

Comparison of two alternative techniques: Audio distraction and white noise for the control and management of anxious paediatric dental patients.

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BACKGROUND

Assessment of procedural distress is essential while treating children. Anxiety can be measured by subjective and objective methods. It has been shown that galvanic skin response is an extremely accurate objective method & has been used to measure dental anxiety. The subjective nature of anxiety has often made its measurement difficult (Guinot Jimeno et al., 2011), (Diana Galamb et al., 2017). Audio and white noise can be used to distract the children during dental procedures.

AIM

To compare two non-aversive techniques: audio distraction & white noise as evaluated by Galvanic skin response, heart rate, and oxygen saturation during a dental procedure.

MATERIAL AND METHOD

- 60 Children aged between 4 to 8 with no previous LA (infiltration) exposure were selected.
- They were divided into three groups of 20 children each:
 - Group 1- (n=20) control group - no distraction method used.
 - Group 2- (n=20) made to listen audio using headphones.
 - Group 3- (n=20) made to listen white noise by headphones.
- Simultaneously, local anaesthesia was delivered in all groups via infiltration technique.
- Anxiety was measured by using galvanic skin response, heart rate, and oxygen saturation in all the groups.

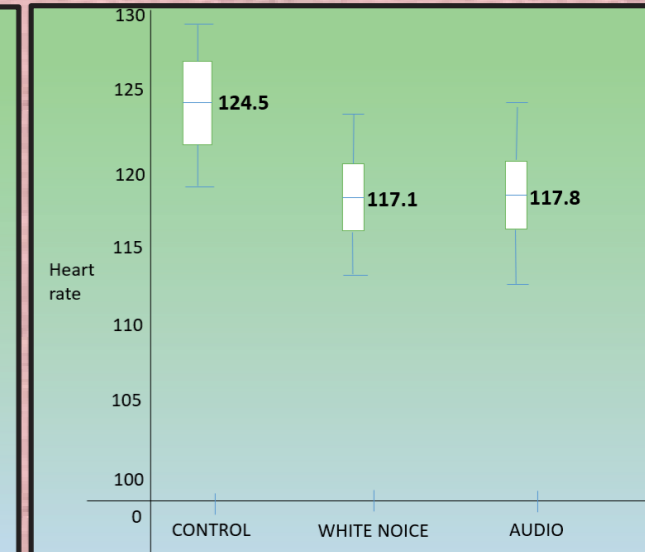
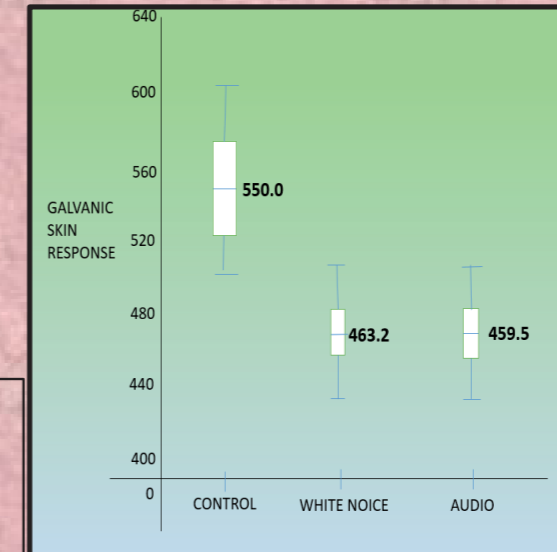


White noise

- Power spectral density is constant
- Equal intensity per frequency interval.
- 20- 20,000 Hz
- Ex-hissing sound, waterfall sound

HOW DOES GSR WORK?

Galvanic skin response is a method of measuring the electrical conductivity of the skin. Strong emotion can cause stimulus to the sympathetic nervous system, resulting in more sweat being secreted by the sweat glands. Galvanic skin response allows the identification of strong emotions by simply attaching two electrodes to two fingers on one hand.



DISCUSSION

Local anaesthesia is the most fearful and anxiety-provoking procedure in paediatric dentistry. Some authors suggest that 4-6 and 6-8 years revealed equal anxiety levels. Audio distraction is the most used relaxation method to distract the children during procedures. Heart rate, according to McCarthy, 1957, acts as a reliable indicator of stress and anxiety. Galvanic skin response can be used as a valid and reliable objective indicator of children's anxiety (Ebrahim Najafpour et al., 2017). Pulse oximeter, measuring the pulse rate and oxygen saturation, is the most acceptable method to measure physiological changes.

RESULT

A statistically significant difference ($p < 0.05$) was observed between the control group and both distraction groups. No significant difference was reported between the audio distraction and white noise groups.

CONCLUSION

Distraction techniques of choice could be an effective method in reducing a child's dental anxiety. Audio and white noise are equally effective in reducing anxiety in children.

References:

- Kavitha Ramar et al (2015), effect of audioanalgesia in 6-to 12-year old children during dental treatment procedure, The journal of contemporary dental practice ,17(12),1013-1015.
Ebrahim Najafpour et al (2017), Can galvanic skin conductance be used as an objective indicator of children's anxiety in the dental setting?, J Clin EXP DENT ,9(3): e377-e383.