Patient comprehension

Enhancing patient comprehension of their health is crucial in improving health outcomes. The integration of artificial intelligence (AI) in distilling medical information into a conversational, legible format can potentially enhance health literacy.

A review aims to examine the accuracy, reliability, comprehensiveness and readability of medical patient education materials (PEMs) simplified by AI models. A systematic review was conducted searching for articles assessing outcomes of use of AI in simplifying PEMs. Inclusion criteria are as follows: publication between January 2019 and June 2023, various modalities of AI, English language, AI use in PEMs and including physicians and/or patients. An inductive thematic approach was utilised to code for unifying topics which were qualitatively analysed. Twenty studies were included, and seven themes were identified (reproducibility, accessibility and ease of use, emotional support and user satisfaction, readability, data security, accuracy and reliability and comprehensiveness). AI effectively simplified PEMs, with reproducibility rates up to 90.7% in specific domains. User satisfaction exceeded 85% in AI-generated materials. AI models showed promising readability improvements, with ChatGPT achieving 100% post-simplification readability scores. AI's performance in accuracy and reliability was mixed, with occasional lack of comprehensiveness and inaccuracies, particularly when addressing complex medical topics. AI models accurately simplified basic tasks but lacked soft skills and personalisation. These limitations can be addressed with higher-calibre models combined with prompt engineering. In conclusion, the literature reveals a scope for AI to enhance patient health literacy through medical PEMs. Further refinement is needed to improve AI's accuracy and reliability, especially when simplifying complex medical information [1)].

The review highlights the transformative potential of AI in simplifying PEMs and enhancing patient health literacy. However, limitations in the scope, depth, and evaluation criteria constrain its findings. While AI excels in readability and user satisfaction, challenges like accuracy, comprehensiveness, and ethical considerations demand further research and refinement. Addressing these gaps is essential for realizing the full potential of AI in medical education and patient care.

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