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Parental Perception and Practice on Early Childhood Caries Attending in Pedodontics Departments of Selected Tertiary Hospitals

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Abstract

Background: Early Childhood Caries (ECC) is a global public health concern. This study aimed to assess parental perception and practice regarding ECC among patients attending Pedodontics departments of selected tertiary hospitals.

Materials and methods: This cross-sectional study involved 233 parent-child pairs visiting Pedodontics Departments at Chattagram International Dental College Hospital and Chittagong Medical College Hospital. The study includedparents having children under 6 years of age. Data were collected through a pre-tested semi-structured questionnaire, and face-to-face interviews were conducted. The sampling technique used was purposive. Ethical clearance was obtained from the Institutional Review Board of Chattagram International Dental College.

Results: In this study, 75% of children had a self-brushing habit, parental supervision during brushing was irregular in about 50% of cases. More than 50% of parents were unaware that long-term bottle-feeding can contribute to the development of tooth decay. In this study, 75.5% of children had decayed teeth. About 80% of parents frequently missed to clean their child's teeth. There was a significant relationship between the presence of decayed teeth in the child and the perception of parents regarding prolonged bottle feeding can help to develop caries ($p<.009$).

Conclusion: This study reveals inadequate parental perception and practice concerning early childhood oral health.It emphasizes the necessity for parental education through oral health promotional programs.

Key words: Early childhood caries; Perception; Practice.

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Introduction

Early Childhood Caries (ECC) is a significant public health problem.[1] It starts with white-spot lesions along the gingival border of the upper primary incisors. If the problem continues, the caries could worsen and destroy the crown.[2] ECC is a multifactorial disease resulting from the interaction of factors, including cariogenic microorganisms, exposure to fermentable carbohydrates through inappropriate feeding practices and a range of social variables. It is a severe health condition found among children living in socially disadvantaged communities in which malnutrition is a social and health disparity.[3]

Infants and toddlers are primarily dependent on their parents and acquired childhood routines and habits, which are critical for establishing appropriate childhood norms for healthy adult life. Parents typically teach their children about healthy hygiene and dietary practices.[4,5] Because their preventive practices are influenced by their parents' actions and attitudes, the best way to motivate children to practice good oral health is through their parents. A study found that poor oral health knowledge, a negative attitude toward children's oral health, and incorrect practices among 3-5-year-old preschool children were associated with the onset of early childhood caries.[6]

Conversely, having a positive perception and practice about oral health can help parents teach their kids how to properly care for their teeth and have a favorable impact on their dental health.[7] As modern mothers are inclined to bottle feeding rather than breastfeeding children are suffering from nursing bottle caries mostly. According to various study results, parents need advice on proper feeding and oral hygiene practices and family dynamics can significantly impact a child's oral health. Additionally, parents who thought primary teeth were crucial to oral health had kids who had significantly less decay. Numerous other

researches have discovered gaps in parental perceptions of infant oral health.[5,8,9] With this background, we propose conducting this study to better understand the perception and practices of the parents of their children towards early childhood caries.

The prevention of early childhood caries depends mostly on the awareness and knowledge of parents who are the caregivers of their children.Despite efforts to address ECC, there may be gaps in understanding parental attitudes and behaviors toward oral health practices. Exploring these aspects can provide insights into areas for improvement and intervention.The study will be conducted among the parents to know the practice and perception of the ECC. Parents play a significant role in the oral health of young children, including preventive measures, dietary habits and oral hygiene practices. Investigating their perceptions and practices can highlight on factors influencing ECC prevalence and severity. So, the study aimed to assess the parental perception and practice of early childhood dental caries which will help to reduce the burden on the oral health sector.

Materials and methods

This descriptive cross-sectional study was conductedat the Pedodontics Departments of Chattagram International Dental College Hospital and Chattogram Medical College Hospital, Dental Unit from July to December 2022. A pre-tested semi-structured questionnaire was used in this study. Adult parents having children less than or equal to 6 years of age andwho were willing to participate were included in this study.Parents with severely ill babies and who were not willing to participate were excluded from this study.Data collection from parents was done through face-to-face interviewsfollowed by minor oral health check-ups of children.

In this study, the sample size calculation formula was: $n = z^2pq/d^2$. We collected data from 233 parents and 233 children. This study utilized a purposive type of non-probability sampling. Before data collection, we obtained written informed consent from parents and explained the purpose of the study. We also informed them about the aim study and the data collection procedure before collecting data from them. The participation of the participants in this study was voluntary and we let them know they could withdraw themselves at any time.

The collected data was checked for consistency, relevancy, and quality control. The data were then compiled, coded, cleared, categorized, re-coded, and analyzed using SPSS 26 software. The analysis plan was developed based on the objectives and variables of this study. The data were presented in tables and graphs for assessing categorical responses.

This protocol was approved by the approval committee of the Chattagram International Medical College. Ethical clearance was obtained from the Institutional Review Board (IRB) of Chattogram International Medical College. Permission from the concerned authorities of the selected hospitals was taken prior to conduct the study.

Results

Table I Distribution of Educational status of parents and the age range of children ECC (n=233)

Educational status of parents	Percentage	The age range of Children (Years)	Percentage
Primary	17..60	.6-2.5	10.3
Secondary	23.20	2.6-4	25.3
Higher Secondary	24.50	4.1-5	21.5
Graduate and above	34.80	5-6	42.9

Table I shows that, in this study, approximately 35% of parents held a graduate degree or higher, while the remaining portions had educational levels below this. and maximum children (42.9%) children were 5 to 6 years of age.

Table II Parental perception and practice regarding ECC (n=233)

i) Attitude of children during brushing	Percentage (%)	ii) Frequency of tooth brushing habit of child	Percentage (%)
Arrogant	8.6	Missed sometimes	6.0
Co-operative	73.4	Not at al	3.9
Non-co-operative	18.0	One time	49.4
Total	100	Two times	40.8
iii) Parental perception, Irregular brushing habits can develop caries	Percentage	iv) Prolonged bottle feeding can help to develop caries	Percentage (%)
Yes	88.8	No	50.6
No	11.2	Yes	49.4
v) Frequency of supervision	Percentage	vi) Teeth cleaning device	Percentage
Irregular	47.2	A soft cloth or gauze piece	5.6
Never	11.6	Tooth powder/ charcoal	1.7
Regular	41.2	Toothbrush only	5.6
Total	100.0	Toothbrush with paste	87.1

Table II shows that the maximum children were cooperative during brushing (73.4%) whilethe remaining portion was non-cooperative and arrogant during brushing. Additionally, 88.8% of parents perceived that irregular brushing habits can contribute tothe development of caries. Most of the parents (47.2%) irregularly supervised their children during brushing however 41.2% of parents regularly supervised but 11.6% of parents never supervised their children. Furthermore, 87.1% of children used tooth brushes with tooth paste for cleaning. The majority of parents (50.6%) believed that prolonged bottle feeding did not contribute to the development of cavities.

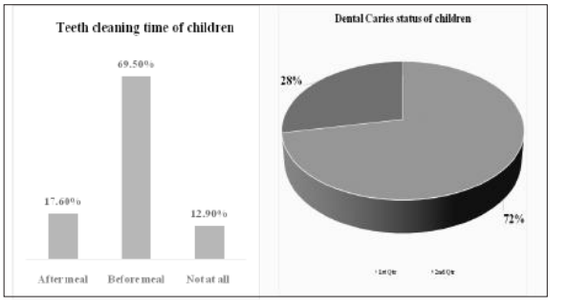

Figure 1 Distribution of teeth cleaning time and dental caries status of children (n=233)

Figure I shows that the maximum children (69.5%) cleaned their teeth before a meal which is a wrong cleaning practice, however, 12.9% of children never cleaned their teeth.

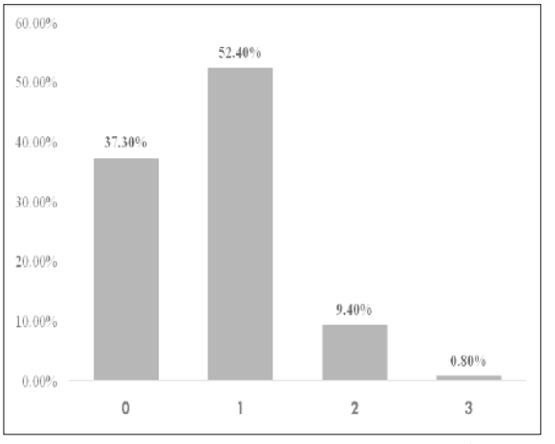

Figure 2 Average Plaque Index of children (n=233)

Figure 2 shows thataccording tothe Silness-Loe plaque index, the Plaque score was 1 in maximum children (52.4%).

Table III Association shown on age of child with Plaque Index and parental perception about prolonged bottle feeding can help to develop caries with the presence of decayed teeth of children (n=233)

Age of child	Average plaque (Mention 0-3)				p value
	0	1	2	3	.017
.6-2.5 years	70.8%	16.7%	12.5%	0.0%	*Likelihood Ratio 0.719
2.6-4 years	39.7%	50.0%	8.6%	1.7%	
4.1-5 years	26.0%	64.0%	10.0%	0.0%	
5-6 years	34.0%	57.0%	9.0%	0.0%	

Perception about prolonged bottle feeding can help to develop caries	Decayed teeth children				p value .009
	0	1-2	3-4	>4	
No	15.3%	22.9%	32.2%	29.7%	*Pearson Chi-Square 11.591
Yes	33.9%	20.9%	21.7%	23.5%	

Table III shows that there was a significant association between the age of children and the average plague index (p<.017) and also significant association was present between prolonged bottle feeding can help to develop caries and presence of decayed teeth (p<.013).

Discussion

In this study, approximately 35% of parents held a graduate degree or higher, while the remaining portions had educational levels below this which coincides with the findings of other studies showing 41% and 35% of mothers completed their graduate degree.[10,11] According to findings, over 40% of children were 5 to 6 years of age. According to this study's findings, about 70% of children brushed their teeth before meals. In this study, about 50% of children brushed their teeth once a day and 40% twice a day. A study on bedtime oral hygiene behaviors showed 52% brushed before bed regularly showing similarity with this study.[12] Another study in Bangladesh revealed that the majority (93.5%) of the children brushed their teeth in the morning before breakfast showing more alarming conditions than our findings.[13] During the study, it was observed that over 70% of the children showed positive cooperation during teeth cleaning, while the remaining children displayed non-cooperative and even arrogant behavior. Additionally, it was found that nearly 90% of parents correctly perceived that irregular brushing habits can lead to the development of tooth decay. However, concerning

the relationship between prolonged bottle feeding and the development of caries, only about half of the parents perceived it as a contributing factor. This is alarming because researches indicate that such misperceptions among parents can significantly impact children's oral health.[5,8]

In terms of supervision of the childrenduring brushing their teeth, more than 75% of children have a self-brushing habit and 11.6% of mothers never supervised their children during brushing. Furthermore, the study highlighted inadequate tooth-cleaning practices among both parents and children. Despite the majority of children having a self-brushing habit, parental supervision during brushing was found to be irregularinabout 50% of cases. This suggests a gap in parental involvement and supervision in maintaining children's oral hygiene routines. Other studies also showed that 34% and 29.1% of parents did not supervise children during brushing.[13,14] According to the findings of the study, only one-fourth of the children were caries-free, and the rest of them suffered from dental caries in different ranges. In this, we used the Silness-Loe plaque index to measure the plaque status of children. Silness-Loe plaque index is a method used to measure the level of oral hygiene by assessing both soft debris and mineralized deposits on the teeth. On average, about two-thirds of children were found to have dental plaque in varying degrees. The Plaque Index was 1 in over 50% of cases, 0 in 37% of cases, and 2 in 9.4% of cases. In another study, it was found that 100% of children had dental plaque.[14]

There was a significant association between the age of children and the average plague index ($p<.017$).There was a significant relationship between the presence of decayed teeth in the child and the perception of parents regarding prolonged bottle feeding can help to develop caries ($p<.009$). Another study also revealed that parents who thought that bottle-feeding children during bedtime could increase the incidence of caries development ($p<.001$).[15]

Limitations

- The sample size was relatively small in size.
- Cross-sectional study design

Conclusion

This study demonstrates that parental perception and practice regarding the oral health of their children are insufficient. The children's oral health suffers as a result of this perception. It was noticed that a significant proportion of the children had plaque and dental caries. It highlights how important it is for parents to learn about oral health through outreach initiatives.

Recommendations

The harmful effects of early childhood caries must also be explained to parents. Effective communication strategies, like community programs or healthcare campaigns, can help to disseminate this information. To improve oral health outcomes and reduce the incidence of Early Childhood Caries (ECC) parents should be encouraged to actively participate in their children's oral care by supervising and guiding brushing practices. In future, same study with larger sample size and multicenter study is recommended for identifying more factors responsible for ECC.

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Contribution of authors

TA-Initial research design, conception, data acquisition, analysis, interpretation, manuscript drafting and final approval.

MSU-Data analysis, interpretation of data, critical revision and final approval.

AH-Design, acquisition of data, drafting and final approval.

MJU-Conception, interpretation, critical revision and final approval.

Disclosure

The authors declared that there is no conflict of interest.

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