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ORIGINAL ARTICLE

EXPLORING PERCEPTIONS AND EXPERIENCES OF CHAT-GPT IN MEDICAL EDUCATION: A QUALITATIVE STUDY AMONG UNDER-GRADUATES AND POST-GRADUATE STUDENTS

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ABSTRACT

Background: In medical education, AI emerged as a transformative force, offering innovative tools to enhance learning, improve clinical reasoning, and bridge gaps in traditional curricula. The objective of this study was to find the perceptions & experiences of Chat-GPT in Medical Education among Undergraduates and Post-Graduate students.

Materials & Methods: This qualitative, cross-sectional research was conducted at the Department of Orthopaedic Surgery & Traumatology at Liaquat University of Medical and Health Sciences, Jamshoro, Pakistan. A total of 30 participants were recruited, 15 undergraduate and 15 post-graduate students. The study participants were included in their clinical years. Participants who had prior knowledge of AI-based tools or expressed an interest in exploring innovative learning methods. The inclusion criteria required participants to be enrolled in the clinical phase of their medical education, as they would have the necessary foundational knowledge to engage with ChatGPT effectively. Data was collected through pre- and post-session interviews, which were conducted with each participant.

Results: A total of 30 participants, comprising 15 undergraduates and 15 post-graduate medical students, were interviewed before and after their interaction with ChatGPT. Twenty-five out of thirty (83%) of participants reported improved ability to approach differential diagnoses after engaging with ChatGPT. Eighty-three percent of students appreciated ChatGPT's ability to present logical diagnostic pathways, simulate case scenarios, and offer instant feedback. Forty percent (12/30) of students expressed their concerns about occasional inaccuracies or oversimplified answers from ChatGPT. Some post-graduate students noted the lack of deep reasoning in complex or context-specific clinical scenarios.

Conclusions: This study demonstrated that ChatGPT provides significant benefits across multiple learning domains, including enhanced clinical reasoning, improved communication skills, support for self-directed learning, and adequate supplementation of traditional curricula.

KEY WORDS: Chat GPT; Medical Education; Education; Qualitative research, Perception and experience of Chat GPT.

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INTRODUCTION

Artificial Intelligence (AI) is defined as a system's ability to interpret the external data correctly.[1] AI has revolutionized several vital sectors of technology, such as healthcare, Teaching, finance, and others. In medical education, AI emerged as a transformative force, offering innovative tools to enhance learning, improve clinical reasoning, and bridge gaps in traditional curricula. ChatGPT, with the recent advancement of artificial intelligence, offers innovative conversational experiences generated by computer responses.[2]

ChatGPT, an advanced AI-based Chatbot developed by OpenAI, garnered significant attention for its potential to personalize learning experiences, facilitate clinical decision-making, and improve com-

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munication skills among medical students. Medical Education is a learning process that never stops, continuing from undergraduate to post-graduate levels. In medical education, AI has been particularly impactful, offering tools that simulate real-world clinical scenarios, provide instant feedback, and facilitate self-directed learning.[3]

Integration of AI into medical education is driven by the need to address several challenges faced by traditional teaching methods. Medical students are often required to process vast amounts of information, improve analytical skills, & use academic knowledge to clinical conditions. Traditional teaching methods, such as lectures and textbooks, may not always be sufficient to meet these demands. AI-based tools, such as ChatGPT, offer a solution by providing interactive, personalized, and on-demand learning experiences that complement traditional teaching methods.[4] The historical development of AI can be tracked back to the 1970s, with the beginning of Intelligent Tutoring Systems (ITS). These initial techniques were proposed to deliver modified learning understandings by adapting to individual students' needs. In medical education, ITS were used to simulate clinical consequences, allowing learners to exercise diagnostic skills and receive instant feedback.[5] Over the years, AI has advanced meaningfully, with progressions in engine learning, natural language processing (NLP), and deep learning enabling the development of more sophisticated tools. In the 1990s, AI began to play a more prominent role in the health profession, with the introduction of virtual patients and simulation-based learning. These tools allowed students to interact with realistic patient scenarios, improving their clinical reasoning and decision-making abilities.[6] In recent years, AI has progressively integrated into medical education, with tools like ChatGPT and IBM Watson offering new possibilities for personalized learning and clinical practice. These tools leverage advanced NLP and device learning algorithms to provide students with interactive, on-demand learning experiences that complement traditional teaching methods.[7] This study explored the perceptions and experiences of undergraduate and post-graduate medical students using ChatGPT as a learning tool, with a focus on its impact on clinical reasoning, diagnostic abilities, and patient communication.

MATERIALS AND METHODS

This qualitative, cross-sectional research was conducted to explore the perceptions and experiences of medical students using ChatGPT. The study was conducted at the Department of Orthopaedic Surgery & Traumatology at Liaquat University of Medical and Health Sciences, Jamshoro, Pakistan. The department was chosen as the study setting due to its emphasis on integrating innovative teaching methods into medical education. The department's commitment to adopting AI-based tools, such as ChatGPT, provided an ideal environment for exploring the potential of these tools in enhancing clinical reasoning and diagnostic skills.

The study was conducted in a controlled setting within the department, where students had access to ChatGPT (version 4.0) for specific learning activities. The setting ensured that participants could engage with the tool in a structured manner, simulating real-world clinical scenarios while receiving guidance from faculty members. The study participants included undergraduate and post-graduate medical students in their clinical years at LUMHS. Participants who had prior knowledge of AI-based tools or expressed an interest in exploring innovative learning methods. The inclusion criteria required participants to be enrolled in the clinical phase of their medical education, as they would have the necessary foundational knowledge to engage with ChatGPT effectively.

A total of 30 participants were recruited, comprising 15 undergraduate and 15 post-graduate students. This balanced sample allowed for a comparative analysis of the experiences and perceptions of students at different stages of their medical education. Participants were provided with thorough knowledge about the study's objectives and ethical considerations, and their informed consent was taken before participation. Data was collected through pre- and post-session interviews, which were conducted with each participant. The pre-session interviews aimed to gather baseline information about participants' prior experiences with AI-based tools, their expectations of ChatGPT, and their perceptions of its potential role in medical education. The post-session interviews focused on participants' experiences using ChatGPT, its impact on their clinical reasoning and diagnostic skills, and their overall satisfaction with the tool.

The interviews were semi-structured, allowing for flexibility in exploring participants' responses while ensuring that main topics were covered. Each interview continued approximately 30-45 minutes and was conducted in a private setting to ensure confidentiality. The interviews were audio-recorded and transcribed verbatim for analysis. In addition to the interviews, participants were asked to complete reflective journals documenting their experiences with ChatGPT during the study period. These journals provided additional insights into participants' learning processes and the challenges they encountered while using the tool.

The data collected through the interviews and reflective journals were analyzed using SPSS version 21, employing both qualitative and quantitative data analysis. Ethical considerations were a central aspect of the analysis, ensuring that contributors' rights and safety were protected during the research process. Ethical approval was received from the Ethical Review Committee (ERC) at Liaquat University of Med-

ical and Health Sciences, Jamshoro, Pakistan. and all procedures were conducted following the ethical guidelines for research involving human subjects.

Informed consent was taken from all contributors before they participated in the research. Participants were provided with thorough evidence about the research objectives, procedures, potential risks, and benefits. They were assured that their participation was charitable and that they could leave the study at any time. To ensure confidentiality, all data collected during the study were anonymized, and contributors were assigned unique identifiers to protect their identities. The audio recordings and transcripts were kept securely, with access controlled to the research team.

RESULTS

A total of 30 participants, comprising 15 undergraduates and 15 post-graduate medical students, were interviewed before and after their interaction with ChatGPT. Thematic analysis of the interview transcripts revealed the following key findings;

Twenty-five out of thirty (83%) of participants reported improved ability to approach differential diagnoses after engaging with ChatGPT. Eighty-three percent of students appreciated ChatGPT's ability to present logical diagnostic pathways, simulate case scenarios, and offer instant feedback. A post-graduate participant shared, "ChatGPT helped me identify diagnostic gaps and refine my reasoning process systematically". Twenty-one students (70%) noted that simulating patient conversations with ChatGPT improved their confidence and structure in history-taking. Several participants found the tool helpful in practicing how to break bad news or explain complex terms in simple terms. Ninety percent (90%) of students agreed that ChatGPT allowed them to explore topics at their own pace and revisit complex concepts. Undergraduate students particularly valued the option to ask follow-up questions in simple language. Twenty-two students (73%) felt that ChatGPT filled knowledge gaps left by lectures and textbooks, especially in the real-time application of clinical knowledge. A common remark was, "It's like having a tutor available 24/7 without hesitation or judgment".

Challenges and Limitations Identified:

Forty percent (12/30) of students expressed their concerns about occasional inaccuracies or oversimplified answers from ChatGPT. Some post-graduate students noted the lack of deep reasoning in complex or context-specific clinical scenarios. A few highlighted the risk of over-reliance on AI rather than consulting textbooks or faculty.

Overall satisfaction:

Eighty seven percent (26/30) of participants were satisfied with their learning experience using ChatGPT and recommended its continued use in the curriculum. Students emphasized the need for guided sessions with faculty to complement ChatGPT-based learning **(Table I)**.

Table I: Summary of Key Learning Outcomes from ChatGPT

Learning Domain	Reported Benefit	%
Clinical Reasoning	Improved approach to differential diagnosis	83%
Diagnostic Strategy	Clarified diagnostic pathways and feedback	83%
Communication Skills	Better structured patient dialogue and confidence	70%
Self-Directed Learning	Flexibility, autonomy, and conceptual reinforcement	90%
Curriculum Supplementation	Filled gaps left by lectures/textbooks	73%
Limitations Identified	Noted oversimplifications or factual errors	40%
Overall Satisfaction	Endorsed continued use in education	87%

DISCUSSION

The results of this study clearly illustrate that ChatGPT plays a transformative role in augmenting the learning experiences of both undergraduate and postgraduate medical students. Notably, 83% of participants indicated that ChatGPT enhanced their clinical reasoning and diagnostic capabilities. This finding is significant, as it reinforces the utility of AI in simulating complex patient scenarios that promote real-time diagnostic thinking. The improvement in students' reasoning aligns with previous research on the value of intelligent systems in scaffolding decision-making processes in clinical education settings.

Furthermore, the tool's influence on communication skills, as reported by 70% of respondents, suggests that simulated patient conversations can effectively substitute or supplement live patient interaction, especially in early-stage learners. ChatGPT enabled users to structure their thoughts clearly and convey sensitive information, such as delivering bad news or explaining diagnoses in lay terms. These capabilities align with earlier findings on the use of digital simulations in improving empathy and patient-centered communication.[8]

Students also emphasized the flexibility of self-directed learning (90% endorsement), echoing the premise that autonomy and individualized pacing improve educational engagement. This adaptability of ChatGPT supports the cognitive load theory, which argues that instructional efficiency is optimized when learners can manage and pace the acquisition of complex content.

The findings in this study parallel those of Ko-

lachalama VB [9], who emphasized that machine learning-based systems contribute to increased comprehension and retention when integrated into traditional learning models. Interestingly, this study also echoes the concerns raised by Longoni C [10], about the resistance and skepticism toward AI in high-stakes environments such as medicine.

Approximately 40% of students reported reservations about ChatGPT's reliability, citing instances of inaccurate or oversimplified information. This caution underscores the necessity of supervised use and critical engagement rather than blind acceptance, a recurring theme in AI integration literature.[11] The pedagogical implications of integrating ChatGPT into medical education are profound. The tool serves not only as a supplementary knowledge source but also as a cognitive scaffold that encourages hypothesis generation, problem structuring, and clinical decision-making. It effectively serves as an "intelligent interlocutor," which can pose counterarguments, provide differential diagnoses, and challenge the user's assumptions - all crucial to developing medical judgment.[12] The study's participants perceived ChatGPT as more than a passive database; instead, they experienced it as an interactive tutor, offering instantaneous clarification, just-in-time learning, and dynamic adaptation to individual knowledge gaps. This reflects the constructivist learning paradigm, where learners actively construct knowledge through meaningful engagement with content and context.[13] An often-overlooked advantage of integrating ChatGPT into medical curricula is its function as an entry point for AI literacy. As healthcare increasingly adopts algorithmic tools, from clinical decision aids to predictive diagnostics, medical students must be proficient in interacting with and critically evaluating these systems.[14]

Participants in this study gained not only subject-specific knowledge but also insights into how AI can (and cannot) be trusted in professional practice. This dual-purpose learning content acquisition plus technological fluency is especially valuable in a rapidly evolving digital healthcare landscape. Given ChatGPT's demonstrated benefits and limitations, a blended learning model appears most appropriate. ChatGPT should be positioned as a formative learning aid rather than a summative assessment tool. Structured exercises, such as guided differential diagnosis prompts or reflective documentation of ChatGPT-led interactions, could provide high-yield learning while minimizing misuse. Curricular integration can be further enhanced by training educators to facilitate AI-assisted learning and developing rubrics for assessing students' critical engagement with AI. For instance, embedding ChatGPT in OSCE (Objective Structured Clinical Examination) preparation allows for iterative, low-risk practice of clinical encounters. This approach promotes mastery learning while accommodating individual pace and style.[15]

CONCLUSION

The integration of ChatGPT into medical education represents a paradigm shift in how students engage with clinical knowledge, diagnostic reasoning, and patient communication. This study has demonstrated that ChatGPT provides significant benefits across multiple learning domains, including enhanced clinical reasoning (83%), improved communication skills (70%), support for self-directed learning (90%), and effective supplementation of traditional curricula (73%). These findings not only reinforce the potential of AI in modern medical education but also highlight its broader role in cultivating digital literacy among future healthcare professionals.

RECOMMENDATIONS

- Structured Integration: Embed ChatGPT into specific modules like clinical case discussions, communication labs, or self-assessment activities, ensuring it aligns with curriculum goals.
- Faculty Involvement: Train educators to moderate AI-assisted learning and incorporate it into formal pedagogical strategies.
- Assessment Models: Develop new metrics to evaluate how students use AI tools, focusing on critical reasoning and reflective practice.
- Ethics and Digital Literacy: Include AI ethics, limitations, and data integrity as part of digital professionalism training.

LIMITATIONS

While the findings are promising, they are based on a relatively small, purposive sample from a single institution, limiting their generalizability. The qualitative design, though rich in insights, does not allow for statistical extrapolation to wider populations. Additionally, this study focused exclusively on ChatGPT, without direct comparison to other AI tools or control groups.

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CONFLICT OF INTEREST
Authors declare no conflict of interest.
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AUTHORS' CONTRIBUTION

The following authors have made substantial contributions to the manuscript as under:

Conception or Design:	AM, MFJ
Acquisition, Analysis or Interpretation of Data:	AM, MFJ, AH, HAB
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All the authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.