Oral health status among the adult tobacco users in a selected rural area of Bangladesh

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Abstract:

Tobacco use is a primary cause of many oral diseases and adverse oral conditions and it is a risk factor for oral cancer, periodontal diseases, congenital defects such as cleft lip and palate in children whose mother smokes during pregnancy. A cross sectional study was conducted among 190 adult tobacco users in Charpaterdoho Union, Madarganj Upazilla, Jamalpur District, during the period from July 2013 to December 2013 to assess the oral health status of the adult tobacco users in rural area of Bangladesh. Data were collectedby using pre tested interview administered questionnaire andto assess the oral health status intra oral examination was performed by a dental surgeon assisted by two trained and calibrated investigators. Both descriptive and inferential statistics has been used for analysis of data with the help of Statistical Package for Social Science SPSS (Version 21) software on the basis of different variables. The study result revealed that out of 190 respondents maximum 61 (32.1%) belongs to 18-28 years age group, majority 116 (61.1) % were male. Among the respondents tobacco used in different ways like cigarette, 'Gul', 'Zorda', betel leaf, 'Sadapata' consumption where cigarette was the commonly used form of tobacco and the least commonly used form of tobacco was betel leaf and 'Sadapata'. In intra oral examination this study result revealed that around 50 (26%) respondents dentition condition was healthy, and 121 (63.7%) respondents had less than 25% decayed teeth, 115(60.5%) respondents had periodontitis, around less than three fourth 132 (69.5%)had gingivitis,almost all (95.3%) had dental deposition or plaque and 155 (81.6%) respondents had no functional prosthesis. In logistic regression analysis monthly family income level (p =.004) was significantly associated with oral health status when the adjusted with other variables (education, sex, age). Sex and age were not associated with oral health status. Exposure to tobacco is a significant, modifiable risk factor for different oral diseases, so the changing attitude can be occurred by giving adequate information and motivation to the mass people along with dental health education.

Key words:*Tobacco, Oral disease, Periodontitis.*

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Introduction:

The use of tobacco is a major public health threat all over the world. According to WHO estimates, nearly one third of the global adult population 1.1 billion people, of whom 200 million are female (nearly 47% of men and 12% of women user). In developing countries, 48% of men and 7% of women smoke while in developed countries 42%. Consumption level ranges between 55% and 80% among adult men and 3% and 71% among women[1].Tobacco use is a primary cause of many oral diseases and adverse oral conditions and it is a risk factor for oral cancer, oral cancer recurrence, adult periodontal diseases, congenital defects such as cleft lip and palate in children whose mother smokes during pregnancy. Tobacco use suppresses the immune system's response to oral infection, retards healing following oral surgical and accidental wounding, promotes periodontal degeneration in diabetics and adversely affects the cardiovascular system.Oral and pharyngeal cancers pose a special challenge to oral health programmes particularly in developing countries. Cancer of the oral cavity is high among men, where oral cancer is the eighth most common cancer in the world. Incidence rates of oral cancer are high in developing countries, particularly in areas of South Central Asia where cancer of the oral cavity is among the three most frequent types of cancer[2-4]. World wide tobacco use among the adult is associated with a high risk of oral health problem. The adult groups are conceded as the important population of the country and prevalence of tobacco use particularly in recent year had an increasing trend in this age group especially among the adult population. The aim of this cross sectional study was to assess the oral health status of the adult tobacco users in rural area of Bangladesh which covers the pattern of tobacco uses with duration and daily consumption, the association between oral health status with other socio-demographic variables.

Materials and methods:

A cross sectional study was conducted among purposively selected 190 adult tobacco users in Charpaterdoho Union, MadarganjUpazilla, Jamalpur District, for the duration of July 2013 to December 2013. The study was approved by the Institutional Review Board of the Bangladesh University of Health Sciences and official permission for data collection was obtained from the Chairman of Charpaterdoho Union Parishad. The inclusion criteria set were tobacco user both smoking and smokeless tobacco aged between 18 and 65 years, living in the study area and who were mentally compromised or terminally ill were excluded from the study. Prior taking verbal informed consent from each respondents data were collected by pre tested interview administered questionnaire and intra oral examination assisted by two trained and calibrated investigators guided by a dental surgeon. The data collection places were different public places in Charpaterdoho union like different points in local bazar, school area, college area and from mosque area specially after namaz in Friday. Oral health status was assessed with dentition condition, periodontal condition, oral mucosa and gingival condition, dental deposition/plaque and tartar, functional prosthesis related variables. Dentition condition in this study assessed by considering total number of present teeth as 100%, the percentage of decayed teeth was calculated, here missing teeth was not counted and functional prosthesis in this study refers to any removable or fixed prosthesis using by the respondents like denture, crown, bridge. Finally data analysis was carried out using the software Statistical Package for Social Science (SPSS) 21 version on the basis of objectives of the study and data presentation was done by MS Word and MS Excel.Oral health status associated with other socio-demographic variables were explored by binary logistic regression analysis, where the value of less than 0.05 was considered to be statistically significant.

Results:

Table 1: Socio demographic characteristics of the respondents. [n=190]

Age group (in years)	Frequency	Percentage
18 – 28	61	32.1
29 – 38	39	20.5
39 – 48	40	21.1
Above 48	50	26.3
Mean (± SD)	41.3 (± 6.81)	
Educational qualification	Frequency	Percentage
Illiterate	40	21.0
Up to Primary	50	26.3
Up to HSC	68	36.0
Graduation and above	32	16.8
Religion	Frequency	Percentage
Islam	179	94.2
Hindu	11	5.8
Occupation	Frequency	Percentage
Service	51	27.2
House wife	45	23.9
Day labor	31	16.3
Business and others	63	33.4
Monthly family income (in taka)	Frequency	Percentage
Up to 10000	83	43.6
10001 – 15000	43	22.6
Above 15000	64	33.7
Mean (± SD)	12397.2(± 2976.3)	

Table 1 revealed that the mean age of the respondents was 41.3 ± 6.81 years, 68 (36.0%) respondents educational qualification was up to HSC, 179 (94.2%) were Muslim, 63 (33.4%) respondents occupation was business and others, the mean monthly family income of the respondents was 12397.2 (± 2976.3) taka.

Figure 1: Distribution of the respondents according to sex.

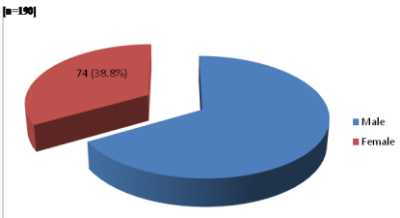

Figure 1 shows out of 190 respondents 116 (61.1) % were male and 74 (38.8) % were female.

Figure 2: Distribution of the respondents according to different ways of tobacco use. [n=190]

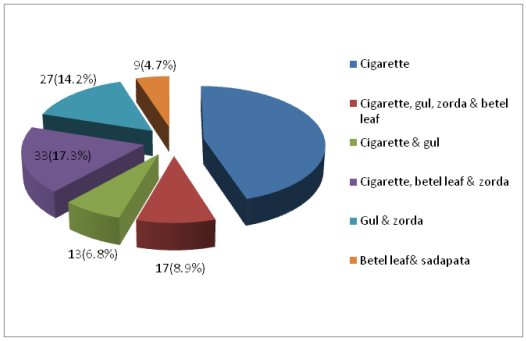

Figure 2 shows 81 (42.6%) use tobacco in the form of cigarette, where as 9 (4.7%) use tobacco in the form of betel leaf andsadapata.

Table 2 : Distribution of the respondents according to consumption of different types of tobacco per day.

Different types of tobacco consumption per day		Frequency	Percentage
Cigarette	Up to 5 stick	60	31.5
	6 – 10 stick	26	13.6
	More than 10 stick	30	15.7
	No response	74	38.9
Gul	Less than 3 gm	7	3.7
	3 – 5 gm	1	0.5
	No response	182	95.8
Zorda	Less than 3 gm	70	36.8
	3 – 5 gm	22	11.6
	No response	98	51.6

Table 2 shows 60 (31.5%) take up to 5 cigarette per day, 26 (13.6%), 30 (15.7%) take 6-10 cigarettes, more than 10 cigarettes per day respectively. About daily zorda consumption 70 (36.8%),22 (11.6%) take less than 3 gm, 3 – 5 gm respectively.

Table 3 : Distribution of the respondents according to duration of tobacco use.

Duration of tobacco use	Frequency	Percentage
Less than 1 year	37	19.4
1 – 5 year	64	33.6
More than 5 years	89	46.8
Total	190	100.0

Table 3 shows 89 (46.8%) respondents use tobacco for the duration of more than 5 years, 64 (33.6%) and 37 (19.4%) use tobacco for the duration of 1-5 years

and less than 1 year respectively.

Table 4 : Distribution of the respondents according to the oral health status.

Oral health status		n (%)
Dentition condition	Healthy	50 (26.3%)
	More than 50% decayed teeth	10 (5.3%)
	Less than 50% & more than 25% decayed teeth	9 (4.7%)
	Less than 25% decayed teeth	121 (63.7%)
Periodontal condition	Healthy periodontium	75 (39.5%)
	Periodontitis	115 (60.5%)
Oral mucosa and gingival condition	Healthy oral mucosa	46 (24.2%)
	Gingivitis	132 (69.5%)
	Presence of oral lesion	12 (6.3%)
Dental deposition / plaque and tartar	Absent	9 (4.7%)
	Present	181 (95.3%)
Functional prosthesis	Absent	155 (81.6%)
	Present	35 (18.4%)

Table 4 shows about the dentition condition of the respondents 121 (63.7%) had less than 25% decayed teeth, where as 50 (26.3%) dentition condition was healthy. 115 (60.5%) had periodontitis and 75 (39.5%) had healthy periodontium, about oral mucosa and gingival condition 132 (69.5%) had gingivitis, 181 (95.3%) had dental deposition / plaque and tartar, 35 (18.4%) had functional prosthesis.

Table 5: Oral health status associated with other socio-demographic variables explored by logistic regression analysis

Socio-demographic variables	B	Sig (p values)	Exp(B)
Education	-.227	.312	.797
Occupation	.404	.238	1.498
Monthly family income	-1.222	.004	.295
Sex	-1.383	.066	.251
Age	.467	.065	1.596

Table 5 shows that monthly family income level (p =.004) was significantly associated with oral health status when the adjusted with other variables(education, sex, age). Sex and age were not associated with oral health status (p values .066,.065 respectively). Education and occupation was not associated with oral health status(p values .312, .238 respectively).

Discussion:

This cross sectional study was carried out with the aim to assess the oral health status of the adult tobacco users in rural area of Bangladesh which covers the pattern of tobacco uses with duration and daily consumption, the association between oral health status with other socio-demographic variables. According to the study results the mean age, mean monthly family income ofthe tobacco users was 41.3 ± 6.81 years,12397.2 (± 2976.3) taka respectively,68 (36.0%) respondents educational qualification was up to HSC, 179 (94.2%) were Muslim, 63 (33.4%) respondents occupation was business and others. A study from Department of Public Health Dentistry, Yenepoya Dental College, Deralakatte, Mangalore, India, [5] 7.8% among males, prevalence of mucosal lesions was highest in the 46-60 year-old followed by the ≥ 61 year age group while among females, prevalence was highest in the 31-45 years old followed by the 46-60 years age group. In this study, 190 respondents maximum 61 (32.1%) belongs to 18-28 years age groups and 116 (61.1) % subject are male, 74 (38.8%) are female.According to different studies occurred on Bangladesh, India, Pakistan, their distribution of tobacco consumption is not uniform; it is disproportionately higher in lower socioeconomic groups, poor, semi-skilled manual occupation groups, unemployed and poor educational achievers[6-11], which was much consistent with the socio-demographic results of this study. Gender and locality differences in tobacco prevalence among adult Bangladeshi population a study showed where current smoking and gul usage were significantly higher in males (42.2%) than females (2.3%) while chewing tobacco was more common in females (21.6%) than males (19.4%). On average a smoker consumed 9.3 sticks a day with males [11], which also supports this study result where 81 (42.6%) consumed cigarette as a form of using tobacco, male respondents were in 116 (61.1%)(Fig 1) and 60 (31.5%) respondents were uses less than 5 stick per day .In intra oral examination this study result revealed that around 50 (26%) respondents dentition condition was healthy, and 121 (63.7%) respondents have less than 25% decayed teeth, 115 (60.5%) respondents had periodontitis , around 70% respondents had gingivitis, almost all the respondents 181 (95.3%) had dental deposition or plaque and in 155 (81.6%) respondents functional prosthesis were absent. In this study, income level (p =.004) washighly significantly associated with oral health when the adjusted with other variables (education, sex, age). Sex and age were not associated with

oral health, although in this study maximum subjects were male and 18-28 years age group which also supports the study results.[5]This study was conducted with a small sample population and DMFT score was not assessed in this study which was a limitation of the study.

Conclusion:

Along with previous research,based on findings from this study, it can be concluded that tobacco consumption is a major risk factor for different oral diseases including periodontitis and non-smoking tobacco consumption like chewing betel leaf with tobacco leaf and taking gul may be more harmful for oral health in rural Bangladesh. Exposure to tobacco is a significant, modifiable risk factor for tooth loss, current decay and periodontal disease in older adults, independent of selected social and behavioral risk factors. A large proportion of adult periodontitis may be preventable through prevention and cessation of chewing betel leaf and taking Gul. Major oral and dental problem initiated by consumption on tobacco related product specially chewing tobacco leaf and betel nut etc. The changing attitude can be occurred by giving adequate information and motivation to the mass people. So dental health education is needed focusing on special needs of population to improve their quality of life expectancy.

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