INPLASY

The Role of Artificial Intelligence Powered Platforms in Oral Health Education and Promotion: A Systematic Review and Meta-analysis

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ADMINISTRATIVE INFORMATION

INTRODUCTION

*R*eview question / Objective How do AI-powered platforms affect user engagement and knowledge retention?

Rationale This study aims to find important details about how digital tools help people from different backgrounds understand dental health better.

Condition being studied Improvement of knowledge, attitudes, and practices related to oral health among different populations (e.g., caregivers, dental students, patients).

METHODS

Search strategy The search strategy used in the article involved a systematic approach to identify relevant literature on the impact of AI-powered platforms in oral health education. from PubMed Cumulative Index for Nursing and Allied Health Literature (CINAHL)

Cochrane Library
Google Scholar
Medline
Web of Science.

Participant or population Dental patients, students.

Intervention Artificial intelligence-powered platforms.

Comparator Traditional educational platforms.

Study designs to be included Cross-Sectional Studies:,Experimental Studies, Pilot Studies:Initial studies.

Eligibility criteria The research examined how AI educational tools help different groups of people understand oral health better. We chose articles that matched our modified PICO criteria.

Information sources PubMed, Cochrane, Dimensions.ai, and Google Scholar.

Main outcome(s) AI-powered platforms, such as ChatGPT-4 and chatbots, significantly enhanced knowledge retention among dental students, caregivers, and patients.

Additional outcome(s) AI tools, such as chatbots and smartphone apps, empowered patients and caregivers by providing 24/7 access to personalized oral health guidance.

Data management
Microsoft Excel (Excel 365;
Microsoft Corp., Redmond, WA, USA). For export and data manipulation, Google Sheets (Alphabet Inc., Mountain View, CA, USA) were also used.

Quality assessment / Risk of bias analysis Two researchers independently assessed the risk of bias of the included articles using —JBI critical appraisal tools. The potential risk of bias was categorized as low if a study provided detailed information pertaining to 70% or more of the applicable parameters.

Strategy of data synthesis Two review authors (RS and JH) used the studies to help select studies and document their decisions. This was done in two stages, with the first stage consisting of a title and abstract screening of all studies against the inclusion criteria, and the second stage being a full text assessment of papers that were deemed potentially relevant based on the initial screening. RS and AK, the review's authors, discussed and settled their differences by consensus after consulting the procedure.

Subgroup analysis The data was compiled from a variety of articles:
• Author(s), year of publication, country, study design.
• Total number of patients/datasets.
• Training/validation datasets.
• Test datasets.
• Aim of the study.

Sensitivity analysis None.

Language restriction Articles only in English were Selected.

Country(ies) involved Saudi Arabia.

Keywords Artificial Intelligence; Oral Health; Education; Awareness; Literacy.

Dissemination plans Data will be shared after the publication.

Contributions of each author
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