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Letter to the Editor

An evaluation of the performance of ChatGPT in diagnosing orthopaedic conditions using clinical case histories

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Dear Editor

After the emergence of ChatGPT, there have been overwhelming discussions on the utility of such Artificial Intelligence (AI) based chatbots in clinical practice.¹ Also, to substantiate this, many studies have assessed the capabilities of this large natural language in various clinical fields with results emphasising the promising role of ChatGPT in the medical arena.^{2,3} Orthopaedics is one such critical field of medicine, that has seen exploration regarding the application of AI-based chatbots, like ChatGPT. The potential utility of these tools in orthopaedics lies in their ability to provide information, answer queries, and assist both patients and healthcare professionals in various aspects of orthopaedic care.^{4,5} To diversify the exploration of the abilities of ChatGPT, we used 10 diverse clinical case histories from "Clinical Cases in Orthopaedics & Traumatology by Prof. Mayil Vahanan Natarajan" and evaluated the ability of ChatGPT in diagnosing the clinical condition.⁶

ChatGPT 3.5 was used for this evaluation. A total of 10 clinical case histories were randomly selected from the book, "Clinical Cases in Orthopaedics & Traumatology".⁶ The selected cases were – Congenital Pseudoarthritis, Osteosarcoma, Ewings sarcoma, Tubercular osteomyelitis,

Chronic pyogenic osteomyelitis, Winging of scapula, Sprengel's Deformity, Tennis elbow, Rheumatoid arthritis and Kienböck's Disease. All the clinical case history included the history of presenting illness and findings in inspection, palpation and radiological investigation. The cases were entered onto ChatGPT as inputs and responses were generated. Responses were regenerated for confirmation of answers. The responses generated were cross-checked with the answers provided in the reference material, "Clinical Cases in Orthopaedics & Traumatology".⁶

ChatGPT nailed the evaluation by correctly answering all 10 questions. Although only the diagnosis was asked a question, ChatGPT managed to provide a brief summary of the condition with a detailed breakdown of each symptom and additional information regarding the same. Also, the strategies for the management of the condition were provided. The explanation generated by ChatGPT was comparable to that given in the reference material, "Clinical Cases in Orthopaedics & Traumatology".⁶

The successful evaluation of ChatGPT in diagnosing various orthopaedic conditions based on clinical case histories from "Clinical Cases in Orthopaedics & Traumatology" suggests promising implications for integrating AI-based chatbots into orthopaedic and clinical practice. ChatGPT demonstrated its efficiency in retrieving and summarizing information, indicating potential benefits

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for healthcare professionals in quick access to relevant data during patient evaluations. Additionally, the detailed breakdown of symptoms and comprehensive information provided by ChatGPT opens avenues for its use in medical education, aiding in the training of medical professionals and enhancing diagnostic and management skills. Furthermore, the clarity of responses suggests a role in patient engagement and education, improving overall health literacy. ChatGPT's accurate diagnosis, detailed information and management strategies also position it as a potential clinical decision support system for clinicians, offering additional perspectives for well-informed and personalized patient care decisions. However, it's crucial to acknowledge ethical considerations, data privacy, and the need for continuous validation in diverse clinical scenarios. In conclusion, the integration of AI-based chatbots like ChatGPT in orthopaedics holds promise for enhancing information retrieval, education, patient engagement, and decision support, but careful consideration and ongoing research are essential for their effective and ethical implementation in healthcare settings.

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Nothing to declare.

2. Conflict of Interest

None to be declared

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