ORIGINAL RESEARCH

Knowledge and Awareness About Importance of Primary Dentition Among Parents and Pediatricians

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Abstract

Primary teeth are the first set of teeth that erupt in the oral cavity, which will be replaced by permanent teeth. Though these primary teeth exfoliate, they are very important, as they have certain functions and roles to play till their exfoliation.

Aim: To determine the knowledge and awareness about the importance of primary dentition among parents of children below 12 years and pediatricians practicing modern medicine in different hospitals and private clinics.

Materials and methods: The participant's awareness of the importance of primary dentition was evaluated based on a questionnaire. Participants were requested to mark the options which they perceived as most appropriate. In the case of parents, educational qualification, socioeconomic status, and geographic background were correlated to certain questions; similarly, for pediatricians, their area of practice and years of practice were correlated.

The frequency or percentage of good awareness was calculated in both groups. The statistical significance of factors influencing good awareness of groups was calculated using Pearson's Chi-squared test.

Results and discussion: The overall knowledge of parents and pediatricians regarding the importance of primary dentition is not satisfactory. However, the majority of the participants were curious to know the correct response and acquire more knowledge about the importance of primary dentition.

Conclusion: It was concluded that pediatricians should receive more knowledge on the importance of primary dentition by including these in their curriculum. The motivation of parents regarding the importance of primary teeth through dental camps or educational programs by dental professionals is highly desired.

Keywords: Parents, Pediatricians, Primary dentition, Treatment needs.

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Introduction

Primary teeth are the first set of teeth that erupt in the oral cavity. But, often, these teeth are overlooked since most of the population believes that primary teeth will eventually shed and there is no need to spend time and money on preserving them without knowing their importance.[1] Parents are the ones who take care of the child and take all necessary decisions regarding their child for their well-being. So parents should have sufficient knowledge and awareness about oral health and the importance of primary dentition so that they take the right decision at the right time to preserve them.

Secondly, 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. With a good Knowledge and awareness about oral health and the importance of primary dentition, they can rightly intervene parents regarding the same or can refer to a pedodontist or dentist for further treatment.[2]

Primary teeth are a valuable asset of a child, and they play a vital role in mastication, phonetics, and esthetics, and they also serve as a space maintainer. Dental problems are usually in the form of pain and swelling that can cause distress to the child.[3] Extraction of teeth before the indicated time of exfoliation can lead to space loss for the eruption of their permanent successor and underdevelopment of the basal bone leading to crowding in permanent dentition. By preserving primary teeth, these problems can be avoided (Fig. 1).

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Aim

To evaluate the knowledge and awareness about the importance of primary dentition among parents and pediatricians

Objectives

- To determine knowledge and awareness about the importance of primary dentition among parents of different levels of education and socioeconomic status.
- To evaluate the knowledge and awareness about the importance of primary dentition among pediatricians practicing modern medicine.

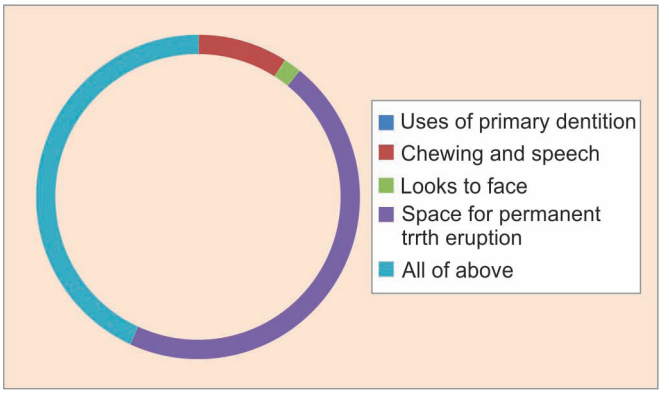

Fig. 1: Uses of primary teeth

Materials and Methods

In our study, the importance of primary dentition is assessed among two groups, the parents and the pediatricians. In the first group, 100 parents of children under the age of 12, who agreed to participate in the study and reported to Outpatient College in the Department of Pedodontics, Dental College, were considered. In the second group, 58 pediatricians practicing modern medicine in different hospitals in Kozhikode were selected. Simple random sampling was used to choose the participants.

Using the formula $n = 4\ pq/d^2$, sample sizes were determined for parents and pediatricians based on a study by Sami et al. in 2016[4] and a study by Viswanath et al. in 2014,[5] respectively.

For parents = $4\ (48.5)(51.5)/10^2$, for pediatricians = $4\ (30.2)(69.8)/10^2$.

Written informed consent in accordance with ethical guidelines was obtained from the participants. The participant's awareness regarding the importance of primary dentition was evaluated based on a questionnaire. The questionnaires were different for different groups.. For group I (parents), questions based on validated questions from a modified Vittoba Setty and Srinivasan study,[3] and for group II (pediatricians), based on modified validated questions from Sandalli et al. study[2] and Dhull et al. study[6] included. Written consent was obtained from corresponding authors to include the questions. The questionnaire was provided in both simple English and the local language, Malayalam, to the group I (parents). A pilot study was conducted in college for language translation validation.

The questionnaire eventually consisted of two parts. The first part consisted of the general demo (demographic data, and the second part included closed questions which assessed the knowledge and awareness of the importance of primary dentition. Each question was provided options, which may be a correct or incorrect answer. Participants were requested to mark the option which they perceived as the most appropriate. The collection of the completed questionnaire was done on the same day immediately after the participant had completed the questionnaire. Any inquiries about questions from the participants were attended to by the principal investigator. Information regarding the importance of primary dentition was given in the local language to motivate the participants. The study was conducted over a period of 1 year (May 2018 to May 2019) after obtaining ethical clearance (IEC No:105/2017/DCC, dated: 31-10-2017).

Data were entered in a Microsoft Excel sheet, and analysis was performed using the software Statistical Package for the Social Sciences. The frequency or percentage of good awareness is calculated based on the choice of correct response from the options given for each question. The statistical significance of factors influencing good awareness of groups was calculated using the Chi-squared test.

Table 1: Responses to questionnaire (parents)

S. no	*Questions*	*Response in percentage*
1	How will you identify the beginning of dental caries?	
	• Seeing cavity on the teeth	13
	• Blackish discoloration of the teeth	53
	• Whitish discoloration of the teeth	7
	• When pain comes	27
2	What are the precautionary method you take to prevent caries?	
	• Oral hygiene maintenance	45
	• Healthy food habits	1
	• Regular dental check up	1
	• All of the above	53
3	Do you think all primary teeth will shed?	
	• Yes	24
	• No	61
	• Only front teeth	14
	• Only back teeth	1

Result

Among the 100 parents surveyed, 87 (87%) were females, and 13 (13%) were males. 24 (24%) of parents were below 30 years, while 76% were over 30 years. While considering the socioeconomic status (based on color-coded ration card of Kerala, yellow—most economically backward, pink—below the poverty line, blue and white—above the poverty line), two (2%) were above the poverty line, 65 (65%) were below the poverty line, and 33 (33%) were most economically backward. Regarding the geographic background, 85 (85%) were from rural areas (villages of Kozhikode) and 15 (15%) from urban areas (within the city limit of Kozhikode). Regarding educational qualifications, none of them were illiterate; 44% were elementary level, 22% were HSC, and 34% were above HSC. The responses of parents to the questionnaire and response based on educational qualification and socioeconomic status is given in Tables 1 to 3, respectively.

A total of 52 (52%) parents knew that primary teeth were the first set of teeth that were replaced by permanent teeth. Correlating the educational qualification with knowledge of identifying the beginning of dental caries, educated parents' awareness was high, $p = 0.002$, which is <0.05 and was statistically significant.

Among 58 pediatricians surveyed, 37 (63.8%) were academicians and 21 (36.2%) were private practitioners, 19 (32.8%) had below 5 years practice and 39 (67.2%) had over 5 years of practice. The response of pediatricians to the questionnaire is given in Table 4, and responses are based on the area of practice and years of experience in Tables 5 and 6.

Discussion

Healthy primary teeth are the basic requisite for the overall oral and general health of the child. Generally, most parents are ignorant about the importance of primary dentition and believe since it would exfoliate, it has no bearing on the maintenance of oral health or, in general, well being of the child. If these teeth are left untreated,

Table 2: Based on educational qualification responses to various questions are as follows

S. no	*Questions and responses*	*Ele*	*HSS*	*Above HSS*	*p-value*
1	What are primary teeth?				
	• Teeth that erupt in the first year of life.	43.0	36.4	11.8	0.008
	• Teeth present in children who drink milk	11.4	4.5	0.0	
	• First set of teeth that is replaced by permanent teeth	34.1	50.0	76.5	
	• Teeth that is seen in front of both jaws	11.4	9.1	11.8	
2	By what age do you think all primary teeth will shed?				
	• 3 years	2.3	0.0	2.9	0.011
	• 6 years	50.0	50.0	11.8	
	• 12 years	38.6	50.0	76.5	
	• 16 years	9.1	0.0	8.8	
3	Do you think it is important to treat all primary teeth?				
	• Yes	50.0	68.2	79.4	0.025
	• No	50.0	31.8	20.6	
4	After breast/bottle feeding, is it necessary to clean the teeth?				
	• Yes	50.0	40.9	14.7	0.005
	• No	50.0	59.1	85.3	

None of them were illiterate; Ele, elementary level; HSS, up to higher secondary school; Abv HSS, above higher secondary school; number of responses represented in percentage; *p*-value < 0.05 statistically significant

Table 3: Based on socioeconomic status (color coding of ration card, Kerala) responses to various questions

S. no	*Questions and responses*	*B&W*	*P*	*Y*	*p-value*
1	If a primary teeth with pain needs extensive treatment requiring a few visits to dentist and some expenditure				
	• You will agree for treatment	50.0	47.7	42.4	0.879
	• You will not agree for treatment	50.0	52.3	57.6	
2	After breast/bottle feeding, is it necessary to clean the teeth?				
	• Yes	0.0	35.4	39.4	0.522
	• No	100.0	64.6	60.6	
3	Reason for ECC in children below 4 years				
	• Eating more sweets and chocolates	50.0	24.6	48.5	0.204
	• Breast/bottle feed at night	50.0	21.5	18.2	
	• Vitamin deficiency	0.0	12.3	12.1	
	• Don't know	0.0	41.5	21.2	

B&W, Above poverty line (blue and white); P, below poverty line (pink); Y, most economically backward (yellow); *p*-value < 0.05 statistically significant

it leads to pain, infections, alterations in growth and development, problems in eating, sleeping, and malnutrition.[7]

Likewise, pediatricians, since they are the ones who see the children in their early life, can help in the prevention and control of dental caries if they are appropriately trained to identify and refer the child to a Dentist for treatment. Further, pediatricians should consider that early childhood caries (ECC) is a risk marker for undernutrition and should alert them to the possibility that ECC is a possible explanation for the deficiencies in their patients.8

Similarly, pediatricians have limited knowledge of the critical area of dentistry, like dental trauma management. In dental trauma, the avulsion of teeth is a critical dental injury seen in children and young adults affecting especially the permanent upper incisors, which can have a psychological effect on an injured person and their parents.[9] Hence it is imperative that pediatricians hold sufficient knowledge of primary management of tooth avulsion before referring to a dentist since the time elapsed between accident and treatment and storage media can affect the prognosis of involved teeth, especially in areas with limited access to dental care.[10] Pediatricians were not sure of undertaking a tooth-saving procedure and storing the avulsed tooth in a compatible solution until reimplantation.

Several studies have already been done to assess the knowledge and awareness about the importance of primary dentition among parents and pediatricians individually. But there is no known study involving both groups together, who can help to prevent caries and improve the oral and general health of the child.

The present study was conducted among 100 parents and 58 pediatricians in and around Kozhikode city, Kerala, India. This study provides baseline information about the existing level of knowledge and awareness about the importance of primary dentition in these two groups.

Regarding the method of prevention of dental caries, 45% of parents contemplated that good oral hygiene measures would prevent caries, while 53% considered good oral hygiene, regular dental check-up, and healthy food habits in our study. This is similar to a study in 2016 by Lone et al.[11] in which 46.27% of parents agree regular dental check-up is needed. Similarly, in 2016, in a study by Mounissamy et al., 55.7% of parents felt a regular visit to the dentist is important to prevent caries.[12]

Appreciating the need to treat primary teeth, 64% of parents felt it is necessary to treat primary teeth, whereas 36% felt it is unnecessary. In a study in 2016 by Mounissamy et al.,[2] 71.7% felt it is necessary to treat the primary teeth; similarly, in 2016, a study by Vittoba Setty and Srinivasan[3] states 76% of the parents agreed

Table 4: Response to questionnaire (pediatricians)

S. no	*Questions and responses*	*Response in percentage*
1	Awareness about pediatric dentistry as a specialty	
	• Yes	63.8
	• No	36.2
2	How many primary teeth/milk teeth are there in a child's mouth?	
	• 10	5.2
	• 8	3.4
	• 30	–
	• 20	91.4
3	Do you counsel parents on importance of going to a dentist on a regular basis?	
	• Yes	37.9
	• No	62.1
4	Do you examine a child's teeth for signs of cavities during physical examination?	
	• Yes	93.1
	• No	6.9

to treatment. In both studies, awareness of treating primary teeth is higher compared to our study.

Regarding the need to clean the teeth after breast/bottle feeding, 36% believed it was crucial, whereas 64% didn't feel it was essential. In 2018, a study by Khanduri et al. reported 80% of the respondents felt the necessity to clean their teeth after every feed, where a higher level of awareness was noted[13] compared to our study.

Information regarding the reason for caries among children below 4 years of age, many parents confided it is due to the consumption of more sweets and chocolates; only 21% understood that overnight breast/bottle feed would lead to ECC. In 2016, a study by Suma Sogi et al. reported 45% of parents were aware of the relationship between overnight breast/bottle feed and caries, which shows a higher level of awareness compared to our study (Figs 2 and 3).[14]

In cases where infected primary teeth needed treatment which required multiple visits to the dentist and some expenditure, 36% of the respondent agreed, while 64% didn't feel it necessary to treat them.

Table 5: Based on area of practice responses of pediatricians

S. no	*Questions and responses*	*Aca*	*Pvt P*	*p-value*
1	When should you think initiation of cleaning of oral cavity begin?			
	• From the time of birth, after every feed	51.4	57.1	0.113
	• When first tooth erupt	40.5	19.0	
	• After all primary teeth erupt	8.1	23.8	
	• No response	–	–	
2	When do you refer a patient to a dentist?			
	• At 6 months of age	–	–	0.039
	• At 1 year of age	5.4	94.6	
	• When there is a problem	23.8	76.2	
3	Do you counsel patient on importance of tooth brushing/dental problem?			
	• Yes	89.2	76.2	0.189
	• No	10.8	23.8	
4	Do you know that bottle/breast feeding over night lead to ECC?			
	• Yes	89.2	76.2	0.189
	• No	10.8	23.8	

Aca, acamedician; Pvt P, private practice; *p*-value < 0.05, statistically significant

Table 6: Based on years of practice responses of pediatricians in percentage

S. no	*Questions and responses*	*<5 years*	*>5 years*	*p-value*
1	Do you know that transmission of caries is responsible for caries, from mother to child?			
	• Yes	26.3	30.8	0.727
	• No	73.7	69.2	
2	Are you familiar with dental sealant?			
	• Yes	0.0	56.4	0.00
	• No	100.0	43.6	
3	Effectiveness and safety of fluoride intake/ fluoride application in caries prevention			
	• Yes	73.7	97.4	0.005
	• No	26.3	2.6	
4	During oral examination, if you find dental caries, do you refer the patient to a dentist/pedodontist?			
	• Yes	84.2	97.4	0.062
	• No	15.8	2.6	

<5 years, <5 years of practice; >5 years, >5 years of practice

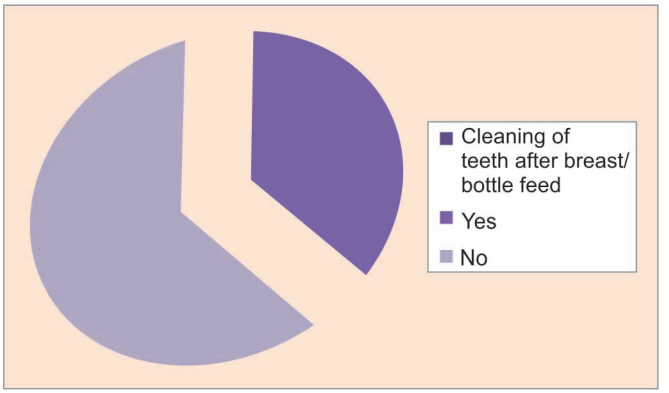

Fig. 2: Cleaning of teeth after breast/bottle feed

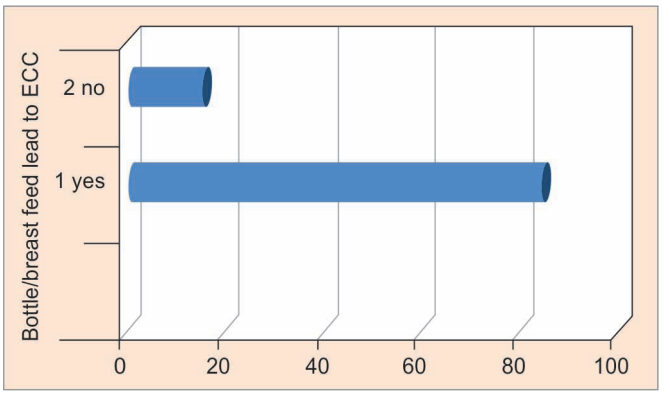

Fig. 3: Awareness about breast/bottle feed lead to ECC

Similarly, in 2016 a study by Vittoba Shetty and Srinivasan reported 40% of them were not ready to spend time and money on treatment since they felt it was unnecessary as these teeth would shed.[3] In 2017, a study on parental knowledge, attitude, and practice regarding the importance of primary dentition of their children in Kerala, India, by Chandran et al., 85.6% of parents agreed to treatment.[15]

When enquired about awareness of the existence of pediatric dentistry as a specialty, among pediatricians, 63.8% were aware of it, while nearly 36.2% were not aware of such a specialty. Awareness was higher (74.4%) among pediatricians who had over 5 years of practice.

A study in 2017 on the "Knowledge and attitude of pediatricians and family physicians regarding pediatric dentistry" by Anand et al.; showed that awareness about the existence of pediatric dentistry was 97.8%.[16]

When questioned whether they examine teeth during their routine oral examination, 93.1% accepted, irrespective of the area of practice and years of practice. In 2017, a study by Anand et al. stated 87.5% examine primary teeth during oral examination.

When surveyed about awareness of pediatricians about the relationship between breast/bottle feeding overnight can lead to caries, 84.5% of pediatricians responded positively. Only 29.3% were aware that transmission of bacteria from mother to child is responsible for caries.

In a study on "Early childhood caries and infant's oral health; pediatricians' and family physicians' practice, knowledge and attitude in Riyadh city, Saudi Arabia," by AlShunaiber et al. reported that 55% of pediatricians were aware that bottle feeding at night lead to caries, 54.2% responded positively when questioned about knowledge on transmission of bacteria from mother to child leads to caries.[17]

Regarding referring a child to a dentist, 87.9% feel only when there is a problem, 89.7% are aware of the effectiveness of fluoride in caries prevention, and only 37.9% were familiar with dental sealant.

In a study on pediatricians' role in the oral health of children in 2007 by Sandalli et al. reported that 37.4% of pediatricians feel children should be referred to a dentist by 1 year of age, 37.4% were aware of the importance of topical fluoride application, only 15.6% were familiar with dental sealant.[2]

Regardless of the educational qualification, socioeconomic status, and geographic background, parents' awareness regarding the identification of carious lesions was average; 53% were able to identify initiation of caries, but regarding the cause of ECC, its prevention and treatment needs, the awareness is inadequate.

Pediatricians—a link between parents and dentists occupy a special position since their knowledge and awareness can have a positive impact on parents regarding the importance of primary dentition and their treatment needs. In our study, it was noted that their awareness about ECC and its treatment needs was inadequate.

However, the majority of participants were curious to know the correct response and acquire more knowledge about the importance of primary dentition. May be by incorporating more relevant questions and increasing the sample size would give a better outlook on awareness among both groups.

Conclusion

The present study revealed that the knowledge and awareness about primary dentition and its importance are inadequate among parents and pediatricians. Hence, it is important for pediatricians to receive more knowledge on the importance of primary dentition, caries prevention, treatment needs, and primary management of dental trauma by including these in their curriculum. The motivation of parents regarding the prevention and treatment needs of primary teeth and their preservation till their normal exfoliation through dental camps or educational programs by dental professionals is highly desired.

By appreciating the importance of primary dentition, pediatricians can guide parents in the early treatment of primary teeth for the better general health of the child. Similarly, parents can take various preventive measures to preserve primary dentition and prevent many future problems simultaneously can inculcate a positive attitude regarding oral health in the child.

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