ISSN: 2091-2749 (Print)
2091-2757 (Online)

Submitted on: 2026 Apr 21
Accepted on: 2026 Jun 23

https://doi.org/10.3126/jpahs.v13i1.96132

Perceptions and use of generative artificial intelligence among undergraduate medical and nursing students at Patan Academy of Health Sciences

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Abstract

Introduction: While Generative AI (GenAI) is rapidly influencing higher education, data on its integration within medical education remains limited. This study aimed to explore the perceptions, utilization patterns, and underlying concerns regarding GenAI technologies among undergraduate medical and nursing students.

Method: A cross-sectional, mixed-methods descriptive study was conducted from August 2025 to March 2026 after ethical clearance from (Ref No). Total enumerative sampling targeted all enrolled MBBS and nursing cohorts. Data were collected online. The instrument featured 18 quantitative items assessing knowledge, willingness, and concerns via a 5-point Likert scale, alongside four open-ended questions evaluating uses, concerns, and integration suggestions in medical education. Quantitative data were analyzed using descriptive statistics, while qualitative responses underwent inductive thematic analysis.

Result: There were 356(50.92%) respondents to the questionnaire. GenAI adoption was highly prevalent, with 300(84.27%) of students reporting “often” or “always” using the technology. Students exhibited the highest willingness toward GenAI integration, reporting agree/strongly agree, primarily to save time 290(81.46%) and access round-the-clock, 269(75.56%) personalized support. Students expressed the highest concern focused on over-reliance 183(51.41%) and the hindrance of transferable skills 172(48.32%). Qualitative results revealed that students heavily utilize AI as cognitive support to simplify complex medical concepts; they remain deeply concerned regarding intellectual laziness, cognitive decline, and AI hallucinations.

Conclusion: Health sciences students leverage GenAI for academic efficiency but remain acutely aware of risks to critical thinking. Restricting the technology is unsupported by the data; rather, students advocate for proactive curriculum integration and targeted AI literacy training to ensure responsible, effective use.

Keywords: Artificial Intelligence; Curriculum Integration; Generative AI; Medical Education; Mixed-Methods; Nursing Education

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How to Cite: Maharjan S, Bashyal R, Shrestha RK, Gurung S, Maharjan S, Shakya V, et al. Perceptions and use of generative artificial intelligence among undergraduate medical and nursing students at Patan Academy of Health Sciences. J Patan Acad Health Sci. 2026 Jun;13(1):86-94.

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Introduction

Generative artificial intelligence (AI) is a computer tool capable of generating new content, such as images or text, in response to a submitted prompt by learning from a large reference database of examples.[1] Over the years, AI has made remarkable progress in healthcare. These technologies have improved diagnostic accuracy, decision-making, and treatment outcomes.[2] However, despite its growing importance, AI is still not well integrated into most undergraduate medical curricula.[3] Medical schools in developed countries like the United States and Canada have begun to include AI-focused courses using interactive and blended learning strategies.[4]

Surveys of different university students' perceptions of generative AI showed that the majority find AI helpful for academic support, personalization, and efficiency in learning tasks. However, students are also concerned about academic honesty, the reliability of AI-generated content, and the risk of over-reliance on automation, which may impact critical thinking and assessment integrity.[5-8] Moreover, the study also showed that medical students lack knowledge about AI and its applications, but have a positive view of AI in the field of medicine.[9]

In the context of Nepal, there is very limited data on medical students' perceptions of AI. Understanding medical students' perceptions of Generative AI is therefore essential for guiding its responsible and effective integration into medical education. This study aims to explore medical students' perceptions of Generative AI, particularly ChatGPT, its perceived benefits, concerns, and implications for learning at Patan Academy of Health Sciences (PAHS). The findings will help educators and policymakers to promote the responsible and effective use of AI in medical education in Nepal.

Method

A cross-sectional descriptive study employing a mixed-methods approach (quantitative and qualitative) was conducted at the Patan Academy of Health Sciences (PAHS) in Nepal. The study was carried out over eight months, from August 2025 to March 2026.

The study utilized total enumerative sampling, targeting the entire population of undergraduate medical and nursing students enrolled at PAHS. The eligible cohort included students from the first year through the internship year of the MBBS program, alongside students from the nursing programs (Bachelor of Nursing Science, Bachelor of Science in Nursing, and Bachelor of Midwifery).

- Inclusion Criteria: All undergraduate medical and nursing students at PAHS who provided informed consent.
- Exclusion Criteria: Students who declined to provide consent were excluded from the study.

A survey research design was adapted using a questionnaire originally developed at the University of Hong Kong, with formal permission to explore the perceptions and use of generative AI technologies in teaching and learning among PAHS students.[8] The questionnaire was thoroughly reviewed and discussed among the research team. Before the data collection, a pre-test was conducted among 10 alumni of PAHS to evaluate the clarity and comprehensibility of the survey questions.

The survey was structured into three distinct sections:Socio-demographic information.

Quantitative Assessment: This section comprised 18 items designed to assess students' knowledge (6 items), willingness (8 items), and concern (4 items) regarding the use of Generative AI. These were measured on a 5-point Likert scale, ranging from 1 (Strongly disagree) to 5 (Strongly agree).

Qualitative Assessment: comprised four open-ended questions.

- "For what purposes do you use Generative AI technologies (like ChatGPT) in teaching and learning?"
- "What are your concerns about using Generative AI technologies in teaching and learning?"
- "What suggestions do you have for effectively integrating Generative AI technologies into teaching and learning?"
- "Are there any other comments you would like to share?

Data were collected via an online questionnaire administered through Google Forms. The principal investigator distributed the survey link to the students using official batch emails. To encourage participation and maximize the response rate, three subsequent reminder emails were sent at one-week intervals following the initial invitation.

Ethical approval was obtained from the Institutional Review Committee of PAHS (Ref: bss2601162190). Digital informed consent was secured from all participants before data collection. A Google form was sent to each participant, consisting of the information sheet in the first section, and the participant could proceed only after consenting to study by selecting "yes" for participation. No identifying information was collected from the students to keep the survey fully anonymous,–and students were assured that their voluntary participation or withdrawal would not impact their academic standing.

Quantitative data were cleaned in Excel and analysed in the Statistical Package for the Social Sciences (SPSS) using descriptive statistics, including frequencies, percentages, means, and standard deviations. For the qualitative component, responses to four open-ended questions were analysed by the researchers. They were coded independently by two researchers, and the inter-code reliability was found to be more than 70%. Sub-themes and verbatims for each of the themes (based on open-ended questions) were finalized after extensive discussion within the research team. The verbatims provided by the students are represented by S1, S2, and so on.

Result

Out of the 699 students invited to participate, 356(50.92%.) completed the survey. The mean age of the respondents was 22.76±3.25 years (range: 18–41 years). The sample consisted of 189(53.09%) female, and 247(69.38%) participants were enrolled in the MBBS program. Stratification by academic year revealed that third-year students 101(28.37%) comprised the largest group, as shown in Table 1. Furthermore, 300(84.27%) participants indicated frequent engagement with generative AI tools, reporting that they use the technology "often" or "always", Table 1.

Participants showed the strongest understanding of GenAI's limitations in handling complex tasks, with 215(60.4%) agreeing or strongly agreeing with this statement, with a mean±SD value of 3.69±1.06. Similarly, a majority of respondents, 194(54.49%) recognized that these tools may rely too heavily on statistics, potentially limiting their usefulness in specific contexts, with a mean value of 3.5±1.04. Students also recognized the limitations regarding emotional intelligence and empathy, with 169(47.47%) acknowledging that this could lead to insensitive or inappropriate output, with a mean of 3.28±1.23, Table 2.

However, the cohort was more divided on issues of output reliability and bias. Exactly half of the participants, 178(50.00%), agreed that ChatGPT could generate factually inaccurate output with a mean of

Table 1. General characteristics of the respondents

General Characteristics of the students	n (%)
Sex	
Male	167(46.91%)
Female	189(53.0.9%)
Program	
MBBS	247(69.38%)
Nursing	109(30.62%)
Year	
1st year	43(12.08%)
2nd year	92(25.84%)
3rd year	101(28.37%)
4th year	48(13.48%)
5th year	40(11.24%)
Internship	32(8.99%)
Have you ever used generative AI technologies like ChatGPT?	
Never	0(0.00%)
Rarely	5(1.40%)
Sometimes	51(14.33%)
Often	173(48.60%)
Always	127(35.67%)

Table 2. Knowledge regarding the Generative AI (GenAI) technologies

Knowledge	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Mean±SD
I understand generative AI technologies like ChatGPT have limitations in their ability to handle complex tasks	13(3.65%)	33(9.27%)	95(26.69%)	125(35.11%)	90(25.28%)	3.69±1.06
I understand generative AI technologies like ChatGPT can generate output that is factually inaccurate	17(4.78%)	66(18.52%)	95(26.69%)	108(30.34%)	70(19.66%)	3.42±1.14
I understand generative AI technologies like ChatGPT can generate output that is out of context or inappropriate	33(9.27%)	90(25.28%)	96(26.97%)	91(25.56%)	46(12.92%)	3.08±1.18
I understand generative AI technologies like ChatGPT can exhibit biases and unfairness in their output	33(9.2%)	65(18.26%)	86(24.16%)	126(35.39%)	46(12.92%)	3.24±1.17
I understand generative AI technologies like ChatGPT may rely too heavily on statistics, which can limit their usefulness in certain contexts	13(3.65%)	49(13.76%)	100(28.09%)	136(38.20%)	58(16.29%)	3.5±1.04
I understand generative AI technologies like ChatGPT have limited emotional intelligence and empathy, which can lead to output that is insensitive or inappropriate	33(9.27%)	67(18.82%)	87(24.44%)	104(29.21%)	65(18.26%)	3.28±1.23

3.42±1.14. Awareness was slightly lower regarding contextual errors and algorithmic bias; 137(38.48%) agreed that the technology produces out-of-context output, with a mean of 3.08±1.18, and 172(48.31%) understood that it can exhibit biases and unfairness with a mean of 3.24±1.17, Table 2.

The highest level of agreement was observed regarding the efficiency of these tools, with students strongly believing that GenAI helps them save time, a mean score of 4.24±0.88, 290(81.46%) agreement, and serves as a valuable round the clock available tool with a mean of 4.07±0.94 and 269(75.56%) agreement. Furthermore, a significant majority, 258(72.48%), recognized the necessity of mastering these technologies for their future careers, with a mean score of 3.99±0.99. Students also expressed high willingness to receive personalized feedback on assignments, with a mean of 3.92±0.97, and to integrate GenAI into their future learning practices, with a mean of 3.87±0.95. These results suggest that, despite certain concerns, students are highly motivated to utilize GenAI for its practical benefits and professional relevance, Table 3.

The primary concerns identified by participants was the potential for becoming over-reliant on these technologies, which yielded the highest mean score of 3.45±1.10, and a combined (agree and strongly agree) agreement rate of 183(51.41%). This was followed by concerns that GenAI could hinder the development of transferable skills, such as teamwork and leadership, with a mean of 3.32±1.19, with agreement from 172(48.32%) participants. While slightly less pronounced, students also expressed worries regarding the undermining of university education's value with a mean of 3.21±1.13 and 148(41.57%) agreement. The limitation of social interaction during coursework, mean 3.15±1.17, with 162(45.5%) agreement. Collectively, these findings indicate that while students utilize GenAI, they remain cautious of its impact on their academic autonomy and long-term professional growth, Table 4.

Qualitative data analysis

The qualitative findings, categorized into purposes of using Generative AI technologies in teaching and learning, Table 5.

Concept understanding and general learning

The most significant application of generative AI is to clarify the "difficult topics in a simple and clear way "(S334). Students primarily use the tool to simplify difficult textbook language and clear their doubts. This bridge gaps in their understanding when traditional resources feel insufficient. (S276): "I'll paste the information from books, then I'll tell them to summarize them in easy language and that really helps me understand the topic well."

(S344): "Clearing doubts and searching for new information beyond books."

AI was used to facilitate resource navigation and conceptual clarity. Moreover, most of the students mention the use of AI in general learning of the content. The student also used it to know what to study and ask the source to study the chapter. One participant (S4) noted that the tool helped in identifying which "books it is best to study and

Table 3. Willingness regarding use of Generative AI

Willingness	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Mean±SD
I envision integrating generative AI technologies like ChatGPT into my teaching and learning practices in the future	5(1.40%)	32(8.99%)	60(16.85%)	165(46.35%)	94(26.40%)	3.87±0.95
Students must learn how to use generative AI technologies well for their careers	8(2.25%)	19(5.34%)	71(19.94%)	130(36.52%)	128(35.96%)	3.99±0.99
I believe generative AI technologies such as ChatGPT can improve my digital competence	9(2.53%)	24(6.74%)	79(22.19%)	137(38.48%)	107(30.06%)	3.87±1.00
I believe generative AI technologies such as ChatGPT can help me save time	3(0.84%)	12(3.37%)	51(14.33%)	122(34.27%)	168(47.19%)	4.24±0.88
I believe AI technologies such as ChatGPT can provide me with unique insights and perspectives that I may not have thought of myself	9(2.53%)	32(8.99%)	69(19.38%)	147(41.29%)	99(27.81%)	3.83±1.02
I think AI technologies such as ChatGPT can provide me with personalized and immediate feedback and suggestions for my assignments	9 (2.53%)	22 (6.18%)	63(17.70%)	156(43.82%)	106 (29.78%)	3.92±0.97
I think AI technologies such as ChatGPT is a great tool as it is available 24x7	6(1.69%)	15(4.21%)	66(18.54%)	131(36.80%)	138(38.76%)	4.07±0.94
I think AI technologies such as ChatGPT is a great tool for student support services due to anonymity	8(2.25%)	29(8.15%)	85(23.88%)	137(38.48%)	97(27.25%)	3.80±1.00

Table 4. Concerns regarding the use of generative AI

Concerns	Strongly disagree n (%)	Disagree n (%)	Neither agree nor disagree n (%)	Agree n (%)	Strongly agree n (%)	Mean±SD
Using generative AI technologies such as ChatGPT to complete assignments undermines the value of university education	27(7.58%)	69(19.38%)	112(31.46%)	100(28.09%)	48(13.48%)	3.21±1.13
Generative AI technologies such as ChatGPT will limit my opportunities to interact with others and socialize while completing coursework	39(10.96%)	67(18.82%)	88(24.72%)	126(35.39%)	36(10.11%)	3.15±1.17
Generative AI technologies such as ChatGPT will hinder my development of generic or transferable skills such as teamwork, problem-solving, and leadership skills	28(7.87%)	65(18.26%)	91(25.56%)	110(30.90%)	62(17.42%)	3.32±1.19
It can become over-reliant on generative AI technologies	19(5.34%)	50(14.04%)	104(29.21%)	119(33.43%)	64(17.98%)	3.45±1.10

Table 5. Purposes for using Generative AI technologies in teaching and learning

Subtheme	Associated Codes
Conceptual understanding and general learning	Clarifying difficult concepts; clearing doubts; simplifying textbook language; clinical reasoning and rationale; interpreting graphs and visual data; generating tables and comparisons; identifying study resources and chapters; problem-solving; idea generation.
Content Processing	Summarizing academic content; creating note, rechecking teacher notes; high-yield point extraction.
Information retrieval and time Management	Alternative to traditional search engines; searching beyond textbook scope; rapid information retrieval; save time; rapid revision; quick answers during clinical rounds; schedule creation.
Assessment Preparation, assignment and linguistic support	Assignment and research support; exam preparation; mnemonic creation; generating and solving MCQs/quizzes; practice questions; presentation development; statistical assistance; flowchart design; reference formatting; translation and academic writing support, grammar correction.
Support and feedback	emotional support; personalized feedback on assignments; individual learning guidance; assistance in complex decision-making; therapeutic-like interaction.

Table 6. Concerns about using Generative AI technologies in teaching and learning

Subtheme	Associated Codes
Output quality &trustworthiness	Incorrect information, inaccuracies; referential uncertainty; unreliability; AI hallucinations; biased output
Overdependence and behavioral changes	Overdependence; intellectual laziness; AI addiction; reduced classroom engagement; loss of interest in book; memory loss; surface learning
Skill decline	Decline in critical thinking; Decreased creativity; reduced brainstorming ability; reduced problem-solving ability; decreased analytical skills; decreased social skills; reduced writing skills
Ethics &security risk	Academic dishonesty; data privacy vulnerabilities; plagiarism; ethical misconduct

Table 7. Suggestions for integrating Generative AI technologies in teaching and learning

Subtheme	Associated Codes
Strategic curriculum integration	AI assistance in academic tasks; Formal inclusion of AI in teaching-learning processes; supportive tools; balanced approach; Avoiding total dependency; Ensuring AI does not replace teachers or textbooks; Time-saving benefits to integrate; Enhancing engagement and making learning fun; Supporting teachers in content preparation.
Training and awareness for responsible AI use	Need training on responsible AI use for students and faculty; Prompt engineering workshops; Development of clear usage guidelines; Focus on ethical use; Integration of AI detection tools in assessment
Access to AI tools and resources	Provision of premium AI package access; Development of institution-specific AI models

the chapter too," while also serving as a secondary resource for "understanding tough statements" found in traditional textbooks.

Students are using AI for clinical reasoning and finding the mechanism behind the process. Also, their use in understanding different graphical content and diagrams. Participants identified AI as a critical resource for clarifying lecture materials. One student described using the tool to translate visual aids into descriptive text to facilitate exam preparation, particularly when classroom instruction lacked depth.

(S145) "trying to translate pictures into text (because some teachers bring 3 pictures and finish a 2-hour class) so understanding in the exam relies on ChatGPT." Students also leverage AI for creative thinking to generate new ideas for research or projects.

Content processing, information retrieval, and time management

Students frequently utilize generative AI to manage the high volume of information required in their studies by summarizing long texts and extracting high-yield points. They use them to create the notes. Several students viewed the platform as a viable alternative to traditional search engines, with one describing it as a **"**good replacement of Google" (S289). They are using it in research activities like a literature review. A major driver for adopting generative AI is its ability to provide immediate solutions, most of which are mentioned as it saves time, which is particularly valued during time-sensitive tasks like clinical rounds and for quick revision to retrieve knowledge. (S61) mention of using AI "When I need a quick answer in between rounds."

Assessment preparation, assignment, and linguistic Support

AI has become deeply embedded in the preparation phase for academic assessments and examinations. Participants reported utilizing the technology to generate mnemonics and practice questions, specifically to prepare for MCQs, viva voce examinations, and rapid revision. Additionally, AI was identified as a valuable tool for enhancing the quality of academic presentations. Oone student (S349) described the tool's versatility, noting its use in creating "MCQs/short answers" and "drafting lesson materials or presentations."

S163: "For providing short, quick notes, mnemonics, to generate questions, to find research papers, journals."

S56" For research, class presentation, and exam preparation."

Furthermore, AI serves as a vital linguistic support for students. Participants utilized the tool to simplify English, providing essential grammar correction and translation services that facilitate academic participation. By leveraging AI to **"**paraphrase, correct language and grammar while writing academic papers," (S268). Students identified the technology as a key factor in making scholarly engagement more accessible.

Support and feedback

Interestingly, a small subset of participants noted using the AI for non-academic support, and students highlighted the utility of AI in providing psychological and emotional support. Students described using the technology as a safe space for expression, particularly when human interaction felt difficult or unavailable. One student (S122) explicitly noted using the platform for **"**emotional support and for my mental health," adding that the tool **"**listens to my feelings and provides me therapy." Others used the AI to clear personal dilemmas and privacy concerns. Participant S13 explained, "...sharing my feelings when I feel like it can't be shared with another human, planning something, making a choice when I am in a dilemma." Most of them also used as feedback regarding the assignment, self-assessment, and to find the weaknesses to improve accordingly.

The qualitative findings, categorized into perceived concerns about using Generative AI technologies and learning is shown in Table 6.

The analysis reveals that the most significant concerns revolve around the quality of AI output and the potential erosion of human cognitive skills. Interestingly, a high number of responses also indicated "No Concern" or saw the technology as an "Opportunity."

AI output quality and trustworthiness

The most prevalent concern among students is the factual reliability of AI. Many participants noted that while the technology is impressive, it frequently produces incorrect information that requires constant monitoring. One student highlighted the deceptive nature of these errors, stating: "AI answers, while surprisingly very accurate even with complex questions, can be inaccurate at times and cross-checks need to be done often" (S7).

Another concern regarding AI output was raised by Participant (S336), who noted, "Sometimes, it gives false information, and when I try to correct it, it says both to be correct." Such experiences illustrate why students find AI outputs unreliable and suffer from "trust issues." There is also strong concern regarding biased responses and the validity of AI-generated citations, with one student noting the platform was "not able to give me proper references" (S226).

Furthermore, students identified specific technical limitations in how AI handles complex data formats. For example, a participant noted that AI tools "seem to have some inaccuracies in scanning PDF files which contain charts" (S7), necessitating manual verification. A critical discovery within this theme was the identified risk of AI hallucination, where students expressed concern that the technology could confidently present fabricated data as an established fact.

Overdependence and behavioral changes

Students are highly aware of the risk of becoming too reliant on technology. Many participants used the term "addiction" or "laziness" to describe their behavioral shifts. One student admitted their concern about (S351)"becoming over-dependent over AI that may hinder my analytical skills," while another expressed the fear of (S348)"not using my own brain most of the time." This dependence is often seen as a barrier to deep understanding, with a participant noting that over-reliance might prevent them from (S349) "understanding the underlying concepts" as most of them are doing the surface learning only. One participant (P259) summarized that the shift toward AI-dependence may cause a student's "focus power to lose in class," suggesting AI may compromise active classroom engagement.

Furthermore, a striking anxiety has emerged regarding memory retention. One student bluntly cautioned that over-reliance could effectively "make us amnestic" (S55). Participant S217, who provided a biological perspective on this memory decline:"Our creativity may deteriorate because our neurons become less active when we get answers easily without thinking. As a result, we tend to forget information more quickly compared to when we brainstorm and think deeply on our own." (S217). The general sentiment is that while the tool is useful, it creates a risk where students should not rely on it entirely.

Skill decline

A major response in this subtheme is the fear that AI might reduce critical thinking. Students expressed worry that the tool acts as a shortcut that bypasses the hard work of thinking. Using these tools leads to a decline in independent thought, stating that AI "decreases critical thinking" and can "limit my brainstorming ability." One of the students (S246) states:" I fear my intelligence and critical thinking is going down." Another participant observed that AI might be (S3)"hindering one's inquisitiveness and ability to think broadly." Loss of creativity. The loss of active problem-solving was a recurring point, with one student noting they were (S2) "becoming too reliable and losing problem-solving skills." The student also mentioned regarding a decrease in social skills. S28: "It hinders our social skills the way we interact and we will not be able to make a good relation with our teachers."

Ethical and security risks

Beyond individual learning, students identified major systemic threats like "academic dishonesty," "plagiarism," and "data privacy issues.". Privacy anxieties were also high; students feared the collection of personal information, describing it as "data theft as it learns my habits" (P201) and even worrying that AI could "steal our and our country's data" (S342). While useful, the technology clearly triggers significant ethical issues among users.

The qualitative findings, categorized into perceived suggestions for integrating Generative AI technologies in teaching and learning is shown in Table 7.

Strategic curriculum integration

The primary finding from the qualitative data indicated a strong student preference for the direct integration of Artificial Intelligence into the curriculum. Students did not view AI as a replacement for human instructors; rather, they envisioned it as a supportive tool capable of simplifying complex concepts and augmenting the teaching-learning process.

There's a strong consensus here: AI shouldn't replace teachers or books. Instead, most students advocate for a balanced approach as not to depend on everything in AI. By using AI to handle many tasks in a short time and save time, students feel they can use their time to focus more on mastering practical skills that really matter. Moreover, Students suggested using AI to create study tools like practice quizzes and mock exams, which help them learn independently and get instant feedback. They also valued AI for quickly making visual aids like flowcharts and animations to help them remember complex topics. Overall, participants felt these tools should be built into the curriculum to help both students and teachers stay prepared for a tech-driven future. Some of the students thought regarding this theme.

(S179): "It should be integrated as world is evolving in generation of AI and technology but the gist of traditional teaching and learning should be taken side by side. If both balanced together than it becomes more effective and learning becomes more interactive and fruitful. "

(S59): "AI should be used as a supplementary tool, not a replacement for teachers or textbooks."

(S147): "It should be used, but up to a certain extent only. We should not depend on it for everything."

AI literacy and training for responsible use

A significant portion of the feedback emphasizes the necessity of institutional training for both students and faculty. This includes workshops on prompt engineering, learning to frame questions correctly to avoid (S198)"Garbage In, Garbage Out". As (S196) mentioned: "Innovative prompting is the new cool." Students expressed a need for guidance on ethical use. Most students focus on the institutional clear guidelines to use the AI so that students know at what level they should use the AI. (S242): "Clear guidelines and ethical use should be taught to ensure effective learning."

Access to AI tools and resources

Since these tools are so useful, there were also specific calls for institutional-level support. One student suggested that institutions provide **"**a ChatGPT premium package from college" (S310) to ensure students have access to advanced tools. Moreover, the institute should be developing a specialized, internal AI model trained specifically on the institution's medical curriculum to improve its teaching and learning methods. **(**S44)"I think institutions have a specifically developed AI for the institution... for example, there can be a 'PAHS MBBS AI' ".

In the theme of any other comments, most of the responses were already reflected within other themes. Additional comments mainly highlighted that AI is inevitable in the current era. They also suggested appropriate governance and periodic "AI detox" to avoid overdependence.

Discussion

Both quantitative and qualitative findings show that students are very eager to use Generative AI in their studies because it saves time and feels necessary for their future healthcare careers. Students use generative AI for content clarification, summarization, exam preparation, brainstorming, and academic writing, which aligns with most existing research.[8,10] Despite their excitement for its benefits, this convenience also creates concern. Students worry that depending too much on AI may reduce their ability to think independently. Some even mentioned becoming "lazy" or feeling that their memory might weaken if they stop solving problems on their own. Excessive use might stop them from developing essential human skills like teamwork, creativity, critical thinking, and human interaction.[7,8,11,12] This situation creates a paradox: AI improves efficiency, but at the same time, it may harm learning and critical thinking if overused. This idea is similar to previous studies by Baidoo-Anu and Owusu Ansah, which suggest that while AI makes information easy to access, it can reduce deep thinking if used as a shortcut instead of a learning tool.[13]

Students generally understand that AI has limitations, especially for complex tasks. About half of them are aware that AI can sometimes give incorrect information. However, deeper insights show that students have strong trust issues with AI. Many are frustrated by wrong answers, fake references, and misleading information generated by AI (hallucinations).[8,14] This shows that basic awareness is not enough; students need proper training on how to use AI effectively. They want guidance on things like prompt writing and ethical use. This is consistent with Chan CK, which supports the idea that education should not just restrict AI use but should teach students how to critically evaluate AI-generated content.[8]

Even though students have concerns, most of them (73%) quantitatively recognized that learning to use AI is essential for their future careers. Instead of banning AI, students prefer that it be properly integrated into the curriculum. They suggest a balanced approach where AI is used as a supportive tool, not a replacement for learning. Some students even proposed creating specialized AI tools tailored to medical education. Similar to recommendations by Sallam regarding AI in medical and health sciences education.[15] Overall, the findings suggest that educational institutions should move from simply controlling AI use to actively integrating it into teaching. By doing this, they can take advantage of AI's benefits—like personalized learning and support—while still maintaining strong academic standards.

The main strength of this study is its use of both quantitative and qualitative data, gathered from a complete group of medical and nursing students, which provides a clear and detailed understanding of their views. This might help educators and policymakers better understand how best to integrate these technologies into healthcare education to enhance teaching and learning outcomes. However, the study has some limitations. The study reported a higher proportion of students using generative AI tools, which may reflect response bias, as students who frequently use AI and digital tools were more likely to participate in and complete the survey. Moreover, it was conducted at just one institution, at a single point in time. To build on these findings, future research should follow students over a longer period and across multiple schools. Ultimately, research needs to move beyond just surveying student opinions and start running interventional studies to see how specific AI training and custom medical AI tools actually affect their grades and clinical skills.

Conclusion

Our findings show that health science students have a dualistic relationship with Generative AI. On one hand, they eagerly use it to save time and get round the clock help with complex topics. On the other hand, they are genuinely worried that relying on it too much will make them intellectually lazy and reduce their critical thinking and problem-solving skills. Many students still don't fully trust the technology because of its tendency to make up facts or provide inaccurate information. Because of this, simply attempting to restrict AI in medical and nursing schools isn't a realistic or helpful solution. Instead, institutions need to lean in and proactively teach students how to use

it responsibly. By setting clear ethical guidelines, offering hands-on training such as how to write better prompts, and providing access to specialized, medically accurate AI models, educators can help students use AI as a valuable study assistant.

Conflict of Interest

None

Funding

None

Author Contribution

Concept, design, planning: SaM, RB, RKS, SG, ShM, VS, JT; Literature review: SM, RKS, SG; Data collection: SaM, ShM; Data analysis: SaM, RB, SG, JT; Draft manuscript: SaM; Revision of draft: SaM, RB, RKS, SG, ShM, VS, JT; Final manuscript: SaM, RB, RKS, SG, ShM, VS, JT; Accountability of the work: SaM, RB, RKS, SG, ShM, VS, JT; Guarantor: SaM

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