KNOWLEDGE, ATTITUDES, AND PRACTICES REGARDING ARTIFICIAL INTELLIGENCE AMONG HEALTH PROFESSIONS STUDENTS: IMPLICATIONS FOR AI READINESS

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ABSTRACT

Objectives: To assess knowledge, attitudes, and practices regarding AI among health professions students and to identify factors associated with AI use frequency.

Methods: A single-institution cross-sectional study was conducted among 2,082 health professions students at a medical university in Vietnam from July to December 2025. Data were collected using a self-administered online questionnaire covering demographics, AI knowledge (9 items), attitudes (7 Likert-scale items), and AI use practices. Practice indicators included the number of AI access sources, tools used, and purposes of use. Descriptive statistics, group comparisons, Spearman correlation, and ordinal logistic regression were performed to analyze factors associated with the frequency of AI use.

Results: A total of 2,082 students participated in the study. Most students reported limited knowledge of AI (62.2%), while 31.3% considered themselves knowledgeable about AI. The mean attitude score toward AI was 3.50 ± 0.75, indicating generally favorable perceptions. AI was primarily accessed through social media (88.4%), and ChatGPT was the most commonly used tool. AI was mainly used for information searching (84.9%) and document summarization (60.1%). The most frequently reported barriers included lack of technological knowledge (42.7%) and lack of guidance on AI use (40.1%). Spearman correlation showed positive associations between knowledge, attitudes, and AI practice indicators. Ordinal logistic regression showed that higher knowledge scores (OR = 1.16, 95% CI: 1.11 – 1.19, p < 0.001) and attitude scores (OR = 1.33, 95% CI: 1.17 – 1.50, p < 0.001) were associated with more frequent AI use.

Conclusions: Health professions students demonstrated moderate knowledge, generally favorable perceptions, and increasing use of AI in learning. However, knowledge gaps and practical barriers remain. These findings highlight the need for structured AI education in health professions training to strengthen students' preparedness for responsible AI use in future healthcare practice.

Keywords: Artificial intelligence (AI), Knowledge, attitudes and practices (KAP), AI readiness.

I. INTRODUCTION

AI is rapidly becoming an important tool in modern medicine, with growing applications in medical imaging, clinical decision support, healthcare data management, and scientific research. The development of AI systems, particularly generative AI models, is also transforming learning and information processing in medical education. In a global survey of more than 4,000 medical students from 48 countries, Busch et al, reported that students showed high interest in AI (median 4/5), but their perceived readiness to use AI in future professional practice was much lower (median 2/5), highlighting a gap between awareness and practical competence [1].

Several studies have shown that medical students generally demonstrate positive attitudes toward AI but limited knowledge of the technology. A meta-analysis by Amiri et al, including 22 studies with 8,491 participants, reported that the pooled level of AI knowledge among health professions students was 0.44 (95% CI: 0.34–0.54), whereas the proportion with positive attitudes toward AI reached 0.65 (95% CI: 0.55–0.75) [2]. This discrepancy may have implications for AI readiness, broadly referring to the extent to which learners possess the knowledge, attitudes, and practical experience necessary to effectively use AI in learning and future professional practice [1,2].

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In Vietnam, early studies suggest that healthcare students generally recognize the importance of AI but still have limited understanding of its applications. Truong et al, reported that 92.2% of healthcare students did not clearly understand AI in healthcare, despite acknowledging its potential role in the future of medicine [3]. Similarly, a study among nursing students found that 50.3% demonstrated high awareness of AI, although most participants still showed neutral attitudes toward the technology [4]. However, existing studies in Vietnam remain limited in scale and have not comprehensively examined the relationship between knowledge, attitudes, and practice. In the present study, AI readiness was not treated as a directly measured construct but rather discussed as a broader implication of students' knowledge, attitudes, AI use practices, and perceived barriers.

Therefore, this study aimed to assess knowledge, attitudes, and practices regarding artificial intelligence among health professions students at Thai Binh University of Medicine and Pharmacy and to identify factors associated with AI use frequency.

II. SUBJECTS AND METHODS

2.1. Study design and participants

A cross-sectional study was conducted from July to December 2025 at Thai Binh University of Medicine and Pharmacy, Vietnam, to assess students' knowledge, attitudes, and practices regarding artificial intelligence (AI) in learning activities.

The study population included undergraduate students from the second to sixth academic year enrolled in five training programs: General Medicine (GM), Traditional Medicine (TM), Pharmacy (Pharm), Nursing (Nurs) and Medical Laboratory Technology (MLT). Students who were present during the survey period and agreed to participate were included. Responses that were incomplete or invalid were excluded.

2.2. Research methods

Sample size: Sample size was calculated using $n = Z^2_{1-\alpha/2} \times p(1-p)/d^2$ ($Z_{1-\alpha/2} = 1.96$, $p = 0.5$, $d = 0.05$), yielding a minimum of 384 students. Convenience sampling initially yielded 2,089 responses from 5,061 eligible students across 6 programs. Because only 7 Preventive Medicine students responded, this program was excluded; the final analytic sample included 2,082 students from 5 programs, representing 42.8% of 4,862 eligible students.

Study instrument and variables: Data were collected using a self-administered online questionnaire developed by the research team. The questionnaire was developed based on previous studies, reviewed for clarity and content relevance, and pretested among a small group of students before the main survey. Knowledge about AI was assessed using nine multiple-choice questions, each correct answer scoring one point (total score: 0–9). Attitudes toward AI were measured using seven Likert-scale items (1 = strongly disagree to 5 = strongly agree). The scale included both benefit-oriented and concern-oriented statements regarding AI use. Concern-related items were retained in their original direction because they were intended to reflect perceptions of potential risks and limitations associated with AI. The mean score of all items represented the overall attitude score. AI practice included frequency of AI use, sources of AI exposure, AI tools used, purposes of AI use, and perceived barriers. Multiple responses were allowed for access sources, AI tools, purposes of use, and barriers. Practice variables were operationalized as the number of AI access sources, number of AI tools used, and number of AI use purposes, calculated by counting selected responses. Frequency of AI use was measured using a five-level ordinal scale from "never" to "always". Students who reported never using AI did not contribute responses to AI tools or AI use purposes. The reliability of the knowledge and attitude scales was assessed using Cronbach's alpha and exploratory factor analysis. Cronbach's alpha coefficients were 0.847 for the knowledge domain and 0.910 for the attitude domain. Exploratory factor analysis showed acceptable internal structure (KMO = 0.886 and 0.909; Bartlett's test $p < 0.001$ for both domains).

Data collection and statistical analysis: The survey was conducted by Google Forms, distributed to students through academic advisors and class representatives. Data were analyzed using Jamovi and SPSS. Descriptive statistics included n (%), mean ± SD. Group comparisons used t-tests, one-way ANOVA, or Chi-square tests as appropriate. Spearman correlation assessed associations among KAP indicators. Ordinal logistic regression

identified factors associated with AI use frequency; ORs with 95% CIs were reported. Proportional odds, model fit, and pseudo-R^2 were assessed.

2.3. Ethical considerations

Participation was voluntary and anonymous. Before accessing the questionnaire, students were informed about the study objectives and provided online informed consent. Participants could withdraw at any time. The study protocol was approved by the Scientific Council of Thai Binh University of Medicine and Pharmacy (Decision No. 2082/QĐ-YDTB).

III. RESULTS

3.1. Characteristics of the study participants

The study was conducted on 2,082 students, including 718 males (34.5%) and 1,364 females (65.5%).

Table 1. Distribution of study participants by academic year and major

Academic year	n	%	Major	n	%
2	463	22.2	General Medicine (GM)	1295	62.2
3	358	17.2	Traditional Medicine (TM)	88	4.2
4	502	24.1	Pharmacy (Pharm)	537	25.8
5	378	18.2	Nursing (Nurs)	69	3.3
6	381	18.3	Medical Laboratory Technology (MLT)	93	4.5
Total	2082	100.0		2082	100.0

Students were relatively evenly distributed across academic years, with the highest proportion in year 4 (24.1%) and the lowest in year 3 (17.2%). Most students were enrolled in GM (62.2%), whereas Nurs accounted for the smallest proportion (3.3%).

3.2. Knowledge of AI

Table 2. Self-rated and objective AI knowledge

Item	n (Correct)	% (Correct)	Item	n	%
AI definition	1762	84.3	Never heard	22	1.1
How AI works	1620	77.8	Heard of AI	81	3.9
AI capabilities	1723	82.8	Limited knowledge	1296	62.2
AI potential	1730	83.1	Knowledgeable	651	31.3
Privacy limitations	1250	60.0	Extensive knowledge	32	1.6
AI bias	1315	63.2			
AI limitations	1536	73.8			
AI adaptability	1483	71.2			
AI hallucinations	1448	69.5			

Most students reported having limited knowledge of AI (62.2%), whereas 31.3% considered themselves knowledgeable about AI. However, correct response rates for several basic AI concepts were relatively high, including AI definition (84.3%), AI capabilities (82.8%), and AI potential (83.1%). The mean objective knowledge score was 6.66 ± 2.41 (range: 0–9).

3.3. Students' attitudes toward AI

Table 3. Students' attitude scores toward AI

Statement	Attitude score
In the future, all healthcare workers will need to be equipped with AI knowledge	3.58 ± 0.95
AI is very useful for learning, research, and professional development	3.76 ± 0.95
Medical curricula should include content on AI applications	3.51 ± 0.91
Knowledge of AI will provide career advantages	3.66 ± 0.92

Statement	Attitude score
AI tools bring more benefits than harms	3.44 ± 0.87
Some healthcare positions may be replaced by AI	3.16 ± 0.98
AI makes people overly dependent and reduces thinking and creativity	3.42 ± 0.94
Overall attitude score	3.50 ± 0.75

Overall, students showed generally favorable perceptions toward AI, with an overall mean attitude score of 3.50 ± 0.75 on a 5-point scale. The highest level of agreement was observed for the statement "AI is very useful in learning research, and professional development" (3.76 ± 0.95). In contrast, statements related to concerns about the negative impact of AI had lower mean scores (3.16–3.42).

3.4. AI use practices

Table 4. Exposure to and use of AI

AI access sources	n	%	Commonly used AI tools	n	%	Frequency of AI use	n	%
Friends, relatives	1251	60.1	ChatGPT	1893	90.9	Never	135	6.5
Social media	1840	88.4	Gemini	1051	50.5	Rarely	68	3.3
Traditional media	1335	64.1	Canva	1094	52.5	Sometimes	1067	51.2
Scientific materials	533	25.6	Copilot	244	11.7	Often	735	35.3
Workshops, seminars	219	10.5	DeepSeek	314	15.1	Always	77	3.7
University curriculum	428	20.6	Quillbot	83	4.0			

As many as 88.4% of students accessed AI through social media. Formal sources were less common, with the university curriculum accounting for only 20.6%. ChatGPT was the most commonly used AI tool (90.9%). Only 6.5% of students reported never having used AI.

Table 5. Barriers to AI use

Barriers to AI use	n	%
Lack of technological knowledge makes AI use difficult	890	42.7
Lack of foreign language skills makes AI use difficult	658	31.6
Lack of specific guidance makes AI use difficult	834	40.1
Limited resources make AI use difficult	605	29.1

The main barriers were lack of technological knowledge (42.7%) and lack of specific guidance for AI use (40.1%). In addition, 31.6% of students reported foreign language limitations and 29.1% reported resource limitations as barriers to AI use. AI was primarily used for information searching (84.9%) and document summarization (60.1%), whereas more advanced educational applications such as clinical scenario simulation remained less common (20.4%

Table 6. Purposes of AI use in learning activities

Purposes of AI use	n	%
Summarizing documents	1252	60.1
Searching for information	1767	84.9
Generating writing ideas	1076	51.7
Translating text	968	46.5
Checking and correcting text	739	35.5
Analyzing and drafting written content	725	34.8
Explaining academic issues	994	47.7

Purposes of AI use	n	%
Data analysis	885	42.5
Searching for references	1102	52.9
Reading and appraising scientific articles	427	20.5
Improving specialty-related foreign language skills	481	23.1
Clinical scenario simulation	425	20.4

Knowledge and attitude scores differed significantly across academic years and majors. Knowledge scores increased from 6.39 ± 2.43 in second-year students to 6.92 ± 2.45 in sixth-year students (p = 0.004), while attitude scores increased from 3.37 ± 0.77 to 3.64 ± 0.74 (p < 0.001). GM students showed higher knowledge and attitude scores than several other majors (both p < 0.001).

Table 7. Correlations among knowledge, attitudes, and AI practice indicators

Variable	1	2	3	4
1. Number of AI tools used	—			
2. Number of AI access sources	0.366	—		
3. Number of AI use purposes	0.554	0.497	—	
4. Mean attitude score	0.122	0.149	0.163	—
5. Mean knowledge score	0.191	0.211	0.271	0.171

All correlation coefficients were statistically significant at p < 0.001

Spearman correlation analysis between knowledge, attitude, and AI practice indicators showed positive correlations across all variable pairs. The number of AI tools used and the number of AI access sources showed the strongest correlations with the number of AI use purposes, with ρ = 0.554 and ρ = 0.497, respectively. The remaining pairs showed weak correlations (ρ < 0.400).

Table 8. Ordinal logistic regression of factors associated with AI use frequency

Variable	OR	95% CI	p-value
Gender (reference: Male)			
Female	0.81	0.68 – 0.96	0.019
Major (reference: GM)			
TM	0.79	0.49 – 1.26	0.290
Pharm	1.01	0.83 – 1.23	0.909
Nurs	0.66	0.40 – 1.09	0.108
MLT	0.61	0.40 – 0.93	0.025
Academic year (reference: second year)			
3	0.80	0.61 - 1.05	0.108
4	0.71	0.55 - 0.92	0.008
5	1.00	0.75 - 1.32	0.987
6	1.12	0.83 - 1.50	0.475
Knowledge score	1.16	1.11 – 1.19	<0.001
Attitude score	1.33	1.17 – 1.50	<0.001

Model fit indices: McFadden R^2 = 0.029; Cox & Snell R^2 = 0.013; Nagelkerke R^2 = 0.036

Ordinal logistic regression was performed to identify factors associated with AI use frequency. Female students were less likely than male students to report more frequent AI use (OR = 0.81; 95% CI: 0.68–0.96; p = 0.019). Compared with GM students, MLT students were less likely to report more frequent AI use (OR = 0.61; 95% CI: 0.40–0.93; p = 0.025). Fourth-year students reported lower AI use frequency compared with second-year students (OR = 0.71; 95% CI: 0.55–0.92; p = 0.008), whereas no significant differences were observed for other academic years. Higher knowledge and attitude scores were associated with more frequent AI use (both p < 0.001).

IV. DISCUSSION

4.1. Knowledge of AI among students

The results showed that 62.2% of students reported having only limited knowledge of AI (Table 2), although the proportion of correct responses to basic knowledge questions was relatively high, with 84.3% correctly identifying the definition of AI and 77.8% understanding the working mechanism of AI. This discrepancy between self-rated knowledge and objective correct responses suggests that students may have basic familiarity with AI concepts but lack confidence or deeper understanding of AI applications, limitations, and critical appraisal in health-related contexts.

This pattern is consistent with the study by Truong et al, conducted among healthcare students in Vietnam, where 92.2% of participants reported not clearly understanding AI in healthcare, despite recognizing its importance in the future of medicine[3]. Similarly, Swed et al, reported that 70% of medical students and physicians in Syria had basic knowledge of AI, but only 34.7% were familiar with machine learning and 23.7% with deep learning[5]. These findings highlight the common gap between general awareness of AI and deeper technical understanding among medical students.

At a broader level, the global survey by Busch et al, which included more than 4,000 medical, dental, and veterinary students from 48 countries, found that students' knowledge of AI remained limited, with a median knowledge score of only 2 out of 5, while 76.3% reported that their curricula did not include formal AI courses[1]. In addition, the meta-analysis by Amiri et al, which synthesized 22 studies with 8,491 participants, reported a pooled knowledge level of 0.44 (95% CI: 0.34–0.54), indicating that knowledge about AI among health professions students remains moderate[2].

In the present study, knowledge scores increased with academic year, rising from 6.39 ± 2.43 in second-year students to 6.92 ± 2.45 in sixth-year students, suggesting that accumulated academic experience and exposure to technology may improve students' understanding of AI. A similar trend was reported by Muoka et al, in Nigeria, where medical students demonstrated moderate knowledge levels with a mean score of 8.16 ± 3.08, and AI use was more common among clinical-year students[6]

4.2. Students' attitudes toward AI

The average attitude score toward AI was 3.50 ± 0.75 (Table 3), suggesting generally favorable perceptions toward AI. Because the attitude scale included both benefit-oriented and concern-oriented items, the overall score should be interpreted as a general AI-related attitude score rather than a purely positive attitude score. Students most strongly agreed with the statements that AI is useful for learning and research (3.76 ± 0.95) and that AI knowledge provides career advantages (3.66 ± 0.92). Nevertheless, some concerns remained, particularly regarding the possibility that AI could replace certain professional roles in the future.

These findings are consistent with the meta-analysis by Amiri et al, which reported that the pooled proportion of students with positive attitudes toward AI was 0.65 (95% CI: 0.55–0.75) [2]. Similarly, Ghanem et al, found that 44.7% of Egyptian medical students expressed positive attitudes toward generative AI, although only 61.5% demonstrated adequate knowledge levels[7].

In India, Jackson et al, reported that 57.2% of medical students believed AI could reduce medical errors, and 54.2% believed it could improve clinical

decision-making accuracy. However, 37.6% were concerned that AI might replace physicians, and 69.2% believed that AI could reduce the humanistic aspects of medical practice[8]. These findings indicate that positive attitudes toward AI are often accompanied by concerns about professional roles and ethical implications.

In Vietnam, the study by Đỗ et al, among nursing students reported that 50.3% of participants had high awareness of AI, while 79.2% demonstrated neutral attitudes, with a mean attitude score of 3.30 ± 0.43[4]. Compared with this population, students in the present study showed slightly more favorable AI-related perceptions, which may reflect differences in training programs or exposure to AI during their academic studies.

4.3. AI use in learning and perceived barriers

Students in this study primarily accessed AI through social media (88.4%), followed by mass media (64.1%) and friends or relatives (60.1%), with an average of 2.69 ± 1.43 access sources (Table 4). ChatGPT was the most commonly used AI tool, with 90.9% of students reporting prior use. The predominance of social media as the main source of AI exposure suggests that students are learning about AI mainly through informal channels rather than formal curricular content, raising concerns about the adequacy of guidance on responsible and critical AI use. AI was mainly used for information searching (84.9%), document summarization (60.1%), and reference searching (52.9%) (Table 6). These results suggest that AI is primarily integrated into academic tasks related to information processing and learning support.

Similar patterns were reported by Ghanem et al, who found that medical students most commonly used generative AI tools for grammar checking, completing assignments, and academic support[7]. In addition, Sanri reported that although only 15.8% of students rated their AI knowledge as high, 78.3% supported AI-assisted learning tools, and 80% acknowledged the role of AI in clinical decision-making[9] These findings suggest that even when knowledge is limited, students remain highly willing to adopt AI tools in their learning activities.

Despite this growing adoption, several barriers to AI use were identified. The most frequently reported challenges were lack of technological knowledge (42.7%), lack of guidance on AI use (40.1%), limited English proficiency (31.6%), and restricted access to resources (29.1%) (Table 5). These barriers have also been highlighted in the systematic review by Alsahafi and Baashar, which identified insufficient training, lack of faculty expertise, and concerns about data privacy as key obstacles to integrating AI into medical education[10]

4.4. Factors associated with AI use

Correlation analysis showed that both knowledge and attitudes were positively associated with indicators of AI practice (Table 7). Notably, the number of AI tools used showed the strongest correlation with the number of AI use purposes ($\rho = 0.554$), while knowledge scores and attitude scores showed weaker correlations with AI practice ($\rho = 0.271$ and $\rho = 0.163$, respectively).

Ordinal logistic regression showed that knowledge and attitude scores were associated with more frequent AI use after adjustment for other variables (Table 8). However, because of the cross-sectional design, the direction of these associations cannot be determined. Students with higher knowledge and more favorable attitudes may be more likely to use AI, but frequent AI use may also contribute to improved knowledge and more favorable perceptions. These findings are consistent with those reported by Truong et al, who found that male students and those with better access to technology demonstrated higher levels of AI readiness[3]attitudes, and perspectives of Vietnamese medical students toward AI and its consequences, as well as their knowledge of existing AI operations in Vietnam. A cross-sectional online survey was administered to 1142 students enrolled in undergraduate medicine and pharmacy programs. Most of the participants had no understanding of AI in healthcare (1053 or 92.2 %. Similarly, Muoka et al, reported that AI

utilization among medical students was significantly associated with AI knowledge ($p < 0.001$)[6].

4.5. Implications for medical education and AI readiness

Overall, the findings suggest that students have begun to integrate AI into their learning activities, but their level of understanding and ability to use AI effectively remain limited. This indicates that AI readiness among health professions students is currently in a transitional stage, where positive attitudes and willingness to use AI exceed the level of knowledge and formal training.

The global survey by Busch et al, reported that medical students demonstrated high interest in AI (median 4/5) but low perceived readiness to use AI in future professional practice (median 2/5) [1]. Similarly, Sanri highlighted the discrepancy between limited AI knowledge and strong support for integrating AI into medical education[9]. Structured AI education should include AI literacy, responsible use, prompt design, evaluation of AI-generated information, data privacy, bias, hallucinations, academic integrity, and ethical use.

4.6. Study limitations

This study has several limitations. First, the cross-sectional design does not allow causal inference. Second, convenience sampling from a single institution may limit generalizability and may introduce selection bias, particularly because participation rates varied across training programs and academic years. Third, data were based on self-reported responses, which may be affected by recall and social desirability biases. Fourth, although the questionnaire was developed based on previous studies, reviewed, pretested, and showed good internal consistency, it was not a fully validated instrument. Finally, AI readiness was discussed as an implication of KAP findings rather than measured using a validated AI readiness scale.

V. CONCLUSION

Health professions students demonstrated moderate knowledge, generally favorable perceptions, and increasing use of AI in learning activities. However, knowledge gaps, reliance on informal information sources, and practical barriers remain. These findings highlight the need for structured AI education in health professions training and provide important implications for students' preparedness and AI readiness for responsible AI use in future healthcare practice.

REFERENCES

1. **Busch F., Hoffmann L., Truhn D., et al. (2024).** Global cross-sectional student survey on AI in medical, dental, and veterinary education and practice at 192 faculties. BMC Medical Education, 24(1), 1066. https://doi.org/10.1186/s12909-024-06035-4

2. **Amiri H., Peiravi S., Rezazadeh Shojaee S. S., et al. (2024).** Medical, dental, and nursing students' attitudes and knowledge towards artificial intelligence: A systematic review and meta-analysis. BMC Medical Education, 24(1), 412. https://doi.org/10.1186/s12909-024-05406-1

3. **Truong N. M., Vo T. Q., Tran H. T. B., et al. (2023)**. Healthcare students' knowledge, attitudes, and perspectives toward artificial intelligence in the southern Vietnam. Heliyon, 9(12), e22653. https://doi.org/10.1016/j.heliyon.2023.e22653

4. **Đỗ T. H. T., Lưu T. T., & Vũ V. Đ. (2025).** Nhận thức, thái độ về trí tuệ nhân tạo và các yếu tố liên quan của sinh viên điều dưỡng Trường Đại học Kỹ thuật Y- Dược Đà Nẵng. Tạp chí Khoa học Điều dưỡng, 8(04), 49–63. https://doi.org/10.54436/jns.2025.04.1001

5. **Swed S., Alibrahim H., Elkalagi N. K. H., et al. (2022).** Knowledge, attitude, and practice of artificial intelligence among doctors and medical students in Syria: A cross-sectional online survey. Frontiers in Artificial Intelligence, 5. https://doi.org/10.3389/frai.2022.1011524

6. **Muoka C. G., Ewurum O., Godwin G. U., et al. (2025).** Assessment of knowledge, attitudes, perceptions, and utilization of artificial intelligence in medical education among medical students in a Nigerian university. International

Journal of Research in Medical Sciences, 13(6), 2309–2320. https://doi.org/10.18203/2320-6012.ijrms20251617

7. **Ghanem O. A., Hagag A. M., Kormod M. E., et al. (2025).** Medical students' knowledge, attitudes, and practices toward generative artificial intelligence in Egypt 2024: A Cross-Sectional study. BMC Medical Education, 25, 790. https://doi.org/10.1186/s12909-025-07329-x
8. **Jackson P., Ponath Sukumaran G., Babu C., et al. (2024).** Artificial intelligence in medical education—Perception among medical students. BMC Medical Education, 24(1), 804. https://doi.org/10.1186/s12909-024-05760-0
9. **Sanri E. (2025).** Beyond metropolises: Artificial intelligence awareness and educational needs among medical students in a developing country. Frontiers in Medicine, 12. https://doi.org/10.3389/fmed.2025.1645484
10. **Alsahafi Z., & Baashar A. (2025).** Knowledge, Attitudes, and Practices Related to Artificial Intelligence Among Medical Students and Academics in Saudi Arabia: A Systematic Review. Cureus, 17(5), e83437. https://doi.org/10.7759/