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Comparing AI with traditional methods ln oral hygiene education of dental patients

Submission date
10/05/2026

Recruitment status
No longer recruiting

Registration date
22/05/2026

Overall study status
Completed

Last Edited
18/05/2026

Condition category
Oral Health

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

Plain English summary of protocol
Background and study aims
Artificial intelligence (AI) is rapidly transforming dentistry by enhancing diagnostic accuracy, efficiency, and patient care. Effective communication between clinicians and patients improves understanding and outcomes, yet verbal explanations by dental students may sometimes be inadequate. Chatbots such as ChatGPT can simplify complex information and enhance patient comprehension and satisfaction.
This study aims to evaluate the effectiveness of artificial intelligence in improving patients' understanding and retention of oral hygiene instructions compared to conventional verbal explanations.

Who can participate?
Adults aged 18 years and older who attend Umm Al-Qura University Dental Hospital in Makkah, Saudi Arabia, are able to understand Arabic and are willing to provide written informed consent can participate in this study.

What does the study involve?
Participants will be randomly assigned to receive oral hygiene instructions either using ChatGPT-assisted educational material or conventional verbal instruction. They will complete a questionnaire before and immediately after the session.

What are the possible benefits and risks of participating?
The benefits are improvement of oral hygiene knowledge. No significant risks.

Where is the study run from?
Faculty of Dental Medicine, Umm Al-Qura University, and Umm Al-Qura University Dental Hospital in Makkah, Saudi Arabia.

When is the study starting and how long is it expected to run for?
November 2025 to March 2026

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Dr Shahinaz Sembawa, snsimbawa@uqu.edu.sa

Contact information

Type(s)
Public, Scientific, Principal investigator

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Additional identifiers

Study information

Scientific Title
Effectiveness of utilizing artificial intelligence in improving oral hygiene knowledge in dental patients: a randomized controlled trial

Study objectives
To evaluate the effectiveness of artificial intelligence in improving patients' understanding and retention of oral hygiene instructions compared to conventional verbal explanations.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 20/11/2025, Biomedical Research Ethics Committee (Faculty of Dental Medicine Umm Al-Qura University Alabdeyah, Makkah, 24381, Saudi Arabia; +966 (0)125280347; cscenter@uqu.edu.sa), ref: HAPO-02-K-012-2025-11-3007

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Blinded (masking used)

Control
Active

Assignment
Parallel

Purpose
Prevention

Study type(s)

Health condition(s) or problem(s) studied
Oral hygiene knowledge

Interventions
Participants will be randomly allocated using simple randomization into two groups (61 participants per group). Each participant drew a concealed paper slip indicating group assignment from a container. The intervention group will receive oral hygiene instructions delivered with the assistance of ChatGPT, using an educational video that has been prepared in advance and reviewed by experts for accuracy. The control group will receive conventional verbal oral hygiene instructions delivered by trained dental students. Participants' oral hygiene knowledge will be assessed at baseline and immediately after the intervention using a structured 12-item questionnaire. The primary outcome will be the change in oral hygiene knowledge scores between the two groups.

Intervention Type
Behavioural

Primary outcome(s)
1. Oral hygiene knowledge measured using Questionnaire at baseline and immediately after intervention

Key secondary outcome(s)

Completion date
29/03/2026

Eligibility

Key inclusion criteria
1. Patients ≥18 years old
2. Attending Umm Al-Qura University Dental Hospital in Makkah
3. Could understand Arabic
4. Provided written informed consent

Healthy volunteers allowed
Yes

Age group
Mixed

Lower age limit
18 Years

Upper age limit
80 Years

Sex
All

Total final enrolment
122

Key exclusion criteria
1. Patients under 18 years of age
2. Those who could not understand Arabic

Date of first enrolment
24/11/2025

Date of final enrolment
29/03/2026

Locations

Countries of recruitment
Saudi Arabia

Sponsor information

Organisation
Umm al-Qura University

ROR
https://ror.org/01xjqrm90

Funder(s)

Funder type

Funder Name
Investigator initiated and funded

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available