

Assessment Oral Hygiene Practices, Prevalence of Dental Caries and Oral Hygiene among Schoolchildren Aged 6 to 12 Years Old

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Abstract: Dental caries is considered as the major health problem among children studying in school in Bangladesh. The aim of the study is to evaluate the pervasiveness of dental care and oral hygiene among school children aged 6 to 12 years old. A cross-sectional descriptive survey was carried out at Department of Dentistry, Bangladesh Shishu Hospital & Institute, Dhaka, Bangladesh from January to June 2023. Total 100 dental caries is considered as the major health problem among children studying in school in Bangladesh. The pervasiveness of dental caries was evaluated with WHO criteria, and to evaluate oral hygiene of school children the questionnaire method was used. All participants were asked 13 questions closed-ended questions. The population studied consisted of 100 school children from the ages of 6 to 12 years in public schools, Dhaka city. There were 46 (46.0%) female and 54 (54.0%) males' students. Table 1 shows the prevalence of dental cavity among the students and the relation between gender and dental cavity. The oral examination of the students found that 63.0% have dental cavity while 37.0% don't have dental caries. The results also showed that 59.2% of males have dental cavity while 67.4% was for females. P-value was 0.086 which was more than 0.05, that there wasn't a statistically significant difference between gender and dental cavity. The results of this study revealed that the dental caries was a bit high among the participants and welfare oral hygiene among the target children. For recommendation we advise to take care of oral hygiene in regard with cleaning the mouth and regular visiting the dentist. Therefore, this study could benefit all the students and can provide at least a authority for the development of school oral health program to encourage students for oral hygiene practicing that help to decrease the level of dental caries.

Keywords: Dental Caries, Oral Hygiene, School Children.

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INTRODUCTION

Tooth decay is ubiquitous and therefore remains one of the most prevalent diseases of humankind [1]. Oral health is essential for the overall health of your child. Therefore, maintaining oral hygiene in school children is of paramount importance [2]. Oral health is a preventive factor against chronic pain in the mouth and face, cancer of the mouth and throat, stomatitis, congenital anomalies such as cleft lip and crooked lip, periodontitis, caries and tooth loss, and other diseases and disorders of the oral cavity. Periodontitis in humans may be associated with systemic diseases such as diabetes, heart disease, and premature birth [3, 4]. It is considered ideal to develop health and oral hygiene programs for children of that age group that recommend preventive measures [5]. Dental disease is preventable and, despite scientific advances in treatment, it remains a major public health problem, primarily affecting

children. It is a cumulative process that will eventually lead to tooth loss if not intervened at an early stage. Dental disease is also the most common oral disease-causing school absenteeism and unemployment [6]. Children with poor oral health are 12 times more likely to miss school or have a day of restricted activity than children with poor dental health [7]. Children are a very important part of a country's demographics, and their health will affect the country's future. Furthermore, oral health is the result of a lifelong learning process. This process can best be achieved through an integrated collaboration between dentists and other professionals such as psychologists and teachers [8, 9]. Good oral hygiene should begin at an early age and should be monitored by adults until age 8 to prevent caries [10]. Provide a source of water and nutrients, and a moderate temperature [11]. The oral microbial community is one of the most complex in the human body. Some of these

Peer Review Process: The Journal "Middle East Research Journal of Dentistry" abides by a double-blind peer review process such that the journal does not disclose the identity of the reviewer(s) to the author(s) and does not disclose the identity of the author(s) to the reviewer(s).

bacteria are associated with oral diseases such as dental caries and periodontitis, which are among the most common bacterial infections in humans [12]. Dental caries is a significant health issue for people of all ages, but the extent of the problem is greatest in young children¹⁰. Despite reliable scientific advances and the fact that dental caries is preventable, the disease remains a significant health problem¹¹. Untreated dental disease and poor oral hygiene can have a devastating effect on the quality of life of school children, which in turn affects their overall health [13]. This is therefore a seminal period in people's lives when oral health behaviors, beliefs and attitudes can be established that are sustainable throughout their lives, with long-term benefits. Therefore, this is an influential period in people's lives, when oral health behaviors, beliefs, and attitudes that are sustainable throughout life are established, resulting in longer-term benefits. Furthermore, these messages can be reinforced throughout the school [14]. Oral health is considered a global problem, and tooth decay is the most common dental disease among people, especially for young children. There are many issues related to childhood caries that are still not understood. Therefore, it is very important to screen for these in order to improve caries prevention. This target age was chosen based on the start of permanent tooth eruption at 6 years old and end at about 12 years old, because previous studies have shown that oral health problems seem to be a significant issue even in children with permanent teeth.

MATERIAL AND METHODS

A cross-sectional descriptive survey was carried out at Department of Dentistry, Bangladesh Shishu Hospital & Institute, Dhaka, Bangladesh from January to June 2023. Total 100 dental caries is considered as the major health problem among children studying in school in Bangladesh. The pervasiveness of dental caries was evaluated with WHO criteria, and to evaluate oral hygiene of school children the questionnaire method was used. All participants were asked 13 questions closed-ended questions. Dental examination was performed according to World Health Organization criteria using dental mirror and dental explorer.

Dental examination was performed according to World Health Organization criteria using dental mirror and dental explorer. The collected data were analyzed using Statistical package for social science (SPSS) version 23.

RESULTS

The population studied consisted of 100 school children from the ages of 6 to 12 years in public schools, Dhaka city. There were 46 (46.0%) female and 54 (54.0%) males' students. Table 1 shows the prevalence of dental cavity among the students and the relation between gender and dental cavity. The oral examination of the students found that 63.0% have dental cavity while 37.0% don't have dental caries. The results also showed that 59.2% of males have dental cavity while 67.4% was for females. P-value was 0.086 which was more than 0.05, that there wasn't a statistically significant difference between gender and dental cavity.

Table 1: Prevalence of dental caries and the relationship between gender and dental caries

			Dental caries		Total	p-value
			Yes	No		
Gender	Male	No.	32	22	54	0.086
		Percentage	59.2	40.8	100.0	
	Female	No.	31	15	46	
		Percentage	67.4	32.6	100.0	
Total		No.	63	37	100	
		Percentage	63.0	37.0	100.0	

P-value <0.05 Significant, P-value <0.01 highly significant, P-value > 0.05 non-Significant

Figure 1 shows the students oral hygiene. In this study, oral hygiene was found very good among the target students. In which the findings revealed that students who describing their health of teeth and gums as very good, good, poor and don't know, were 52.0%, 28.0%, 9.0% and 11.0% respectively. Regarding to uses oral hygiene aids, the students who using brush and toothpaste as a method of cleaning the mouth was the common with 80.0% of the students, mouth wash was

with 3.0%, toothpicks was used with 1.0% and Miswak was 1.0%, dental floss was used by one student 0.3%, however 15.0% of the students did not answer. Additionally, students who brushing their teeth in the morning were 61.0% while 3.0% and 21.0% of the students brushing in the noon and before bed respectively, and 15.0% with no answer. Besides, students who spend less than one minute on teeth brushing were 23.0%, who spend one minute were

30.0%, who spend two minutes were 20.0% and for the students who spend more than two minutes were 11.0%, no answer was for 16.0% of students. Furthermore, students who brushing their teeth once a day 32.0%,

33.0% were the students who brushing twice, while 16.0% for the students who brushing more than twice. However, the students who don't brush at all were 18.0%.

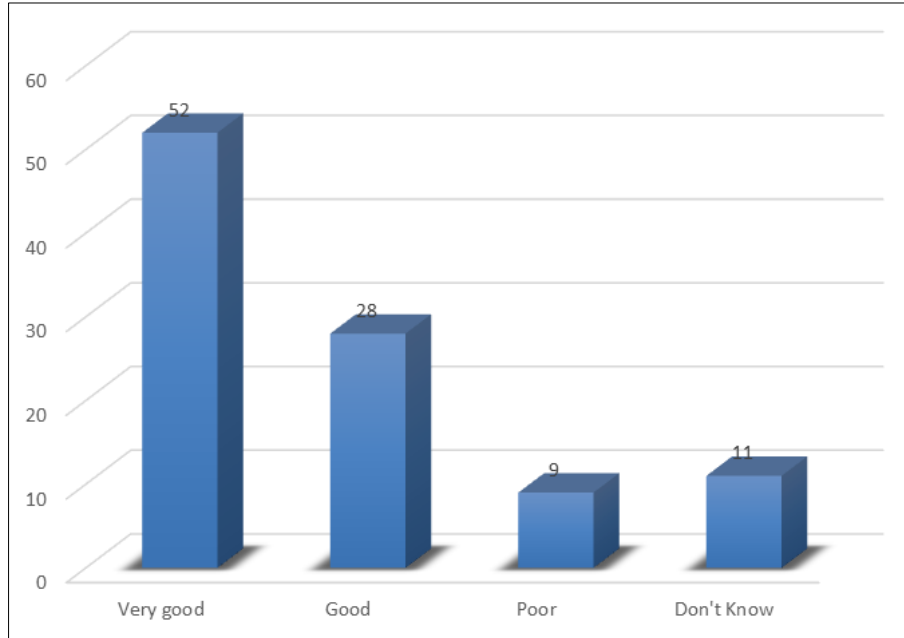


Figure 1: Students oral hygiene.

As for the role of parents in surveillance of oral hygiene, the response for the role of parents in supervision of oral hygiene was 22.0% of the children who their parents watch while brushing, 27.0% just advice their children, 31.0% their parents never cared where as children who only their mothers watch were 20.0%. With respect to number of times a pain or problem has occurred in the teeth or mouth, the experiencing pain or any problem in the teeth or mouth, 22.0% of children said many times, 35.0% occasionally, 35.0% never and 6.0% don't remember, as well as, 2.0% of the students have no answer. Concerning to the number of times a dentist visit last year, visiting the dentist in the last 12 months, a total of 25.0% of the children said once, 12.0% said twice, 9.0% more than

twice visit the dentist and students who never visit the dentist were 52.0% as well as, 2.0% of the students have no answer. In relation to the type of treatment, the results illustrated that, type of dentist treatment was extraction for 16.0% and filling for 10.0% of the students, whereas 21.0% of them for others like orthodontic or space maintainer, as well as 53.0% of the students have no answer. As for the students who never visit the dentist, 8.0% of them said that the reason was fear of dental treatment, 7.0% of them said the cost of treatment is high, 21.0% of them said there is no pain or problem in their teeth and gums, and 18.0% don't care about getting treated by a dentist, also 46.0% of the students have no answer.

Table 2: Assessment of oral hygiene knowledge among the schools children

Expressions		Yes	No	P-Value	Degree of agreement
Teeth are an important part of your body	No.	98	2	0.000	High
	%	98.0	2.0		
Daily cleaning of teeth can prevent dental caries	No.	95	5	0.000	High
	%	95.0	5.0		
Regular visit to dentist helps to keep your teeth in healthy state	No.	96	4	0.000	High
	%	96.0	4.0		
Consuming sweetened food products or drinks does not cause dental caries	No.	6	94	0.000	Low
	%	6.0	94.0		

Table 2 shows assessment oral hygiene knowledge among the schoolchildren. The last section in

the questionnaire was to assess oral hygiene knowledge by using the binomial test. If (P-value) less than 0.05 and

the ratio was greater than 50%, the agreement level was high. If (P-value) was less than 0.05 and the ratio was less than 50%, the agreement level was low. If the (P-value) was greater than 0.05, this means that the agreement level was moderate. The results were 98.0% of the children agreed for teeth are an important part of the body, while 2.0% and 0.0% disagreed and don't know respectively. For daily cleaning of teeth can prevent dental caries, 95.0% of the students agreed whereas 5.0% said disagreed and 0.0% don't know. As well as, 96.0% agreed while 4.0% disagreed and 0.0% don't know for regular visit to dentist helps to keep teeth in healthy state. Regarding consuming sweetened food products or drinks does not cause dental caries; the students who agreed were 6.0% whereas 94.0% who disagreed and 0.0% don't know.

DISCUSSION

Dental caries is commonly seen among school children. Dental caries is the most widespread non-communicable disease, which needs immediate attention [15]. Oral health is an integral part of general health. In the long run, dental caries can result in frequent school absenteeism. Globally, it has been estimated that 60 to 90% of school children have dental caries [16]. The prevalence of dental caries has decreased in many developed countries over the past three decades [17]. Dental cavity is a compelling health problem among the people of all ages but the magnitude of the problem is big among young children [3]. Oral hygiene is the most effective measure to prevent dental caries and periodontal disease [18]. According to the findings of this study, dental caries prevalence among the target children was 63.0% which is a bit lower than a previous study in India on school children aged from 7 to 12 years which revealed the prevalence of dental caries was 65% [10]. In another two studies on schoolchildren in Saudi Arabia, the prevalence of dental caries was 91.3% [19], and 96% [20], which both are significantly higher than our result. However, Clara *et al.*, [21], reported the pervasiveness of dental caries of 12.2%, which is lower than our study. Caries prevalence is often associated with gender. In this study, girls exhibited higher caries compared with boys of similar age. The recent WHO guidelines recommend a reduction in the intake of free sugars to less than 5% of total energy intake to reduce the risk of dental caries [22]. Dental caries is caused by the interaction of oral bacteria, mainly *Streptococcus mutans*, and dietary carbohydrates on tooth enamel. The bacterial fermentation of the dietary sugars produces organic acids that reduce the oral pH. This results in demineralization, progressive loss of the teeth enamel and cavitations of the teeth. The findings in this study are in agreement with Manal & Yasser [20], who mentioned that the boys had a higher pervasiveness of dental caries than girls. With regard to oral hygiene practicing, our

study revealed that students who brushing their teeth once a day were 31.8% compared to another study in India on 12 years old students showed that 42.0% cleaned their teeth at least once a day [23]. In a previous studies by Xenith & Islam [3], has conducted on school children in Bangladesh, found that children brushed their teeth twice daily were 50%, while Amanuel *et al.*, [24], in Eritrea reported 19.0%. However, in our study was 33.0%. In the present study, cleaning teeth with tooth brush and tooth paste was the common aid for oral hygiene with 80.0%. However, in India was 71.0% [23] and in Jordan was 83.0% [25]. As well as, Miswak was used by 1.0 % of the students in the present study compared to 2% in a study in Sudan [26]. Also, Mahmoud *et al.*, [25] revealed that 36.0% of students brushing at morning while 53.0% before bed, compared to this study which showed 61.0% and 21.0% respectively. Significantly, there was good oral hygiene knowledge among the students in this study, with regard to teeth brushing regularly can help caries prevention 95.0%. This result is higher than to that in a study by Abhishek & Gurkiran [23], which was 83.0%. Additionally, the students in the present study had positive opinion regarding regular visiting a dentist helps to keep teeth healthy 96.0% which is clearly high compared to Abhishek & Gurkiran [23], study which was 69.0%. Lastly, 94.0% of the students in our study answered that consuming sweetened food or drinks does not cause caries is false, which showed that the participants in this study more aware compared to the study of Abhishek & Gurkiran [23], that revealed the respond for the same statement was only 42.0%. These differences in percentages in our study and the other studies could be related to many factors that include socioeconomic status, cultural differences, and dietary habits, differences in oral hygiene practicing and knowledge and sample size. Good dental health is essential for maintaining overall nutrition and general health. In the present study, the prevalence of dental caries was found to be high among school children. The study also highlighted that children who consumed sweets daily, not having vegetables and fruits every day and not practicing night brushing had a higher prevalence of dental caries.

CONCLUSION

The pervasiveness of dental caries was found to be higher among the female children than male children in this study but there wasn't a statistically significant difference between genders. With regard to oral hygiene, there was good oral hygiene knowledge among the target children.

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