

INPLASY

Impact of mHealth and eHealth on Oral Health Literacy: A Systematic Review and Meta-analysis

INPLASY202510073

doi: 10.37766/inplasy2025.1.0073

Received: 19 January 2025

Published: 19 January 2025

Saini, R; Gurumurthy, V; Chopra, S; Okshah, A; Binduhayyim, R; Assiri, Y; Heboyan, A.

Corresponding author:

Ravinder Saini

rsaini@kku.edu.sa

Author Affiliation:

KING KHALID UNIVERSITY.

ADMINISTRATIVE INFORMATION

Support - King Khalid University.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202510073

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 19 January 2025 and was last updated on 19 January 2025.

INTRODUCTION

Review question / Objective • What is the impact of eHealth platforms on patient-provider interaction and access to oral healthcare?

• Does mHealth intervention influence oral health literacy and preventive behaviours?

Rationale This paper reviews the use of mHealth and eHealth interventions for improving oral health literacy, specifically in terms of how they promote knowledge, practice and awareness in different populations, including caregivers, patients and dental professionals. It will fill the gap that exists in the delivery of technology-based training and practice in oralhealthcare.

Condition being studied Oral Hygiene Practices; Dental Caries Prevention; Periodontal Health; Improving knowledge and practices to prevent gum diseases; Patient Communication and Compliance; Access to Oral Healthcare.

METHODS

Search strategy The search involved an extensive electronic database search (through PubMed, Cumulative Index to Nursing and Allied Health Literature (CINAHL), ScienceDirect, IEEE Xplore, Dimensions, and Cochrane Library) to identify new research on the impact of mHealth and eHealth on oral health literacy.

Participant or population The broader public, which includes patients, carers, and professionals who use eHealth or mHealth for learning.

Intervention Text messaging, smartphone apps, digital health, teledentistry, virtual reality, artificial intelligence.

Comparator The broader public, which includes patients, carers, and professionals who use eHealth or mHealth for learning.

Study designs to be included RCT, Non randomised studies, cross over trials.

Eligibility criteria General population, including caregivers, patients, and healthcare professionals using mHealth or eHealth tools for oral health education and literacy. Dental students and professionals involved in education or skill enhancement through eHealth and mHealth interventions.

Information sources

PubMed:

For peer-reviewed biomedical and life sciences literature.

CINAHL (Cumulative Index to Nursing and Allied Health Literature):

To include studies focusing on nursing and allied health perspectives on oral health literacy. ScienceDirect:

For a broad range of scientific and technical research articles.

IEEE Xplore:

To include studies related to technological applications, such as virtual reality and mobile health tools.

Dimensions:

For an interdisciplinary collection of research articles and data.

Main outcome(s) Oral health literacy.

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. 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 (AM and RB) 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 Oral health; Literacy, mHealth, eHealth.

Dissemination plans Data will be shared after the publication.

Contributions of each author

Author 1 - Ravinder Saini - Conceptualization.

Email: rsaini@kku.edu.sa

Author 2 - Vishwanath Gurusurthy - Methodology.

Email: vgurusurthy@kku.edu.sa

Author 3 - Shubham Chopra - Formal Analysis.

Email: shubham14327chopra@gmail.com

Author 4 - Abdulmajeed Okshah - Investigation and resources.

Email: okshah@kku.edu.sa

Author 5 - Ryan Binduhayyim - Review and Editing.

Email: rihan@kku.edu.sa

Author 6 - Yahya Assiri - Writing Draft.

Email: yhasseri@kku.edu.sa

Author 7 - Artak Heboyan - Project Administration.

Email: heboyan.artak@gmail.com