Original Article

Prevalence of Dental Health Problems among the Patients Attending in the Orthodontic Department in Dhaka Dental College & Hospital.

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ABSTRACT

Background

The study was conducted to know the prevalence & pattern of dental health problems among Bangladeshi people.

Methods

It was a descriptive type of cross sectional study conducted in Department of Orthodontics & Dentofacial Orthopaedics of Dhaka Dental College & Hospital, Dhaka Purposive sampling technique was followed and a close ended questionnaire was utilized for face to face interview with the respondents from September'2011 toFebruary'2012.

Results

This was a cross sectional study conducted among 500 patients in the department of Orthodontics and Dentofacial Orthopaedics, Dhaka Dental College and Hospital. Gingivitis is the commonest problem in Bangladeshi people according to present study. The second most dental problem was dental caries. The prevalence of orthodontic problems was comparable to the observations made by others. Males and females are equally affected with slight variations in the nature of problems among both genders.

Conclusion

Good oral health is essential to improve individual overall health & well-being. We urge to take this information & use it for program planning & advocating for the health of patients, specially for the patients who will receive orthodontic treatment. Therefore, current orthodontic students should receive more education & training before the management of malocclusion to improve the overall quality of care for orthodontic patients.

Introduction:

Public Dental Health has been defined as "The science and art of preventing and controlling dental disease and promoting dental health through community effort" by the American Dental Association[1]. The unique characteristic of dental diseases is that they are universally prevalent and do not undergo remission or termination if untreated and require technically demanding expertise and time consuming professional treatment. According to G. Dale if deciduous teeth are retained beyond time of exfoliation, they are known to cause delay in eruption of permanent teeth and thus lead to malocclusion and other orthodontic problems, which will then need expensive corrective measures[2]. More than 400 species of bacteria live in human mouth. Dr. Robert Genco points out that serious gum infection can release bacteria in the blood stream and can worsen the condition of patient suffering from heart disease, stroke and other similar ailments[3]. It is also known that periodontal diseases can even cause premature labour by release of prostaglandins by periodontal bacteria and also worsen conditions like diabetes and pneumonia.

This study was an attempt to assess the prevalence of four dental diseases- dental caries, gingivitis, retained deciduous teeth & fractured teeth among the patients attending in the Orthodontic department in Dhaka Dental College & Hospital, Bangladesh.

Material and Methods

Study design

Descriptive cross sectional study

Place of study:

Department of Orthodontics & Dentofacial Orthopaedics of Dhaka Dental College & Hospital, Dhaka.

Period of study :

From September'2011 to February'2012

Sample selection :

In this study, A total number of 500 patients (250 males & 250 females) were selected from Orthodontic department in Dhaka Dental College & Hospital.

Selection criteria:

Inclusion criteria

➤ The participant and their parents were Bangladeshi in origin.

➤ They were between 12-18 years of age.

➤ They were free from any serious illness and have no history of trauma or surgery.

Exclusion criteria

➤ Non Co-operative Patient.

➤ Patient with systemic illness.

➤ History of previous Orthodontic treatment.

Study procedure:

Each of the subjects was selected in respect of inclusion and exclusion criteria. A data collection sheet with necessary measurements for each subject was filled.

Measurements:

Clinical Examination of Each Participant carried the following criteria-

Dental Caries:

The teeth showing discoloration, chalky appearance of enamel, softened enamel or broken surface by visual examination or probing is defined as carious tooth[23].

The caries Index DMF[24] was developed by Klien, Polemar & Knutson. DMF =D indicates a decayed tooth, M indicates a missing tooth, F indicates a permanently filled tooth due to decay.

Method-

All teeth except 8's are examined. There are no scoring patterns. In the provided boxes the decayed, missing, filled tooth or surfaces are marked & finally the total counts are made.

Rules:

DMFT-

1. Primary caries of any surface of tooth comes under decay category.

2. Secondary caries under restoration comes under decayed category.

3. Tooth with temporary restoration comes under decay category.

4. Tooth exfoliated or extracted due to decay comes under missing category.

5. Tooth missed due to periodontal diseases or extraction due to orthodontic purpose doesn't come under missing category.

6. Any tooth with permanent restoration due to dental caries comes under filling category.

7. Root canal treated tooth because of pulpal involvement due to caries comes under filling category.

8. Normal exfoliation during mixed dentition does not come under missing category.

DMFS-

1. Here teeth surfaces are examined. The anterior teeth have 4 surfaces, and posterior has 5 surfaces.

2. Rules of decay category are as same as that of DMFT.

3. When a tooth is completely missing due to caries, while counting the missing surface, one surface less is calculated.

4. Filling category rules are as same as that of DMFT.

Gingivitis:

Bleeding from gum on visual examination or bleeding from sulcus on gentle probing & presence of deposits on teeth is diagnosed as gingivitis[25].

The gingival index (GI) was developed by Loe and Silness[26] to describe the clinical severity and location of gingival inflammation using a mouth mirror and periodontal probe, the mesial, distal, buccal and lingual surface of six index teeth examined: maxillary right first molar, maxillary right lateral incisor, maxillary first premolar, mandibular left first molar, mandibular left lateral incisor and mandibular right first premolar.

The scores were defined based on severity from 0-3.

0 = Normal gingival

1 = Mild inflammation-light change in colour, slight edema but no bleeding on probing (BOP).

2= Moderate inflammation- redness, edema and glazing, and BOP.

3 = Severe inflammation- marked redness and edema, ulceration and tendency to spontaneous bleeding.

The average score of each tooth was calculated by dividing the score of each tooth surface by the number of surfaces examined. The final numerical score per person obtained using the following formula:

Score per person = sum of individual tooth scores / number of teeth examined.

Retained deciduous teeth:
Deciduous tooth is retained beyond the time of exfoliation is diagnosed as retained deciduous teeth[27].

Fractured teeth:
Teeth with broken edges with no obvious evidence of caries are diagnosed as traumatic fractured teeth. This is confirmed by eliciting history of trauma after diagnosing fractured teeth[28].

Data collection and processing :
Dental examination for 50 patients, were carried out per week. All the patients of the respective age groups were gathered and given introductory health talk. Methods of healthy tooth brushing, and general oral hygiene were taught to all. A small brochure on dental hygiene was given to all. The patients were examined by a single examiner for dental caries, gingivitis, retained deciduous teeth, fractured teeth and orthodontic problems to avoid inter examiner variations. After collection of data the obtained data was checked, verified & edited. These were entered in a personal computer using the SPSS (statistical package for social science) software. Entered data were cleaned, edited and appropriate statistical tests were done depending on the distribution of data

Result
This was a cross sectional study conducted among 500 patients in the department of Orthodontics and Dentofacial Orthopaedics, Dhaka Dental College and Hospital.
250 male and 250 female made up the study population (Table 1, graph 1).

Table-1 Distribution the age and sex of surveyed population

| Age in years	12yrs	13yrs	14years	15yrs	16yrs	17yrs	18yrs	Total
Male	61	27	10	32	15	34	71	250(50.0)
Female	57	20	31	33	29	23	57	250(50.0)
Total	118(23.6)	47(9.4)	41(8.2)	65(13.0)	44(8.8)	57(11.4)	128(25.6)	500(100)
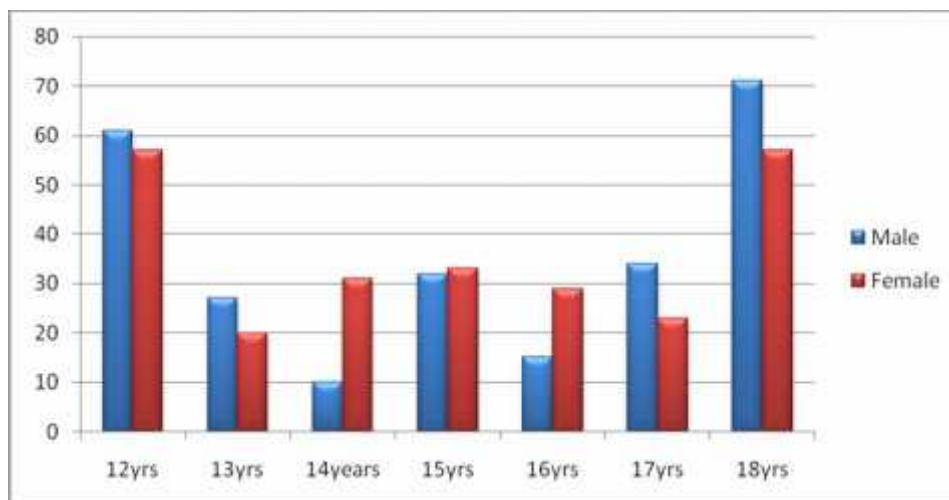
 Graph-1: Distribution the age and sex of surveyed population

Table 2 & 3 and Graph 2 & 3 showed 42.4% had caries and caries rate slightly more in male (50.5%) than female(49.5%) but not clinically significant. Filling 8.6 % , more in female (69.8%) than male (30.2%), Gingivitis 48.4%, more in male (61.2%) than Female (38.8%), retained deciduous 6%, fractured teeth 16.8% , more in male (65.5%) than Female (34.5%), multiple problem 84.6% and others 0.06%. It was observed that the gingivitis was most prevalent condition. This was followed by dental caries, fractured teeth, restored teeth and retained deciduous teeth.
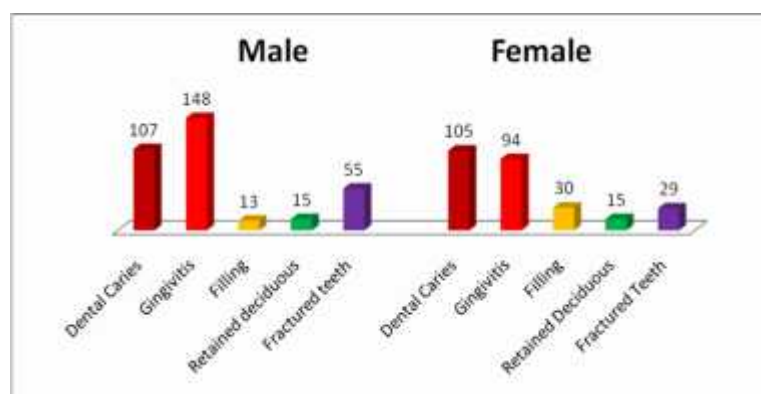
Table-2 Gender wise distribution of dental morbidities

Dental condition	Total no affected	%	Male	%	Female		P-value
Dental Caries	212	42.4	107	50.5	105	49.5	0.8271
Filling for Caries	43	8.6	13	30.2	30	69.8	0.0001[*]
Gingivitis	242	48.4	148	61.2	94	38.8	0.0001*
Retained deciduous teeth	30	6.0	15	50.0	15	50.0	NS
Fractured teeth	84	16.8	55	65.5	29	34.5	0.0001*
Multiple problems	423	84.6	225	53.2	198	46.8	0.1524
Other problems	32	0.06	17	53.1	15	46.9	0.1797

*P < 0.05 is statistically significant
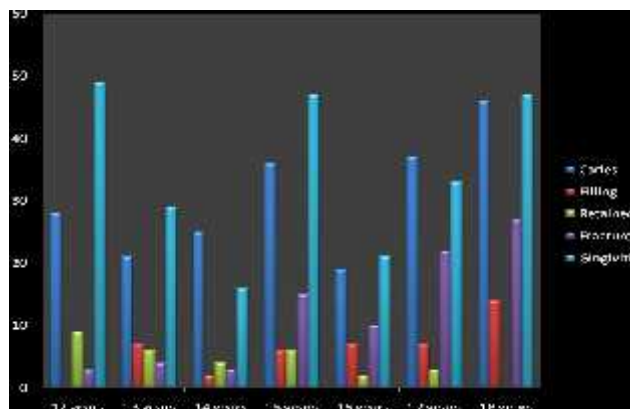
Graph-2 Age Wise distribution of different dental morbidities

Graph-3 Gender wise distribution of different dental morbidities

Discussion

Gingivitis is the commonest dental problem encountered. The prevalence of gingivitis observed in this study was 48.4% and higher prevalence in males (61.2%) than in female (38.8%). This findings are in disagreement with JoseA[31] who found only 15% prevalence of gingivitis with higher prevalence in female (56%) than in male (44%). Sutcliff survey also shows high prevalence among females.[32]

The prevalence of dental caries observed in this study was 42.4%. Both males and females were almost equally affected by caries with slightly higher prevalence among males. A study conducted by Jose A and Joseph M R [31] in rural Kerala reports 54.3% prevalence of dental caries and both males and females were almost equally affected by caries with slightly higher prevalence among males. A study conducted by Sogi G [33] in Davangare using DMFT/DMFS score reports higher prevalence in females that is statistically significant. A Study conducted by Cand.Odont. Severre Aukland and Cand.Odont. Johny Bjelkaroey [34] reports 45.8% prevalence of dental caries. Findings of this present study are in agreement with Jose A and Johny Bjelkaroey.

The prevalence of fractured tooth observed in this study was 16.8%, and higher in male (65.5%) than in female (34.5%). Finn also reports higher incidence of fractured teeth among boys. This may well be explained by the more aggressive eating habits of the boys[35]. Also chances of fights and falls are commoner among them which also contribute to fractured teeth.[23]

Among 500 male and female subjects only 8.65 had dental filling and among of all those subjects more females (69.8%) have dental fillings than males (30.2%). Jose A [31] also reports 3.18% dental fillings and higher in males which disagreed with present study.

As age advances retained deciduous teeth become less but still 6% Subjects had retained deciduous teeth with both males and females were equally affected. Jose A found 7% retained deciduous teeth. [31]

Present study showed Class I malocclusion was the most (61.8%) and Class I malocclusion was more in Male (54%) than female (46%). Class II div-1 was 23% and Class II div-1 malocclusion was more in Female (57.4%) than Male (42.6%). %). Class II div-2 was 2.2% and Class II div-2 malocclusion was more in Female (63.6%) than Male (36.4%). Class III was 13% and Class III malocclusion was more in Female (53.8%) than Male (46.2%). According to Hossain MZ[4] Class I malocclusion was (55.22%), Class II div-1 was 28.85% and Class II div-2 was 3.48% and Class III was 8.48 %. According to Ahmed N[5] Class I malocclusion was (45.84%), Class II div-1 was 32.74% and Class II div-2 was 7.14 % and Class III was 14.28 %.

Gingivitis is the commonest problem in Bangladesh according to present study. The second most dental problem was dental caries. The prevalence of orthodontic problems was comparable to the observations made by others. Males and females are equally affected with slight variations in the nature of problems among both genders.

Conclusion

Good oral health is essential to improve individual overall health & well-being. We urge to take this information & use it for program planning & advocating for the health of patients. It is only through working together that we can make excellent oral health a reality for these patients. Since the number of orthodontists available to treat patients in Bangladesh is limited, there is a high demand

on each practitioner. Therefore current orthodontics students should receive more education & training in the management of malocclusion to improve the overall quality of care for patients.

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