

The effect of white and pink noise on dental anxiety in children during dental treatment

Submission date 08/07/2025	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
Registration date 28/07/2025	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan <input type="checkbox"/> Results
Last Edited 28/07/2025	Condition category Oral Health	<input type="checkbox"/> Individual participant data <input checked="" type="checkbox"/> Record updated in last year

Plain English summary of protocol

Background and study aims

This study aims :

1. To compare the effectiveness of white noise and pink noise in reducing dental anxiety
2. To determine whether white or pink noise is more beneficial in calming children during dental procedures
3. To assess the potential of using sound therapy as a non-pharmacological method for anxiety management in pediatric dentistry

Who can participate?

Children aged 6–9 years receiving dental care (pulpotomy) at the Faculty of Dentistry, Damascus University

What does the study involve?

Before treatment, anxiety levels were evaluated by asking the child to select the face that best represented their emotional state. Baseline pulse rate was also recorded. Headphones were placed on the child for 10 minutes before the start of treatment, connected to a mobile phone playing a randomly assigned audio track (white or pink noise). Pulse rate was recorded again after 10 minutes of exposure to the sound.

The pulpotomy was performed using the standard technique. Anxiety levels and pulse readings were recorded again after anesthesia, after rubber dam placement, during pulp chamber access, and at the end of treatment and restoration.

What are the possible benefits and risks of participating?

Participating in the study may help reduce dental anxiety in children by introducing calming auditory stimuli (white or pink noise) during treatment. This could lead to a more comfortable experience for the child and may contribute to improved cooperation and better treatment outcomes.

There are minimal risks involved; the use of white and pink noise is non-invasive and safe. However, some children may find certain sounds unfamiliar or mildly irritating, and they are free to withdraw from the study at any time if discomfort occurs.

Where is the study run from?
Damascus University (Syria)

When is the study starting and how long is it expected to run for?
27/05/2024 and will run for six months

Who is funding the study?
Damascus University (Syria)

Who is the main contact?
Dr Dana Araman, danaaraman15@gmail.com

Contact information

Type(s)

Public, Scientific, Principal investigator

Contact name

Dr Dana Araman

Contact details

Mazzeh

Damascus

Syria

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+963 (0)997215631

danaaraman15@gmail.com

Additional identifiers

Protocol serial number

3551

Study information

Scientific Title

The effect of white and pink noise on dental anxiety among children aged 6-9 years during pulpotomy procedure: a randomized controlled clinical study

Study objectives

The study aims to determine which type of auditory stimulus is more effective in creating a calming effect during dental treatment therapy, improving the overall patient experience and cooperation

Ethics approval required

Ethics approval not required

Ethics approval(s)

Study design

Randomized controlled clinical study

Primary study design

Interventional

Study type(s)

Efficacy

Health condition(s) or problem(s) studied

Dental anxiety in children during pulpotomy

Interventions

Three groups: white noise, pink noise and control group

Before treatment, anxiety levels were evaluated using the facial image scale (FIS) by asking the child to select the face that best represented their emotional state. Baseline pulse rate was also recorded. Headphones were placed on the child for 10 minutes prior to the start of treatment, connected to a mobile phone playing a randomly assigned audio track (white or pink noise). Pulse rate was recorded again after 10 minutes of exposure to the sound.

The pulpotomy was performed using the standard technique in accordance with the American Academy of Pediatric Dentistry (AAPD) guidelines. Inferior alveolar nerve block anesthesia was administered. FIS and pulse readings were recorded again post-anesthesia, after rubber dam placement, during pulp chamber access, and at the end of treatment and restoration.

Intervention Type

Other

Primary outcome(s)

1. Anxiety measured using facial image scale at T0 = before starting the work, T1 = immediately after anesthesia and T2 = after the procedure is completed
2. Anxiety measured using pulse rate at T0 = before starting work, T1 = after 10 minutes of listening to music, T2 = immediately after anesthesia, T3 = when installing the rubber dam, T4 = when opening the pulp cavity, T5 = after the procedure is completed

Key secondary outcome(s)

There are no secondary outcome measures

Completion date

01/12/2024

Eligibility

Key inclusion criteria

1. Children aged 6–9 years
2. With or without previous dental experience
3. Mandibular molars requiring pulpotomy

Participant type(s)

Patient

Healthy volunteers allowed

No

Age group

Child

Lower age limit

6 years

Upper age limit

9 years

Sex

All

Total final enrolment

75

Key exclusion criteria

1. Children with systemic, mental, or auditory disorders
2. Children who dislike listening to music

Date of first enrolment

01/10/2024

Date of final enrolment

01/12/2024

Locations

Countries of recruitment

Syria

Study participating centre

Damascus University

Syria

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Sponsor information

Organisation

Damascus University

ROR

<https://ror.org/03m098d13>

Funder(s)

Funder type

University/education

Funder Name

Damascus University

Alternative Name(s)

University of Damascus, , DU

Funding Body Type

Government organisation

Funding Body Subtype

Universities (academic only)

Location

Syria

Results and Publications

Individual participant data (IPD) sharing plan

The datasets generated during the current study will be available upon request at a later date

IPD sharing plan summary

Available on request, Data sharing statement to be made available at a later date