ORIGINAL RESEARCH

Evaluating the Effectiveness of CHRIS'S Birds Assisted Therapy on Dental Anxiety among Pediatric Patients: A Pilot Study

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Abstract

Background: The heart of childhood nurtures an array of immature emotions. Through this rollercoaster of childhood emotions, from tears to laughter, it is the sole responsibility of a pediatric dentist to help the children navigate through their emotions with their empathetic actions. Whenever a child is anxious or fearful in the dental chair, the child may put forth his emotion through crying or taking up a flight response. Dental caries is a disease that is aggravated when a child refuses to cooperate with dental treatment. The tiny holes in the tooth, when unfilled, may lead to bigger problems, which in turn may lead to tooth loss in future. It is the comprehensive responsibility of the pediatric dentist to support health and emotional development and provide a complete, fulfilling oral rehabilitation to the child patient.

Aims and objectives: The purpose of this study was to determine the anxiety levels of pediatric patients visiting the dental Outpatient Department at a Dental College and Hospital in Kavalkinaru. This study unveils a novel technique wherein birds were used in the form of CHRIS'S Birds Assisted Therapy to reduce anxiety in pediatric dental patients.

Results: Results showed that intervention with birds through CHRIS'S Birds Assisted Therapy significantly reduced the anxiety levels in children.

Conclusion: Thus, CHRIS'S Birds Assisted Therapy is shown to be a promising method of anxiety control, a key to a successful pediatric dental practice.

Keywords: CHRIS'S Birds Assisted Therapy, Dental anxiety, Nonpharmacological behavior management, Pediatric dentistry.

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Introduction

The intricate immature emotions of a child decipher the complex mosaic pattern of a child's behavior on the dental chair. A child is nature's most benevolent creation. The child is not just a miniature adult but a dynamic organism with an intricate presentation of immature emotions. The major professional challenge encountered by a pediatric dentist is making a fearful or an anxious child accept dental treatment.[1] Dental anxiety refers to the dental fear that is associated with dental visits, which affects the child's behavior in accepting dental treatment. This dental anxiety, in turn, affects the oral health status of the child and also influences the child's attitude toward dentistry. This, in turn, manifests as tooth decay, leading to decreased self-confidence and poor oral health in the child patient.

Nonpharmacological behavior management techniques are commonly used by pediatric dentists when a child refuses to be seated in the dental chair for any dental procedure. These techniques are also employed to instill a positive dental attitude in the child. When nonpharmacological management techniques have been attempted and proved ineffective, dentists rely on pharmacological management with routes of sedation such as nasal, oral, rectal, or parenteral. Though oral rehabilitation under general anesthesia is considered absolutely safe, there exists a stigma in a society where parents feel that it is not important to care for primary teeth, which are going to shed off in due course of time as age advances.

The dental clinic can be modified in a way that makes it more interesting for the child patient. Bright, vivid cartoon posters, a fish tank in the operatory, reading books, coloring books, soft instrumental music, and a television playing cartoons can all distract the child from the anxiety-provoking airotor handpiece sounds and the smells of the dental materials.

Animal-assisted activity is the informal activity that involves the interaction between humans and animals, thereby promoting socialization, motivation, education, recreation, and therapeutic well-being in the patient. Animal-assisted therapy (AAT) improves the individual's mental and physical health or both. AAT/animal-assisted interventions (AAIs)[2] improves human function with the help of animals.

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Researchers in Germany have unveiled the fact that songbirds help to reduce anxiety and feelings of wariness among people who listen. This study unveils the innovative, cutting-edge approach/technique wherein birds were used in the form of CHRIS'S Birds Assisted Therapy to evaluate whether angst in child dental patients is minimized (Figs 1 and 2).

CHRIS'S Birds Assisted Therapy

It generally feels very soothing to listen to birds chirping early in the morning. Listening to birdsongs, regardless of diversity, improves anxiety, and reduces paranoia. They also bring us joy and help to alleviate our anxiety. These benefits increase manyfold when we see the bird chirping with our own eyes. Birdsongs can help to reduce stress and give our nervous system a much-needed rest.

Aims and Objectives

CHRIS'S Birds Assisted Therapy is a novel technique, and this original research study was conducted to evaluate its effectiveness in child patients who are apprehensive, jittery, or fearful during dental visits.

Fig. 1: A kid enjoying seeing the birds

Materials and Methods

A total of 50 healthy children who visited the department of pedodontics to undergo proactive dental maintenance procedures such as fluoride application for the prevention of dental caries, pit fissure sealant, tooth cleaning, and filling procedures were included in the study. The study was conducted at a dental school and hospital. The children who were arbitrarily selected were between the age-group of 5 and 10 years. Out of the 50 children, 25 were males and 25 were females, and it was the first dental visit for all the children. Those children who were stressed, anxious, or fearful when visiting the dentist were included in the study.

Children who had a fear of interacting with birds and those who were allergic to birds were excluded from the study. Additionally, medically debilitated children and gifted children were also excluded from the study.

The endorsement was obtained both verbally and in written format from the parents or guardians of the children or whoever was accompanying the child before the commencement of the study. An Institutional Ethics Committee comprising a set of members evaluated the study proposal, and after clearance was obtained, the study commenced in the department of pedodontics.

A pair of Java finch of the variety Padda, certified by an animal practitioner to be in good health, was selected for CHRIS'S birds-assisted therapy. They were caged in a well-secured cage with dimensions of 60 × 35 × 50 cm, made of wood and stainless-steel mesh (fully secured with a lock) (Fig. 3). The birds were fed with organic, healthy foxtail millet and provided clean water every day. Care was taken to ensure that the cage was kept neat and clean.

The natural coloring of the Java finch bird includes a gray back, a black head, and tail feathers. They have grayish-cinnamon colored breasts and bellies and large white patches on their cheeks. They mimic the form of tiny penguins. They are child-friendly birds, and the female bird sings better than the male.

During the arbitration with CHRIS'S birds-assisted therapy, a clean, tidy table is placed near the dental chair. The birds were

Fig. 2: A pair of healthy Java finches

Fig. 3: A pair of healthy Java finches in a secured cage

placed on it at the starting, midway point, and at the closing end of the intercession.

Modified Corah's Dental Anxiety Scale

The Modified Corah's Dental Anxiety Scale (MCDAS), which is an authentic and logically justifiable scale, measures dental anxiety in kids. It includes six interrogative questions that help ascertain how a child feels when they meet a dentist. If the score is below the value of 19, it means there is no state anxiety. If the score obtained is elevated than 19, it indicates that the child has state anxiety. Scores above 31 signal that the child has severe phobic turmoil. MCDAS scores were obtained before starting the dental manipulation and after the completion of the dental regimen. During the dental procedure, it is not possible to evaluate the MCDAS score by putting forth questions to the child (Fig. 4).

Dental Anxiety Measured by RMS Illustrational Scale Named after Raghavendra–Madhuri–Sujatha

Mr Raghavendra, Ms Madhuri, Ms Sujata (RMS) imagery-based scale (RMS-PS) formulated a novel scale for assessing the kiddo's dental anxiety (Figs 5 to 7). RMS-PS is made up of a set of pictorial facial expressions ranging from a very happy smiling face to a very

The MCDAS$_{(f)}$ Scale

How do you feel about:					
Q1: Going to the dentist generally	1	2	3	4	5
Q2: Having your teeth looked at	1	2	3	4	5
Q3: Having your teeth scraped or polished	1	2	3	4	5
Q4: Having an injection in gums	1	2	3	4	5
Q5: Having a filling	1	2	3	4	5
Q6: Having teeth taken out	1	2	3	4	5

Likert scale:
1. would mean: relaxed/not worried
2. would mean: very slightly worried
3. would mean: fairly worried
4. would mean: worried a lot
5. would mean: very worried

Fig. 4: Set of questions in the MCDAS scale

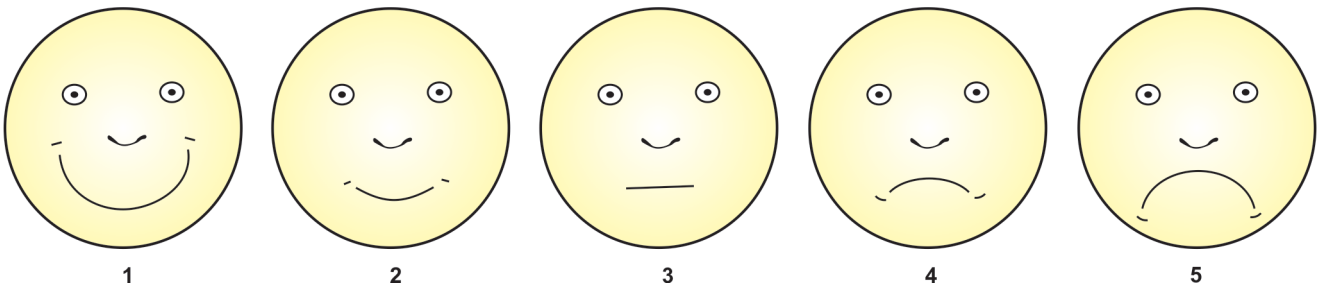

Fig. 5: Mr Raghavendra, Ms Madhuri, Ms Sujata pictorial scale

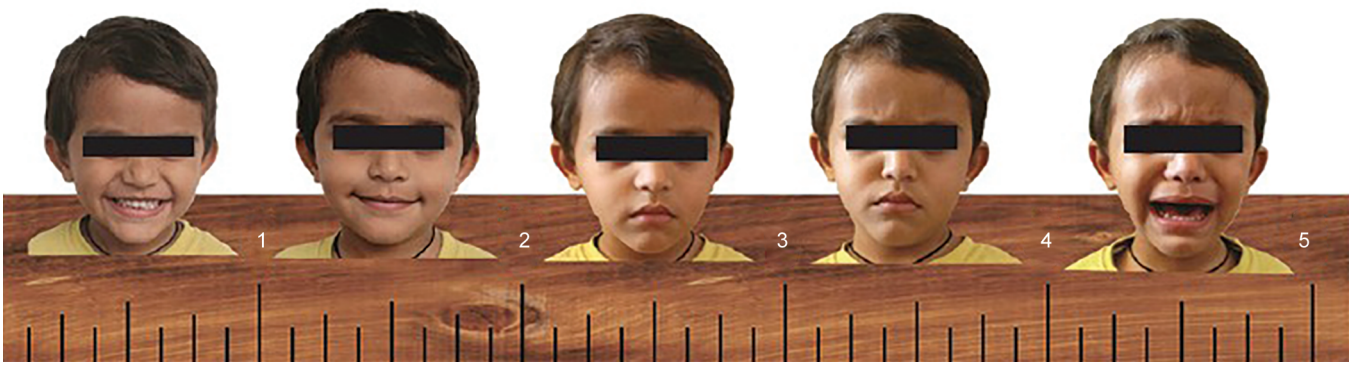

Fig. 6: Mr Raghavendra, Ms Madhuri, Ms Sujata pictorial scale for boys

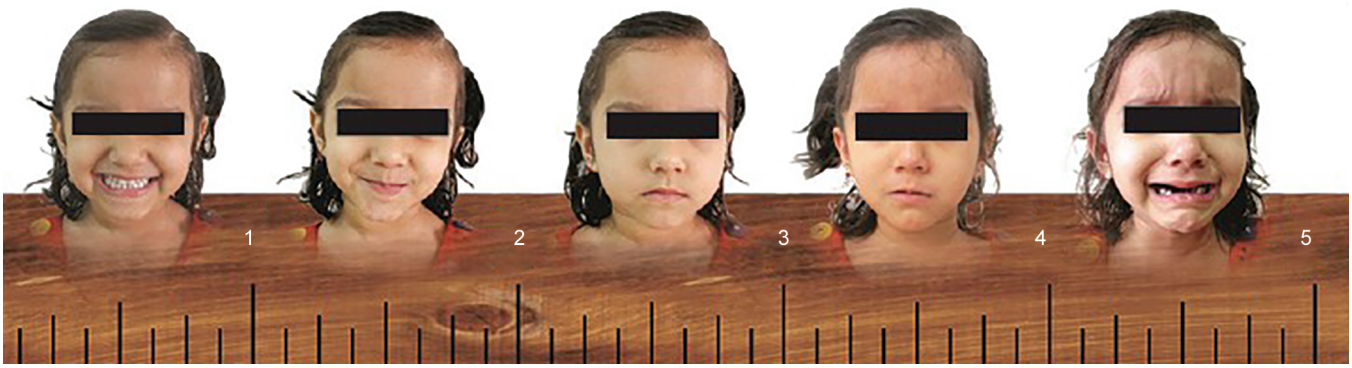

Fig. 7: Mr Raghavendra, Ms Madhuri, Ms Sujata pictorial scale for girls

unhappy face with a frown/crying face (Fig. 5). For male children; we used separate sets of pictorial facial expression photographs (Fig. 6). For girls the photos were different (Fig. 7). The children were asked which face they feel like mimics or portrays them at a particular moment. Scoring was done by giving a value of 1 to the very delighted and elated smiling face and 5 to the very despondent sad face. The RMS-PS was recorded thrice—as soon as the child strolls into the dental operatory, during the dental procedure with birds-assisted therapy, and after the completion of the dental regimen.

Heart Rate

The beat rate was recorded before, during, and at the end of the intervention with birds. It was measured using a pulsoximeter (Figs 8 to 13).

Results

The results obtained were tabulated, and nonparametric methods were used to analyze the data.

Discussion

Barlow has delineated anxiety as a unique and coherent feature present within ourselves.[3] Though there is progress in dental care recently, encountering anxiety and its control in a child patient remains a major challenge to the pediatric dentist. When a child is fearful or anxious, the child may cry, scream, or shiver. The child may panic and even try to jump out of the dental chair, leading to

Fig. 8: Intervention with birds

Fig. 9: Intervention with birds during dental procedure

Fig. 10: Measurement of heart rate before start of dental procedure

Fig. 11: Measurement of heart rate with pulsoximeter

Fig. 12: Measurement of heart rate during the dental procedure with bird-assisted therapy

uncooperativeness during dental treatment.[4] It has been proven that children tend to cry more when they see the dentist holding a needle in their hand.

There is a diverse array of approaches to managing dental anxiety and fear on a psychological basis, which can be used in the dental clinic along with relatively simple behavior management techniques such as communication, voice control, tell-show-do, and modeling. These range in intricacy from those that are relatively easy to carry out to others requiring specialized training.[5]

The results obtained from the present study are less comparable to those obtained in other healthcare environments since this is the first reported study of its kind. Research conducted at the University of California showed lower anxiety levels during AAT when compared to a control group.[6,7] Shiloh et al.[8] also unveiled that anxiety levels were reduced when cuddling with a live animal rather than holding a toy. Anxiety level was reduced in acute schizophrenic mental health clients by Lang et al.[9] and Berget et al.,[10] who had unveiled the fact that the subjection of mental health service users to farm animals wherein they fed and cuddled the animals resulted in lowered anxiety of the individuals.

Cortisol is secreted in response to stressful stimuli. A significant reduction in levels of cortisol was also noted when children were subjected to AAI.[11] It has also been proven that AAIs have reduced the levels of epinephrine and norepinephrine, which are the hormones released during stress. It is also found to have increased the levels of endorphin levels.[12] When pets were visited during therapy, oxytocin, which is the anti-stress hormone, was found to increase.[13,14]

In our present study, we evaluated 50 children between the age-group of 5 and 10 years (Tables 1 to 3 and Fig. 14).

In our current study, a comparison of MCDAS scores before and after intervention with birds was conducted. There was a statistically significant reduction in anxiety in children, with a *p*-value of <0.001 (Tables 4 to 7 and Figs 15 to 17). The age-group of 5–7-year-old children also showed a statistically significant minimization in anxiety levels when compared to the children who were older by 7 years. When pondering on the RMS pictorial scale, it was observed that most of the children stepping into the dental operatory came with a gloomy countenance or sad or anxious face. After intervention with birds, the facial expressions of most of the children beamed with a smile,

Table 1: Distribution of samples according to sex (frequency tables)

Sex	*N*	*%*
Male	25	50.0
Female	25	50.0
Total	50	100.0

Table 2: Distribution of samples according to age

Age-group	*N*	*%*
5.0–7.0 years	15	30.0
7.1–9.0 years	22	44.0
9.1–10.0 years	13	26.0
Total	50	100.0

Table 3: Distribution of samples according to age and sex

	Sex					
	Male		*Female*		*Total*	
Age-group	*N*	*%*	*N*	*%*	*N*	*%*
5.0–7.0 years	9	36.0	6	24.0	15	30.0
7.1–9.0 years	9	36.0	13	52.0	22	44.0
9.1–10.0 years	7	28.0	6	24.0	13	26.0
Total	25	100.0	25	100.0	50	100.0

Table 4: Comparison of total MCDAS scale

Total MCDAS Scale		*Before*	*After*	*p-value**
Overall	*N*	50	50	<0.001
	Median	22.0	12.0	
	1st quartile	15.0	9.0	
	3rd quartile	33.0	17.0	
	Mean	22.7	12.9	
	Standard deviation	9.9	5.2	

*, Related-samples Wilcoxon signed rank test

Fig. 13: Measurement of heart rate after the dental procedure

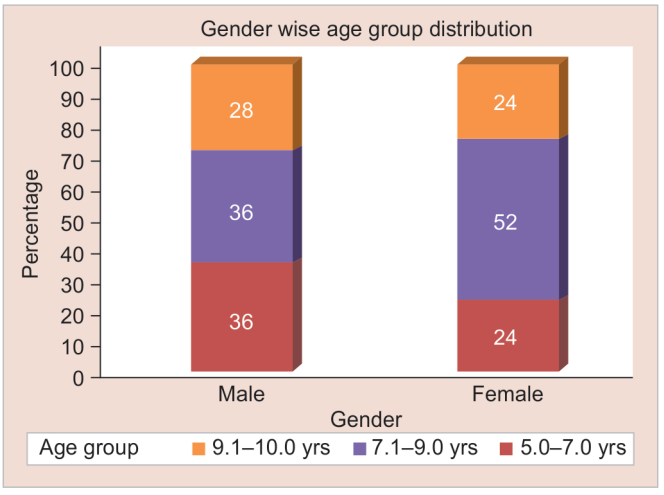

Fig. 14: Graph depicting gender-wise age-group distribution

which was noteworthy on a statistical basis (Tables 8 to 14 and Figs 18 to 20).

Around 70–110 beats per minute is considered the normal heart rate for children. A 20% escalation in the normal heart rate is considered high. Preceding the start of the dental regimen, when birds were not used for therapy, most of the children had an amplified heart rate. During the dental procedure, while the birds were placed next to the dental chair, the heart rate reached

Table 5: Gender-wise comparison of the total MCDAS scale

Total MCDAS Scale		*Before*	*After*	*p-value**
Male	*N*	25	25	<0.001
	Median	22.0	13.0	
	1st quartile	15.0	9.0	
	3rd quartile	34.0	17.0	
	Mean	23.1	13.4	
	Standard deviation	10.0	5.7	
Female	*N*	25	25	<0.001
	Median	22.0	11.0	
	1st quartile	13.0	9.0	
	3rd quartile	29.0	14.0	
	Mean	22.4	12.4	
	Standard deviation	10.1	4.8	
p-value[@]		0.838	0.559	

*, Related-samples Wilcoxon signed rank test; [@], independent-samples Mann–Whitney *U* test

Table 6: Age-group-wise comparison of the total MCDAS scale

Total MCDAS scale		*Before*	*After*	*p-value**
5.0–7.0 years	*N*	15	15	<0.001
	Median	33.0	17.0	
	1st quartile	21.0	12.0	
	3rd quartile	39.0	20.0	
	Mean	29.5	16.4	
	Standard deviation	9.9	4.7	
7.1–9.0 years	*N*	22	22	0.001
	Median	23.0	12.0	
	1st quartile	20.0	11.0	
	3rd quartile	29.0	15.0	
	Mean	24.0	13.5	
	Standard deviation	7.8	4.8	
9.1–10.0 years	*N*	13	13	1.000
	Median	12.0	7.0	
	1st quartile	11.0	6.0	
	3rd quartile	15.0	9.0	
	Mean	12.8	7.9	
	Standard deviation	4.0	2.0	
p-value[#]		<0.001	<0.001	

*, Related-samples Wilcoxon signed rank test; [#], independent-samples Kruskal–Wallis test

Table 7: Bonferroni corrected pairwise comparisons of the total MCDAS scale

Pairs (age-group)	*Before*	*After*
9.1–10.0 vs 7.1–9.0 years	0.001	0.001
9.1–10.0 vs 5.0–7.0 years	<0.001	<0.001
7.1–9.0 vs 5.0–7.0 years	0.511	0.382

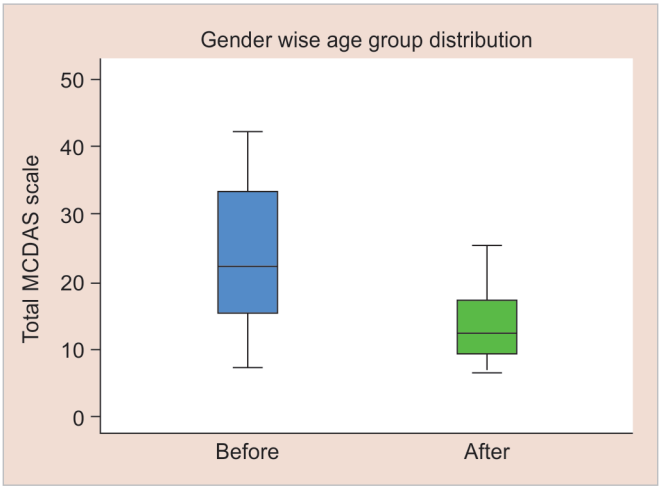

Fig. 15: Comparison of total MCDAS scale

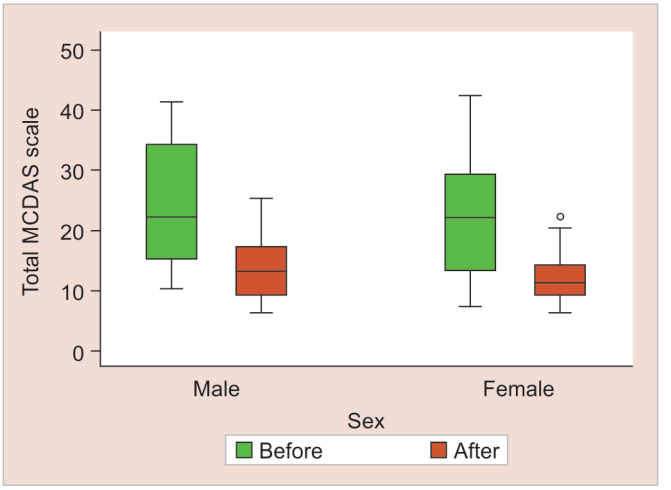

Fig. 16: Gender-wise comparison of the total MCDAS scale

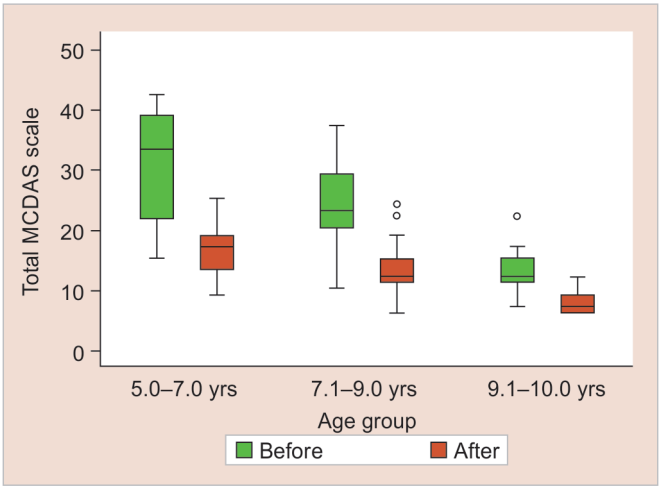

Fig. 17: Age-group-wise comparison of the total MCDAS scale

near-normal levels for many children. There was a statistically remarkable lowering of anxiety levels in children during the dental procedure with CHRIS'S birds-assisted therapy and after the dental procedure with a *p*-value of <0.001 (Tables 15 to 19 and Figs 21 to 23).

Table 8: Comparison of total RMS scale

RMS scale		*Before*	*During*	*After*	*p-value*[$]
Overall	*N*	50	50	50	<0.001
	Median	1.0	1.0	1.0	
	1st quartile	1.0	1.0	1.0	
	3rd quartile	2.0	1.0	1.0	
	Mean	1.8	1.2	1.0	
	Standard deviation	0.9	0.5	0.0	

[$], Related-samples Friedman's two-way analysis of variance

Table 9: Bonferroni corrected pairwise comparisons of the RMS scale

Pairs (time points)	*p-value*
After vs during	0.750
After vs before	<0.001
During vs before	0.024

Table 10: Gender-wise comparison of the total RMS scale

RMS scale		*Before*	*During*	*After*	*p-value*[$]
Male	*N*	25	25	25	<0.001
	Median	2.0	1.0	1.0	
	1st quartile	1.0	1.0	1.0	
	3rd quartile	2.0	1.0	1.0	
	Mean	1.8	1.2	1.0	
	Standard deviation	0.9	0.4	0.0	
Female	*N*	25	25	25	<0.001
	Median	1.0	1.0	1.0	
	1st quartile	1.0	1.0	1.0	
	3rd quartile	2.0	1.0	1.0	
	Mean	1.7	1.2	1.0	
	Standard deviation	0.9	0.5	0.0	
p-value[@]		0.687	0.771	1.000	

[$], Related-samples Friedman's two-way analysis of variance; [@], independent-samples Mann–Whitney *U* test

Table 11: Bonferroni corrected pairwise comparisons of the RMS scale

	p-value	
Pairs (time points)	*Male*	*Female*
After vs during	1.000	1.000
After vs before	0.011	0.040
During vs before	0.143	0.231

Table 12: Age-group-wise comparison of the total RMS scale

RMS scale		*Before*	*During*	*After*	*p-value*[$]
5.0–7.0 years	*N*	15	15	15	<0.001
	Median	3.0	1.0	1.0	
	1st quartile	3.0	1.0	1.0	
	3rd quartile	3.0	2.0	1.0	
	Mean	2.9	1.4	1.0	
	Standard deviation	0.6	0.6	0.0	
7.1–9.0 years	*N*	22	22	22	0.051
	Median	1.0	1.0	1.0	
	1st quartile	1.0	1.0	1.0	
	3rd quartile	2.0	1.0	1.0	
	Mean	1.4	1.2	1.0	
	Standard deviation	0.5	0.4	0.0	
9.1–10.0 years	*N*	13	13	13	1.000
	Median	1.0	1.0	1.0	
	1st quartile	1.0	1.0	1.0	
	3rd quartile	1.0	1.0	1.0	
	Mean	1.0	1.0	1.0	
	Standard deviation	0.0	0.0	0.0	
p-value[#]		<0.001	0.071	1.000	

[$], Related-samples Friedman's two-way analysis of variance; [#], independent-samples Kruskal–Wallis test

Table 13: Bonferroni corrected pairwise comparisons of age-group

Pairs (age-group)	*Before*
9.1–10.0 vs 7.1–9.0 years	0.288
9.1–10.0 vs 5.0–7.0 years	<0.001
7.1–9.0 vs 5.0–7.0 years	<0.001

Table 14: Bonferroni corrected pairwise comparisons of RMS scale

	p-value
Pairs (time points)	*5.0–7.0 years*
After vs during	0.946
After vs before	<0.001
During vs before	0.002

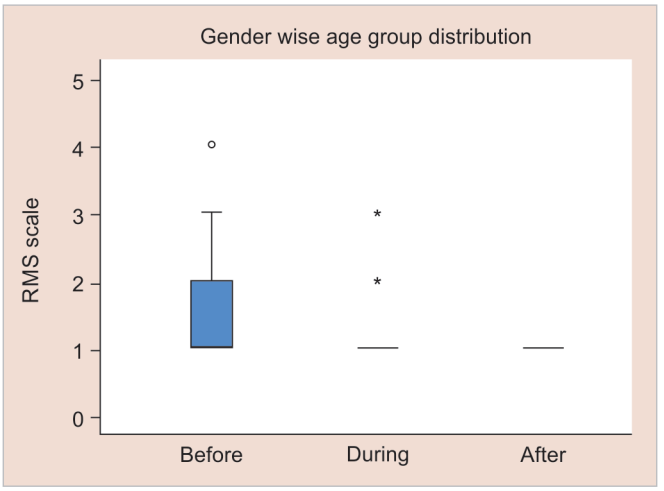

Fig. 18: Comparison of the RMS scale

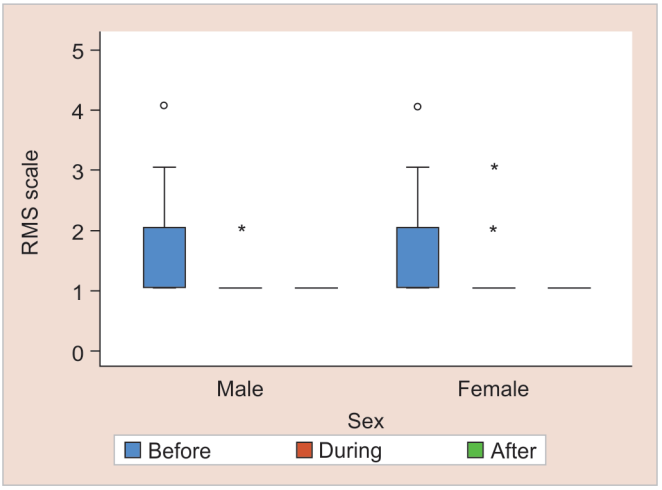

Fig. 19: Gender group-wise comparison of the total RMS scale

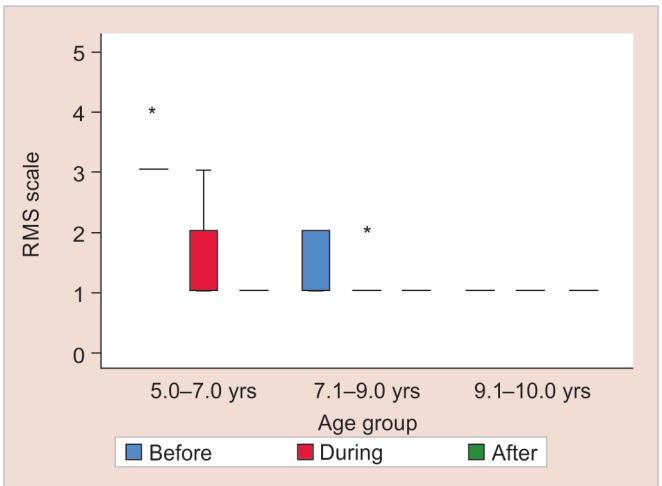

Fig. 20: Age-group-wise comparison of the total RMS scale

Table 15: Chi-squared test to compare proportions of heart rate between genders

		Sex						
		Male		*Female*		*Total*		
Heart rate		*N*	*%*	*N*	*%*	*N*	*%*	*p-value*
Before	Normal	11	44.0	12	48.0	23	46.0	0.777
	High	14	56.0	13	52.0	27	54.0	
	Total	25	100.0	25	100.0	50	100.0	
During	Normal	22	88.0	20	80.0	42	84.0	0.702*
	High	3	12.0	5	20.0	8	16.0	
	Total	25	100.0	25	100.0	50	100.0	
After	Normal	23	92.0	24	96.0	47	94.0	1.000*
	High	2	8.0	1	4.0	3	6.0	
	Total	25	100.0	25	100.0	50	100.0	

*, Fisher's exact test *p*-value

Table 16: Chi-squared test to compare proportions of heart rate between age-groups

		Age-group								
		5.0–7.0 years		*7.1–9.0 years*		*9.1–10.0 years*		*Total*		
Heart rate		*N*	*%*	*N*	*%*	*N*	*%*	*N*	*%*	*p-value*
Before	Normal	3	20.0	10	45.5	10	76.9	23	46.0	0.011
	High	12	80.0	12	54.5	3	23.1	27	54.0	
	Total	15	100.0	22	100.0	13	100.0	50	100.0	
During	Normal	11	73.3	18	81.8	13	100.0	42	84.0	0.172*
	High	4	26.7	4	18.2	0	0.0	8	16.0	
	Total	15	100.0	22	100.0	13	100.0	50	100.0	
After	Normal	14	93.3	20	90.9	13	100.0	47	94.0	0.781*
	High	1	6.7	2	9.1	0	0.0	3	6.0	
	Total	15	100.0	22	100.0	13	100.0	50	100.0	

*, Fisher's exact test *p*-value

Table 17: McNemar's Chi-squared test to compare heart rate between time points

		Normal		*High*		*Total*		
Heart rate		*N*	*%*	*N*	*%*	*N*	*%*	*p-value*
				Heart rate: before				
During	Normal	22	95.7	20	74.1	42	84.0	<0.001
	High	1	4.3	7	25.9	8	16.0	
	Total	23	100.0	27	100.0	50	100.0	
After	Normal	23	100.0	24	88.9	47	94.0	<0.001
	High	0	0.0	3	11.1	3	6.0	
	Total	23	100.0	27	100.0	50	100.0	
				Heart rate: after				
During	Normal	42	89.4	0	0.0	42	84.0	0.063
	High	5	10.6	3	100.0	8	16.0	
	Total	47	100.0	3	100.0	50	100.0	

Table 18: McNemar's Chi-squared test to compare heart rate between time points: gender wise

			Normal		*High*		*Total*		
Sex	*Heart rate*		*N*	*%*	*N*	*%*	*N*	*%*	*p-value*
					Heart rate: before				
Male	During	Normal	11	100.0	11	78.6	22	88.0	0.001
		High	0	0.0	3	21.4	3	12.0	
		Total	11	100.0	14	100.0	25	100.0	
	After	Normal	11	100.0	12	85.7	23	92.0	<0.001
		High	0	0.0	2	14.3	2	8.0	
		Total	11	100.0	14	100.0	25	100.0	
Female	During	Normal	11	91.7	9	69.2	20	80.0	0.021
		High	1	8.3	4	30.8	5	20.0	
		Total	12	100.0	13	100.0	25	100.0	
	After	Normal	12	100.0	12	92.3	24	96.0	<0.001
		High	0	0.0	1	7.7	1	4.0	
		Total	12	100.0	13	100.0	25	100.0	
					Heart rate: after				
Male	During	Normal	22	95.7	0	0.0	22	88.0	0.999
		High	1	4.3	2	100.0	3	12.0	
		Total	23	100.0	2	100.0	25	100.0	
Female	During	Normal	20	83.3	0	0.0	20	80.0	0.125
		High	4	16.7	1	100.0	5	20.0	
		Total	24	100.0	1	100.0	25	100.0	

Table 19: McNemar's Chi-squared test to compare heart rate between time points: age-group wise

			Normal		*High*		*Total*		
Age-group	*Heart rate*		*N*	*%*	*N*	*%*	*N*	*%*	*p-value*
			Heart rate: before						
5.0–7.0 years	During	Normal	2	66.7	9	75.0	11	73.3	0.021
		High	1	33.3	3	25.0	4	26.7	
		Total	3	100.0	12	100.0	15	100.0	
	After	Normal	3	100.0	11	91.7	14	93.3	0.001
		High	0	0.0	1	8.3	1	6.7	
		Total	3	100.0	12	100.0	15	100.0	
7.1–9.0 years	During	Normal	10	100.0	8	66.7	18	81.8	0.008
		High	0	0.0	4	33.3	4	18.2	
		Total	10	100.0	12	100.0	22	100.0	
	After	Normal	10	100.0	10	83.3	20	90.9	0.002
		High	0	0.0	2	16.7	2	9.1	
		Total	10	100.0	12	100.0	22	100.0	
9.1–10.0 years	During	Normal	10	100.0	3	100.0	13	100.0	–
		High	0	0.0	0	0.0	0	0.0	
		Total	10	100.0	3	100.0	13	100.0	
	After	Normal	10	100.0	3	100.0	13	100.0	–
		High	0	0.0	0	0.0	0	0.0	
		Total	10	100.0	3	100.0	13	100.0	
			Heart rate: after						
5.0–7.0 years	During	Normal	11	78.6	0	0.0	11	73.3	0.250
		High	3	21.4	1	100.0	4	26.7	
		Total	14	100.0	1	100.0	15	100.0	
7.1–9.0 years	During	Normal	18	90.0	0	0.0	18	81.8	0.500
		High	2	10.0	2	100.0	4	18.2	
		Total	20	100.0	2	100.0	22	100.0	
9.1–10.0 years	During	Normal	13	100.0	0	0.0	13	100.0	–
		High	0	0.0	0	0.0	0	0.0	
		Total	13	100.0	0	0.0	13	100.0	

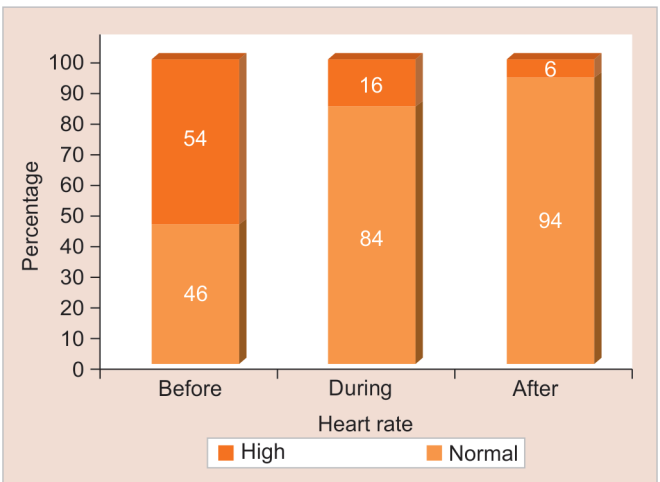

Fig. 21: Comparison of heart rate

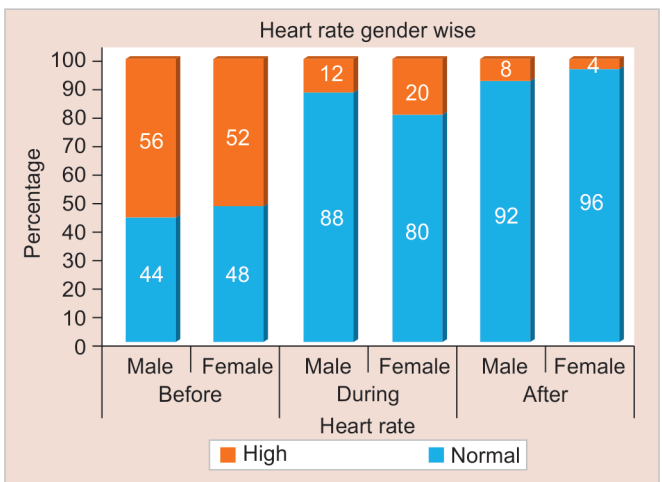

Fig. 22: Gender group-wise comparison of heart rate

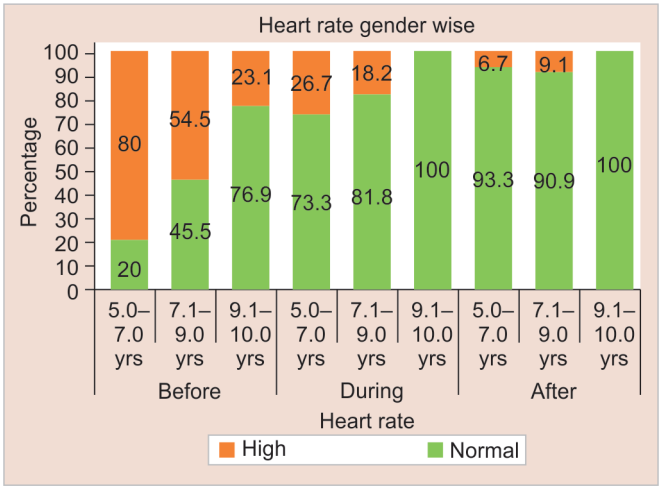

Fig. 23: Age-group-wise comparison of heart rate

Conclusion

The study revealed that hearing birdsongs was highly advantageous; these chitter/chirping sounds were breaking the boundary of anxiety in kiddos and embracing new therapeutic frontiers. The jitters or the anxiety of the child can be calmed and reduced using chitters/birdsongs as a background soundscape, which could trailblaze toward dental wellness among pediatric dental patients. So let the dental setup mimic a canopy beneath which the birds and the dentist together work out their magic as a team to bring out quality dental care for the child patient.

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