Original Article

Gingivitis: A Common Preventable Oral Health Problem

Jebun Nessa[1], S R Choudhury[2]

Abstract

Bangladesh is a country possessing harmful lifestyle for oral health. The country culture put the people to be exposed to harmful factors responsible for development of gingivitis. However, effective health education can bring encouraging result to aware them for healthy practice.

The objective of the present study is to investigate the effect of habitual factor as well as demographic influence on gingival health status.

A hospital-based cross sectional descriptive study was carried out at the Faculty of Dentistry, BSMMU, Dhaka-1000, from April-June of 2004. A total of 117 cased were interviewed and examined. Data were collected from all patients attended the dental outpatient department. All patients were interviewed (face-to-face) using a semi-structured questionnaire. Clinical examination was performed to measure the gingival health status using standard gingival index.

Statistical analysis was carried out using SPSS program version 10.0.

Among all participants 37.6% were female and 62.4% were male. The age range of the participants was 10-65 years. Most of the participants were student (22.2%).

The study showed high rate of gingivitis (89%). The peak prevalent age group was over 40 years. The worst condition was detected among those who were both tobacco users as well as betel nut chewers (73.3%) and this is highly significant (p<.000). The majority of the study population showed a tendency to brush their teeth in the morning (86.3%) rather than at night (10.3%). It was found that the prevalence of gingivitis significantly increased with decreasing social class irrespective of sex. The study also found other interesting associated factors related to the gingivitis.

Since little information is currently available in Bangladesh, small-scale hospital-based survey offers little support regarding the concept of gingivitis and its associated factors. Further study is needed with bigger sample size preferably using qualitative approach.

TAJ 2004; 17(1) : 20-26

Introduction

Bangladesh is a country of explosive population growth and with significant resource limitations. So, severe hard-ship is caused all over the country especially in health sector. Moreover, the country people possessing life-style harmful for oral health. The culture of the country influences the people to believe and practices superstition especially in the rural area. Since in Bangladesh

[1] Associate Professor, Department of Preventive and Children Dentistry, Faculty of Dentistry, Bangabandhu Sheikh Mujib Medical University, Dhaka.
[2] Medical Officer, Department of Preventive and Children Dentistry, Faculty of Dentistry, Bangabandhu Sheikh Mujib Medical University, Dhaka.

the vast majority of people live in the rural area, their perception, beliefs, attitudes, practices impose a great influence on their health particularly oral health. It is therefore, important to find out the factors that influence oral health especially gingival health. Gingivitis is the commonest oral health problem in Bangladesh and very easily we can prevent this disease with minimum cost and effort.

Aim and objectives: The objective of the study was to investigate the effect of habitual factors as well as socio-cultural influence on gingival health and also to create awareness about their harmful practices.

Materials and methods

It was a three months hospital-based cross sectional descriptive study. The study was carried out at the Faculty of Dentistry of BSMMU, Dhaka in Bangladesh. A total of 117 cases were studied. Data were collected from all patients attended the Dental Outpatient Department during the study mention the period. Face-to-face interview were taken using semi-structured questionnaire. The gingival health status was measured from all patients by clinical examination using Gingival Index.

Criteria for Gingival Index

Excellent = No calculus

Good = Supra gingival calculus covered $<1/3^{rd}$ of the exposed tooth surface

Fair = Supra gingival calculus covering $>1/3^{rd}$ of the exposed tooth surface or the presence of individual flecks of sub-gingival calculus around the cervical portion of the tooth

Poor = Supra gingival calculus covering $<2/3^{rd}$ of the exposed tooth surface or a continuous heavy band of sub-gingival calculus around the cervical portion of the tooth

All collected information was analyzed using Statistical Package for Social Sciences (SPSS) program version 10.0. The data were analyzed for frequency distribution; the chi-square test was used for comparison. The significance level (p-value) was set at 0.05.

Results

Among all participants 37.6% were female and 62.4% were male. The age range of the participants was 10-65 years and the mean age was 33 years. Among all participants 14.5% were illiterate and the rest (85.5%) were literate. The highest rate of educational level was the people of 9-10 class, which constitute 58.1%. Amongst the study population the highest rate of occupation was student, (22.2%). The next highest rate of occupation was house wife (18.8)%. The highest income group of this study was taka 5001-10,000. The study showed high rate of gingivitis (89%) and the peak age group for gingivitis was over 40 years.

The investigators were interested to find out the -

A. Impact of personal hygiene on gingival health status

B. Socio-demographic influence on gingival health status

C. Effects of other cultural habits and practices on gingival health status

Personal hygiene

i) Materials using for tooth cleaning: According to the participant's response Table I shows that 75.2% of study population clean their teeth regularly with paste and brush. The second highest material using for cleaning teeth was coal, the percentage of which was 17.1%.

Table-1: Frequency of different materials using for tooth Cleaning

Materials using for tooth cleaning	Number (%)
Brush and paste	88(75.2%)
Coal	20 (17.1%)
Leaves	1 (0.9%)
Miswak	2 (1.7%)
Powder	1 (0.9%)
Others	5 (4.3%)
Total	117 (100%)

For the people who brush their teeth regularly using paste and brush, 41.9% of them had from good to excellent gingival health status. On the other hand, not a single person showed good to excellent gingival health in those who clean their

teeth with other than paste and brush and among this group 72.4% people showed the worst gingival health.

ii) Time of tooth brushing: Study findings also suggested that the majority of the study population (86.3%) showed a tendency to brush their teeth in the morning whereas only 10.3% of them brush their teeth at night before going to bed.

Figure 1 demonstrates that almost half (46.2%) of the respondents who brush their teeth after dinner before going to bed had excellent gingival health. Only 3.4% of them had the worst gingival health.

And only few people (6.9%) of the respondents who brush their teeth in the morning had excellent gingival health.

This difference is statistically significant ($p > .000$).

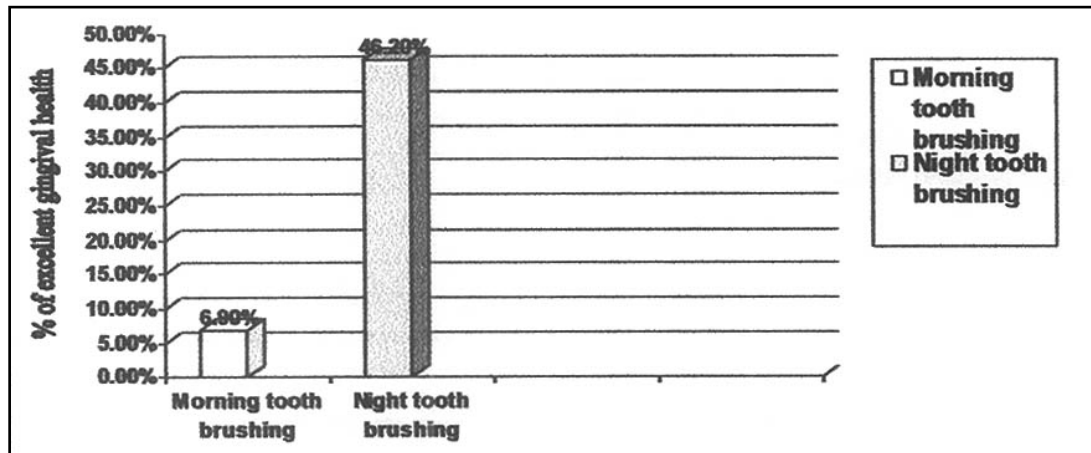So, brushing teeth at night, before going to bed is found helpful than any time of the day.

Fig. 1: Impact of time of tooth brushing in terms of excellent gingival health

Socio-Demographic influence: To show the overall variation in gingival health between socio-demographic influences, careful evaluation of educational status, occupational status and monthly income was done.

i) Education: Figure 2 displays a wide variation in the percentage of the worst gingival health status between the literate (17%) and illiterate (70%) groups amongst all participants.
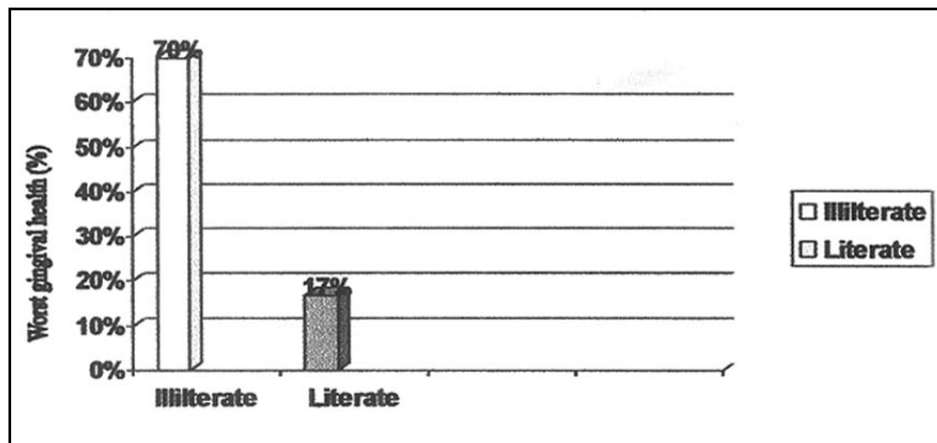

Fig. 2: Impact of education on gingival health
This variation is highly significant ($p < .000$).

So, education must have a great influence on maintenance of good oral hygiene.

ii) Occupation: Study findings indicated that among all participants, student constitutes the highest percentage (22.2%) and among the student only 19.2% brush their teeth at night. Again, among them who brush their teeth at night, 60% of them showed excellent gingival health whereas those students who did not brush their teeth at night only 19% showed excellent gingival health.

So, from the study findings it is clearly evident that brushing habit after dinner before going to bed is significantly beneficial for gingival health.

This difference is also statistically significant (p>.000).

Therefore, this study indicates that education and occupation showed a significant association with gingivitis (p>0.000).

iii) Monthly income: Monthly income did not show any association with gingivitis significantly.

Cultural practices

i) Tobacco users: Concerning cultural practices, 54.7% of all participants were tobacco users.

Table II shows that amongst tobacco users only 7.8% showed excellent gingival health and 28.1% showed the worst. Again, in case of non-tobacco users 15.1% showed excellent gingival health and 20.8% showed the worst.

Table-II: Gingival Health Status between tobacco users and non-tobacco users

Gingival Health	Tobacco users	
Excellent	Yes	No
	7.8%	15.1%
Worst	28.1%	20.8%

Consequently, gingival health of non-tobacco users was two times better (excellent) than tobacco users.

Findings showed that among the tobacco users only 6.3% reported brushing their teeth at night before going to bed.

Interestingly, all tobacco users who brush their teeth at night showed excellent gingival health. Only 1.7% of tobacco users who did not brush their teeth at night showed excellent gingival health (see Fig. 3), which is highly significant (p>.000).
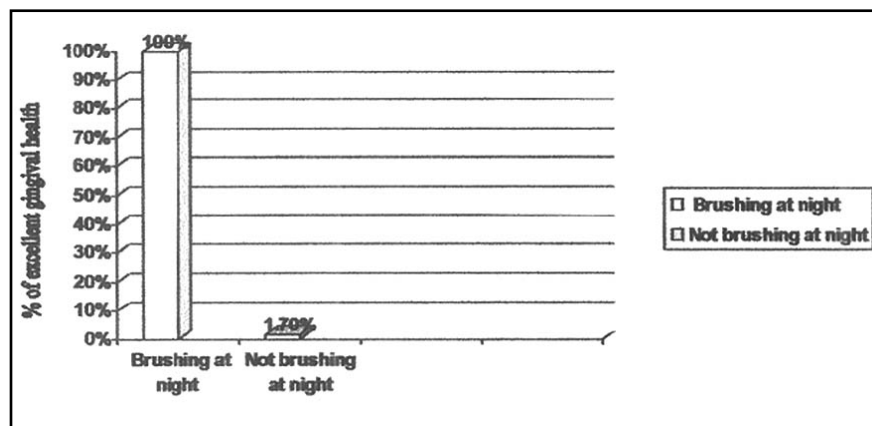

Fig. 3: Percentage of excellent gingival health status of tobacco users in terms of time of tooth brushing habit

ii) Betel nut chewer: Another finding identified that 22.2% of study people were betel nut chewer and not surprisingly, no one of them showed excellent gingival health. Amongst them 61.5% showed worst gingival health. This variation is represented in Figure 4. The difference is statistically significant (p>.000).
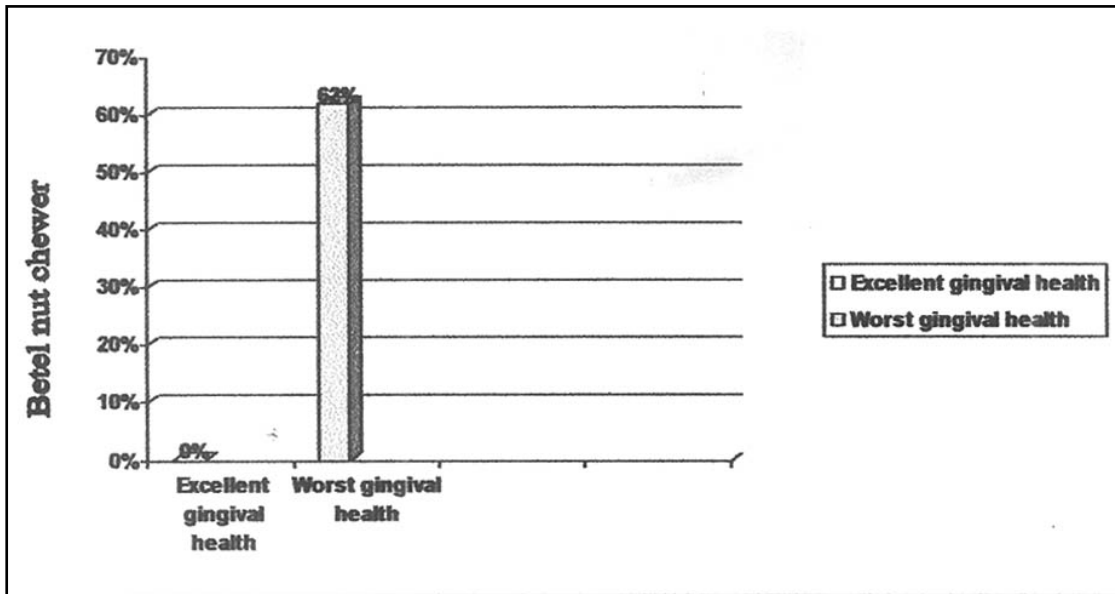
Fig. 4: The gingival health status among betel nut chewer

All betel nut chewer reported using brush to clean his or her teeth. Amongst them 46.2% brush at night before going to bed. But no one showed excellent gingival health.

iii) Both betel nut and tobacco users: Research findings showed that among all study participants 12.8% were both betel nut chewer and tobacco users. Again, Figure 5 paints a similar picture for this group. For instance, among this group nobody showed excellent gingival health and 73.3% of them showed worst gingival health. This difference is statistically significant (p<.000)
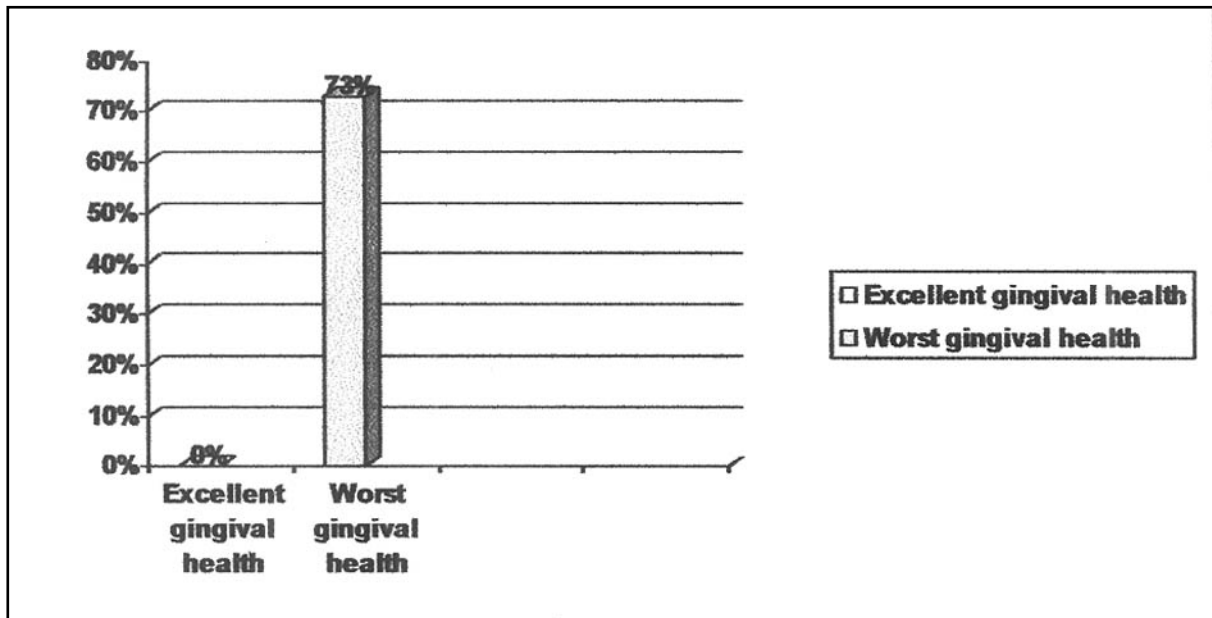

Fig. 5: The gingival health status among those who were both tobacco users and betel nut chewer

From this finding it is evident that the combine effect of betel nut and tobacco on gingival health is more harmful (73.3%) than that of their single use. Moreover, betel nut (61.5%) is more harmful than tobacco (28.1%).

Discussion

The best method for controlling gingivitis is to brush thoroughly and regularly (at each day, especially at night before going to bed). The results of the present study showed this clearly. Despite this fact, a number of influential factors recognized in this study that can be discussed by comparing it with certain previous relevant studies.

The data findings showed among all tooth cleaning materials toothpaste and brush was prevalent (75.2%). Among them 41.9% showed good to excellent gingival health status whereas not a single person identified as from good to excellent gingival health those clean their teeth with other than paste and brush.

Support for the effect of using tooth brush for tooth cleaning purpose can be found in the study conducted among graduate students from King Saud University, College of Dentistry (Almas K, Al-Hwish A, 2003) where the results have shown that using brush is more beneficial than any other materials.

It is worth noting that in this study for most of the participant (86.3%) showed a tendency to brush their teeth in the morning rather than at night (10.3%). Almost half of the participants (46.2%) who brush their teeth at night had excellent gingival health and only 6.9% of the respondents who brush their teeth in the morning showed excellent gingival health, which is highly significant (p>0.000)

It is so important to aware the people about the best time for tooth brushing through heath education.

In this study the peak prevalent age of gingivitis was over the age of 40 years. But in contrast with other researcher's (Bral M, New York University), findings, in the world among kids gingivitis is the most common disease (98%) and mostly it is due to dirty mouth.

Therefore, fortunately it has a simple solution, which could prevent gingivitis mostly by maintaining good oral hygiene (daily brushing and flossing).

Another findings of the present study revealed that there was no association between gingival health and economical status.

This finding is in line with that of another study (Tanni DQ, 2002). For instance, although the study findings showed that poor children had worse gingival health than they were among rich children. But the difference between them was not significant. Therefore, both socio-economic groups need dental health education about maintenance of good oral hygiene.

Again, Figure 4 presents the gingival health status among betel nut chewer while no one showed excellent gingival health but 61.5% showed the worst gingival health (p>0.000).

In this regard they need health education because most people do not have any concept about ill effect of betel nut (Banglapedia: Oral health, Hussain MA).

Research findings also indicated that gingival health of non-tobacco users was two times better than tobacco users. The result of the present study is in accordance with the features of Smokeless Tobacco: As harmful as cigarettes.

Conclusion & Recommendation

It is evident from the study that harmful habits and practices bring negative impact on gingival health status. It indicates maintenance of good personal hygiene and avoidance of harmful practices could prevent gingivitis. So, creation of awareness of the people regarding oral hygiene is essential.

Recommendations

Need to emphasize the oral hygiene and practices through effective awareness program such as

- Intervention at school through mobile clinic

- Include a chapter on personal hygiene and practices in the health education curriculum at school

- Community oriented program for parents and community people

- Provide effective and appropriate messages on oral health through mass media.

Reference

1. Tanni DQ. Relationship of socio-economic background to oral hygiene, gingival status, and dental caries in children. Quintessence Int. 2002 Mar; 33(3): 195-8.

2. Bral M. Gingivitis: The most common disease among kids in the world. In: Dentistry for children. New York University.

3. Almas K, Al-Haosh A, Al-Khamis W. Oral hygiene Practices, Oral Malodor among Dental Students. J Contemp Dent Pract 2003 November (4) 4:077-090.

4. Hussain M A. Banglapedia: Oral Health. Asiatic Society of Bangladesh.

5. William SA. Dental Health Teaching and Health Visitors. Health Educ J 1980; 39:119-22.

6. Smokeless tobacco: As harmful as cigarettes. October 27, 2003 (1998-2004) Mayo Foundation for Medical Education and Research (MFMER).

7. Smith JF. Medical Library: Oral hygiene.

All correspondence to:
Dr. Jebun Nessa
1/11, Block 'A' Iqbal Road,
Asad Avenue, Mohammadpur
Dhaka-1207.