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Prevalence of Dental Caries in Children

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ABSTRACT:

This cross sectional study on oral condition among school going children in Sylhet city was conducted at Osmani Medical High School, Dorgah Gate, Sylhet, Bangladesh. This study was carried out on 8th October, 2019 among 208 students, mostly 12 years aged studying in Class VI. The main objective of the study was to assess the oral health condition of school going children through decayed, missing, and filled teeth (DMFT) status. Data was collected by personal interview and clinical examination of the respondents. Among 208 children, 96 (46.2%) were boys and 112 (53.8%) were girls. Among all, 63 (30.3%) respondents brush their teeth once daily while 137 (65.9 %) respondents brush twice a day, and 8 (3.8 %) of them brush their teeth more than twice daily. Fluoride containing toothpaste is used by 73 (35.1 %) students, 112 (53.8 %) students did not know whether their toothpaste contain fluoride or not, and 23 (11.1 %) students do not use fluoride. Among all respondents, 125(60.09 %) did not have any decayed tooth, while 83(39.90 %) had tooth decay, and 20(9.6 %) had their teeth filled. Normal gingival condition was found in 185 (88.94 %) subjects, but 23(11.06 %) of them had red or swollen gingiva. The mean DMFT of the study population was 1.19 which is considered as "low" according to "WHO quantification for the DMFT index".

KEYWORDS:

INTRODUCTION:

One of the essential components of general wellbeing is good oral health. Oral health status in developed countries children's are improving over the last few decades, One of the important parameters of oral health status in developing countries caries incidence, , is increasing markedly due to changing life-styles and dietary patterns.[1,2,3] According to World Health Organization (WHO), the most common global health burden are dental caries and periodontal disorders and most widespread chronic diseases of the modern era.[4, 5] The world oral health report 2003 revealed that in Asian countries 60-90% of school going children were dental caries affected. Increase the rate of school absenteeism significantly and decrease the rate of homework completion due to Poor oral health and untreated dental conditions .[6,7,8] It also imposes negative impact on the quality of life of children and adults. [9] Proper oral health education including knowledge on maintaining oral hygiene, impact of sugar consumption and role of preventive and restorative dental health service etc. at school level plays an important role to improve the oral health status as well as quality of life of the future generation.[10]

The oral health status can be simply examined by "Decayed, Missing, Filled Teeth index (DMFT index)" and the state of gingiva (color and condition of gum tissue). The DMFT index, first developed by Klein, Palmer and Knutson in 1938 and modified by WHO, was created to express caries experience. The D component is for untreated caries, M for missing teeth due to caries, and F for filling (dental restorations for caries treatment). The T means index per tooth. The WHO recommended protocol for oral health surveys is based only on clinical examinations. [11]

One of the major contributors to maintain good oral health is self care practice. [12] This study focus on collecting data on the teeth cleaning pattern and the materials used for that purpose along with data on DMFT index and gingival condition to assess the oral health status of the participators. Since these data among school going children in

Sylhet city are scarce and important for future dental public health planning, this study will provide important resource to the dental public health experts to make recommendations to the policy makers.

METHODOLOGY

This descriptive type of cross-sectional study was carried out at Osmani Medical High School, Dorgah Gate, Sylhet, on 8th October, 2019among 208 students aged average 12 years studying in Class VI. Sampling was done by convenient sampling technique. Data was collected by direct personal interview and clinical examination of the respondent students.

RESULTS:

Total 208 students, comprising of 96(46.2%) boys and 112(53.8 %) girls, of Osmani Medical High School, Dorgah Gate, Sylhet, participated in the study. The age of the respondents ranged from 11 to 14 years. (Table-1).

Table 1: Socio-demographic and educational characteristics of respondents.

Characteristics	Frequency	Percentage
Age of the respondents (In years)		
11-12	182	87.5%
13-14	26	12.5%
Gender of the respondents		
Boy	96	46.2%
Girl	112	53.8%
Educational level of the respondents		
Class VI	208	100%

Table-2 shows, 198 (95.19 %) of the respondents use tooth paste as their teeth cleaning material, but a large number of the students, 112 (53.8 %) don't know whether their teeth cleaning material contain Fluoride or not. Majority of the student brush twice or more a day.

Table 2.1: Frequency of teeth cleaning.

Characteristics	Frequency	Percentage
Tooth brushing frequency		
Once daily	63	30.3 %
Twice daily	137	65.9 %
More than twice	8	3.8 %

Table 2.2 : Materials of teeth cleaning.

Materials used for teeth cleaning	Frequency	Percentage
Tooth paste	198	95.19 %
Tooth powder	8	3.86 %
Miswak	2	0.96 %

Table 2.3 : Use of Fluoride containing toothpaste/Powder.

Tooth paste/powder containing fluoride	Frequency	Percentage
Yes	73	35.1 %
No	23	11.1 %
Don't know	112	53.8 %

Table 2.4 : Time of tooth brushing.

Characteristics	Frequency	Percentage	Cumulative Percentage
Before Breakfast	63	30.3 %	30.3 %
After Breakfast	20	9.6 %	39.9 %
After Dinner	2	1.0 %	40.9 %
Before Breakfast and After Dinner	94	45.2 %	86.1 %
After Breakfast and After Dinner	24	11.5 %	97.6 %
Before Breakfast and After Breakfast	2	1.0 %	98.6 %
Before Breakfast, After Breakfast and After Dinner	3	1.4 %	100 %

About 83 (39.90 %) of the respondents had one or more teeth affected by dental caries. 9 (4.3 %) of the participants lost one or more of their teeth due to caries and 20 (9.62 %) of them having at least one of their teeth filled at the time of the survey. The overall gingival status of the participant were good, only 23 (11.05%) of them were found having red/swollen gum during the survey (Table-3).

Table 3 : Frequency distribution of oral examination of the respondents

Characteristics	Frequency	Percentage
Number of decayed teeth of the respondents		
0	125	60.10%
1	38	18.27%
2	24	11.54%
3	14	6.73%
4	7	3.36%
Number of Missing teeth of the respondents		
0	199	95.67%
1	7	3.36%
2	2	0.96%
Number of filled teeth of the respondents		
0	188	90.38%
1	11	5.29%
2	7	3.36%
More than 2	2	0.96%
Gingival condition of the respondents		
Normal/Healthy	185	88.94 %
Red/Swollen	23	11.05 %

Table 4 shows, the mean DMFT found in this study was 1.19, which is "LOW" according to the quantification of the severity of dental caries defined by WHO parameters, 1986.

Table 4.1 : Distribution of respondents by decayed, Missing, Filled teeth and DMFT

DMFT	Frequency
Decayed	83
Missing	09
Filled	20
DMFT	247.5
Mean DMFT	1.19

DMFT	Frequency	Percentage (%)
No cavity	125	60.09 %
Decayed	83	39.8 %
Missing	09	4.3 %
filled	20	9.6 %

DISCUSSION:

This study found more than 53.1 % of the participant students were having either decayed or filled or missing teeth due to caries, which is bellow 90% found in school going children in Asian countries documented in The world oral health report 2003.[7]

Almost all students (95.19 %) use toothpaste as their teeth cleaning aid, which is similar, more than 90%, found among Malaysian adults aged 15 years. [13] Similar figures were found in most of the European countries and in Canada as well.[14] Though the percentage is very high, it is not surprising as emphasis to use toothpaste for brushing is provided in school education and also in all electronic media, and it is easily available and cheap in Sylhet city. Better socio-economic status compared to rural population also acts as a booster to maintain this practice.

More than 69% students brush twice or more times daily, which is in consistent with the children in Sweden, Denmark, Germany, Austria, and Norway.[14] Formation of dental plaque can be prevented if tooth brushing is practiced thoroughly at regular intervals and brushing twice a day is recommended by most of the dental experts to control bacterial plaque .[15] The study reveals that brushing twice a day becomes the common pattern of teeth cleaning and a norm among students.

Though most of the students use toothpaste and brush twice daily,

more than 53.80% of them don't know whether their toothpaste/toothpowder contains fluoride or not. Since the use of Fluoride is recognized as the most successful measures for caries prevention, improvement of knowledge on fluoridation can play a positive role. [16]

In this study around 11.05% students have swollen or red gum which indicates moderate to severe gingivitis. In UAE and in rural India it was found 20% and 25% respectively. [17, 18] Proper scoring, however, could increase the rate of moderate to severe gingivitis among school going children in Sylhet city.

Mean DMFT found in this study was 1.19 which is considered as "Low" according to the quantification of the severity of dental caries defined by WHO parameters, 1986. In Asia, the prevalence of dental caries in children is reported to be low to moderate as well.[19] Decayed teeth contribute to the majority of the mean DMFT score (1.53 out of 1.19) which is in consistent with other studies.[10, 11] Large number of decayed teeth, that is, untreated caries among school going children indicates inadequate access to the oral health service and lack of awareness among the parents which can lead to teeth loss and other dental diseases in future.

CONCLUSION:

Though the mean DMFT among school going children in Sylhet city is low and the overall gingival condition is good, the high rate of decayed or untreated caries indicates lack of awareness among the parents and also pointing towards the insufficiency of oral health service of that region. These issues need to be addressed as early possible to ensure general wellbeing and improve the quality of life. The teeth cleaning pattern, brushing twice a day with toothpaste, of the study population is well accepted. But lack of knowledge on fluoride could end up increasing caries incidence in future. Adequate fluoridation of drinking water, availability of fluoride containing toothpaste etc. are needed to be ensured to decrease the incidence of dental caries.

LIMITATION OF THE STUDY:

The findings of the study were discussed and interpreted considering several limitations including convenient sampling without randomization which in turn may not reflect the status of the target population leading to the chance of drawing biased information from the sample.

CONFLICT OF INTEREST : Author declared no conflict of interest

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