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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

Registration date
28/07/2025

Overall study status
Completed

Last Edited
28/07/2025

Condition category
Oral Health

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[ ] Results
[ ] Individual participant data
[ ] 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
-
+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)

Primary study design
Interventional

Study design
Randomized controlled clinical study

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
-

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