Role of Mobile Health in Improving Self-Care of Diabetic Patients: A Systematic Review

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ABSTRACT

Introduction: Diabetes is a common chronic metabolic disease that poses a significant global healthcare challenge. The International Diabetes Federation projects reported that 693 million people will experience diabetes by 2045. Given the serious complications and mortality associated with diabetes, it is essential to educate patients and promote self-care pratices. Mobile health technologies (mHealth) have become important tools in managing diabetes and supporting self-care. This study aimed to review how mHealth can assist diabetic patients in managing their self-care more effectively.

Search Strategy: We utilized PICO criteria to search various databases, including PubMed, Web of Science, Medline, Scopus, SID, and Google Scholar using the keywords "Mobile Health," "Self-Care," and "Diabetes" from 2015 to 2023. Two operators independently conducted searches using Boolean operators. After screening and conducting a quality appraisal, 128 articles were identified, of which 11 met the inclusion criteria.

Results: The results suggested that integrating AI-based mHealths into diabetes management programs has broadened their functionalities beyond monitoring blood glucose levels and HbA1c. These advanced software solutions have shown potential in promoting physical activity, reducing sedentary behavior, supporting short-term weight loss, assisting with insulin dose adjustments, educating users about diabetes complications, and facilitating data sharing with healthcare professionals for remote monitoring and care. One significant benefit of utilizing mHealths is their accessibility, with many programs being offered at no cost or requiring only a fixed or minimal subscription fee. Studies have indicated high adoption rates of mobile health interventions in underserved areas with limited access to healthcare providers and services. However, challenges and limitations linked to the use of mHealths have been recognized. These include the need for extensive data input, concerns about the security and privacy of personal information, potential erosion of patient trust, as well as issues regarding the accuracy and reliability of health information obtained through these platforms.

Conclusion and Discussion: As artificial intelligence (AI) continues to gain traction in healthcare, it is essential to educate providers on the operation of these tools. Emphasizing distance education for technological products can significantly reduce hospital costs. Expanding mobile health initiatives for primary prevention can help mitigate complications associated with diabetes. Although the use of AI remains limited, aligning research policies with technological advancements and fostering interdisciplinary health support is crucial.

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