

## Knowledge and attitude on infant oral health among graduating medical students in Bangalore city, India

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### Abstract

Primary care providers' involvement in infant oral health is an essential public health priority and initiatives should begin in early childhood. This study was aimed to evaluate the knowledge and attitude of graduating Medical students towards infant oral health and to propose ways to improve oral health education in the Medical curriculum. A cross-sectional survey was conducted among 359 graduating Medical students belonging to 8 (all) Medical colleges in Bangalore city, India. A self-administered questionnaire consisting of 21 questions divided into four domains assessing Infant Dental Anatomy, Early childhood caries, Fluorides, and Preventive strategies were distributed among participants included in the study. The data analysis was done using SPSS version 12 and data was subjected to student-t test. The average knowledge percentage score was 56.7% and average attitude percentage score was 42.9%. 66.66% of students were aware that First tooth erupts at 6 and half months after birth. Only 60.7% knew that problems with deciduous teeth will affect permanent teeth and 65.2% knew that first dental visit should be from 6 months to 1 year. This study has identified several factors that need consideration in the future exploration and development of knowledge and attitude on infant oral health care among graduating Medical students.

**Key words:** Knowledge and attitude; Infant oral health; Graduating medical students.

### Introduction

Infant oral health is the foundation upon which Dental health must be built. Since 1986, the American Academy of Pediatric Dentistry (AAPD) has recommended that the first dental visit should occur within six months of the eruption of the first tooth and no later than twelve months of age.<sup>[1]</sup> In contrast, the American Academy of Pediatrics (AAP) previously recommended that first dental visit by age three, but changed the guideline in 2003 to establishing a Dental home by age one for children with caries risk.<sup>[2]</sup>

Physicians are the first health professionals to come in contact with the expectant parents, and parents of infants.<sup>[3]</sup> Optimally a Physician sees a child 8 times in first year and around 12 times by age of 3. Overall Children < 5 years are seen more by a Physician than a Dentist.<sup>[1]</sup> They need more knowledge and skills in addressing childrens' oral health because of the prevalence of Dental disease, racial and socioeconomic disparities in disease burden, and the limited access to dental care for many children.<sup>[3,4]</sup> Hence, integrating oral health diseases prevention and promotion strategies into these health care professionals practice becomes essential.

It is unclear up to what degree these healthcare professionals are knowledgeable about preventive Dental counseling as a part of well child visits.

Currently a limited amount of oral health subject matter is included in the Medical education but numerous opportunities and models exist that can prepare Medical professionals to become competent providers of oral health care and to do so adequate knowledge of the disease process, risk factors,

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signs, symptoms, prevention, and intervention strategies are required.<sup>[5,6,7]</sup>

The strategy of utilizing primary care(Medical) providers to promote oral health is particularly necessary in rural regions where there are few dentists and even few Pediatric Dentists which compound the problem of obtaining access to dental care.

Thereby, examining the baseline knowledge and opinions of Medical students during their formative healthcare professional education is worthwhile. Thus the article begins with an examination of the current oral health related educational requirements and presents the knowledge and attitude of graduating medical students on infant oral health and proposes ways to improve and increase oral health education in the Medical health education process.

## Materials and methods

A cross-sectional survey was conducted among 359 graduating Medical students from all the Medical colleges affiliated to Rajiv Gandhi University of Health Sciences, located in Bangalore, Karnataka (India). A self-administered questionnaire consisting of 21 Questions divided into 4 domains assessing-I) Infant Dental Anatomy,II)Early childhood caries,III) Fluorides and IV) Preventive strategies, was distributed among participants included in the study on a specific day & time scheduled in convenience with the respective colleges. Each participant was given 10 minutes to complete the questionnaire. After the participants had filled the

questionnaire their doubts were cleared and they were explained the importance of infant oral health and their role in Preventive and Pediatric Dentistry. The data analysis was done using SPSS version 12 and data was subjected to student -t test.

## Results

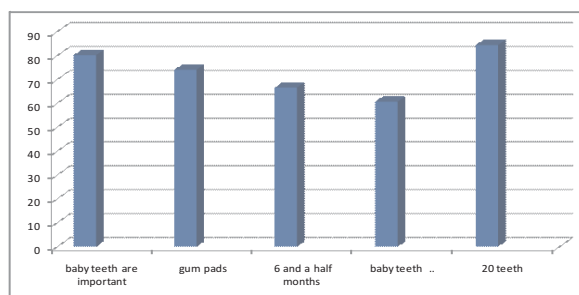
A total of 359 graduating Medical students participated in the study. The average knowledge percentage obtained was 56.7% and average attitude percentage score was 42.9%. About 80.2% respondents felt that "baby teeth" are important. Only 74.1% knew that dental arches of new born are called gum pads. First tooth erupts at the age of 6 and a half months was a fact known by 66.66% of participants.

Only 60.7% knew that problems of deciduous teeth will affect permanent teeth. About 84.4% gave an appropriate answer that eventually 20 "baby teeth" are present in a child. 61.8% replied that oral cavity of a newborn is not free of bacteria.

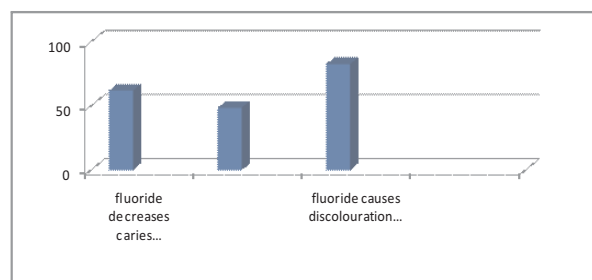
The responses regarding early childhood caries showed a lack of knowledge among the participants (Table 1).

About 62.1% knew that fluorides decreases dental caries and only 48.7% knew that fluoridated tooth paste should not be used in toddlers( 1 to 2 years of age) .However 82.7% knew that excess fluoride intake will cause irreversible tooth discoloration. Respondents' knowledge on Primary preventive strategies was adequate (Table 2).

**Graph 1: Infant Dental Anatomy [Percentage of Respondents with Right Answers]**



**Graph 2: Fluorides [Knowledge of Respondents on Fluorides]**



**Table 1: Knowledge and Attitude on Early Childhood Caries**

Questions	Responses	Frequency	Percentage
Oral cavity of newborn is free of bacteria	a)yes	101	28.1
	<b>b)no</b>	<b>222</b>	<b>61.8</b>
	c)don't know	36	10.0
Is dental caries infectious and transmissible from mother	<b>a)yes</b>	<b>70</b>	<b>19.5</b>
	b)no	241	67.1
	c)don't know	48	13.4
Cessation of demand feeding should be stopped after the first tooth has erupted in the oral cavity	<b>a&gt;true</b>	<b>66</b>	<b>18.4</b>
	b>false	291	81.1
Which micro-organism causes ECC	<b>a)lactobacillus</b>	<b>111</b>	<b>30.9</b>
	b)streptococcus-mutans	174	48.5
	c)actinobacillus	74	20.6
Which teeth are first affected by ECC	<b>a)maxillary incisors</b>	<b>136</b>	<b>37.9</b>
	b)mandibular incisors	131	36.5
	c)all teeth are equal affected	92	25.6
Counseling on feeding and weaning to prevent ECC in infants in antenatal period is	<b>a)required</b>	<b>252</b>	<b>70.2</b>
	b)not required	80	22.3
	c)don't know	27	7.2
Is it ok to let the baby nurse in bed with mother all night	a)yes	96	26.7
	<b>b)no</b>	<b>224</b>	<b>62.4</b>
	c)don't know	39	10.9
Putting a baby to bed with a bottle of fruit juice/milk	a)correct	24	6.7
	<b>b) not correct</b>	<b>329</b>	<b>91.6</b>
	c)don't know	6	1.7

Note: The Correct Responses Are Marked In Bold

**Table 2: Knowledge and Attitude on Primary Preventive Strategies**

Questions	Responses	Frequency	Percentage
<b>Should gum pads be cleaned</b>	<b>a)yes</b>	<b>285</b>	<b>79.4</b>
	b)no	53	14.8
	c)don't know	21	5.8
<b>When is the correct time to start cleaning the teeth</b>	a)1 year after eruption of 1 <sup>st</sup> tooth	164	41.7
	<b>b)immediately after eruption of first tooth</b>	<b>138</b>	<b>38.4</b>
	c) 3 years after eruption of of first tooth	57	15.9
<b>First dental visit</b>	<b>a)6 months to 1 year i.e by first birthday</b>	<b>234</b>	<b>65.2</b>
	b)2 years after first birthday	78	21.7
	c)3 years after birthday	47	13.1

Note: The Correct Responses are Marked in Bold

### Discussion

In the present study the majority of Medical students believed that “baby teeth” are important however 60.7% students were aware that decay of deciduous teeth will affect permanent teeth. This was comparable with the value of 59.6% in the study by Robert Schroth et al. in 2007,<sup>[8]</sup> and 74% by Shivaprakash et al. in 2009.<sup>[6]</sup> About 19.5% of the Medical students agreed that dental caries is infectious and transmissible from mother to child as compared to 23.7 % pediatricians and 24.9% of family physicians as reported by Preeti Prakash et al. in 2006.<sup>[5]</sup> Most of the respondents (48.5 % ) opined that the causative organism for Early Childhood Caries (ECC) is *Streptococcus mutans* as compared to 10% published by Retna Kumari et al. In 2006. <sup>[4]</sup>

In Dentistry, there is quasiconsensus that breastfeeding on demand especially at night and if prolonged produces caries. <sup>[9, 11, 12, 13, 14]</sup> Likewise in pediatrics, there are publications that share the same opinion. In our study 18.4% of Medical students agreed that there should be cessation of demand feeding when the first tooth erupts, compared to 49.4% by Mina Chung et al. in 2006. <sup>[7]</sup> Majority of (70%) respondents felt the need of ante natal counseling on feeding and weaning habits in infants as compared to 60% of respondents by Shivaprakash et al. in 2009.<sup>[6]</sup> Prenatal education becomes the key to the dental care of the infant because the mothers should serve as models for their children to provide a successful environment for good oral health. Most of the respondents (91.6%) knew that putting a baby to bed with a bottle of fruit juice or milk is harmful as compared to (63.5%) by Retna Kumari et al. in 2006<sup>[4]</sup> and 72.6%

by Shivaprakash *et al.* in 2009.<sup>[6]</sup> Giving the baby a sweetened pacifier is harmful was agreed by 68.2 % of respondents, compared to (90%) by Retna Kumari *et al.* in 2006<sup>[4]</sup> and (68 % ) by Shivaprakash *et al.* in 2009.<sup>[6]</sup> This is also supported by the study of Wyne AH *et al.* in 2002<sup>[10]</sup>, stating that children with feeding characteristics such as breast-feeding before/during sleep, nocturnal/nap-time bottle-feeding, excessive consumption of fruit juices/soft drinks from a container and a high frequency of sweet intake were prone for Early Childhood Caries.

Regarding the awareness on fluorides 48.7% respondents believed that fluorides should not be used in toddlers whereas only 4% agreed in study conducted by Retna Kumari *et al.* 2006<sup>[4]</sup> and 23.7% of family physicians and 37.1% pediatricians agreed in the study by Preeti Prakash *et al.* in 2006.<sup>[5]</sup> The Medical professionals should be well versed with AAPD policy statement and guidelines for judicious administration of fluoride.

Effective prevention strategies are integral to improve the oral health and quality of life for the very young.<sup>[15]</sup> The overall awareness on preventive strategies was comparatively good wherein 79.4% respondents agreed that gum pads should be cleaned however only 25 % of them agreed in a study by Shivaprakash *et al.* in 2009<sup>[6]</sup> and 32% in study by Retna Kumari *et al.* in 2006<sup>[4]</sup>. About 65.2% recommended 1<sup>st</sup> dental visit in 6 months to 1 year as compared to 40% by Retna Kumari *et al.* in 2006,<sup>[4]</sup> 52.5 % by Shivaprakash *et al.* in 2009<sup>[6]</sup> and only 2.7% of pediatricians and family physicians agreed with it in the study of Preeti Prakash *et al.* in 2006.<sup>[5]</sup>

Although overall knowledge and attitude of Medical students towards infant oral health was adequate, the knowledge regarding Early Childhood Caries was lacking. They were not trained to identify the cases clinically nor was it included in their curriculum. They did not have postings in Dentistry as a part of their curriculum.

The AAPD has come up with the concept of Dental home, referring a child for an oral

health examination by a dentist who provides care for infants and young children at 6 months after the first tooth erupts or by 12 months of age. It provides an opportunity to implement preventive dental health habits that meet each child's unique needs and keeps the child free from dental or oral health disease. This concept of Dental home should be introduced in the system of Medical education.

## Conclusion

The knowledge of graduating Medical students (participants) was adequate regarding the importance of "baby teeth" however there was inadequate awareness regarding Early Childhood Caries, micro-organisms responsible, bottle feeding and fluoride usage in caries control. This study has identified that there is a need to increase the knowledge of medical students through effective strategies. Medical students require adequate training in infant oral health in Medical school, Residency, and in Continuing Medical Education courses. The Medical professionals should also be encouraged to actively participate in Continuing Dental Education programs and courses specifically related to infant oral health. Such courses should be made mandatory so that they can be useful to upgrade Dental awareness which in return can be imparted to the patients.

Suggested methods to increase the awareness of Infant Oral Health among Medical professionals

- 1) Inclusion of Infant Oral Health in Medical curriculum
- 2) Medical students posting in the Department of Preventive Dentistry
- 3) Joint continuing Medical - Dental Education Programmers.
- 4) Post Graduate Programme in Preventive Dentistry should include

Medical student interaction programme.

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