

PARENTAL KNOWLEDGE, ATTITUDES, AND PRACTICES TOWARD FIRST DENTAL VISITS IN CHILDREN AGED 0–14 YEARS: A CROSS-SECTIONAL STUDY

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ABSTRACT

BACKGROUND: Timely dental visits during childhood are essential for preventing oral health issues. Nevertheless, parents' knowledge and attitudes largely determine whether children receive dental care at an appropriate age. Gaining insight into parental understanding, behaviors, and cultural barriers is key to enhancing pediatric oral health outcomes.

AIM: This study aimed to evaluate the knowledge, attitudes, and practices (KAP) of parents concerning their children's dental care, with a particular emphasis on factors influencing the timing and motivation for the first dental visit.

METHODOLOGY: A descriptive cross-sectional study was carried out using a structured, pre-validated questionnaire administered to parents of children aged 0 to 14 years attending a tertiary care hospital. Data were statistically analysed using SPSS software (version 31) to identify significant associations between variables.

RESULTS: Findings indicated that many parents postponed their child's initial dental visit until symptoms such as pain or visible cavities emerged. Preventive dental checkups were infrequent. Awareness regarding the recommended age for the first dental consultation and the significance of primary teeth was notably lower among parents with limited educational attainment.

CONCLUSION: The study highlights a critical gap in parental awareness about early pediatric dental care. Tailored oral health education initiatives are essential to promote early intervention and encourage timely dental visits.

KEYWORDS: Pediatric Dentistry, Oral Health, Health Knowledge, Attitudes, Practice, Dental Care for Children, Cross-Sectional Studies

INTRODUCTION

Dental caries is one of the most prevalent chronic conditions among children globally and continues to be a major public health concern. Left untreated, it can significantly impair a child's well-being by causing discomfort, feeding difficulties, and pain. In more advanced cases, it may escalate to systemic infections, impacting school attendance and overall quality of life¹. Moreover, suboptimal oral health has been associated with negative consequences on a child's physical growth, nutritional intake, and cognitive development².

The etiology of dental caries is multifactorial, involving dietary patterns, oral hygiene behaviors, fluoride exposure, and salivary composition³. Beyond these intrinsic and extrinsic factors, parental attributes—such as education level, socioeconomic status, and knowledge—play a pivotal role in a child's vulnerability to caries⁴. A child's oral health habits are strongly shaped by parental influence, with mothers typically exerting the most substantial impact⁵. Thus, parents act as key facilitators in nurturing positive oral health behaviors and play a fundamental role in establishing preventive dental care routines^{6–7}.

Promoting oral health early in life is critical to ensuring the proper development of permanent teeth and reducing the burden of preventable dental diseases⁸. Research indicates that children whose caregivers display proactive and informed attitudes toward dental care often experience better oral health outcomes⁹. An early dental visit offers an opportunity not only for preventive assessment but also for educating parents and establishing long-term oral hygiene practices^{10–11}.

Parents typically act as the primary healthcare decision-makers for their children, making it imperative to

understand their perceptions and behaviors when designing public oral health strategies¹². Despite efforts to enhance pediatric oral health worldwide, disparities remain prominent in low- and middle-income countries like India, where data on parental practices surrounding initial dental consultations is limited. Addressing this knowledge gap is vital for tailoring community-level interventions that foster early engagement in oral healthcare¹³. Importantly, dental caries may also signal broader systemic issues, including malnutrition, socioeconomic neglect, or even child abuse in extreme cases¹⁴. Its impact often extends beyond the child, leading to lost school days and work absenteeism for caregivers.

The familial environment, particularly during the early years, plays a decisive role in shaping a child's health outcomes. It becomes the responsibility of the parent to ensure that preventive oral care is initiated during these formative stages¹⁶. However, there is a noticeable scarcity of region-specific studies evaluating parental perspectives on early dental visits in India. This study seeks to fill that gap by assessing the knowledge, attitudes, and practices of parents in Pune, Maharashtra, regarding their child's first dental visit, and aims to identify areas where intervention is most needed.

Materials and Methods

A cross-sectional survey was carried out among parents of children aged 0 to 14 years who visited the Department of Pediatric Dentistry at Bharati Vidyapeeth Dental Hospital as well as various private dental clinics in Pune, Maharashtra. The study was conducted in accordance with the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) guidelines¹⁷ and

received approval from the Institutional Ethical Review Committee (IERC).

Study Design and Sample Size

A descriptive, observational design was employed. The sample size was calculated using the formula:

$$n = \frac{p(100-p)z^2}{E^2}$$

Where:

- n = required sample size
- p = estimated prevalence
- Z = standard normal deviate for 95% confidence (1.96)
- E = acceptable margin of error

Based on this calculation, a sample size of 365 participants was determined.

Inclusion and Exclusion Criteria

Inclusion Criteria:

- Healthy children aged 0–14 years accompanied by a parent
- Attendees of the Pediatric Dentistry Department or private dental clinics

Exclusion Criteria:

- Incomplete questionnaire responses
- Children accompanied by someone other than a parent
- Children with special healthcare needs
- Parents unwilling to participate

Questionnaire Development and Validation

A prevalidated, self-administered questionnaire comprising 26 items was designed to evaluate parents' knowledge, attitudes, and practices related to their children's oral health.

The questionnaire was structured into four sections:

- Section A: Socio-demographic data
- Section B: Details of the first dental visit
- Section C: Knowledge about pediatric oral health
- Section D: Attitudes toward dental treatment

The questionnaire's face and content validity were confirmed by a panel of subject matter experts. To evaluate its clarity and reliability, a pilot test was conducted with 25 parents from comparable demographic backgrounds. Responses were analyzed using Kappa statistics, and necessary modifications were made for improved consistency and understanding.

Survey Distribution

The final questionnaire was distributed both physically and via a custom-designed Google Form. Participants were approached randomly and asked to complete the survey anonymously. The estimated time for completion was 8–10 minutes.

Statistical Analysis

Data were compiled using Microsoft Excel and analyzed using IBM SPSS Statistics version 21.0 (IBM Corp., Armonk, NY). Descriptive analysis included calculation of means, standard deviations, frequencies, and percentages. Associations between categorical variables were evaluated using Pearson's chi-square test, with a p-value less than 0.05 indicating statistical significance.

Results

The study included responses from 365 parents, with females comprising 56% and males 44% of the participants. Most children were in the 0–5-year age group, and the overall mean age of the children was 7.8 ± 5.4 years.

Demographic Profile

In terms of parental education, 40% had completed a graduate or equivalent degree, 27% had schooling up to the secondary level, 21% held advanced degrees, and

12% had limited literacy. Occupationally, white-collar professionals constituted the largest group (37%), followed by blue-collar (27%), gold-collar (12%), pink-collar workers (12%), others (6%), and homemakers (5%). Annual family income data revealed that 25% of parents earned between INR 10,140–15,210, with only 2% reporting earnings below INR 2,048. The demographic characteristics of the study participants, including gender, age, educational background, occupational status, and income level, are detailed in Table 1

Table 1: Sociodemographic Profile of Participating Parents and Their Children

Characteristic	Category	Frequency (n)	Percentage (%)
Gender	Male	162	44.4
	Female	203	55.6
Age (in years)	0 – 5	143	39.2
	>5 – 10	102	27.9
	>10	120	32.9
Parental Education Level	Advanced degree	75	20.5
	Graduate or equivalent	146	40.0
	School education	100	27.4
	Limited literacy	44	12.1
Parental Occupation	Gold collar (executive)	45	12.3
	White collar (office work)	135	37.0
	Pink collar (service)	44	12.1
	Blue collar (manual labour)	99	27.1
	Others	22	6.0
	Homemaker	20	5.5
Annual Family Income (INR)	≥ 40,562	76	20.8
	20,281 – 40,561	65	17.8

First Dental Visit

The age most frequently reported for a child's first dental visit was between 6–10 years (n = 185), followed by 0–5 years (n = 97), and >10 years (n = 83), with statistically significant differences observed ($\chi^2 = 17.62$, $p < 0.04$). The leading reasons cited for a child's initial dental visit were

tooth pain and discomfort ($n = 107$), dental decay ($n = 90$), swelling ($n = 37$), and trauma ($n = 18$). Routine check-ups accounted for only 30 responses. The most cited barrier to early dental visits was the perceived cost of treatment ($n = 75$), followed by long waiting times ($n = 66$), and lack of time due to working commitments ($n = 56$). These associations were statistically significant ($\chi^2 = 23.81$, $p < 0.003$). Comprehensive data on the age at first dental visit, primary motivators for the visit, and reasons for delay are presented in Table 2.

Table 1: Sociodemographic Profile of Participating Parents and Their Children

Variable	Category	Frequency (n)	χ^2 Value	p-Value	Significance
Age at First Dental Visit (in years)	0 – 5	97	17.62	<0.04	Statistically significant
	6 – 10	185			
	>10	83			
Primary Reason for Dental Visit	Pain	107	35.01	<0.003	Highly significant
	Dental caries	90			
	Scaling	45			
	Malocclusion	21			
	Swelling	37			
	Trauma	18			
	Routine dental check-up	30			
Reason for Delay in Seeking Dental Consultation	Other reasons	17	23.81	<0.003	Highly significant
	No time due to working parents	56			
	Long waiting time / appointments	66			
	No dental clinic nearby	36			
	High treatment cost	75			
	Child had to miss school	40			
	Perceived lack of cooperation (age)	30			
	Fear of dental procedures	35			
	No perceived dental issues	27			

Parental Knowledge

A majority of parents (69%) correctly recognized the distinction between primary and permanent dentition ($p < 0.004$). While 57% were aware of pediatric dentistry as a specialty ($p < 0.001$), only 34% knew that the first dental visit should occur by 6 months of age ($p < 0.002$). Notably, less than half (44%) acknowledged the importance of preserving primary teeth ($p < 0.001$), and a mere 30% believed that milk teeth require dental treatment ($p < 0.001$). Awareness regarding the role of fluoride in preventing tooth decay was also low, with only 30% responding affirmatively ($p < 0.001$). Responses to specific knowledge-based items regarding pediatric dentistry, dentition awareness, and fluoride are listed in Table 3.

Table 3. Parental knowledge regarding pediatric dentistry and preventive oral health practices.

Knowledge -Based Question	Response	Frequency (n)	χ^2 Value	p-Value	Significance
Awareness of two sets of dentition (primary and permanent teeth)	Yes	252	8.191	<0.004	Statistically significant
	No	113			
Awareness that the first dental visit should be by 6 months of age	Yes	125	20.65	<0.002	Highly significant
	No	240			
Belief that primary (milk) teeth are important and should be preserved until natural exfoliation	Yes	160	32.65	<0.001	Highly significant
	No	196			
Awareness of pediatric dentistry as a distinct dental specialty	Yes	207	28.55	<0.001	Highly significant
	No	158			
Knowledge that premature tooth loss may lead to malocclusion	Yes	99	47.16	<0.001	Highly significant
	No	266			
Awareness of the need for immediate dental care in case of dental trauma in children	Yes	142	8.191	<0.004	Statistically significant
	No	223			
Knowledge that pediatric dentists are trained to treat children with disabilities or systemic health issues	Yes	265	20.65	<0.002	Highly significant
	No	100			
Belief in the necessity of dental treatment for primary teeth	Yes	132	2.65	<0.001	Highly significant
	No	233			
Awareness that fluoride prevents dental caries	Yes	110	28.55	<0.001	Highly significant
	No	255			

Parental Attitudes

Attitudinal responses were largely favorable. A significant majority (76%) reported they would consent to radiographs for their child's dental evaluation ($p < 0.001$). Most parents agreed to preventive treatments, such as fluoride application ($n = 286$, 78%) and sealant placement ($n = 244$, 67%) ($p < 0.001$). Additionally, 72% preferred restorative management, including root canal therapy, over tooth extraction in cases of severely decayed primary teeth ($p < 0.001$). Parental willingness to opt for interceptive orthodontics during the child's growth period and space maintainers following early tooth loss was also statistically significant ($p < 0.003$).

Finally, while 27% of parents expressed readiness to accept treatment under general anesthesia or conscious sedation for uncooperative children, this aspect showed comparatively lower acceptance, though it remained statistically relevant ($p < 0.004$). Detailed attitudinal trends, including acceptance of preventive and restorative treatments, are illustrated in Table 4.

Table 4: Parental attitudes toward pediatric dental treatment modalities.

Attitudinal Statement	Response	Frequency (n)	χ^2 Value	p-Value	Significance
Belief that treating primary teeth may damage permanent dentition	Yes	115	28.35	<0.001	Highly significant
	No	249			
Willingness to accept dental radiographs (X-rays) for child if advised by the dentist	Yes	276	69.41	<0.001	Highly significant
	No	89			
Agreement to preventive fluoride application and dental cleaning for child	Yes	286	69.41	<0.001	Highly significant
	No	79			
Acceptance of pit and fissure sealants (white coatings on tooth grooves) to prevent dental decay	Yes	244	19.96	<0.002	Statistically significant
	No	121			
Preference for preserving decayed primary teeth via root canal treatment over extraction	Yes	263	48.92	<0.001	Highly significant
	No	102			
Agreement to use of space maintainers if primary teeth are extracted prematurely	Yes	116	28.35	<0.003	Statistically significant
	No	249			
Willingness to initiate orthodontic treatment (clip/brace therapy) during the growth period for misaligned teeth or jaws	Yes	276	69.41	<0.001	Highly significant
	No	89			
Consent for dental treatment under general anesthesia or conscious sedation if child is non-cooperative and has extensive needs	Yes	98	69.41	<0.004	Statistically significant
	No	267			

Discussion

The current study sheds light on the significant influence parental knowledge, attitudes, and behaviors exert on the oral health trajectories of children. While many parents demonstrated a foundational understanding of pediatric oral care, critical deficiencies were evident—particularly regarding the timing of the first dental visit and the role of preventive interventions. These findings underscore the importance of early caregiver engagement in promoting lifelong oral hygiene habits¹⁸.

A considerable proportion of respondents reported that their child's initial dental consultation was prompted by symptoms such as pain or visible decay—typically between the ages of 6 and 10. This reactive approach

aligns with prior research, which indicates that many caregivers seek dental care only after clinical signs emerge¹⁹. However, this is contrary to guidelines from pediatric dental associations, which recommend that the first dental visit occur by six months of age or within six months of the eruption of the first tooth²⁸.

Although awareness about the difference between primary and permanent dentition was relatively high, misconceptions persisted regarding the importance of treating primary teeth and the benefits of fluoride. These gaps are consistent with earlier studies reporting limited parental understanding of the preventive function of pediatric dental care^{26–27}. Misjudgements about the temporariness of milk teeth often lead to their neglect, which may result in complications such as malocclusion and early loss of arch space.

On a positive note, the majority of parents expressed willingness to support diagnostic and preventive measures such as radiographs, fluoride applications, and sealant therapy. This suggests a growing recognition of the value of preserving primary teeth. Additionally, many caregivers preferred restorative approaches such as root canal therapy over extractions for severely decayed teeth, signaling a potential cultural shift from traditional extraction-based management toward conservative treatment modalities.

However, the acceptance of more invasive interventions—such as general anesthesia or conscious sedation—was noticeably lower. This hesitancy may stem from concerns about procedural safety, insufficient awareness, or limited access to facilities equipped to handle pediatric sedation cases. These insights point to the need for enhanced communication between dental professionals and caregivers to address fears and clarify the benefits of advanced pediatric care options.

Educational attainment, especially among mothers, emerged as a significant factor influencing both knowledge and treatment-seeking behavior. This finding is in agreement with global literature, which consistently associates maternal literacy with improved oral health outcomes in children^{6–7, 22–23}. Parents with higher education levels were more likely to be aware of the role of pediatric dentistry, the timing of the first dental visit, and the need for preventive care—all of which are essential for early intervention and disease prevention.

Several external barriers to early dental care were identified, including high treatment costs, long waiting periods, and time constraints related to parental employment. These findings mirror systemic challenges reported in urban and peri-urban Indian settings, where access to pediatric dental services remains uneven²⁹. As a result, many families delay care until conditions worsen, reinforcing a reactive rather than proactive model of oral health management.

Another critical observation was the heavy reliance on symptomatic cues—such as pain or swelling—to prompt dental visits. This pattern indicates a lack of awareness about preventive dental check-ups and reflects a broader gap in oral health literacy. Similarly, only a minority of parents recognized fluoride as an effective tool for caries prevention, highlighting a disconnect between public health messaging and community understanding³⁰.

The implications of untreated dental caries extend beyond oral health, often affecting nutrition, speech, school attendance, and overall well-being. Moreover, early caries is a known risk factor for future decay in the permanent dentition²⁸. Therefore, reinforcing anticipatory guidance through parental education and timely dental visits is essential. Pediatric dentists, through their unique training,

are ideally positioned to deliver preventive care and counsel caregivers on maintaining long-term oral health for their children.

Limitations

This study has certain limitations. It was conducted in a single urban setting using convenience sampling, which may limit the generalizability of the findings to other regions, especially rural or underserved areas. Data were self-reported by parents, making the results subject to recall and social desirability bias. Although the questionnaire was pretested, it may not fully capture the cultural and personal factors influencing parental behavior. As a cross-sectional study, it shows associations but cannot establish cause-and-effect relationships. Long-term studies are needed to assess whether early education and intervention lead to sustained improvements in children's oral health. Despite these limitations, the study's large sample size, validated questionnaire, and adherence to research standards strengthen its reliability and usefulness for future planning.

Conclusion

This study highlights the crucial role of parents in shaping children's oral health. While many showed awareness of pediatric dental care, gaps remain in preventive knowledge and timely dental visits. Common barriers such as treatment cost, lack of awareness, and limited access continue to delay early care. Strengthening oral health education and involving pediatric dental professionals can help bridge these gaps. Promoting early dental visits and empowering parents with accurate information is key to improving oral health outcomes in children.

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