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Helping young children keep their teeth healthy: a study comparing hands-on demonstrations and video lessons for teaching toothbrushing to children aged 3 to 5 years

Submission date
06/04/2026

Recruitment status
No longer recruiting

Registration date
13/04/2026

Overall study status
Completed

Last Edited
08/06/2026

Condition category
Oral Health

[_] Prospectively registered
[X] Protocol
[X] Statistical analysis plan
[X] Results
[_] Individual participant data

Plain English summary of protocol

Background and study aims
Good toothbrushing habits in early childhood can help prevent cavities and gum problems later in life. However, young children need clear and engaging teaching to learn how to look after their teeth. This study aims to find out which teaching method works better for children aged 3 to 5 years: showing them how to brush their teeth using a physical model, or teaching them through educational videos. The study also looks at whether these methods improve children's toothbrushing habits and reduce the number of new cavities they develop.

Who can participate?
Children aged 3 to 5 years who attend kindergarten can take part if their parents agree to their participation. Children must be generally healthy, able to cooperate with the researchers, and have no hearing or vision problems. At least one parent needs to be able to read and write so they can complete questionnaires.

What does the study involve?
Parents are asked to complete a questionnaire about their child's toothbrushing habits. A dentist then checks each child's teeth and gums using a simple mouth examination. Children are placed into one of three groups by chance. One group is taught how to brush their teeth using a large tooth model, another group watches educational videos about toothbrushing, and a third group does not receive any extra teaching. Six months later, the questionnaires and dental checks are repeated to see if there have been any changes.

What are the possible benefits and risks of participating?
There are no known risks or side effects from taking part in this study. Children may benefit by learning better ways to clean their teeth, which can help keep their mouths healthy. Parents may also gain useful knowledge about how to support their child's oral health.

Where is the study run from?
The study is run by the Department of Pediatric Dentistry at Altınbaş University in Istanbul, Türkiye, and takes place in local kindergartens.

When is the study starting and how long is it expected to run for?
March 2022 to June 2023.

Who is funding the study?
Investigator initiated and funded

Who is the main contact?
Dr Elif Ayşe Tamtekin Erdoğan, elif.tamtekin@uskudar.edu.tr

Contact information

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Principal investigator, Scientific, Public

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Study information

Scientific Title
Comparison of model demonstration and video-based education methods on oral hygiene practices and caries incidence in 3–5-year-old children: a randomized controlled trial

Study objectives
The aim of this study is to evaluate the oral and dental health status of children aged 3-5, to examine their behaviors regarding dental health, and to improve their existing oral care habits using model and video training methods and compare these methods.

Ethics approval required
Ethics approval required

Ethics approval(s)
Approved 02/09/2022, Altınbas University Clinical Research Ethics Committee (Altınbas Universitry Deparment of Pediatric Dentistry İncirli Cad., No:11B, Bakırköy, İstanbul, Istanbul, 34147, Türkiye; (0 212) 709 45 28; etikkurul@altinbas.edu.tr), ref: 2022/140

Primary study design
Interventional

Allocation
Randomized controlled trial

Masking
Open (masking not used)

Control
Active

Assignment
Single

Purpose
Treatment

Study type(s)

Health condition(s) or problem(s) studied
Dental caries, oral hygiene, early childhood caries

Interventions
This study was carried out on 282 children aged 3-5, randomized into 3 groups, attending six private kindergartens affiliated to the Kartal, Pendik, Tuzla District Directorate of National Education in Istanbul. Firstly, a survey was administered to parents to learn their knowledge about their children's oral and dental health. Intraoral examinations were performed on all children, and their dental and gingival health status was examined using ICDAS II, plaque and gingival indices. After six months; 1st group was trained with the model method, 2nd group was trained with the video method, and 3rd group was determined as control group and was not trained. Six months later, parent surveys and intraoral examinations were conducted again and changes and gains in children's oral and dental health knowledge were evaluated.

Participants were randomized using a sealed envelope method. Allocation sequences were prepared in advance and placed in opaque, sealed envelopes to ensure allocation concealment.

Intervention Type
Behavioural

Primary outcome(s)
1. Oral hygiene habits measured using Parental questionnaire assessing children’s oral hygiene practices at Baseline (November 2022), 6 months post-education (June 2023)

2. Dental caries incidence measured using International Caries Detection and Assessment System II (ICDAS II) clinical oral examination at Baseline (November 2022), 6 months post-education (June 2023)

3. Dental plaque accumulation measured using Plaque index assessed through clinical intraoral examination at Baseline (November 2022), 6 months post-education (June 2023)

4. Gingival health measured using Gingival index assessed through clinical intraoral examination at Baseline (November 2022), 6 months post-education (June 2023)

5. Overall oral health knowledge and clinical status measured using Survey responses and clinical examination results at Baseline (November 2022), 6 months post-education (June 2023)

Key secondary outcome(s)

Completion date
23/06/2023

Eligibility

Key inclusion criteria
1. Children aged 3 to 5 years who attend kindergarten and whose parents have provided informed consent
2. Children with at least one literate parent

3. Children with whom cooperation can be established
4. Children without any hearing or visual impairments
5. Children who are systemically healthy, meaning they do not have any long-term medical conditions affecting their general health
6. Children who did not undergo any dental procedures during the study period
7. Children who remained enrolled in the same school for the entire duration of the research period

Healthy volunteers allowed
Yes

Age group
Child

Lower age limit
3 Years

Upper age limit
5 Years

Sex
All

Total final enrolment
282

Key exclusion criteria
1. Children whose parents did not provide informed consent
2. Children with no literate parent
3. Children with whom cooperation could not be established
4. Children with visual or hearing impairments
5. Children who are not systemically healthy
6. Children who underwent any dental procedures during the study period
7. Children who left the school during the research period

Date of first enrolment
02/03/2022

Date of final enrolment
28/10/2022

Locations

Countries of recruitment
Türkiye

Sponsor information

Organisation
Üsküdar University Faculty of Dentistry

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

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article		06/06/2026	08/06/2026	Yes	No
Other files	Consent forms		09/04/2026	No	No
Protocol file	version 1.0	01/10/2022	09/04/2026	No	No
Statistical Analysis Plan			09/04/2026	No	No