

Uptake and Application of Artificial Intelligence by Lecturers and Students of Kenya Medical Training College

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DOI: <https://doi.org/10.51244/IJRSI.2026.1306000260>

Received: 08 June 2026; Accepted: 14 June 2026; Published: 03 July 2026

ABSTRACT

Background: The rapid growth of Artificial Intelligence (AI) is revolutionizing healthcare delivery and health professional education by supporting personalized, technology-driven learning approaches. However, little is known on the uptake and application of AI in middle-level health professional training institutions in Kenya. Kenya Medical Training College (KMTC) is the largest public middle-level health professional training institution which plays a critical role in producing human resource for health. Understanding the extent to which AI is utilized within KMTC is therefore essential for informing institutional policies and strategies for embedding AI technology into health professional education.

Methods: A cross-sectional study was conducted between November 2024 and November 2025 across eight randomly selected KMTC campuses. Multistage sampling technique was employed. Data was collected using structured electronic questionnaires. A total of 581 respondents participated, representing a 97% response rate. Data were analyzed using SPSS to generate descriptive statistics and associations.

Results: Overall, 76.3% of students reported using AI during their studies, while 56.3% of lecturers had used AI to support teaching and learning activities. ChatGPT was the most commonly used AI tool (66.3%). Among students, AI use was significantly associated with course of study ($\chi^2 = 66.79$, $p < 0.001$), age group ($\chi^2 = 12.83$, $p < 0.046$), year of study ($\chi^2 = 10.96$, $p < 0.004$), and level of training ($\chi^2 = 6.58$, $p < 0.037$). Among lecturers, AI use was significantly associated with level of education ($\chi^2 = 13.23$, $p < 0.039$). Major challenges included limited internet access (students 52.5%), limited technical capacity (lecturers 31.3%), and inadequate knowledge of AI tools. Notably, 66.1% of students believed AI will become increasingly important in future medical practice.

Discussion: AI uptake within KMTC setting is growing however variations exists reflecting differences in digital literacy, internet access, and exposure to digital tools across programs and campuses. Limited infrastructure and low technical capacity appears to impede integration of AI into teaching and learning. Strengthening digital infrastructure, building faculty and student capacity in responsible AI use, and developing institutional policies and guidelines could facilitate more effective adoption.

Keywords: Artificial intelligence, uptake, application, Health education, teaching and learning

INTRODUCTION

In the current digital era where Artificial Intelligence (AI) is rapidly revolutionizing healthcare, health professional training must also evolve to keep pace with these advancements (Han et al., 2019). This shift is slowly phasing out the conventional one-size-fits-all teaching approach, by transforming content delivery and learning processes (Morris et al., 2024). AI can be utilized as a supportive tool that aids in decision-making, assist educators in developing innovative teaching strategies, support learners through intelligent tutoring systems, and enhance real-time assessment and evaluation (Narayanan et al., 2023).

Despite the transformative prospective that AI has in tertiary level of studies, research findings indicate that access to AI tools remains significantly limited in many Kenyan institutions. A study conducted by Matere (2024) revealed that a majority of respondents reported a lack of readily available AI tools, with disparities in access across different departments and academic projects. Additionally, while AI adoption in teaching and learning is amateurish, its incorporation into curricula remains inconsistent, leading to uneven utilization across disciplines. Faculty members also cited a lack of familiarity with AI, inadequate training, and limited institutional support as major barriers to effective implementation.

Kenya Medical Training College (KMTC) is the largest and leading middle-level healthcare training institution in Kenya, mandated to prepare health professionals for the ever evolving demands of the healthcare sector. The adoption of AI into KMTC's academic processes has the power to drive innovation in health professional education and improve healthcare outcomes in Kenya. Despite AI's rapids growth in the global educational sector, its uptake at KMTC remains largely unexplored, creating a significant gap in knowledge and application. This limitation affects KMTC's capacity to implement AI for teaching and learning. To bridge these gaps, this study sought out to assess the uptake and application of Artificial Intelligence among lecturers and students of Kenya Medical Training College.

METHOD

The study employed a cross sectional design. It was conducted in across Kenya Medical Training College campuses in Kenya. The study employed multistage sampling method. 8 campuses were randomly selected from the clustered zones using their geographical proximity. Responses were collected from 549 students and 32 lecturers by use of structured online self-administered questionnaires tailored specifically for students and lecturers respectively. The collected data was reviewed, cleaned and analyzed using SPSS.

RESULTS

Perception of Artificial Intelligence

The study sought to assess students and lecturers perception on Artificial Intelligence. Among the academic staff, teaching experience ($H = 8.618$, $p = 0.013$) and gender ($U = 78.000$, $p = 0.020$) had statistically significant influence on perception and willingness towards AI use. 75% of the lecturers with more than 5 years teaching experience strongly disagreed that AI will replace lectures in medical training colleges in the future, compared to 25% of lecturers with a teaching experience of between 3-4 years who strongly disagreed. On Gender, 75% of females indicated that they were willing to undergo AI training to improve their teaching compared to 25% of Males.

Table 1: Perception of Artificial Intelligence among students

Perception of Artificial Intelligence		Mann-Whitney U Test	Kruskal Wallis H Test			
		Gender	Age Group	Level of Training	Course	Year of Study
1.	AI has important applications in learning in medical training colleges like KMTC	MU: 35841.500	H(6)=3.795	H(2)=5.066	H(9)=12.607	H(2)=1.657
		p=0.417	p=0.704	p=0.079	p=0.181	p=0.437
2.	AI will replace some learning skills in the future	MU: 36813.000	H(6)=2.512	H(2)=0.220	H(9)=14.811	H(2)=0.103
		p=0.830	p=0.867	p=0.896	p=0.096	p=0.950
3.	AI should be integrated in health professional education	MU: 36095.000	H(6)=6.886	H(2)=1.387	H(9)=8.250	H(2)=1.432
		p=0.525	p=0.332	p=0.500	p=0.509	p=0.489

4.	Adoption of AI in learning prepares students to get well-versed with the future AI advances in the medical field	MU: 34024.500	H(6)=6.384	H(2)=1.575	H(9)=12.289	H(2)=0.017
		p=0.060	p=0.382	p=0.455	p=0.198	p=0.992
5.	AI should be used more regularly in teaching of medical students	MU: 34250.000	H(6)=7.104	H(2)=3.073	H(9)=22.033	H(2)=2.038
		p=0.097	p=0.311	p=0.215	p=0.009	p=0.361
6.	AI has uses in monitoring the performance of students in medical training colleges	MU: 31748.500	H(6)=10.799	H(2)=0.075	H(9)=9.992	H(2)=2.023
		p=0.002	p=0.095	p=0.963	p=0.351	p=0.364
7.	The teaching ability of AI is superior to that of a lecturer	MU: 36182.500	H(6)=4.295	H(2)=0.437	H(9)=27.130	H(2)=1.643
		p=0.579	p=0.637	p=0.804	p=0.001	p=0.440
8.	AI is not flexible enough to be applied to teaching medical students	MU: 37092.000	H(6)=14.657	H(2)=2.026	H(9)=4.413	H(2)=5.488
		p=0.961	p=0.023	p=0.363	p=0.882	p=0.064
9.	AI has the ability to learn and improve its decision-making skills with experience.	MU: 34855.500	H(6)=7.051	H(2)=5.282	H(9)=17.686	H(2)=0.174
		p=0.171	p=0.316	p=0.071	p=0.039	p=0.917
10.	Health professionals will rely on AI in making medical decisions in the future	MU: 33862.000	H(6)=2.752	H(2)=3.883	H(9)=7.486	H(2)=0.205
		p=0.061	p=0.839	p=0.144	p=0.587	p=0.903
11.	All health professional students should receive AI teaching	MU: 33094.000	H(6)=6.753	H(2)=0.636	H(9)=15.620	H(2)=2.556
		p=0.020	p=0.344	p=0.728	p=0.075	p=0.279
12.	AI teaching will benefit my career	MU: 32895.000	H(6)=5.137	H(2)=0.117	H(9)=14.922	H(2)=0.066
		p=.013	p=0.526	p=0.943	p=0.093	p=0.967

Among the students, there were significant differences for gender and perceptions that AI has uses in monitoring the performance of students in medical training colleges (MU: 31748.500, $p=0.002$), all health professional students should receive AI teaching (MU: 33094.000, $p=0.020$) and AI teaching will benefit the student career (MU: 32895.000 $p=.013$). Significant differences were also observed between the course being undertaken by the student and perceptions that AI should be used more regularly in teaching of medical students ($H(9) = 22.033$, $p=0.009$), The teaching ability of AI is superior to that of a lecturer ($H(9) = 27.130$, $p=0.001$) and AI has the ability to learn and improve its decision-making skills with experience ($H(9) = 17.686$, $p=0.039$). 59.5% of female students agreed that AI has uses in monitoring the performance of students in medical training colleges compared to 47.9% of male students. Additionally, 59.2% of female students agreed that all health professional students should receive AI teaching, compared to 40.85% of male students. When asked if AI teaching will benefit the student career, 56.6% of female students agreed compared 43.4% of male students.

Level of Uptake and Applications of AI in academic processes

The department of the lecturer was found to be significantly associated with whether they believe Artificial Intelligence has a role to play in teaching and learning ($X^2 = 24.724$, $p=0.037$). Most respondents agreed that AI plays an important role in teaching and learning, with Nursing (32.1%) and Health Records (17.9%) having the highest level of agreement.

Table 2: Association between Lecturers demographic factors and uptake of AI

Uptake Of AI	Gender	Age Group	Department	Level of Education	Teaching Experience
Have you ever used Artificial Intelligence programs to facilitate teaching and learning in KMTC?	$X^2= 4.667$ $p=0.097$	$X^2= 12.421$ $p=0.053$	$X^2= 12.822$ $p=0.541$	$X^2= 8.189$ $p=0.085$	$X^2= 3.125$ $p=0.537$
Do you believe Artificial Intelligence has a role to play in teaching and learning in KMTC	$X^2= 4.571$ $p=0.102$	$X^2=5.878$ $p=0.437$	$X^2= 24.724$ $p=0.037$	$X^2= 5.788$ $p=0.216$	$X^2= 2.078$ $p=0.721$
How often do you access AI tools?	$X^2= 3.877$ $p=0.275$	$X^2= 10.379$ $p=0.321$	$X^2= 31.050$ $p=0.073$	$X^2= 6.810$ $p=0.339$	$X^2= 2.245$ $p=0.896$

75% of the lecturers indicated that they were using Chat GPT as their preferred AI tool. Lecturers not using AI cited lack of awareness (60%) and lack of search skills (40%) as main reasons. Most of the lecturers perceived that the role of AI in education was to provide information (81.3%). A majority of the lecturers indicted that they had not been trained or sensitized on artificial intelligence (84.4%), with only 9.40% indicating that they received some level of training. Those trained or sensitized on AI, (60%) indicated that they had been trained or sensitized through self-training modules, with 50% indicating that the training was adequate. However, only 6.3% of the lecturers indicated that they are very knowledgeable on AI

Table 3: Association between Student Demographic Factors and Uptake of AI

Uptake of AI	Age Group	Gender	Level of Training	Course	Year of Study
Have you ever used Artificial Intelligence programs during your studies in KMTC?	$X^2= 15.459$ $p=0.217$	$X^2= 1.254$ $p=0.534$	$X^2= 6.286$ $p=0.179$	$X^2= 25.986$ $p=0.100$	$X^2= 2.620$ $p=0.623$
Do you believe Artificial Intelligence has a role to play in teaching and learning in KMTC	$X^2= 6.717$ $p=0.876$	$X^2= 1.726$ $p=0.422$	$X^2= 8.560$ $p=0.073$	$X^2= 35.818$ $p=0.007$	$X^2= 11.361$ $p=0.023$
Have you been trained/ sensitized on the use of Artificial Intelligence on education?	$X^2= 8.314$ $p=0.760$	$X^2= 2.164$ $p=0.339$	$X^2= 6.256$ $p=0.181$	$X^2= 25.428$ $p=0.114$	$X^2= 2.480$ $p=0.648$
Do you think the training adequately prepared you to apply artificial intelligence in your studies?	$X^2= 10.659$ $p=0.908$	$X^2= 4.707$ $p=0.195$	$X^2= 13.081$ $p=0.042$	$X^2= 47.628$ $p=0.008$	$X^2= 2.614$ $p=0.856$
How often do you access AI tools?	$X^2= 21.813$ $p=0.240$	$X^2= 7.950$ $p=0.047$	$X^2= 2.741$ $p=0.841$	$X^2= 58.383$ $p=0.000$	$X^2= 4.444$ $p=0.617$

A Chi-Square test of independence was conducted to examine the relationship between demographic factors and use of AI programs during studies in KMTC. The test revealed there was a statistically significant association between Gender and how often a student accessed AI tools ($X^2= 7.950$, $p=0.047$), as well as between Level of Training and whether the training the students underwent adequately prepared them to apply AI in the studies ($X^2= 13.081$, $p=0.042$). The Course that the student was undertaking was found to be significantly associated with belief that AI has a role to play in teaching and learning ($X^2=35.818$, $p= 0.007$), whether the training the students underwent adequately prepared them to apply AI in the studies ($X^2=47.628$, $p= 0.008$), and how often a student accessed AI tools ($X^2=58.383$, $p=0.000$). Female students (52.3%) reported daily use of AI compared to Male students (50.6%). Clinical Medicine had the highest percentage of students accessing AI tools daily (62.2%) compared to Health Care Assistant which had the least percentage of students accessing AI tools daily (14.3%). Most of the students indicated that they use Chat GPT (66.3%). Students who were not using AI indicated that their reasons were had poor internet connectivity (7.29%) and lack of awareness of AI (7.10%). There were significant association between Year of Training and use of AI in

revision revealed 62.2 % of 3rd year students used AI for revision, compared to 61.3% in 2nd year and 47.2% in 1st year. Overall, 47.10% of students identified themselves as knowledgeable or very knowledgeable on AI.

DISCUSSION

From our study, lecturers teaching experience and gender had influence on perceptions and willingness to engage with AI tools in teaching and learning. Lecturers with more than five years of teaching experience did not perceive AI as a threat to their job security, underscoring the perceived value of human interaction in health professional education. Gender was found to be a significant factor with more (75%) female lecturers seemingly willing to undergo AI training to improve their ability to integrate AI in teaching suggesting openness towards digital literacy. Female students showed more positive attitudes toward AI regarding its applications in monitoring student performance, AI training as well as its benefit in future careers. This suggests that females are more open to the integration of AI. It was also determined that the course of study influences perceptions, implying that a student academic background will shape their understanding and expectations of AI capabilities. Similar observations were reported by Oke & Fernandes (2020), who noted that exposure to digital tools and computational thinking influences learners' confidence and perceived usefulness of AI in academic settings.

Uptake and Applications of AI in academic processes

There was a general agreement on the benefits of AI in academia. ChatGPT was cited as the most used AI tool by both lecturers and students. For lecturers who are not using AI cited lack of awareness, highlighting gaps that can only be bridged with deliberate efforts of sensitizing and capacity building. This would increase the likelihood of harnessing into AI's pedagogical benefits, reducing the digital literacy gap among health educators especially in the Kenyan context. Most lecturers noted that the primary role of AI within the educational context is to provide information, suggesting a narrow view of AI. Similarly, the students also viewed AI as an informational support tool rather than as an interactive or analytical learning partner. The effectiveness of AI integration into teaching and learning requires not only access to technology but also a paradigm shift in mindset of both learners and facilitators regarding its pedagogical potential to harness full benefits. The level of education of lecturers had a significant association with the period when AI was used in teaching showing that lecturers with higher academic qualifications were more likely to integrate AI into their teaching, possibly due to greater exposure to technology and pedagogical innovations during advanced studies.

Majority of the students (75.6%) reported use of AI in their studies. However, there were variations suggesting that exposure to AI concepts and digital tools differed significantly across KMTC programs. Students who were yet to adopt AI cited lack of awareness and poor internet connectivity as their main reasons. This highlights awareness gaps and infrastructural challenges. These constraints mirror findings from Modiba et al. (2025), whom identified low knowledge deficiencies and infrastructure challenges as persistent barriers to the successful implementation of educational technology. AI use for literature review in research activities was significantly associated with age group and level of training with younger students reporting higher use of AI for literature searches compared to older students, indicating a generational comfort with technology and online learning tools. The use of AI for revision showed significant relationships with level of training and year of study. Notably, third-year students were the most active users of AI for revision, suggesting that as students advance in academics, they appreciate the importance of AI as a tool for personalized learning and exam preparation. This finding resonates with Dwivedi et al. (2023), who noted that senior students often integrate AI into self-directed learning as academic demands increase.

CONCLUSION

The study findings show a positive but uneven pattern of AI perception, use, and acceptance among both lecturers and students, highlighting both opportunities and challenges for effective AI integration in health professional education. The study concluded that KMTC is at an early but promising stage of AI integration.

Funding: Kenya Medical Training College (KMTC)

Conflict of Interest: None

Acknowledgments: The authors are grateful to KMTC for funding the project and agreeing to the publication of the study outcomes.

Ethical Approval: Ethical approvals were obtained from the Moi University Institutional Research and Ethics Committee (MU-IREC) - PAN: 5090, and the National Commission for Science, Technology, and Innovation (NACOSTI) – NACOSTI/P/25/4175483. Permission to collect data was also obtained from KMTC. Participants also consented to the study.

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