

Assessment Of Father's Knowledge, Awareness And Perception About Early Childhood Caries-A Cross-Sectional Study

Priya Verma, Babita Niranjan, Prachi Sijeria, Ankit Pachori

Post Graduate Student, Department of Paediatric And Preventive Dentistry, Rishiraj College Of Dental Sciences & Research Centre, Bhopal (M.P)

Professor & Head, Department Of Paediatric And Preventive Dentistry, Rishiraj College Of Dental Sciences & Research Centre Bhopal (M.P)

Professor, Department Of Paediatric And Preventive Dentistry, Rishiraj College Of Dental Sciences & Research Centre Bhopal (M.P)

Reader, Department Of Paediatric And Preventive Dentistry, Rishiraj College Of Dental Sciences & Research Centre Bhopal (M.P)

Abstract:

Background: Early childhood caries (ECC) is a common chronic disease in young children that adversely affects oral health, growth, and quality of life. Parental knowledge and attitudes strongly influence children's oral health practices, yet father's roles remain underexplored. Understanding father's knowledge, awareness, and perception of ECC is essential for developing effective family-centred preventive strategies. This study aims to assess the knowledge, awareness, and perceptions of father's regarding early childhood caries and to evaluate their role in its prevention and management among young children.

Materials & methods: A total of 100 fathers of children aged 3 to 6 years were included in the study. Study, comprising a three-part questionnaire related to knowledge, awareness & perception related to early childhood caries.

Result: Results indicate a significant gap in father's understanding and perception of ECC highlighting the need for targeted oral health education programs.

Conclusion: Fathers play an increasingly important role in family decision-making and child-rearing, improving their knowledge and attitudes toward oral health can have a positive impact on the prevention of early childhood caries. Targeted educational programs, chairside counselling and community-based awareness initiatives focusing specifically on father's are recommended to bridge existing knowledge gaps and promote positive oral health behaviours.

Keywords: Father's knowledge; Awareness; Perception; Parental role

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I. Introduction

Early childhood caries is one of the most prevalent chronic diseases affecting children worldwide and is recognized as a major public health concern. According to the American Academy of Paediatric Dentistry (ECC) is defined as "the presence of one or more decayed (non-cavitated or cavitated lesions), missing (due to caries) or filled tooth surfaces in any primary tooth" in a child under the age of six.¹

During early childhood, parents play a crucial role in shaping their child's development. Oral health practices adopted in these years are strongly influenced by parental guidance. When parents hold a positive attitude toward oral health, their children are more likely to maintain good oral hygiene, whereas a negative attitude among parents is often linked to a higher prevalence of dental caries in infants and young children.²

Mothers are traditionally considered the primary caregivers responsible for a child's oral health, fathers also played a crucial role in shaping family health practices, decision-making and access to dental care. In recent years, there has been growing recognition of the need to involve fathers in preventive oral health strategies. Their level of knowledge, awareness, and perception about ECC directly influences children's oral hygiene routines, dietary practices, and timely dental visits. However, in many communities, father's contributions are often underexplored and undervalued in oral health research. Understanding paternal perspectives is therefore essential for designing effective family centered interventions aimed at reducing the burden of ECC.³

Father's understanding of ECC is often limited compared to mothers, but research indicates that when fathers are well-informed, their involvement contributes positively to their children's oral health. Awareness about the causes of ECC-such as frequent sugar consumption, prolonged bottle-feeding, poor oral hygiene practices, and lack of early dental checkups-enables fathers to actively participate in preventing caries.⁴

This study seeks to assess father's knowledge, Awareness and Perceptions regarding early childhood caries, highlighting their role in prevention and management, and identifying gaps that can be addressed through targeted educational and preventive programs.

II. Materials And Methods

This cross-sectional study was carried out on patients' fathers in Department of Paediatric and preventive dentistry at Bhopal. A total 100 fathers of patient aged 3 to 6 years (both male and female) were included in this study.

Study design: Cross-sectional observational study

Study location: Department of Paediatric and Preventive Dentistry Bhopal

Study duration: October 2025 to December 2025

Sample size:100

Sample size calculation: The study primarily involves analysing proportions and group comparisons using chi-square test for goodness of fit or independence. With assuming comparisons across 3 demographic groups (e.g, education levels: bachelor's diploma, high school). G*Power calculated a minimum sample size of 88 participants to achieve robust statistical results.

Subjects and selection method: To accommodate potential non-responses and incomplete data, a 15-20% buffer is recommended, resulting in a target sample size of 105-110 participants. We planned to include 100 participants. This ensures sufficient power to detect significant differences in paternal knowledge and attitudes toward early childhood caries across demographic categories.

Inclusion criteria:

- Children aged between 3 to 6 years
- Both male and female children's
- Gave informed consent

Exclusion criteria:

- Fathers of the children unable to respond
- > 6 years

Procedure methodology: 100 fathers of patient aged 3 to 6 years who visited the Department of Paediatric & Preventive Dentistry were asked to fill out 3-part questionnaire provided in both (Hindi/English) language while sitting in the waiting room. Each patient was accompanied by their father.

The first part of the questionnaire father's details about the father's knowledge about ECC, understanding causes of tooth decay, recommended age to start brushing, Impact of decay in milk teeth, Frequency of dental visits.

The second section contain the questionnaire about awareness of father regarding ECC consists questions like awareness of ECC as a common issue, impact of ECC on overall health and development, role of oral hygiene in preventing ECC, awareness of risk factors (bottle feeding at bedtime), understanding role of sugary foods and drinks, importance of regular dental visits.

Third part of the questionnaire consists of multiple-choice questions that assessed the father's perception about treatment of cavities in baby teeth, preventability of early childhood caries, parental involvement in child's oral hygiene, concern about developing cavities, importance of regular dental visits.

When father of the patient had difficulty reading or understanding the questions, the clinician would read them a loud. The clinician ensured that the questions were read in a standardized manner for all father of the patients who required assistance.

Statistical analysis: Statistical analysis is done by chi-square test using Statistical Package for the Social Sciences (SPSS) software, version 26.0. The study primarily involves analysing proportions and group

comparisons using chi-square test for goodness of fit or independence. The level of $P < 0.05$ was considered as the cutoff value or significance.

III. Result

The study included 100 subjects with a focus on their knowledge, Awareness& Perception about E.C.C (early childhood caries).

The first section includes details of children father's knowledge about early childhood caries. Study began by recording the questionnaire about the father's knowledge, Awareness and Perception about early childhood caries.

According to **Table-1** 40.67% have heard about e.c.c suggesting a moderate level of awareness. A significant portion 34.5% are not aware of e.c.c indicating a considerable gap in basic dental health education that needs addressing a smaller group 25.5% remains uncertain, highlighting opportunities for further public health education.

Close to half of the participants 46.67% believe they understand what causes tooth decay in children, reflecting a reasonable level of awareness. However, a slightly larger group 53.33% either misunderstands or is unsure about the causes, pointing to the necessity for enhanced educational efforts to clarify and disseminate information about tooth decay prevention.

The responses are evenly split on the age to start brushing, with 46.67% favouring starting at 6 months, which aligns with dental recommendations. The remaining respondents are divided equally 26.67% each between starting at 1 year and 2 years, suggesting that many caregivers may not follow or be aware of the recommended guidelines to start brushing as early as 6 months.

A consistent majority 40.67% understands that decay in milk teeth can impact permanent teeth, demonstrating an awareness of the potential long-term consequences of early dental issues. However, there remains a significant majority 59.33% who are either unaware or sceptical of this impact, indicating a need for targeted communication on this aspect.

Almost half of the respondents 46.67% correctly recognize that a child should visit the dentist every 6 months, suggesting and understanding of the recommended dental visit frequency.

A substantial group 40.00% thinks these visits should happen yearly, which may delay necessary preventive care. There is a small proportion 12.38% who are unsure, and a very few 0.95% believe that no visits are necessary, which could lead to significant dental health issues if not addressed.

Table-2 Shows distribution of study subjects based on Awareness questionnaire

A significant portion of the population 44.76% is aware that e.c.c is a common dental problem in young children, suggesting that awareness campaigns have had a positive impact. However, a combined total of 55.24% either are not aware or are unsure 36.19% no,19.05% don't know, indicating substantial room for improvement in public health messaging.

Almost half of the respondents 43.81% understand that e.c.c can affect a child's overall health and development, reflecting some awareness of the broader implications of oral health.

Close to half 45.71% acknowledge that proper oral hygiene can significantly reduce the risk of e.c.c, showing a decent level of awareness regarding preventive practices. A substantial portion remains either unaware or uncertain 54.29% combined,35.24% no and 19.05% don't know, suggesting that ongoing education on dental hygiene is crucial.

Less than half of the respondents 40.36% are aware that bottle feeding at bedtime can increase the risk of e.c.c, pointing to a significant gap where targeted education could have a considerable impact. A majority 59.64% combined,29.80% no and 29.82% don't know either do not know or deny this risk, emphasizing the need for focused public health campaigns.

A minor plurality 41.90% recognizes the distribution of sugary foods and drinks to e.c.c, suggesting moderate effectiveness in communication about diet-related dental health risks. However, a significant portion 58.10% combined,39.05% no and 19.05% don't know do not acknowledge or are unsure of this link, indicating ongoing needs for dietary education in relation to dental health.

Table3 Shows distribution of study subjects based on questionnaire on perception of fathers about early childhood caries

A significant portion of respondents (41.90%) believe that cavities in baby teeth should be treated, reflecting a strong awareness of the importance of maintaining oral health from an early age.

However, a notable minority (58.10% combined, 28.57% no and 29.52% don't know) remains unsure or disagrees, indicating some misconceptions or lack of information about the impact of untreated caries in primary teeth.

Close to half of the participants (43.81%) believe that early childhood caries can be prevented, showing awareness of preventive measures and the effectiveness of early interventions.

However, over half of the respondents (56.19% combined, 28.57% no and 27.62% don't know) either do not believe in prevention or are unsure, suggesting a need for enhanced educational efforts regarding dental health practices.

A substantial majority (45.71%) agree that brushing a child's teeth between the ages of 3-6 years should be assisted by parents or caregivers, emphasizing the importance of adult supervision for effective oral hygiene in young children.

Still, a considerable portion (54.29% combined, 27.62% no and 26.67% don't know) are either against this practice or uncertain, showcasing a need for increased awareness on this preventive strategy.

A significant number of respondents (42.86%) express concern about their child developing cavities, indicating a high level of parental concern regarding dental health.

A noteworthy segment (57.14% combined, 29.52% no and 27.62% don't know) is either not concerned or unsure about the risk, which might affect their preventive health actions. A substantial minority (43.81%) recognize the importance of regular dental visits for their child, highlighting an awareness that ongoing professional care is crucial for preventing dental issues.

However, a majority (57.19% combined, 28.57% no and 28.62% don't know) either don't see the necessity or are undecided, possibly due to accessibility issues, perceived cost barriers, or lack of information on the benefits of regular dental check-ups.

Table 1-Knowledge section: Early childhood caries

	Frequency	Percentage
Have you heard about Early Childhood Caries (ECC)?		
Yes	49	40.67%
No	42	34.05%
Don't know	14	25.05%
What do you think causes tooth decay in children?		
Yes	49	46.67%
No	56	53.33%
At what age do you think brushing should start?		
6 months	49	46.67%
1 year	28	26.67%
2 years	28	26.67%
Do you think tooth decay in milk teeth can affect permanent teeth?		
Yes	49	40.67%
No	43	29.66%
Don't know	13	29.66%
How often should a child visit the dentist?		
6 months	49	46.67%
1 year	42	40.00%
Don't know	13	12.38%
None	1	0.95%

Table-2 Awareness section: Early childhood caries

	Frequency	Percentage
Are you aware that Early Childhood Caries (ECC) is a common dental problem in young children?		
Yes	47	44.76%
No	38	36.19%
Don't know	20	19.05%
Do you know that ECC can affect a child's overall health and development?		
Yes	46	43.81%
No	39	37.14%
Don't know	20	19.05%
Do you know that proper oral hygiene can reduce the risk of ECC?		
Yes	48	45.71%
No	37	35.24%
Don't know	20	19.05%
Are you aware that bottle feeding at bedtime can increase the risk of ECC?		
Yes	45	40.36%
No	40	29.80%
Don't know	20	29.82%
Do you know that frequent consumption of sugary foods and drinks contributes to ECC?		
Yes	44	41.90%
No	41	39.05%
Don't know	20	19.05%
Should fluoridated toothpaste be used in children younger than 6 years?		
Yes	45	42.86%
No	40	38.10%

Don't know	20	19.05%
Are you aware that regular dental visits are important for preventing ECC?		
Yes	47	44.76%
No	38	36.19%
Don't know	20	19.05%

Table-3 Perception section: Early childhood caries

	Frequency	Percentage
Do you feel cavities in baby teeth should be treated?		
Yes	44	41.90%
No	30	28.57%
Don't know	31	29.52%
Do you believe early childhood caries can be prevented?		
Yes	46	43.81%
No	30	28.57%
Don't know	29	27.62%
Brushing the children's teeth at the age of 3-6 years should be done under the help of parents/caregivers?		
Yes	48	45.71%
No	29	27.62%
Don't know	28	26.67%
How concerned are you about your child developing cavities?		
Yes	45	42.86%
No	31	29.52%
Don't know	29	27.62%
Do you think regular dental visits are important for your child?		
Yes	46	43.81%
No	30	28.57%
Don't know	29	27.62%

IV. Discussion

Dental caries can be completely prevented and when its identified early, children tend to respond more positively to treatment, Early detection also helps parents avoid unnecessary expenses and loss of income that often comes with repeated dental visits.

Therefore, prevention from the earliest stage and proper oral -health education for parents is crucial especially for children in preschool age group (2-4) yr of age, is dependent on them for their oral health care needs.⁵

Primary teeth are crucial for a child's development. They aid in speech formation, proper chewing, holding space for adult teeth, and guiding them into place. However, tooth decay is very common in these teeth, affecting a high percentage of children between the ages of 3 and 5.⁶ To protect these important function's, a foundation of preventive dental care must be laid early in life. American Academy of Paediatric Dentist's (AAPD) and American Dental Association (ADA) have recommended the first dental visit of child at approximately the time of eruption of first primary tooth or at the latest age of 12 months, twice daily tooth brushing and limited in between meal snacks.⁷

Parents play a central role in preventing early childhood caries their level of knowledge about the condition often varies widely. Many parents are aware that dental decay can occur in very young children, but they may not fully understand how early the factors accelerate it.

Mothers are traditionally considered primary caregivers, studies evaluating parent's ability to support their child's oral health show that many struggle due to limited time, insufficient knowledge, about proper brushing, technique, work related stress and the growing trend of nuclear families. In many cases with both parents employed children are cared for in day care centre reducing direct parental involvement in daily oral hygiene routine.³

Through consistent encouragement clear expectations and supportive environment families become the first and often the most influential teacher lifelong health practices. It is important especially the fathers to have adequate knowledge on oral health promotion and have a positive attitude and practice to guide their young ones.

Based on the findings of this study, a minority of participant's specifically 44.76% believed it was essential to take children for regular dental visits. This contrasts with studies by Romi et al and Chan et al, in which most parents considered regular dental visits important for children. Therefore, the study recommends increasing parental education about the value of oral health and the need for periodic dental check-ups.⁸

In the present study, 40.67% have heard about early childhood caries suggesting a moderate level of awareness, a significant portion 34.5% are not aware of e.c.c indicating a considerable gap in basic dental health education that needs addressing a smaller group 25.5% remains uncertain, highlighting opportunities for further public health education.

In this study, nearly half of the respondents 43.81% understood that early childhood caries (ECC) can impact a child's overall health and development. This awareness is supported by studies from Oregudba et al and Al Zahrani et al, which also found that parents recognize the importance of primary teeth for both dental and general health.⁹

Almost half of the respondents 46.67% correctly recognize that a child should visit the dentist every 6 months. A substantial group 40.00% think these visits should happen yearly, which may delay necessary preventive care. There is a small proportion 12.38% who are unsure, and a very few 0.95% believe that no visits are necessary, which could lead to significant dental health issues if not addressed. The ADA and the AAPD recommended that the first dental visit should be within 6 months of the eruption of the first primary tooth or at the latest age of 12 months. The objective of an early dental visit is to build a healthy relationship between the child and the dentist and for communicating different preventive methods to parents.¹⁰

In the present study only 42.86% were concerned about child developing cavities, while 57.14% were not concerned about child developing cavities. Our study found a significant correlation children whose parents understood the importance of baby teeth had noticeably less tooth decay than children of parents who did not share this belief.

A significant portion of respondents in our study 41.9% believed it was better to consume sugary, cavity-causing foods between meals rather than with them. This misconception is critical, as the timing of sugar intake directly influences the initiation and progression of dental caries. This issue is compounded by parental influence. Research, such as that by chi and Scott, establishes a strong link between parents and their children's sugar consumption. Parents who frequently consume sugary items not only model this behaviour but also use such foods as rewards, leading to overconsumption. Furthermore, children's natural preference for sweet tastes over vegetables exacerbates the problem.¹¹

Consequently, educational programs aimed at preventing early childhood caries must explicitly target and address parental behaviours and beliefs regarding diet and snacking.

Many parents believed it was acceptable to put a baby to bed with a bottle. This attitude was strongly linked to higher rates of early childhood caries(deft). This is likely because prolonged nighttime feeding leads to nursing bottle caries. Parents who did not believe bottle-feeding past12 months was harmful to primary teeth were effectively identifying children at greater caries risk. Such practices should be stopped. Additionally, nearly half 40.36% of respondents did not consider oral cleaning important before teeth erupt. Experts recommend cleaning a toothless baby's gums with a gauze-wrapped finger or a soft silicone brush.²

Our study found that 53.34% of respondents believed children who are too young to be independent cannot achieve effective oral hygiene on their own. Dentists can address this by providing age-appropriate brushing and flossing instructions to children during dental visits, with parents present. This approach ensures that parents can then effectively supervise and monitor their children's oral hygiene practices at home.

V. Conclusion

The findings of the present cross-sectional study highlight that fathers possess a moderate level of knowledge, awareness, and perception regarding early childhood caries, with several important gaps still evident. Although a proportion of fathers were aware of e.c.c, its causes, and the importance of oral hygiene practices, a substantial number demonstrated inadequate understanding of preventive measures, the significance of primary teeth, appropriate dietary practices, and the need for early and regular dental visits.

Since fathers play an increasingly important role in family decision-making and child-rearing, improving their knowledge and attitudes toward oral health can have a positive impact on the prevention of early childhood caries. Targeted educational programs, chairside counselling and community-based awareness initiatives focusing specifically on father's are recommended to bridge existing knowledge gaps and promote positive oral health behaviours.

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