

## A QUESTIONNAIRE SURVEY ON THE KNOWLEDGE OF PEDIATRIC DENTISTRY: A MANDATORY STEP

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## ABSTRACT

**Background:** The first set of teeth to erupt in the oral cavity are primary teeth. However, because the majority of people think that primary teeth will eventually fall out and that it is unnecessary to spend time and money conserving them, these teeth are frequently ignored despite their significance. A child's primary teeth are an important resource because they preserve space and are essential for mastication, phonetics, and aesthetics. Many issues can be prevented by keeping primary teeth in place, including underdevelopment of the basal bone that causes crowding in the permanent dentition and space loss for the eruption of permanent replacement. **Objective:**

- To assess the knowledge and awareness among the general dentists' and postgraduates' (excluding pedodontist) regarding Pediatric Dentistry.
- To compare the knowledge among general dentists' and postgraduates' regarding Pediatric Dentistry,

**Method:** A close ended questionnaire was circulated among general dentists and postgraduates (excluding pedodontist) through electronic media and results were evaluated. Statistical analysis was performed using appropriate software. **Results:** Result concluded that General practitioners and postgraduate students were not aware regarding primary dentition and treatment modalities of pediatric dentistry. **Conclusion:** Knowledge of appropriate primary tooth treatment modalities among various specialties can facilitate appropriate treatment planning and improve retention of deciduous tooth till the emergence of permanent teeth.

## INTRODUCTION

The initial set of teeth to emerge in the oral cavity are known as primary teeth. Unaware of their significance, these teeth are frequently disregarded because the majority of people think that main teeth will ultimately fall off and that there is no need to invest time and money in their preservation. Teeth extracted before the recommended exfoliation period may result in underdevelopment of the basal bone, which can cause crowding in the permanent dentition, and loss of space for the eruption of their permanent successor.<sup>[1]</sup> By preserving deciduous teeth, these problems can be avoided. The care of primary teeth, especially their rehabilitation, is still an unexplored enigma.<sup>[2]</sup> Aesthetic rehabilitation in children plays a role in aesthetics, phonetics and elevates the self-esteem of the child.<sup>[3]</sup> Pediatricians occupy a privileged position since they are the first people to monitor a child's health at a very early age, which allows for early assessment of the child's oral health. When parents are well-informed about oral health

and the value of the primary dentition, they can appropriately intervene on their behalf or refer them to a dentist or pedodontist for additional care.<sup>[1]</sup> As general practitioners form a major component of dental practitioners in the urban and rural population, their understanding and awareness regarding rehabilitation of primary teeth is a major unexplored area.<sup>[2]</sup> Often it is noted that general practitioners and dental graduates fail to recognize the importance of primary teeth.<sup>[3]</sup> So the present study was undertaken to assess the awareness and knowledge regarding pediatric dentistry among postgraduate students (except pediatric dentist) and general dentists.

## AIM AND OBJECTIVES

- To assess the knowledge and awareness among the general dentists' and postgraduates' (excluding pediatric dentist) regarding Pediatric Dentistry using a questionnaire.

- To compare the knowledge among general dentists' and postgraduates' regarding Pediatric Dentistry.

### MATERIALS AND METHODOLOGY

A cross-sectional study was carried out involving 252 participants, comprising general practitioners and postgraduates specializing in fields other than Pediatric Dentistry. The participants were divided into two groups based on predefined inclusion and exclusion criteria.

#### Inclusion criteria

- General dentists (BDS).
- Postgraduate students.

#### Exclusion criteria

- Non- dental graduates.
- Dental postgraduates perusing specialization in Pediatric and Preventive Dentistry.

The questionnaire began with the basic demographic details. Followed by 9 questions based on pediatric dentistry were asked using the computer-generated questionnaire (Google form). The completely filled questionnaire was subjected to statistical analysis and results were drawn. The data collected was entered in Microsoft Excel and subjected to statistical analysis using Statistical Package for Social Sciences (SPSS, IBM version 20.0). The level of significance was fixed at 5% and  $p \leq 0.05$  was considered statistically significant. Kolmogorov- Smirnov test and Shapiro-Wilks test were

employed to test the normality of data. Chi square test was performed for quantitative variables.

### RESULTS

Major proportion of the participants in this study was females (66.3%) and general dental practitioners (68.7%). Majority of the participants treated pediatric patients in practice (71.4%), believed that root canal can be done in primary teeth (58.3%), were aware about space maintainers (88.1%) and did not use SDF (59.5%). Stainless steel crown was reported to be the most commonly used crown (64.3%) in paediatric dentistry. Greater proportion of the participants believed that bupivacaine (47.6%) is contraindicated less than 12yrs of age, the correct location to deposit inferior alveolar nerve block in primary dentition is 2mm above the occlusal level (33.3%) and the triple antibiotic paste contains Metronidazole (400mg), Minocycline (100mg) & Ciprofloxacin (500mg) (77.4%). A comparative evaluation of awareness and understanding of pediatric dentistry among general dental practitioners and post graduates revealed significant difference regarding awareness of space maintainers ( $p$  value .007) and commonly used space maintainers in pediatric dentistry ( $p$  value .049). Significantly higher proportions of post graduates were aware about space maintainers and utilized more than one space maintainers. No other significant differences between postgraduates and general dental practitioners were reported in this study.

**Table 1: Frequency distribution of study variables and questionnaire.**

Variable	Categories	N (%)
Designation	General Dental Practitioners	173 (68.7)
	Post Graduate	79 (31.3)
Gender	Male	85 (33.7)
	Female	167 (66.3)
Q- 1 Do you treat pediatric patients in your practice?	Yes	180 (71.4)
	No	72 (28.6)
Q-2 If yes, what all treatment procedures do you provide for pediatric patients	Extraction	12 (6.7)
	Restoration	13 (7.2)
	RCT	3 (1.7)
	Pulpectomy	4 (2.2)
	Combination of treatments	38 (21.1)
	All of the above	110 (61.1)
Q-3 Can root canal treatment be done for primary teeth?	Yes	147 (58.3)
	No	105 (41.7)
Q-4 Which of these crowns is most commonly used in pediatric dentistry?	Stainless Steel Crowns	162 (64.3)
	Zirconia Crowns	22 (8.7)
	Polycarbonate Crowns	31 (12.3)
	Strip Crowns	37 (14.7)
Q-5 Are you aware about space maintainers?	Yes	222 (88.1)
	No	30 (11.9)
Q-6 If yes, what all space maintainers have you given?	Band and loop	37 (16.7)
	Transpalatal Arch	4 (1.2)
	Nance-Palatal Arch	12 (5.4)
	Distal Shoe	14 (6.3)
	Lingual Arch	12 (5.4)
	Combination	67 (30.2)

	None of the above	76(34.2)
Q- 7 Do you use Silver Diamine Fluoride (SDF)?	Yes	102 (40.5)
	No	150 (59.5)
Q- 8 Which of this local anesthetic agent is contraindicated less than 12yrs of age?	Bupivacaine	120 (47.6)
	Procaine	47 (18.7)
	Lidocaine	43 (17.1)
	Articaine	42 (16.7)
Q- 9 What is the correct location to deposit Inferior Alveolar nerve block in primary dentition?	Below the occlusion level	65 (25.8)
	At the occlusal level	78 (31)
	2mm above the occlusal level	84 (33.3)
	7 mm above the occlusion level	25 (9.9)
Q- 10 What does Triple Antibiotic Paste (3Mix paste) contain.	Ornidazole (500mg) + Mi2cycline (50mg)+ Ciprofloxacin (250mg)	16 (6.3)
	Metronidazole (400mg) + Mi2cycline (100mg) + Ciprofloxacin (500mg)	195 (77.4)
	Azithromycin (500mg) + Metronidazole (200mg) + Ciprofloxacin (500mg)	30 (11.9)
	Amoxicillin (500mg) + Erythromycin (500mg) + Ornidazole (250mg)	11 (4.4)

**Table 2: Comparative evaluation of awareness and understanding of pediatric dentistry among general dental practioners and post graduates for different binary questions.**

	Do you treat pediatric patients in your practice?		p value
	Yes	No	
General Dental Practioners	128	45	.183
Post Graduate	52	27	
	Can root canal treatment be done for primary teeth?		p value
	Yes	No	
General Dental Practioners	84	79	.06
Post Graduate	53	26	
	Are you aware about space maintainers?		p value
	Yes	No	
General Dental Practioners	146	27	<b>.007*</b> (s)
Post Graduate	76	3	
	Do you use Silver Diamine Fluoride (SDF)?		p value
	Yes	No	
General Dental Practioners	71	102	.787
Post Graduate	31	48	

**Table 3: Comparative evaluation of awareness and understanding among general dental practioners and post graduates for different treatments provided.**

	Different treatment procedures provide for pediatric patients						p value
	Extraction	Restoration	RCT	Pulpectomy	Combination of treatments	All of the above	
General Dental Practioners	78	5	10	2	3	30	.263
Post Graduate	32	7	3	1	1	8	

**Table 4: Comparative evaluation of awareness and understanding among general dental practioners and post graduates for commonly used crowns in pediatric dentistry.**

	Usage of stainless steel crown				p value
	Stainless Steel Crown	Zirconia Crowns	Polycarbonate Crown	Strip Crown	
General Dental Practioners	112	19	19	23	.193
Post Graduate	50	3	12	14	

**Table 5: Comparative evaluation of awareness and understanding among general dental practioners and post graduates for commonly utilized space maintainers' in pediatric dentistry.**

	Commonly used space maintainers in pediatric dentistry							p value
	Band and loop	Transpalatal Arch	Nance-Palatal Arch	Distal Shoe	Lingual Arch	Combination	None of the above	
General Dental Practioners	27	4	11	11	9	43	41	.049* (s)
Post Graduate	10	0	1	3	3	24	35	

**Table 6: Comparative evaluation of awareness and understanding among general dental practioners and post graduates for local anesthetic agent contraindicated in less than 12yrs of age.**

	Local anesthetic agent contraindicated less in less than 12yrs of age				p value
	Bupivacaine	Procaine	Lidocaine	Articaine	
General Dental Practioners	80	30	32	31	.591
Post Graduate	40	17	11	11	

**Table 7: Comparative evaluation of awareness and understanding among general dental practioners and post graduates for correct location of deposition of inferior alveolar nerve block in primary dentition**

	Correct location to deposit Inferior Alveolar nerve block in primary dentition				p value
	Below the occlusion level	At the occlusal level	2mm above the occlusal level	7 mm above the occlusion level	
General Dental Practioners	49	51	53	20	.216
Post Graduate	16	27	31	5	

**Table 8: Comparative evaluation of awareness and understanding among general dental practioners and post graduates regarding composition of Triple Antibiotic Paste (3Mix paste)**

	Composition of Triple Antibiotic Paste (3Mix paste)				p value
	Ornidazole (500mg) + Mi2cycline (50mg)+ Ciprofloxacin (250mg)	Metronidazole (400mg) + Mi2cycline (100mg) + Ciprofloxacin (500mg)	Azithromicin (500mg) + Metronidazole (200mg) + Ciprofloxacin (500mg)	Amoxicillin (500mg) + Erythromycin (500mg) + Ornidazole (250mg)	
General Dental Practioners	12	131	20	10	.379
Post Graduate	4	64	10	1	

## DISCUSSION

The main objective of the study was to evaluate the knowledge and awareness of postgraduates (except pedodontist) and general practitioners about primary teeth and its different treatment modalities. Many believe that pediatric dentistry is a miniaturization of the adult

dentistry but, this is not true in many ways. The anatomy of the primary teeth is very different compared to the permanent one and a thorough knowledge of it can be beneficial for the dentist as well as the patient. General practitioners were included in this study to assess their knowledge about significance of primary teeth because

they are the first one to screen patients. Untreated primary teeth cause discomfort, infections, changes in growth and development, issues with eating and sleeping, and malnourishment.<sup>[1]</sup> Majority of the general dental practitioners ( ) have treated pediatric patients in their practice in the current survey. Often, malocclusion results from the permanent teeth's subsequent mesial drift due to premature loss of primary teeth. If the tooth is free of pathology and can be restored to normal function, it is better to retain the pulpally involved primary tooth in order to preserve arch space rather than maintaining the space.<sup>[4]</sup> 58.3% (137) of all the participants believed that root canal treatment be done in primary teeth. The best way to maintain the arch space when premature loss of primary teeth is inevitable is to place a space maintainer. According to Boucher, a space maintainer is a fixed or removable appliance that preserves the space created by the premature loss of a primary tooth or group of teeth. Therefore, the restoration of a carious primary tooth that can act as a natural space maintainer may prevent the consequences of arch length loss and the future need for complex orthodontic treatment.<sup>[5]</sup> 88.1% (222) participants were aware about space maintainers and delivered more than one type of space maintainers. Nowadays, it is preferable to use minimal and non invasive methods rather than traditional ones to treat dental caries. Silver diamine fluoride (SDF) is not new, but it has recently drawn interest of dental professionals from all over the world because of its ability to cease the development of carious lesions. It has been demonstrated that silver diamine fluoride can arrest residual decay, remineralize tooth structure, and stiffen leathery dentin, which results in the dark color change. This allows for a more cautious approach to tooth preparation.<sup>[6]</sup> Majority of participants i.e 59.5% (150) were not aware about the application of Silver Diamine Fluoride (SDF). Three antibiotics—ciprofloxacin, metronidazole, and minocycline—are combined to make Triple Antibiotic Paste (TAP). The root canal microbes can be eradicated by the paste, which can also create a suitable matrix for subsequent procedures. Gram-positive and gram-negative bacteria of various facultative and obligatory groups can be eliminated by this combination, creating a sterile environment and promote healing. There are several applications for TAP, an intracanal antibacterial drug.<sup>[7]</sup> Greater proportion of the participants 196 (77.4%), believed that the triple antibiotic paste contains Metronidazole (400mg), Minocycline (100mg) & Ciprofloxacin (500mg) which is actually the correct proportion of triple antibiotic paste. The procedures for inferior alveolar nerve block in children have created controversies among researchers. Lima<sup>[8]</sup> suggests a needle insertion lower than that described for adults, with a 5° inclination downward to the occlusal plane in children. Mugnie<sup>[9]</sup> recommends a needle insertion approximately at the level of the occlusal plane in 6- to 10-year-old patients. Pinto<sup>[10]</sup> stated that the needle should be inserted in higher positions in older children, considering the particular stage of individual skeletal development (5 mm above the occlusal plane in 10- to

16-year-old patients and 10 mm in patients older than 16.<sup>[11]</sup> According to most of the participants 84 (33.3%), 2mm above the occlusal level is the correct location which actually the correct location for deposition. Stainless steel crown was reported to be the most commonly used crown 162 (64.3%) in pediatric dentistry. In the present study, we found that the majority of them were unaware of the fundamental procedures that must be applied in pediatric dentistry. This study revealed significant difference regarding awareness of space maintainers (p value .007) and commonly used space maintainers in pediatric dentistry (p value .049). The majority of participants in both groups in the current study agreed that there are several ways to treat primary teeth, such as extractions, pulpectomy and restorations. In research by Aman Moda et al<sup>[2]</sup> 40% of general dentists said extraction was the best course of care. Hussain et al<sup>[12]</sup> explored the similar method for primary necrotic teeth in their investigation, likewise, most of the participants (43.6%) in the current study went through extraction of the primary teeth. Nonetheless, the majority of participants wanted to learn more about the significance of primary dentition and the right answer. Perhaps a larger sample size and more pertinent questions would improve the prospect of awareness in both categories.

## CONCLUSION

The study highlights a significant gap in knowledge among both postgraduate students and general dental practitioners concerning various treatment approaches in pediatric dentistry. It concludes that enhancing the dental awareness and expertise of these professionals is essential to fostering a positive dental attitude among parents and patients.

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