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Chat GPT revolution in Health Care: Separating Hype from Reality

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A B S T R A C T

The emergence of ChatGPT and similar AI models in healthcare has sparked both enthusiasm and skepticism, raising questions about their true impact on medical practice. This abstract delves into the potential of ChatGPT to revolutionize healthcare, examining its capabilities in enhancing clinical decision-making, patient engagement, and administrative efficiency. While these AI tools offer promising benefits, such as streamlining workflows and providing decision support, it is crucial to separate the hype from reality. The discussion will explore the limitations, ethical concerns, and practical challenges that must be addressed to harness the full potential of ChatGPT in healthcare without compromising patient safety and care quality.

Keywords: Artificial intelligence; Healthcare Institutes; ChatGPT

Introduction

Launched in late November 2022, 175-billion-parameter Chat GPT, a large language model (LLM), has become a prominent AI architecture for natural language processing.[1] The three key elements behind its success are its generative capacity, pre-training with the widest datasets, and its transformer power which has allowed it to connect and understand words, generate texts, analyze word dependencies, and finally incorporate it into output. From generating human-quality texts, mastering creative and academic writing, generating frameworks, constructing concept maps, summarizing research articles, and handling multilingual translation it has been a versatile tool in excelling in every aspect. Introducing AI models for healthcare is usually not very cost-effective and requires a lot of specialized data with their spectrum extending from exciting possibilities to significant limitations.[2]

Performance on Medical Reasoning Tasks

Various studies have evaluated the exam-taking abilities of this language model. It has been tested on a wide range of exams and was subjected to answer descriptive as well as multiple choice questions. These exams included USMLE Steps, ACLS BLS, BCSC, and family medicine exams.[3,4] All these reviews found this model to be performing better than its predecessors. Its performance was notable in functional neurosurgery, Peripheral nerve surgery, and first-order recalls.[4,5]

Its strengths in various areas were identified. It could effectively diagnose and create well-structured answers with relevant examples and evidence all that an examiner will look for in an answer book.[6] It could proficiently recognize patterns, classify data, and generate new insights.[7] It exhibited a good recall and problem-solving approach and had a sound interpretation of memorization-type questions revealing its retain and retrieve ability.[8]These findings highlight a significant improvement over earlier models like GPT-2, BioGPT, BioMedLM, and GPT-3 its predecessor itself.[9] With all the high accuracy exhibited in medical tests it faced limitations when it came to real-world scenarios where most of the time a personalized approach is required. It struggled to interpret radiological images and had compromised the practical application of a particular data set of knowledge to the real world.[5] It overlooked ethics and was not capable of critical thinking most of the time.[8] There was a lack of understanding and patient values as well.[7] Its performance all in all relies on the pre-training with data sets and can be tripped or misinterpreted when it comes to unfamiliar situations.[10] To ensure reliability it always needs human oversight before it can be fully integrated into practice.[11]

Role in patient communication

Communication is the key to patient management and this language model can bridge the barriers and provide interactive and educational content. Patient can access information regardless of their native language.[12] ChatGPT has the potential to increase accessibility to health information and streamline the production of patient-facing educational materials.[13] it has been tested for the provision of health care information regarding breast cancer prevention and screening, cardiovascular disease prevention and radiological image-related queries.[14,15] However, its current limitations require cautious implementation because of certain pitfalls and unreliable responses. This accuracy of knowledge is susceptible to data training and biases. Leaving communication solely to artificial intelligence would sooner or later develop the unheard or underheard patients with unforeseen errors and flaws. Personalized communication and addressing individual needs remain crucial for effective communication.[16,17] Another limitation to effective communication through these tools is the low literacy rates and limited access to such technologies in low-income countries.

Impact on Literature review and scientific writing

Along with other aspects, chat GPT revolutionized scientific writing by offering a thorough literature search strategy with its undeniable strength and quick service.[18] Right from conceiving ideas it can generate frameworks, streamline the writing process, and suggest titles and references. Summarizing key findings and identifying strengths and limitations of the accessible data is it's another potential. It has excelled at literature review. It can serve as an editor, proofreader, corrector, and time saver.[19,20]From paragraphs to bullets it can address writing clearly and concisely. But with every power, certain limitations are crucial to be highlighted, as in the case of medical reasoning it also lacks critical thinking scientific writing, and creativity.[21] Human expertise is of paramount importance for developing scientific proposals and doing innovative and robust research. The importance of human oversight cannot be negated for facts and figures and intricate processes and complex information that require judgments. These tools are programmed to copy and rephrase but the most important aspect of research is ethics which cannot be ignored in the setting of a non-human mind where there can be integrity violation.[22] Specialty expertise is paramount when such research is to be considered. The list of limitations includes inflation of research and increase in the database but it has to add to any research experience of the researcher due to the dependency and lack of creativity it brings. In short, the ethical dilemmas are of great concern when it comes to

chat GPT. It can be considered an invaluable writing assistant like many other soft wares but never a replacement when it comes to this sacred profession.[23]

Conclusion

ChatGPT is a double-edged sword. By acknowledging its strengths and limitations, we can harness its potential to improve healthcare delivery in the future in general and also to different specialties. These tools can be good human assistants and should be utilized alongside human interaction, prioritizing data accuracy, and emphasizing patient-centered communication strategies like clear explanations, active listening, and respect for individual needs.

Just like we have moved towards the era of digital ethics, there should be clear guideline implementation on institutional levels on the use of AI tools like ChatGPT addressing the ethical concerns and referencing the existing work to maintain the standards of scientific writings. Human oversight should not be overlooked when it comes to analysis critical thinking and customization. AI tools can be trained on diverse data sets to overcome the biases in outputs and there should be an exploration of the ways to ensure affordable sources to access this technology in low-resource institutions as well.

Future research should focus on developing AI models that can integrate medical knowledge with real-world clinical scenarios, interpret medical images and generate more relevant diagrams, develop true clinical reasoning and ethical considerations, mitigate bias through diverse training data, and ensure affordability and accessibility for all healthcare institutions. By addressing these limitations, we can pave the way for the responsible integration of AI tools like ChatGPT into a more patient-centered and efficient healthcare system.

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