

## Caries and Associated Factors among Pre-school Children: A Descriptive Study

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### Abstract:

*This descriptive cross-sectional study on oral health status of Pre-school children between two to five years of age was carried out among 107 children attending the Outpatient Department of Sapporo Dental College and Hospital, situated at Uttara, Dhaka. The objective of the study was to assess the oral health status of children upto five years of age through decayed, missing and filled teeth (dmft) status of their primary teeth and to find out the tooth cleaning habits and food habits of the study children. Data was collected both in English and Bengali with a pretested structured questionnaire and a checklist. On analysis of data dental caries (d) was found in 69.2% of the children, while missing (m) and filled (f) teeth were recorded in 14% and 21.5% of the children respectively. In all 72% of the children demonstrated an overall dmft score 1 or higher; whereas 28% of the children demonstrated dmft score 0 or were free from any form of dental decay, missing teeth or dental filling. The number of decayed, missing or filled teeth increased with increasing age of the children and this finding was statistically highly significant ( $P < 0.01$ ). Male children showed higher proportion of dental caries compared to the female children. Daily teeth cleaning were practiced by 95% of the children. Tooth brush and toothpaste was used by 83.2% and 84.1% of the children respectively. The study revealed that an acceptable method of brushing was practiced by only 44% of the children and brushing for the recommended 1-3 minutes was done by 37.3% only. Children who had their parents brush their teeth had less carious experience compared to the children who brushed their teeth by themselves and this finding was statistically significant ( $P < .05$ ).*

### Introduction.

The oral health of preschool children (2-5 years of age) remains a neglected area of health as ever. Data related to prevalence of caries specifically of deciduous teeth, are rare in our country. Although studies regarding older children and adults are not available, the importance of doing systematic research on preschool children has been overlooked. In the developed countries, measures taken through research findings have reduced the incidence of dental diseases in preschool children to manifold from the decade before, at the same time caries of primary teeth increased in developing countries<sup>3,4,8,9</sup>.

In Bangladesh the extent and magnitude of dental caries among children with primary dentition have not been

extensively explored. The World Health Organization (WHO) also does not have any database on oral health status of under-five children in Bangladesh<sup>2</sup>.

This study was conducted among two to five years age children with the consent of their parents at the outpatient department (OPD) of Sapporo Dental College and Hospital, Uttara, Dhaka. The primary objective of this study was to find out the caries status and associated factors in under-five children in order to help develop preventive dental care approaches.

### Materials and Methods

This descriptive cross-sectional study was carried out at the Outpatient Department of Sapporo Dental College and Hospital, Uttara, Dhaka. One hundred and seven children between two to five years of age and having only primary teeth were selected by convenient sampling technique. A pretested structured questionnaire and a checklist for clinical examination were used for data collection. The children and their parents were respondents of the questionnaire. Data were collected by the researcher and trained OPD dental surgeons. Face-to-face interview of parent/ children and dental examination of the children were carried out after verbal consent of the guardians.

The decayed, missing and filled teeth (dmft) component of oral health was recorded during the clinical examination. Materials used for clinical examination were-dental probes, dental mirrors, cotton and antiseptic

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solution. The children were seated on a dental chair and dental examination was carried out under direct light with mirror and caries probe. Carious teeth (d), the missing (m) and filled teeth (f) were also counted. Data analysis was done using SPSS 11.5 for Windows version according to the key variable and objectives of the study.

**Results**

**Table 1: Distribution of children according to carious teeth and sex of the child**

Sex of the child	Carious or decayed teeth				Total	
	YES		NO			
	No.	%	No.	%	No.	%
Male	37	75.5	12	24.5	49	100.0
Female	37	63.8	21	36.2	58	100.0
<b>Total</b>	<b>74</b>	<b>69.2</b>	<b>33</b>	<b>30.8</b>	<b>107</b>	<b>100.0</b>

Table 1 shows that among the participating 107 children, 49 were male and 58 were female children. Male children under five years of age had a higher proportion of caries (75.5%) compared to female children (63.8%) of the same age.

**Table 2: Distribution of the children according to age of the children and dmft score**

Age in years	dmft score					
	dmft score 0		dmft 1 or higher		Total	
	No.	%	No.	%	No.	%
2-3	17	56.7	9	11.7	26	24.3
3-4	7	23.3	21	27.3	28	26.2
4-5	6	20.0	47	61.0	53	49.5
<b>Total</b>	<b>30</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>107</b>	<b>100</b>

P=.000(<.01)

Table 2 shows that dmft score of 1 or higher increases with the increasing age of the children. There exists significant relation between age of children and dmft scores (P=.000, <.01).

**Table 3: Distribution of the children by assisted tooth cleaning and dmft score**

Characteristic	dmft score					
	dmft score 0		dmft 1 or higher		Total	
	No.	%	No.	%	No.	%
Child cleans own teeth	18	60	64	83.1	82	100
Assisted tooth cleaning	12	40	13	16.9	25	100
<b>Total</b>	<b>30</b>	<b>100</b>	<b>77</b>	<b>100</b>	<b>107</b>	<b>100</b>

P= .01 (<.05)

Table 3 shows caries state was higher (83.1%) in children who brush their own teeth as compared to those children who enjoy assistance from their parents (16.9%).

**Table 4: Distribution of children according to snacking and tooth cleaning habits**

Characteristics	Frequency	Percentage
<b>Snacking habit between meals</b>		
Yes	106	99.1
No	1	0.9
<b>Tooth cleaning after snacking</b>		
Yes	3	2.8
No	103	97.2

Table 4 shows snacking after meal was observed in 99.1% of the participants but only 2.8% of children cleaned their teeth after a snack food.

**Table 5: Distribution of the children according to regularity, frequency, method, timing and time taken for tooth cleaning.**

N=107

Characteristics	Frequency	Percentage
<b>Daily tooth cleaning</b>		
Regular	102	95.3
Irregular	5	4.7
<b>Frequency of cleaning</b>		
Once daily	71	69.6
Twice daily	31	30.4
<b>Method of brushing</b>		
Correct method	47	44
Others	60	56
<b>Proper timing of brushing</b>		
Yes	9	8.4
No	98	91.6
<b>Time taken for brushing</b>		
1-3 mins	40	37.3
Others	67	62.7

### Discussion and Conclusion

The study findings revealed that 69.2% of the under-five children had carious deciduous teeth, which is similar to findings of some developing countries<sup>8,9,10,11</sup>. It was observed that proportion of caries increased with increase in the age of children, indicating caries begins at very young age, and its incidence will rise with age without early measures for prevention. This result was quite similar with some earlier findings in Bangladesh<sup>13</sup> which reported an increase in caries prevalence with increasing age.

The study also revealed that assisted brushing by parents at this age group could be an important factor in lowering caries incidence as young children fail to clean their teeth in ideal manner.

If snacking habits of children were to taken into consideration, the importance of cleaning or at least rinsing after snack is to be emphasized both to the children and their parents.

The results of this study definitely indicate negligence and lack of awareness for taking care of children teeth among the parents attending the OPD. Educating both

children and their parents about oral health should be made an integral part of health care delivery system.

### References

1. Reich E, Lussi A, Newburn E. Caries risk assessment. *International Dental Journal*. 1999; 49:15-26.
2. WHO Oral Health Country/Area Profile Programme. Source: <http://www.whocollab.od.mah.se/index.htm>
3. Andlaw RJ and Rock WP. *Manual of Paediatric Dentistry*, 4<sup>th</sup> Edition, USA: Churchill Livingstone, 1996; 132.
4. Rao A. *Principles and Practice of Pedodontics*. 1<sup>st</sup> Edition. New Delhi: Jaypee Brothers Medical Publishers, 2006; 138.
5. Douglass JM, Douglass HJ, Silk HJ. A practical guide to infant oral health. *American Family Physician*. 2004; 70:2113-2120.
6. Midda M and Konig KG. Nutrition, diet and oral health. *International Dental Journal*. 1994; 44:599-612.
7. Nunn JH. The burden of oral ill health. *Archives of Diseases in Childhood*. 2006; 91:251-253.
8. Mohebbi SZ, Virtanen JI, Mojtaba VG, Vehkalahat MM. Early childhood caries and dental plaque among 1-3-year olds in Teheran, Iran. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2006; 24(4):177-181
9. Mahejabeen R, Sudha P, Kulkarni SS, Anegundi R. Dental caries prevalence among preschool children of Hubli: Dharwad city. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2006; 24(1):19-22.
10. Sayegh A, Dini EL, Holt RD, Bedi R. Food and drink consumption, sociodemographic factors and dental caries in 4-5-year-old children in Amman, Jordan. *British Dental Journal* 2002; 193 (1): 37-42.
11. Necmi N, Vehit HE, Can G. Risk factors for dental caries in Turkish preschool children. *Journal of Indian Society of Pedodontics and Preventive Dentistry*. 2005; 23(3):115-118.
12. Brown LJ. Dental caries and sealant usage in US children 1988-1991. *Journal of American Dental Association* .1996; 127:335-343.
13. Haque MJ and Begum JA. Dental caries – a persisting problem in the pre-school age children. *Journal of Preventive and social medicine*. 1994; 13(2-4): 98-101.
14. Rahim MA, Sikder MNH, Kabir MH, Abdullah US. Studies on the DMF level among sugar in taking children. *Bangladesh Dental Journal*. 1996; 12(1):48-51.
15. Bhuiyan AM. Prevalence of dental diseases in Bangladesh. *Bangladesh Dental Journal*. 1988-89; 5(1): 6-9.