

Children's Choice of Dentist's Attire, Colour, and Dental Clinic Environment: A Cross-Sectional Study in Ugbowo Benin City, Nigeria

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ABSTRACT

Background: The appearance of a dentist and the ambience of the dental clinic environment play an essential role in a child's behaviour and cooperation during a dental visit.

Objective: To assess children's knowledge of who a paediatric dentist is and evaluate their preference regarding the dentist's attire, dental clinic environment, and its effect on their dental anxiety

Methods: A descriptive cross-sectional study was conducted among 185 schoolchildren aged 6 to 12 years at the University of Benin and the University of Benin teaching hospital community, Benin City, Nigeria. A specially prepared interviewer-administered questionnaire with a colour chart was used to collect the information, while the modified dental anxiety scale was used to assess their dental anxiety. The children were provided with coloured pencils to shade the provided picture with their preferred colours. Data collected were entered and analyzed using IBM SPSS version 21. The results of the analysis were presented as bar charts, pie charts and tables. Test of association was done using Chi-square (χ^2) at a significance level of 0.05.

Results: Among the 185 study participants, 110(59.5%) were in the older age group, 96(51.9%) were females, and 113(61.1%) were in the Junior Secondary classes. Most (87%) described a paediatric dentist as a dentist treating children, and 120(65%) were graded as anxious. Ninety-five (51.4%) participants preferred long sleeves, and majority (65%) preferred non-white attire. The preferred coloured attire was yellow, 44(36.7%) and over half 156(57.3%) preferred plain colour attire. The preferred clinic wall colour was orange 37(20.0%) and yellow 17.8%. Vertically placed two colour contrast orientation was preferred in 106(57.2%) and with 62.2% preference for clinic wall with cartoon characters. The relationship between gender with choice of attire colour and age group, gender and class with preferred clinic wall colour was statistically significant ($P < 0.05$).

Conclusion: The participants have a good level of knowledge about who a paediatric dentist is. The most preferred colour of the dentist attire is yellow, while the most preferred colours of the dental clinic were yellow and orange. Participants preferred vertical colour contrast and cartoon character-designed walls.

Key words: Dental anxiety, dentist's attire, clinic wall, preference

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INTRODUCTION

Paediatric dental practice is faced with the challenges of managing dental pain and anxiety among paediatric dental patients. Often, a child's negative behaviour may prevent the effective delivery of dental care and may compromise the quality of dental treatment being given.¹ Awareness of age-appropriate milestones as well as an understanding of the development of emotional knowledge is essential for behaviour management in pediatric dental practice.² Children's perception and interpretation of their immediate environment, their response to this environment and their feelings when exposed to emotional situations depend largely on their emotional development and knowledge. A child's emotional development is of great importance to the paediatric dentist as it is also to the general dental practitioner. To achieve a good emotional understanding and stability in a child patient, several measures of emotional and social adaptation have been employed.³ These measures include the colour, design and patterns of the dentist's attire and the dental clinic environment. These measures aim to reduce the anticipated anxiety the child may have about the dentist, the dental clinic and the dental treatment itself.

The anticipated trait of anxiety is one of the greatest hindrances preventing a child dental patient from visiting the dental clinic and leads to the avoidance of dental care. Children in this category only seek dental treatment during emergencies. This delay leads to the children requiring invasive or traumatic treatment procedures, which will further aggravate their anxiety and ultimately lead to total avoidance of dental services in the future.⁴ Due to the possible effect of dental anxiety on future dental management, the importance of exploring all possible avenues to alleviate this fear and anxiety cannot be overemphasized.

There have been some assumptions by psychologists about the emotional significance of colour. Various colours can motivate, enthuse, pacify, heal, and even disturb and agitate, leading to mood changes. Umamaheshwari and co-author⁴ reported that if the colour of an environment positively impacts a child's behaviour, such colours may add to a child's comfort and ultimately reduce anxiety. Colour has a salient presence in everyone's life, especially in children. The clothes, toys, sports kits, home furniture, and other children's environments convey several psychological messages through colour.⁵ As reported in a previous study,⁶ the colour yellow is associated

with happiness, cheerfulness and a positive emotional state, while colour blue is associated with security calmness and comfort; green is to quietness; red is to anger, aggression and excitation; and black is to depression or anxiety.

In addition to colour, Ganesh et al², in a study investigating child preferences for dentists' attire and dental healthcare setting, found that the dental practitioner's attire, expressions, and gestures can significantly affect a child's anxiety level. They also stated that the dental clinic environment could contribute to a child's dental fear and anxiety and that visual supports may facilitate successful dental treatment outcomes.² Therefore, a successful paediatric dental practice depends not only on the technical knowledge and skills of the dental surgeon but also on the patient's attitudes and behaviour in the operatory.⁷

Our literature search did not reveal any studies available on who a paediatric dentist is, the preference of Nigerian children for the dentist's attire and dental clinic environment, and its effect on the child's anxiety. Hence, this study was aimed at assessing the knowledge of children on who a paediatric dentist is, evaluate children's preference regarding the dentist's attire, dental clinic environment, and its effect on their dental anxiety.

MATERIALS AND METHODS

Ethical approval was obtained from the University of Benin Research and Ethics Committee. Permission was sought from the principals of the selected schools, and written consent was obtained from parents/guardians of all participants. The study was planned in the Department of Paediatric and Preventive Dentistry, University of Benin Teaching Hospital (UBTH) and carried out among randomly selected children in the staff schools of the University of Benin Teaching Hospital and University of Benin Demonstration School in Ugbowo, Benin-city, Edo state, Nigeria.

This descriptive cross-sectional study was conducted among one hundred eighty-five senior primary and junior secondary children. Two staff schools were selected from the three staff schools in the university community using the simple random sampling technique. The participants included in this study were children aged 6 to 12 years, who were present on the study days and could communicate in English. The included participants could also understand the questions and were children with and without previous dental visits. The excluded participants were children who were too ill to participate, those

with special health care needs, and those whose parents did not consent to participate in the study. The sample size (N) was calculated based on the p-value for anxiety from a previous study⁸ and with $N = Z^2pq/d^2$ [N= sample size, $p=0.14$, $q=0.86$, $\alpha=0.05$]. An interviewer-administered questionnaire with closed-ended questions and charts of primary and secondary colours was used. The colours utilized were white, the primary colours (Blue, Red, and Yellow) and the secondary colours (Green, Orange Purple). In addition, coloured pencils like the primary and secondary colours were also used to write and record information about the colours being investigated. The questionnaire had a total of 13 questions in five sections: (1) demographic information; (2) questions assessing participants' knowledge of "who a Pediatric Dentist is"; (3) questions assessing child's anxiety using the Modified Dental Anxiety Scale(MDAS); (4) "questions assessing the child's preference regarding the colour and length of dentist's attire"; (5) "questions assessing the child's preference regarding the colour and design of the paediatric clinic wall." Scoring of participants' knowledge was done in three categories:(1) less than 40% correct was scored as poor knowledge; (2) between 40% and 59% was scored as fair knowledge; (3) above 60% was scored as good knowledge. There are numerous methods for the assessment of dental anxiety among children. One of these methods is the MDAS which was utilised in this study. The Modified Dental Anxiety Scale is a brief, five-item questionnaire with a consistent answering scheme for each item ranging from 'not anxious' to 'extremely anxious'. It is summed together to construct a Likert scale with a minimum score of 5 and a maximum of 25. A score of 15 or more is considered anxious, while scores less than 15 are considered non-anxious. A pretest of the questionnaire was conducted among paediatric patients in the paediatric dental clinic of the University of Benin teaching hospital to assess the understanding, ease of comprehension and validity of each component of the questionnaire. The participants who pretested the questionnaire expressed no difficulty in understanding the questionnaire. And on re-administration of the same questionnaire during the follow-up appointment at a four-week interval to test the reliability and consistency of answers. The pretesting produced a reliability of 91%. Ten percent (10%) of the minimum sample size for this study was used for pretesting and observed errors were corrected.

Informed consent was obtained from the study participants' parents, and permission was obtained from the school principal. Following this, each class teacher and study participant were fully informed about the study objectives, and assent was obtained from study participants. The questionnaire on socio-demographic characteristics of participants and on knowledge of "who a paediatric dentist is" was administered. After this, questions on the dental anxiety using the MDAS were asked, and questions on preferred dentist's attire followed this. Finally, questions on the preferred clinic wall paint and design were asked. In answering the preferred colours regarding the dentist attire and clinic wall, the participants were told to select their preferred crayon and shade the provided pictures. Those aged 6 to 9 years were classified as younger and 10 to 12 years as the older age group. Moreover, children in primary 5 and 6 were classified as senior primary class while those in junior secondary 1 and 2 were classified as junior secondary class.

All data were coded, entered and analyzed using IBM SPSS version 21. Descriptive data was expressed as frequencies and percentages. The data was analyzed and presented in the form of pie charts and frequency tables. Chi-square (χ^2) was used to determine associations between the socio-demographic variables (independent) and the studied variables (dependent) with significance level set at 0.05.

RESULTS

A total of one hundred and eighty-five children, aged 6 to 12 years with a mean age of 9.66 ± 1.686 participated in this study. One hundred and ten (59.5%) were in the older age group, 96(51.9%) were females, 113(61.1%) were in the junior secondary and 72(38.9%) in the senior primary classes. [Table 1]

Figure 1 shows the knowledge of "who a paediatric dentist is". And the majority of the participants 161(87%) described a pediatric dentist as a dentist that treats children.

Figure 2 shows the frequency of anxiety among the study participants, with 120(65%) of the study participants graded as anxious while Table 2 shows the preferred choice of Dentist Attire. Ninety-five (51.4%) participants preferred long sleeves over short sleeves, and most (65%) preferred coloured attire. In addition, 156(57.3%) participants preferred plain attire to pattern attires.

Among the numerous colours of dentist's attire investigated, yellow was the most preferred 44(36.7%), followed by purple 27(22.5%) and blue 23(19.2%). (Figure 3)

Table 3 reveals the preferred choice of clinic wall colour, pattern and characters. Majority 159(85.9%) preferred coloured clinic walls. One hundred and six (57.2%) preferred vertically oriented colour contrast, and 115(62.5%) preferred coloured walls with cartoon characters.

Among the numerous colours of clinic wall paintings investigated, orange was the most preferred 37(23.4%), followed by yellow 33(20.8%) and green 31(19.5%). (**Figure 4**)

Table 4 shows the association between socio-demographic characteristics and knowledge of who a paediatric dentist is. It revealed that 54(72.0%) participants of the younger age group (6-9) and 84(74.49%) of the older age group (10-12) knew who a paediatric dentist is. Regarding gender and class, eighty-one (81.0%) of female participants and 55(76.4%) participants in junior secondary class knew who a paediatric dentist is. There was a statistically significant difference ($P=0.030$) between both genders in their knowledge of who a paediatric dentist is. At the same time, there was no statistically significant difference ($P = 0.448$) between both classes concerning their knowledge of who a paediatric dentist is.

Table 5 shows the association between socio-demographic characteristics and graded anxiety. Majority 72(96%) of children in the younger age group, 66(66.0%) of females, and 56(77.8%) in senior primary children were graded as anxious. The association of age and class with dental anxiety were all statistically significant ($p<0.05$).

Table 6 shows the association between patients' socio-demographic characteristics and their preference of dentist's attire (colour, length of sleeve and pattern). With regard to colour, more participants in the older age group preferred a white coloured attire 42(38.2%), followed by a yellow 26(23.6%) and then purple-coloured attire 19(17.3%). In contrast, the younger age group preferred a white coloured attire 23(30.7), followed by a yellow 18(24.0) and blue-coloured attire 12(16.0). With regard to gender, female participants preferred a white coloured attire 38(38.0%), followed by a purple 22(22.0%) and yellow-coloured attire 19(19.0%), while the male participants preferred white 27(31.8%) followed by yellow 25(29.4%) and green 13(15.3%). The difference regarding the colour preference of the dentist's attire between the gender was statistically significant ($p=0.011$). An analysis of the participants' preference for dentist sleeve length showed that thirty-eight (50.7%) of the younger age

group, 52(52%) of females and 37(51.4%) of those in the junior primary classes preferred short sleeves. The difference regarding sleeve length preference of the dentist's attire between age group, gender and class was not statistically significant ($p>0.05$). Concerning the attire pattern preference, the majority 70(63.6%) of children in the older age group, more females 63(63%) and 44(61.1%) of those in junior primary classes preferred plain attire over printed patterned attire. However, the difference regarding patterned attire with age group was statistically significant ($p=0.022$).

Table 7 shows the association between patients' socio-demographic characteristics and their preference for clinic wall (colour, contrast orientation and cartoon characters). With regards to the colour of the clinic wall, more participants in the younger age group preferred yellow wall 27(36.0%), followed by orange 25(33.3%) and green(10.7%), while the older age group preferred purple-coloured wall 25(22.7%) followed by blue 24(21.8%) and green 23(20.9%). The difference in colour choice of the age groups concerning the colour of the clinic wall was statistically significant ($P=0.000$). With regard to gender, more female participants preferred purple-coloured wall 23(23.0%), followed by white 20(18.2%) and orange 19(19%), while more males preferred blue-coloured wall 21(24.7%), followed by orange 18(21.2%) and green 18(21.2%). The difference between gender and clinic wall colour was statistically significant ($p=0.001$). The clinic wall colour with the class of participants analysis revealed that children in senior primary classes preferred orange and yellow equally with 17(23%) followed by purple 16(22.2%), while those in junior secondary preferred blue 26(23.0%) followed by orange 20(17.7%) and white 20(17.7%). The difference between clinic wall colour preference and class of participants was statistically significant ($p=0.001$).

An analysis of the wall contrast preference in the respective groups showed that majority of participants in the younger age group 49(65.3%) and 57(51.8%) of older age group preferred vertical colour orientation. In addition, about half of the males 58.8% and females 56.8% participants, participants in senior primary (56.9%) and junior secondary (57.5%) preferred vertical colour orientation. The difference regarding clinic wall colour contrast orientation and age group, gender and class of participants was not statistically significant ($p>0.05$). With respect to cartoon character preference, the majority of the younger age group 52(69.3%) and

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over half 63(57.3%) of older age group preferred cartoon characters. In addition, majority of male participants (62.4%) and female participants (62.0%), participants in senior primary 50(69.4%)

classes preferred cartoon characters on the clinic wall. The association of age group, gender and class of participants with clinic wall cartoon characters was not statistically significant ($p>0.05$).

TABLE 1: Socio-Demographic characteristics of participants

Variable	Frequency(n = 185)	Percent	Mean(SD)
Age group(years)			9.66 ± 1.686
6-9	75	40.5	
10-12	110	59.5	
Gender			
Male	89	48.1	
Female	96	51.9	
Class			
Pry 5-6	72	38.9	
JSS1-3	113	61.1	

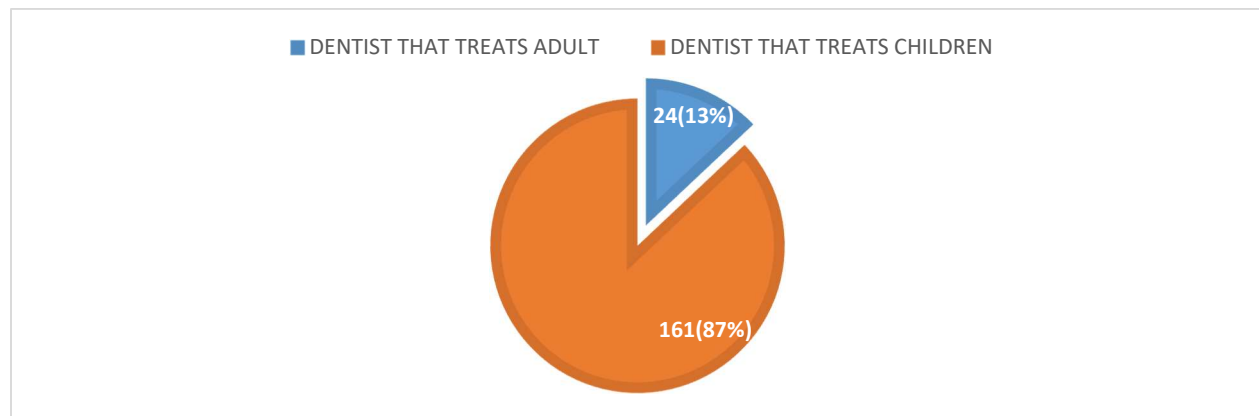


FIG 1: Study participant's knowledge about who a paediatric dentist is

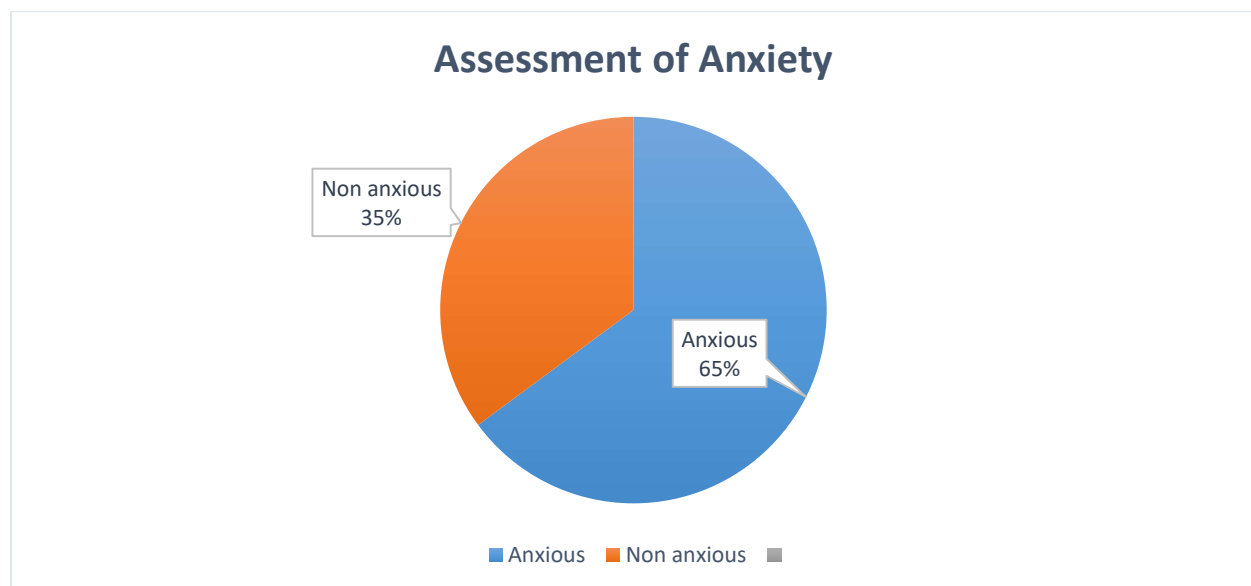


FIG 2: Frequency of anxiety among the study participants

TABLE 2: Preferences of Pediatric Dental Patients as regard attire (sleeve, colour and pattern)

Variable	Frequency	Percent
Preferred Dentist attire(sleeve)(n = 185)		
Short sleeve	90	48.6
Long sleeve	95	51.4
Preferred colour(n = 185)		
White	65	35.0
Coloured	120	65.0
Preferred colour pattern(n = 185)		
Plain coloured	105	56.8
Printed coloured	80	43.2

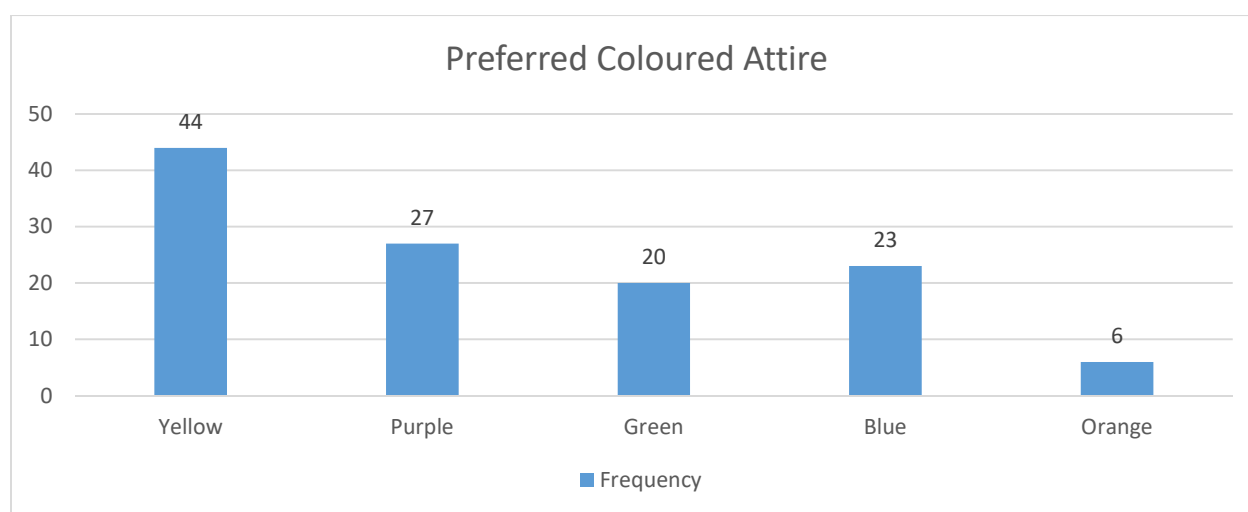


Figure 3: Frequency of preferred coloured attire

TABLE 3: Preferences of Pediatric Patients as regards clinic wall colour combination painting orientation and pattern

Variable	Freq	Percent
Preferred colour(n = 185)		
White	26	14.1
Coloured	159	85.9
Preferred two wall colour orientation		
Horizontal	79	42.7
Vertical	106	57.2
Wall colour alone or with cartoon character		
Colour alone	70	37.8
Colour with cartoon character	115	62.2

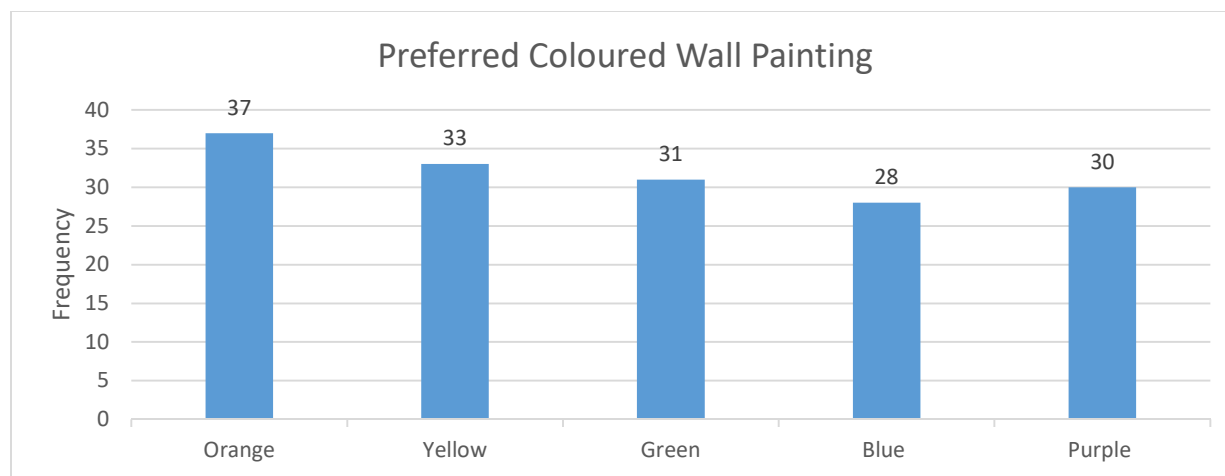


Figure 4: Frequency of Coloured wall paintings

TABLE 4: Association between socio-demographic characteristics with knowledge of who a pediatric dentist is

Variable	Who is a Paediatric Dentist?		Total N(%)
	Correct answer Freq(%)	Wrong answer Freq(%)	
Age	$\chi^2 = 0.448, p = 0.503$		
6-9	54(72.0)	21(28.0)	75(100)
10-12	84(74.4)	26(23.6)	110(100)
Gender	$\chi^2 = 4.712, P=0.030$		
Male	57(67.1)	28(32.9)	85(100)
Female	81(81.0)	19(19.0)	100(100)
Class	$\chi^2 = 0.200, P=0.655$		
Pry 5-6	55(76.4)	17(23.6)	72(100)
JSS 1-3	83(73.5)	30(26.5)	113(100)

TABLE 5: Association between socio-demographic characteristics with graded Anxiety

Variable	Graded Anxiety		Total N(%)
	Yes Freq(%)	No Freq(%)	
Age	$\chi^2 = 40.752, p=0.001^*$		
6-9	72(96.0)	3(4.0)	75(100)
10-12	48(43.6)	62(56.4)	110(100)
Gender	$\chi^2 = 0.332, p=0.564$		
Male	54(63.5)	31(36.5)	85(100)
Female	66(66.0)	34(34.0)	100(100)
Class	$\chi^2 = 8.624, p=0.003^*$		
Pry 5-6	56(77.8)	16(22.2)	72(100)
JSS 1-3	64(56.6)	49(43.4)	113(100)

Table 6 Association between socio-demographic characteristics and preference of dentist's attire (Colour, length of sleeve and pattern)

Variable	Preferred Attire(colour)						Preferred sleeve length		Preferred attire pattern	
	Orange	Yellow	Green	Blue	Purple	White	Short	Long	Plain	Printed
Age	$\chi^2 = 5.301, p=0.380$						$\chi^2 = 0.206, p=0.650$		$\chi^2 = 5.232, p=0.022$	
6-9	3(4.0)	18(24.0)	11(14.6)	12(16.0)	8(10.7)	23(30.7)	38(50.7)	37(49.3)	35(46.7)	40(53.3)
10-12	3(2.7)	26(23.6)	9(8.2)	11(10.0)	19(17.3)	42(38.2)	52(47.3)	58(52.7)	70(63.6)	40(36.4)
Gender	$\chi^2 = 14.774, p=0.011$						$\chi^2 = 0.979, p=0.323$		$\chi^2 = 3.457, p=0.063$	
Male	4(4.7)	25(29.4)	13(15.3)	11(12.9)	5(5.9)	27(31.8)	38(44.7)	47(55.3)	42(49.4)	43(50.6)
Female	2(2.0)	19(19.0)	7(7.0)	12(12.0)	22(22.0)	38(38.0)	52(52.0)	48(48.0)	63(63.0)	37(37.0)
Class	$\chi^2 = 8.060, p=0.153$						$\chi^2 = 0.354, p=0.552$		$\chi^2 = 0.911, p=0.340$	
Pry 5-6	3(4.2)	14(19.4)	11(15.3)	5(6.9)	9(12.5)	30(41.7)	37(51.4)	35(48.6)	44(61.1)	28(38.9)
JSS 1-3	3(2.7)	30(26.5)	9(8.0)	18(15.9)	18(15.9)	35(31.0)	53(46.9)	60(51.3)	61(54.0)	52(46.0)

TABLE 7: Association between socio-demographic with preference of dental clinic wall(colour, contrast orientation and cartoon characters)

Variable	Wall colour preference(n=185)						Wall colour contrast orientation(n=185)		Wall without or with cartoon characters(n=185)	
	Orange	Yellow	Green	Blue	Purple	White	Horizontal	Vertical	Without	With
Age	$\chi^2 = 55.719, p=0.000$						$p=0.068$		$p=0.097$	
6-9	25(33.3)	27(36.0)	8(10.7)	4(5.3)	5(6.7)	6(8.0)	26(34.7)	49(65.3)	23(30.7)	52(69.3)
10-12	12(10.9)	6(5.5)	23(20.9)	24(21.8)	25(22.7)	20(18.2)	53(48.2)	57(51.8)	47(42.7)	63(57.3)
Gender	$\chi^2 = 23.114, p=0.001$						$p=0.699$		$p=0.961$	
Male	18(21.2)	15(17.6)	18(21.2)	21(24.7)	7(8.2)	6(7.1)	35(41.2)	50(58.8)	32(37.6)	53(62.4)
Female	19(19.0)	18(18.0)	13(13.0)	7(7.0)	23(23.0)	20(20.0)	44(44.0)	56(56.8)	38(38.0)	62(62.0)
Class	$\chi^2 = 20.739, p=0.001$						$p=0.938$		$p=0.103$	
Pry 5-6	17(23.6)	17(23.6)	14(19.4)	2(2.8)	16(22.2)	6(8.3)	31(43.1)	41(56.9)	22(30.6)	50(69.4)
JSS 1-3	20(17.7)	16(14.2)	17(15.0)	26(23.0)	14(12.4)	20(17.7)	48(42.5)	65(57.5)	48(42.5)	65(57.5)

DISCUSSION

A paediatric dentist is a specially trained dentist who focuses on the oral care of children from infancy through adolescence, including those with special health care needs. Majority of the study participants knew who a paediatric dentist is. The rationale behind this finding could be due to the simple way our question was phrased. In essence, a child that understands what paediatric means could easily answer the question. In addition, the role of age⁹ and social interaction¹⁰ in acquiring knowledge could have also contributed to this reported finding. Paediatric dentists are often faced with anxious children who due to their anxiety make dental treatment quite challenging. Dental anxiety in children has been a main concern to the paediatric dentist because it is a major barrier to dental care among this age group. It is, therefore crucial that the

dentist assesses the level of anxiety in children when they present in the clinic. This assessment provides a basis for predicting patients' attitudes toward dental care. Several factors may trigger anxiety in a child patient. Some of these factors include how the child perceives his/her dentist and the dental environment.⁶ The colour and design of the dentist's attire may ally or trigger anxiety in children.² In this study, most participants were graded as dentally anxious, a finding similar to that by Asokan *et al.*⁵ This further shows that dental fear and anxiety about dental procedures are common in children.¹¹ Although no statistically significant difference was seen between genders, female participants were more anxious than male participants. This is similar to those of Rajwar AS *et al.*,¹² Singh P *et al.*,¹³ and Saatchi M *et al.*,¹⁴ but contrary to Shim *et al.*¹⁵ and Talo *et al.*¹⁶ The rationale behind this finding could be

attributed to the fact that females are more responsive to a particular stimulus (like fear of the needle), and the trend that males tend to hide their fears due to their conventional gender role. Participants in the younger age group and those in the senior primary were more anxious than those in the older age group and in Junior Secondary classes. This finding was similar to those of Annamary *et al.*,¹⁷ and Alasmari *et al.*¹⁸ This could be attributed to the feelings of the unknown and of abandonment seen among younger children.

In this study, most participants preferred coloured dentist attire to white dentist attire. This finding is similar to that of Asokan *et al.*,⁵ but contrary to the study by Mistry and Tahmassebi.¹⁹ Previous experience with medical personnel in white coats would have influenced the choice of our study participants. In their study, children were not afraid of the physician in white coats because, according to the authors,¹⁹ the participants considered them more competent and concerned. Among all the participants, the yellow-coloured attire was the most preferred, followed by purple and blue. This finding is similar to that of Umamaheshwari and coauthors,⁴ and Sanguida *et al.*,²⁰ where yellow was one of the preferred colours but varies in the sequence of colour preference. The difference between their study and ours may be attributed to the choice of colours investigated in our study. Among the two genders, yellow-coloured attire was one of the colours preferred by both genders. This may be attributed to the cheerfulness, happiness and a positive emotional state the colour gives. It may also be associated with the subtle distraction its brightness confers on children. Regarding the length of the dentist's attire sleeve, male participants' preferred long-sleeved attire, while female participants preferred short-sleeved attire. This gender preference may be because males are more inclined towards formal dressing,²¹ hence their choice of full coverage, while females are inclined more towards informal dressing,²² hence their choice of a shorter sleeve. This preference towards formal or informal by males and females may be especially strong for opposite-gender appraisers. In addition, the older age group and those in Junior Secondary preferred long sleeves, while the younger age group and those in senior primary preferred short sleeves. This finding may be related to the role of increasing childhood maturity with an inclination towards formality.

As regards the choice of plain over printed attires, females showed preference for plain over printed

attire while male had no preference. This finding is at variance with a near similar study by Sanguida *et al.*,²⁰ where plain and printed face mask attire were compared, and males had preference for plain attire. The personality and mood of the study participants at the time in both studies would have influenced their preferred choice. The older age group and those in Junior Secondary classes preferred plain attire, while the younger preferred printed attire. This finding is similar to that by Sanguida *et al.*²⁰ The role of increasing childhood maturity with tendency toward simplicity would have influenced their choice. A pleasant and colourful dental environment not only relieves a child's dental anxiety but also projects the pervasive quality of the dental office. In this study, participants preferred coloured walls to plain white walls. This finding is similar to several studies by Umamaheshwari *et al.*,⁴ Annamary *et al.*,¹⁷ and Moussa AS.²² The preference for coloured clinic walls over white may be attributed to the positive emotions associated with colours, and the believe that white is associated with the hospital environment.²³ Among the preferred colours, orange was the most preferred followed by yellow and green. This finding partially agrees with the study by Moussa AS.²² where yellow and green were the preferred wall colours. The difference between their study and ours as regards the first preferred colour can be attributed to the choice of colours investigated. Among the two genders, the blue-coloured followed by a yellow-coloured clinic wall was preferred among males while purple-coloured followed by an orange-coloured clinic wall was preferred among the female. The historical belief that the colour blue is masculine and the colour purple is feminine could have contributed to the finding in this study. The younger age group and those in senior primary classes have significant preference for yellow followed by orange, while the older age group and those in junior secondary classes preferred significantly blue coloured clinic wall. The finding in this study is similar to that of Umamaheshwari *et al.*⁴ The colour blue symbolizes serenity, stability and inspiration, while purple is an inspirational colour that sparks the imagination and encourages one to try new things, orange symbolizes a combination of passion and positivity. No wonder literature^{24,25} reported that children viewing happy scenes use yellow and orange among other colours to depict their positive feelings.

The clinic wall colour contrast combination will undoubtedly add to the clinic ambience. In this study,

most participants preferred vertical clinic wall colour contrast orientation. This preference for vertical colour contrast orientation was seen among all age groups, both genders and all classes of the study participants. The rationale behind this preferred vertical orientation could be that the children were very comfortable with it, and they could identify playfulness with it for picture pose. The horizontal line, on the other hand, might have appeared more formal and as such, the children weren't comfortable with it and couldn't identify playfulness with it.

This study further evaluated the preference for cartoon characters, and most participants preferred the clinic wall to have cartoon characters. This agrees with a previous study by Ganesh et al.² This preference was seen majorly among the younger age group, those in senior primary and both genders. As regards age group and cartoon design preference, our study agrees with that of Jayakaran et al.,⁶ who reported that the majority of the younger age group preferred cartoon designs. The cartoon designs preference seen among all the study participants could be attributed to the fact that cartoon characters are filled with imaginary creativity, which the children are used to.

CONCLUSION

The participants have a good level of knowledge about who a paediatric dentist is. The most preferred colour of the dentist attire was yellow, while the most preferred colours of the dental clinic were yellow and orange. Participants preferred vertical colour contrast and cartoon character-designed walls

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None declared

REFERENCES

- Hotwani K and Sharma K. Assessment of the impact of colors on child's anxiety and treatment preference for local anesthesia injections. *J Adv Oral Res.* 2017; 8(1-2):42-46. doi:10.1177/2229411217729084
- Ganesh G, Peedikayil F, Kottayi S, Chandru T. Child preferences for the dentist attire and dental healthcare setting: a cross-sectional study. *Sci Dent J.* 2021;5(1):28-32 doi: 10.4103/sdj.sdj_16_20
- Appukkuttan DP. Strategies to manage patients with dental anxiety and dental phobia: a literature review. *Clin Cosmet Investig Dent.* 2016; 8:35-50.
- Umamaheshwari N, Asokan S, Thanga KS. Child-friendly colors in a pediatric dental practice. 2013; 31(4):21-24. doi:10.4103/0970-4388.121817
- Asokan A, Kambalimath HV, Patil RU, Maran S, Bharath KP. A survey of the dentist attire and gender preferences in dentally anxious children. *J Indian Soc Pedod Prev Dent.* 2016; 34(1):30-35. doi:10.4103/0970-4388.175507
- Jayakaran TG, Rekha CV, Annamalai S. Preferences and choices of a child concerning the environment in a pediatric dental operatory. 2017; 14(3):183-187. doi:10.4103/1735-3327.208767
- Akbay OA, Dülgergil CT, Sönmez IS. Prevalence of dental anxiety in 7- to 11-year-old children and its relationship to dental caries. *Med Princ Pr.* 2009; 18(6):453-457.
- Labrell F, Mikaeloff Y, Perdry H, Dellatolas G. Time knowledge acquisition in children aged 6 to 11 years and its relationship with numerical skills. *J Exp Child Psychol.* 2015; 143:1-13
- Lytle SR and Kuhl PK. Social Interaction and Language Acquisition. *The Handbook of Psycholinguistics.* 2017; 615-634. doi:10.1002/9781118829516.ch27
- Kakkar M, Wahi A, Thakkar R, Vohra I, Shukla AK. Prevalence of dental anxiety in 10-14 years old children and its implications. *J Dent Anesth Pain Med.* 2016; 16:199-202.
- Viswanath D, Kumar MR, Prabhujji MLV. Dental anxiety, fear and phobia in children. *Int. J Dent Res Dev.* 2014; 4. 2250-2386.
- Rajwar AS, Goswami M. Prevalence of dental fear and its causes using three measurement scales among children in New Delhi. *J Indian Soc Pedod Prev Dent.* 2017; 35:128-133
- Singh P, Pandey R, Nagar A, Dutt K. Reliability and factor analysis of children's fear survey schedule-dental subscale in Indian subjects. *J Indian Soc Pedod Prev Dent.* 2010; 28:1532-1534.
- Saatchi M, Abtahi M, Mohammadi G, Mirdamadi M, Binandeh ES. The prevalence of dental anxiety and fear in patients referred to Isfahan Dental School, Iran. *Dent Res J(Isfahan).* 2015; 12:248-253.
- Shim YS, Kim AH, Jeon EY AS. Dental fear & anxiety and dental pain in children and adolescents; a systemic review. *J Dent Anesth Pain Med.* 2015; 15:52-61
- Talo Yildirim T, Dundar S, Bozoglan A, Karaman T, Dildes N, Acun Kaya F et al. Is there a relation

- between dental anxiety, fear and general psychological status? Peer J. 2017; 5: e2978.
17. Annamary K, Prathima GS, Sajeev R. Colour preference to emotions in relation to the anxiety level among school children in Puducherry – a cross-sectional study. 2016; 10(7):26-30. doi:10.7860/JCDR/2016/18506.8128.
 18. Alasmari A. Dental anxiety in children: a review of the contributing factors. 2018; 10-13. doi:10.7860/JCDR/2018/35081.11379.
 19. Mistry D, Tahmassebi JF. Children's and parents' attitudes towards dentists' attire. Eur Archs Paediatr Dent. 2009; 10(4): 237-240.
 20. Sanguida A, Suwetha R, Dharani MS, Ramya K, Ezhumalai G. Children's choice of dentist's attire, color, and type of mouth mask: a cross-sectional study in Puducherry, India. J Sci Dent. 2019; 9:1-5.
 21. Sebastian RJ, Bristow D. "Formal or Informal? The Impact of Style of Dress and Forms of Address on Business Students' Perceptions of Professors." Journal of Education for Business. 2008; 83(4): 196–201.
 22. Moussa SA. Child's preferred colors role in a pedodontic practice based on children's heart rates. Oral Health Dent Manag. 2014; 13(2):106-111.
 23. Pantalony D. The colour of medicine. Canadian Medical Association Journal. 2009; 181:402-403.

**APPENDIX I
QUESTIONNAIRE**

Children's preference regarding the dentist's attire, the dental clinic environment, and perception of their level of dental anxiety

Target population: Children aged 6 to 12 years.

(a) Biodata:

Age [] Gender [] Class: []

(b) Knowledge

1. Who is a Paediatric dentist?

(a) A Dentist that treats Children [] (b) A Dentist that treats adults []

(c) Anxiety assessment

Tell us, how anxious or afraid or scared you will be if you are to visit the dentist.

1. If you went to your dentist for treatment tomorrow, how would you feel?

Not Anxious [] Slightly Anxious [] Fairly Anxious [] Very Anxious [] Extremely Anxious []

2. How would you feel if you were sitting in the waiting room (waiting for treatment)?

Not Anxious [] Slightly Anxious [] Fairly Anxious [] Very Anxious [] Extremely Anxious []

3. If you were about to have a tooth drilled, how would you feel?

Not Anxious [] Slightly Anxious [] Fairly Anxious [] Very Anxious [] Extremely Anxious []

4. If you were about to have your teeth cleaned by the dentist, how would you feel?

Not Anxious [] Slightly Anxious [] Fairly Anxious [] Very Anxious [] Extremely Anxious []

5. If you were about to have an injection in your gum, above an upper back tooth, how would you feel?

Not Anxious [] Slightly Anxious [] Fairly Anxious [] Very Anxious [] Extremely Anxious []

WHICH OF THE FOLLOWING OUTFITS WOULD YOU LIKE YOUR DENTIST TO WEAR? WHICH OF THESE OUTFITS WILL MAKE YOU HAPPY AND NOT SCARED?

Please kindly indicate your preferred choice.

PAEDIATRIC DENTIST ATTIRE

(d)

1) Tick your preferred sleeve



Children's Choice of Dentist's Attire, Color, and Dental Clinic Environment

Paediatric Dentist attire, short sleeve []

Paediatric Dentist attire, long sleeve []

2) Tick your preferred colour

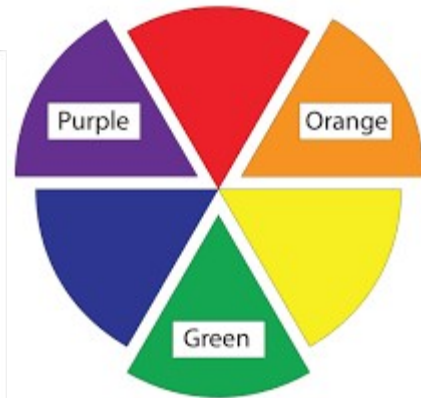


White []



Not white []

3) IF NOT WHITE,



Select your preferred colour and shade the shirt above

4) Choose if you prefer plain-coloured or printed-coloured attire



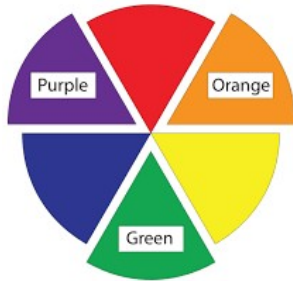
Plain coloured []



Printed coloured []

5) You are to suggest your preferred paint colour for the paediatric clinic (the colour that you would like to be on the clinic wall, that will make you happy and not scared) on your next visit. Please kindly indicate your preferred choice.

(e) PAEDIATRIC DENTAL CLINIC PAINTING COLOUR AND DESIGNS

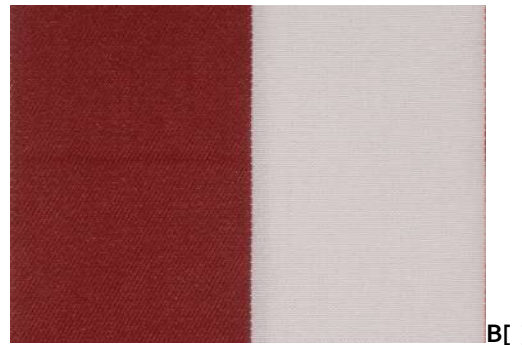


1. What is your preferred colour for our clinic wall painting, please select and paint

2. If the clinic wall is to have 2 colours, which colours would you like and which way would you like the colours to lie (image A or B)"



A[]



B[]

2. What is your preference for the clinic wall?



Coloured painting alone[]



Coloured painting with cartoon character design[]