



Parental Awareness to Baby Bottle Tooth Decay in India

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ABSTRACT

Background: Parents' lifestyles and understanding of oral health have been found to influence the status of their children's oral health. Baby Bottle Tooth Decay is one of the major causes of pain and infection in the oral cavity of children at an early age and may result in the necessity of tooth extractions before the age of exfoliation of primary teeth leading to other dental problems in the future and costly dental treatment during early ages.

Methodology: This was a cross-sectional study carried out at hospitals and malls in Lucknow and Kolkata city. Data was collected using a self-structured questionnaire, from parents of young children about their knowledge pertaining to the occurrence and prevention of baby bottle tooth decay. The minimum sample size of 385 was calculated. However, the study included 705 participants.

Results: Knowledge about signs and symptoms and preventive measures of baby bottle tooth decay among their parents were found to be insufficient in this study.

Conclusion: Oral health programs focusing on Baby Bottle Tooth Decay should be planned for maternal wards of hospitals and playschools across the country, to enable the new parents, to prevent the occurrence of tooth decay among young children.

Keywords: Baby Bottle, Parental Awareness, Tooth Decay (BBTD).



Introduction

Parents' lifestyles and understanding of oral health have been found to influence the status of their children's oral health.¹ It is claimed that a deficiency of parental awareness has been a significant indicator of children's poor oral hygiene.²

Mothers and fathers generally obtain oral health care guidance from their family members, friends, primary health care physicians, and dentists.³ and accordingly, they take care of the oral cavity of their children.

Since positive oral health is a strict requirement if one wishes to have good general health and oral hygiene is a necessity for maintaining good oral health, it is always good to educate people about the appropriate measures to be taken for children's oral health behavior and its affiliation with dental caries. That is why, the practice of appropriate oral hygiene measures not only protects a child from the disease of oral cavity⁴ but also it aids in maintaining good physical and mental wellbeing.⁵ Moreover, deficient knowledge of parents regarding their children's oral health can definitely affect the attitudes and practices of oral health in the future that their children adopt, which will be carried over to adulthood.^{6,7}

Baby bottle tooth decay (BBTD) is a dental problem of very early age which is quite preventable characterized by a unique pattern of dental decay that affects the upper primary incisors followed by the primary molars". BBTD is one of the major causes of pain and infection in the oral cavity of children at an early age and may result in the necessity of tooth extractions before the age of exfoliation of primary teeth leading to other dental problems in the future and costly dental treatment during early ages. Risk factors for BBTD can be either or both of the following activities: giving a child a feeding bottle with sweetened liquids, including milk, at nap or bedtime and bottle-feeding continued past the age of 12 months.⁸

At this early stage of their life, children are not able to make their own choices; most of their active time is spent with parents and they are entirely dependent on parents for their oral health; which makes parent's role essential for the maintenance of oral health and hygiene of their children.⁹

But probably, most parents are not aware that this is actually a problem and as a result, they don't take proper preventative measures to prevent it from happening to their child.⁹

It is a common misconception that hygiene of the oral cavity is needed only when teeth start erupting; but the fact is that Preventive dental care, like cleaning gums after feeding, should begin from infancy, i.e. before the teeth erupt in the oral cavity. Knowledge of parents about practices of preventive dentistry is necessary for the utilization of dental services.¹⁰

It is found that there is scarce data on knowledge and awareness of Indian parents related to baby bottle tooth decay. Therefore, this study was planned to have an image of Parental Awareness to Baby Bottle Tooth Decay in India.

Material & Methods

This was a cross-sectional study. The study was carried out from February 2021 to July 2021 at hospitals and malls in Lucknow and Kolkata cities. Data was collected using a self-structured questionnaire, from parents of young children among the general population. Questions were about basic demographic information of participants, their knowledge pertaining to the occurrence and prevention of baby bottle tooth decay. Participants were chosen via a simple random sampling technique. The minimum sample size of 385 was

calculated. However, the study included 705 participants. Necessary permissions were taken prior to the commencement of the study. Informed consent was taken from the participants after explaining to them the aim and objectives of the study and confidentiality were assured.

Results

The study included 705 participants. Among them, there were 444 mothers (62.9%) and 261 fathers (37.1%). The educational level of most of the participants was graduation (42%) followed by 12th pass (31%), 10th pass (13%) postgraduate (9%), and less than 10th standard (5 %).

Participants were asked about the symptoms that they believe can be of tooth decay in their children and about the methods of preventing tooth decay in their children. Participants' answers ranged from strongly disagree (labelled 1) to strongly agree (labelled 5). Participants' responses are presented in **Table 1** and **Table 2**.

It is noticed from **Table 1** that most of the participants agreed with the symptoms listed in the study questionnaire. Maximum subjects agreed and strongly agreed on black or brown spots on children's teeth (86.9%) as the main sign of tooth decay. For irritability and dull behavior total of 58 % of subjects agreed and strongly agreed; 33% of subjects agreed for frequent crying and 36.3 % agreed for decreased eating behavior as a sign of tooth decay in young children because of associated pain. For red or swollen gums, more than 50 % of subjects were not sure and gave a neutral answer.

Table 1

Symptom	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Black or brown spots on the teeth	12 (1.7%)	49 (6.9%)	31 (4.39)	409 (58%)	204 (28.9%)
Decreased eating behavior	121 (17.2%)	187 (26.5%)	141 (20%)	119 (16.9%)	137 (19.4%)
Irritability or dull behavior	57 (8%)	100 (14.2%)	138 (19.6%)	211 (30%)	199 (28.2%)
Frequent crying	135 (19.1%)	179 (25.4%)	158 (22.4%)	142 (20.1%)	91 (13%)
Red / swollen gums	74 (10.5%)	82 (11.6%)	399 (56.6%)	89 (12.6%)	61 (8.6%)

Table 2 represents participants' responses to the preventive measure of teeth decay. The preventive measure for which most of the participants agreed or disagreed was limiting sugary drinks/food items followed by proper teeth brushing. In response to the measure; Giving water as the last sip after milk/juice, approximately one-third of subjects (34%) gave the neutral answer, and a maximum (37%) disagreed or strongly disagreed with this fact. In, response to the measure; cleaning of gums even before the appearance of teeth in the mouth, the number of participants giving negative responses (43%) was slightly lesser than those who gave positive responses (36%). In response to the measure; start brushing teeth as soon as teeth start appearing in the mouth, a number of participants giving positive responses (43.8%) were slightly more than those who gave positive responses (37%). About the measures; not offering anything except water during

sleep/nap and consulting dentist for methods of oral hygiene maintenance of infants all participants showed insufficient knowledge.

Table 2

Tooth decay prevention	1 Strongly Disagree	2 Disagree	3 Neutral	4 Agree	5 Strongly Agree
Limiting sugary food items	39 (5.5%)	70 (9.9%)	89 (12.6%)	117 (16.6%)	390 (55.3%)
Proper teeth brushing	32 (4.5%)	62 (8.8%)	70 (9.9%)	138 (19.6%)	403 (57.2%)
Giving water as a last sip after milk/juice	137 (19.4%)	126 (17.9%)	240 (34%)	103 (14.6%)	99 (14%)
Cleaning of gums even before appearance of teeth in mouth	120 (17%)	186 (26.4%)	140 (19.8%)	129 (18.3%)	130 (18.4%)
Start brushing teeth as soon as teeth start appearing in mouth	120 (17%)	145 (20.6%)	131 (18.6%)	141 (20%)	168 (23.8%)
Not offering anything except water during sleep/nap	213 (30.2%)	203 (28.8%)	90 (12.8%)	101 (14.3%)	98 (14%)
Consulting dentist for methods of oral hygiene maintenance of infants	141 (20%)	180 (25.5%)	158 (22.4%)	119 (16.9%)	107 (15.2%)

Lastly, participants were asked if their child/children suffered from tooth decay during the age of baby bottle feeding. Their answers were as follows: yes (n= 206, 29.2%) and no (n= 499, 70.8%).

Discussion

The purpose of this study is to understand and determine Parental Awareness of Baby Bottle Tooth Decay in India.

Black or Brown spots on teeth and irritability or dull behavior are the signs/ symptom of tooth decay, which was found to be known correctly by 87% and 88% of parents respectively which is more than the findings of a study conducted by Sennary AB et al¹⁰ in which this correct knowledge was found with 75% and 67% of parents respectively. This is the basic knowledge to know the problems associated with decayed tooth and was better known correctly by maximum participants.

The fact that tooth decay may cause a behavioural change in a child, like decreased eating and Frequent crying was known by 36.3% and 33% of participants respectively. This less knowledge about these factors can be attributed to the fact that the parents of children who had suffered from BBTD would have definitely known about the problems faced by them and their children. This finding is in relation to the fact that in our study 29.2 % of parents mentioned that their children had BBTD during the period of bottle feeding.

Among the questions asked regarding knowledge of prevention of tooth decay; limiting sugary food items/drinks and proper tooth brushing were the fact which were well known by 71 % and 77 % of participants respectively. This is lesser than the proportion of subjects in the study conducted by Alshammary F et al⁹ (97%), Sennary AB et al¹⁰ (92 %), and Duguma F and Zemed B (92.6%).¹¹ This lesser knowledge can be attributed to the misconception among people that training in tooth brushing and limiting

food activities to prevent tooth decay are important for children who have permanent teeth in their mouth and not for young children.

Only 28% of participants agreed for the fact that giving water as the last sip after milk/juice to the children who use a baby bottle, may help to prevent the tooth decay which is similar to a study conducted in Kenya, on KAP for caregivers.¹² Only 32% agreed that parents should consult dentists for the knowledge of methods necessary for preventing tooth decay among their children. This low percentage indicates the lower importance given to dental health by these parents.

Knowledge about preventive measures; Giving water as the last sip after milk/juice, cleaning of gums even before the appearance of teeth in the mouth, start brushing teeth as soon as teeth start appearing in the mouth, not offering anything except water during sleep/nap, and consulting dentist for methods of oral hygiene maintenance of infants; was found to be insufficient in this study. The probable reason is that at this stage of children's life the only importance is given to their general health and parents' focus is always on feeding child more and more. But as it's been mentioned for decades that the oral cavity is the gateway to general health the associated fact should be told to the new parents religiously that good oral health is always needed at any stage of life to have good general health.

Conclusion

Children in the age of baby bottle usage are not able to speak the language properly and thus it becomes difficult for parents to understand their dental problems, moreover, parents just need to assume what problem a child might have. Therefore it becomes of utmost importance that parents must follow the methods of primary prevention to restrict their child to develop any dental problem. In this study, overall knowledge about baby bottle tooth decay among parents in Lucknow and Kolkata, India was found low. Therefore, oral health programs focusing on Baby Bottle Tooth Decay should be planned for maternal wards of hospitals and playschools across the country, to enable the new parents, to prevent the occurrence of tooth decay among young children.

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