RESEARCH ARTICLE

Determining the frequency of regular dental visits and its association with the current oral status of children

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Abstract

Objective: To determine the frequency of regular dental visits, the oral health status of school children, and to assess the awareness of parents regarding these visits.

Method: The cross-sectional study was conducted from January to October 2023 at a private school in Karachi after approval form the ethics review board of Jinnah Sindh Medical University, Karachi, and comprised children aged 6-12 years from grades 1-6. Data was collected from the parents of the enrolled children using a pilot-tested structured questionnaire. This was followed by oral examination of the children. Data was analysed using SPSS 20.

Results: Of the 345 subjects with mean age 9.5±1.49 years, 197(57.1%) were boys and 148(42.9%) were girls. Among the parents, 146(42.3%) had at least three children. Overall, 145(42%) children had never visited a dental clinic. Among the 200(58%) who had visited a dentist, Regular visits were reported by 21(10.5%). Among the parents, 205(59.4%) were aware of the importance of regular dental visits. Caries were found in 158(45.8%) children, while the mean plaque score was 0.74±0.93. The incidence of caries and presence of plaque were significantly lower among children who had been visiting dentists regularly ($p<0.05$). A significant association was seen between regular dental visits and children with only one sibling ($p=0.004$).

Conclusion: The frequency of regular dental visits was found to be low. The high prevalence of caries emphasised the importance of regular dental visits.

Keywords: Dental health services, Dental care, Dental care for children. (JPMA 76: 898; 2026)

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Introduction

Regular dental check-ups may be described as visits to a dentist with standard intervals to check if the function and aesthetics of the oral structures are maintained.[1] The interval between regular dental visits is debatable internationally.[1] According to the American Dental Association, it is recommended at 6 months.[1] Whereas, a clinical guideline in the United Kingdom suggests that it should be no longer than one year.[1] This interval can also alter according to the needs of the patients and the opinions of dentists. Nevertheless, the time period between regular dental visits varies between 6 and 12 months.[1] The first dental visit is recommended by the age of one year or soon after the eruption of first tooth which should later be continued with regular dental visits.[2]

Regular dental visits provide oral health education regarding correct tooth brushing techniques and dietary practices. They also prevent gingival and periodontal diseases.[3,4] These visits can play a significant role in preventing and arresting caries by early detection.[5] Also, such visits can address and encounter harmful oral habits, like mouth breathing, thumb sucking, tongue thrusting and lip biting with the use of habit breakers, and can also evaluate the correct age at which orthodontic treatment of a child with misaligned teeth can be started.[6]

It is also evident from many studies that children who visit a dentist from an early age experience less dental fear and anxiety.[7,8]

A cross-sectional study in India showed that the frequency of regular dental visits was 12.9%.4 A cross-sectional study in Iran reported that 19.9% of the children had been having routine dental examinations.[9] A cross-sectional study in Saudi Arabia showed that only 14.4% of the children visited the dentist regularly.[10] Studies in Egypt and Yemen showed the frequency of regular dental visits to be 34.2% and 4.6%, respectively.[5,11] A cross-sectional study in Australia showed that 53% of the children visited the dentist twice every year, while 77% of them visited the dentist yearly.[12]

In India, a cross-sectional study showed 28% of the parents, while a study in Saudi Arabia reported 38.4% of the parents agreed that regular dental visits were necessary, but actual utilisation of dental services was only 6%.[13,14] A study in Islamabad, Pakistan, also showed that 76.4% of the parents

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agreed that regular dental visits were important to maintain good oral hygiene of children.[15]

To the best of our knowledge, there is no specific study conducted in Karachi that focusses on the importance of regular dental visits. The current study was planned to fill the gap in literature by determining the frequency of regular dental visits among children, to determine the awareness of parents regarding regular dental visits, and to assess the current oral status of the children.

Subjects and Methods

The cross-sectional study was conducted from January to October 2023 at a private school in Karachi after approval form the ethics review board of Jinnah Sindh Medical University (JSMU), Karachi. The interval between regular dental visits was taken as one year. Children's caries and plaque assessment was done using Caries Assessment Spectrum and Treatment (CAST) and the Plaque Index (PI).[16-18]

The sample size was calculated based on 12.9% frequency of regular dental visits among children.[4] OpenEpi[19] calculator was used at a confidence level of 95% and bound on error of 5%. For assessing the awareness of parents regarding regular dental visits of their children, it was taken as 28%.[13] The sample size was inflated by >10%. The sample was raised using simple random sampling technique. Those included were children aged 6-12 years studying in grades 1-6. Numbers were allotted to each student. For example, in grade 1, there were 73 students in three sections. The numbers allotted to them were from 1 to 73. Random selection was done with an online random number generator. The total number of students in each grade and the total number of students needed from each grade was entered into the number generator, and the final sample was thus drawn.

Children with genetic disorders causing anodontia, like ectodermal dysplasia, and children with any underlying mental or physical illness were excluded.

A structured questionnaire was developed on the basis of literature search[2-4] and the opinion of three experts in the field was taken to ensure face validity. Additionally, a pilot study was conducted in the same school before data collection to ensure comprehension. The questionnaire had three sections. Section one covered basic information, including sociodemographic data. Section two included questions related to regular dental visits, like age of the child at first visit, reasons for visit, reaction of the child etc. Section three involved an oral examination of the children, and was filled by the principal investigator and trained data collectors who were bachelors in dentistry with a minimum of one-year clinical experience.

Data was collected in two stages. In stage one, parents were sent the questionnaire along with a written consent form in their children's homework diary. In stage two, the children whose parents had given the require consent were examined. Informed consent and assent for the oral examination was also taken from all the children. Permission was also taken from the administration and head of the school, and the parents were informed about the caries status and plaque status of their child.

Data was analysed using SPSS 20. To determine the relationship between independent variables and outcome variables, chi-square test and fisher exact test were used. $P<0.05$ was considered significant.

Results

Of the 350 subjects initially enrolled, 5(1.42%) were excluded owing to incomplete response. Of the 345(98.57%) children with mean age 9.5±1.4 years, 197(57.1%) were boys and 148(42.9%) were girls. Among the parents, 146(42.3%) had at least three children, 183(52.8%) had university-level education, 238(69%) fathers were doing private jobs, and 249(72%) mothers were housewives. The household income in 169(49%) cases ranged Pakistan Rupee (PKR) 100,000-200,000. In 132(38%) cases, a dental clinic was situated <15 minutes away from residence. Additionally, 200(58%) of the children had visited the dental clinic at least once, while 145(42%) had never visited the dental clinic. Out of those who had visited a dental clinic, 93(46.5%) had visited when they were aged six years or older, and regular visits were reported by 21(10.5%). Regarding awareness of parents for the first dental visit, 139(40%) of them reported that it should be carried out when there is pain or any problem related to teeth. Regarding regular dental visits, 205(59%) parents agreed that regular dental visits should be conducted (Table 1).

Table-1: Sociodemographic characteristics and details of dental visits of the study subjects (n=345).

Variable	n (%)
Mean Age (years)	9.5 ±1.49
Gender	
Male	197 (57.1)
Female	148 (42.9)
No. of children	
1 child	56 (16.2)
2 children	143 (41.4)
3 children or more	146 (42.3)
Education of parent	
Primary	-
Secondary	-
Intermediate	14 (4.1)
Bachelors	149 (43.2)

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Table-1: *Continued from previous page.*

Variable	n (%)
Masters	182 (52.8)
Occupation of father	
Government	44 (12.8)
Private	238 (69)
Business	44 (12.8)
Others(self-employed/unemployed)	19 (5.5)
Occupation of Mother	
Government	6 (1.7)
Private	80 (23.2)
Business	10 (2.9)
Housewife	249 (72.17)
Household Income	
Less than 100,000	30 (8.7)
Between 100,000 and 200,000	169 (49)
More than 200,000	146 (42.3)
Dental clinic near the residence	
Walking distance	33 (9.6)
Less than 15 mins by car	132 (38.3)
More than 15 less than 30 mins by car	108 (31.3)
More than 30 mins by car	72 (20.9)
Ever visited a dental clinic	
Yes	200 (58)
No	145 (42)
Children who visited the dentist (n=200)	
Age of child during 1st dental visit	
≤ 1 year	16 (8)
2-3 years	20 (10)
4-6 years	71 (35.5)
>6 years	93 (46.5)
Dental visits pattern	
Just once	61 (30.5)
Many times but not regular	55 (27.5)
Regularly every year	21 (10.5)
Treatment follow-ups only	63 (31.5)
Reason for 1st dental visit	
Preventive dental visit	42 (21)
Decayed tooth	32 (16)
Pain in tooth	71 (35.5)
Misaligned teeth	21 (10.5)
Discoloured teeth	17 (8.5)
Injured tooth	2 (1)
Other	15 (7.5)
Child reaction during 1st dental visit	
Cranky and scared	31 (15.5)
Scared but quite	67 (33.5)
Quite but unhappy	42 (21)
Happy and co-operative	60 (30)
Children who never visited a dental clinic (n=145)	
Reason for not visiting a dentist	
No pain	79 (39.5)
Child doesn't need at this age	39 (19.5)
Expensive and time consuming	16 (8)
Child is uncooperative	5 (2.5)
Didn't know	6 (3)
Awareness of parents	
Ideal age of 1st dental visit	
≤ 1 year	58 (16.8)
2-3 years	53 (15.4)
4-6 years	95 (27.5)
When there is pain or any problem related to teeth	139 (40.2)
Regular dental visit	
Yes	205 (59.4)
No	140 (40.6)

A significant association was seen between regular dental visits and children with only one sibling (p=0.004). Additionally, children who were happy and cooperative in the first dental visit later visited the dentist regularly (p<0.001), and children who visited the dentist before or at one year of age showed a higher frequency of regular dental visits (p<0.001) (Table 2). Also, children who visited the dentist regularly had no plaque (p=0.043) and had sound and healthy teeth (p=0.003). Parents who had awareness regarding ideal age of the first dental visit made their children visit the dentist regularly (p<0.001). Further, 21(10.2%) parents were aware that there should be regular dental visits for their children and conducted regular dental visits (p<0.001) (Table 2).

Caries were found in 158(45.8%) children (Figure), while the mean plaque score was 0.74±0.93. The incidence of caries and presence of plaque were significantly lower among children who had been visiting dentists regularly (p<0.05). There were 173(50.1%) children having plaque. Among them, 95(54.9%) had mild, 49(28.32%) had moderate and 29(16.7%) had severe plaque.

Table-2: Comparison of sociodemographic and dental hygiene characteristics between school children having regular dental visits and those who were not regular.

Variable	Yes (regular visits) n=21	No (regular visits not done) n=324	*p*-value
Age (years)			
6-9	8 (4.8)	157 (95.2)	0.357
10-12	13 (7.2)	167 (92.8)	
Gender			
Male	11 (5.6)	186 (94.4)	0.650
Female	10 (6.8)	138 (93.2)	
Number of children			
1 child	2 (3.6)	54 (96.4)	0.004
2 children	16 (11.2)	127 (88.8)	
3 children or more	3 (2.1)	143 (97.9)	
Education of parent			
Intermediate	1 (7.1)	13 (92.9)	0.928
Bachelors	9 (6)	140 (94)	
Masters and above	11 (6)	171 (94)	
Occupation of father			
Government	2 (4.5)	42 (95.5)	
Private	14 (5.9)	224 (94.1)	0.717
Business	3 (6.8)	41 (93.2)	
Others (self-employed, unemployed)	2 (10.5)	17 (89.5)	
Occupation of Mother			
Government	0 (0)	6 (100)	
Private	6 (7.5)	74 (92.5)	0.301
Business	2 (20)	8 (80)	
Home maker	13 (5.2)	236 (94.7)	
Household income			
Less than 100,000 rupees	4 (13.3)	26 (86.7)	0.167
Between 100,000 and 200,000 rupees	8 (4.7)	161 (95.3)	
More than 200,000 rupees	9 (6.2)	137 (93.8)	
Dental clinic near the residence			
At walking distance	3 (9.1)	30 (90.9)	0.087
Less than 15 mins by car	5 (3.8)	127 (96.2)	
More than 15 less than 30 mins by car	11 (10.2)	97 (89.8)	

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Table-2: *Continued from previous page.*

Variable	Yes	No	*p*-value
More than 30 mins by car	2 (2.8)	70 (97.2)	
Tooth brushing habits			
Once a day	10 (6.3)	148 (93.7)	0.865
Twice a day	10 (6.4)	146 (93.6)	
After every meal	1 (7.1)	13 (92.9)	
Irregular brushing	0 (0)	17 (100)	
Child's reaction during 1st dental visit			
Cranky and scared	3 (9.7)	28 (90.3)	<0.001
Scared but quite	2 (3)	65 (97)	
Quite but unhappy	5 (11.9)	37 (88.1)	
Happy and co-operative	11 (18.3)	49 (81.7)	
Child's age during 1st dental visit			
≤ 1 year	8 (50)	8 (50)	<0.001
2-3 years	3 (15)	17 (85)	
4-6 years	5 (7)	66 (93)	
> 6 years	5 (5.4)	88 (94.6)	
Plaque index			
No plaque	17 (9.9)	155 (90.1)	0.043
Mild plaque	3 (3.2)	92 (96.8)	
Moderate plaque	1 (2)	48 (98)	
Severe plaque	0 (0)	29 (100)	
Caries status			
Sound teeth	18 (9.6)	169 (90.4)	0.003
Carious teeth	3 (1.9)	155 (98.1)	
Awareness of ideal age of 1st dental visit			
≤ 1 year	13 (22.4)	45 (77.6)	<0.001
2-3 years	4 (7.5)	49 (92.5)	
4-6 years	4 (4.2)	91 (95.8)	
Awareness of requirement of regular dental visits for children			
Yes	21 (10.2)	184 (89.8)	<0.001
No	0 (0)	140 (100)	

Discussion

The current study showed that the frequency of regular dental visits was 21(6.1%), which is relatively similar to a study in Yemen.[11] A study in Saudi Arabia also reported a low frequency of 14%.10 While in developed countries, like Australia, a higher frequency of 77% has been reported.[12] The reason for the higher frequency in these countries suggests more awareness, strong health systems, and dental insurance coverage that increase regular dental care utilisation.[20] In developing countries, like Pakistan, the prevention of oral diseases is overlooked due to oral health disparities, inequalities and oral health inaccessibility.[21] The current study showed that despite the fact that majority of parents understood the significance of regular dental visits, only one-tenth of them were seen practicing it. This discrepancy can also be seen in knowledge and attitude of parents in Saudi Arabia.[14]

This study revealed that nearly half of the children had dental plaque. Caries status of children showed that 46% of the children had at least one carious tooth. A recent study conducted in Quetta, Pakistan, also shows very high prevalence of caries among school-going children.[21] This may be attributed to the easy accessibility and frequent consumption of cariogenic diet among school children.[22]

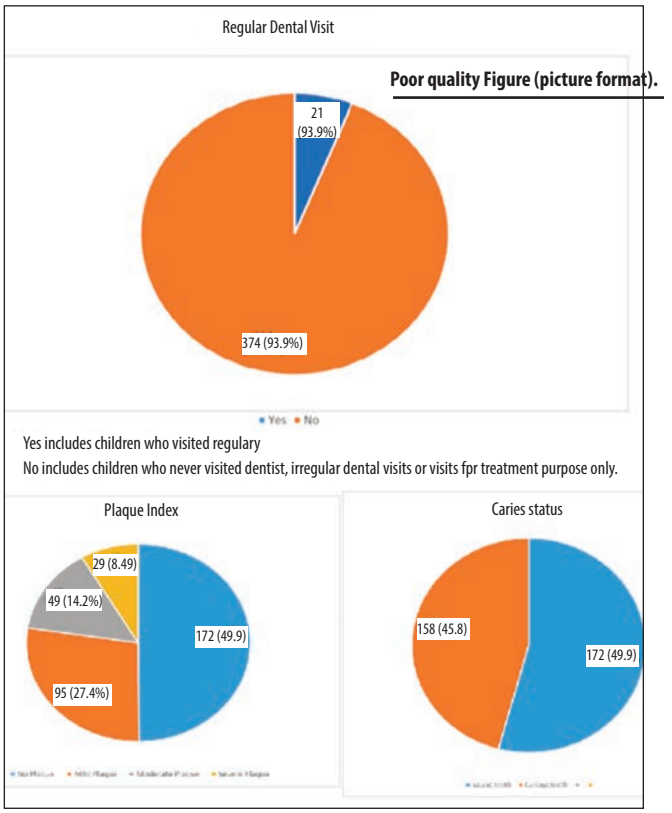

Figure: Frequency of regular dental visits, Plaque Index and caries status of the study subjects (n=345).

In the present study, parents with two children were likely to visit the dentist more regularly compared to parents with one child or three or more children. A study conducted in Hong Kong also showed that having more than two children was associated with less frequent regular dental visits.[23] The current study found no significant association between education and parental income. A possible explanation could be that the families of the students studying in the same private school had nearly the same socioeconomic status, and thus major differences could not be seen. The current results showed a significant difference between the parent's awareness and regular dental visits for their children, which has also been shown in Saudi Arabia.[24]

The current study also showed that regular dental attendance was more common among children who were happy at the first dental visit. The parents and children became reluctant to visit a dentist if the child experienced dental anxiety on the first visit. An earlier study has shown that fear and anxiety prevent dental visits.[25] There was no significant difference between tooth brushing and regular dental visits in the current study, but a significant difference was seen between plaque and regular dental visits. The children who visited the dentist every year were less likely to have plaque. The possible explanation for having no

plaque in the regular dental attenders is the knowledge of appropriate brushing techniques that inhibit plaque formation even though regular tooth brushing is done by the non-attendees as well. A study in Australia also showed that regular dental attendees had less plaque compared to the ones who irregularly visited the dentist (p=0.01).[26] A significant difference was also seen between caries status and regular dental visits in the current study. A similar result of low caries was reported in a study in Egypt.[5]

The current study determined the caries status using the CAST index, which is a more suitable tool to be used in surveys.[27]

The current study has some limitations. The study was initially designed to be conducted in a specific time period and in different private schools, but was conducted at a single school which might have affected the generalisability of the results.

Conclusion

Among the children surveyed, the frequency of regular dental visits was low. More than half of the parents were aware about the need of dental visits. The oral health of school children was not satisfactory, and almost half of them had caries and plaque deposits. However, children who visited the dentist regularly had good oral health status with lower caries and plaque levels.

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Author Contribution:

SM, HT, NK & ZA: Concept, design, data acquisition, analysis, interpretation, drafting, revision, final approval and agreement to be accountable for all aspects of the work.