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Original Research

Impact of Various Distraction Techniques on Children's Behavior Undergoing Restorative Treatment: A Randomized Clinical Trial

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ABSTRACT:
Aim: The research investigation sought to investigate the effects of hearing music exclusively through headphones and seeing filmed cartoons as audiovisual (AV) distraction methods on behavior and anxiety among children undergoing dental restorative procedure.**Materials and methods:**45 patients between the ages of 5 and 10 who needed restoration and satisfied the study's requirements were randomized to one of three groups: the control group without distraction (C-group), theaudio distraction group (A-group), or the audio-visual distraction group (AV-group). Utilizing the Chotta Bheem–Chutki Scale, anxiety levels are measured both before and after treatment. Tuckey's post-hoc test and one-way ANOVA were used to analyze the data. A statistically significant p-value was defined as less than 0.05. **Results:**The Chotta Bheem-Chutki scale was considerably lower in the AV-group than in the A- and C-groups. **Conclusion:** AV distraction appears to be a useful technique for lowering children's fear and anxiety during dental procedures. As a result, AV-distraction appears to be a helpful technique for reducing dental anxiety and discomfort during procedures.
Keywords: Pediatric dental anxiety, Audio distraction, Audio visual (AV) distraction

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INTRODUCTION

Children frequently experience anxiety regarding their teeth, which can result in recalcitrant behavior, longer procedure times, and general anguish for both the kid and the dentist. Preserving good oral health and having a nice dental experience depend on controlling this fear. Pharmacological therapies are one of the conventional ways of managing anxiousness in dental clinics. While they are useful, they also have hazards and adverse consequences.[1,2]

In order to help a youngster with nervousness into a cooperative patient, a dentist must handle and manage the issue which the youngster describes, and to instruct the kid in suitable stress management techniques. A broad range of strategies, including tell-show-do, relaxation, diversion, systematic desensitization, modeling, audio analgesia, hypnosis, and behavior rehearsal, are accessible by doctors to help managing children with anxiety.[3] The conventional method behavioral modification methods like the hand-over-mouth technique and the papoose board can be effective among all of these strategies, but parents' and dental professionals' attitudes toward them are shifting, and non-aversive methods like distraction are now gaining interest.[4]Non-pharmaceutical in nature methods have attracted attention due to their simplicity and effectiveness. In order to reduce anxiety among kids

during restorative treatments, this study focuses on two such strategies i.e.; audio and AV distractions. While AV distraction includes viewing cartoons on video, audio-distraction entails the child listening to music according to age. By distracting the youngster from the dental operation, these techniques hope to lessen their fear.[5,6]

Thus, the purpose of this study was to assess and contrast the various distraction methods during the restorative treatment on children's behavior.

MATERIALS AND METHODS

45 patients, both male and female, between the ages of 5 and 10, who needed restorations and had no previous experience of severe dental anxiety, were recruited for the study. Children who had a history of dental injuries, hearing or vision impairments, or mental illnesses that could have affected their anxiety measuring results were not allowed to participate in the study. Following their enrolment in the study, the participants were randomly assigned to three groups of fifteen each based on inclusion and exclusion criteria.

The C-group served as the distraction-free control group; the restorative operation was carried out in a typical dental environment without any extraneous stimulation.

A-group incorporates audio distraction (music played on headphones): Throughout the process, kids listened to relaxing, appropriately developmental music on headphones.

The audio-visual distraction (viewing filmed cartoons) is part of the AV-group. On a screen in front of the dentist chair, kids viewed animated cartoons.

In order to determine alterations in anxiety, the Chotta Bheem–Chutki Scale was utilized to monitor anxiety levels prior to and subsequent to the restoration (Figure 1). The Department of Pedodontics at Sri Guru Ram Das Institute of Dental Sciences and Research in Amritsar created the recently created Chotta Bheem–Chutki Scale. There are two distinct cards on this scale: one for females and one for boys. An animated figure named Chotta Bheem was selected to represent a range of emotions for boys, while Chutki was selected to represent a range of emotions for girls. Each card features six figures that represent the cartoon character's range of emotions, from joyful to dissatisfied. Youngsters were asked to select the face they most immediately associated with. A pleased face received a score of one on the scale, while a sad face and running received a score of six.

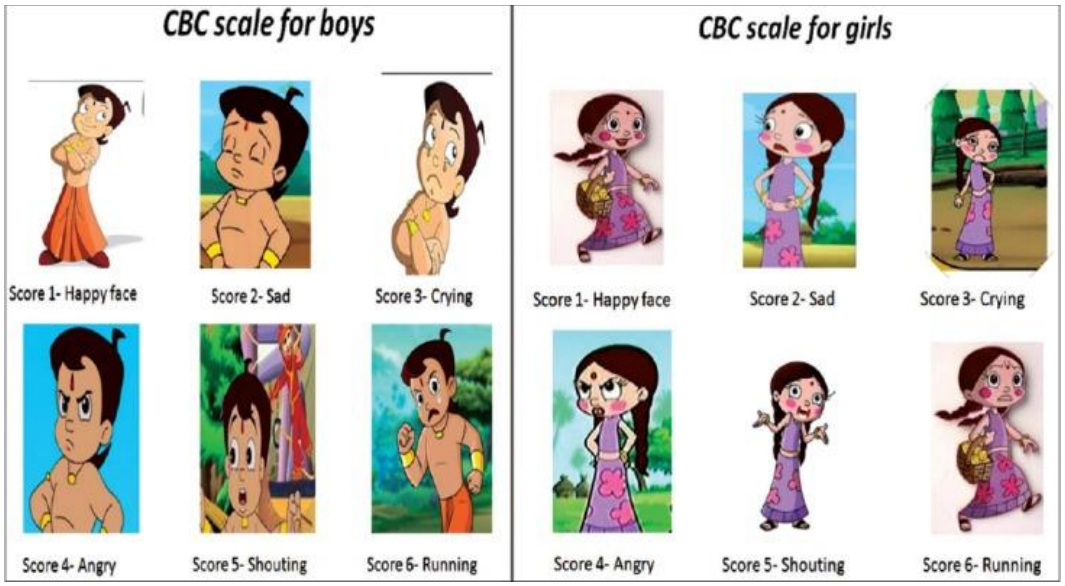

Figure 1: Chotta Bheem–Chutki Scale

All restorative procedures were carried out by skilled pediatric dentists, who made every effort to maintain a uniform duration and level of involvement for each group. The Chotta Bheem–Chutki Scale was used to reassess anxiety levels after the surgery.

Version 23 of the SPSS software was used to analyze the data. The groups' anxiety levels before and after the interventions were compared using a one-way ANOVA test. To compare pairs in depth, a post hoc Tukey's test was used. A difference was considered significant if "p" was less than 0.05.

RESULT

Anxiety levels in both the auditory and audio-visual groups decreased statistically significantly from before to after treatment, according to Table 1. Interestingly, the group that had audio-visual distraction showed the most decrease in anxiety.

The mean anxiety score was compared between the three groups in Table 2, which showed a statistically significant difference ($p < 0.05$).

Table 1: Comparison of pre- and post-treatment Chotta Bheem–Chutki Scale score

Group	Mean pre-treatment score	Mean post-treatment score	p value
C-group	1.33±0.97	2.98±0.88	>0.05 (NS)
A-group	1.78±0.89	1.15±0.43	<0.05*
AV-group	2.00±0.98	1.00±0.22	<0.05*
F value	4.23±0.65	2.45±0.12	

*Significant, NS-Nonsignificant

Table 2: Inter-group comparison of mean anxiety score

Groups	p value
C-group vs A-group	< 0.05*
C-group vs AV-group	< 0.05*
A-group vs AV-group	< 0.05*

DISCUSSION

The clinical trial's findings highlight the effectiveness of audio and audio-visual distraction strategies in reducing pediatric patients' anxiety during dental operations, particularly restorations. The intervention groups' notable decrease in anxiety levels is consistent with research supporting the use of distraction strategies to improve patient comfort and cooperation in dentistry and medical settings.[7]

The audiovisual distraction group showed the most decrease in anxiety, indicating that the mix of visual and auditory stimuli creates a more engaging experience that effectively distracts the kids from the dental operation. Cartoons' captivating qualities, which probably better convey the kids' emotional and cognitive involvement than auditory stimuli alone, are responsible for this conclusion.[8]

Though not as much as the audiovisual group, the auditory distraction group also showed a significant drop in anxiety. This decrease may be explained by the relaxing and soothing effects of music. The effects seen in this study may be explained by the fact that music has been demonstrated to alter physiological reactions to stress.[9]

The practice of pediatric dentistry may be significantly impacted by the use of various distraction strategies. Young patients who experience less anxiety may behave more cooperatively, which will make dental operations easier for both the kids and the professionals. Because less time is spent addressing anxiety-related interruptions, this can lead to a more effective workflow and possibly shorten the course of treatment.[10]

Furthermore, non-pharmacological therapies like these are better because of their cost-effectiveness, simplicity of use, and safety record. These kinds of methods are easily incorporated into clinical practice without requiring extra specific equipment or training.[11]

According to the study's limitations, the 45-child sample size may not accurately reflect the diverse pediatric population, even though it is sufficient for preliminary results. In order to guarantee the generalizability of the findings, future studies should strive to incorporate a larger and more diverse sample. Furthermore, this study only looked at restorative procedures. To ascertain these distraction strategies' wider usefulness, more research should examine how well they work for various dental treatments.

CONCLUSION

All things considered, the results support the effectiveness of auditory and audio-visual diversions in lowering dental fear in children. Dental offices can think about implementing these strategies to improve the patient experience, as audio-visual distractions have been found to be the most successful method. In order to improve children dental care and encourage healthy oral habits from an early age, it will be crucial to keep researching and improving distraction techniques.

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