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Oral health status among the under five children attending an (OPD) of a Hospital: A study in Dhaka Shishu (Children) Hospital, Dhaka, Bangladesh

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Abstract
Introduction: Oral health and overall health and wellbeing are inextricably connected. The lips, tongue, gum (gingiva), oral mucosa and salivary glands are responsible to maintain the oral health. Oral diseases affect the most basic human needs: the ability to eat and drink, swallow proper nutrition.
Objective: To assess the Oral health status among the under five children attending an (OPD) of a Hospital.
Methods: A descriptive type of cross sectional study was conducted at Dhaka Shishu (Children) Hospital at children an (OPD) of Dhaka Shishu (Children) Hospital from January to June, 2018. A total 120 under five children's parents were interviewed through a structured questionnaire followed by oral examination through a checklist. The purpose of the study was to assess the oral health status among the under five children. Study revealed to find out selected dental conditions like dental caries, gingival and periodontal conditions and DMFT score and socio-demographic background.
Results: Among 120 children, 81 (67.5%) males and 39 (32.5%) females a male-female ratio of 1.2:1. Age distribution up to 3 years 12.5% number of 15 cases, 3-4 years 18.33% number of cases 22 and 4-5 years 69.17% number of cases 83. Among the total 120 respondents, majority 69.17% (n=83) were in the age group of 4-5 years, male 67.5% (n=81) and female were 32.5% (n=39). Almost 99.17% (n=119) were Muslim. 70.83% children clean their teeth themselves with brush and paste once daily spending 1-3 minutes. Maximum children (73.33%) clean their teeth before breakfast. Fluoridated toothpaste was being used by most of the children (85.84%). Only 4.17% child change their toothbrush every month and 55.83% every two months and 40% after 3-6 months. Dental caries and DMFT score. Here majority 116(96.67%) of the children have dental caries and only 04 (03.33%) children have no dental caries. Upper jaw is affected in case of 29(24.17%) children, lower jaw is affected in case of 31(25.83%) children and both upper & lower jaw is affected in case of 44(36.67%) children. Missing teeth due to extraction absent in 117(97.50%) cases & present in 03(02.50%) cases. Number of filled teeth in 11(9.17%) cases & absent in 109(90.83%) cases.
Conclusion: The study revealed that, dental caries among the under five children was a major health concern creating awareness among the people about their own and their children's oral health through appropriate plan can reduce the dental diseases. Moreover mass media and general education of the people create vital role in this regards.

Keywords: oral health, dental caries, DMFT score

1. Introduction
Oral health and overall health and wellbeing are inextricably connected. The lips, tongue, gum (gingiva), oral mucosa and salivary glands are responsible to maintain the oral health. Oral diseases affect the most basic human needs: the ability to eat and drink, swallow proper nutrition. Many systemic conditions such as AIDS, diabetes, and osteoporosis have important oral symptoms, manifestations or complications. It is considered to be localized infections only, periodontal or gum diseases are now being investigated as potential risk factors for the development of systemic disease. For instance, accumulating evidence now points to a possible link between periodontal diseases and the incidence of premature, low-birth weight babies, cardiovascular disease and pulmonary disease. Oral disease affects not only the health of the oral cavity and associated craniofacial structures, but can be detrimental to the overall health and well-being of individuals [1]. Oral health means much more than healthy teeth. It means being free of chronic orofacial pain, oral soft tissue lesions, oral and pharyngeal cancers, birth defects such as cleft lip and palate, and sources of other diseases and disorders that affect the oral, dental and craniofacial tissues, collectively known as craniofacial complex [2]. Oral hygiene is the practice of keeping the mouth clean and healthy by brushing and flossing to prevent tooth decay and gum disease. The purpose of oral hygiene is to prevent the buildup of plaque, the sticky film of bacteria and food that forms on the teeth. Plaque adheres to the cervix and fissures of the teeth and generates acids that, when not removed on a regular basis, slowly eat away, or decay, the protective enamel surface of the teeth, causing holes (cavities) to form. Plaque also irritates gums and can lead to gum disease (periodontal disease) and tooth loss. Fluoride in toothpaste, drinking water or dental treatments also helps to protect teeth by binding with enamel to make it stronger. In addition daily oral care, regular visits to the dentist promote oral health. Preventative services include fluoride treatments, sealant application and scaling (scraping off the hardened plaque, called tartar) that are helpful to maintain the oral health [3]. When infants are born, almost all

of their primary teeth already have formed. These teeth are still hidden in the gums. They usually begin to erupt or cut through the gums at about 6 months of age. Some babies get teeth earlier, and some get later. Early childhood caries is a serious form of cavities. It can quickly destroy child's teeth. Children typically start to lose their baby (primary) teeth and replace them with adult teeth when they are 6 or 7 years old. Some children start losing teeth earlier, others start later. Most often, the first permanent teeth to come in are the lower front four teeth. However, some children get their first permanent molars (sometimes called 6 years molars) first. The 6 years molars come in behind the primary teeth. They do not replace primary teeth. Around age 11 or 12, the second permanent molars (also called 12 years molars) come in behind the 6 year molars. By the time of the child is 13 years old, most of his permanent teeth will be in place. Wisdom teeth, or third molars, come in between ages 17 and 21. However, some people don't get any wisdom teeth, or don't *get all* four. More often, wisdom teeth develop, but there may not be room in the mouth for them. We should continue to help the children brush their teeth twice a day until they are 8 years old or can show that they can do a good job on their own. Brushes after breakfast and before bed, keep the children's teeth free of food particles, especially the molars. Molars have lots of little grooves and crevices. Food particles can hide there and act as food for bacteria [4]. A high-meat low carbohydrate diet often causes constipation followed by bouts of diarrhea. This results in a sluggish colon, with the excess protein accelerating water loss, and eventually a diminished supply of beneficial intestinal bacteria. The accelerated water loss, if not replenished, will cause more plaque buildup in the oral cavity as well. Children and young adolescents are the group that requires oral health care. Several studies were conducted in Bangladesh to have an idea of prevalence of dental caries and periodontal diseases.

2. Objective

a) To assess the Oral health status among the under five children attending an (OPD) of a Hospital.

3. Methods and Materials

This was a descriptive type of cross-sectional study conducted among the under five children attending an (OPD) of Dhaka Shishu (Children) Hospital from January to June, 2018. Sample size was 120 taken by the technique of non-probability purposive sampling technique. After explaining the purpose of the study data were collected through face to face interview of the guardians using a structured questionnaire and checklist for clinical examination of the children to find out the DMFT score. After completion of data collection, data were checked, verified entered into the computer and edited for consistency to reduce error. Data were analyzed by using Statistical Package for Social Science (SPSS) version 17 software. The important variables were considered and analyzed to fulfill the objectives of the study. The results were fashioned in tabular form and explained according to the findings.

4. Results

The study was carried out among (120) children patients who were attending in the dental an (OPD) of Dhaka Shishu (Children) hospital during the period of January 2018 to June 2018. There were 81 (67.5%) males and 39 (32.5%) females a male-female ratio of 1.2:1 (Table & Figure 1). Among the total 120 respondents, majority 69.17% (n=83) were in the age group of 4-5 years, male 67.5% (n=81) and female were 32.5% (n=39). Almost 99.17% (n=119) were Muslim. Out of the total respondents 41.67% (n=50) had graduate and above level of education and businessman were 54.17% (n=65), in case of mother's occupation housewife were 66.67% (n=80), monthly family income of 56.76 % (n=68) was Tk. 10001-20000 and 19.17% (n=23) was Tk. 20001-30000.

Table 1: Sex Distribution of the Children (n=120)

Sex	Frequency	Percentage (%)
Male	81	67.5
Female	39	32.5
Total	120	100.0
Male: female ratio	1.2:1	

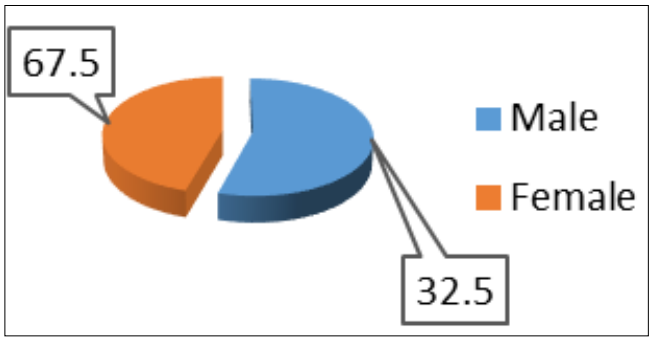

Fig 1: Pie diagram showing the sex distribution of the study subjects

Table 2: Distribution of the study subjects by dentition (n=120)

Dentition	Frequency	Percentage (%)
No dentition	21	17.5
Primary dentition	56	46.6
Mixed dentition	35	29.1
Permanent dentition	8	6.6
Total	120	100.0

(Table 2) shows out of 120 patients 21 patients (17.5%) have no dentition 56(46.6%) were only primary duration 35 (29.1%) were mixed dentition and 8 (1.8%) were fully permanent dentition. Among them primary dentition group is highest number 56 (46.6%).

Table: 3 Socio-economic characteristics of the respondents (n=120)

Socio-economic characteristics		Frequency	Percentage
Age	Up to <3 years	15	12.50
	3-4 years	22	18.33
	4-5> years	83	69.17
Religion	Islam (Muslim)	119	99.17
	Hindu	01	00.83

Father's education	Graduate or above	50	41.67
	Primary	28	23.33
Mother's education	Primary	39	32.50
	S.S.C	38	31.67
Father's occupation	Service holder	36	30.00
	Business	65	54.17
Mother's occupation	Housewife	80	66.67
	Service	30	25.00
Monthly family income	10001-20000Tk	68	56.76
	20001-30000Tk	23	19.17

Age distribution Up to 3 years 12.5% 15 cases, 3-4 years 18.33% number of cases 22 and 4-5 years 69.17% number of cases 83 (Table 3).

Table 4: Distribution of the respondents by their opinion regarding cleaning teeth (n=120)

Serial	Variables	Frequency	Percentage
Does your child clean teeth regularly?	Yes	113	94.17
	No	07	05.83
	Total	120	100
How does your child clean teeth?	Cleans by himself	51	42.50
	Cleans by parents	31	25.83
	Cleans by himself & by their parents	38	31.67
	Fluoridated	130	85.84
What type of toothpaste is used for cleaning teeth?	Non-fluoridated	13	10.83
	Both Fluoridated & Non-fluoridated	04	3.33
	Total	120	100

(Table 4) shows the distribution of the child's cleaning teeth. 113(94.17%) respondents said that their child cleaned teeth regularly and 07(05.83%) didn't. Out of 120, 51(42.50%) patients cleaned teeth by himself, 31(25.83%) under parents supervision and 38(31.67%) by himself and their parents. 103(85.84%) respondents said, the child use fluoridated toothpaste and 13(10.83%) use non-fluoridated toothpaste and 04(3.33%) use both fluoridated & non-fluoridated toothpaste.

Table 5: Distribution of the respondents by their opinion regarding cleaning teeth (n=120)

Serial	Variables	Frequency	Percentage
How many times your child clean teeth daily?	Once	85	70.83
	Twice	33	27.50
	More than twice	02	1.67
	Total	120	100
When does your child clean teeth?	Before breakfast	88	73.33
	After breakfast	07	5.83
	Before breakfast and before going to bed	08	6.67
	After breakfast and before going to bed	17	14.17
	Total	120	100

(Table 5) shows the distribution of the child's cleaning teeth. 85(70.83%) respondents said that their child clean teeth once daily, 33(27.50%) twice daily and 2(01.67%) cleaned more than twice daily. Out of 120, 88(73.33%) respondents said that their child clean teeth before breakfast 07(5.83%) after breakfast, 08(6.67%) before breakfast & before going to bed and 17(14.17%) after breakfast & before going to bed.

Table 6: Distribution of the respondents by their opinion regarding method of cleaning teeth (n=120)

Serial	Variables	Frequency	Percentage
What type of method used for brushing teeth?	1.Brush teeth from above downward	10	8.33
	2.Brush teeth from side to side movement	39	32.50
	1+2	71	59.17
	Total	120	100

(Table 6) show the distribution of the child's method of cleaning teeth. 10(08.33%)) children brushed teeth from above downwards, 39(32.50%) from side to side and 71(59.17%) both from above downwards & from side to side movement.

Table 7: Distribution of the respondents by their opinion regarding consumption of sugary food (n=120)

Serial	Variables	Frequency	Percentage
Does your child eat sweet/biscuit/chocolate?	Yes	118	98.33
	No	02	1.67
	Total	120	100
If yes, how many times?	Once	91	75.83
	More than Once	29	24.17
	Total	120	100

Majority 118(98.33%) children ate sweet/biscuit/chocolate and 02(01.67%) did not. It also reported that 91(75.83%) children ate once daily & 29(24.17%) more than once daily (Table 7).

Table 8: Distribution of variables on dental caries and DMFT score (n=120)

Serial	Variables	Frequency	Percentage
Dental caries	Present	116	96.67
	Absent	04	3.33
Number of affected teeth	Present	116	96.67
	Absent	04	3.33
Type of affected set	a)Upper jaw	29	24.17
	b)Lower jaw	31	25.83
	c) a+b	44	36.67
	d) Nil	16	13.33
Missing teeth due to extraction	Present	03	2.50
	Absent	117	79.50
Filled teeth	Present	11	9.17
	Absent	109	90.83
Number of filled teeth	Present	11	9.17
	Absent	109	90.83

(Table 8) shows the distribution of information on dental caries and DMFT score. Here majority 116(96.67% of the children have dental caries and only 04 (03.33%) children have no dental caries. Upper jaw is affected in case of 29(24.17%) children, lower jaw is affected in case of 31(25.83%) children and both upper & lower jaw is affected in case of 44(36.67%) children. Missing teeth due to extraction absent in 117(97.50%) cases & present in 03(02.50%) cases. Number of filled teeth in 11(9.17%) cases & absent in 109(90.83%) cases.

Table 9: Distribution of variables on overall oral health status of the children (n=120)

Serial	Variables	Frequency	Percentage
Overall oral hygiene status	Good	104	86.67
	Bad	16	13.33
	Total	120	100

(Table 9) shows the distribution of variables on overall oral health status of the children. Overall oral health status is good in most cases that are 104(86.67%) and bad in 16(13.33%) cases.

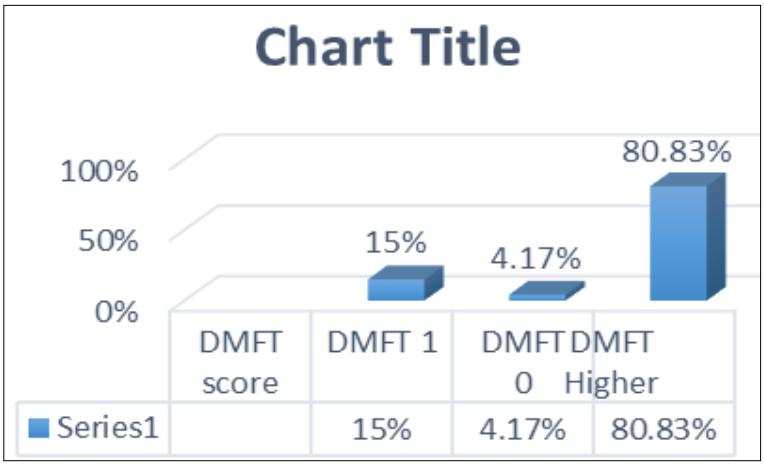

Fig 2: shows the distribution of variables on DMFT score.

DMFT 0 in 05(04.17%) cases, DMFT 1 in 18(15%) cases and DMFT higher in 97(80.83%) cases (Figure 2).

V Discussion

This cross sectional study on under five children was undertaken to assess their oral health status. Purposively chosen 120 respondents were participated having primary teeth in their mouth. Their parents accompanying the children, answered most of the questions of a structured questionnaire, after that their oral health status was

evaluated through an examination checklist. Maximum respondents 113(94.17%) said that the child clean teeth regularly and 07(5.83%) said that the child didn't clean teeth regularly (table 4). Necmi N, Vehit HE *et al* [5] in their study had reported regular brushing habit in only 64% of Turkish pre-school children. So the current study compared to the Turkish children of the same age group. Out of 120, 51(42.50%) patients cleans teeth by himself, 31(25.83%) cleans teeth under parents supervision and 38(31.67%) cleans by himself and with the help of their parents. 103(85.84%) respondents said, their child use fluoridated toothpaste and 13(10.83%) use non-fluoridated toothpaste and 4(3.33%) use both fluoridated & non-fluoridated toothpaste (Table 4). The use of fluoride toothpaste was higher than the report by Ullah MS, A1eksejunienene J *et al* [6]. According to opinion regarding cleaning teeth, 85(70.83%) child clean teeth once daily, 33(27.50%) teeth twice daily and 2(1.67%) more than twice daily(table 5).Twice daily brushing was practiced among only 26.7%. Petersen PE, Danilia I *et al*, had found in their study that 37% of the Romanian children brushed their teeth at least twice a day; 26% had their teeth cleaned by their mothers every day [7]. More than seventy percent respondents said that their child clean teeth before breakfast, 7(5.83%) after breakfast,8(6.67%) before breakfast & before going to bed and 17(14.17%) after breakfast & before going to bed. 100% respondents said that, their child use toothbrush and toothpaste for brushing teeth (table 5). 10(08.33%) children brush teeth from above downwards,39(32.50%) brush teeth from side to side movement and 71(59.17%) both from above downwards & from side to side movement(table 6). Zhu and Peterson in their study had reported slightly higher level of correct tooth brushing practice among Chinese children and adolescents [8] Majority 118(98.33%) children who ate sweet/biscuit/chocolate had higher DMFT and the rest 2(01.67%) who did not eat sweet/biscuit/chocolate had lower DMFT (table 7). A study was conducted by Rashid [9] in the OPD of Rajshahi Medical College Hospital among 200 preschool children aged between 2-5 years. The children were examined of dental chair with mouth mirror and dental probe. The attendants of the children were asked questions regarding sugar consumption, frequency of breast-feeding and feeder use, consumption of lozenges, chewing gums, ice cream etc. the children were divide into high sugar consumption (N121) and low sugar consumption groups (N79) according to the amount and frequency of sugar intake. Children who consumed more sugar had mean dm of 4.5 compared to mean DMFT of 1.5 among the low sugar consumption group. Here majority 116(96.67%) of the children had dental caries. Upper jaw was affected in case of 29(24.17%) children, lower jaw was affected in case of 31(25.83%) children and both upper & lower jaw in case of 44(36.67%) children. Here female are more prevalent for dental caries. Only 81(67.5%) male children had caries and 39(32.5%) female children had caries. Caries was more prevalent in children whose family had less awareness, economic conditions of the parents had replied that improper cleaning of teeth, sweetened food more taken could be the cause of dental caries (Table 6). A similar study on mother's perception about the causes of dental caries among children was done by Awal [10]. In his study he found male children were higher prevalence (38.2%) of dental caries than female children (37.6%) of the same age group. Caries was more prevalent in children whose family had higher education. 60.1% of the mothers had replied that improper cleaning of teeth could be the causes of dental caries. Missing teeth due to extraction absent in 117(97.50%) cases & present in 03(02.50%) cases. Number of filled teeth in 11(9.17%) cases & absent in 109(90.83%) cases (Table 8). Henkuzena I, Care R *et al*. [11] had reported 31% of Latvian children having filled teeth and 9.5% of them having missing teeth. The study population consisted of 739 children aged between 2.8 and 6.2 years; 620 children (84%) were caries free at recruitment. The incidence of developing a first carious (into dentine) lesion in caries free children increased with age at four, the incidence of the first carious lesion was 95 per 100 person years and at age seven it was 196 per 100 person years. The tooth specific incidence of caries was found to be approximately 5-6 times greater in children with caries at recruitment than in caries free children. The DMFT status is the summation of decayed, missing, and filled teeth in the primary dentition. The DMFT status 0 was assessed as healthy primary dentition and DMFT 1 or higher was assessed as presence of decayed, missing and filled teeth. In this study, regarding DMFT score and overall oral hygiene status of the children, DMFT 0 in 5 (4.17%) cases, DMFT 1 in 18(15.00%) cases and DMFT higher in 97(80.83%) cases. In present study, DMFT 1 & higher score in 115(95.83%) cases (figure 2). Necmi N. Vehit HE *et al*. [5] in their study had found dmft score of 0 was recorded in 28% of the children, while 77(72%) children demonstrate dmft score of 1 or higher. A similar study was done by Sayegh A, Dini EL *et al* [13] revealed that 67% in Amman 4 to 5 years old children had some caries experience and 33% had DMFT greater than 4. The present study revealed that overall oral health status was good in most cases that were 104(86.67%) and bad in 16(13.33%) cases.

VI Conclusion

This cross sectional study among the under 5 children attending at OPD of Dhaka Shishu (Children) Hospital was under taken to assess their oral health status. Purposively selected 120 under five children's parents were interviewed through a structured questionnaire followed by oral examination through a check list. The children were from middle and well to do families of Dhaka and seemed to practicing oral hygiene well in terms of tooth cleaning. Most of them used to clean their teeth themselves with brush and paste, once daily spending 1-3 minutes. They were habituated with fast foods and snacks, sugar added milk etc. Their parents seemed to be aware of the importance of dental health and participated with eagerness. They further ask few questions on dental health even. The prevalence of Dental Caries among the children was 96.67%. The study revealed positive relation with monthly family income, mother's educational status with over all oral health status. More income and better parent education yielded better oral hygiene status. Also positive association was noted between frequency and time taken for brushing with over all oral health status. More frequent brushing spending more time in it tend to yield better oral hygiene status the study suggests. So this study simply state that parents education, awareness, income and children's oral hygiene practice had profound effects on over all oral health status of the under five children.

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