



## Knowledge, Attitudes, and Practices of Mothers regarding Early Childhood Caries in Gujarat -A Questionnaire Study

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Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### Abstract

**Objective :** To review and update the current knowledge of mothers about early childhood caries (ECC) and its aetiology, prevalence, risk factors, management, and preventive strategies.

**Methodology :** It is descriptive cross-sectional questionnaire based survey was conducted among mothers of 0 – 3 years old child in randomly selected residential areas. Total of 500 questionnaires were distributed. Questionnaires were filled and returned 408 by mothers .

**Result :** This study evaluated parental awareness and practices related to early childhood caries. Breastfeeding was more common among mothers of the first child (46.8%), while bottle feeding was higher among mothers of second and third children (53.1%). Addition of sugar in milk during the day was also more frequent in later-born children (50.5%). Although most mothers cleaned their child's teeth after feeding, night cleaning was less practiced. These variations in feeding and hygiene practices reflect differences in parental awareness that may affect caries risk.

**Conclusion :** The study concludes that parental feeding and oral hygiene practices vary significantly with maternal status and number of children. Limited night-time cleaning and frequent use of bottle feeding with added sugar highlights gaps in awareness, emphasizing the need for targeted education to prevent early childhood caries.

**Keywords:** Early Childhood Caries (ECC) , Feeding Practices ,Oral Hygiene , Parental Awareness

### Introduction

Early childhood caries is defined as one or more decayed, missing or filled (due to caries) teeth in primary tooth in the age group of 6 months to 71 months (5 years).ECC is the most common chronic disease in young children and may develop as soon as tooth erupts.<sup>1</sup> ECC may have significant effect on child's physical, psychological C social well-being. To prevent ECC early dental examination and parental awareness is necessary. Dental caries is associated with multiple risk factors like high sugar level, poor oral hygiene, parental awareness, punishing treatment, poor compliance etc. That lead child discomfort, not

able to talk, proper diet ,loss the confidential speech. By knowing the parental awareness regarding ECC in children, we as healthcare givers and dentists give knowledge to improve parental awareness and encourage them to use dental service to prevent ECC. So the aim of the study is to increase or upgrade the knowledge of prevention regarding ECC and to make them realise that the primary teeth caries also need proper treatment although it will shed off. Mothers oral health awareness C oral health related habits such as tooth

brushing technique as are their diet and food choice were directly related to their children's dental health. Highly educated mothers showed a better understanding of oral hygiene and the importance of deciduous teeth compared with mothers with less education.<sup>2</sup> Young children with high caries activity may develop caries even during tooth eruption. These facts must be known to mothers as they play a pivotal role in shaping children's oral health behaviours from an early age.<sup>3</sup> Oral health literacy among parents plays a crucial role in the child's overall wellbeing. Pregnancy is an ideal time to promote knowledge of primary prevention of ECC. Prenatal education, continuing support for mothers and infants, adequate dental follow-up from an early age, promotion of proper oral hygiene practices, and fluoride application are essential for the prevention of ECC.<sup>4</sup> It has been documented in previous researches that children who develop ECC are at high risk of developing caries in permanent dentition which results in long episodes of treatments and visits to dentists and hence affects the quality of life.<sup>5</sup> Dental caries is associated with multiple risk factors. It has been found that people's behaviour is shaped by social, economic, and environmental factors, which translate into positive health choices and practices.<sup>6</sup> Terms are used interchangeably: "Early childhood tooth decay", "Early childhood caries (ECC)", "Bottle caries", "Nursing caries", "Baby bottle tooth decay", or "Night bottle mouth".<sup>7,8</sup>

### Materials Method :

It was a descriptive cross-sectional questionnaire study, conducted amongst mothers in Gujarat, India. The study protocol was discussed and the ethical approval was taken from the ethical committee of the Goenka Research Institute of Dental Science. The questionnaire method was chosen for data collection due to its convenience, allowing dentists to be surveyed simultaneously and being more appropriate for documenting

potentially sensitive or personal information regarding their feeding types, milk intake times, cleaning practices after feeding, and sugar exposure. The questionnaire was distributed via Google Forms through social media. The study's purpose was explained to the mothers, who were encouraged to complete the form with confidence. The dentists were also assured of the confidentiality of the information

they provided. A total of 500 questionnaires were distributed, with 407 responses received, resulting in 407 mothers participating in the study. The Google survey form contained a total of 18 questions. It was designed to be completed in under 3 minutes. The language, phrasing, and sentence structure were reviewed, and questions were modified as necessary. The following variables were included in the study:

1. Types of feeding
2. Duration of milk intake
3. Sugar exposure
4. Cleaning teeth after feeding
5. Types of toothpaste used
6. Knowledge of decayed milk teeth
7. Use of pacifier
8. Number of chocolate given

### Result :

The present study assessed parental awareness and practices related to early childhood caries among different groups of mothers, including working from home, non-working, and office-going mothers, as well as mothers of first child compared with mothers of second and third children. With regard to feeding practices during the day, breastfeeding was reported by 31.6% of work-from-home mothers, 33.7% of non-working mothers, and 24.4% of office workers. Bottle feeding was comparatively higher among office workers (39.0%) and work-from-home mothers (45.6%) than non-working mothers (34.0%). A mixed pattern of both breast and bottle feeding was also observed in 29.3% of office workers and 29.1% of non-working mothers. For night-time feeding practices, bottle feeding was the most common practice across all groups, reported by 47.4% of work-from-home mothers, 50.5% of non-working mothers, and 43.9% of office workers. Breastfeeding during night was comparatively lower, ranging from 21.4% in non-working mothers to 28.1% in work-from-home mothers day time the addition of sugar in milk was observed both during the day and night. During the daytime, 52.6% of work-from-home mothers and 47.2% of non-

working mothers reported adding sugar to milk, compared to 39.0% of office workers. At night, sugar

addition was slightly lower, with 29.8% of work-from-home and 23.9% of non-working mothers reporting the practice. With respect to cleaning of teeth after feeding, the majority of mothers reported cleaning during the daytime, including 82.5% of work from home, 74.1% of non-working, and 73.2% of office workers. However, night-time cleaning was considerably less frequent, with only 49.1% of work-from-home, 51.5% of non-working, and 56.1% of office workers practicing it. Regarding the use of pacifiers dipped in sweet liquids, 26.3% of work-from-home mothers and 26.2% of non-working mothers reported this habit, while a slightly higher proportion was observed among office workers (29.3%). When parental beliefs were assessed, 53.6% of parents believed in the use of fluoridated toothpaste, while 38.8% reported otherwise. A large proportion (71.0%) acknowledged that milk teeth often decay, while 29.0% did not recognize this. Similarly, 70.5% of parents believed in treating decayed primary teeth, while 29.5% considered treatment unnecessary. In contrast, a smaller proportion (18.9%) believed that giving chocolates was acceptable, compared to 34.4% who opposed it.

Comparison between mothers of first children and those with second or third children showed significant differences in feeding practices. Breastfeeding during the day was higher among mothers of first children (46.8%) compared to mothers of later-born children (26.0%) ( $p = 0.000$ ), whereas bottle feeding was significantly more common among mothers of second and third children (53.1%). Addition of sugar in milk during the daytime was also significantly higher among mothers of second and third children (50.5%) compared to first-time mothers (39.7%) ( $p = 0.043$ ). No significant differences were observed in cleaning practices or pacifier use. Overall, the results highlight gaps in parental awareness and practices, with high prevalence of bottle feeding, addition of sugar in milk, inadequate cleaning after night feeding, and misconceptions regarding treatment needs of primary teeth.

### Discussion :

Mother has an important role in children's health. Child's oral health is strongly associated with mother's oral hygiene practices and are established during infancy and practiced throughout life.<sup>9</sup> Majority of the mothers knew about the dietary and feeding practices,

96.7% knew that excessive consumption of sugar cause early decay and these findings were consistent with other previous studies conducted in Pakistan, India and Malaysia.

China where only 42% of mothers knew that dental caries is caused by sugar while only 39% of mothers in Romania.<sup>10,11</sup> Knew that dental caries is caused by sugar. With compare this study show that 39.7 % mother of first child give milk with sugar while 50.5 % mother of 2nd and 3rd child give milk with sugar during a day .<sup>12,13,14</sup> In our society, most people think the primary teeth are temporary and its treatment is waste of time and money.<sup>15</sup> In our study 71.0 % mothers were aware about decay teeth and 70.5% mothers were believing in treating decay teeth. Pertaining to prevention of dental caries, 46% of mothers believe that regular brushing twice a day with fluoridated toothpaste can help in reducing dental pain, findings were very close to a study in Mumbai. More than half of participants had no idea that tooth paste should have fluoride or not (finding were consistent with study in india)<sup>10</sup> 42.3% knew that they use fluoride toothpaste at home.<sup>16</sup> With compare our study 53.8 % mothers are believing in fluoridated toothpaste and use of fluoride containing toothpaste. While of 38.8% parents did not know anything about fluoride's role in caries prevention. These finding reflect the fact that comprehensive preventive programmes and education regarding fluoride's role in caries prevention among the population are still lacking in India; hence, more dental health education regarding fluoride is needed. In present study more than half percent of mother were believing in cleaning of teeth after feeding in that 76.2% mothers cleaning teeth of their child after during a day and 44.4% mother of child cleaning teeth during a night .Prolonged bottle feeding up to 2 years in 73% of the children were also reported from Hong Kong.<sup>17</sup> In present study 46.8 % mother breast feed their child while 29.4 % mother bottle feed their child during a day. That may affect on children's oral health care and may lead to caries that bottle feeding their child during a night-time.

The lack of knowledge about connection between night time bottle feeding and oral health is alarming given that it is one of the most important pre disposing factors of ECC. Generally, parents of children with ECC were significantly while almost more than half of the parents did not know anything about fluoride's role

in caries prevention (71.7%).more likely to disagree that night-time nursing was safe; proving that knowledge among parents is high, but not reflected in the dental health of their children.<sup>18</sup> In present study 40.5 % mother bottle feed their child which is lead to early childhood caries . We were unable to determine whether the parents looked at pacifiers favourably or had a negative opinion about their role in ECC. The fact that 68% encouraged their children to use cups early in life is significant as it discourages the use of bottles and pacifiers. Parents (71%) at the same time favoured providing sweetened juices to their children frequently which again represent some confusion among parents about the causative factors of ECC. In Hong Kong, 60% gave fruit juices in bottles, some consuming non-dairy products more than six times per day.<sup>19</sup> Also the use of pacifiers has an important role in early childhood caries that may affect the children's teeth .in which use of pacifiers with deep into sugar liquids may have strong significant role in ECC. In present study 27.8 % mother use pacifiers with deep into sugar while 45.2 % mother use pacifiers without sugar and 27.0 % mother don't use pacifiers.

### Conclusion

The findings of this study clearly indicate that parental awareness regarding early childhood caries (ECC) remains inadequate, particularly in relation to feeding practices, addition of sugar in milk, cleaning of teeth after night-time feeding, and the importance of treating primary teeth. Although a majority of mothers recognized that milk teeth can decay and supported the use of fluoridated toothpaste, misconceptions and unfavourable practices such as prolonged bottle feeding, use of pacifiers dipped in sweet liquids, and irregular oral hygiene measures were still prevalent. Notably, mothers with more than one child demonstrated a higher tendency toward bottle feeding and sugar addition, suggesting that awareness does not necessarily improve with experience. These gaps in knowledge and practices highlight the urgent need for targeted parental education and preventive oral health programs. Strengthening anticipatory guidance by paediatricians and dentists, integrating oral health counselling into maternal and child health services, and implementing community-based awareness campaigns can significantly improve parental knowledge and practices. Ultimately, empowering parents with accurate information and practical skills

is essential to reducing the burden of ECC and ensuring better oral health outcomes for children.

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**Table 1 : Comparison of feeding practices among the mother of 1st and mother of 2nd and 3rd child**

	MOTHER OF 1ST CHILD	MOTHER OF 2ND AND 3RD CHILD	P – VALUE
<b>FEEDING PRACTICE DURING A DAY ?</b>			
Breast-Feeding	59 (46.8%)	73 (26.0%)	<b>.000 (s)</b>
Bottle Feeding	37 (29.4%)	110 (39.1%)	
Both	23 (18.3%)	92 (32.7%)	
<b>FEEDING PRACTICE DURING A NIGHT ?</b>			
Breast Feeding	39 (31.0%)	53 (18.9%)	<b>.031(s)</b>

Bottle Feeding	51 (40.5%)	150 (53.4%)	
Both	29 (23.0%)	66 (23.5%)	
<b>ADDITION OF SUGAR IN A MILK</b>			
Day	50 (39.7%)	142 (50.5%)	<b>0.043(s)</b>
Night	33 (26.2%)	66 (23.5%)	.584
<b>CLEANING OF TEETH AFTER FEEDING</b>			
Day	96 (76.2%)	210 (74.7%)	.753
Night	56 (44.4%)	154 (54.8%)	.150
<b>USE OF PACIFIER INTO SWEET LIQUID</b>			
Yes	35 (27.8%)	73 (26.0%)	0.909
No	57 (45.2%)	133 (47.3%)	
Don't use	34 (27.0%)	75 (26.7%)	

P value <0.05 , (s) – significant

**Table 2 : Comparison of feeding practices among working mother and non working mother**

	<b>WORK FROM HOME</b>	<b>Non WORKING MOTHER</b>	<b>OFFICE WORKER</b>	<b>P - VALUE</b>
<b>FEEDING PRACTICE DURING A DAY</b>				
Breast- feeding	18 (31.6%)	104 (33.7%)	10 (24.4%)	.347
Bottle feeding	26 (45.6%)	105 (34.0%)	16 (39.0%)	
Both	12 (21.1%)	91 (29.4%)	12 (29.3%)	
<b>FEEDING PRACTICE DURING A NIGHT ?</b>				
Breast feeding	16 (28.1%)	66 (21.4%)	10 (24.4%)	

Bottle feeding	27 (47.4%)	156 (50.5%)	18 (43.9%)	.054
Both	13 (22.8%)	75 (24.3%)	7 (17.1%)	

<b>ADDITION OF SUGAR IN A MILK</b>				
Day	30 (52.6%)	146 (47.2%)	16 (39.0%)	.412
Night	17 (29.8%)	74 (23.9%)	8 (19.5%)	.479
<b>CLEANING OF TEETH AFTER FEEDING</b>				
Day	47 (82.5%)	229 (74.1%)	30 (73.2%)	.388
Night	28 (49.1%)	159 (51.5%)	23 (56.1%)	.662
<b>USE OF PACIFIER INTO SWEET LIQUID</b>				
Yes	15 (26.3%)	81 (26.2%)	12 (29.3%)	.492

No	23 (40.4%)	145 (46.9%)	22 (53.7%)	
Don't use	19 (33.3%)	83 (26.9%)	7 (17.1%)	

**Table 3 : Knowledge of mothers about prevention of early childhood caries.**

	<b>YES</b>	<b>NO</b>
Do you believe in use of fluoridated toothpaste?	219 (53.8%)	158 (38.8%)
Milk teeth often decay	289 (71.0%)	118 (29.0%)

Believe in treating decayed primary teeth?	287 (70.5%)	120 (29.5%)
Do you believe in giving chocolates?	77 (18.9%)	140 (34.4%)