

# Assessment of Anxiety among Pediatric Patients of Age 5–12 Years, Toward Dentist with and without Personal Protective Equipments

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## Abstract

**Introduction:** The widespread transmission of COVID-19 pandemic has increased the need for Personal Protective Equipment (PPE) in dental and all health care settings. Treating child patients with the use of PPEs increase the efforts of dentists to manage the child and to make the parents convinced about the treatment modalities.

**Aim:** The aim of this study was to evaluate the anxiety in pediatric patients toward dentist with and without wearing PPE s using Buchanan's facial image scale.

**Materials and Methods:** Forty children (22 males and 18 females) were included in this study. They were examined by a dentist in normal attire in the first appointment, and dentist wearing PPEs in the next appointment, respectively. Anxiety rate was assessed using Buchanan's facial image scale in both appointments.

**Results:** Anxiety rate was found to be increased in the second appointment by mean score of 1.20. There was no statistically significant association between gender and anxiety of children toward a dentist wearing PPEs.

**Conclusion:** Efforts to practice with child friendly PPE s should be encouraged and success should be evaluated.

**Key words:** Anxiety, COVID-19, Pediatric patients, Personal protective equipments

## INTRODUCTION

Dental fear and anxiety are a significant issue that affects pediatric patients and creates challenges in oral health management.<sup>[1]</sup> The importance of a person's outlook was highlighted by psychologists to develop a positive interpersonal relationship. There is still a continuing debate regarding dentists' attire and the choice of a white coat, suit, scrubs, or personal protective equipments (PPE) influence patient's view of dentist.<sup>[2]</sup> Several studies were published regarding child's preference toward dentist attire. However, all the studies give an overall view on child's preference

level toward white coat, scrubs, formal attire, or a child friendly attire. It is important to understand the reasons behind their preference for particular attire and it should be on their own views and to their level of understanding.

The widespread transmission of COVID-19 pandemic has increased the need for PPE in dental and all health care settings. To maximize the quality of patient care, the protection of patients and dental staff PPE is part of standard precautions for infection prevention and control. The term PPE is used to describe all protective equipment that a dentist or dental nurse may use in the surgery such as gloves, gowns, shoe covers, head covers, masks, respirators, eye protection, face shields, and goggles.<sup>[3]</sup> With regard to pediatric dentistry, the PPE affects the voice tone, makes it more difficult for children to understand what a dentist is communicating, does not allow children to read facial expressions which are important for building their trust with a dentist, adds to white coat syndrome, and overall hinders interaction with the patient.<sup>[1]</sup> Although some

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techniques to manage the anxiety level are still possible and still performed, the additional safety measures may effectively worsen the relationship between pediatric patients and dental surgeons. Treating child patients with the use of PPE increase the efforts of dentists to manage the child and to make the parents convince about the treatment modalities.<sup>[4]</sup> It is usually more common that the child patient gets frightened and shows hesitation to treatment in a normal clinical atmosphere during this pandemic period. Efforts to practice with child friendly PPE's should be encouraged and success should be evaluated. The present study is a cross-sectional study to evaluate the anxiety in pediatric patients toward dentist with and without PPE s using Buchanan's facial image scale.

**MATERIALS AND METHODS**

The study was a cross-sectional study conducted among 40 children<sup>[5]</sup> (22 males and 18 females) presenting to the outpatient Department of Pediatric Dentistry, Government Dental College, Kottayam aged between 5 and 12 years. Parent's consent and child's assent were taken before the study. Two appointments were scheduled to clinically examine the patients. Clinical examination was carried out using mouth mirror and No 23 explorer. Child participants were examined by a dentist without wearing PPEs in the first appointment and the same children were examined in the next appointment by a dentist wearing PPEs. The child was instructed to choose an image from the Buchanan's facial image scale [Figure 1] in both the appointments based on their emotion during clinical examination. Scoring was done to evaluate the anxiety level, based on the image chosen by the patient. Child with no anxiety had a score of 1, low anxiety had a score of 2, moderate anxiety had a score of 3, high anxiety had a score of 4, and very high anxiety had a score of 5 [Table 1].

**Inclusion Criteria**

The following criteria were included in the study:

- Adults and children who were able to understand and communicate in English or Malayalam language.
- Children who were between 5 and 12 years of age
- Children with physical status level ASA I and II.

**Exclusion Criteria**

The following criteria were excluded from the study:

- Children who were cognitively disabled and unable to complete the survey independently.
- Children of ASA III and above.
- Children who were not accompanied by their parents.

Statistical analysis was done using SPSS software version 16. Inferential statistics were done using paired and unpaired *t*-test.

**RESULTS**

Demographic data included 40 study subjects who underwent clinical examination by a dentist before and after wearing PPEs, in which 22 were male and 18 were female. Anxiety rate was evaluated with the help of images chosen by the child participant from the Buchanan's facial image scale and scoring was done accordingly.

The mean anxiety rate among the total participants was found to be 2.53, when they were examined by a dentist without wearing any PPE in the first appointment. The mean anxiety rate was found to be increased to 3.73, when the same children were examined by a dentist wearing PPEs in the next appointment. This clearly shows an increase of mean score of anxiety rate by 1.20 in children, when they had been examined by a dentist with PPE s [Table 2].

Paired *t*-test was carried out and there was a statistically significant difference in the anxiety rate in children during clinical examination by a dentist before and after wearing PPE s [Table 3].

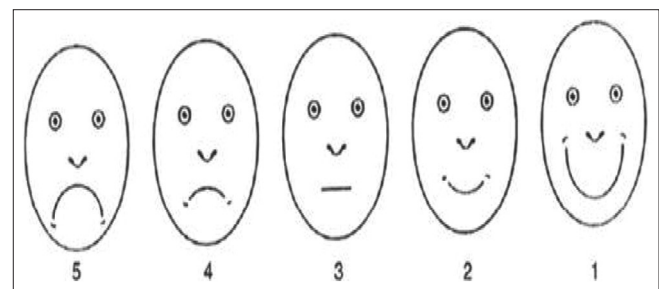


Figure 1: Buchanan's facial image scale

**Table 1: Anxiety scores**

Anxiety level	Scores
No anxiety	1
Low anxiety	2
Moderate anxiety	3
High anxiety	4
Very high anxiety	5

**Table 2: Mean anxiety score before and after PPE**

Anxiety scale	Mean	n	S.D
Anxiety scale before PPE	2.53	40	0.905
Anxiety scale after PPE	3.73	40	1.086

PPE: Personal protective equipment

Among the total of 40 study participants, 18 participants were female which formed 45% of study sample and 22 participants were male which formed 55% of study sample [Table 4].

Change in anxiety in both the genders was found and mean change in anxiety among males was found to be 1.09 and mean change in anxiety among females was 1.33 [Table 5].

Table 6 indicates the significance of change in anxiety in both the genders. Independent *t*-test was carried out and Levene's test for equality of variances was considered and it was found that there was no significant association of change in anxiety in children of both genders during oral examination by a dentist before and after wearing PPEs.

## DISCUSSION

Verbal communication and eye contact are key factors involved in managing patients, especially in case of pediatric patients in dental clinics. During the spread of COVID-19

**Table 3: Paired differences in anxiety scale before and after PPE**

	Paired Differences		df	Sig. (2-tailed)
	Mean	SD		
Anxiety scale before PPE – Anxiety scale after PPE	-1.200	0.608	39	0.000

PPE: Personal protective equipment

**Table 4: Gender distribution of study population**

Valid	Frequency	Percent
F	18	45.0
M	22	55.0
Total	40	100.0

**Table 5: Mean score of change in anxiety among males and females**

Gender	N	Mean	SD
Change in anxiety			
Male	22	1.09	0.610
Female	18	1.33	0.594

**Table 6: Significance of change in anxiety in both the genders**

Independent sample <i>t</i> -test					
Change in anxiety	F	Sig.	<i>t</i>	df	<i>P</i> -value
Equal variances assumed	0.799	0.377	-1.265	38	0.214
Equal variances not assumed			-1.268	36.810	0.213

pandemic, it became a necessary protocol to work under PPEs. Apart from the safer side of this practice during the pandemic, child's perspective toward the dentist was challenging. Majority of the children were found to be anxious and fearful while seeing a dentist wearing PPEs than a dentist in formal attire.

The present study focused on the anxiety assessment in a child toward a dentist with and without PPEs. Anxiety rate was assessed by Buchanan's facial image scale. The child's anxiety level was found to be increased, when they had been examined by a dentist wearing PPEs. This showed that there was a statistically significant association between anxiety of children and personal protective wear of the dentist. This result was in agreement with a study conducted by Ravikumar *et al.* (2016).<sup>[6]</sup> According to the author, children preferred their pediatric dentist to wear white coat and colored scrubs, but they were highly anxious on seeing their dentist with protective wear. The present study's results were in contrast to a study conducted by Tong *et al.* (2014).<sup>[7]</sup> Majority of the child patients participated in this study chose PPE kit as better attire for the dentist.

When gender was considered in assessing anxiety, it was found that there is no significant association between gender and anxiety of children toward dentist wearing PPEs. This result was in agreement with a study conducted by Singh *et al.* (2020).<sup>[8]</sup> This study stated that females had a similar level of dental anxiety as compared to males. The results of the present study were in contrast to a study by Vlad *et al.* (2020),<sup>[9]</sup> which pointed out that dental anxiety was found to be higher in female children than males, but anxiety toward PPEs was not considered in any of these studies.

## CONCLUSION

In the present scenario of COVID-19 pandemic, role of PPEs had become inevitable. However, the child's perspective toward protective wear was always challenging to a pediatric dentist. Anxiety rate of child patients was found to be increased, when the child was examined by a dentist wearing PPEs and there was no significant association between gender of the child and their anxiety toward a dentist with protective wear. To tackle the anxiety, protective wear can be made colored or cartoon printed and can be made a child friendly one.

## LIMITATIONS OF THE STUDY

The study was done in a small sample of children, which could have influenced the outcome.

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