

ORIGINAL ARTICLE

Early childhood caries and parents' challenges in implementing oral hygiene practices: a qualitative study

Baranya Shrikrishna Suprabha¹  | Violet D'Souza² | Ramya Shenoy³ |
Yarmunja Mahabala Karuna¹  | Anupama Panakaje Nayak¹ | Arathi Rao¹ 

¹Department of Pediatric and Preventive Dentistry, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, India

²Department of Dental Public Health, Faculty of Dentistry, University of Toronto, Toronto, ON, Canada

³Department of Public Health Dentistry, Manipal College of Dental Sciences, Mangalore, Manipal Academy of Higher Education, Manipal, India

Correspondence

Baranya Shrikrishna Suprabha, Department of Pediatric and Preventive Dentistry, Manipal College of Dental Sciences, Light House Hill Road, Mangalore – 575 001, Karnataka, India.
Email: suprabha.bhat@manipal.edu

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Abstract

Background: Early childhood caries (ECC) is highly prevalent with significant long-term consequences. Parents are primarily responsible for the oral health practices of their children. Parents' health beliefs, attitudes, and cultural factors influence oral health practices.

Aim: To explore and understand the perceptions and challenges faced by the parents of the children with ECC in performing routine oral hygiene practices for their children.

Design: We conducted a qualitative description study with the parents of children with ECC. Data were collected through five focus groups using culturally appropriate, semi-structured, open-ended questions and probes. Focus groups were audio-taped, and field notes were taken, which were transcribed verbatim after each focus group session. Data were analyzed using content analyses.

Results: A vast majority of the participants were aware of the significance of oral hygiene. However, they faced challenges in implementing proper home hygiene practices at home and lacked knowledge about the type of toothpaste and toothbrush to be used for their children.

Conclusion: The parents of the children with ECC face a severe knowledge gap, which is interfering with the selection of proper oral hygiene aids for their children. They also face barriers in implementing oral hygiene routines for their children, in spite of awareness that tooth brushing is important.

KEYWORDS

barriers, child, dental caries, oral hygiene

1 | INTRODUCTION

Dental caries is a disease of multifactorial etiology, and its causal factors include caries causing microorganisms, exposure to fermentable carbohydrates, feeding practices, and a wide range of sociodemographic factors.¹ When caries affects children of age six or under, it is called early childhood caries

(ECC).² Although the prevalence of ECC varies from population to population, it is more prevalent in children living in socially disadvantaged communities.³ The global prevalence of ECC is 23%-90%,⁴ whereas in India it is 27%-65%.⁵ In addition to occasional mortality, ECC is associated with significant morbidity as it causes pain and impairs chewing ability, nutritional intake, and the quality of life of the affected individuals.⁶

Parents and caretakers of children are primarily responsible for their oral hygiene, dietary habits, dental service utilization, and making treatment decisions for them. Studies show that mothers' education, stress levels, oral health beliefs, attitudes, and cultural factors are strongly linked to ECC and dental service utilization.^{7,8} Although numerous types of interventions have tried to address and prevent ECC,⁹ there is no universally accepted intervention fit all.¹⁰ Providing information to parents about their children's oral health may lead to increased knowledge; however, an increase in knowledge may not cause a behavior change.¹¹ It could be because behavior is often associated with internal and external factors.¹² Even those willing to make a behavior change may not have the required level of self-efficacy to make these changes and remain compliant with the new behavior.¹³ For the success of any intervention, the first step is to understand the population, their culture, and their values prior to designing or planning any interventions. Whereas a quantitative study explores only direct associations of predetermined and measurable variables, the qualitative research method allows for in-depth exploration.

According to the qualitative studies that were conducted with parents of young children with caries in developed countries, parents experience significant challenges in maintaining oral hygiene for their young ones.^{13,14} Although these findings are important, they may not be applicable to all population groups around the world. To our knowledge, no qualitative study on the effect of parental perspectives on oral health practices of children with ECC has been carried out in India, exploring the parents' knowledge, attitudes, and beliefs, and how these factors differ from other nations. Given this knowledge gap, in this study, we aimed to explore, understand, and describe the perceptions of parents of children with ECC on oral hygiene, their current oral hygiene practices and what challenges they face in performing home oral hygiene practices. This focus group discussion was part of a larger study, which included focus group discussions related to diet and feeding habits as well as dental visit patterns. This is a part of our overarching aim to provide the evidence base required for administrators and policymakers to design culturally appropriate, targeted intervention for parents of children with ECC to improve home oral hygiene practices, dietary and feeding practices, and dental care-seeking behavior to reduce the risk for ECC in Mangalore.

2 | MATERIALS AND METHODS

We conducted a qualitative study with a qualitative description (QD) approach, using a convenient sample of participants. The participants were the parents of the children with ECC receiving routine dental care at Manipal College of Dental Sciences, Mangalore, during the period between

WHY THIS PAPER IS IMPORTANT FOR PEDIATRIC DENTISTS?

- Parents of children with ECC may have knowledge gaps regarding oral hygiene aids.
- It is important to identify the challenges faced by parents in implementing oral hygiene routines before educating them on preventive measures.
- Providing oral health education by dental health professionals and involving pediatricians may help the parents with the children in overcoming some of their challenges and increasing their self-efficacy.

March 2019 and August 2019. Manipal College of Dental Sciences is an academic dental institution located in the southwest coastal region of India. The institution offers dental care to patients at a nominal fee/ subsidized fee and is accessed by all segments of the local population. Mangalore city has a prevalence of ECC of about 60%.¹⁵ The epistemological framework of our study was established within the naturalistic inquiry, and thus, we chose the QD research design. It is the least theoretical among qualitative research methods. Whereas it does not use interpretive or theoretical underpinnings, it allows the researchers to observe, describe, and interpret their observations of specific people in a social and cultural context.¹⁶

The study was approved by the Institutional Review Board of the Manipal College of Dental Sciences, Mangalore. Designated research team members identified the potential participants and provided information to them in person regarding the purpose and the reason behind carrying out the study. Potential participants were included if they had a child aged six years or younger with ECC and were seeking routine dental treatment at the study site, and excluded if the child had a history or a diagnosis with systemic medical illness or any kind of psychiatric disorder. Those who expressed interest in participating were recruited into the study by obtaining written informed consent.

2.1 | Data collection

Data were collected through five focus groups using a discussion guide that was created by the research team members (Table 1). Focus groups allowed us to glean information from many participants within a shorter timeframe than we would have collected otherwise. In addition, they provide an opportunity to collect data from group interaction. The included questions and probes were culturally appropriate, semi-structured, and open-ended in order to gain a deeper

TABLE 1 Interview guide

Main Questions

1. How do you take care of your child's teeth?
2. Are there any methods used by you to control problems related to cavities in the teeth of your child?
3. How important is brushing your child's teeth in preventing cavities?

Probes:

1. Could you describe how did you learn to take care of your child's teeth?
2. Could you describe your child's brushing habits (who is brushing, how often, why or why not depending on the responses)
3. Could you tell us your toothbrushing experience with your child as a parent? (When you started and how you started?)
4. What kind of challenges do you experience in performing oral hygiene for your child?
5. Could you describe the process of your tooth brushing? (What oral hygiene aids you use, how do you use them and why do you use them?)
6. How do you select the oral hygiene aids for your child?

understanding of participants' perceptions of their children's oral health and oral hygiene practices. The interview guide was prepared based on literature^{1,17,18} concerning the factors affecting the occurrence of ECC and oral health barriers for pre-school children, with further probes to obtain an in-depth response from parents. The cultural appropriateness of the discussion guide was reviewed by two researchers (BS and RS) who are familiar with the local culture, have experience working with the local population to provide clinical care, and also have experience conducting focus group discussions. The interview guide was pilot tested with five parents of children below six years of age who were not included in the study for clarity and comprehension. Each focus group had 4-6 participants seated in a ventilated room in a semi-circle fashion, and with a moderator facilitating group discussion while ensuring that all participants participated. No other family members of the parent were present during the session. A female moderator (BS) and a note taker (KYM) who hailed from the same cultural background conducted all focus group discussions. The moderator is a pediatric dentist and worked as a clinician, an educator, and a researcher in the Department of Pediatric Dentistry. Although both the moderator and the note taker (BS and KYM) were clinicians working at the study site, they were not involved in the treatment of the children whose parents participated in the study. In addition, the moderator had expertise in qualitative research and completed a formal training for conducting the focus groups prior to initiating this study. The focus groups were conducted until the contents reached saturation. Saturation of the data was inferred when the codes,

subcategories, and categories that were generated after each focus group session became repetitive.¹⁹

All focus groups were audiotaped using a digital voice recorder (ICD-UX560F/B Digital Voice recorder, Sony India Pvt. Ltd), and a research member took field notes. At the end of each session, the note taker summarized the key points derived from the discussion, and the participants were asked whether they accurately reflected the group discussions. In case of any discrepancies in our observations, we resolved them at the end of each session. All participants were provided with a travel allowance of Rs. 100. In addition, they were served refreshments during the focus group meetings. At the end of each session, all participants were provided with an oral hygiene kit consisting of a fluoridated toothpaste (100 g, 1000 ppm) and a toothbrush. In addition, they were provided with oral health information focusing on the etiology of dental caries and caries prevention methods using a PowerPoint presentation, based on American Academy of Pediatric Dentistry (AAPD) guidelines for the prevention of ECC.² Also, we collected the participants' demographics status, age, gender, the gender of the child with ECC, the number of siblings of the child, and the number of people living in the household. Socioeconomic data were obtained based on Kuppuswamy scale,²⁰ commonly used for determining the socioeconomic status of urban families in India using three parameters, namely, education, occupation, and income. Due to the time constraints experienced by the participants, it was not feasible to conduct repeat interviews.

2.2 | Data analyses

Data were analyzed manually using the content analysis method. All audiotapes and field notes were transcribed verbatim after each focus group session. We took extreme care to maintain the anonymity of the participants using the assigned participant codes throughout the analyses. Two research team members read and reread the transcribed data multiple times and coded using the line-by-line coding method. The codes between the two coders were compared for accuracy, and the discrepancies were resolved through consensus. The codes were labeled and then merged to form categories, subcategories, and build themes. We used descriptive statistics to analyze the sociodemographic data using SPSS version 17.0 (IBM SPSS® Statistics). The consolidated criteria for reporting qualitative research (COREQ) checklist were used to ascertain quality in the reporting of this study.²¹

3 | RESULTS

Of the total 45 eligible parents approached, 27 provided written informed consent and participated in the study. Among those who declined to participate, many did so because of

their work schedule or other household responsibilities. The majority (81.5%) of the participants were mothers and (70.4%) belonged to the middle socioeconomic status (as per Kuppuswamy scale).²⁰ Most of the participants were college/university graduates (48.1%). The general characteristics of the sample are presented in Table 2. We conducted five focus groups, and the number of participants in each focus group ranged from 4 to 6. Each focus group time ranged from 1 to 2 hours, with a mean (SD) of 68.4 (14.29) minutes. Our analyses produced three main themes and five categories, as presented in Table 3. The three main themes include parents' perception of oral hygiene for preventing tooth decay, oral hygiene practices, and selecting

oral hygiene products. Our research findings are described below, and we have provided the corresponding quotes of the participants in Table 4.

TABLE 2 The general characteristics of the participants

Sociodemographic Variables	n (%)
Participants' age	35.15 ± 6.12 ^a
Participants' children's age	5.04 ± 1.22 ^a
Gender (parents)	
Male	5 (18.5)
Female	22 (81.5)
Gender (child)	
Male	12 (44.4)
Female	15 (55.6)
Education	
Primary school (1-7th grade)	3 (11.1)
High school (8-10 grade)	5 (18.5)
Pre-university (11-12 grade)	5 (18.5)
College/University	13 (48.2)
Postgraduate	1 (3.7)
Employment status	
Father	5 (18.5)
Mother	6 (22.2)
Employed (total)	11 (40.7)
Unemployed	nil
Home maker (housewife)	16 (59.3)
Household income	
0-17 999	13 (45.5)
18 000-35 999	7 (25.9)
>36 000	8 (29.6)
Number of children in the family	
One	6 (22.2)
Two-three	19 (70.4)
Four or more	2 (7.4)
Type of family	
Living in a joint family	11 (40.7)
Nuclear family	16 (59.3)

^aMean ± SD.

3.1 | Parents' perception of oral hygiene for preventing tooth decay

3.1.1 | Recognizing the importance of tooth brushing

The majority of the study participants knew the significance of good oral hygiene and reported that it is essential to brush at least once a day and to rinse the mouth after consuming sugary and sticky food (Quote 1). Some participants did not have sufficient oral health knowledge, and as a result, they did not take the needed preventive measures for their children to prevent tooth decay (Quote 2). Also, some participants had misconceptions about tooth decay and believed that calcium deficiency, excess calcium, or parafunctional habits such as thumb sucking can cause tooth decay. A few others believed that tooth decay is inevitable despite taking any kind of preventive measures (Quote 3).

3.1.2 | Person responsible for performing oral hygiene

Less than half of our study participants felt that brushing should begin as early as six months of age or as soon as the first tooth erupts in the mouth, whereas the others believed it to be around 1-1.5 years of age of the child. Interestingly, some parents reported that they finger brushed their children's teeth as early as the first tooth erupted. When asked who should be brushing children's teeth, we observed mixed responses. Many of the participants accepted that parents must brush their children's teeth and teach them how to brush at least until the child masters the tooth brushing skills, although some participants expressed ignorance about it. Most of the participants reported that they brush their children's teeth first and then allow the child to continue brushing, whereas some let their 2- to 6-year-old children brush on their own (Quote 4). None of the participants knew until what age they must brush their children's teeth. Some participants were concerned about their child's brushing habit and brushed for them beyond five years of age (Quote 5), whereas some were negligent and let their very young children brush on their own (Quote 6). A few participants reported expressing a negative attitude when the child did not brush adequately (Quote 7). Also, we came across some parents who were seriously concerned about the safety of the toothpaste and, thus, brushed their children's teeth (Quote 8).

TABLE 3 List of themes and categories

Theme 1	Parents' perception of oral hygiene for preventing tooth decay
Category 1.1	Recognizing the importance of toothbrushing
Category 1.2	Person responsible for performing oral hygiene
Theme 2	Oral hygiene practices
Category 2.1	Oral hygiene routine (brushing routine) and challenges faced by the parents
Category 2.2	Self-efficacy
Theme 3	Selecting oral hygiene products
Category 3.1	Toothpaste
Category 3.2	Toothbrushes

3.2 | Oral hygiene practices

3.2.1 | Oral hygiene routine (brushing routine) and challenges faced by the parents

Although many parents knew the significance of brushing at least twice a day, most were brushing only once a day. Tooth brushing in the morning was preferred over bedtime because brushing in the morning was a part of personal grooming and a norm (Quote 9). Implementing a regular brushing routine was a big problem for many, and they expressed a lack of cooperation from their children. The younger the child, the more difficult it was to implement a brushing routine.

Some expressed that in the morning they brushed their children's teeth in a hurry (Quote 10), whereas the others had to spend a long time motivating their child to get the brushing done. Although most of the participants knew that milk remaining on the surface of the teeth could cause tooth decay, most of them reported that children drank milk at bedtime but did not brush. It was not feasible for many despite knowing the importance of brushing before bedtime (Quote 11). The other challenges that prevented from brushing twice included both parents working, limited time at home, and the child's bedtime schedule (Quote 12). However, those who lived in joint families felt that they had support from the extended family members as the children brushed under the supervision of an adult, and children imitated the brushing habits of others. The other concerns were when the children were left on their own to brush, they played with their brushes, did not brush adequately, brushed anterior teeth only, and brushed for a very short time.

Parents used different methods to teach the child to brush or to get the job done, which included modeling, making the child stand in front of the mirror, storytelling to distract the child, bribing, and reminding them of past negative experiences that they had with their teeth (Quote 13). Most of the participants felt that children brush their teeth better when monitored. However, the participants experienced challenges

in tracking the child's brushing due to time constraints and other responsibilities that they had around the household.

3.2.2 | Self-efficacy

Although knowledge is arguably the first step in behavior change, it is not sufficient to cause a change in behavior. Most of the participants lacked self-efficacy for performing oral hygiene for their children or making their children brush adequately. Despite having the knowledge and motivation, they could not perform proper oral hygiene for their children and felt helpless. Some parents expressed that they were not adequately trained enough by their own parents to implement tooth brushing for their children (Quote 14). Despite the challenges, most of the participants felt that they have to stay positive, persistent, and encouraging to get their children to brush their teeth. Some parents expressed that children might stay compliant with tooth brushing if it is taught at school (Quote 15). Some expressed helplessness as they felt they did not have enough knowledge on this issue, whereas others felt that the dentists who visit schools should be teaching the children to brush.

3.3 | Selecting oral hygiene products

3.3.1 | Toothpaste

Most of the participants lacked knowledge about toothpaste, its contents, and the significance of fluoride in preventing caries. They did not know what kind of toothpaste to use for their children and how much toothpaste to use. Many expressed confusion, some kept moving from one toothpaste to another, and other participants chose the toothpaste based on their kids' choices, and such decisions were made based on the flavor of the toothpaste. A small proportion of the participants expressed serious concerns about the toothpaste ingredients and their safety (Quote 16), and a few others felt

TABLE 4 The participants' quotes

Quotes	Responses
Quote 1	They have to keep the teeth clean at night, after food we have to brush. Night brushing is important because some food remains and increases the chance of cavities
Quote 2	I feel we did not have much knowledge about how to prevent cavities. That is why my daughter got cavity problem or may be it is due to our negligence
Quote 3	I had started brushing at six months. Even after this, he got cavities. I think it is unavoidable
Quote 4	If children are given brush and allowed to brush themselves, they take interest in brushing. When children have all teeth at 2 years, they should be allowed to brush with brush in their hand
Quote 5	Yes, they brush on their own. Till they were five years of age, I used to brush their teeth. Now they brush on their own. I used to feel that they did not do a good job. So, I used to brush again. They do only for a short time
Quote 6	Actually, we are not bothered, that is the whole problem
Quote 7	When he (the child) was 2 years old. I used to do sometimes. Most of the time he used to do. Sometimes I used to shout at him for not brushing properly
Quote 8	I fear that he may swallow the toothpaste. He is small, isn't it? Hence, I brush quickly
Quote 9	Morning, it is a part of the routine. It is compulsory. At night, if teeth are not brushed, it is still not a routine, not compulsory
Quote 10	Morning, I brush in a hurry and at night she is in a hurry to sleep. Finally, only one-minute brushing happens. I should take more time in the morning, but because I am in a hurry, I end up doing it fast'
Quote 11	My dentist told me that the mouth should be washed soon after feeding. How to wash the mouth, if child falls asleep...I don't understand'
Quote 12	During weekends, we have dinner outside. They play and by the time we reach home my child sleeps in the car. If I wake up, she cries whole night. So, I allow her to sleep'
Quote 13	I usually tell him with love, "If you brush, I will buy you something, I will take you to park" etc In the evening, I have to take him to the park. He will say, "I have brushed my teeth, take me there"
Quote 14	Our parents have not taught us how to make our children brush
Quote 15	Schools should teach how to brush when they are in LKG, UKG, 1st std. Otherwise they don't listen to us, impossible to make him brush (my son)
Quote 16	We select toothpastes based on the label. It will be written in the label "below 5 yrs." I make sure it is a soft brush. Regarding toothpaste, I have heard that "flavored toothpastes have artificial color, and artificial preservatives. They may cause cavities". So, I am afraid to use those kinds. Now we use an Ayurveda toothpaste, but it is very spicy. So, I switched back to flavored toothpaste such as Colgate, pepsodent etc
Quote 17	Now I have heard that, if you brush with Colgate toothpaste you may get cancer. So, we should use it in limited quantities. So now I use it in very little quantity, even for us, adults. I don't give tooth paste in children's hands. I put it for them on the brush. I don't rely on any toothpaste so much. When we were small, we used to brush with charcoal and salt. It is natural. So even now, I make my children gargle with rock salt and water mixture once in a while. It will clean the mouth and help in strengthening the roots
Quote 18	Our grandparents used to brush with mango leaves, charcoal etc They did not have any dental problems
Quote 19	'Medical shop people (pharmacy staff) have no idea as to what is good, when I asked them. They just go by what the toothbrush company says
Quote 20	I have got her 4 brushes. She gets bored of her brush very fast. She does not agree to brush. Sometimes I even have to spank her to get the teeth brushed. If there are many toothpastes and brush, she keeps selecting them every day and somehow, I manage. So I end up buying new toothpaste and brush often
Quote 21	But hard brush is required if there are gaps between the teeth. My child likes the same brush and the paste. If I change it, he doesn't like

safe to buy the 'Colgate' brand toothpaste irrespective of the fluoride content, just because it has been in the market for a very long time. We did observe that a few participants were afraid that fluoride may affect the bones or may even cause cancer (Quote 17). Interestingly, a few participants felt that

there might be better alternatives, especially the indigenous methods of tooth brushing using salt, charcoal, and leaves (neem or mango) as those methods used to be prevalent in the region (Quote 18). However, they used toothpaste because of its ease.

3.3.2 | Toothbrushes

A vast majority of the participants had no idea about the different types of toothbrushes that are available and their purposes. A small proportion of them were told by their children's dentists what kind of toothbrushes and toothpaste to use. Despite that, they lacked proper knowledge regarding the type of toothbrush to be selected for their child based on age. A few seemed to have consulted the pharmacists but were not satisfied with the pharmacists' responses (Quote 19). Most of the participants said they tried different types of brushes until they settled down for what they felt comfortable with, and some left the choice to their children (Quote 20). Some participants reported choosing toothbrushes with hard bristle brushes initially, and then, when they were not comfortable with those brushes, they bought soft bristle toothbrushes. Some participants selected soft brushes because they felt that hard brushes could damage the gums, and the others believed that toothbrush selection should be made based on teeth alignment (Quote 21).

4 | DISCUSSION

Through this qualitative study, we were able to describe the participants' oral health-related knowledge, challenges they face in selecting oral hygiene aids, and implementing home hygiene practices. The study design allowed us to stay close to the data, with low inference or interpretation and outcomes based on existing knowledge.¹⁶ Though the participants knew the significance of brushing twice a day to prevent caries, they did not know the importance of fluoride toothpaste, when to start brushing, and how to select toothbrushes for their children. Whereas some parents were able to implement a brushing routine, many parents found this challenging and lacked self-efficacy. The findings of this study can be very helpful in designing and implementing educational programs that are sensitive to the needs of the local community.

Although most of the parents understood the importance of brushing twice a day, they failed to put it into practice due to competing priorities. Competing priorities interfering with oral hygiene practices are not new and have been reported earlier.²² Inadequate brushing in the morning and no brushing at all can have serious consequences on the child's oral health. In such situations, interventions using self-determination theory or motivational interviewing that match the values of the parents could be useful.²³ These theories function on collaborative approaches between the provider and the recipient, allowing the recipient with the freedom to set their own goals and reach self-efficacy. This strategy, while retaining the parent's core values and sense of self, which in this case is the knowledge and awareness about the need to brush their children's teeth twice a day, will help them in

recognizing the discrepancies, in the form of lack of prioritization, in the face of other competing priorities,²⁴ and strive toward self-efficacy.

We observed a significant knowledge gap in our participants, especially in selecting oral hygiene aids. Importantly, they did not know the significance of the fluoride content in caries prevention, when to start brushing, and the importance of night brushing. Lack of knowledge regarding oral hygiene practices has been linked to the severity of ECC.¹⁷ The majority of them conveyed the need to learn more about brushing and how to help their children to initiate and maintain good oral hygiene. However, they lacked self-efficacy. It has been reported that parental perception of self-efficacy is crucial for implementing proper oral health behaviors in children,^{17,25} and the perceived self-efficacy influences the parents' ability to implement oral hygiene practices for their children.¹⁷

It is known that pre-school children may not understand the importance of performing oral hygiene for themselves and may lack the manual dexterity to perform it well.²³ A majority of the participants felt that it was their duty to perform oral hygiene for their children and to encourage them and be persistent until the children can brush on their own. Some participants reported brushing their children's teeth to make sure that their teeth are clean. Past studies have shown that caregivers respond differently to the barriers based on their knowledge and perceptions.^{8,18} Despite expressing challenges in getting their children to perform oral hygiene, some took innovative and proactive roles such as distracting the child while the parents brushed the child's teeth, modeling, and supervising the child while he/she brushed. A few participants reported bribing the child to get the job done, the bribe was 'going to the park'. Bribing is often seen as a negative, but going to the park has a positive impact on one's well-being and, thus, can be seen as positive reinforcement in this case.

Nearly half the participants had education up to grade 12 and 59% were unemployed. Those with higher levels of education are more likely to be employed, have greater income, and have higher levels of knowledge when compared to those with a lower level of education.²⁶ It is possible that those with a lower level of education have a lower level of oral health knowledge and experienced self-efficacy for maintaining oral hygiene for their children whereas those who were employed struggled with the time. Another interesting thing that we have observed is that often the mother is responsible for tooth brushing and grooming children in addition to preparing the meals and other household chores. These combined responsibilities may exhaust the mothers and interfere with some of the most important responsibilities such as tooth brushing. Although the child commences school at the age of four, some participants felt that brushing should be taught at schools. This could be a red flag indicating that they need help. None of the participants felt that the child's healthcare

providers should provide such information. The healthcare providers are seldom involved in children's oral health in the region.²⁷ It appeared that people living in joint families were receiving some support to alleviate the problem. It could be that having an extra adult person in the family was helpful to the mothers to share some of the household responsibilities, and such observations are not new.²³ To ease such situations, anticipatory guidance by dentists or healthcare providers to parents of infants and toddlers could be helpful.²⁸

According to the Kuppaswamy scale,²⁰ over 70% of our study participants belonged to the lower or middle socioeconomic statuses and most of them were mothers. Low maternal education can lead to oral health beliefs and behaviors that can result in poor oral hygiene, inappropriate feeding habits, and failure to access dental care facilities.²⁹ Lack of dental insurance and lower levels of income can affect dental care-seeking behavior. Parents may be taking their children to the dentist only when in the presence of a tooth problem, and thus, they may miss preventive dental visits.³⁰ Involving the healthcare providers, especially the pediatricians, can be an essential solution. Pediatricians providing information about oral hygiene during pre- and postnatal visits and making referrals to a dentist can be helpful.

It is essential to shed some light on the following limitations while interpreting the study results. It is important to note that this study reflects the perceptions and challenges of specific individuals seeking dental care for their children with ECC at the study site. Although there are an exhaustive number of academic dental institutions in India, not everyone has access to such care. In addition, of the 45 potentially eligible participants, only 27 participated in the study, the main reason for declining to participate being the timing of the focus group. Thus, those who participated in our study could be different from those who declined to participate in many aspects, including their sociodemographic characteristics, their knowledge, behavior, and perceptions. Second, the outcome of a focus group discussion is heavily dependent on group dynamics, and thus, responses could have been influenced by social pressure, the dominance of some participants leading to not so independent responses by other participants. However, we tried to minimize them by using appropriate probes and encouraging all participants to contribute to the discussion. Thus, in spite of some of its limitations, our study design allowed us to capture rich information with a deeper understanding of the context. We were able to get underneath the participants' superficial responses and understand rational thoughts that often drive an individual's action. We believe that our study findings are applicable to the Indian cohort with similar characteristics. It can serve as a valuable resource for better understanding of perceptions and challenges faced by parents of children with ECC for oral hygiene practices and help in implementing a targeted prevention program for ECC.

Within the limits of the study design, our findings suggest that the parents of the children with ECC face a severe knowledge gap regarding the age of initiation of tooth brushing, use of fluoridated toothpaste, and selection of age appropriate size of toothbrush. This knowledge gap is interfering with their selection of proper oral hygiene aids for their children. Also, the parents are facing barriers in implementing oral hygiene routines to their children, such as a lack of cooperation from children, a lack of support from other family members, and the priority of other responsibilities. This calls for developing theory-driven targeted interventions for pregnant women targeting their pre- and postnatal visits. The interventions should include consultations with the oral health professionals to educate them about the child's oral health, how and when to begin oral hygiene practices and increase their self-efficacy in maintaining good oral hygiene for their young children with the involvement of pediatricians and a long-term sustainability assessment of these educational interventions. As this study was a part of the larger study regarding perceptions and challenges faced by parents, further data are awaited regarding dietary practices and dental visits among children with ECC.

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CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

AUTHOR CONTRIBUTIONS

D'Souza V, Shenoy R, and Suprabha B.S designed the research. Karuna Y.M, Nayak A.P, and Suprabha B.S carried out the research. D'Souza V, Karuna Y.M, Nayak A.P, and Suprabha B.S analyzed the data. D'Souza V and Suprabha B.S prepared the manuscript. Shenoy R and Rao A edited the manuscript.

ORCID

Baranya Shrikrishna Suprabha  <https://orcid.org/0000-0001-7003-3121>

Yarmunja Mahabala Karuna  <https://orcid.org/0000-0002-7504-1021>

Arathi Rao  <https://orcid.org/0000-0001-6440-1274>

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