Artificial Intelligence in Cardiac Patient Education: A Systematic Review

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ABSTRACT

Introduction: The advent of artificial intelligence (AI) in healthcare has led to transformative changes in patient education, particularly for those with cardiac conditions. The application of AI in cardiac patient education is a burgeoning field that promises to enhance the efficacy of educational interventions and patient outcomes. This systematic review meticulously examines the role of AI in cardiac patient education, quantifying its impact on patient knowledge, healthcare delivery, and adherence to treatment regimens.

Search Strategy: An extensive literature search was performed across databases such as PubMed, EMBASE, and the Cochrane Library, yielding 75 studies that met the inclusion criteria. These studies were rigorously evaluated using the Jadad scale for randomized controlled trials and the Newcastle-Ottawa Scale for observational studies. Data were extracted on the AI technology employed, the educational content delivered, and the measurable outcomes reported.

Results: The reviewed studies implemented a variety of AI technologies, including machine learning algorithms (n = 45), natural language processing tools (n = 30), and intelligent tutoring systems (n = 25). These technologies significantly increased patient knowledge scores, with an average improvement of 47% post-intervention. Furthermore, AI-driven educational programs led to a 33% increase in medication adherence and a 29% rise in attendance for follow-up appointments. The personalized nature of AI education was highlighted as a critical factor in improving self-management skills, with a 40% increase in patients' ability to manage their condition effectively.

Conclusion and Discussion: AI is a pivotal innovation in cardiac patient education, offering tailored, dynamic, and interactive learning experiences that significantly improve patient engagement and health literacy. Integrating AI into educational strategies has markedly improved patient outcomes and healthcare efficiency. Continued research and development in this field are essential for refining these technologies and fully realizing their potential in clinical practice.

Keywords: Artificial Intelligence, Education, Knowledge

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