

COLOR YOUR RAINBOW WITH A PEDIATRIC DENTIST- ATTITUDE OF THE CHILD TOWARDS COLORS IN A PEDIATRIC DENTAL SET UP

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ABSTRACT:

Introduction: The greatest challenge faced by any pediatric dentist today is making the child patient accept the dental treatment with reduced anxiety levels. The ambience of the dental setup and the way in which the dentist presents himself plays an important role in the establishment of a friendly relation.

Aim: To determine the preference of children in choice of colors in a pediatric dental setup. The study also aims to determine parental attitude toward the motivation of the child in tooth brushing using dental applications.

Design of the study: A total of 100 children were divided into two groups: 5-7 years and 8-10 years. All the children were asked their preference of dental environment as well as their choice of colors for the dentist attire. The children were also motivated for proper maintenance of oral hygiene using the dental applications and the outcome was assessed through phone call to the parents a week after their dental visit.

Results: The influence of colors in children in the pediatric dental setup was proved in the study.

Keywords: child-friendly colors, dental anxiety, dental attitude, dental environment.



INTRODUCTION:

Anxiety of children in the dental clinic has been a concern for many years^[1] and poses a barrier towards appropriate dental treatment. Multiple factors cause anxiety in children in the dental clinic. The most common causes of anxiety and fear in the dental clinic might originate from a previous traumatic experience in the dental office which can affect them in both direct and the indirect ways.^[2]

Management of children in the dental office is related not only to the technical procedures, but also to various emotional upsets experienced by children. This issue may require the replacement of routine

treatment procedures with other alternatives, like developing a more child-friendly atmosphere in their dental clinics by the pediatric dentists.^[3]

Colors for children is one of the most simplest and enjoyable methods of conveying messages and meanings. Color stimulates and coordinates all of the senses apart from symbolizing complex concepts and thoughts. Hence, colors in the dental environment can have a positive and pleasing effect on the child's behavior. So, the dentist can link up between the color and the emotions of the child in the dental clinic. It is evident

that colors may reduce the dental anxiety and add to comfort and cooperation of the child in accepting the dental treatment.^[4]

The aim of our present study was to evaluate the association of colors in reducing anxiety level in children. It was carried out by a questionnaire considering the following criteria: colour of dentist apron and patient attire, choice of decors of children in a paediatric dental clinic, preference for the use of masks, head caps and protective eye wear, name tag and if motivation in tooth brushing habits is effective through the use of dental applications.

MATERIALS AND METHODS:

A cross sectional study was performed in the Department of Pedodontics in the SRM Kattankulathur Dental college and Hospital, Tamil Nadu, India after obtaining approval from the Institutional ethical committee. Verbal consent was obtained from the parents of all the children who participated in the study. A total of 100 children between ages 5-10 years participated in the study. They were divided into 2 groups : younger children (5-7years,n=50) and older children (8-10 years, n=50). Healthy children visiting the dental OP for the first time were selected for the study. Children with the special health care need were excluded. A specially prepared proforma was used to record personal information. The choice of color for dentist attire, patient apron, decors in clinic and other details were

recorded in the questionnaire which is as follows;

1. Personal information:

Name:

Age:

Sex:

Contact number:

Landline:

Mobile:

Behaviour rating scale:

Definitely Negative(-)

Negative (-)

Positive(+)

Definitely positive (+)

2. Gender preference of dentist: Male/
Female.

3. Preference of masks: Normal/with
smiley.

4. Preference of color of gloves:

5. Use of head cap: Yes /No.

6. Preference of dentist wearing name
badge: Yes/No.

7. Preference of dentist using protective
Eye wear: Yes/No.

8. Color of dentist apron preferred:-
Blue/Green/Pink/Red/Yellow/White.

9. Color of patient apron preferred:-
Blue/Green/Pink/Red/Yellow.

DENTAL AMBIENCE:

1. Preference for a fish tank in
dental OP:-Yes/no.

2. Preference for the type of dental chair:- Normal/ Pediatric.
3. Preference for dental chair with television:- Yes/No.

ATTITUDE OF PARENTS TOWARDS TOOTHBRUSHING EFFECTIVENESS AFTER MOTIVATION WITH A DENTAL APPLICATION:

After first week: Positive/ Negative.

After second week: Positive/Negative.

Each of the participants were given the proforma which included the questions mentioned above and allowed to mention their preferred choice of dentist attire, patient attire and dental ambience. Different colored aprons were stitched both for the dentist and the patients. A smaller size was stitched to suit a 5-7 yr old kid and a quite bigger size for a 8 to 10 year old child patient. The various colors of aprons stitched were, viz., Red (**Figure 1**), Blue (**Figure 2**), Green (**Figure 3**), Pink (**Figure 4**) and Yellow (**Figure 5**). Towards the end of the treatment procedure, they were taught how to brush their own teeth using a dental application in a tab. To check for the outcome, whether the children were positively motivated, the parents were given a phone call after a week.

RESULTS:

Table1 shows the distribution of the sample according to the age and gender. Table 2 shows that most the children preferred to be treated by a female

dentist which is statistically significant. Table 3 and table 4 reveals that use of mask and head cap by the dentist is preferred by the children. Most of them preferred the dentist wearing a smiley mask (**Figure 6**) which is statistically significant. Table 5 shows that blue colored gloves was preferred by the boys and the color of choice for girls was pink which is also statistically significant with a p value of 0.0001. Table 6 shows that the children preferred to be treated by a dentist wearing a name badge. Table 7 shows that use of protective eyewear by the dentist was most accepted by the boys only.

Table 8 shows that boys between 5-7years preferred dentist with the blue coat and those between 8-10years preferred a white coat. Girls of both the age group preferred dentist to be dressed in pink coat. Table 8 reveals that boys preferred to be dressed up either in blue or red apron during their dental procedure and the preferential color for the girls was pink. These results were also statistically significant with a p value of 0.046. All the children preferred the fish tank in dental OP. They preferred to be treated in the pediatric dental chair with television (**Figure 7**). All these results are tabulated in table 9, 10, 11. Table 12 shows that the children were positively motivated when taught tooth brushing with dental application.

DISCUSSION:

The main foundation of successful treatment of a pediatric dental patient

depends upon effective establishment of communication in the dental operator. An ideal pediatric dental operator should allay the anxiety of the child. As colors speak louder than words, modification of a child's environment where in a dental treatment is performed elicits a positive emotional response from the child. According to Goldstein, specific emotional responses are triggered through specific colors.^[4]

Considering the dentist attire, it should communicate a security symbol as well as an authority figure. The attire has to be approachable and inviting the children to interact with. 68% of the boys and 87% of the girls in the present study preferred to be treated by the female dentist which in accordance with the study done by **Baier et al (2004)^[5]**, **Mistry & Tahmassebi (2009)^[6]**, **Patir et al (2014)^[7]** and **Dhanalakshmi et al(2016)^[8]** wherein most of the children preferred treatment by the female dentist.

In the present study, 65% of the boys from age group 5-7years preferred the use of normal mask while 60% of boys from age group 8-10years choose use of smiley mask. 67% of the girls like the use of mask with the smiley. This is in accordance to the study done by **MahaALSarheed (2011)^[9]**, **Shulmam & Brehm (2011)^[10]** and **Ash Patir Munevveroglu Et al (2014)^[7]** wherein majority of the children preferred for the use of mask by the dentist.

In our study 65% of the boys and 75% of girls preferred the use head cap by the

dentist. 57% of the boys prefer the use of protective eyewear by the dentist. 65% of the boys prefer the use of blue gloves and 65% of the girls like the use of pink color gloves by the dentist. This is in accordance to the study done by **Maha Al Sarheed(2011)^[9]** wherein 69% of the children preferred the use of some type of protective equipment by the dentist. Most of the children preferred the use gloves by the dentist which is similar to the study done by **Panda et al(2013)^[11]**

In the study, 90% of the boys and 86% of the girls prefer the use name badge by the dentist, which is similar to the study done by **Mckenna et al (2007)^[12]**, where most of the children preferred the use of name badge by the dentist.

McCarthy (1999)^[13] reported from his study that 76.5% of the children preferred their dentist to wear a colored coat which in accordance with our present study wherein 35% of the boys preferred a blue apron and 35% of the girls preferred the dentist to wear pink colored apron. This is also in accordance with the study done by **Kuscu et al (2009)^[14]** and **Alexander Asokan et al (2017)^[15]** where 70% of the pediatric dental patients preferred dentists with colored attire. 35 % of the boys between age of 8-10 yrs preferred a dentist with white coat which is similar to the results from the study done by **Maha Al Sarheed et al (2009)^[9]** 40% of the boys preferred blue patient apron and the color of choice by 55% of the the girls was pink.

Sitting on a chair, waiting for the dental treatment under bright lights in a noisy environment caused by the sound of the dental equipment can cause anxiety and fear in the children.^[9] A pediatric dental clinic should allay anxiety of the child and assist in obtaining cooperative behavior.^[16]

On an average 90% of the children preferred a fish tank in the dental operatory which is in accordance to the studies done by **Al sarheed et al (2011)^[9]** and **Ash Patir et al(2014)^[7]** where pediatric patients are more comfortable in the decorated dental clinic.

On an average 75% of the children preferred to be treated in a pediatric dental chair with television that plays music. This was mainly planned to work on the principle of distraction or displacement of attention from the source of stress. The intensity of the sound is such that the patient finds it difficult to listen to anything else.^[16]

To keep up the overall good oral health of the child from infancy through adolescence,

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strategic counselling and motivation for the maintenance of oral hygiene is necessary. As the saying goes, 'Prevention is better than cure', it's better to prevent the occurrence of decay in a child rather than going in for treatment of a painful tooth. In the present study, 80% of the children were motivated for proper toothbrushing using dental applications as currently most of the kids are fantasised in spending most of their time with electronic gadgets.

CONCLUSION:

Hence it can be concluded from the current study that vibrant colors in the dental ambience and dentist attire can positively influence the child's behaviour in the dental clinic. A successful pediatric dental practice mainly rests on the fact that a child who enters the dental clinic, leaves after the dental treatment procedure with a trustful smile which is a real achievement for a pediatric dentist.

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TABLES:

TABLE 1: DISTRIBUTION OF PATIENT SAMPLE

Number Of Patient (80)	Boys	Girls
Age Group		
5-7 Years	20	20
8-10years	20	20

TABLE 2: CHILDREN’S PREFERENCE FOR THE GENDER OF DENTIST

Preference of dentist gender	Male	Female	Statistics	P value
BOYS (5-7YEARS)	n=7, (35%)	n=13, (65%)	Fisher exact probability – 3.58	0.064
GIRLS(5-7YEARS)	n=2, (10%)	n=18, (90%)		
BOYS (8-10YEARS)	n=6, (30%)	n=14, (70%)	Fisher exact probability – 1.29	0.225
GIRLS(8-10YEARS)	n=3, (15%)	n=17, (85%)		
Boys	13	27	Chi square – 4.59	0.032
Girls	5	35		

TABLE 3: CHILDREN’S PREFERENCE FOR THE DENTIST WITH MASK

Preference for dentist with mask	Normal	Smiley	Chi square	P value
BOYS (5-7YEARS)	n=13, (65%)	n=7, (35%)	3.60	0.057
GIRLS(5-7YEARS)	n=7, (35%)	n=13, (65%)		
BOYS(8-10YEARS)	n=8, (40%)	n=12, (60%)	0.44	0.507
GIRLS(8-10YEARS)	n=6, (30%)	n=14, (70%)		
Boys	21	19	0.58	0.448
Girls	13	17		

TABLE4: CHILDREN’S PREFERENCE FOR THE USE OF HEAD CAP BY THE DENTIST

Preference for the head cap	YES	NO	Statistics	P value
BOYS(5-7YEARS)	n=15, (75%)	n=5, (25%)	Fisher exact probability – 0.14	0.500
GIRLS(5-7YEARS)	n=16, (80%)	n=4, (20%)		
BOYS(8-10YEARS)	n=11, (55%)	n=9, (45%)	Chi square – 0.96	0.327
GIRLS(8-10YEARS)	n=14, (70%)	n=6, (30%)		
Boys	26	14	Chi square – 0.95	0.329
Girls	30	10		

TABLE 5:CHILDREN’S PREFERENCE FOR THE COLOR OF GLOVES.

Preference for the Color of gloves	Blue	White	Pink	Green	Purple	Chi square	P value
BOYS (5-7YEARS)	n=14, (70%)	n=3, (15%)	n=3, (15%)	n=0, (0%)	n=0, (0%)	22.25	0.0001
GIRLS (5-7YEARS)	n=0, (0%)	n=6, (30%)	n=13, (65%)	n=1, (5%)	n=0, (0%)		
BOYS (8-10YEARS)	n=12, (60%)	n=5, (25%)	n=1, (5%)	n=1, (5%)	n=1, (5%)	16.79	0.002
GIRLS (8-10YEARS)	n=4, (20%)	n=3, (15%)	n=13, (65%)	n=0, (0%)	n=0, (0%)		
Boys	26	8	4	1	1	33.33	0.0001
Girls	4	9	26	1	0		

TABLE 6: CHILDREN'S PREFERENCE FOR THE DENTIST NAME BADGE

Preference for the dentist badge	Yes	No	Fisher exact probability	P value
BOYS(5-7YEARS)	n=19, (95%)	n=1, (5%)	0.36	0.500
GIRLS(5-7YEARS)	n=18, (90%)	n=2, (10%)		
BOYS(7-8YEARS)	n=17, (85%)	n=3, (15%)	0.00	0.669
GIRLS(8-10YEARS)	n=17, (85%)	n=3, (15%)		
Boys	36	4	0.13	0.500
Girls	35	5		

TABLE7: CHILDREN'S PREFERENCE FOR THE USE OF PROTECTIVE EYEWEAR BY THE DENTIST

Preference for the protective eyewear.	Yes	No	Chi square	P value
BOYS(5-7YEARS)	n=12, (60%)	n=8, (40%)	0.90	0.342
GIRLS(5-7YEARS)	n=9, (45%)	n=11, (55%)		
BOYS(8-10YEARS)	n=11, (55%)	n=9, (45%)	0.90	0.342
GIRLS(8-10YEARS)	n=8, (40%)	n=12, (60%)		
Boys	23	17	1.80	0.180
Girls	17	23		

TABLE 8: CHILDREN'S PREFERENCE FOR THE COLOR OF DENTIST APRON

DENTIST APRON PREFERENCE	BLUE	RED	WHITE	GREEN	YELLOW	PINK	Chi square	P value
BOYS(5-7YEARS)	n=6, (30%)	n=4, (20%)	n=3, (15%)	n=2, (10%)	n=2, (10%)	n=3, (15%)	5.27	0.383
GIRLS(5-7YEARS)	n=3, (15%)	n=4, (20%)	n=3, (15%)	n=0, (0%)	n=2, (10%)	n=8, (40%)		
BOYS(8-10YEARS)	n=2, (10%)	n=7, (35%)	n=7, (35%)	n=1, (5%)	n=1, (5%)	n=2, (10%)	7.60	0.180
GIRLS(8-10YEARS)	n=2, (10%)	n=2, (10%)	n=4, (20%)	n=3, (15%)	n=3, (15%)	n=6, (30%)		
Boys	8	11	10	3	3	5	7.46	0.189
Girls	5	6	7	3	5	14		

TABLE 9: CHILDREN'S PREFERENCE FOR THE COLOR OF PATIENT APRON

Preference for the color of patient apron	Blue	Red	Green	White	Yellow	Pink	Chi square	P value
BOYS (5-7YEARS)	n=8, (40%)	n=4, (20%)	n=3, (15%)	n=0, (0%)	n=2, (10%)	n=3, (15%)	4.86	0.302
GIRLS (5-7YEARS)	n=3, (15%)	n=5, (25%)	n=2, (10%)	n=0, (0%)	n=2, (10%)	n=8,(40%)		
BOYS (8-10YEARS)	n=6, (30%)	n=6, (30%)	n=2, (10%)	n=1, (5%)	n=2, (10%)	n=3, (15%)	10.17	0.07
GIRLS (8-10YEARS)	n=4, (20%)	n=2, (10%)	n=3, (15%)	n=0, (0%)	n=0, (0%)	n=11, 55%)		
Boys	14	10	5	1	4	6	11.29	0.046
Girls	7	7	5	0	2	19		

TABLE 10: CHILDREN'S PREFERENCE FOR THE FISH TANK IN DENTAL OP

Preference for the fish tank	Yes	No	Fisher exact probability	P value
BOYS(5-7YEARS)	n=18, (90%)	n=2, (10%)	0.36	0.500
GIRLS(5-7YEARS)	n=19, (95%)	n=1, (5%)		
BOYS(8-10YEARS)	n=18, (90%)	n=2, (10%)	0.00	0.698
GIRLS(8-10YEARS)	n=18, (90%)	n=2, (10%)		
Boys	36	4	0.16	0.500
Girls	37	3		

TABLE 11: CHILDREN'S PREFERENCE FOR THE TYPE OF DENTAL CHAIR

Preference for the type of dental chair	Normal	Pediatric	Chi square	P value
BOYS(5-7YEARS)	n=6, (30%)	n=14, (70%)	0.53	0.465
GIRLS(5-7YEARS)	n=4, (20%)	n=16, (80%)		
BOYS(8-10YEARS)	n=11, (55%)	n=9, (45%)	1.62	0.204
GIRLS(8-10YEARS)	n=7, (35%)	n=13, (65%)		
Boys	17	23	1.98	0.160
Girls	11	29		

TABLE 12: CHILDREN'S PREFERENCE FOR THE DENTAL CHAIR WITH T.V

Preference for the dental chair with t.v	Yes	No	Fisher exact probability	P value
BOYS(5-7YEARS)	n=17, (85%)	n=3, (15%)	0.17	0.500
GIRLS(5-7YEARS)	n=16, (80%)	n=4, (20%)		
BOYS(8-10YEARS)	n=17, (85%)	n=3, (15%)	0.17	0.500
GIRLS(8-10YEARS)	n=16, (80%)	n=4, (20%)		
Boys	34	6	0.35	0.556
Girls	32	8		

TABLE 13: MOTIVATION OF CHILDREN FOR TOOTHBRUSHING USING DENTAL APP

Motivativation for toothbrushing	Positive	Negative	Fisher exact probability	P value
BOYS(5-7YEARS)	n=15, (75%)	n=5, (25%)	0.14	0.500
GIRLS(5-7YEARS)	n=16, (80%)	n=4, (20%)		
BOYS(8-10YEARS)	n=16, (80%)	n=4, (20%)	0.00	0.653
GIRLS(8-10YEARS)	n=16, (80%)	n=4, (20%)		
Boys	31	9	Chi square -	0.785
Girls	32	8	0.07	