2024. [Online]. Available: https://www.weforum.org/stories/2024/04/future-learning-ai-revolutionizing-education-4-0/. [Accessed: Feb. 15, 2025].

[3] M. M. Mir *et al.*, "Application of Artificial Intelligence in Medical Education: Current Scenario and Future Perspectives," *J. Adv. Med. Educ. Prof.*, vol. 11, no. 3, pp. 133–140, Jul. 2023, doi: 10.30476/JAMP.2023.98655.1803.

[4] A. Sarman and S. Tuncay, "Attitudes and anxiety levels of nursing students toward artificial intelligence," *Teach. Learn. Nurs.*, 2024, doi: 10.1016/j.teln.2024.12.006.

[5] Y. Yan, S. Thilo, H. Felzmann, D. Dowding, and J. J. Lee, "Artificial intelligence in nursing and midwifery: A systematic review," *J. Clin. Nurs.*, vol. 32, no. 13–14, pp. 2951–2968, 2023, doi: 10.1111/jocn.16478.

[6] G. Z. Tuncer and M. Tuncer, "Investigation of nurses' general attitudes toward artificial intelligence and their perceptions of ChatGPT usage," *Digit. Health*, vol. 10, 2024.

[7] W. Kong *et al.*, "Experience of undergraduate nursing students participating in artificial intelligence + project task-driven learning," *BMC Nurs.*, vol. 23, 2024.

[8] K. Seibert *et al.*, "Application scenarios for artificial intelligence in nursing care: Rapid review," 2021.

[9] T. Davenport and R. Kalakota, "The potential for artificial intelligence in healthcare," *Future Healthc. J.*, vol. 6, no. 2, pp. 94–98, 2019.

[10] E. Topol, *Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again*. New York, NY, USA: Basic Books, 2019.

[11] J. Jiang *et al.*, "Artificial intelligence in healthcare: Past, present and future," *Stroke Vasc. Neurol.*, vol. 2, no. 4, pp. 230–243, 2017.

[12] S. Russell and P. Norvig, *Artificial Intelligence: A Modern Approach*, 4th ed. Pearson, 2021.

[13] WHO, "Ethics and governance of artificial intelligence for health," World Health Organization, Geneva, 2021.

[14] J. R. George and S. Thomas, "Integration of artificial intelligence in nursing education: A review," *Nurse Educ. Today*, vol. 120, 2023.

[15] L. Labrague and A. Al Harrasi, "Predictors of nursing students' intention to use artificial intelligence," *Comput. Inform. Nurs.*, 2025.

[16] M. Han *et al.*, "Generative AI in nursing education: Opportunities and challenges," *Nurse Educ. Pract.*, 2025.

[17] S. McBride and M. Tietze, *Nursing Informatics for the Advanced Practice Nurse*, 3rd ed. Springer, 2022.

[18] American Nurses Association, "Nursing informatics: Scope and standards of practice," ANA, 2022.

[19] J. K. Lee and H. Yoon, "Artificial intelligence-based clinical decision support systems in nursing practice," *Int. J. Med. Inform.*, vol. 156, 2021.

[20] European Commission, "Artificial Intelligence Act: Regulatory framework for AI," Brussels, 2024.