Original Article

Prevalence of Common Dental Problems among Primary School Children in a Rural Area of Mymensingh

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Abstract

Introduction: In Bangladesh little is known about the prevalence of dental problems, hygiene practices and dietary factors among school age children.

Methods: This cross-sectional study was conducted at Ramganj Govt. Primary School, Mymensingh, Bangladesh from June 2022 to May 2023. A total of 79 students were included in the study. The sampling procedure was a purposive sampling. To collect required information personal interview was taken by using a pre-tested questionnaire & dental condition was examined. The collected data were analyzed using SPSS version 20.0.

Results: In this study, among 79 students which 47 *(*58.49*%)* had tooth problems*:* 34 dental caries *(*43.04*%)*, 9 gingivitis *(*11.39*%)*, 6 dental abscess *(*7.59*%)*, 10 dental calculus *(*12.66*%)*, and 1 had periodontal inflammation *(*1.27*%)*. The problems were overlapping. Tooth-brushing 96-20*%*, daily bathing 94-94*%*, hand-washing after defecation were 96-20*%*, hand-washing before meal 98-73*%*. Most of them brush once and that is before breakfast. 36.71*%* consume balanced food. Consumption of calcium, Vitamin D precursors and Vitamin C rich foods were mostly acceptable.

Conclusion: Important problems are dental caries and dental calculus. Improvement requires health education, dental care and raising awareness among children. More surveys are needed.

Keywords: Dental problems, Primary school children, Dental caries, Oral hygiene, Health education

Journal of Dentistry and Allied Science, Vol 8, No 1
Article Received: 28 Jul 2024, Accepted: 18 Sep 2024
DOI: https://doi.org/10.3329/jdas.v8i1.81767

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Introduction

Bangladesh has a surface area of 147,570 sq km, enumerated population of 14.23 crore and adjusted population of 14.98 crore. [1,2] Population in Bangladesh dated 16th July 2012 was 15.25 crore [3]. A nationwide survey shows 13.3% of population is in the age group of 5 to 9 yrs (primary-school age population). [4] Mymensingh is a district of Dhaka division with population of about fifty three lakh. [2,3] Bangladesh has 80401 primary institutions [5]. Mymensingh Sadar upazila has 474 primary schools of different kinds with 1,01,860 students [6]. Most Bangladeshi children attend school. Almost nine in ten children age 6-10 are in school however 50 percent of children drop out in primary school. [5,7] Dental health problems are common school health problems. There are 23 school health clinics in Bangladesh among which there is one in Mymensingh. Dental health care is a component of primary health care in Bangladesh. Still preliminary report of the 2011 Bangladesh Demographic and Health Survey does not include oral and dental health statistics. A 2011 working paper by the BRAC Research and Evaluation Division entitled "Why Do I have to clean Teeth Regularly" state that there have been no population based surveys in Bangladesh for statistics on dental health problems or dental health care seeking behavior. [8] A Hospital based study carried out at the faculty of Dentistry, BSMMU, Dhaka in 2004 found high rate of gingivitis 89%. [9] Lack of toothache is equated to healthy teeth by general people. People perceive that tooth problems are not life threatening like diarrhea, pneumonia or malaria. However, a child may not come to school for tooth problems. It can hamper study. Tooth problems cause discomfort and pain that may escalate into needing emergency treatment often result in tooth extraction. Dr. Robert Genco, editor, Journal of Periodontology told: «People often associate gum disease with their teeth but overlook that it is a serious infection capable of releasing bacteria into the bloodstream». [10] Oral cavities are a portal of entry and the site of diseases for microbial infections that affect the overall health. Bad oral hygiene can lead to oral cancer, stomach ulcer, diseases of gastrointestinal tract, respiratory tract and cardiovascular diseases. Good overall health cannot be achieved or maintained without strong dental health. Tooth is important for biting, chewing, speaking and smiling. A smiling face with shiny teeth impresses others. Dental health is a part of oral health. According to WHO: "Oral health is a state of being free from chronic mouth and facial pain, oral and throat cancer, oral sores, birth defects such as cleft lip and palate, periodontal (gum) disease, tooth decay and tooth loss, and other diseases and disorders that affect the oral cavity".[11] Globally, 60–90% of school children suffer from dental cavities. Key risk factors for oral diseases include poor oral hygiene, an unhealthy diet, tobacco use, excessive alcohol consumption, and social determinants.[12] In Bangladesh more than 80 percent of the people have dental diseases. Many suffer from periodontitis, gingivitis, dental caries, pulpitis, alveolar abscess etc. [13] Though the disease burden is enormous we have insufficient workforce in dentistry. Cuba has 16.3 dental practitioners per 10,000 people. In comparison Bangladesh has a mere 0.2.[14] Our study tries to focus on common dental health problems prevalent among school children and identify dietary and hygienic practices linked with dental problems.

Methods

A cross-sectional descriptive study was conducted at a primary school in a rural area of Mymensingh during June 2022. The study aimed to explore common dental problems among primary school children. A total of 79 students, both male and female, aged 5 to 10 years, were purposively selected. This age group represents the mixed dentition period, which is crucial for tooth development and oral health maintenance. Data were collected through direct interviews using a pre-prepared questionnaire. The collected data were analyzed using SPSS version 20.0.

Results

According to data, the students were from class I to Class II. In the sample, most of the students were taken from Class II. The age range was from 5 years to 10 years. Mean Age 7 years 5 months with standard deviation 1 year 4 months. According to data, the predominant age groups were 8yrs and 7 yrs. 49.37% were boys and 50.63% were girls. Most of the fathers were workers, day-laborers and drivers. Most of the mothers were housewife. Most of the fathers 67.09% and mothers 77.22% were illiterate. Most of the family belongs to poor class 86.08%. Age and number of tooth had positive correlation (Figure 1). Correlation co-efficient value was 0.30. Most of the students had mixed dentition (Table 1). Number of tooth, type of dentition and quadrant notation show that dental age corresponds with chronological age (Figure 2). Most of the tooth were intact, smooth and without spots. Tooth-brushing (96.20%), daily bathing 94.94%, hand-washing after defecation 96.20%, hand-washing before meal 98.73% and gurgling was 34.18%. Most of the students brush once and that is before taking breakfast. Most of the students use toothbrush and toothpaste. Consumption of balanced food was 36.71%. Consumption of toffees, candies, chocolates, sweets, sweetmeats, biscuits, potato-chips, cakes, pasties was 31.65%. Foods that require mastication and fiber rich foods were mostly acceptable. Consumption of Calcium rich food, Vitamin-D precursor foods and Vitamin C rich foods were mostly acceptable. Figure 9 shows the

spectrum of tooth problems. There were 34 students with dental caries (43.04%): 23 students had dental caries only and others had overlapping problems, 9 students with gingivitis (11.39%): 4 students had gingivitis only and others had overlapping problems, 6 students with dental abscess (7.59%): 2 students had dental abscess only and others had overlapping problems, 10 students had dental calculus (12.66%): 5 students had dental calculus only and others had overlapping problems. 1 had periodontal inflammation along with other problems. 32 students had no problem and 47 students had overlapping problems: the dominant problems were dental caries, dental calculus and gingivitis. Figure 10 shows the spectrum of symptoms of school students. There were 22 students with toothache, 1 student had tingling sensation of tooth, 1 student had gum bleeding, 4 students had swelling of gum and 6 students had purulent discharge from gums, 5 students had jaw-ache, 12 students had overlapping generalized symptoms like fever, headache, eye-ache, earache.

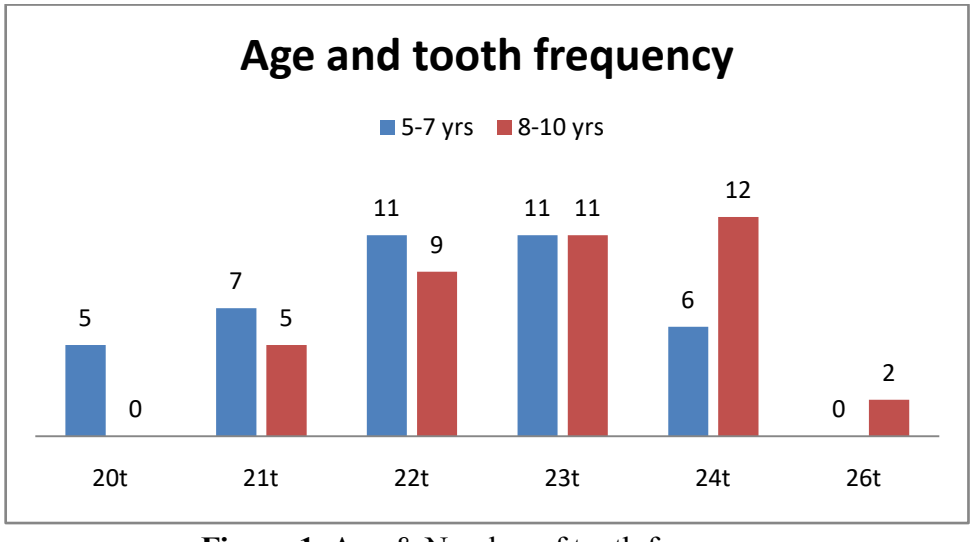

Figure 1: Age & Number of tooth frequency

Table 1: Age & Type of dentition

Age	Type of dentition	Frequency
5 yrs	Milk	5
6-10 yrs	Mixed	74

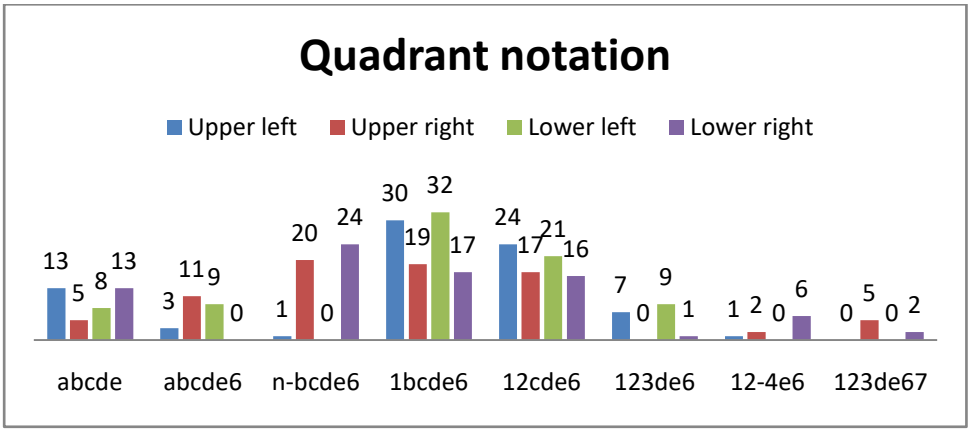

Figure 2: Quadrant notation of tooth

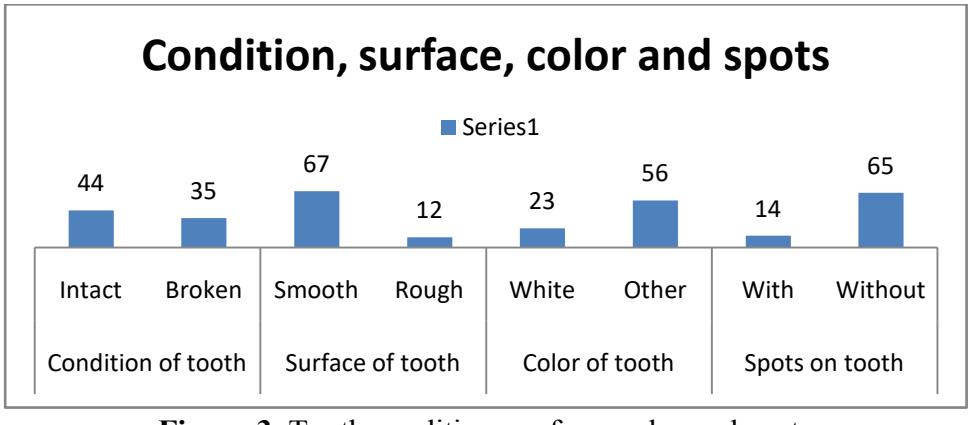

Figure 3: Tooth condition, surface, color and spots

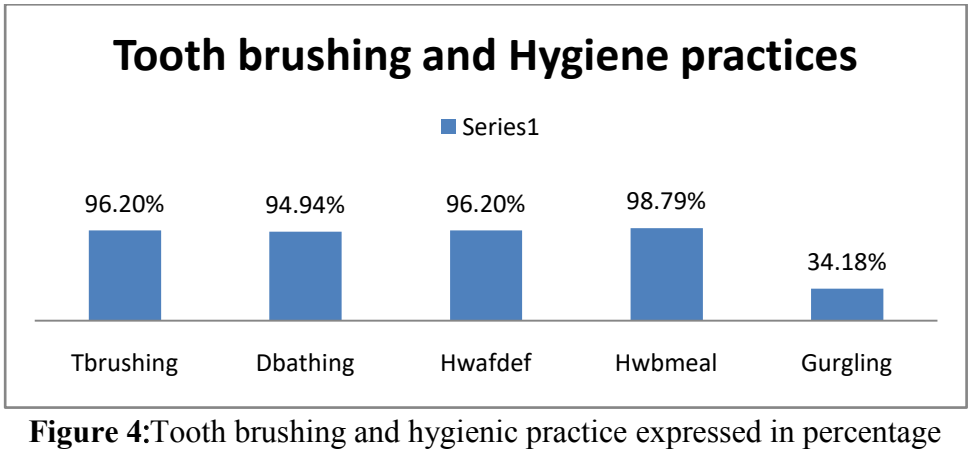

Figure 4: Tooth brushing and hygienic practice expressed in percentage

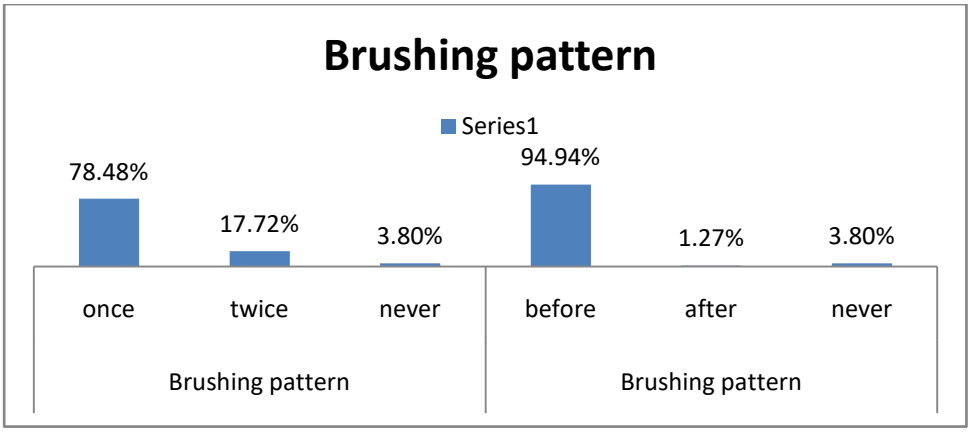

Figure 5:Brushing pattern

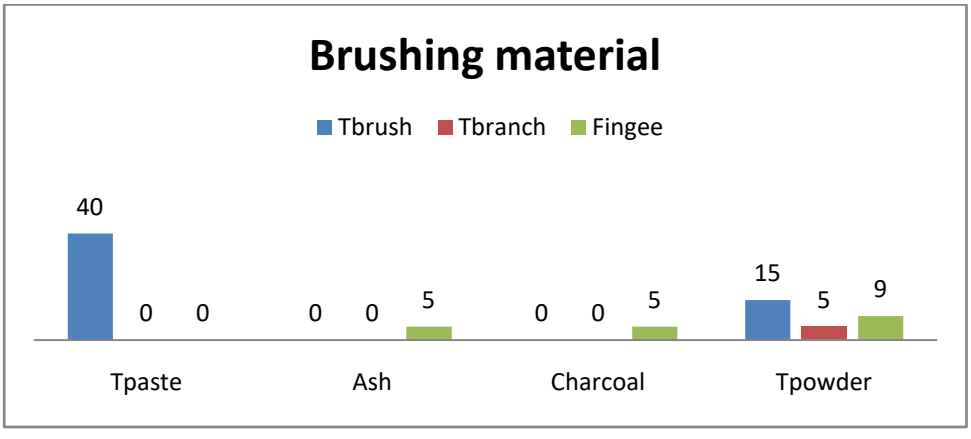

Figure 6: Brushing material

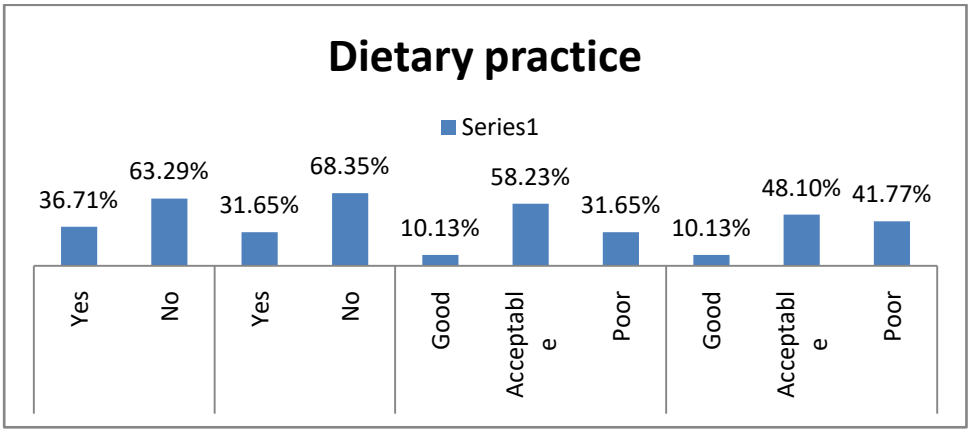

Figure 7:Dietary practice of school students

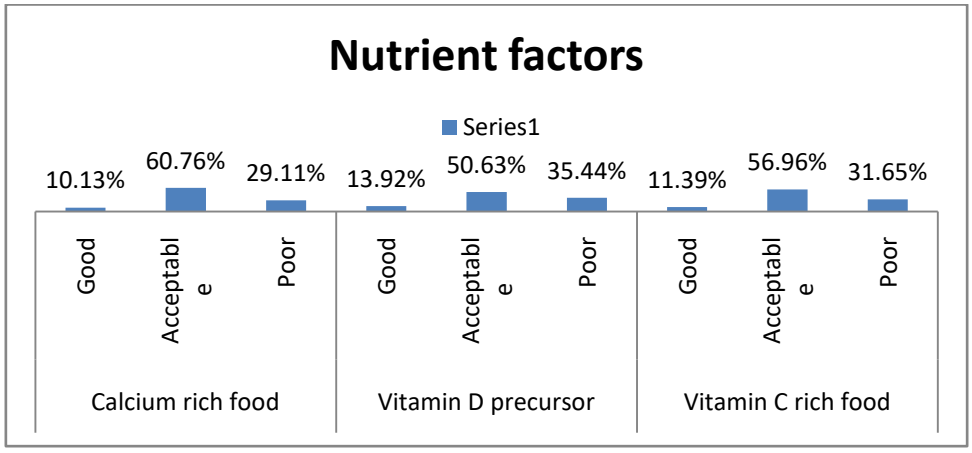

Figure 8: Nutrient factors of school students

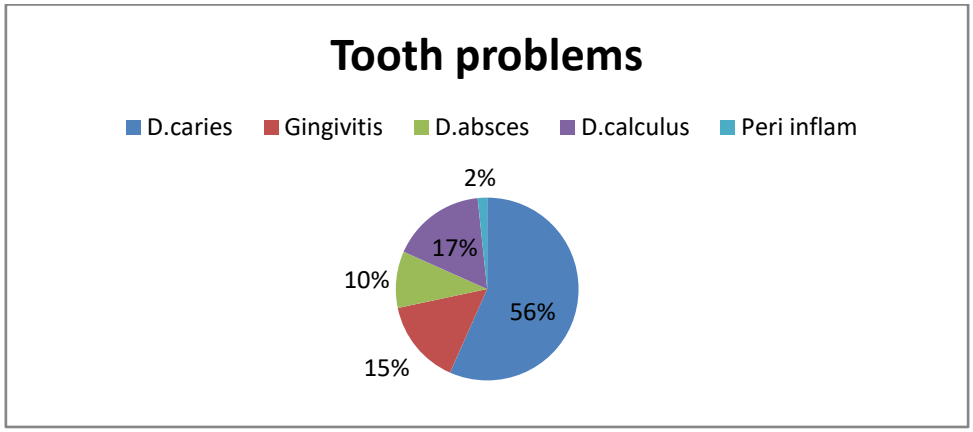

Figure 9: Tooth problems

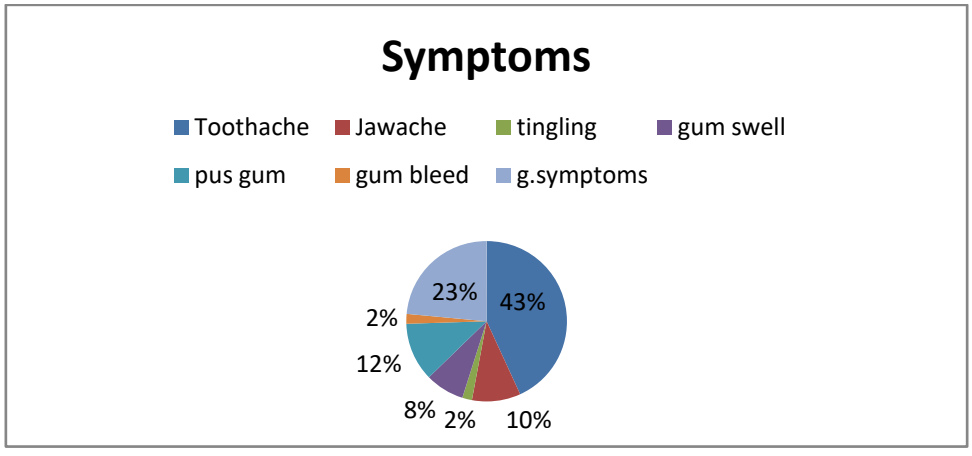

Figure 10: Symptoms of school students

Discussion

In our study there was 1.27% periodontal inflammation. In our study Calcium enriched food good was 10.13%, acceptable was 60.76 % and poor was 29.11 %. The result of an American study suggests that low dietary intake of calcium results in severe periodontal disease. [28] In our study Vitamin D precursor food good was 13.92%, acceptable was 50.63 % and poor was 35.44 %. According to U.S. studies- People with lower vitamin D levels had more attachment loss. [29] In our study daily bathing was 94.94 %, hand washing after defecation was 96.20%, hand-washing before taking meal was 98.73 % and daily tooth brushing was 96.20 %: brush once 78.48%, twice 17.72% and never 3.80%. Morning tooth brushing was common to all children: 94.94% before breakfast, 1.27% after breakfast and 3.80% never. 69.62% of the children brush teeth with toothbrushes, 50.63% brush teeth with fluoride containing toothpaste. Those who use fluoride containing toothpaste 100% of them use available marketed toothbrushes. In a Nepalese study daily tooth brushing was 90%, bathing two or more times a week was 47% and the rest once a week or less. General Personal Hygiene was associated with tooth-cleaning frequency. Those who clean their tooth once a day or more 88% of them clean their hands before taking their meal and those who clean their tooth never or seldom 77% of them wash their hands before meal. Of all children 22% cleaned their teeth twice a day, 59% once a day, 9% less than once a day and 10% not at all. 98% clean teeth in the morning: 63% before breakfast and 35% after breakfast. 82% of the children had their own toothbrushes. Of all children 9% used a toothbrush with fluoride toothpaste, 66% with non-fluoride toothpaste, 7% only used a toothbrush, 7% used hand and ash and 51% sometimes used hand and wash and sometimes a toothbrush and paste and 10% did not clean their teeth at all.[30] In a Bangladeshi study 33.2% of the school children brush tooth with tooth brush.[31] In our study 43.04% had dental caries. A Bangladeshi study found prevalence 69.6%.[31] In a Nepalese study 35% had dental caries. [30] In an Indian study dental caries 44.4% in 5 years age group and 22.3% in 12 years age group. [32] In a Sri Lankan study dental caries among children from public non-national schools (48.7%), whilst public national and private schools had a prevalence of 10.5% and 11.8% respectively.[33] In our study gingivitis was 11.39%. A Bangladeshi survey found prevalence of gingivitis 17.5%.[34] An Indian study found the prevalence of gingivitis 78.35%.[35] Another Indian study among school children between 5-13 yrs old around sub-urban areas of Bhopal found 80% prevalence of gingivitis. Our situation is better than.[36] In our study dental abscess 7.59%, dental calculus 12.66% and periodontal inflammation was 1.27%. A Nepalese study among children visiting Dental College with oral problems found 18.40% had dentoalveolar abscess.[37] An Indian study on school children found that none of the 5-6-year-olds had dental calculus, while 47.78% of the 12-13-year-olds showed its presence.[38]

Conclusion

Dental health problems are common school health problems in our country. Our country has 2 dental practitioners for every one lakh population. It is imperative to increase the number of dental practitioners. Dental health care is an important component of primary health care in Bangladesh. Our government needs to build oral health policies towards effective control of risks to oral health. We need to stimulate development and implementation of school-based projects for oral health promotion and prevention of oral diseases with a focus on disadvantaged and poor population groups. We need to encourage universal use of toothbrushes and fluoride containing toothpastes. Brushing twice a day and campaign for brushing after breakfast. Hygienic practices like daily bathing, hand-washing after defecation, hand-washing before taking meal and gurgling are important hygienic practices. Balanced diet with special emphasis on foods that require mastication, calcium-enriched food, Vitamin-D precursors, Fiber enriched food, Vitamin C enriched food also improves oral health. We have identified several risk factors. A large scale survey is needed. We need to provide technical support to strengthen oral health care and integrate oral health into public health. Community dentistry needs to be developed.

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