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Prevalence of Dental Caries among 10-17 Years Old Children of a Selected School of Narayanganj, Dhaka

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Abstract	Original Research Article

Introduction: Dental Caries is the most common and frequent disease affecting 60- 90% of all children across the world. Because Dental caries later results into tooth pain, discomfort, eating disorder, edentulism, delayed language development. Approximately, 80% of children attend lower secondary school so ensuring to have preventive oral health services in school would help them stay healthy and ready to learn about oral diseases. ***Aim of the Study****:* The aim of this study was to assess the prevalence of dental caries among 10- 17 years old children of a selected school in Narayanganj. ***Methods:*** This was a descriptive type of cross-sectional study conducted at 'Fotullah Pilot High School', Narayanganj, Dhaka on 6th February 2016. ***Result:*** In total 252 children completed the study. In our study we found that among the total 252 subjects 58 were boys and 194 were girls. Total caries prevalence was found 53.97% where 27.20% were boys and 72.79% were girls. Significant Caries (SiC) Index was found 1.89. The Global Goals for Oral Health in the year 2000 proposed to reduce the SiC index among the 12-year-olds to less than 3 DMFT by the year 2015, globally. The mean DMFT value was found 0.7 for the age group (10-17) year's old children. We also found mandibular caries rate 67.65% is higher than maxillary caries rate 32.35%. In case of boys the maxillary caries rate 45.94% is higher than girls 28.12%. And in case of girls the mandibular caries rate 72.73% is higher than boys 54.05%. ***Conclusion:*** Dental caries prevalence in rural areas of Bangladesh is lower than that of urban population. In this study we also found it satisfactory. But as development is progressing in rural areas, consumption of fast foods & chocolates is increasing day by day in rural areas as well which will increase caries prevalence in near future if oral hygiene instruction is not provided in school curriculums.
Keywords: Dental caries, Prevalence, Oral disease, Children.

INTRODUCTION

Dental Caries is the most common and frequent disease affecting 60- 90% of all children across the world [1]. Approximately, 80% of children attend lower secondary school so ensuring to have preventive oral health services in school would help them stay healthy and ready to learn about oral diseases [2]. Because Dental caries later results into tooth pain, discomfort, eating disorder, edentulism, delayed language development [3, 4]. The school stage (10-17 years) should be considered as an influential period throughout which every child puts out health related behaviors, faiths and attitudes and that the disease is irreversible, attempts should be focused on revealing factors that predispose/resist students to dental caries during this stage [5-7]. School is the vital and prime platform for the encouragement of oral public health for the students, as well as for other people of the community. Therefore, in this study we aimed to assess the prevalence of dental experience in 10-17 years old primary school children in Narayanganj, Dhaka.

OBJECTIVE OF THE STUDY

The main objective of the study was to assess the prevalence of dental caries among 10- 17 years old children of a selected school in Narayanganj.

METHODOLOGY & MATERIALS

This was a descriptive type of cross-sectional study conducted at 'Fotullah Pilot High School, Narayanganj, Dhaka on 6th February 2016. A total of 252 children aged 10-17 years of were selected by purposive sampling technique. These are the following criteria to be eligible for the enrollment as our study

participants: a) Children belonged to 10-17 years old ; b)Children with dental caries; c) Children suffering from pain due to dental caries ; d) Children who were allowed to participate in the study by their guardians And a) Children with previous surgical history; b) Children with known allergy to study drugs; c) Children with any history acute illness (e.g., renal or pancreatic diseases, ischemic heart disease etc.) were excluded from our study.

Data were collected through direct interview & clinical examination of the school children. Examination was done upon verbal consent of the respondents. Data analysis was done using SPSS version 25.
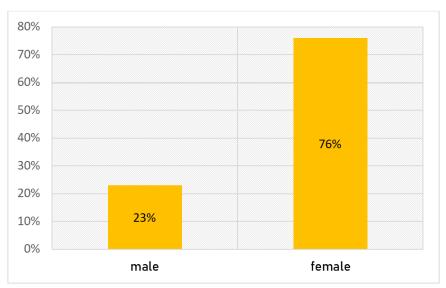
RESULTS

Figure 1: Distribution of our study respondents based on gender

Table 1: Prevalence of dental caries among study population

Age in years	Sex	Examined	Caries		p-value
			N	**%**	
10-17	M	58	37	27.20%	0.08
	F	194	99	72.79%	
	Total	**252**	**136**	**53.97%**	

Table 2: Distribution of study population based on arch wise prevalence of dental caries

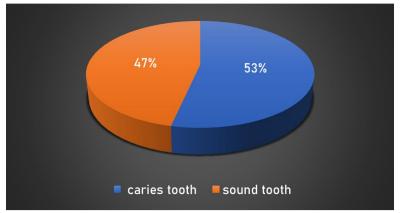| Sex	Examined	Maxillary Arch Caries		Mandibular Arch Caries		p-value
		N	**%**	**N**	**%**	
M	58	17	45.94%	20	54.055	0.001
F	194	27	28.12%	72	72.73%	
Total	**252**	**44**	**32.35%**	**92**	**67.65%**	

Figure 2: Distribution of the respondents based on the caries condition.
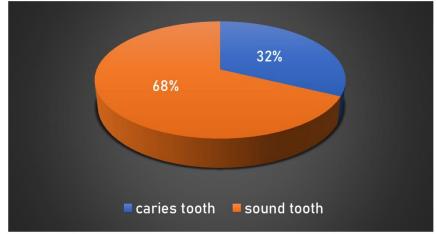
Figure 3: Distribution of study respondents based on maxillary arch caries scenario
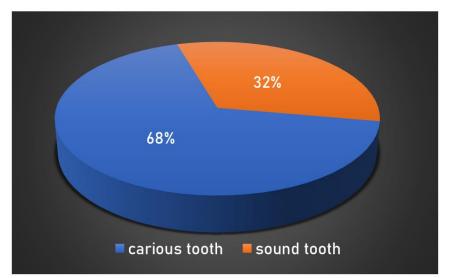

Figure 4: Distribution of study respondents based on mandibular arch caries scenario.

In figure 1 we showed the distribution of our study respondents based on gender. We found that among of the 252 children 58 (23.01%) were male and 194 (76.98%) were female.

In table 1 we showed the prevalence of dental caries among study population. We found the DMFT score was 0.7. Overall caries prevalence was 53.97% (136). SiC index was 1.89. Prevalence among boys was 27.20% (37) & prevalence among girls was 72.79% (99). P-value is greater than 0.05, so we believe that the variables are independent. So, there was no association found between sex & occurrence of caries.

Table 2 showed the distribution of study population based on arch wise prevalence of dental caries. We found the caries prevalence was 32.35% (44) in maxillary arch and 67.65% (92) in mandibular arch. Among boys, the maxillary arch showed lower caries level (45.94%) than the mandibular arch (54.05%). However, among girls, the maxillary arch also showed lower caries level (28.12%) than the mandibular arch

(72.73%). p-value is less than 0.05, so we believe that the variables are dependent.

In figure 2 we showed the distribution of the respondents based on the caries condition. The prevalence of caries tooth was found 54% which is significantly higher than the prevalence of sound tooth (47%).

In figure 3 we showed the distribution of the respondents based on maxillary arch caries scenario. The prevalence of maxillary arch caries was found 32% and the prevalence of sound tooth was 68%.

In figure 4 we showed the distribution of the respondents based on mandibular arch caries scenario. We found the prevalence of mandibular arch caries was 32% and sound tooth was 68% respectively.

DISCUSSION
The Decayed, Missing, and Filled (DMFT) Teeth index is being used since the 1930 and still now is a popular population-based measure of caries

worldwide. This index gives the total of an individual's decayed, missing, and filled permanent teeth and average of a population.

Significant Caries index (SiC) is a better indicator in this case because it records the individuals with the highest DMFT values. So, we also measured the SiC.

In present study the dmft score of the 252 respondents was 159 and the mean dmft was 0.7. The SiC index is 1.9. This study shows higher caries prevalence in case of girls, so these results were like studies reported by Misra and Shee, Gaikwad and indurkar and Singh and Saimbi *et al.,* where girls were found having higher caries prevalence [8-10]. The caries experience showing a skewed distribution means that there is a subgroup of the population with a higher severity of the disease.

CONCLUSION

Dental caries prevalence in rural areas of Bangladesh is lower than that of urban population. In this study we also found it satisfactory. But as development is progressing in rural areas, consumption of fast foods & chocolates is increasing day by day in rural areas as well which will increase caries prevalence in near future if oral hygiene instruction is not provided in school curriculums. Parents should also be advised to ensure proper brushing of their kids under direct supervision. Parents should be aware of the dental health of their children. Parents/teachers meetings should be regularly organized during which parents are educated on the importance of good hygiene practice in diseases prevention. Oral health education should be incorporated within the regular activities of the school. So more & more 'School Dental Public Health Awareness Programs' like those arranged by 'Tooth Fairy Foundation' should be emphasized & welcomed.

ACKNOWLEDGEMENTS

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