

**Correlating The Prevalence of Early Childhood Caries With The Knowledge Attitude And Practices of Pediatricians About Its Prevention In Kolkata.**

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**Abstract**

**Background:** Early Childhood Caries (ECC) is a serious public health problem in very young children. As paediatricians are the first health care providers for the child, they can play an important role in preventing early childhood caries (ECC). As there are very few studies assessing the same among paediatricians, the present study was undertaken, to determine the Knowledge Attitude Practice (KAP) on prevention of ECC, amongst paediatricians, and to correlate the same with the decayed extracted filled teeth (deft) score of children.

**Materials and Methodology:** The study included 200 randomly selected Pediatrician and 2000 patients aged 6-71 months, throughout Kolkata. Pediatrician were given questionnaire to answer and the children were examined for deft score. The data obtained were tabulated and subjected to statistical analysis.

**Statistical Analysis:** One-way ANOVA, Pearson's Correlation.

**Results:** Prevalence of ECC was 49.05% in Kolkata. The results showed, a *significant* direct proportionality between the KAP score to the age, qualification, patients seen per day and work experience of the Pediatricians,

Pediatricians having both institutional and private practice had higher KAP scores as compared to private practice only followed by institutional practice only. A *significant* negative correlation ( $p < 0.006$ ), between the KAP scores and caries status of the children.

Majority of Pediatricians (48%) were found to have Fair KAP scores.

**Conclusion:** The present study indicates that Pediatricians and Parents had Fair overall KAP scores, however the Knowledge towards prevention of ECC was inadequate. Thus, emphasis has to be given in educating and counselling of the Parents and timely referral of their children, by the Pediatrician to the Pedodontist, regarding ECC.

**Keywords:** Early Childhood Caries; Prevalence; Knowledge; Attitude; Practice; Pediatricians.

**Introduction**

ECC is on the rise among very young children around the world, especially children from lower socioeconomic strata<sup>[1]</sup>. It is a public health crisis that poses an immediate and long-term threat not just to the teeth of young children but to their overall health and development. The social and economic consequences of this epidemic extend far

beyond the families of the affected children to engulf the medical, social and economic health of the greater community [2].

The lack of understanding of the importance of infant oral health care is clearly projected in the above statistics, thus professional attention is required. Since the Pediatricians are the first medical professionals that children come in contact with, their knowledge regarding ECC can be helpful in its prevention. Despite the recommendation from their own professional societies, that children see a dentist by age 1, a majority of Pediatricians and General Dentists do not pass this recommendation on to their Patient's and Parents. [3]

Thus the lack of exact statistics regarding the association of prevalence of ECC to the Knowledge, Attitude and Practices of the Pediatricians led us to undertake this study which aimed at establishing a correlation between the Knowledge, Attitude and Practices of the Pediatricians regarding ECC, and its prevalence among the patients, by assessing their deft(s) status.

### Materials and Methods

The study consisted a total of 200 Pediatricians, practicing in different areas of urban Kolkata, who were randomly selected. In each Pediatrician's clinic, 10 patients of 6 to 71 months of age were selected randomly, who were accompanied by their parents, coming in for immunisation only. Thus a total of 2000 Children were included.

After seeking informed consent of the Paediatrician, the close ended questionnaire was distributed for the assessment of their KAP, which was scored. In each of the Pediatrician's clinic, with prior parental consent, 10 patients with the selection criteria, were examined for their deft index, which was recorded.

In this cross sectional study the individual child's deft index was used to assess the prevalence of ECC which was simultaneously correlated with the Knowledge,

Attitude and Practice of their respective Pediatrician regarding the same.

Each correct response was awarded a score of one where as score of zero for incorrect response as well as no response. In the Pediatrician's Questionnaire, had a maximum score of 18 and a minimum score of zero.

All the KAP scores of Pediatricians are assessed as follows.

- <50%: Poor
- 50–75%: Moderate
- >75%: Good

The data tabulated was subjected to statistical analysis.  $p < 0.05$  was considered significant in all the cases.

### Results

The prevalence of ECC in the Outpatient Pediatric Clinics across urban Kolkata was 49.05%. (Table 1)

There was a *significant* direct proportionality between KAP score of the Pediatricians to their age, qualification, number of patients seen per day and work experience. The KAP score of the Pediatricians was highest for those having private as well as institutional practice, followed by private practice only and institutional practice only, which was *statistically significant*. (Table2)

A *significant* negative correlation was seen between the KAP score of Pediatricians and the prevalent caries status of the population and a *significant* positive correlation with filled teeth and surface scores of the children. (Table 3)

From the table showing the responses of the Pediatricians, (Table 4) it was found that 33.5% had Good KAP scores, 48.0% had Fair KAP scores and 18.5% had Poor KAP scores. (Table5)

### Discussion

A healthy oral cavity plays a major role in the child's life through its repercussions on normal nutritional intake, language acquisition, and psychological behaviour.

Pediatricians lay the corner-stone of health education to the parents regarding their children. Thus, both have a major role to play to combat ECC.

Compared to Male counterparts, Female Pediatricians were having a greater KAP score in our study, which was in conjunction with the study done by Sezer et al, where a greater number of correct answers were provided by female Pediatricians.<sup>[4]</sup> The possible cause for this was reported to be their correlation, playing a dual role of being a mother as well.

A study done by Mallick et al, showed that, older the age group of Pediatricians better was their KAP. <sup>[5]</sup> Sikligar et al and Indira et al reported higher KAP scores amongst the Pediatricians with increasing years of experience; which could be due to increased age and years of practice.<sup>[6, 7]</sup> This finding was in contrast to the study done by Sezer et al, who reported no such relation, which could have been due to inclusion of trainees in their sample.<sup>[4]</sup>

In our study, *significantly* higher scores were seen amongst Pediatricians with Doctor Of Medicine (MD), Diploma In Child Health (DCH) degree than those with either MD degree or DCH degree alone, which was similar to the study done by Sikligar et al.<sup>[6]</sup> Since the curriculum of specialised courses will give a better insight and additional training in speciality cases, they are more likely to have better KAP.

Pediatricians having a private as well as institutional practice, had the maximum KAP scores (*significant*), in our study, as also reported by Mallick et al.<sup>[5]</sup> This could be attributed to their maximum exposure to different types of cases in both the set-ups, along with, constant recent updates from their institutional background.<sup>[5]</sup> In case of clinical practice only, the Pediatricians had enough exposure, and to render better treatment to patients had to keep themselves updated, but had lower KAP scores when compared to the previous group. Also, for the

Pediatricians practicing in institution only, though were updated regularly through **Continuing Medical Education (CME)** programmes, seminars and research, showed relatively lower KAP scores. Their possible inclination towards academics, keen orientation in guiding and providing scope for practice to their students, may attribute towards their scores.

Higher KAP scores are seen to be associated with increasing number of consultations, which was in corroboration with the results of the studies done by Mallick et al and Kumar et al.<sup>[5, 8]</sup> This could be due to the greater number of clinical hours that increases the Knowledge as well as the confidence in identification of a particular dental problem, even when the parent comes for consultation for systemic manifestations, for an appropriate referral to a Pedodontist, as and when they are encountered in their practice.

Moreover, our results have shown a negative correlation between the KAP scores of Pediatricians and the prevalence of ECC. Thus it can be emphasised that equipping the Pediatricians regarding the prevention of oral diseases in children should ultimately aid in enriching the Parents regarding the prevention and intervention of ECC.

Though the prevalence of ECC is 49.05%, which is higher as compared to other studies by Priyadarshini et al., Gaidhane et al. and Anil et al.<sup>[9-11]</sup> The reason for this being that we have calculated the prevalence of ECC from the Pediatricians OPD (Out Patient Door) whereas the above studies have taken children from general population, taking a specific age group into consideration, therefore diluting the condition. In our study we have included children who were to be immunised, from the Pediatrician's clinic, which further specifies the general representative population. Thus a higher prevalence in such a selected criteria probably showed that, due to

factors like, inadequate referral by the Pediatrician and lesser awareness of Parents, are actually handicapping the Pedodontists to fight the battle for the eradication of ECC.

In the United States, Krol reviewed medical education guidelines, programs, surveys, and Pediatrician experiences in oral health training.<sup>[12]</sup> He concluded that the overall level of oral health education and training is inadequate to equip them with the required competencies for the provision of quality oral health care to children.<sup>[13]</sup>

In our study, similarly only 33.5% of Pediatrician showed Good KAP scores, also, a higher prevalence of ECC was noted, probably in the same regard.

Early childhood is an important time in establishing preventive habits, as tooth eruption and microbial colonization initiates in this time period.<sup>[13]</sup> During this period not all children have access to professional dental care. Since on an average children are seen by their Pediatrician 11 times by three years of age, contact of a child with the Pediatrician typically occurs earlier than a child's first dental visit. In our study, about 70-75% of Pediatricians were aware of ECC, its causative microorganisms and occurrence but only 62% examined them. This probably might cause the increased prevalence of ECC.<sup>[14]</sup>

Majority (76%) of the Pediatricians in our study didn't know about the multifactorial etiology of ECC.<sup>[15]</sup> Moreover, 61% were unaware of the greater effect of frequency of sugar consumption than amount of sugar consumed, as risk factor for ECC.<sup>[16]</sup> This is a major deficit in Knowledge on which practice of the Pediatrician will depend, that can lead to faulty counselling of the Parent, thereby paving the path for ECC to take its toll.

The American Association Of Pediatric Dentistry (AAPD) and the Brazilian Association Of Pediatric Dentistry (BAPD) recommends that a child's first visit to the dentist should occur within the first 12 months followed by every

six monthly revisits.<sup>[17-19]</sup> This recommendation is followed by most of the Pediatricians (86.5%), which is in conjunction to Brickhouse et al and Freire et al.<sup>[18, 20]</sup> Moreover, all Pediatrician were aware of their role in oral health promotion, but only 60.5% referred to Pedodontist. Thus a lack in referral was evident, that will hinder the establishment of Dental Home along with their Medical Home.

In our study, 35% were unaware about the fact that transmission of bacteria from mother to child causes tooth decay, which is similar to the results in the study done by Bhat et al.<sup>[21]</sup> In the study done by Lewis et al, it was found that few Pediatricians were aware that caries is a transmissible infectious disease that a child can acquire from the mother, although this information has been disseminated in the dental literature for 20 years.<sup>[22]</sup>

The importance of guiding Parents to initiate oral hygiene practices right from birth, even before the eruption of first tooth in a child was not seen to be prevalent among the Pediatricians<sup>[23]</sup>. Though 87.5% had the positive attitude regarding tooth brushing and 96% recommended the use of toothbrush and paste only after all the primary teeth erupt, only 16% of them recommended Parents to clean the oral cavity from the time of birth after every feed. Similarly, 93.2% parents knew about brushing guidelines, but only 11.65% knew about Infantile oral hygiene should begin before the eruption of the first tooth.<sup>[24]</sup>

Due to the self-reported aspect of the information, it is difficult to determine whether reported Practices reflected actual Practices, then on that point, there may be an ingredient of social desirability biases, which may permit respondents to over-or under report Attitude and Knowledge. Thus, in order to overcome such shortcomings of any questionnaire survey as a matter of fact, we correlated it with the def (t) and (s) of the child, which shows that KAP scores of Pediatricians are

negatively correlated with the caries status of the child population, hence greatly reducing the proposed drawbacks. Moreover, the positive correlation seen between filled teeth and surfaces to the KAP scores reflects the positive Attitude of the Pediatricians towards ECC.

### Conclusion

Thus the findings of the present study underscore the need to understand the Pediatricians' role in promoting preventive oral health care through referral to Pedodontists. In attempt to reinforce, greater communication between both the fraternities and educating them about child's oral health. Accessing AAPD recommendations to take a larger part in oral health related activities, through CME programs for Pediatricians as well as referral of cases to Pedodontist regularly. Preventive dentistry articles should be published in medical journals and information can be presented in the form of leaflets, bill stickers, pamphlets, and so forth as well as encouragement of group practice with Pedodontists for the same. Moreover, the Parents need to be trained and motivated to carry out oral hygiene practices efficiently, hence they should be referred to the Pedodontist on time by their Pediatrician, for anticipatory guidance and additive professional preventive practices as soon as the child is born. Moreover, a combined effort by both the fraternities to counsel the Parents regarding ECC will have a better impact. Thus by enriching the KAP, a state of primordial prevention can be achieved, which would not only involve the Pedodontists but also Pediatricians and the Parents, to curb ECC at its roots.

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**Legends Tables**

Table 1: Prevalence of ECC in children from the Pediatricians OPD.

ECC STATUS	N	PERCENTAGE (%)
PRESENT	981	49.05
ABSENT	1019	50.95
TOTAL	2000	100.00

Table 2: Comparison of Mean KAP Scores with various parameters in Pediatricians questionnaire

		N	Mean	SD	Level of significance
Gender	Male	107	12.04	3.05	p=0.060
	Female	93	12.85	3.00	
Age Group	35 or less	32	10.94	2.14	p<0.005 (Significant)
	36-45	128	12.08	3.17	
	46-55	40	14.68	1.89	
Qualification	MD., DCH	53	14.00	1.68	p<0.005 (Significant)
	MD.	73	13.59	2.71	
	DCH	74	10.12	2.74	
Type of practice	Institution & Private	69	13.64	2.78	p<0.005 (Significant)
	Institution only	21	9.10	3.27	
	Private only	110	12.28	2.66	
Experience	< 5 years	48	10.27	1.61	p<0.005 (Significant)
	5-10 years	46	10.28	3.24	
	10-15 years	79	13.75	2.02	
	15-25 years	27	15.96	0.94	
Number of Patients seen per day	<10	18	9.22	4.28	p<0.005 (Significant)
	10-25	117	11.56	2.42	
	25-50	50	14.4	1.74	
	>50	15	16.27	1.10	

Table 3: Correlation of Pediatricians' total KAP score with caries status in children.

	Pearson correlation coefficient (R)	R <sup>2</sup>	P value
def (t) score	-0.46	0.212	<i>p</i> <0.005 (Significant)
def (s) score	-0.52	0.270	<i>p</i> <0.005 (Significant)
No. of filled teeth	0.261	0.068	<i>p</i> <0.005 (Significant)
No. of filled surfaces	0.215	0.046	<i>p</i> =0.002 (Significant)

Table 4: Responses to KAP questions in the survey among Pediatricians.

Questions	Correct Response (%)		Incorrect Response(%)	
<b>Demographic Data</b>	Q1	Age		
	Q2	Gender		
	Q3	Educational Qualification		
	Q4	Type of Practice		
	Q5	Years of Practice		
	Q6	Number of Patients seen per Day		
<b>Knowledge</b>	Q7	Are you familiar with the term Early Childhood Caries (ECC)?	<b>149 (74.5)</b>	<b>51 (25.5)</b>
	Q8	Causative pathogen in ECC is?	<b>140 (70)</b>	<b>60 (30)</b>
	Q9	What is the frequency of early childhood caries (ECC) in your OPD?	<b>150 (75)</b>	<b>50 (25)</b>
	Q10	What factors are involved in the process of caries?	<b>48 (24)</b>	<b>152 (76)</b>
	Q11	Which is more important factor in causing dental caries?	<b>78 (39)</b>	<b>122 (61)</b>
	Q12	Do you think that night (bottle/breast) feeding may lead to dental caries?	<b>120 (60)</b>	<b>80 (40)</b>
	Q13	Do you think dental caries causing bacteria can be transmitted between mother and child?	<b>130 (65)</b>	<b>70 (35)</b>
	Q14	Do you think inadequate tooth brushing and poor oral hygiene can lead to dental caries?	<b>200 (100)</b>	<b>0 (0)</b>
<b>Attitude</b>	Q15	In your opinion when should be the first dental visit for a child?	<b>173 (86.5)</b>	<b>27 (13.5)</b>
	Q16	What should be the frequency of dental visit for	<b>161 (80.5)</b>	<b>39 (19.5)</b>



		a child, once in?		
	Q17	Do you examine teeth for cavities in children?	<b>124 (62)</b>	<b>76 (38)</b>
	Q18	Do you counsel children and their parents on the importance of tooth brushing?	<b>175 (87.5)</b>	<b>25 (12.5)</b>
	Q19	When do you suggest commencement of tooth brushing should be initiated?	<b>32 (16)</b>	<b>168 (84)</b>
<b>Practice</b>	Q20	Do you recommend the parents to wash/clean their children's teeth twice a day?	<b>192 (96)</b>	<b>8 (4)</b>
	Q21	Do you refer children with oral disease/dental caries to a dentist?	<b>121 (60.5)</b>	<b>79 (39.5)</b>
	Q22	Is routine dental visit important in preventing dental caries?	<b>194 (97)</b>	<b>6 (3)</b>
	Q23	Do you recommend the use of pacifier?	<b>96 (48)</b>	<b>104 (52)</b>
	Q24	Do you think Pediatrician have a role in promoting oral health/in prevention of oral disease?	<b>200 (100)</b>	<b>0 (0)</b>

Table 5: Distribution of Pediatricians according to their Total KAP Scores.

KAP Status of Pediatricians	N	PERCENTAGE (%)
GOOD	67	33.50
FAIR	96	48.00
POOR	37	18.50