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## Study on Oral Hygiene: Awareness and Practices Among the School Going Children in Rajshahi Division

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### Research Article

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#### ABSTRACT

The aim of the study was to describe and analyse the oral hygiene condition and practices among the school going children of rural areas in Bangladesh. However, effective health education can bring encouraging result to aware them for healthy practice. A population based cross sectional descriptive study. Sample sizes total of 270 subjects. Subjects were recruited from age range (4–14 years) by purposive sampling. A total of 270 cases were interviewed and examined. Data were collected from school going children in different rural areas of Bangladesh. All children were interviewed (face-to-face) using a semi-structured questionnaire. Clinical examination was performed to measure the oral hygiene status. Statistical analysis was carried out using SPSS program version 16.0. Among all participants 44.44% (120) were female and 55.55% (150) were male. Findings reveal poor oral and dental health condition of the survey population and their lack of knowledge and awareness conducive to good oral and dental health. Findings also reveal their reliance on informal sector providers for treatment of oral and dental health illnesses due to non-availability of qualified professionals. Oral hygiene practice is a neglected chore in the daily routine of the survey population as revealed through real life observation in the study area. The community people hardly used tooth brush and/or tooth paste/powder. Instead, they used various abrasive materials like charcoal powder, branches of trees claimed to have medicinal properties, etc. for cleaning teeth which is damaging and in turn, cause different oral and dental health problems.

### INTRODUCTION

Oral diseases have been a persistent public health problem globally, with almost every individual experiencing poor oral health at least once in their lifetime <sup>[1,2]</sup>. Globally, poor oral hygiene occurring due to increasing plaque and calculus deposits with increasing age have been reported among children and adolescents. Only a minor proportion of Bangladesh school going children has good oral hygiene compared to larger population among developed countries. 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 <sup>[3,4]</sup>. Oral health affects the general health, well-being, education and development of children and their families <sup>[5]</sup>, and diminishes the quality of life <sup>[2,3]</sup>. Chronic oral infections can pose a risk for diabetes, cardiovascular diseases like stroke, respiratory diseases, low birth weight, preterm births <sup>[1,4]</sup>.

Personal and professional plaque removal and professional calculus removal have been extensively accepted for prevention of gum diseases <sup>[6]</sup>. Stannous fluoride dentifrices have shown significant reductions in plaque, gingivitis, and gingival bleeding <sup>[7]</sup>.

Dental caries and periodontal diseases can be effectively prevented by plaque removal, which serves as a standard to evaluate oral hygiene [2,8]. These in addition with routine recommended oral self-care [9,10] may be determined by socio-cultural factors, inadequate or improper use of fluoride containing products, poor oral health and hygiene knowledge, and lacking infrastructure that significantly hamper screening of oral diseases, especially in rural areas [1] (**Figure 1**).



**Figure 1.** Different districts in Bangladesh suffering with oral diseases.

Plaque largely is made up of commensal species in the mouth [11]. Dental plaque formations involve an ordered pattern of colonization by many different bacteria [12]. The accumulation of plaque is considered a complex and multifactor process overall [13,14]. The changes in the specific composition and quantity of plaque alter its potential to cause periodontal and dental problems. The most common procedure to remove dental plaque involves using a toothbrush and toothpaste [15,16]. Although using a toothbrush significantly improves the level of adequacy of oral hygiene, there are many other contributing factors [17-18], such as dental flossing and mouth rinsing etc. [19].

Children who have dental caries in their primary dentition are more likely to have dental caries in permanent dentition [20,21]. Growing children need proper guidance for healthy growth, upkeep and hygiene of their teeth [22,23]. Permanent teeth erupt during the school age years. Good dental hygiene and regular attention to dental caries are vital parts of health supervise during this period. Correct brushing techniques and the role of fermentable carbohydrates that play in production of dental caries should be taught or reinforced [24-28]. The objective of this study was to identify oral hygiene practice patterns among school children. Oral health promotion through schools is recommended by the World Health Organization (WHO) for improving knowledge, attitude, and behavior related to oral health and for prevention and control of dental diseases among school children [29,30].

## METHODS

The study was cross-sectional and descriptive in design. The data collected from the study participants were related to the school going children, oral hygiene awareness and practices. The data were mainly on the presence of plaque [31,32], calculus, gingival bleeding, and tooth-cleaning devices, all of which were recorded separately to reflect the state of each condition. In addition, while the study was population-based cross-sectional study that involved both males and females. However, based on the aims of the study the study approach was considered to be useful as they provided information on the oral hygiene status of all school going children 4-14 years of age in Mohonpur, Rajshahi upazilla, Sardah and Jikhra, Charghat upazilla and Ekdala, Sirajganj sadar upazilla of Rajshahi division [33-38]. The completed questionnaire was collected and checked for the completeness and clarity of the information to exclude missing or inconsistent data and then compiled together. Data was edited properly before analysis [39,40]. An Excel Spreadsheet as master document was prepared first. Data analysis was done through SPSS 16.0. Final analysis of the data was carried out using percentage, absolute numbers for categorical variables in IBM SPSS 16.0. For some purpose Excel program was also used [41].

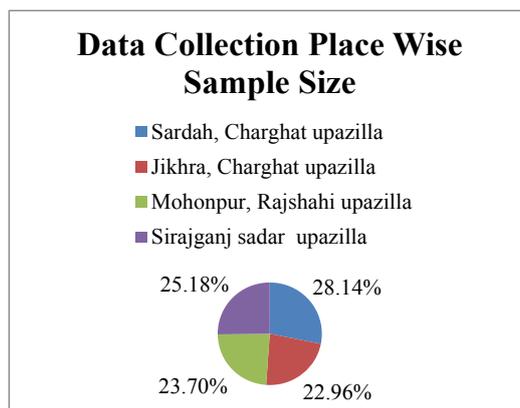
## RESULTS

The factors assessed in all the study were utilized to describe the oral hygiene: awareness and practices among the studied population [42]. However, direct comparison of the research findings in one study to those in another has not been attempted as the methods used were not exactly the same. Data collection place wise sample size is given below in (**Figure 2**).

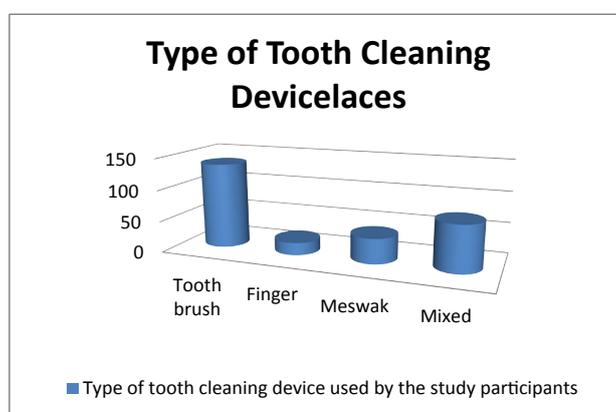
Distribution of respondents at Sardah, Charghat upazilla 28.14% (n=76) at Jikhra, Charghat upazilla 22.96% (n=62) at Mohonpur, Rajshahi upazilla 23.70% (n=64) and at Sirajganj sadar upazilla 25.18% (n=68).

**Tooth-cleaning Devices and Tooth brushing Method:** The tooth-cleaning devices were mainly manual plastic toothbrushes which were more commonly used 50.31% (n=136). The traditional chewing stick, “miswak” 14.86% (n=40) and finger 7.43% (n=20) was used by in the rural areas. A combination of types, the plastic toothbrush and the chewing stick was mainly used in rural areas in about 27.40% (n=74) [43]. The main method of tooth brushing was reported to be of horizontal strokes (97.23%) and

to a lesser extent, vertical brushing strokes (2.77%). The use of dental toothpicks was very high (82.43%), but the use of dental floss was negligible (17.57%) in the rural population (**Figure 3**).



**Figure 2.** Data collection place wise sample size (%).



**Figure 3.** Type of tooth cleaning device used by the respondents.

**Frequency of Tooth Cleaning:** The frequency of tooth brushing varied between 1 and 3 times per day but most of the respondent did brush once per day in the study 71.11% (n=192). Those who brushed twice per day in the study is 23.71% (n=64)<sup>[44]</sup>. Those who brushed thrice per day in the study is 5.18% (n=14) (**Table 1**).

**Table 1.** Distribution of the respondents by frequency of tooth brushing.

Materials used for brushing	Frequency	Percentage(%)
Tooth paste	144	53.33
Tooth powder	74	27.41
Coal/Ash	12	4.44
Mixed	40	14.82
Total	270	100.0

**Awareness of Oral Health Education:** Among all the study populations, only about 20% of the respondents were aware of oral health education including oral hygiene instruction, and as for the rest, none of them was aware of oral health education or they were not asked the question<sup>[45]</sup>. Half of the respondents were unaware of the frequency of dental visits to be made. Forty six percent perceived that a dentist should be visited whenever there is a problem; majority of the respondents being those who perceived their oral health status to be very good (60.74%, n=164) and perceived dental health to affect general health (55.55%, n=150). Among those respondents who would regularly (once in 6 months) visit a dentist (4.44%, n=12), all of the participants (100%, n=12) perceived their oral health to be good/very good, and majority (66.66%, n=8) of the respondents believed that dental health can affect general health.

**Time of Tooth Cleaning:** The time of tooth brushing (**Figure 4**) was recorded in the study. In this study, it was found that most of the respondents brushed their teeth before breakfast 70.37% (n=190) and after meal or before bed time 2.22% (n=6). About 12.59% (n=34) participants brush their teeth after breakfast and about 14.81% (n=40) participants brush their teeth irregularly<sup>[46]</sup>.

**Tooth-cleaning Dentifrices:** Use of dentifrices included toothpaste in about 53.33% (n=144) of the study population and tooth powder about 27.40% (n=74) of the study population. However, in the study to 4.44% (n=12) population used only coal/ash but 14.81% (n=40) of the study population used mixed type of dentifrices for example<sup>[47]</sup>, in the morning use coal or ash someday and use tooth paste or tooth powder someday (**Table 2**).

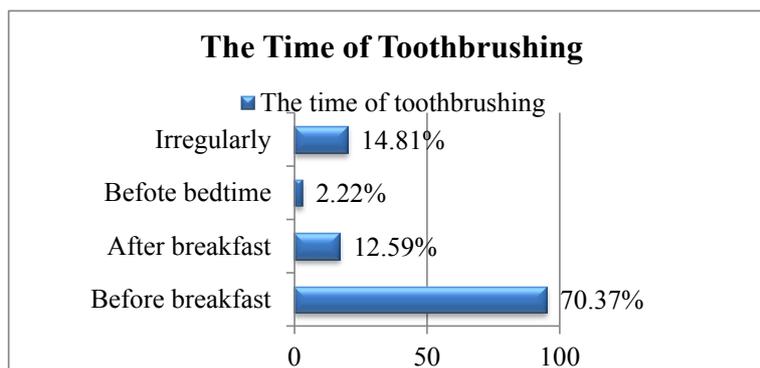


Figure 4. Time of tooth cleaning among the respondents (%).

Table 2. Distribution of the respondents by the use of dentifrices.

Materials used for brushing	Frequency	Percentage(%)
Tooth paste	144	53.33
Tooth powder	74	27.41
Coal/Ash	12	4.44
Mixed	40	14.82
Total	270	100.0

**Gingival Bleeding on Probing:** A unique picture is portrayed when BOP is considered by age where you find that in the hierarchical scoring system, the BOP as the highest score in CPITN decreases with increasing age the occurrence of gingival bleeding was extremely high. In the study gum bleeding on tooth brushing was self-reported in 5% of the study participants. The occurrence of gingival bleeding was found to be more common in males than in females [48]. In the study the occurrence of gingival bleeding was significantly higher among the subjects that had plaque or calculus than in those without these conditions, and higher among those who had no formal education compared to those who had formal education.

**Respondents Favourite Food:** Most of the responded like mixed type of food about 47.5%, about 19% respondent like protein, 16.5% respondent like vegetable, 7% respondent like junk food, 5.5% respondent like fruit, 4% respondent like fine carbohydrate and 0.5% respondent like raw carbohydrate (Figure 5).

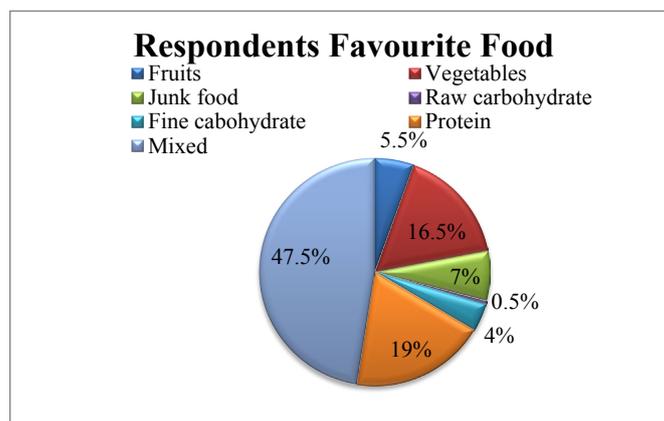


Figure 5. Respondents favourite food.

**Oral Hygiene Status of Study Participants:** The average score of Debris Index was higher compared to Calculus Index (Figure 6). Majority of the participants 45.18% (n=122) had fair oral hygiene status. Excellent oral hygiene status was not found of any respondents. About 16.66% (n=45) respondents had good oral hygiene and 38.14% (n=103) had poor oral hygiene. Mean scores of Debris Index and Oral Hygiene Index-Simplified was higher among females compared to males. Males had higher mean scores of Calculus Index compared to females [49]. Male and female participant differences for individual components of OHI-S were not found to be significant. Participants of lower grades (6-8) had higher mean scores of DI, CI and OHI-S compared to higher grade participants. Majority of lower grade participants (78%, n=58) had poor debris scores compared to higher grades (22%, n=16), which was significant (p=0.012) [50]. Similarly, about two third (73%, n=50) of lower grade participants had poor oral hygiene status compared to higher grade participants (26%, n=18), while majority of higher grade participants (65%, n=22) had good oral hygiene status compared to lower grade (35%, n=12). This was found to be significant (p=0.029).

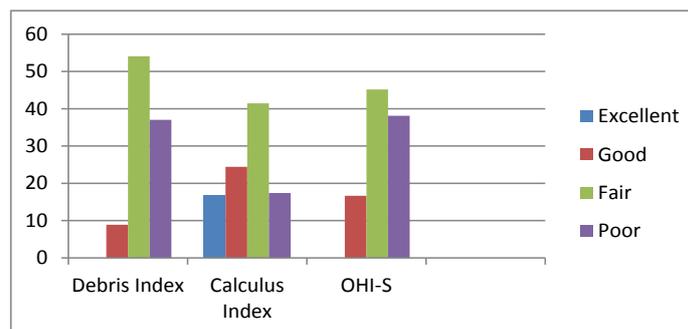


Figure 6. Oral hygiene status of respondents.

## CONCLUSION

Age is an important factor for maintaining oral hygiene, as increasing the age children can realize the importance of care of teeth and they emphasize on oral hygiene maintenance. Sex has no significances on oral hygiene practice. Most of the children clean their teeth with tooth brush and tooth pest. Use of finger, branch of tree, ash, tooth powder and charcoal are fewer amounts. Parents, teachers and others personnel's and media are important factors to motivate the children to maintain oral hygiene.

Oral hygiene knowledge, status, and eating patterns were inversely associated with the school grade. The role of self-perception of health status, especially in early schooling years, may need to be explored further as those with more positive perceptions were seen to have more correct oral hygiene practices, and lower debris and calculus accumulation. This warrants a multi-pronged, multi-level intervention integrating oral health into the school curriculum beginning early schooling is needed.

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