

# A Survey regarding Maternal Awareness about Oral Hygiene and Prevalence of Early Childhood Caries in 3- to 6-year-old Children in Davangere, Karnataka, India

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## ABSTRACT

**Aim:** To create awareness among the parents (mothers) about early childhood caries (ECC), to provide information, and to check knowledge about oral hygiene measures.

**Materials and methods:** A total of 382 children aged 3 to 6 years were examined from play homes and schools in Davangere, Karnataka, India, by the modified International Caries Detection and Assessment System criteria. A questionnaire was given to all the mothers of the examined children to fill in the details to create awareness among mother's oral hygiene measures. The collected data were then analyzed using Statistical Package for the Social Sciences (version 17.0 software) to assess the prevalence of ECC and knowledge regarding ECC among mothers.

**Results:** About 64.7% of mothers clean their child's mouth after feeding, 40.1% started practicing oral hygiene at the age of 12 months and practiced oral hygiene twice a day.

**Conclusion:** Results show that mothers were quite aware of oral hygiene measures. They know about the proper way of toothbrushing and also about the frequency of brushing.

**Keywords:** Early childhood caries, Maternal awareness, Oral hygiene.

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## INTRODUCTION

Early childhood caries (ECC) is a multifactorial disease. The ECCs have been defined as the presence of one or more decayed (noncavitated or cavitated lesions), missing tooth/teeth (due to caries), or filled tooth surface on any primary tooth in children up to 71 months of age or younger.<sup>1</sup>

The prevalence or severity of caries in children under 5 years old in several countries of the world is considerably high. Early childhood caries is a major community health problem that must be solved with serious measure and controlled with priority as to some extent ECC can cause malfunction of the mastication and digestive system, interfere with the growth and development process of a child, disturb the phonetic and articulation, and eventually cause a child's low self-esteem. The ECC cases were found more often in children from a family with single parent or parents with low education level and lack of general knowledge. It relates with the capability to provide good nutrition for the child.<sup>2</sup>

The first sign of dental caries lesions in infants who develop ECC is the appearance of white demineralization areas in the cervical regions of the maxillary anterior teeth. It indicates high lesion activity in children.<sup>3</sup>

In the state of Karnataka, a study done in Hubli in children in the age group of 3 to 5 years showed overall 54.1% prevalence of dental caries.<sup>4</sup> In Marathalli, Bengaluru, a study documented 40% prevalence of ECC, which is equivalent to the Karnataka state average (40.5%) and India's average (40-60%, 52%).<sup>5</sup> In Davangere, a study was conducted, which concluded that 36% of children had ECC.<sup>6</sup> Another study done in Davangere resulted in 19.2% prevalence of nursing caries in preschoolers.<sup>7</sup>

Hence, keeping in mind the prevalence of ECC in the state of Karnataka, this study is conducted to check the prevalence of ECC in regard to mother's knowledge about oral hygiene measures.

## MATERIALS AND METHODS

The study had the approval from the ethical committee of College of Dental Sciences, Davangere, Karnataka, India. Also, approval for check-up and study was taken from the concerned school authorities. A total of 382 children of 3 to 6 years of both genders from four different play-schools and play homes in Davangere were examined. The children having any medical issue and physically challenged were not included in the study. The modified International Caries Detection and Assessment System II criterion was used to examine the children. The examination was performed by three examiners in natural light.

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Gloves, mouth masks, mouth mirror, probe, and cotton rolls were used. Scores between 0 and 6 were given according to the severity of the carious lesion. All the children were given a well-structured questionnaire to be filled by their mothers and were asked to return the questionnaire the next day to their respective staff. The questionnaire consists of questions regarding general information and oral hygiene measures. The collected data would be then analyzed to assess the prevalence of ECC and knowledge regarding ECC among mothers.

**Statistical Analysis**

Data were subjected to analysis using Statistical Package for the Social Sciences (version 17.0 software).

Association was found out using chi-square and logistic relation analysis.

**RESULTS**

Out of 382 children examined, 199 were males, 183 were females; 159 (41.6%) children out of 382 had ECC; 64.7% mothers clean their child’s mouth after feeding, whereas 35.3% did not (Table 1).

A total of 33.8% children started brushing before the age of 12 months, 40.1% started after 12 months, and 26.2% started after 3 years of age (Table 2).

A total of 48.4% children brush their teeth once a day, 49.7% brushes twice, whereas 1.8% said they do not brush their teeth at all (Table 3).

About 96.9% children use toothbrush and toothpaste to clean their teeth, whereas 3.1% use some other aid (Table 4).

**LIMITATIONS**

From the questionnaire, mothers must have determined a shift to more socially desirable answers. Nonetheless, this study represents a useful way to determine the prevalence of ECC, eventually, to identify differences among oral hygiene habits and knowledge of mothers regarding this variable and ECC. As with any survey based on a questionnaire, information resulting from the memory of parents may not be entirely accurate, primarily because of the long time frame.

**DISCUSSION**

An ECC is a complex disease in which various genetic, environmental, and various risk factors interact. Many of these variables are highly influenced by the prevailing socioeconomic conditions, behavior patterns, and education levels. In this study, we focused on the role of proper oral hygiene in relation to ECC.

No significant results were found between ECC and oral hygiene practices, and the same results were found by Febres et al<sup>8</sup> and Milgrom et al.<sup>9</sup> In the present study, 39.6% of children having ECC started practicing oral hygiene after 12 months of age; thus, this study supports that children who started brushing late had higher prevalence of caries, so toothbrushing should be initiated when the first primary tooth erupts.<sup>10</sup> Thus, early initiation of oral hygiene practices is of utmost importance in maintaining a caries-free dentition in both childhood and adulthood; 52.2% children practiced

**Table 1:** Observation cleaning after feeding

Cleaning after feeding	3 years (%)	4 years (%)	5 years (%)	6 years (%)	Males (%)	Females (%)	ECC present (%)	ECC absent (%)
Yes	56.1	64.5	63.8	73.7	63.1	66.1	64.8	64.6
No	43.9	35.6	36.2	26.3	36.9	33.9	35.2	35.4

**Table 2:** Observation for age at which child started brushing

Age at which child started brushing	3 years (%)	4 years (%)	5 years (%)	6 years (%)	Males (%)	Females (%)	ECC present (%)	ECC absent (%)
>12 months	31.7	38.0	31.9	31.6	31.3	36.6	32.7	34.5
<12 months	61.0	36.4	37.4	40.4	43.9	36.1	39.6	40.4
More than 3 years	7.3	25.6	30.7	28.1	24.7	27.3	27.7	25.1

**Table 3:** Observation for frequency of brushing

Frequency of brushing	3 years (%)	4 years (%)	5 years (%)	6 years (%)	Males (%)	Females (%)	ECC present (%)	ECC absent (%)
Once a day	56.1	52.9	46.0	40.4	51.0	45.9	52.2	45.7
Twice	43.9	47.1	50.9	56.1	48.0	51.4	44.7	53.4
Never	0.0	0.0	3.1	3.5	1.0	2.7	3.1	0.9

**Table 4:** Observation for aid for cleaning teeth

Aids for cleaning teeth	3 years (%)	4 years (%)	5 years (%)	6 years (%)	Males (%)	Females (%)	ECC present (%)	ECC absent (%)
Toothbrush and toothpaste	95.1	95.9	97.5	98.2	97.0	96.7	97.5	96.4
Other	4.9	4.1	2.5	1.8	3.0	3.3	2.5	3.6

hygiene habit once a day. Results by Berenie et al<sup>11</sup> show that maximum benefits are obtained with a regimen of brushing twice daily.

## CONCLUSION

From the result of this study, we can conclude that there is a high prevalence of ECC in Davangere in children of age group 3 to 6 years. Although mothers are well aware of oral hygiene measures, proper oral health care of the child needs to be taken care.

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