Factors Affecting Gingivitis among Patients Attending in a Tertiary Care Hospital of Bangladesh

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Abstract

Background: Gingivitis is one of the common diseases in Bangladesh and a public health problem also. Broadly factors of two categories are responsible for the occurrence of gingivitis: anatomical and behavioral. Few physiological factors also have influence. In Bangladesh we have no national health survey on periodontal condition. Objective: The aim of this study was to find out the factors affecting gingivitis among patients of 15 to 40 years of age attending in a tertiary care hospital in Dhaka city. Materials and method: This was a cross sectional study and purposive sampling method was used. Total 200 samples were taken who fulfilled the inclusion criteria by pretested structured questionnaire in outpatient department (OPD) of Bangabandhu Sheikh Mujib Medical University, Dhaka, Bangladesh. Results: The mean(±SD) age of respondents was 27±5 years. Dietary factors responsible for gingivitis were sweets (80%), followed by fast food (14%). Regarding behavioral factors, smoking (48%), tobacco using (8%) and betel nuts chewing (28%) influenced gingivitis. Most of the respondents (89%) were suffering from gingivitis for at least one year and gum bleeding was documented in 99% of respondents. Conclusion: Dietary and behavioral patterns were found to be responsible for gingivitis.

Keywords: Gingivitis; determinants.

Introduction

Gingivitis may be defined as inflammation of the gums (gingiva). It commonly occurs because of films of bacteria that accumulate on the teeth - plaque; this type is called plaque-induced gingivitis. Gingivitis is a non-destructive type of periodontal disease. If left untreated, gingivitis can progress to periodontitis, which is more serious and can eventually lead to loss of teeth. A patient with gingivitis will have red and puffy gums, and they will most likely bleed when they brush their teeth. Generally, gingivitis resolves with good oral hygiene - frequent brushing, as well as dental flossing. Some people find that using of an antiseptic mouthwash, along with proper brushing of teeth and flossing also help. In mild cases of gingivitis, patients may not even know they have it, because symptoms are mild. However, the condition should be taken seriously and addressed immediately.[1] A study was done to see factors affecting oral malodor in periodontitis and

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gingivitis patients and showed that in the gingivitis group, oral malodor was significantly correlated with the plaque index, bleeding on probing, and tongue coating.[2] In developed countries, this disease occurs mostly in young adults. In developing countries, necrotizing ulcerative gingivitis (NUG) may occur in children of low socioeconomic group, usually occurring with malnutrition, especially inadequate protein intake and shortly after the onset of viral infections (e.g. measles).[3] Predisposing factors include smoking, viral respiratory infections and immune deficiency disorders such as in HIV/AIDS. Uncommonly, except in lower socioeconomic group, this typically affects adolescents and young adults, especially in institutions, armed forces, etc., or people suffering from HIV/AIDS.[4] The disease has occurred in epidemic-like patterns, but it is not contagious.[3] The objective of the current study was to find out the factors affecting gingivitis in Bangladesh perspective.

Materials and method

A cross sectional study was conducted in the outpatient department in Bangabndhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh among 200 patients aged between 15-40 years from 01 May to 31 August, 2008. Non probability purposive sampling method was used for data collection. Mentally retarded and insane people were excluded from the study. The socio-economic classification in this study was made according to 2006 Gross National Income (GNI) per capita and using the calculation of World Bank (WB).[5] The groups were: low-income $75.41 or less (BDT $\leq$ 5360), lower middle-income $75.5-$299.58 (BDT 5361-21270), upper middle-income $299.68-$926.25 (BDT 21271-65761) and high-income $926.33 or more (BDT $\geq$ 65762). Before data collection, consent was taken from all the patients. Data were collected using pretested semi structured questionnaire by face to face interview and examining teeth including gum diameter and supragingival calculus or plaque and depth of periodontal pocket. After data collection, data were sorted, scrutinized based on the selection criteria and then data were analyzed by calculator and by SPSS version 12.0 programme.

Results

Regarding educational status of the study subjects, illiterate, primary, secondary, higher secondary education and above were 18.5%, 27%, 28% and 26.5% respectively. About 45% were housewife. Male and female were almost equal in numbers. About 75% came from lower income group. Most of them (93%) were Muslim (Table I).

Most of the respondents (89%) were suffering from gingivitis for at least one year and did not go for any type of dental check up. About 69% of respondents brushed their teeth with tooth paste and 85% of them did not use any type of mouth wash. Almost all of them presented with gum bleeding, calculus and plaque. Twenty eight percent respondents had periodontal pocket (Table II).

Table I: Socio-demographic characteristics of respondents (N=200)

Variables	Frequency	Percentage
Education		
No schooling/illiterate	37	18.5
Primary	54	27
Secondary	56	28
Higher secondary & above	53	26.5
Occupation		
Housewife	90	45
Business	33	16.5
Farmer	17	8.5
Rickshaw puller	27	13.5
Others	33	16.5
Sex		
Male	104	52
Female	96	48
Monthly income(BDT)		
Lower income (<5360)	149	74.5
Middle income (5360-21270)	39	19.5
Upper middle-high income (21271-65761)	12	6
Religion		
Muslim	186	93
Hindu	9	4.5
Christian	5	2.5

Smoking, tobacco intake and betel nuts chewing were reported in 48%, 8% and 28% of respondents respectively. Among dietary factors, sweet (80%) and fast food (14%) were mostly responsible for gingivitis (Table III).

Table II: Pattern of gingivitis of respondents (N=200)

Variables	Frequency	Percentage
Duration of suffering		
0-12 month	178	89
13-24 month	16	8
≥ 25 month	6	3
Dental check up		
Yes	7	3.5
No	193	96.5
Brushing activity		
Brushing with tooth paste	138	69
Using hand with tooth paste	18	9
Using hand with different items	44	22
Interdental brushing		
Yes	14	7
No	186	93
Mouth wash		
Yes	30	15
No	170	85
Gum bleeding		
Present	198	99
Absent	2	1
Supragingival calculus		
Present	197	98.5
Absent	3	1.5
Subgingival calculus		
Present	198	99
Absent	2	1
Supragingival plaque		
Present	196	98
Absent	4	2
Subgingival plaque		
Present	197	98.5
Absent	3	1.5
Periodontal pocket depth		
Present	56	28
Absent	144	72

Table III: Distribution factors affecting gingivitis of respondents (N=200)

Variables	Frequency	Percentage
Habit		
Smoking	95	48
Tobacco using	16	8.1
Betel nuts chewing	56	28.3
Others	31	15.7
Dietary factors		
Sweet	160	80
Chocolate & chewing gum	2	1
Fast food	28	14
Others	10	5

Discussion

This study provided some important information about gingivitis. The present study revealed that 48%, 8% and 28% of respondents had habits of smoking, tobacco using and betel nuts chewing respectively. Among dietary factors, sweet (80%) and fast food (14%) were mostly responsible for gingivitis. Some evidence showed that smoking is the single major preventable risk factor for periodontal disease. Smoking can cause bone loss and gum recession even in the absence of periodontal disease. The risk of periodontal disease increases with the number of cigarettes smoked per day. Smoking cigars and pipes carries the same risks as smoking cigarettes. It is also believed that chewing tobacco plays an aetiological role in gingivitis. Long-term abuse of alcohol and certain types of illegal drugs (amphetamines) can damage gums and teeth. A healthy diet, including eating fruits and vegetables rich in vitamin C, is important for good oral health. Malnutrition is a risk factor for periodontal disease.[6,7]

The present study found that about 69% of respondents brushed their tooth with tooth paste and 85% of them did not use any type of mouth wash. It was found that most of the patients (89%) were suffering from gingivitis for at least one year

and they did not go for dental check up. Almost all of them presented with gum bleeding, calculus, plaque and 28% had periodontal pocket. Lack of oral hygiene, such as not brushing of teeth or flossing regularly, encourages bacterial buildup and plaque formation.[6] Evidence supported that pathological factors include bone resorption as a sequel to microbial induced periodontal diseases. In addition to psychological factors, various forms of trauma – such as vigorous brushing of teeth, aberrant frenal attachment, occlusal injury, operative procedures have been thought to play a role in the aetiology of gingivitis.[7] Epidemiological studies have concluded that traumatic tooth brushing may be associated with gingivitis.[8] Faculty of Dentistry of University of Toronto encouraged brushing teeth at least twice a day and flossing at least once a day. The most important time to brush is before going to bed. This is because while sleeping there is less saliva in mouth and less frequent swallowing, so there is less saliva available to wash away the bacteria. It is also important that one does not eat after brushing teeth, especially not any foods that are sticky or sugary.[9] There is a misconception that eating certain foods can help keep mouth clean. In fact, there are no foods that clean teeth. One can accomplish this only through brushing, flossing and other means of mechanical cleaning. Some foods can even increase plaque build-up. Examples of such foods are sticky candies, soft, mushy foods like breads and pasta, as well as sugary foods and sweetened drinks. If one does eat sweets, eat them all at one time rather than throughout the day, and brush teeth right afterwards.[9]

This study provided a vivid picture of factors affecting gingivitis among patients aged 15 to 40 years in Bangladesh. Diet and behavior were responsible for gingivitis. The study result should not be generalized and needs further large scale research.

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