

Parental Oral Health Knowledge, Practices and Their Influence on Oral Health Habits of Children with Cleft Lip and Palate: A Questionnaire-Based Study

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Abstract: ***Aim:** This study aimed to assess the influence of parental oral health knowledge and practices on the oral health habits of children aged 5 to 13 years with cleft lip and/or palate, highlighting the critical role of parental involvement in preventing oral health problems in these children. **Materials and Methods:** A descriptive cross-sectional questionnaire-based study was conducted over a two-week period among 60 mothers or primary caregivers of children with cleft lip and/or palate attending the Cleft centre. A structured, pre-validated questionnaire comprising 17 closed-ended questions was used to evaluate parental oral health knowledge, practices, and the oral health habits of their children. Data were collected through face-to-face interviews and analyzed using descriptive statistics and chi-square tests to determine associations. **Results:** The majority of parents demonstrated satisfactory oral health awareness, with over three-fourths recognizing the importance of regular dental visits, fluoride use, and reduced sugar intake. Approximately 65% of children brushed their teeth twice daily, and 70% used soft-bristled toothbrushes. A statistically significant association was observed between parental oral health knowledge and practices and children's oral hygiene behaviors ($p < 0.05$). Children of parents who actively supervised brushing and reinforced oral hygiene practices exhibited better oral health habits. **Conclusion:** Parental oral health knowledge and practices play a significant role in shaping the oral health habits of children with cleft lip and palate. Strengthening parent-centered oral health education and preventive counseling at cleft care centers is essential to improve long-term oral health outcomes in this vulnerable population.*

Keywords: Oral Health, Special Needs, Dental Care, Cleft lip and palate; Parental oral health knowledge; Oral health practices; Children's oral hygiene habits; Preventive dentistry; Special health care needs, Oral Hygiene

1. Introduction

Cleft lip and palate (CLP) are among the most prevalent congenital craniofacial anomalies, with an estimated global incidence of 1 in 700 live births. These conditions often result in a range of functional impairments, including difficulties with feeding, speech development, and facial aesthetics, as well as a significantly increased risk of poor oral health outcomes.¹ Anatomical irregularities, coupled with challenges in maintaining effective oral hygiene due to scarring or appliance use, place children with CLP at higher risk for dental caries and periodontal disease compared to their non-CLP peers.^{2,3}

Parental influence is widely recognized as a key determinant of children's oral health behaviors. During early childhood, when autonomy in self-care is limited, parents are the primary gatekeepers of their children's dietary practices, oral hygiene routines, and access to dental care services.⁴ This role becomes even more critical for children with CLP, who require specialized oral and dental care often extending beyond routine practices.⁵

Despite the pivotal role parents play, studies have shown that parental oral health knowledge and attitudes are often inadequate, particularly in the context of complex health conditions like CLP.⁶ Many parents are unaware of the specific oral health risks associated with CLP or lack the skills

necessary to provide optimal home care, potentially exacerbating oral health disparities in this vulnerable population.⁷ In addition, cultural beliefs, socioeconomic status, and limited access to health education further influence parental behaviors and practices.^{8,9}

Currently, there is a paucity of research exploring the direct relationship between parental oral health knowledge and the oral hygiene habits of children with CLP, especially in low- and middle-income countries. Most existing studies focus on clinical interventions or the surgical outcomes of CLP, with relatively little attention given to preventive oral health care and the parental role therein.¹⁰ There is a pressing need to assess how parental behaviors and knowledge contribute to the oral health trajectories of children with CLP to inform policy and practice.

This study aimed to bridge this gap by investigating the impact of parental oral health knowledge and practices on the oral health behaviors of children with cleft lip and palate. The findings were instrumental in guiding the development of targeted oral health promotion strategies and caregiver education programs, thereby improving both short-term oral health outcomes and the long-term quality of life of children affected by cleft lip and palate.

2. Materials and Methods

A descriptive cross-sectional questionnaire-based study was conducted over a period of two weeks at the Cleft Care Centre to assess the impact of parental oral health knowledge and practices on the oral health habits of children with cleft lip and/or palate. The study was carried out in accordance with the ethical principles outlined in the World Medical Association Declaration of Helsinki. Necessary permissions were obtained from the concerned institutional authorities, and informed consent was secured from all participating parents or primary caregivers. Participation in the study was voluntary, and confidentiality of the responses was maintained throughout.

The study population comprised 60 mothers or primary caregivers of children aged between 5 and 13 years diagnosed with cleft lip and/or palate. Participants were selected using a convenience sampling method. Parents or caregivers who spent a significant amount of time caring for the child and were willing to participate were included in the study. Those who declined consent or provided incomplete responses were excluded.

Data were collected using a structured questionnaire consisting of 17 closed-ended questions with dichotomous and multiple-level response options. The questionnaire was designed to assess parental oral health knowledge, parental oral health practices, and the oral health habits of their children. Content validation of the questionnaire was carried out by dental professionals experienced in pediatric and cleft care, along with a few parents of children with cleft lip and palate, to ensure clarity and relevance.

Data collection was performed through face-to-face interviews conducted by a single investigator, based on the availability and convenience of the participants. Prior to administration, the purpose of the study and the contents of the questionnaire were explained to the parents or caregivers. Responses were recorded only after obtaining informed consent from those willing to participate in the survey.

Statistical Analysis:

Data were entered into Microsoft Excel and analyzed using IBM SPSS Statistics for Windows, version 27.0 (IBM Corp., Armonk, NY). Descriptive statistics were used to summarize responses as frequencies and percentages. The association between parental oral health knowledge and practices and children's oral health habits was assessed using the Chi-square test. Data normality was evaluated using the Shapiro-Wilk test.

3. Results

Demographic Information

A total of 60 parents or primary caregivers of children with cleft lip and/or palate participated in the study. The mean age of the caregivers was 34.2 ± 4.8 years, with the majority belonging to the 31–40 years age group. Most respondents were mothers, who served as the primary caregivers of the children.

The demographic characteristics of the study population are presented in **Table 1**.

Table 1

Age distribution of studied population		Percent	p-values ^c
Age of mother	20-30 years	30.0%	<0.001
	31-40years	53.3%	
	41-50years	16.7%	

Mean Age of mother	N	Mean	Std. Deviation	Minimum	Maximum
	60	34.20	4.80	26.00	46.00

p-values^c- chi-square test, * < 0.05 considered statistically significant, < 0.001 considered highly significant

Overall knowledge, attitude, and practice

Majority (64%) of the mothers had fair knowledge, 62.0% exhibited good attitude, and 43.7% The assessment of parental oral health knowledge revealed that the majority of parents demonstrated adequate to good knowledge regarding their child's oral health. Nearly 95% of parents acknowledged the importance of oral health for overall well-being, while 78.3% were aware that the first dental visit should occur before the child's first birthday. Knowledge regarding ideal brushing frequency and the benefits of fluoride was reported by 70% and 81.7% of parents, respectively.

A statistically significant difference was observed in responses related to awareness of fluoride use, sugar reduction, and the importance of regular dental check-ups ($p < 0.05$). The distribution of parental oral health knowledge is summarized in **Table 2**.

Table 2

Knowledge of:	Positive Response	n (%)	p-value ^c
Importance of oral health for overall health	Yes	57 (95.0)	<0.001*
First dental visit	Before 1 year	47 (78.3)	0.002*
Ideal brushing frequency	Twice daily	42 (70.0)	0.004*
Awareness of fluoride	Yes	49 (81.7)	0.001*
Effect of reducing sugar	Yes	53 (88.3)	<0.001*
Regular dental check-ups	Every 6 months	46 (76.7)	0.003*

*Chi-square test; $p < 0.05$ considered statistically significant

Evaluation of children's oral health habits indicated that 65% of children brushed their teeth twice daily or more, while 35% brushed once daily or less. The majority of children (70%) used soft-bristled toothbrushes, and 61.7% routinely rinsed their mouth after meals. Regular flossing, however, was reported in only 30% of children.

Statistically significant differences were observed in brushing frequency, type of toothbrush used, mouth rinsing practices, and flossing habits ($p < 0.05$). These findings highlight variability in oral hygiene practices among children with cleft lip and palate. The detailed distribution of children's oral health habits is presented in **Table 3**.

Table 3

Oral Health Habit	Favorable Response	Percent (%)	p-value ^c
Brushing frequency	Twice daily or more	65.0	0.012*
Type of toothbrush	Soft-bristled	70.0	0.021*
Mouth rinsing after meals	Yes	61.7	0.030*
Flossing habit	Yes	30.0	0.041*

**Chi-square test; p < 0.05 considered statistically significant*

A statistically significant association was observed between parental oral health knowledge and children's oral health behaviors. Awareness of ideal brushing frequency and

fluoride use among parents was significantly associated with twice-daily brushing and fluoride toothpaste use by children ($p < 0.05$).

Parental oral health practices also showed a significant influence on children's oral hygiene habits, with supervised brushing and parental motivation being positively associated with improved brushing behavior and enjoyment ($p < 0.01$). Regular dental visits were significantly associated with a lower prevalence of reported oral health problems ($p = 0.020$). These associations are presented in **Tables 4 and 5**.

Table 4: Association Between Parental Oral Health Knowledge and Children's Oral Health Habits

Parental Knowledge Variable	Child Oral Health Habit	χ^2 value	p-value ^c
Knowledge of ideal brushing frequency	Brushing twice daily	6.42	0.011*
Awareness of fluoride	Use of fluoride toothpaste	8.13	0.004*
Knowledge of regular dental visits	Regular dental visits	5.87	0.015*
Knowledge on sugar reduction	Reduced sugary snack intake	7.25	0.007*

**Chi-square test; p < 0.05 considered statistically significant*

Table 5: Association Between Parental Oral Health Practices and Children's Oral Health Habits

Parental Practice	Child Oral Health Habit	χ^2 value	p-value ^c
Supervision of tooth brushing	Brushing twice daily	9.02	0.003*
Motivation for oral hygiene	Enjoyment of brushing	6.78	0.009*
Regular dental visits	Absence of oral health problems	5.46	0.020*

**Chi-square test; p < 0.05 considered statistically significant*

4. Discussion

Children with cleft lip and palate (CLP) are at increased risk for poor oral health due to altered oral anatomy, surgical scarring, and difficulties in maintaining effective plaque control. Al-Wahadni et al. and Parapanisiou et al. reported higher plaque accumulation and caries prevalence in children with cleft conditions compared to non-cleft children, supporting the variability in oral hygiene practices observed in the present study.¹¹

Parental oral health knowledge plays a crucial role in shaping children's oral hygiene behaviors. Saied-Moallemi et al. demonstrated that higher parental oral health literacy is associated with improved brushing frequency and preventive practices in children.¹² In the present study, parental awareness of ideal brushing frequency and fluoride use was significantly associated with twice-daily brushing and the use of fluoride toothpaste by children, justifying the observed associations between parental knowledge and children's oral health habits.

Knowledge regarding sugar reduction was high among parents and was significantly associated with reduced sugary snack intake in children. Petersen et al. and Marshall et al. emphasized that parental control over diet during childhood is a key determinant of caries risk, particularly in vulnerable populations.¹³ These findings reinforce the importance of parental dietary guidance in preventing oral disease among children with CLP.

Despite satisfactory parental knowledge, regular flossing was reported in only a small proportion of children. Similar observations were made by Cheng et al., who noted that interdental cleaning is often neglected in children with cleft conditions due to perceived difficulty and lack of cleft-

specific oral hygiene instruction.¹⁴

Parental oral health practices were found to significantly influence children's oral hygiene behaviors. Blinkhorn et al. and Adair et al. reported that supervised toothbrushing leads to better brushing compliance and plaque control.¹⁵ The present study demonstrated a significant association between supervised brushing and twice-daily brushing, highlighting the importance of active parental involvement. Parental motivation was also positively associated with children's enjoyment of brushing, supporting the behavioral observations described by Finlayson et al. based on social learning principles.¹⁶

Regular dental visits were significantly associated with fewer reported oral health problems in children. Shaw et al. and Wehby et al.¹⁷ emphasized the role of early and regular dental care as an integral component of multidisciplinary cleft management, which aligns with the findings of the present study.

Overall, the findings underscore the pivotal role of parents in maintaining oral health among children with cleft lip and palate. As advocated by AAPD guidelines, integrating structured, parent-centered oral health education and preventive counseling into cleft care programs is essential for improving long-term oral health outcomes in this high-risk population.

5. Conclusion

Parental oral health knowledge and practices significantly influence the oral hygiene habits of children with cleft lip and palate. Children of parents with better awareness and active involvement demonstrated improved brushing frequency, fluoride use, and overall oral health behaviors. Supervision

and motivation by parents played a crucial role in reinforcing positive habits.

Despite adequate knowledge, gaps in certain preventive practices highlight the need for practical, cleft-specific guidance. Integrating structured parent-centered oral health education into cleft care programs is essential for improving long-term oral health outcomes in this high-risk population.

6. Recommendations

Parent-centered oral health education should be incorporated as an integral component of multidisciplinary cleft care programs, with emphasis on practical and cleft-specific oral hygiene techniques. Parents should be encouraged to actively supervise and motivate their children during daily oral hygiene practices to reinforce positive behaviors.

Preventive counseling focusing on appropriate fluoride use, dietary sugar control, and selection of suitable oral hygiene aids should be routinely provided at cleft care centers. Early initiation and regular follow-up dental visits must be promoted as a standard part of comprehensive cleft management. Further multicenter and longitudinal studies are recommended to assess the long-term impact of parental education on oral health outcomes in children with cleft lip and palate.

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