EDITORIAL

Generative AI Application Among the Undergraduate Medical Students

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As medical education advances, students are progressively utilizing generative artificial intelligence (AI) tools to enhance their learning. ChatGPT has emerged as a significant learning assistance. Although the tool is not intended for real-time patient care or clinical decision-making, ChatGPT provides considerable advantages in comprehension of theoretical concepts, organizing study activities, and enhancing academic achievement.

Medical students, confronted with an extensive array of content and the necessity to cultivate both theoretical understanding and practical reasoning abilities, can derive significant assistance from ChatGPT when utilized correctly (1). ChatGPT has become an especially useful assistant since AI tools have made major gains into education in recent years (2). The utilization of ChatGPT by medical students should focus on practical applications in day-to-day learning.

Generative AI assists in mastering theoretical material such as intricate understanding of basic sciences such as anatomy, biochemistry, physiology, and pharmacology. These subjects might be daunting, particularly during the initial years of medical undergraduate. Generative AI can elucidate knowledge through mnemonic generation, provides personalized educational assistance, and augments preclinical training, particularly for the assimilation of extensive didactic material (3). The incorporation of ChatGPT shown to improve educational experiences for medical students (1).

Generative AI can be used to simulate patient scenarios that allow trainees to refine their clinical reasoning abilities (7). For example, it can exemplify a scenario involving a patient with chest pain and guide the student through the processes of history-taking, differential diagnosis, and treatment, simulating an Objective Structured Clinical Examination (OSCE). These tools can also produce OSCE scenarios that are suitable for various levels, incorporating relevant patient information like as demographics, presenting illness history, and medical history (4).If students are creative enough, they can also seek to create mock exam questions in different format such as multiple choice, extended matching or single best answer questions. This can be utilize as exam practice preparation accordingly. In anticipation of examinations, ChatGPT can assist in generating sample multiple-choice questions (MCQs), short-answer prompts, or fill-in-the-blank quizzes, so augmenting the learning experience through self-assessment. For essay-based evaluations, it can provide assistance with structure, coherence, and clarity without composing the content for the student.

For clinical case management, ChatGPT effectively replicated patient interactions, offering a controlled environment that eliminates the danger of injury to actual patients (5). ChatGPT can assist clinical students in formulating a differential diagnosis, giving a concise summary of the patient's history and produce a provisional differential diagnosis. Furthermore, possessing a differential diagnosis framework before patient interaction can guide the collection of a targeted history and a focused physical examination, thereby refining the post-encounter differential and impacting subsequent diagnostic investigations and treatment plans (6).

Students may also use generative AI to serve as a "virtual teaching assistant" to provide insights for each inquiry and offer feedback on inquiries and elucidate ideas that the learner may find particularly difficult. Additionally, it can be utilized to create knowledge-check questions

that reinforce conceptual comprehension interactively (6).

Notwithstanding these benefits, it is crucial to acknowledge the constraints of utilizing generative AI as an educational resource. It does not retrieve real-time data or authenticated academic sources unless specifically trained on them. Consequently, there exists a perpetual risk of obsolete or inaccurate information. Students are required to validate any content produced by ChatGPT against textbooks, guidelines, or credible academic sources. This is still an issue whereby the AI produces hallucination or inaccurate data, and this would be disastrous if students do not counter check with the textbooks or journals as reference.

Other downside is the passive utilization of ChatGPT may impede critical thinking. Excessive reliance on AI for answering questions or summarizing material may hinder students from fully engaging with learning or cultivating their thinking abilities. Upholding academic integrity is also essential. Although ChatGPT can assist with writing and editing, students must refrain from utilizing it to produce whole assignments or circumvent original labor.

In summary, generative AI functions as a multifaceted aide for medical students. When utilized judiciously, it can enhance the accessibility, efficiency, and engagement of the learning process. Students must utilize the tool judiciously, consistently validating content and upholding academic integrity. Thus, generative AI should mot serve as a mere shortcut, but as a partner in the arduous pursuit of medical education.

In conclusion, ChatGPT possesses considerable promise as an ancillary educational resource in medical training. When utilized judiciously, it can increase learning efficiency, replicate clinical reasoning, decision making, and elucidate the understanding of complex subjects in medicine (7). Students must use with caution, ensuring that its outputs are critically assessed with established learning methodologies and ethical standards. Ultimately, generative AI should be seen not as a substitute for conventional education but as a versatile digital educator that enhances the stringent requirements in medical training.

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