

Age and Caries Status of Children at the First Dental Visit in a Tertiary Care Hospital: A Cross-sectional Study

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ABSTRACT

Introduction

Children's oral health is a vital part of their overall general health. Early first dental visit can influence the child's future oral health. The objective of this study was to assess the average age, reason, and caries status of children on their first dental visit at a tertiary care center in Kathmandu.

Methods

A cross-sectional observational study was conducted among the children aged upto 14 years visiting the outpatient departments of Kantipur Dental College. A Validated questionnaire was provided to the parents visiting with the child and dental checkup was carried out in their first dental visit.

Results

Out of 334 children a total of 43 (12.9%) visited by 3 years of age and only 9 (2.7%) children visited by 1 year of age. Majority of children were of age 4-6 years (n=127) with a mean age of 6.71 ± 2.95 . Most common chief complaint for their first dental visit was decayed tooth (n=95, 28.4%), followed by pain (n=93, 27.8%) and 4 of them (1.2%) visited for routine checkup.

Conclusion

The majority of the children make their first dental visit too late. Children delaying their first dental appointment had much greater dental caries experience. Dental caries and associated complications were the primary reasons for the child's first dental appointment.

Keywords

Age; children; dental caries; first dental visit

INTRODUCTION

A child's first dentist visit is a significant milestone in their lives. An early dental visit helps the dentist in early evaluation of dental and craniofacial growth or development, detect early lesions. An early visit instills a positive behavior in children for dental treatment, motivate parents towards preventive dental treatment and also provide age-appropriate anticipatory guidance.¹

In order to encourage early detection of oral health problems, the American Academy of Pediatric Dentistry (AAPD) and the American Dental Association (ADA) recommend that children visit the dentist for a dental screening within six months of the eruption of the first primary tooth and no later than 12 months of age.^{2,3} However, because they believe that primary teeth are only temporary, parents neglect to prioritize them.⁴

Dental caries is an infectious disease that can be prevented and can start as soon as the first tooth erupts. Decay in primary dentition is a strong predictor of future decay in the permanent dentition.⁵ Dental caries can contribute to pain, difficulty eating, weight loss, poor speech development, disrupted sleep, and systemic infection.⁶ An early dental visit and implementation of preventive measure can help in the maintenance of good oral health of a child. Therefore, the purpose of this study is to determine the age at which parents seek their children for first dental care and the common reasons for their first visit among the children visiting the outpatient department of Kantipur Dental College and Teaching Hospital.

METHODS

A cross-sectional study was conducted from February to November 2022 among the children visiting the outpatient Department of Pedodontics, Kantipur Dental Hospital. The ethical clearance was obtained from the Institutional Review Committee, (5/022) Kantipur Dental College and Teaching Hospital. The required consents and approvals were obtained from the parents and dental examination was performed in their presence.

Sample size was calculated by using the formula

$n = z^2 pq / e^2$, where z is confidence level at 95% (standard value of 1.96), p is estimated prevalence of project area,⁷ e is range of confidence interval.

$$z = 1.96$$

$$p = 32 \% = 0.32$$

$$e = 0.05$$

$$q = 1-p = 0.68$$

$$n = (1.96)^2 \times 0.32 \times 0.68 / (0.05)^2$$

$$= 334$$

A previously used structured questionnaire was used for recording all relevant data.⁷ The first section included demographic data and second section contained questions related to child's age at the first dental visit, the person accompanying them and reasons for their visit. The children who were not for their first visit and children with special needs were not included in the study. The caries status of the children was evaluated using "decayed, missing and filled" index for primary and permanent teeth scores (dmft and DMFT), as recommended by the World Health Organization's oral health surveys.

RESULTS

Out of 334 children, 187 (56%) were male and 147 (44%) were female. The majority of children in the present study were of age 4-6 years ($n=127$) with a mean age of 6.71 ± 2.95 . A total of 43 (12.9%) visited by 3 years of age and only 9 (2.7%) of them visited by the 1 year of age. The distribution of children by age and reason for their first dental visit is given in Table 1 and Table 2 respectively. Among these children, 87.2% had caries with mean dmft and DMFT of 4.74 ± 4.03 and 0.40 ± 1.137 respectively. When analyzing the relationship between age of the first dental visit and the dental condition, it was found that the children with the highest caries experience 5.90 ± 4.38 had their first visit by 4-6 years of age. (Table 1)

Dental caries ($n=95$, 28.4%), and pain ($n=93$, 27.8%) were found to be the most frequent reason for the child's dental visit. Bleeding of gums and checkups were rarely the reason for their first visit. (Table 2) The reason for the first visit was reflected in the dmft and DMFT values. A significant higher value of dmft and DMFT was observed among the children

Table 1. Dental caries status and age at their first dental visit

Age group	n (%)	dmft (mean±SD)	DMFT (mean±SD)
0-3 years	43 (12.9%)	3.74± 4.06	0
4-6 years	127 (38%)	5.90± 4.38	0.03± 0.21
7-10 years	123 (36.8%)	5.10± 3.40	0.50± 0.90
11-14 years	41 (12.3%)	1.15± 1.86	1.71± 2.93
		p <0.001	p <0.001

Table 2. Dental caries status and the reason for their first dental visit

Reason for visit	n (%)	dmft (mean±SD)	DMFT (mean±SD)
Checkup	4 (1.2%)	3.5±2.64	0.50±1
Decayed tooth	95 (28.4%)	6.25±3.94	0.38±0.93
Pain	93 (27.8%)	5.51±3.51	0.43±1.32
Trauma	15 (4.5%)	2.00±3.062	0
Malocclusion	21 (6.3%)	1.24±2.45	1.24±2.34
Deposits	7 (2.1%)	0.86±1.86	0
Loosening of tooth	39 (11.7%)	2.49±3.06	0.21±0.57
Swelling of gums	41 (12.3%)	5.56±4.204	0.26±0.67
Bleeding of gums	3 (0.9%)	4.33±5.85	0
Others	16 (4.8%)	4.45±3.03	0.81±1.16
		p <0.001	p=0.03

visiting due to decay and pain (6.25±3.94 and 5.51±3.51 respectively) in comparison to the children whose visited for deposits and malocclusion (0.86±1.86 and 1.24±2.45 respectively. (Table 2)

The reason for their visit were compared between four age groups. Among the various reason given for their dental visit, dental caries was found be high in 7-10 years, pain in 4-6years, trauma in 0-3years, mobility in 7-10years, and malocclusion in 11-14 years age group. (Table 3)

DISCUSSION

The future oral health status of a child is influenced by the age of their first dental appointment.⁶ An early dental visit aid in early diagnosis of dental conditions and can provide age-appropriate anticipatory guidelines. According to Savage et al, the age of the children on their first dental visit had an effect on later dental visit frequency and had a favorable impact on dentistry-related expenses.¹ The AAPD and the ADA recommend that children visit the dentist within six months of the eruption of their first primary tooth or no later than 12

months of age.^{3,4} The current study showed that this recommendation was implemented in 2.7% of the children. In Bulgaria (1.73%), Nigeria (0.8%) the percentage of the children was even lower^{10,11} In Bengaluru India only one child reported for a dental visit by 12 months of age.¹² Various countries have put forward wide variations in age for the first dental visit.^{7,9-12} In this study a significant number of the children who had their first dental visit were in 4-6 years of age group with a mean age of 6.71±2.95. Previous research reported 4-10years, 7-11 years, and 7-9 years being the age for their child's first dental visit.^{7,11,12} This is in contrast to western countries where better access to dental care contributes to earlier dental visits.^{13,14} However, it still fails to meet the recommendations of AAPD of first dental visit by 1 year of age.

Children most frequently experience dental issues related to early childhood caries.¹⁵ An early dental visit ensures early treatment of carious lesion which can help avoid development of severe lesion later in life.¹⁶ It was evident from this study that the significant number of children had their dental

Table 3. Reason for first dental visit among different age groups

Reason for Visit	Age group				p-value
	0-3 years	4-6 years	7-10 years	11-14 years	
Checkup	2	1	1	0	<0.001
Decayed tooth	9	39	42	5	
Pain	9	50	22	12	
Trauma	11	0	3	2	
Malocclusion	0	2	5	14	
Deposits	1	1	4	1	
Loosening of tooth	0	17	18	4	
Swelling of gums	9	12	17	1	
Bleeding of gums	1	1	1	0	
Others	0	4	10	2	

visit to the hospital only when problem was evident or severe. It was found that dental caries and pain were the most common reason for their first visit. The data is consistent with a previous study by Ghimire et al where he pointed out that caries and its complication as the most common reason for their visit.⁷ Another study also showed caries-related pain and visible carious lesion were the most common reason for their visit.^{1,8,9} Dental caries and pain was seen most commonly in 7-10 years and 4-6 years respectively. There was a significant relationship between the age for first dental visit and caries experience. The children with highest caries experience had their first dental visit over the age of four. Beil et al, reported that children who had preventive visit by 18 months of age had lower rates of subsequent treatment and lower treatment expenses compared with children who had their visit at older age.¹⁷ However, contrast to our observation, Gasek et al found that the children who had their dental visit up to 1 year of age had a higher mean dmft value compared to the children with the visit between 2 and 3 and over 3 years of age.¹⁸ Addition to dental caries and its complications, other issues like loosening of tooth, eruption disturbances, traumatic injuries, malocclusion, gingival problems, were listed out by other parents. Among the children under 3 years of age dental trauma was frequent cause for their visit. Previous studies also have examined dental trauma among 1 and 3-years children.^{19,20} This could be due to the fact that the young child is learning to crawl and walk thereby increasing the possibility of fall and trauma to dentition. This study also showed that the majority of children in adolescent age group were more concern about the esthetic and they seek dental visits for correction of malocclusion. This suggests that parents seek the dental visit only when the symptoms are evident.

Infant's oral health is a vital part of their general health. In order to enhance oral health of children, it is crucial to motivate and educate parents regarding early dental visit. An early dental visit may encompass various aspects, such as enhancing oral hygiene practices, addressing dietary considerations, assessing the development of malocclusions, and providing parental education on traumatic injuries. The ultimate objective is to educate parents as well as encourage them to take all measures to promote good oral hygiene and prevent early dental disease.

CONCLUSION

The average age at which children have their first dental visit is over six years of age. Children who postponed their initial dental visits exhibited a considerably greater prevalence of dental caries. Parents commonly seek dental care for their children only when the symptoms were evident. Hence, it is crucial to educate parents regarding the importance

of early dental visit and the maintenance of oral health care for their children during the earliest stages of life.

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CONFLICT OF INTEREST

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