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# A Cross sectional study to assess the DMFT, Oral Health related behavior and practice among the selected school of old Dhaka city, Bangladesh

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## ABSTRACT:

This cross-sectional type of descriptive study was conducted to assess the DMFT, oral health related behavior and practice in Rajer Deuri Government primary school in old Dhaka, Bangladesh.About 158 school children were selected by the purposive type of non-probability sampling technique**.** Face to face interview with questionnaire followed byChecklist. Out of 158 students, 78 (49.4%) were 12-14 years whereas maximum 80 (50.6%) of them were male and 78 (49.4%) were female. Againmajority students fathers were secondary level 34.2 and mothers were primary level passed 41.1%. Maximum family income belongs to 81 (51.3%) which is ranges from 10000-20000 Tk.Majority 89(56.3%) of the respondents never visited dentist. Again, maximum uses tooth paste with brushes 155(98.1%) and also majority 64(40.5%). use a new tooth brush as long as last Maximum make a visit to the dentist about 62(39.2%) on having toothache. Moreover,though128 (81.0%) agree that consumption of sugar in between meals causes dental caries but 130(82.3%) did not know about fluoride. Again, 64(40.5%) respondents knows not cleaning their teeth may cause tooth decay. In addition, 89(56.3%) students don't know aboutgum bleeding while 52(32.9%). About 116 (73.4%) of the students didn't know how to protect their gumMoreover, 118(74.7%) & 135(85.4%) of the respondents don't know about dental plaque & calculus but 136(86.1%) & 98(62.0%) knows sweet food & soft drinks may affect dental health. Again, maximum 100(63.3%) respondents think that the health of mouth impact on the health of body as well as their treatment is also important. About130 (82.3%) of the respondents thinks that brushing teeth may prevent tooth decay while maximum 134 (84.8%) of the respondents did not know using fluoride strength their teeth. Maximum, 122 (77.2%) & 134(84.8%) did not know using toothbrush& floss help them preventing periodontal disease. Though 79(50.0%) of the respondents mentioned that using toothbrush & flossing is the best method for prevention of tooth decay. About 89(56.3%) of the respondents brush their teeth more than 2 minutes. Maximum 83(52.5%) & 129 (81.6%) of them did not know about the number of their permanent & deciduous tooth. About 136(86.1%) of the students did not know eruption time of 1st permanent molar. Finally, 118 (74.7%) out of 158 get knowledge about oral health from their family.There is a significant association between fathers & mothers education with knowledge which resembles (P value is 0.001). Again, therewas a statistical significant association between cleaning in between teeth and their knowledge (P value is 0.012) and also on having toothache maximum did not visit to the dentist where (P value is <0.001).There is also statistical significant association between DMFT and their knowledge where (P value is 0.004).Finally, a comprehensive oral health educational program for both children and their parents are required to achieve this goal.

**KEYWORDS: DMFT, dental caries, toothache, dental plaque, Periodontal disease**

## INTRODUCTION:

Oral health is significantly related to oral health behaviors and knowledge. Oral health knowledge contributes to good oral health, but unless attitudes and habits are developed and put into practice, little will be gained.[1] It is important to review the knowledge, attitude and practices of the oral health of adolescents, even though they are educated, with the objectives of inculcating healthy lifestyles practices to last for a lifetime. Individuals who hold favorable oral health related beliefs over time have better oral health in their later years than those who do not. This implies that changing beliefs should result in changes in behaviors.[2]Many studies have been conducted on perceived oral health, but have mostly concentrated on adults and old people.[3]Dental disease is also

very common in our country. Caries, gingivitis and periodontitis are the common dental disease. Lack of awareness about the dental disease and proper treatment facilities are the main cause of poor dental condition. Improper tooth brushing among the child age group and poor socio-economic status are the main cause of developing dental disease commonly in rural or in urban area also.[4]Dental caries occurs due to demineralization of enamel and dentine (the hard tissues of the teeth) by organic acids formed by bacteria in dental plaque through the anaerobic metabolism of sugars derived from the diet.[5]When sugars or other fermentable carbohydrates are ingested, the resulting fall in dental plaque pH caused by organic acids increases the solubility of calcium hydroxyl apatite in the dental hard tissues and demineralization occurs as calcium is lost from the tooth surface. The deciduous teeth erupt from 6 months and are lost by the early teens. The permanent dentition replaces the deciduous dentition from the age of 6 years and is complete by age 21. Teeth are most susceptible to dental caries soon after they erupt; therefore, the peak ages for dental caries are 2 to 5 years for the deciduous dentition and early adolescence for the permanent dentition.[6]In modern dentistry, "prevention" receives special attention and precedes treatment. Prevention is easier and more economical. Now days, in advanced societies, through simple prevention techniques such as hygiene training, fluoride therapy, tooth brushing and supplementary instruments, caries prevalence andperiodontal diseases have been reduced significantly. As a result the needs of treatments, that are mostly expensive and time consuming, have been decreased.[7]The behavior of the people, in each society, is influenced by their knowledge and tendencies; on the other hand, the beliefs and tendencies of each society are also influenced by people's behavior. Naturally, social and individual hygiene, depend on people's knowledge. In order to promote useful hygienic habits among people and change their behavior, a comprehensive and accurate program is necessary. Such an approach leads us to achieve our cultural goals. One of the most effective factors, to reach these goals is to invest and pay special attention on oral hygiene training in the schools to enhance the development and quality of life in our country.

## MATERIALS AND METHODS:

A descriptive type of cross-sectional study was conducted in Rajer Deuri Government primary school, Old Dhaka, Bangladesh. The study population was 158 school children. The samples were selected by purposive type of non-probability sampling technique. Data were collected through semi-structured questionnaire; check list and examination tools (dental caries probe, dental mouth mirror, dental tweezers, hand gloves, face mask, napkin, torch for proper illumination, antiseptic solution, etc). Questionnaire was filled by taking face to face interview, and checklist was fulfilled by oral examination and inspection. Data was analyzed and prepared by using SPSS version 26. Then data was presented in tables and figures. Written permission was taken from concerned authorities of all the schools. All instruments were sterilized. Collected data were kept confidential and used only for this research purpose.

## RESULTS:

The result of the study have been described as follows-

**Table 01: Distribution of the students by their socio-demographic characteristics.(n=158)**

| | | | |
|---|---|---|---|
| **Age group** | **6-8 years-5.7%, 9-11 years-38.6%,12-14 years-49.4%,15-18years 6.3%** | | **P value** |
| **Gender** | Male-50.6% and female-49.4% | | |
| **Parent's Education** | Fathers' | Illiterate-20.9%, Primary-33.5%, Secondary-34.2%, Graduate and above-11.4% | 0.001[s] |
| | Mothers' | Illiterate-20.3%, Primary-41.1%, Secondary-36.7%, Graduate and above-1.9% | |
| **Family income** | <10000Tk.- 42.4%,10000-20000 Tk.- 51.3%, >20000 Tk. – 6.3% | | |

Chi-square test was done, s=significant, ns= not significant

Table-1 shows that out of 158 students, majority 12-14 years were 49.4% and Males were 50.6% and 49.4% were females. By parent's education levelmajority students fathers were secondary level 34.2 and mothers were primary level passed 41.1%. Againmaximum family income belongs to 81 (51.3%) which is ranges from 10000-20000 Tk.The table also shows the association of knowledge with baseline characteristics group that there is a statistical significant associationbetween fathers & mothers education with knowledge that resembles (P value is 0.001).

**Table-2: Distribution of the study respondents by oral Health related Behavior& practice (n=158)**

| Oral Health Behavior | | Frequency | Percentage (%) | P value |
|---|---|---|---|---|
| **How often do you clean teeth?** | | | | |
| | **Morning only** | 64 | 40.5 | |
| | **Evening only** | 4 | 2.5 | |
| | **Morning and evening** | 87 | 55.1 | |
| | **Occasionally** | 3 | 1.9 | |
| **How many times you clean your teeth?** | | | | |
| | **One time** | 65 | 41.1 | |
| | **Two time** | 91 | 57.6 | |
| | **Occasionally** | 1 | .6 | |
| | **Never clean** | 1 | .6 | |
| **Your clean your teeth using:** | | | | |
| | **Brush+ Toothpaste** | 155 | 98.1 | |
| | **Datun** | 2 | 1.3 | |
| | **Others** | 1 | .6 | |
| **Your use a new tooth brush** | | | | |
| | **Every 3 months** | 61 | 38.6 | |
| | **Every 6 months** | 5 | 3.2 | |
| | **As long as last** | 64 | 40.5 | |
| | **Others** | 28 | 17.7 | |

| | | | | |
|---|---|---|---|---|
| **For cleaning in between teeth you use** | | | | |
| | **Dental floss** | 3 | 1.9 | 0.012[s] |
| | **toothpick** | 48 | 30.4 | |
| | **Brush** | 67 | 42.4 | |
| | **Nothing** | 40 | 25.3 | |
| **You visit your dentist** | | | | |
| | **Every year** | 1 | .6 | |
| | **Only when needed** | 68 | 43.0 | |
| | **Never** | 89 | 56.3 | |
| **On having a toothache what you did** | | | | |
| | **Use a home remedy** | 27 | 17.1 | <0.001[s] |
| | **Make visit to the dentist** | 62 | 39.2 | |
| | **Make visti to the doctor** | 19 | 12.0 | |
| | **Nothing** | 50 | 31.6 | |

Chi-square test was done, s=significant, ns= not significant

Table-2: The table shows that out of 158 respondents, majority of the students 87 (55.1%) clean their teeth at the morning &evening whereas 91(57.6%) clean their teeth twice daily. On the other hand, 89(56.3%) of the respondents never visited dentist while for cleaning in between teeth they uses brush maximum that is 67(42.4%). Again, maximum uses tooth paste with brushes 155(98.1%) and also majority 64(40.5%). use a new tooth brush as long as last Maximum make a visit to the dentist about 62(39.2%) on having toothache.Also there is a statistical significant association between cleaning in between teeth and their knowledge (P value is 0.012) and on having toothache maximum did not visit to the dentist where (P value is <0.001)

## Table-3: Distribution of the study respondents by oral health knowledge (n=158)

| Oral health knowledge | Frequency | Percentage (%) |
|---|---|---|
| **Do you not agree that consumption of sugar in between meals causes dental caries?** | | |
| **Yes** | 128 | 81.0 |
| **No** | 27 | 17.1 |
| **Do not know** | 3 | 1.9 |
| **Do you know about fluoride** | | |
| **Yes** | 28 | 17.7 |
| **No** | 130 | 82.3 |
| **If yes, where it is found** | | |
| **Toothpaste** | 19 | 67.9 |
| **Drinking water** | 4 | 14.3 |
| **Sea food** | 5 | 17.9 |
| **Not cleaning your teeth everyday can cause** | | |
| **Decay** | 64 | 40.5 |
| **Gum disease** | 19 | 12.0 |
| **Bad breath** | 15 | 9.5 |
| **All of the previous** | 35 | 22.2 |
| **Causing nothing** | 3 | 1.9 |
| **Don't know** | 22 | 13.9 |
| **What does gum bleeding means** | | |
| **Healthy gum** | 11 | 7.0 |
| **Inflamed gum** | 52 | 32.9 |
| **Using vitamin e** | 6 | 3.8 |
| **Don'tknow** | 89 | 56.3 |
| **How do your protect yourself from gum bleeding and brush** | | |
| **Using toothpaste** | 33 | 20.9 |
| **Using soft food** | 2 | 1.3 |
| **Using vitamin E** | 7 | 4.4 |
| **Don't know** | 116 | 73.4 |
| **What is dental plaque** | | |
| **Soft debris on tooth** | 34 | 21.5 |
| **stain on teeth** | 3 | 1.9 |
| **Hard debris on teeth** | 3 | 1.9 |
| **Don't know** | 118 | 74.7 |
| **What is calculus** | | |
| **Soft debris on tooth** | 9 | 5.7 |
| **Hard debris on teeth** | 14 | 8.9 |
| **Don't know** | 135 | 85.4 |
| **Do sweets affect dental health** | | |
| **Yes** | 136 | 86.1 |
| **No** | 8 | 5.1 |
| **Don't know** | 14 | 8.9 |
| **Do soft drink affect dental health** | | |
| **Yes** | 98 | 62.0 |
| **No** | 35 | 22.2 |
| **Don't know** | 25 | 15.8 |
| **Does the health of mouth impact on the health of body?** | | |
| **Yes** | 100 | 63.3 |
| **No** | 18 | 11.4 |
| **Don't know** | 40 | 25.3 |
| **Treatment of toothache is an important as any** | | |
| **Yes** | 100 | 63.3 |
| **No** | 13 | 8.2 |
| **Don't know** | 45 | 28.5 |
| **Brushing teeth prevent dental decay** | | |
| **Yes** | 130 | 82.3 |
| **No** | 12 | 7.6 |
| **Don't know** | 16 | 10.1 |
| **Using fluoride strength the teeth** | | |
| **Yes** | 19 | 12.0 |
| **No** | 5 | 3.2 |
| **Don't know** | 134 | 84.8 |
| **Using toothbrush help preventing periodontal disease** | | |
| **Yes** | 27 | 17.1 |
| **No** | 9 | 5.7 |
| **Don't know** | 122 | 77.2 |
| **Using floss helps in preventing periodontal disease** | | |
| **Yes** | 10 | 6.3 |
| **No** | 14 | 8.9 |
| **Don't know** | 134 | 84.8 |
| **In your opinion which one of these is the best method for prevention of tooth decay** | | |
| **Limiting sugar snack** | 16 | 10.1 |
| **Chewing sugarless gum** | 2 | 1.3 |
| **Brushing and flossing** | 79 | 50.0 |
| **Visiting dentist every 6 months** | 5 | 3.2 |
| **Don't know** | 56 | 35.4 |
| **How long do you brush your teeth** | | |
| **1 minute** | 23 | 14.6 |
| **2 minute** | 46 | 29.1 |

| | | |
|---|---|---|
| **>2 minute** | 89 | 56.3 |
| **How many permanent teeth** | | |
| **22** | 5 | 3.2 |
| **32** | 70 | 44.3 |
| **Don't know** | 83 | 52.5 |
| **How many deciduous teeth** | | |
| **22** | 8 | 5.1 |
| **32** | 3 | 1.9 |
| **20** | 18 | 11.4 |
| **Don't know** | 129 | 81.6 |
| **At what age first permanent molar erupt** | | |
| **6 years** | 4 | 2.5 |
| **7 years** | 8 | 5.1 |
| **8 years** | 10 | 6.3 |
| **Don't know** | 136 | 86.1 |
| **Where did you get knowledge about oral health** | | |
| **Friends** | 2 | 1.3 |
| **Family** | 118 | 74.7 |
| **Internet and TV** | 14 | 8.9 |
| **Newspaper and Magazine** | 11 | 7.0 |
| **Dentist** | 9 | 5.7 |
| **No resource** | 2 | 1.3 |
| **Do not know** | 2 | 1.3 |

Table-3: The table shows that out of 158 respondents, though 128(81.0%) agree that consumption of sugar in between meals causes dental caries but 130(82.3%) did not know about fluoride. Again, 64(40.5%) respondents knows not cleaning their teeth may cause tooth decay. In addition, 89(56.3%) students don't know aboutgum bleeding while 52(32.9%). About 116 (73.4%) of the students didn't know how to protect their gum.. Moreover, 118(74.7%) & 135(85.4%) of the respondents don't know about dental plaque & calculus but 136(86.1%) & 98(62.0%) knows sweet food & soft drinks may affect dental health. Again, maximum 100(63.3%) respondents think that the health of mouth impact on the health of body as well as their treatment is also important. About130 (82.3%) of the respondents thinks that brushing teeth may prevent tooth decay while maximum 134 (84.8%) of the respondents did not know using fluoride strength their teeth. Maximum, 122 (77.2%) & 134(84.8%) did not know using toothbrush& floss help them preventing periodontal disease. Though 79(50.0%) of the respondents mentioned that using toothbrush & flossing is the best method for prevention of tooth decay. About 89(56.3%) of the respondents brush their teeth more than 2 minutes. Maximum 83(52.5%) & 129 (81.6%) of them did not know about the number of their permanent & deciduous tooth. About 136(86.1%) of the students did not know eruption time of 1st permanent molar. Finally, 118 (74.7%) out of 158 get knowledge about oral health from their family.

**Table-4: Total DMFT of the student (n=158)**

| DMFT | Frequency | Percentage (%) | Mean±SD | P value |
|---|---|---|---|---|
| **Decayed (D)** | 51 | 32.3 | 0.80±1.46 | |
| **Missing (M)** | 25 | 15.8 | 0.28±0.81 | |
| **Filled (F)** | 3 | 1.9 | 0.04±0.31 | |
| **DMFT** | 79 | 38.0 | 1.13±1.87 | 0.004[s] |

Chi-square test was done, s=significant, ns= not significant

Table-4: The table shows that out of 158 respondents, the total DMFT is found out to be 79 with 51decayed teeth, 25 missing teeth and 3 filled teeth. The mean DMFT is found out to be 1.13±1.87 with mean decayed being 0.80±1.46, mean missing 0.28±0.81 and mean filled teeth 0.04±0.31 and also statistical significant association between DMFT and their knowledge where (P value is 0.004).

**Figure-1: Distribution of the study respondents by knowledge (n=158)**

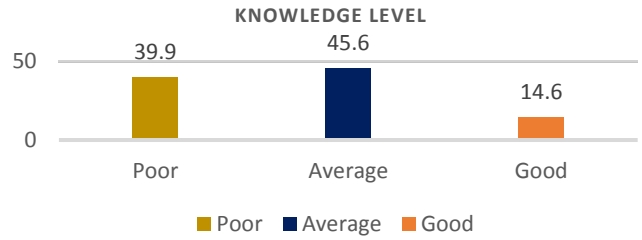


Figure1: The figure shows that out of 158 respondents, maximum 72(45.6%) respondents have average knowledge (10-15) while only 23 (14.6%) has good knowledge (>15).

## DISCUSSION:

This cross-sectional descriptive study was carried out assess the DMFT, oral health related behavior and practice among Rajer Deuri Government primary school children. Majority 12-14 years were 49.4% and Males were 50.6% and 49.4% were females. By parent's education levelmajority students fathers were secondary level 34.2 and mothers were primary level passed 41.1%. Againmaximum family income belongs to 81 (51.3%) which is ranges from taka 10000-20000.

A cross sectional study was conducted in 6 schools serving low middle socio-economic strata in Bangalore, India reveals that Prevalence of dental pain was 15.6% (n=194). Impact on daily activities was reported by 66%. Mean DMFT and DMFS was 1.80 and 2.11. Mean deft and defs was 2.47 and 3.41. Prevalence of dental pain is associated with brushing behavior, consumption of sweets and deciduous dental caries experience, showing need for further attention to these conditions and a need to strengthen preventive and therapeutic dental service. [8]Furthermore, majority of the students 87 (55.1%) clean their teeth at the morning and evening whereas 91(57.6%) clean their teeth twice daily. On the other hand, 89(56.3%) of the respondents never visited dentist while for cleaning in between teeth they uses brush maximum that is 67(42.4%). Again, maximum uses tooth paste with brushes 155(98.1%) while duration of a new tooth brush as long as last for 64(40.5%) which resemble the majority. The main feature resembles the maximum make a visit to the dentist about 62(39.2%) but unfortunately only 50(31.6) respondents did not have a visit to the dentist.Furthermore, another descriptive cross-sectional observational study was conducted among 100 schools going slum children in Mirpur, Dhaka where conventional sampling method was used. Maximum students brushed once a day before bedtime which differs from our study. Dental caries was 55%. This is quite higher than our study. The prevalence of caries was directly related to low frequency of brushing.[9]

Moreover, though 128(81.0%) agree that consumption of sugar in between meals causes dental caries but 130(82.3%)

did not know about fluoride. Again, 64(40.5%) respondents know not cleaning their teeth may cause tooth decay. Moreover, 136(86.1%) and 98(62.0%) knows sweet food and soft drinks may affect dental health. Again, maximum 100(63.3%) respondents think that the health of mouth impact on the health of body as well as their treatment is also important. About130 (82.3%) of the respondents thinks that brushing teeth may prevent tooth decay while maximum 134 (84.8%) of the respondents did not know using fluoride strength their teeth. Though 79(50.0%) of the respondents mentioned that using toothbrush and flossing is the best method for prevention of tooth decay.

Where as a cross-sectional study was carried out in Qatar from October 2011 to April 2012 about 2200 school children aged 12–14 years reveals that Only (25.8%) of children reported a high level of oral health knowledge which is quite dissimilar to our study finding. After each meal, tooth brushing was observed by a very low percentage of children (3.7%). About 44.6% of children recognized dental floss as a cleaning device for between the teeth. A large number of children (32.5%) thought incorrectly that one must visit the dentist only in case of pain. A great majority was not aware of cariogenic potential of soft drinks (39%) and sweetened milk (97.8%). Less than half (38.9%) of children actually had heard about fluoride. Only (16.8%) correctly answered the question about sign of tooth decay. Slightly, less than half (48.4%) could not define the meaning of plaque. Parents were the most popular (69.1%), source of oral health information for the children. [10]

There was a statistical significant between fathers & mothers education with knowledge that resembles (P value is 0.001). Again, therewas a statistical significant association between cleaning in between teeth and their knowledge (P value is 0.012) and on having toothache maximum did not visit to the dentist where (P value is <0.001).Finally, therewas a statistical significant association between DMFT and their knowledge where (P value is 0.004).

A cross sectional study associated with dental caries among students from Santa Cruz do Sul, Brazil was conducted in a random sample of 623 students of both genders, aged 10-17 years old. The DMFT value was 1.1-2.4 which is significantly higher than DMFT (1.48) that we have found. A significantly higher number of children had poor oral hygiene status, moderate to severe caries experience as a result of less frequency of brushing, poor oral hygiene knowledge and irregular dental checkup.[11] In this cross sectional study we found the total DMFT is found out to be 79 with 51decayed teeth, 25 missing teeth and 3 filled teeth. The mean DMFT is found out to be 1.13±1.87 with mean decayed being 0.80±1.46, mean missing 0.28±0.81 and mean filled teeth 0.04±0.31.Maximum 72(45.6%) respondents have average knowledge (10-15) while only 23 (14.6%) has good knowledge (>15).

A cross sectional study was conducted between June 2014 & May 2015 at Taif University Outpatient Clinics, Saudi Arabia on the age group of 18 years among 385 male & female who were willing to participate. The mean DMFT was 6.55 which is very higher than DMFT (1.48) that we found. A high prevalence of dental caries was observed among the participants. High incidence of dental caries related to lack of proper oral health education and dental checkup.[12]

## CONCLUSION:

Oral health is an important part of our life. But lack of proper knowledge it is not treated carefully. The status of oral health is low in lower class, poor, uneducated population and especially in children. It is needed to be making them conscious about the importance of good oral health because sometimes the small injury can cause of life threatening condition such as oral cancer. Results of this study suggest that oral health knowledge and practice among study participants were poor and needs to be improved. Findings of the present study also show that utilization of dental service is mainly for pain relief. The results also suggest that simple preventive oral health measures among study participants like brushing twice a day is not a norm. Based upon these findings, systematic community-oriented oral health promotion programs are needed to target lifestyles and the needs of school children. Oral diseases are major public health problem in school children. Therefore, the students should maintain their oral hygiene by regular tooth brushing and they should visit the dentist for their good oral health status. School physician and nurse have to take an active role in reporting oral health problem to families and prescribe appropriate strategies for personal hygiene. Comprehensive oral health educational programs for both children and their parents are required to achieve this goal.

**CONFLICT OF INTEREST**: Author declared no conflict of interest

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