

Effectiveness and Comparison of Various Audio Distraction Aids in Management of Anxious Dental Paediatric Patients

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ABSTRACT

Introduction: The child's uncooperative behavior due to dental anxiety may restrain the effective delivery of dental care that may compromise the quality of treatment provided. Thus, the present study was commenced to evaluate and compare audio distraction aids in management of apprehensive pediatric patients in dental clinics.

Material and Methods: The present interventional prospective study comprised of 45 subjects selected randomly in the age group of 5-12 years visiting first time for the dental treatment. The study compared anxiety pre and post-treatment among patients with audio distraction aids of their interest, audio distraction aids without asking their choice and control group without any distraction aids. Venham's Anxiety Scale and Pulse rate were used to assess child's anxiety level pre and post treatment. Data so obtained were analyzed using SPSS-version 22 and statistical analysis was carried out using Chi-square test with p value <0.05 as significant value.

Results: The difference in post-treatment anxiety was found to be significant in group I and II with $p < 0.05$. The difference in the pulse rate in group I was significant with $p < 0.05$ and was insignificant in group II and control group.

Conclusion: Anxiety or fear of dental treatment is an important factor that results in avoidance of treatment. The present study found a significant difference among study group and control group and thus concludes that managing pediatric patients with audio distraction aids of their choice is an effective method for comfortable handling of these patients in dental clinics.

Keywords: Audio distraction; Anxiety; Pedodontics

INTRODUCTION

Dental anxiety among pediatric patients is a great challenge posed to every dentist in everyday dental practice. The child's uncooperative behavior may restrain the effective delivery of dental care that may compromise the quality of treatment provided.¹ Behaviour management techniques are meant to reduce the need for excessive and unsafe use of medications. There is evidence to indicate that an integration of good behavioural techniques leads to better results, lessened drug requirements, greater patient safety and reduced side-effects. The present trend advocates the use of techniques that diverts the patient's attention from unpleasant situation.² The success of distraction technique in medical settings and in adult patients is well recognized, but literature reports sparse data to assess the efficacy of distraction methodology in pediatric dental patient.³ Thus, the present study was commenced to evaluate and compare audio distraction aids in management of apprehensive pediatric patients in dental clinics.

MATERIAL AND METHODS

The present interventional prospective study comprised of 45 subjects selected randomly in the age group of 5-12 years visiting first time for the dental treatment. Study was conducted after ethical approval and voluntary informed consent. The study group I comprised of 15 pediatric patients who were given audio distraction aids of their choice i.e. either nursery rhymes or latest songs (regional/bollywood) or audio stories according to their preference. The study group II comprised of 15 pediatric patients who were given audio distraction aids without asking their choice i.e. either nursery rhymes or latest songs (regional/bollywood) or audio stories randomly. The control group comprised of 15 patients who underwent pediatric treatment without any distraction aids. This study was approved by ethical committee of the institute and written informed consent was obtained from children and their guardians before commencement of the study. Venham's Anxiety Scale^{2,4} was used to evaluate child's anxiety level pre and post treatment. Pulse rate was recorded using pulse oximeter which was used for physiological assessment of child's anxiety level pre and post treatment.

STATISTICAL ANALYSIS

Data so obtained were analyzed using SPSS-version 22 and statistical analysis was carried out using Chi-square test with p value <0.05 as significant value.

RESULTS

A total of 45 subjects were enrolled for the study, out of which 37 showed anxiety for the dental treatment. The mean reported pre-treatment anxiety score for the audiovisual group I was 4.34 ± 1.36 , for study group II was 4.32 ± 1.22 and for the control group was 4.89 ± 2.04 . The difference between these scores was not significant with $p > 0.05$. The mean value of anxiety found post treatment for the audiovisual group I was 1.64 ± 1.21 , for the audiovisual group

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Score	
0	Relaxed, smiling, willing and able to communicate
1	Uneasy, concerned, indicates discomfort. Hands shows discomfort signals. Child agreeable and able to interpret experience as requested. Tense facial expression, may have tears in eyes.
2	Child appears scared. Tone of voice, questions and answers reflect anxiety. During stressful procedure, child protests verbally and cries. Child interprets situation and copes with his/her anxiety.
3	Shows unwillingness to enter situation. Pronounced verbal protest, crying. Try to stop procedure with his/her hands.
4	Anxiety interferes with ability to assess situation. General crying not related to treatment.
5	Child out of contact as he/she actually feels threat. General loud crying and do not listen to verbal communication. Physical restraint required.

Table-1: Venham's anxiety rating scale

Variables	Audiovisual group I with music of pediatric patient choice			Audiovisual group II with music without asking patient's choice			Control group		
	Pre-treatment	Post treatment	P value	Pre-treatment	Post treatment	P value	Pre-treatment	Post treatment	P value
Anxiety Scale Score	4.34 ±1.36	1.64±1.21	< 0.05.	4.32 ±1.22	2.79±1.04	< 0.05.	4.89±2.04.	3.94±1.58	>0.05.
Pulse rate	96 ±1.3	92.05±1.1	< 0.05.	95 ±1.9	94.03±1.1	> 0.05.	95±1.6.	94.12±0.46	>0.05.

Table-2: Comparison of anxiety score and pulse rate

II was 2.79±1.04 and in the control group it was found to be 3.94±1.58. The difference in post-treatment anxiety was found to be significant with $p < 0.05$. The mean reported pre-treatment pulse rate for the audiovisual group I was 96 ±1.3, for the audiovisual group II was 95 ±1.9, and for the control group was 95±1.6. The difference between these scores was not significant with $p > 0.05$. The mean value of anxiety found post treatment for the audiovisual group I was 92.05±1, for the audiovisual group II was 94.03±1.1 and in the control group it was found to be 94.12±0.46. The difference in the pulse rate in group I was significant with $p < 0.05$ and was insignificant in group II and control group.

DISCUSSION

The rate of prevalence of dental anxiety is 5-20% in most of the populations which is seen more in children and this tends to decrease as age advances. It is also revealed that females are more prone to dental anxiety as compared to their male counterparts. The relation of dental anxiety with the incidence of caries is well documented thus signifying their avoidance for dental visits.⁵

The present study found significant decrease in anxiety in patients with audio- distraction aids as compared to control group. The study also found that audio- distraction aids of child's interest are even more effective. The reason attributing to this might be due to child listening to music tends to close his or her eyes thereby screening out the sight. Moreover, music helped to decrease the unpleasant noise created by dental hand pieces or other anxiety inducing stimuli and these two advantages coupled with the effect of choice based music provided relaxation might be due to playing familiar songs helped child to manage with his fear of dental treatment and unpleasant stimulus and thus, gave them a feeling of being in the familiar environment.⁶

Naithnaini M et al¹ compared audio distraction and audiovisual distraction in the management of anxious pediatric patients and reported decrease in anxiety scores in subsequent visits in both audio and audio-visual distraction groups. Kaur R et al⁶ also compared effectiveness of audio and audiovisual

distraction aids and found that children were most relaxed in audiovisual group followed by audio group and were least relaxed in control group during three dental visits. Jindal R et al⁷ also found that audio distraction aids decreased the level of anxiety in anxious pediatric dental patients to a significant level. Muppa R et al⁸ evaluated fear or anxiety levels associated with noise in a dental clinic and concluded that the noise created in dental clinic provokes anxiety and leads to avoidance of dental treatment. The most likely responses to dental stimuli in case of children reporting for first dental visit would be either fear or anxiety. Anxiety is associated with short-and-long-term impairment in social, academic, familial, and psychological functioning. Most children experience anxiety purely on the basis of psychological, social and environmental influences and parents face special challenges because children with anxiety tend to be nervous, avoidant, annoying or exhausting, however it is also revealed that the offspring of parents with anxiety disorders are more likely to develop anxiety, because of genetic factors and the atmosphere in which they are raised.⁵

CONCLUSION

Anxiety or fear of dental treatment is an important factor that results in avoidance of treatment. The behavioral management of pediatric patients is a great challenge faced by the dentist. The present study found a significant difference among study group and control group and thus concludes that managing pediatric patients with audio distraction aids of their choice is an effective method for comfortable handling of these patients in dental clinics.

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