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Title

Potential benefits and limitations of ChatGPT in healthcare: a scoping review

Priority 1 (Research Category)

Systematic review, meta-analysis, or scoping review

Presenters

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Abstract

Context: ChatGPT is a chatbot powered by a generative pre-trained transformer (GPT) model, which can generate natural language responses based on user input. ChatGPT has been applied in diverse domains, including healthcare, where it can interact with patients and health professionals for various purposes. However, the potential benefits and limitations of ChatGPT in healthcare are not clearly understood.

Objective: This scoping review aimed to explore the current literature on the use of ChatGPT in healthcare domains, and to identify its reported benefits and limitations.

Study Design and Analysis: We conducted a scoping review following the JBI Manual for Evidence Synthesis and reported it using the PRISMA Extension for Scoping Reviews (PRISMA-ScR) checklist. We searched PubMed for English articles related to ChatGPT in healthcare that were published from Nov 30, 2022 to May 6, 2023. Two reviewers extracted data on article types, purposes, methods, health conditions, ChatGPT's benefits and limitations, and recommendations. A third reviewer resolved any conflicts. We synthesized the results using descriptive and thematic analyses.

Setting or Dataset: PubMed Database

Instrument: 'Data Charting Sheet' in Microsoft Excel

Outcome Measures: 1) Type, method, focus, and theme of articles, 2) Benefits and limitations of ChatGPT in healthcare, and 3) Knowledge gaps and future directions on using it.

Results: The articles, which focused either on ChatGPT evaluation (48.5%) or discussion (51.5%), had the following types: research (33.3%), correspondence (15.2%), editorial or commentary (12.1% each), and review, case report or opinion (9.1% each). The most common methods used by the authors were testing ChatGPT's responses (36.4%) and conducting literature reviews (27.3%). We found five main benefits of ChatGPT: communication, efficiency, creativity, decision support, and multilingualism. We also found five limitations: ethical, legal, and social challenges; quality and safety issues; domain knowledge and context awareness; human-AI interaction and trust; and technical challenges and limitations. The authors recommended using ChatGPT with caution, further development, and complementarity.

Conclusions: ChatGPT has potential and challenges for healthcare. Further research and development should focus on evaluating its impact on patient outcomes and satisfaction, developing domain-specific and context-aware models, and addressing ethical, legal and social issues.