

Medical Faculty Attitudes Toward ChatGPT Integration in Undergraduate Orthopedic Education

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Learning Point of the Article:

Faculty members view ChatGPT as a supportive tool in undergraduate orthopedic education – enhancing efficiency, personalized learning, and curriculum development – yet they emphasize the need to balance its use with accuracy, integrity, critical thinking, and ethical responsibility.

Introduction

In the last 20 years, medical education has experienced a tremendous shift towards digitalization. The advent and growth of simulation platforms, virtual learning environments, learning management systems, and online learning resources have all contributed to the shift from traditional lecture-based learning to technology-enhanced learning [1]. This trend gained even more pace with the onset of the COVID-19 pandemic, forcing institutions all over the world to adopt digital teaching methods and online learning practices [2].

In this dynamic educational environment, artificial intelligence (AI) has become one of the most impactful innovations. In recent years, the progress of Natural Language Processing technologies has led to a significant improvement in the capacity of AI systems to comprehend and create human language at a level never before attained. One of the most prominent applications of generative AI is ChatGPT, which was trained using a large language model approach. In contrast to conventional rule-driven learning programs, ChatGPT can converse with users, create educational content, respond to inquiries, offer summaries, and give explanations based on the

needs of the user [3].

These skills have led to much interest in undergraduate medical education. ChatGPT can offer support for developing clinical scenarios, multiple-choice questions, lectures, formative assessment, and learning resources. Students are increasingly using the platform to explain complex ideas, to revise and revise, and to review for exams. Hence, the debate about ChatGPT is not just about a new technology; it is also about educational policy, curriculum design, and professional responsibilities [4].

It is important to note that faculty members are in a pivotal position in the above discussion. Their perception and attitudes affect the promotion, regulation, or opposition of the use of generative AI in medical curricula. Thus, knowing faculty's attitudes can be useful in predicting the future direction of AI integration in medical education [5].

Faculty Optimism and Educational Opportunities

The literature on faculty perceptions is quite positive, with most expressing a positive stance on the educational potential of ChatGPT. The vast majority of teachers believe that the technology is a complement to learning that may provide

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Access this article online

Website:
www.jocr.co.in

DOI:
<https://doi.org/10.13107/jocr.2026.v16.i11.8366>

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Submitted: 15/08/2026; Review: 25/09/2026; Accepted: October 2026; Published: November 2026

DOI: <https://doi.org/10.13107/jocr.2026.v16.i11.8366>

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support to current learning practices, but not supplant traditional learning methods [6].

An often-claimed benefit is more effective instruction. Researchers, educators, and other academics report that ChatGPT can help them save time on creating lecture materials, developing assessment items, writing clinical vignettes, and educational materials. In today's academic landscape, where workloads and competing deadlines are on the rise, these efficiencies are especially appealing [7].

The other place of enthusiasm is curriculum development. ChatGPT can quickly create clinical scenarios of different levels of complexity, which can be helpful in problem-based learning and case discussions. Other research has been conducted on how it can be used to learn how to improve learning objectives, create rubrics, and generate structured learning resources. The following capacities present possibilities for improving curriculum planning and quality education [8].

Faculty members also acknowledge ChatGPT's ability to facilitate personalized learning. The focus of medical education on learner-centered approaches is reflected in the way students engage with content in ChatGPT [9]. The conversational style of ChatGPT enables students to engage with content at their own speed, reflecting the focus of medical education on learner-centered approaches. Students can ask further questions, ask for clarification, or ask for simplification and receive instant feedback without the limitations of teaching sessions. These interactions could promote self-directed learning and increased learner engagement [10].

Beyond teaching activities, faculty also identify practical administrative benefits. Drafting emails, report preparation, summarizing documents, and synthesizing information can help to alleviate administrative burden so teachers can spend more time mentoring and engaging in scholarly activities [11]. However importantly, faculty enthusiasm is still kept in check. In all studies, teachers have consistently indicated that ChatGPT should not take the place of the human aspects of medical education. There are irreplaceable contributions that can only be made by humans, such as clinical judgment, professional mentorship, empathy, and role modeling [12].

Concerns Regarding Accuracy, Integrity, and Professionalism

While the use of ChatGPT in medical education holds promise, there is significant worry across the academic community. These concerns are not meant to imply that they are opposed to innovation, but rather that they are dedicated to ensuring educational quality and professionalism [13].

One of the most important problems is still accuracy.

Generative AI systems may generate inaccurate information, fabricated references, and misleading explanations and present them convincingly. In the healthcare industry, where misinformation can have significant consequences, it is no surprise that doctors are hesitant to use AI-generated content without checking it. Doctors are rightly wary of going on the record with information created by AI, where inaccurate info can have serious implications. An important aspect of the use of outputs that may detract from some of the efficiencies sought by teachers is the need for fact-checking [14].

Academic honesty is also a major issue. Faculty members are concerned that students could use ChatGPT to submit assignments, reflections, or any other work designed to assess their understanding. With the rise in the sophistication of AI-generated content, it is going to be tougher to tell AI-generated content from original student work. This challenge introduces questions concerning authorship, authenticity, and fairness related to assessment in education [15].

Concerns also cover the development of critical thinking and clinical reasoning abilities. In medical education, it is not just about imparting knowledge; it is also about fostering analytical thinking, diagnostic reasoning, and professional judgment. Relying too much on AI-generated answers can foster a passive engagement with information, potentially reducing the critical and creative thinking needed to solve intricate clinical issues. Over-dependence on AI responses could lead to passive learning rather than active problem-solving with complex clinical questions. Teachers are worried about the effects of excessive reliance on AI, which could impede the intellectual skills required for effective healthcare delivery [16].

There is also a sense of skepticism due to ethical issues. Issues of data privacy, algorithmic bias, transparency, accountability, and evidence-based medicine are still not resolved. These challenges are acknowledged by medical educators, especially in a field that has ethical responsibilities and patient safety as its core principles [17].

Rethinking Assessment in the Age of AI

The impact of generative AI on medical education is likely more significant than in any other area, particularly when it comes to assessment. The integrity of traditional, written assignments and unsupervised take-home tasks is under threat from AI, questioning the authenticity and independent work long assumed to be the nature of such tasks [18].

As a result, faculty have started to think about how to change assessment approaches. More weight is being given to viva voce examinations, Objective Structured Clinical Examinations, application-oriented problem-solving exercises, workplace-

based assessment, and oral examinations. These approaches test higher-order cognitive skills and clinical reasoning, which are less likely to be misused by AI. Many teachers argue that, instead of outright banning, the inclusion of AI literacy in medical education is a better approach. AI tools should be taught to students, and they should also be equipped with the skills to critically analyze the results, identify inaccuracies, understand bias, and be aware of the ethical boundaries. This approach will move the focus of education from detection and punishment to responsible and informed use [19]. With the advent of generative AI, this is now the time to modernize assessment practices and uphold skills that are distinctly human, such as critical thinking, communication, clinical judgment, and ethical reasoning [20].

Building Institutional Readiness through Faculty Development

There are several factors that affect faculty attitudes towards ChatGPT: their familiarity with technology, disciplinary background, teaching experience, and institutional culture. Teachers who have already experienced digital tools are more likely to be open to exploring the possibilities for using AI. In contrast, teachers with less experience are likely to be uncertain or reticent. Institutional support is a key determinant of acceptance. Regularly, faculty members point to the need for policies, guidance, and professional development that are clear and structured. Adoption is often done in an uncoordinated way in the absence of institutional frameworks, leading to variability in practice and uncertainty over the right way to use it [21].

Therefore, faculty development programs must be made a priority. Educational programs can provide hands-on experience in prompt engineering, AI-generated content creation, critical analysis of AI-generated content, and ethical considerations for work with AI. These can alleviate technophobia and create a sense of confidence about responsible use. Equally significant is the creation of governance mechanisms that will deal with transparency, academic integrity, disclosure of authorship, data privacy, and acceptable use. Clarifying guidance is more likely to support the informed adoption and reduce potential harms of institutions that provide such guidance [22].

Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient has given the consent for his/ her images and other clinical information to be reported in the journal. The patient understands that his/ her names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Conflict of interest: Nil **Source of support:** None

There is also a need for meaningful dialogue among faculty, students, administrators, and policymakers. A culture of responsible innovation, rather than reactive opposition, can be fostered with collaborative discussion by setting shared expectations [23].

The Future of AI-Enhanced Medical Education

As of now, the evidence indicates that ChatGPT is not likely to disappear any time soon. Rather, generative AI is becoming an integral part of the educational landscape. The key issue is not if, but how, AI can be a responsible and effective part of medical education. Going forward, studies need to transcend cross-sectional surveys and delve deeper into the impact of AI use on educational outcomes, clinical reasoning, faculty identity development, and faculty practices over time. Longitudinal studies will be of great help in understanding the changes in perception over time as experience with AI grows and policies become more developed [24]. The need for standardized tools to assess faculty attitudes toward generative AI and the need for evidence-based ethical guidance for medical education are also identified. These efforts will help improve the quality of future research and policy formulation [25].

Conclusion

The attitude of faculty members toward the use of ChatGPT in undergraduate medical education is one of cautious optimism. Teachers see its potential to increase efficiency, foster personalized learning, and enhance curriculum development; however, they also understand that there are significant issues of accuracy, academic honesty, critical thinking, and responsibility. The implementation of generative AI in medical education will be shaped by a balance between its benefits and challenges, underpinned by institutional policies, faculty training, ethical considerations, and continuous assessment. With careful implementation, ChatGPT can enhance current teaching methods and offer valuable support to the learning process while maintaining its human core in medical education.

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Conflict of Interest: Nil

Source of Support: Nil

Consent: The authors confirm that informed consent was obtained from the patient for publication of this article

How to Cite this Article

Siddarth SA, Priyadarshini R, Jeyaraman M, Shyam A. Medical Faculty Attitudes Toward ChatGPT Integration in Undergraduate Orthopaedic Education. *J Orthop Case Rep* 2026 November;16(11): 03-06. doi: 10.13107/jocr.2026.v16.i11.8366.

