

# Knowledge and Attitude on Infant Oral Health among graduating Medical Students in Bangalore City, India.

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**Abstract:** 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.

## INTRODUCTION

The American Academy of Pediatric Dentistry (AAPD) recognizes that infant oral health is the foundation upon which preventive education and dental care must be built to enhance the opportunity for a lifetime free from preventable oral disease. The AAPD encourages parents and other health care providers to help every child establish a dental home by 12 months of age<sup>1</sup>. Physicians are the first health professionals to come in contact with the expectant parents, and parents of infants<sup>2,3,4</sup>. Optimally, a physician sees a child 8 times in first year and around 12 times by age of 3<sup>5</sup>. Overall children < 5 years are seen more by a physician than a dentist or a pedodontist. Physicians therefore need more knowledge and skills in addressing childrens' oral health due to the prevalence of dental diseases, the racial and socioeconomic disparities in disease burden, and the limited access to dental care for many children. Integrating oral health diseases prevention and promotion strategies into these medical professionals practice becomes essential<sup>3,4</sup>. The AAP has recommended that pediatricians and health care professionals develop the knowledge base to perform oral health risk assessments on all patients beginning at 6 months of age<sup>5</sup>. The article emphasizes on examining the baseline knowledge and attitude of medical students during their final year of formative healthcare professional education and also proposes ways to improve, increase and impart infant oral health education within the medical health education process.

## MATERIALS AND METHODS

A cross-sectional survey was conducted on 400 graduating (final year) medical students from all the 8 medical colleges in Bangalore, affiliated to Rajiv Gandhi University of Health Sciences, Karnataka (India). On a specific day and time scheduled as per the convenience of the respective medical college, a self-administered questionnaire was distributed amongst the participants. They were allotted 10 minutes to complete the questionnaire after which they were explained the importance of infant oral health and their role in preventive and pediatric dentistry. The questionnaire was pre-tested for reliability. The Cronbach's  $\alpha$  obtained was 0.83. The questionnaire consisted of 21 questions (14 on knowledge and 7 on attitude) divided into 4 domains assessing: I) Infant dental anatomy, II) Early childhood caries, III) Fluorides and IV) Preventive strategies. The overall response rate was 90 percent with a total of 360 graduating medical students participating in the study. The data analysis was done using SPSS version 12 and the data was subjected to student-t test.

## RESULTS

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

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that eventually 20 "baby teeth" are present in a child. 61.8% replied that oral cavity of a newborn is not free of bacteria. (Figure 1) The responses regarding early childhood caries showed a lack of knowledge and decreased attitude among the participants (Table 1). About 62.1% knew that fluorides decrease 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 cause irreversible tooth discoloration. (Figure 2). Respondents' knowledge and attitude on primary preventive strategies was adequate (Table 2).

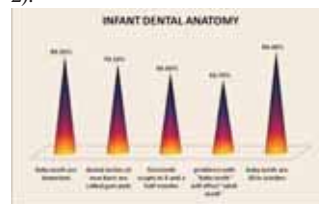


Figure 1: Distribution of correct knowledge and attitude responses of participants on infant dental anatomy

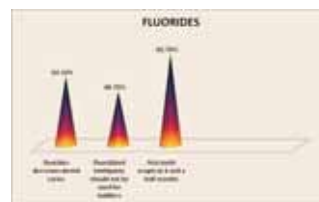


Figure 2: Distribution of correct knowledge and attitude responses of participants on fluorides

Table 1 : Distribution of correct knowledge and attitude responses of participants on early childhood caries

Questions	Responses	Frequency	Percentage
Oral cavity of newborn is free of bacteria	a)yes	101	28.1
	b)no	222	61.8
	c)don't know	36	10.0
Is dental caries infectious and transmissible from mother	a)yes	70	19.5
	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	a>true	66	18.4
	b>false	291	81.1
Which micro-organism causes ECC	a)lactobacillus	111	30.9
	b)streptococcus- mutans	174	48.5
	c)actinobacillus	74	20.6
Which teeth are first affected by ECC	a)maxillary incisors	136	37.9
	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	a)required	252	70.2
	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)no	224	62.4
	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) not correct	329	91.6
	c)don't know	6	1.7
Bottle feeding for too long and too often	a)correct	13	3.6
	b)not correct	329	91.6
	c)don't know	17	4.7
Letting a baby use a sweetened pacifier while teething	a)correct	81	22.6
	b)incorrect	241	67.1
	c)don't know	67	18.3

Note: The correct responses are marked in bold

**Table 2 :** Distribution of correct knowledge and attitude responses of participants on primary preventive strategies

Questions	Responses	Frequency	Percentage
Should gum pads be cleaned	a)yes	285	79.4
	b)no	53	14.8
	c)don't know	21	5.8
When is the correct time to start cleaning the teeth	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 first tooth	57	15.9
First dental visit	<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

Children are exposed to medical care however dental care at an early age is a constraint, therefore physicians have the opportunity to play an important role in educating families to gain access to infant oral health.<sup>6</sup> In the present study the majority of medical students believed that "baby teeth" are important however only 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 Schroth R et al<sup>7</sup> and 74% in a study by Shivaprakash et al.<sup>8</sup> Caries results from an overgrowth of specific organisms that are part of normally-occurring human oral flora. Mutans strepto-cocci (MS) is considered to be a principal indicator group of bacterial organisms responsible for dental caries.<sup>9</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 in a study done by Prakash P et al<sup>10</sup>. Most of the respondents (48.5%) opined that the causative organism for early childhood caries (ECC) is *Streptococcus mutans* as compared to 10% by Kumari RN et al<sup>4</sup>. In dentistry, there is quasiconsensus that breastfeeding on demand especially at night and if prolonged, produces caries<sup>11-15</sup>. 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% in a study by Chung MH et al<sup>16</sup>. Majority of (70%) respondents felt the need of ante natal counseling on feeding and weaning habits in infants as compared to 60% by Shivaprakash PK et al<sup>8</sup>. 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 Kumari RN et al<sup>4</sup> and 72.6% by Shivaprakash PK et al<sup>8</sup>. A sweetened pacifier is harmful for baby was agreed by 68.2% of respondents, compared to 90% by Kumari RN et al<sup>4</sup> and 68% by Shivaprakash PK et al<sup>8</sup>. Regarding the awareness on fluorides 48.7% respondents believed that fluorides should not be used in toddlers whereas only 4% by Kumari RN et al<sup>4</sup> and 23.7% of family physicians and 37.1% pediatricians in study done by Prakash P et al<sup>10</sup> agreed with it. The medical professionals should be well versed with AAPD policy statement and guidelines for judicious administration of fluoride<sup>17,18</sup>. The overall awareness on preventive strategies was comparatively good wherein 79.4% respondents agreed that gum pads should be cleaned however only 25% in a study done by Shivaprakash PK et al<sup>8</sup> and 32% in study done by Kumari RN et al<sup>4</sup>. About 65.2% recommended 1<sup>st</sup> dental visit in 6 months to 1 year as compared to 40% in study done by Kumari RN et al<sup>4</sup> and 52.5% in a study done by Shivaprakash PK et al<sup>8</sup> and only 2.7% of pediatricians and family physicians in study done

by Prakash P et al<sup>10</sup>. In Manitoba 58.3% of participants were aware of professional organizations' recommendation about the timing of children's first visit to the dentist in a study done by Stijacic T et al<sup>19</sup>. It was found that less than 20% of the pediatricians and family physicians reported counseling parents about bringing their child to the dentist before age 1 year in a study done by Herndon JB et al<sup>20</sup>.

## CONCLUSION

This study has identified that there is a need to increase the knowledge of graduating medical students through effective strategies. They 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 their patients.

## RECOMMENDATIONS

- 1) Inclusion of infant oral health in medical curriculum
- 2) Posting in appropriate departments of Dental institutions.
- 3) Joint continuing medical – dental education programmes.
- 4) Interactive sessions between qualified dental health professionals and graduating medical students.

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