



An Epidemiological Study Based on Knowledge and Attitude of Parents Toward Oral Health Care and Treatment modalities for their children-In Meerut city

Running Title: Epidemiological Study of Parents' Knowledge and Attitudes Toward Children's Oral Health Care in Meerut.

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Article History

Volume 6 issue 10, 2024

Received: 15 May 2024

Accepted: 15 June 2024

doi:

10.48047/AFJBS.6.10.2024.7232-7239

ABSTRACT:**Background**

Parents play a crucial role in decisions about their child's oral health, yet many are unaware of the importance of primary teeth and the role of pediatric dentists. Enhancing parent's oral health knowledge and attitudes is essential for improving children's oral care.

Aim:

The aim of this study was to assess the parental knowledge and attitudes regarding children's dental problems and oral health maintenance in Meerut city. Additionally, it aimed to evaluate how parents' educational qualifications influence their attitudes toward maintaining oral health and their understanding of treatment modalities for deciduous teeth.

Methodology:

A total of 400 questionnaires containing 20 questions along with demographic data written both in English and the native language i.e., Hindi, were prepared for data collection and were personally distributed to parents who are presently living in the Meerut city and were asked to fill this self-administered questionnaire. Thereafter the data were tabulated and later was sent for statistical analysis / evaluation.

Results:

The study found that 93% of parents with high educational status had significant knowledge about children's dental problems, oral health maintenance, and treatment modalities for deciduous teeth. In contrast, illiterate parents demonstrated considerably less knowledge and attitude towards these aspects.

Conclusion:

Parental awareness is relatively low, necessitating the implementation of oral health awareness programs to improve parents' attitudes toward their children's dental treatment.

Key words: Parental Awareness, Oral health Maintenance, Pediatric dentist, Preventive dental Procedures.

Introduction

"The mouth is regarded as the mirror of the body and the gateway to good health."

Oral health in children is crucial because it establishes the foundation for the health of both their primary (milk) teeth and their permanent teeth.¹ Milk teeth are particularly important for children as they play several vital roles. They aid in chewing and swallowing food, prevent speech problems, contribute to clear pronunciation, ensure an attractive appearance, guide the eruption of permanent teeth, and help maintain the proper spacing for these permanent teeth.²

Parents, as the primary caregivers and decision-makers for their children, need to be educated on the importance of maintaining their children's primary teeth. These teeth are crucial for proper chewing, speech development, and guiding the eruption of permanent teeth. However, previous studies have shown that parents and guardians often lack awareness about the significance of preventive care, the availability of treatments, and the critical role of pediatric dentists in maintaining oral health. This lack of awareness can lead to neglect of essential dental care, resulting in problems such as tooth decay, misalignment, and other oral health issues that can affect a child's overall well-being.³ Educating parents about these aspects is vital for ensuring their children develop healthy dental habits and maintain good oral health from an early age.⁴ Additionally, parental education, socioeconomic status, poverty, lack of awareness about dental diseases are also associated with risk of dental caries.⁵

In India, pediatric dentistry is still emerging as a recognized profession, and there is limited awareness regarding its status as a specialized field compared to Western countries where it

has long been established. For instance, in the United States, pediatric dentistry has been formally recognized as a specialty since the 1940s. However, in India, it wasn't until 1988, following guidelines from the Dental Council, that pediatric dentistry began to receive due recognition and was acknowledged as a distinct discipline.⁶

The importance of pediatric dentist lies in its focus on the oral health of children from infancy through adolescence.⁷ It emphasizes the critical role of preventive care and early intervention in maintaining oral health before the eruption of the first tooth. Parents play a vital role in influencing their children's oral hygiene practices and overall dental health. Educating parents about proper oral care practices, such as brushing techniques, dietary habits, and regular dental visits, can significantly impact a child's oral health outcomes.⁸

Therefore, the purpose of this study was to assess parents' knowledge and attitudes regarding children's dental problems and oral health maintenance. Additionally, the study aimed to evaluate parents' attitudes toward maintaining oral health and the treatment modalities of deciduous teeth based on their educational qualifications.

MATERIALS & METHODS

The study was conducted in the Pediatric and Preventive Department of Kalka Dental College, Meerut, over a period of seven months. It aimed to assess the knowledge and attitudes of parents regarding oral health care and treatment modalities for their children. The participants were parents of children aged 0 to 13 years, and a total of 400 parents participated in the study.

A structured questionnaire containing 20 questions was used as the primary data collection tool. The questionnaire was divided into two sections: one focusing on knowledge related to the importance of primary teeth, prevention of dental caries, and pernicious habits (10 questions) (Table 1), and the other on attitudes related to brushing and treatment modalities (10 questions) (Table 2) towards oral health care and treatment. Additionally, the questionnaire collected demographic data to understand the background of the participants. To ensure clarity and better understanding, the questionnaire was provided in both English and vernacular language (Hindi).

Before the study commenced, ethical clearance was obtained from the Institutional Ethical Committee. Parents were briefed on the purpose of the study and were enrolled as participants only after providing informed consent. The distribution of the questionnaire was done personally by the researchers to parents currently residing in Meerut. Participants were instructed to tick the most appropriate option for each question.

Statistical analysis:

Responses for this study was collected and tabulated using Microsoft Excel 2007, and analysed with SPSS statistical software version 23.0. Descriptive statistics, including frequency and percentage, were utilized to summarize the data. The level of significance for the study was set at 5%. The intergroup comparisons of frequency differences between independent groups were conducted using the Chi-square test.

Result:

The study included 400 participants, with 84% of the children accompanied by their mothers (336) and 16% by their fathers (64), while no children were accompanied by legal guardians. Regarding the educational qualifications of the parents, 18.8% had completed primary school (75), 37.8% had completed high school (151), 34.5% were graduates (138), and 9% were illiterate (36). The occupation of the parents or guardians revealed that 52% were homemakers (208), 2.8% were self-employed (11), 37% were salaried employees (148), and 8.2% earned daily wages (33). In terms of the family's annual income, 53.8% had an income below 30,000 Rupees (215), while 46.2% had an income above 30,000 Rupees (185). (Table: 3)

The study examined parents' dental knowledge and attitudes across different educational levels: primary school (75), high school (151), graduate (138), and illiterate (36). Key findings highlighted significant disparities based on education. All primary school, high school, and graduate-educated parents demonstrated complete knowledge about milk and permanent teeth, whereas only 22.2% of illiterate parents possessed this understanding ($p=0.001$). Regarding the importance of milk teeth, 84.8% of graduates, 72% of primary school, 49% of high school, and 30.6% of illiterate parents recognized their significance ($p=0.001$). Knowledge about the age of first milk teeth eruption was highest among graduates (85.5%) and high school (78.14%) parents, followed by primary school (60%) and notably lower among illiterate parents (13.88%) ($p=0.001$). Awareness of how infections in milk teeth affect permanent teeth was notably higher among graduates (59.42%) and high school (55.62%) parents compared to primary school (17.33%) and illiterate parents (16.66%) ($p=0.001$).

In terms of dental healthcare practices, significant differences were observed: only 14.5% of graduates and 7.3% of high school parents knew the appropriate age for a child's first dental visit, with none among primary school or illiterate parents ($p=0.001$). Understanding of reasons for decay in children was higher among graduates (8%) and high school parents (7.3%), compared to primary school and illiterate parents who showed lower awareness ($p=0.001$). Awareness of pediatric dentists was more prevalent among graduates (76.8%) and high school parents (50.3%), whereas primary school (44%) and illiterate parents (2.9%) demonstrated significantly lower awareness ($p=0.001$). Knowledge about topical fluoride application was better among graduates (38.4%) and high school parents (27.2%) than among primary school (14.7%) and illiterate parents (0%) ($p=0.001$).

Understanding of harmful oral habits such as thumb sucking, mouth breathing, and nail-biting was most prevalent among graduates (83.33%) and high school parents (66.22%), followed by primary school (54.66%) and illiterate parents (25%) ($p=0.001$). Similarly, awareness of the harmful effects of prolonged breastfeeding on milk teeth was highest among high school (43.7%) and graduate parents (42.75%), compared to primary school (5.33%) and illiterate parents (2.8%) ($p=0.001$). Knowledge about the appropriate time to start brushing a child's teeth, intervals for changing toothbrushes, frequency of brushing, and the correct amount of toothpaste to use also showed significant disparities across educational levels ($p=0.001$). These findings underscore the critical role of education in shaping parental knowledge and attitudes towards pediatric dental care and oral health practices. (Table: 4)

The study compared parental attitudes based on educational status. It found that 65.21% of graduates believed decayed milk teeth should be treated, contrasting with 33.33% of primary school parents ($p=0.001$). Supervision during brushing was nearly universal among graduates (100%) and high school parents (79.5%), in stark contrast to 2.9% of illiterate parents ($p=0.001$). Similarly, willingness to consult a pediatric dentist upon referral was highest among high school (100%) and graduate parents (100%), compared to 85.3% of primary school and 69.4% of illiterate parents ($p=0.001$). Regarding preventive treatments like fluoride applications, 83.33% of graduates and 79.47% of high school parents were likely to follow recommendations, while only 52.8% of illiterate parents indicated similar readiness ($p=0.001$). When faced with decayed milk teeth or toothache complaints from their children, higher-educated parents showed a stronger inclination towards seeking dental treatment ($p=0.001$). These findings underscore the significant influence of education on parental attitudes towards pediatric dental health. (Table:5)

Discussion

Parents' knowledge is crucial for the dental care of a child from birth. The rationale of this study is to improve the knowledge and attitudes of parents regarding the oral health of their children in Meerut city. The literacy level of parents is considered important for assessing

oral health status, as it correlates with the level of information about the importance of children's oral health in society. It is generally assumed that well-educated individuals are more aware of overall health, including oral health.

This study aimed to assess the knowledge of parents in Meerut city regarding their children's primary teeth. Only 7% of parents were informed about primary teeth, while 93% lacked this knowledge, hindering the implementation of preventive primary health care measures. Awareness must be raised first. The reasons for poor knowledge and undervaluing primary teeth are unclear but may be due to cultural beliefs. When asked about the importance of primary teeth, 36% of parents considered them unimportant, viewing them as temporary and replaceable by permanent teeth.

According to Casamassimo PS⁹, and Ng MW¹⁰, some cultures accept caries and early tooth loss in primary teeth as normal, placing little value on them.

In the present study, it was found that 36% of parents lack sufficient knowledge about when the first tooth typically erupts. Conversely, a noteworthy 69% of parents demonstrated a strong understanding that milk teeth are just as crucial as permanent teeth. Furthermore, a significant majority (78.25%) of parents exhibited a positive attitude towards brushing their child's teeth.

This contrasts with AlsherhriA et al.¹¹ 2015 study, where it was reported that 58.33% of participants had poor knowledge regarding the timing of the first tooth eruption, and 66.89% believed that primary and permanent teeth are equally important. Additionally, 70.67% of parents in that study showed a positive attitude towards brushing their child's teeth.

When parents were asked whom they would consult for their child's toothache and swelling, 79.5% said they would choose their dentist. When asked if they would consult a pediatric dentist if referred, 91.75% of parents agreed, noting that pediatric dentists are trained to assess oral health and can refer to appropriate dental providers if needed. Pediatric dentists are in a unique position to contribute to children's dental health due to the early age at which children see them and the trust parents place in their recommendations. This suggests that integrating pediatric dentists into pediatric care is essential. The remaining 8.25% of parents preferred to consult their own dentists rather than a pediatric dentist.

In our study, 48.5% of parents reported that they ask their children to brush only once a day. Interestingly, it was observed that these parents themselves also brush their teeth only once daily, and consequently, they advise the same practice for their children. This finding contrasts with the study by Nagaveni et al², where 91.1% of parents reported similar brushing habits.

Winner JJ et al⁶, conducted a survey among 1300 parents in Mumbai city, finding that 39% believed the first dental visit should occur at 1 year of age. In contrast, the present study indicated that 92.25% of parents believed their children's first dental visit should be at 6 years of age. Additionally, the study found that 73.75% of parents were unaware of the preventive effects of fluoride application or treatment. This contrasts with the studies by Winner JJ et al⁶ and Nepal P et al¹², where the majority of parents were aware that fluoride prevents tooth decay.

Regarding the preference of treatment for decay of baby teeth, 68% preferred to get their child's tooth restored but 32% of parents preferred extraction of their child's primary tooth.

When asked about their awareness of pediatric dentists, 46% of parents in our study were not familiar with this specialized field. This finding contrasts with the study by Nagaveni et al², where 94.3% of parents were unaware of pediatric dentists. Instead of consulting pediatric dentists, when necessary, many parents tend to visit general dentists. This highlights a significant lack of understanding regarding the role and expertise of pediatric dentists in caring for children's oral health. Many parents are unaware that pediatric dentists are

specifically trained to treat children, underscoring the need for greater awareness and education in this area.

Conclusion

Parents have a significant impact on encouraging healthy oral habits and preventing oral diseases, which directly benefits their children. The education level of parents influences their attitudes and knowledge about their children's dental care needs. It's important to increase awareness among the general population about the importance of primary teeth and the necessity of early dental visits. Parents should also be aware of the importance of incorporating proper brushing into their daily routines. Therefore, it's crucial for parents to understand the importance of primary teeth for their children's oral health.

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Table :1 Parental Knowledge towards oral health care

1. Knowledge about Milk teeth and Permanent teeth?
2. Do you think Milk teeth are as important as Permanent teeth?
3. Do you know at what age a child’s first Milk teeth erupts?
4. Do you know any infection in Milk teeth that will affect the child’s permanent teeth?
5. According to you, at what age should be your child’s first dental visit?
6. What is reason for decay in children?
7. Do you know, for child’s teeth there is a special dentist which is called as paediatric dentist/Pedodontist?
8. Are you aware of application of Topical fluoride from a dentist every 6 months that will make your child’s teeth stronger and more resistant to decay?
9. Are you aware that oral habit such as Thumb sucking, Mouth breathing and Nail biting etc, can harm the developing dentition?
10. Are you aware that prolonged breast feeding can lead to harmful effect on the Milk teeth?

	1. Is it necessary to treat decayed milk teeth or one can leave them untreated as the permanent teeth will erupt?		
	2. What is the right time to start brushing your child’s Milk teeth?		
Relatio accomp	3. What is the basic time interval in which a toothbrush should be changed?		
	4. Frequency of brushing in Milk teeth?		
	5. Do you supervise your child while he/she is brushing?		
Educat Father	6. What should be the right amount of tooth paste placed on a tooth brush?		
	7. If you were referred by your family dentist to consult a Paediatric dentist/Pedodontist, would you like to go?		
	8. If a dentist advice you for preventive treatment like fluoride applications and sealant to prevent decay in your child’s teeth, will you, do it?		
Occupa Father/	9. If your child’s milk teeth are decayed, what would you do?		
	10. When your child complains of tooth ache and swelling in the mouth, what you do?		
Family’s Annual Income	Below 30,000 Rupees	215	53.8
	Above 30,000 Rupees	185	46.2

Table 3: Socio demographic Character sticks of Study Subjects

Table: 4 Comparison of knowledge based on education status (Knowledge Present)

	Primary school (75)	High school (151)	Graduate (138)	Illiterate (36)	P value	Significance
Knowledge about Milk teeth and Permanent teeth?	75 (100%)	151 (100%)	138 (100%)	08 (22.2%)	0.001	Significant
Do you think Milk teeth	54	74	117	11	0.001	Significant

are as important as Permanent teeth?	(72%)	(49%)	(84.8%)	(30.6%)		
Do you know at what age a child's first Milk teeth erupts?	45 (60.00%)	118 (78.14%)	118 (85.50%)	05 (13.88%)	0.001	Significant
Do you know any infection in Milk teeth that will affect the child's permanent teeth?	13 (17.33%)	84 (55.62%)	82 (59.42%)	6 (16.66%)	0.001	Significant
According to you, at what age should be your child's first dental visit?	0 (0%)	11 (7.3%)	20 (14.5%)	0(0%)	0.001	Significant
What is reason for decay in children?	0(0%)	11 (7.3%)	11 (8.0%)	0(0%)	0.001	Significant
Do you know, for child's teeth there is a special dentist which is called as paediatric dentist/Pedodontist?	33 (44%)	76 (50.3%)	106 (76.8%)	01 (2.9%)	0.001	Significant
Are you aware of application of Topical fluoride from a dentist every 6 months that will make your child's teeth stronger and more resistant to decay?	11 (14.7%)	41 (27.2%)	53 (38.4%)	00 (00%)	0.001	Significant
Are you aware that oral habit such as Thumb sucking, Mouth breathing and Nail biting etc, can harm the developing dentition?	41 (54.66%)	100 (66.22%)	115 (83.33%)	09 (25%)	0.001	Significant
Are you aware that prolonged breast feeding can lead to harmful effect on the Milk teeth?	04 (5.33%)	66 (43.7%)	59 (42.75%)	01 (2.8%)	0.001	Significant
What is the right time to start brushing your child's Milk teeth?	33 (44.0%)	75 (49.7%)	65 (47.1%)	08 (22.22%)	0.001	Significant
What is the basic time interval in which a toothbrush should be changed?	22 (29.3%)	119 (78.8%)	116 (84.05%)	05 (13.88%)	0.001	Significant
The Frequency of brushing in Milk teeth?	32 (42.7%)	82 (54.30%)	80 (57.97%)	12 (33.33%)	0.001	Significant
What should be the right amount of tooth paste placed on a tooth brush?	22 (29.3%)	98 (64.9%)	97 (70.3%)	08 (22.22%)	0.001	Significant

Table: 5 Comparison of Attitude based on education status (Positive Attitude)

	Primary school (75)	High school (151)	Graduate (138)	Illiterate (36)	P value	Significance
Is it necessary to treat decayed milk teeth or one can leave them untreated as the permanent teeth will erupt?	25 (33.33%)	88 (58.27%)	90 (65.21%)	09 (25.0%)	0.001	Significant
Do you supervise your child while he/she is brushing?	54 (72%)	120 (79.5%)	138 (100%)	01 (2.9%)	0.001	Significant
If you were referred by your family dentist to consult a Paediatric dentist/Pedodontist, would you like to go?	64 (85.3%)	151 (100%)	138 (100%)	25 (69.4%)	0.001	Significant
If a dentist advice you for preventive treatment like fluoride applications and sealant to prevent decay in your child's teeth, will you, do it?	42 (56%)	120 (79.47%)	115 (83.33%)	19 (52.8%)	0.001	Significant
If your child's milk teeth are decayed, what would you do?	32 (42.7%)	116 (76.82%)	106 (76.81%)	18 (50%)	0.001	Significant
When your child complains of tooth ache and swelling in the mouth, what you do?	43 (57.3%)	120 (79.47%)	136 (98.5%)	19 (52.8%)	0.001	Significant