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The effectiveness of mobile application interventions in improving medication adherence among patients with type 2 diabetes mellitus: a systematic review

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Abstract

Aim: Type 2 diabetes mellitus (T2DM) is a global health concern, and medication non-adherence contributes to poor glycaemic control and complications. Mobile applications are a potential strategy to improve adherence, but their effectiveness remains uncertain. This systematic review evaluates the effectiveness of mobile applications interventions in improving medication adherence in patients with T2DM. **Data Sources:** A comprehensive search of PubMed, Cochrane Library, and Scopus was conducted.

Study Selection: Studies included were English-language studies published in from 2013–2023. **Study quality** was assessed using the Mixed Method Appraisal Tool. **Results:** Seven clinical studies with 717 participants (median age 54.7 years) were included. All studies showed improvements in adherence, but only four reported statistically significant changes. Among these, three studies also showed significant reductions in haemoglobin A1c (HbA1c) levels, suggesting a positive clinical impact. The studies were generally of high quality. **Conclusion:** Mobile applications appear to improve medication adherence in T2DM patients compared to traditional care. However, the specific application features that enhance adherence are unclear due to variations in study designs and small sample sizes. Future research should focus on identifying key applications characteristics, improving usability, and ensuring cost-effectiveness to optimize patient outcomes. © 2025 Society of Hospital Pharmacists of Australia.

Author keywords

adherence; diabetes mellitus; mobile applications; systematic review; telemedicine

Indexed keywords

EMTREE drug terms

hemoglobin A1c; insulin; oral antidiabetic agent

EMTREE medical terms

adult; clinical effectiveness; clinical outcome; controlled study; data base; diabetic patient; English (language); female; human; male; medication compliance; non insulin dependent diabetes mellitus; patient compliance; quality control; randomized controlled trial (topic); Review; systematic review; telemedicine

Chemicals and CAS Registry Numbers

Unique identifiers assigned by the Chemical Abstracts Service (CAS) to ensure accurate identification and tracking of chemicals across scientific literature.

hemoglobin A1c

62572-11-6

insulin

9004-10-8