



Early Childhood Caries Related Knowledge Attitude and Practice of Pediatricians in Kerala

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I. INTRODUCTION

Early Childhood Caries (ECC), commonly known as Nursing Bottle Caries is a major public health concern in all parts of the world. The American Academy of Pediatric Dentistry defines Early Childhood Caries (ECC) as the presence of one or more decayed, missing, filled tooth surfaces in any primary tooth in a child under the age of 6 years.¹

The association of early childhood caries with improper feeding practices and inadequate oral hygiene measures has been proved beyond doubt by major epidemiologic studies conducted world-wide.² The processes of caries initiation and progression are considered to be preventable and early detection of risk factors among the susceptible group of children becomes relevant in this context. The scope of remineralization of non cavitated white spot lesions preventing further tooth structure loss also increases with the wide array of remineralizing agents available in the market.³

Kerala is a state where private sector is equally involved in Health Care Delivery along with the Public sector. With one of the highest literacy rates among the Indian states, infant and neonatal mortalities and prevalence of stunting among under five children are lowest and primary enrolment rates in schools are highest in Kerala. In spite of this better health seeking behavior of parents, establishment of a Dental Home and delivery of Anticipatory Guidance suggested by oral health promoting organisations have not been effectively implemented in the state due to various reasons. Earlier studies conducted among pre school children in Kerala have shown high prevalence rates of ECC ranging from 44% to 59.6% with an average of 53.58%.^{4,5,6}

Undoubtedly Pediatricians and family physicians are still the group of health care workers who are in frequent and direct contact with young children and their parents in our country.⁷ Moreover, in many situations parents tend to approach Pediatricians for management of oral

health related emergencies.⁸ Efforts from the part of Pediatricians in providing knowledge based counselling to young parents and also in early detection of risk factors and initial carious lesions is to be encouraged and promoted. Hence, it would be desirable to investigate the level of existing knowledge and present practices of Pediatricians in identifying risk factors and early signs of ECC, their competency in providing necessary guidance regarding prevention of dental caries and also their attitude towards the timing and indications of referral to a Pediatric dentist.

The present study is designed as a Cross sectional survey to collect data regarding ECC related knowledge, attitude and practices of Pediatricians in Kerala using a structured Questionnaire.

II. MATERIALS AND METHODS

136 practicing Pediatricians were approached and requested to participate in the online survey. 101 of them consented and were asked to fill a structured questionnaire with four parts. The first part was used to collect social and professional information regarding the age, gender, total years of practice, area of practice and type of practice. The second part had 12 closed ended questions to assess the existing knowledge of Pediatricians regarding ECC. The third part contained 10 questions to know their attitude and the fourth part 8 questions to know about their current practice.

The existing knowledge of the participants was assessed using their responses to questions based on Early childhood caries, risk factors and preventive methods. The attitude of Pediatricians regarding their role in early detection and prevention of ECC was determined using the questions in the third part of the questionnaire. The questions in the fourth part gathered responses to know their current practices to diagnose and prevent ECC.

Scoring



The 12 knowledge questions with correct answers were scored 1 and the incorrect answers 0. Don't know responses were considered along with incorrect responses and scored 0. The sum of all 10 knowledge scores were used to quantitatively describe the knowledge of each participant.

Attitude was assessed on three-point scales ("agree" = 3, "uncertain" = 2, and "disagree" = 1) and the sum of scores of all 10 attitude questions used to quantitatively describe the attitude of all participants.

For each of the eight caries prevention practice activities, the participants were asked to grade the frequency with which they practice each activity on a scale of four points, with 0 representing "never", 1 representing "rarely", 2 representing "often" and 4 representing "always" and the total sum of scores was calculated. Higher scores indicate a better knowledge level, more positive attitude and a healthy practice of Pediatricians. The maximum possible scores of 12, 30 and 32 for knowledge, attitude and practice groups respectively for each participant. Less than 50% score will be considered poor, 50-75% as moderate and above 75% as good.

Categorical data is presented as frequencies and percentages. Kruskal-Wallis non parametric test and Chi-square test were used and was analyzed using IBM SPSS Statistics Version 26 for Windows.

The mean age of the Pediatricians who participated in the study was 43.04±10.30 years and their mean duration of practice after post graduation was 13.97±10.63 years. 66.7% were females and the rest males. 51% in urban area, 16.7% in semi urban area and 26.5% in rural area. 50% of the participants worked in government institutions, 44.1% in private hospitals and 2.9% were self employed.

Knowledge of Pediatricians regarding ECC (Table 1)

34.3% had good knowledge regarding ECC, its risk factors and preventive measures. The knowledge level of 59.8% was moderate and 5.9% was poor. While 79% knew that the first tooth erupts in the oral cavity around six months of age, only 46% knew that the first dental visit should also happen at the same time. 7% of the participants believe that only bottle fed babies are at risk of developing ECC. 24% of the Pediatricians did not know that caries causing bacteria can be transmitted from mothers to children.

III. RESULTS

Table 1: Knowledge of Pediatricians regarding ECC

Sl No	Knowledge	Yes N(%)	No N(%)	Don't Know N(%)
1.	The first teeth erupts around 6 months of age in most children	79(79.5)	23(22.5)	0(0)
2.	The first dental visit of the child should happen when the first tooth erupts	46(45.1)	40(39.2)	16(15.7)
3.	Brushing should be started soon after the eruption of first tooth	72(70.6)	27(26.5)	3(2.9)
4.	Bacteria causing tooth decay can be transmitted from mother to child	58(56.9)	24(23.5)	20(19.6)
5.	First signs of tooth decay are presence of white spots on tooth surface	75(73.5)	12(11.8)	15(14.7)
6.	Bottle feeding at night leads to dental caries	98(96.1)		4(3.9)
7.	Only bottle fed babies are affected by early childhood tooth decay	7(6.9)	91(89.2)	4(3.9)
8.	Prolonged and 'at will' breast feeding leads to dental caries	46(45.1)	46(45.1)	10(9.8)



9.	Fluoride has a role in caries prevention	95(93.1)	2(2)	5(4.9)
10.	Counseling on feeding and weaning practices decreases dental caries	97(95.1)	2(2)	3(2.9)
11.	Untreated dental decay could progress further and cause dento-alveolar infection and cellulitis	99(97.1)	3(2.9)	0(0)
12.	Untreated dental decay could affect the overall health of the child	99(97.1)	3(2.9)	0(0)

Attitude of Pediatricians towards ECC (Table 2)

The attitude of 99% of the participants regarding their role in early detection and prevention of ECC was good. 98% of them understand that they should be able to identify dental caries.

Table 2: Attitude of Pediatricians towards ECC

SI No	Attitude	Agree	Disagree	Uncertain
1.	It is important to prevent early childhood caries	101(99)	0(0)	1(1)
2.	Routine dental visits are important in oral disease prevention	98(96.1)	1(1)	3(2.9)
3.	Pediatrician has an important role in promoting oral health	100(98)		2(2)
4.	Pediatrician should examine their patient's	100(98)	1(1)	1(1)
5.	Paediatrician should be able to identify dental caries	98(96.1)	2(2)	2(2)
6.	Paediatrician should inform parents of the relationship between overnight feeding and dental caries	97(95.1)	2(2)	3(2.9)
7.	Paediatrician should inform parents of the relationship between breast feeding and dental caries	96(94.1)	2(2)	4(3.9)
8.	Paediatrician should inform parents of the relationship between child's diet and dental caries	100(98)	1(1)	1(1)
9.	Paediatrician should advise parents and patients on tooth brushing	101(99)	0(0)	1(1)
10.	Any suspected oral health issue, child should be referred to paediatric dentist	100(98)	1(1)	1(1)

Practices of Pediatricians regarding ECC (Table 3)

The current practices employed by 54.9% of Pediatricians were found to be good enough to prevent ECC. Whereas the practices of 38.2% were moderate and 6.9% poor. 32% of the participants

routinely perform oral examination of their patients and 59% always refer any suspected case of ECC to a dental specialist. 47% always suggest dental check up for their patients with special health care needs. 78% of the Pediatricians never recommend bottle feeding for their patients.



Table 3:Practices of Pediatricians regarding ECC

SI No	Prevention Practices	Always	Often	Rarely	Never
1.	Do you perform an oral health examination of your patients?	32(31.4)	52(51)	15(14.7)	3(3)
2.	Do you advise the parents about the use of fluoridated tooth paste?	8(7.8)	30(29.4)	44(43.1)	20(19.6)
3.	Do you advise bottle feeding for infants?	0(0)	0(0)	24(23.5)	78(76.5)
4.	Do you provide diet counseling to prevent caries?	14(13.7)	44(43.1)	32(31.4)	12(11.8)
5.	Do you advice to brush the teeth or wash the mouth after taking syrups/sweetened liquid medicines at night?	36(35.3)	36(35.3)	17(16.7)	13(12.8)
6.	Do you discuss with parents about the effects of Early Childhood Caries on general heath of children?	17(16.7)	36(35.3)	38(37.3)	11(10.8)
7.	Would you refer a suspected case of early childhood caries to dental health professionals?	59(57.8)	31(30.4)	10(9.8)	2(2)
8.	Do you recommend regular oral health examination for Special children?	47(46.1)	37(36.3)	15(14.7)	3(3)

IV. DISCUSSION

Knowledge among Pediatricians regarding Early Childhood Caries has always been a matter of interest among the Pediatric Dentists because Pediatricians are most often the primary link between the dentists and their patients especially during infancy. A recent study conducted among Pediatricians in Egypt showed that almost 94.3% of the study participants had adequate knowledge regarding early childhood caries its risk factors.⁹When the knowledge ,attitude and practice of Pediatricians in Taiwan were compared to that of general dentists and Pediatric Dentists, Pediatricians lacked ECC-related knowledge; however, they had a more positive attitude toward medical office-based prevention when they had a higher level of knowledge.¹⁰Similar studies have been carried out in India among the Pediatricians and have shown varying observations. In a cross sectional survey conducted among Pediatricians in Mysore, although 82% of Pediatricians agreed that it is important to do dental examination before 1 year, only 43% of them were aware of the AAPD/AAP recommended first dental visit, and only 11% advised the parents for child's first dental visit before 1 year of age.¹¹Similar results were shown in studies conducted in various parts of the country.^{12,13}There has been recommendations that

Pediatricians should improve their knowledge of children's oral health, and integrate it more into their daily practice. More oral health information programs should be developed for Pediatricians and included in medical curriculum and residency.¹⁴

The results of the present study shows that though majority of pediatricians are aware of the timing of eruption of first primary tooth, most of them do not know when the first dental visit should happen. Although most of the participants know that bottle feeding causes ECC, many of them are not aware of the relationship between prolonged or 'at-will' breastfeeding practices and development of early childhood caries. The participants of the study had adequate knowledge regarding the role of fluorides in caries prevention. They were also aware of the importance of diet counselling and feeding instructions of mothers on the prevention of ECC.Majority of the participants knew that untreated dental caries could lead to dentoalveolar abscess, cellulitis and can affect the general health of the child. The observation that most of the Pediatricians had adequate knowledge regarding ECC is in contrary to the findings of some similar studies conducted in the country.¹⁵

The attitude of majority of Pediatricians regarding their role in prevention of Early



childhood caries was good which is a very positive finding of this study. They identify their role as pivotal in detection of dental caries, diet counselling, oral health education and early referral to a dental practitioner. However, the current practices of majority of the participants towards identification and prevention of ECC were found to be poor. Although majority of the reported that they were aware of the role of fluorides in prevention of dental caries, they don't usually recommend fluoride tooth pastes or do diet counselling. They don't regularly discuss or counsel parents regarding the importance of oral health on the general health of the child or recommend cleaning of mouth after taking syrups or sweetened liquid medicines.

A notable observation from the present study is that there was a prominent discrepancy between the current practices of Pediatricians and their level of knowledge and attitude regarding ECC. This is in accordance with the other studies conducted in this regard. Lack of adequate time for detailed examination, increased work load and lack of perceived need by parents for dental care are some factors that have been reported.^{16,17}

Hence from the findings of this study, it is recommended that basic knowledge regarding oral health may be imparted to students from medical schools. A positive attitude regarding oral health promotion and prevention may be developed and practiced by Physicians or Pediatricians through more interdisciplinary programs like workshops and seminars. It has been reported in many similar studies that Pediatricians expressed their need and willingness to attend training sessions in detection and prevention of dental caries.^{17,18,19} The dental and medical associations should work hand in hand in their efforts to promote pediatric oral health by identifying the importance of establishment of Dental Home for children and providing anticipatory guidance to the parents.

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