



Evaluation of Parental Awareness, Knowledge and Practices Toward Oral Health Care in Infants During the Predentate Stage

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Abstract: Background: The predentate period is a critical stage in an infant's oral development, during which proper oral hygiene practices can prevent early colonization of cariogenic microorganisms and promote long-term oral health. Parents play a fundamental role in maintaining oral hygiene during this stage; however, limited awareness and misconceptions regarding infant oral care are commonly observed. The present study aims to assess parental awareness, knowledge and practices regarding infant oral health.

Materials and Methods: A structured and validated online google questionnaire based survey was conducted among 220 parents of infants aged 0–12 months. The questions aimed to assess parental awareness, knowledge and oral health practices regarding oral cleaning methods, feeding habits, use of sweetened pacifiers and timing of first dental visit. The data was collected and analysed statistically. **Results:** The results revealed that only 49.5% parents initiated oral cleaning before tooth eruption, while 38.6% were aware of the recommended timing of the first dental visit. 42.3% parents believed that dental visits were required only when pain occurred. Inappropriate feeding practices were also observed, with 26.4% of infants always sleeping with a feeding bottle and 33.6% sometimes sleeping with a feeding bottle. 37.7% parents recognized the harmful effects of sweetened pacifiers and liquids, indicating gaps in parental knowledge and practices. **Conclusion:** The study highlights insufficient awareness and inconsistent oral health practices among parents during the predentate period. Educational initiatives and anticipatory guidance programs targeting parents are necessary to improve knowledge and promote healthy oral care practices from early infancy.

Keywords: Predentate period, Infant oral health, Parental awareness, Oral hygiene practices, Pediatric Dentistry.



INTRODUCTION

The predentate period represents a crucial stage in an infant's oral development, during which early preventive measures significantly influence future oral health outcomes. Infant oral health is considered the foundation for lifelong oral health and early preventive education plays a vital role in reducing the burden of oral diseases. Dental caries remains one of the most prevalent chronic diseases in childhood worldwide, with reports indicating that more than 40% of children experience dental caries by the time they reach kindergarten, highlighting the importance of preventive strategies initiated during infancy.^{1,2} Early colonization of cariogenic microorganisms, particularly *Streptococcus Mutans* may occur soon after birth, even before tooth eruption and vertical transmission from mother to infant has been well documented. The presence of cariogenic bacteria during the predentate stage increases the risk of early childhood caries (ECC), which is characterized by rapid progression and significant detrimental effects on dentition and overall health. Untreated ECC has been associated with pain, infection, impaired growth and reduced quality of life among young children.³ Parental knowledge and practices play a pivotal role in maintaining oral hygiene during infancy, as infants depend entirely on caregivers for oral health maintenance. Appropriate feeding practices, avoidance of prolonged bottle feeding with sweetened liquids/ pacifiers and early initiation of oral hygiene measures are recognized as essential preventive strategies. Studies have reported that high consumption of sugars, frequent nocturnal bottle feeding and use of sweetened pacifiers significantly increase the risk of ECC.⁴

American Academy of Pediatric Dentistry (AAPD)⁵ strongly recommend early oral health interventions, including establishment of Dental Home and implementation of anticipatory guidance programs. These preventive strategies include counselling parents regarding oral hygiene practices, dietary modifications and regular dental visits to ensure early detection and management of oral diseases. Evidence suggests that children who experience ECC are at significantly higher risk of developing caries in both primary and permanent dentitions, further reinforcing the importance of early preventive care.

Despite established guidelines data indicate that approximately 23% children aged 2–5 years are affected by dental caries, with disparities observed among children from socioeconomically disadvantaged backgrounds.^{6,7} These findings underscore the importance of early educational interventions targeting parents and caregivers to minimize the burden of preventable oral diseases.

Therefore, the present study aims to evaluate parental

awareness, knowledge and practices regarding oral health care during the predentate period. Identification of existing knowledge gaps may facilitate the development of educational programs and contribute to the promotion of optimal oral health from early infancy.

METHODOLOGY:

The present study employs a cross-sectional survey design to assess parental awareness, knowledge and practices regarding oral health care during the predentate period.

The survey was carried out over a period of 3 months (December 2025 – March 2026). The study population included parents and guardians of infants aged 0- 12 months from various community centres to ensure a diverse representation of participants.

Ethical clearance for the study was obtained from the Institutional Ethics Committee (IECADC/0152/2025). A sample size of 220 participants was determined and sample selection was done using a convenience sampling method. Parents or guardians willing to participate were included in the study, whereas those unwilling or who had previously completed the survey were excluded from the study.

The structured questionnaire form consisting of 19 multiple choice questions was prepared using Google Forms to qualitatively assess parents' awareness, knowledge and practices regarding oral health care during the predentate period. The questionnaire highlighted following information: Demographic details of parents or guardians, timing for initiation of oral hygiene practices, recommended methods for cleaning the infant's oral cavity, awareness of the potential effects of milk residue and bacterial transmission on oral health, Infant feeding practices, including bottle feeding and nocturnal feeding habits, use of sweetened liquids/ pacifiers and recommended timing of the first dental visit.

For validation of the questionnaire the created draft survey instrument was provided to 10 faculty members who were randomly chosen to evaluate the validity and readability of the survey instrument. Thirty parents were randomly chosen to evaluate the survey instrument to ensure its clarity, relevance and acceptance. The reliability of the questionnaire was assessed using the Test-Retest method, yielding a Cohen's Kappa value of 0.89, indicating high consistency.

A brief introduction to the study was presented at the

beginning of the questionnaire and informed consent was obtained through digital signature from all participants. Participation was voluntary, responses were anonymous and only one parent per household was permitted to complete the survey. Repeated

RESULTS:

A total of 220 parents of infants aged 0–12 months participated in the present study. Among the participating parents, 38.8% parents belonged to the 25–30 years age group, followed by 29.1% in the 31–35 years group, 22.4% above 35 years and 9.7% below 25 years.

With respect to educational qualification, 40.5% of parents were graduates, 26.4% had completed secondary education, 18.2% were postgraduates and 14.9% had primary school education. The demographic details of the participants are presented in Table 1.

When asked about the appropriate timing for initiation of oral cleaning, 49.5% parents reported that oral cleaning should begin before tooth eruption, while 26.3% believed it should start after eruption of the first tooth, 8.3% indicated after one year and 15.9% were unaware.

Regarding the frequency of cleaning the infant's gums and tongue before tooth eruption, 33.2% reported cleaning after every feed, 41.4% cleaned once daily, 18.6% cleaned only when required and 6.8% reported never cleaning. With respect to the method of cleaning, 62.7% of parents

reported using a soft cloth, 2.2% used a toothbrush, 16.4% used a cotton bud and 18.7% were unaware of the appropriate method.

41.8% parents were aware that milk residue left in the mouth could affect oral health, while 15% parents

reminders were sent at regular intervals through email and social media platforms. The collected data was subjected to statistical analysis.

responded negatively and 43.2% parents were uncertain. Similarly, 34.9% parents reported that harmful bacteria could be transferred to infants through sharing spoons or kissing on the mouth, whereas 65.1% were unaware of this mode of transmission. Regarding nocturnal bottle feeding, 33.6% of parents were aware that sleeping with a feeding bottle could adversely affect oral health, while 25.9% parents disagreed and 40.5% parents were uncertain.

37.7% of parents recognized that sweetened liquids or pacifiers could harm infant oral health, while 20.6% responded negatively and 41.7% were uncertain. Knowledge regarding the timing of the first dental visit was limited, with only 38.6% of parents correctly indicating that the first dental visit should occur before the first birthday, whereas 42.3% believed that dental visits were required only when pain occurred, 13.2% believed visits were necessary after eruption of all teeth and 5.9% were unaware. Details regarding parental knowledge and awareness toward infant oral health care are presented in Table 2.

With respect to nocturnal bottle feeding practices, 26.4% of parents reported that their infants always slept with a feeding bottle, 33.6% reported sometimes, 30.5% reported never and 9.5% indicated not applicable. Regarding sterilization of feeding bottles or pacifiers, 42.7% reported sterilizing after every use, 29.5% sterilized once daily, 19.1% sterilized occasionally and 8.7% reported never sterilizing. The majority of parents (90.4%) expressed willingness to receive additional information regarding infant oral health care. Parental practices related to infant health care are illustrated in Table 3.

DISCUSSION

The present study evaluated parental awareness, knowledge and practices regarding oral health care in infants during the predentate period. The findings demonstrated moderate levels of parental awareness but inconsistent implementation of recommended oral hygiene practices, indicating the need for enhanced parental education and preventive programs.

In the present study, the majority of parents demonstrated awareness regarding the importance of early oral hygiene practices; however, a considerable proportion lacked knowledge regarding correct methods and timing of oral cleaning. These findings are consistent with the study conducted by

Nagarajappa et al (2013)⁸, who reported that although parents exhibited general awareness regarding tooth eruption, 58.7% had inadequate knowledge regarding oral cleaning practices, indicating gaps in preventive oral health knowledge among caregivers.

The present study highlights that significant number of parents were unaware of the recommended timing of the first dental visit. Only a limited proportion of parents correctly identified the need for an early dental visit before the first birthday. These findings are in accordance with the observations made by Nagaraj et al (2012)⁹, who reported insufficient maternal knowledge regarding infant feeding practices and early dental visits, emphasizing the necessity for

improved anticipatory guidance among caregivers. The findings of the present study also revealed that

although many parents were aware of harmful feeding practices such as nocturnal bottle feeding and use of sweetened pacifiers, a considerable number continued these practices. This discrepancy between knowledge and actual practices has been reported in earlier literature. Almugairin et al (2025)¹⁰ conducted a cross-sectional study and demonstrated that more than 70% of mothers were aware of the harmful effects of prolonged pacifier and bottle use, yet practical implementation remained inadequate, highlighting the persistent gap between awareness and behavior. Moderate proportion of parents practiced regular oral cleaning for their infants. These findings are supported by previous research conducted by Shaghaghian et al (2017)¹¹, who reported variations in parental awareness regarding children's oral hygiene and emphasized that parental perception does not always

correlate with appropriate oral hygiene practices. Overall, the findings of the present study highlight the persistence of knowledge gaps and inconsistent oral hygiene practices among parents, despite moderate awareness levels. Similar conclusions have been drawn by Kaushik et al (2023)¹² and Walsh et al (2025)¹³ who reported parental barriers to optimal infant oral care, which emphasized the need for consistent oral health messaging and integration of preventive counseling into routine healthcare services. Therefore, the results of the present study emphasize the importance of early parental education and structured oral health promotion programs to improve knowledge and practices related to infant oral health. Enhancing parental awareness during the predentate period may contribute significantly to the prevention of early childhood caries and promotion of lifelong oral health.¹⁴

CONCLUSION

The present study demonstrated moderate levels of parental awareness but insufficient knowledge and inconsistent practices regarding infant oral health care during the predentate period. A considerable proportion of parents lacked knowledge regarding appropriate oral hygiene methods and the recommended timing of the first dental visit. In addition, the persistence of inappropriate practices such as nocturnal bottle feeding and use of sweetened pacifiers highlights the need for improved parental guidance. Early educational interventions and preventive oral health programs targeting parents are essential to promote appropriate oral hygiene practices and improve oral health outcomes in infants.

LIMITATIONS AND FUTURE SCOPE:

The study was conducted using a questionnaire-based design, which relied on self-reported responses and may be subject to response bias. Future research should focus on conducting multicentric studies involving larger and more diverse populations to enhance the generalizability of results. Longitudinal studies may be undertaken to evaluate the effectiveness of parental education programs on improving infant oral health practices over time. Additionally, integrating oral health education into routine antenatal and pediatric healthcare visits may serve as an effective strategy to improve parental awareness and promote preventive oral health practices from early infancy.

Table 1: Demographic Characteristics of Participants

Variable	Category	Frequency (n)	Percentage (%)
Age of Parent	< 25 years	21	9.7
	25–30 years	85	38.8
	31–35 years	64	29.1
	> 35 years	49	22.4
Educational Qualification	Primary school	33	14.9
	Secondary school	58	26.4
	Graduate	89	40.5
	Postgraduate	40	18.2
Occupation	Homemaker	138	62.7
	Business/Employed	82	37.3
Age of Infant	0–3 months	54	24.5
	4–6 months	59	26.8
	7–9 months	57	25.9
	10–12 months	50	22.8

Table:2 Parental Knowledge and Awareness Regarding Infant Oral Health Care

Variable	Response	Frequency (n)	Percentage (%)
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Timing to Begin Oral Cleaning	Before tooth eruption	109	49.5
	After first tooth eruption	58	26.3
	After one year	18	8.3
	Don't know	35	15.9
Frequency of Cleaning Gums	After every feed	73	33.2
	Once daily	91	41.4
	Only when required	41	18.6
	Never	15	6.8
Method of Cleaning	Soft cloth	138	62.7
	Toothbrush	5	2.2
	Cotton bud	36	16.4
	Don't know	41	18.7
Milk Residue Affects Oral Health	Yes	92	41.8
	No	41	15
	Not sure	95	43.2
Bacterial Transmission Awareness	Yes	77	34.9
	No/Not aware	143	65.1
Sleeping with Bottle Harmful	Yes	74	33.6
	No	57	25.9
	Not sure	89	40.5
Sweetened Pacifiers Harmful	Yes	21	37.7
	No	79	20.6
	Not sure	92	41.7
Timing of First Dental Visit	Before first birthday	85	38.6
	After all teeth erupt	29	13.2
	Only when pain occurs	93	42.3
	Don't know	13	5.9

Table 3: Parental Practices Related to Infant Oral Health Care

Variable	Response	Frequency (n)	Percentage (%)
Infant Sleeps with Feeding Bottle	Always	58	26.4
	Sometimes	74	33.6
	Never	67	30.5
	Not applicable	21	9.5
Sterilization of Feeding Bottles	After every use	94	42.7
	Once daily	65	29.5
	Occasionally	42	19.1
	Never	19	8.7
Interest in Receiving Oral Health Information	Yes	199	90.4
	No	21	9.6

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