Original Article

Pattern of Tobacco Consumption among the Diabetic Patients

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Abstract

Diabetes Mellitus (DM) is a public health challenge all over the world. Recent evidence suggests that there is a positive association between smoking and the risk of diabetes. This descriptive cross-sectional study was conducted from March to June 2008 at BIRDEM Hospital, Shahbagh, Dhaka to find out pattern of tobacco consumption among diabetic patients. Age of the respondents was ≥ 15 years. With purposive sampling total 255 respondents were selected. Data was collected through face-to-face interview with structured questionnaire. Out of 255 respondents, 51.4% consumed deferent type of tobacco. Smoker was 63.36% and smokeless tobacco user was 52.67%. The highest (45.80%) had habit of smoking, 36.64% had habit of smokeless tobacco and 17.56% had habit both types of tobacco consumption. The highest smoking and smokeless tobacco consumption found within 50-60 years age group. Total 60.80% male had smoking habit and 32.82% female were smokeless tobacco consumer but no female was smoker. Twenty nine percent tobacco consumers were primarily educated, 16.08% service holders were tobacco consumer and 13.75% service holders were smoker. Among respondents lung diseases and heart diseases were common (78.54.0% and 49.36%). Respondents who consumed tobacco were suffered (74.36%) more complication than non-tobacco consumer (25.64%). So an effective awareness program is required to discourage the consumption of tobacco to protect diabetic patients.

Key words: Diabeter mellitus, Smoking, Tobacco.

Introduction :

Diabetes Mellitus (DM) is a public health challenge in both developed as well as developing countries. Total 154 million adult have DM worldwide and this number will be doubled by the year 2025[1]. South Asian countries have lower prevalence rates but have complications because of late diagnosis and poor management. In developing countries, the urban to rural excess in expected to rise from 1.6 in 1995 to 3.3 by the year 2025[1,2]. Globally female diabetes was more than male diabetes, majorities were 45-64 years of age and this trend will continue till 2025. In developing countries similar trend is also expected to follow till 2025. At present, 33 million adult people in SAARC countries had type-2 DM which expected to be 77 million by 2025[1-7]. The magnitude of diabetes in this country remains unknown due to lack of country wide survey.

DM increases the risk of coronary heart diseases, stroke and amputation due to gangrene[1,2]. Tobacco, especially smoking is a major cardiovascular risk factor and death. However, whether smoking increases the incidence of DM remains controversial. Several earlier prospective studies showed no relationship between smoking and risk of DM. Recent evidence has suggests a positive association between smoking and DM in both male and female[1,2]. In a cohort study at USA shows positive association between cigarette smoking and DM[8]. Cigarette smoking may be an independent, modifiable risk factor for insulin dependent diabetes mellitus[9]. In another study it was found that, smoking is independently associated with increased risk of Type-2 DM among both middle aged and elderly men & women[10]. According to the WHO, tobacco smoke is the second biggest cause of death worldwide[11].

In Bangladesh, there is great variation in the pattern and mode of tobacco consumption, including smoking of cigarette, bidis, pipes cigars, traditional smoking using hookah, and chewing of tobacco in the form of raw dried leaf, zarda, gul, snuff etc[12]. In Bangladesh, large numbers of people are tobacco user. Day by day tobacco smokers and non smoke tobacco user is increasing. Among them a large portion are diabetic patient. But

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they are not wholly educated and aware about smoking associated complication and diabetes. If we can disseminate the adverse effect of smoking in diabetes, people who are at high risk for DM can change their smoking consumption habit. It will save many lives from smoking related complication of DM. This study may make a scope to determine smoking consumption habit among the diabetic patient in Bangladesh and to take some effective anti tobacco consumption measures among them.

Materials & Methods:

This cross sectional study was conducted at BIRDEM Hospital, Shahabagh, Dhaka from January to June 2008 among diabetic patients attending in the Out Patient Department (OPD) to find out the pattern of tobacco consumption among them. Both male and female patients above 15 years of age were included in this study. Total 255 patients were selected by purposive sampling technique. Before filling the questionnaire the purpose of the study was explained very clearly to the respondents and taken verbal consent. Data was collected by using the questionnaire through face to face interview with the respondents. Collected data were cleaned, edited and processed manually and analyzed by using Statistical Practice for Social Survey (SPSS) software based on the objectives of the study. Data was presented in tabular forms.

Results:

Among 255 respondents 84 (32.9%) were between 40-50 years of age which are the highest number and only 4 (1.6%) were < 20years of age. Mean age was 47.68 years, the SD $\pm$ 12.24 years and the range from 16 years to 80 years. (Table I).

Table I: Distribution of the respondents by age. (n=255).

Age group in years	Number	Percentage
<20	4	1.6
20 - 30	14	5.5
30 - 40	36	14.1
40 - 50	84	32.9
50 - 60	63	24.7
60 - 70	45	17.6
>70	9	3.5
Total	255	100

Among the respondents, 33 (12.9%) were illiterate and 10 (3.9%) were able to sign, highest 85 (33.3%) completed their primary education (Table II).

Table II: Distribution according to educational status

Education level	Frequency	Percentage
Illiterate	33	12.9
Able To Sign	10	3.9
Primary	85	33.3
SSC	34	13.3
HSC	29	11.4
Bachelor	46	18.0
Masters	18	7.1
Total	255	100

According to occupation, 1 (0.4%) are day labors, 69 (27.1%) were service holders and highest 103 (40.4%) were housewife (Table III)

Table III: Distribution by occupation

Occupation	Frequency	(%)
Service Holder	69	27.1
Cultivator	10	3.9
Student	3	1.2
Day Labor	1	0.4
Driver	6	2.4
Business	44	17.3
House Wife	103	40.4
Unemployed	07	2.7
Others	12	4.7
Total	255	100.0

In this study among the respondents of tobacco consumption, 60 (45.80%) consumed smoking tobacco, 48 (36.64%) consumed smokeless tobacco and 23 (17.56%) consumed both smoking and smokeless tobacco (Table IV)

Table-IV: Distributions of respondents according to Habit Tobacco Consumption and pattern of Tobacco Consumption

Habit of Tobacco Consumption			Pattern of tobacco consumption		
Habit of tobacco	Frequency	%	Pattern of tobacco	Frequency	%
Yes	131	51.40	Smoking	60	45.80
No	124	48.60	Smokeless	48	36.64
			Both	23	17.56
Total	255	100	Total	131	100

Knowledge of respondents on tobacco consumption related diseases of this study was found that, 183 (78.54%) patients knows its association with lung disease, 115 (49.36%) with heart diseases, 57 (24.46%) for peptic ulcer/stomach cancer, 47 (20.17%) for cataract, 16 (6.87%) for mouth ulcer/cancer (Table V). Many of them had multiple answers.

Table V: Distribution of the respondents by Knowledge about adverse effect of Tobacco on health. (n=233)

Adverse effect of Tobacco on health	Frequency	%
Lung Cancer/ Lung Diseases	183	78.54
Stomach Cancer/ Peptic ulcer	57	24.40
Mouth ulcer/ cancer	16	6.87
Heart diseases	115	49.36
Diseases of Blood vessels	10	4.30
Cataract	47	20.17
Gangrene	08	3.43
Others*	50	21.46
Total	486	208.58

In this study, it was observed that out of 131 tobacco consumers, 88 (67.18%) were male and 43 (32.82%) were female. The 60 (45.80%) male consumers had the habit of smoking, 05 (03.82%) had habit of smokeless tobacco and rest 23 (17.55%) had the habit of both smoking and smokeless tobacco consumption. The female consumers had habit of smokeless tobacco consumption but not smoking habit. The total habit of

smoking respondents were 60 (45.80%) and the total habit of smokeless tobacco consumption respondents were 5+43=48 (36.64%) of the consumers (Table VI)

Table VI: Distribution of the sex by habit of tobacco consumption. (n=131)

Sex	Tobacco Consumption Habit			
	Habit of smoking	Habit of smokeless tobacco	Both	Total
Male	60(45.80%)	05(03.82%)	23(17.55%)	88(67.18%)
Female	00(00.00%)	43(32.82%)	0(00.00%)	43(32.82%)
Total	60(45.80%)	48(36.64%)	23(17.55%)	131(100%)

This study also showed the tobacco consumers by type of tobacco consumption habits in relation to their occupations. The highest tobacco consumption habits were in the service holder 41 (16.08%) then in the housewives 38 (14.90%) 2nd highest, the lowest tobacco consumption habits were in student people (none). The difference between habit of tobacco consumption and occupation was found to be statistically significant (P<0.002) (Table VII)

Table VII: Distribution of the occupation of respondents by habit of tobacco consumption. (n=255)

Occupation	Habit of Tobacco Consumption		Total
	Yes	No	
Service Holder	41(16.08%)	28(10.99%)	69(27.06%)
Cultivator	8(3.14%)	2(00.79%)	10(03.93%)
Student	0(00.00%)	3(01.18%)	3(01.18%)
Day Labor	1(00.04%)	0(00.00%)	1(00.04%)
Driver	2(00.79%)	4(01.60%)	6(02.35%)
Business	28(10.99%)	16(06.28%)	44(17.26%)
House Wife	38(14.90%)	65(25.50%)	103(40.40%)
Unemployed	4(01.60%)	3(01.18%)	7(02.75%)
Others	9(03.53%)	3(01.18%)	12(04.70%)
Total	131(51.38%)	124(48.62%)	255(100%)

The study also showed the suffered complications and their difference between tobacco consumer and non tobacco consumer. Among the tobacco consumer mostly suffered heart disease 32 (4.86%), hypertension 92 (13.96%), eye disease 103 (15.63%), teeth disease 66 (10.01%), intestinal diseases 33 (5.00%), urinary disease 46 (6.98%), respiratory diseases 46 (6.98%), skin disease 15 (2.28%), and neurological diseases 22 (3.34%). Among the non tobacco consumer - hypertension 33 (5.00%), eye disease 38 (5.77%), teeth disease 22 (3.34%), urinary diseases 19 (6.08%), skin diseases 9 (1.37%), neurological diseases 8 (1.21%) and respiratory diseases 02 (02.88%). The study indicates tobacco consumer had suffered all complications more than non tobacco consumers (Table VIII).

Table VIII: Distribution of the complications by Tobacco consumption. (n=255)

Complication	Tobacco consumption		Total
	Yes	No	
Heart Disease	32(04.86%)	08(01.21%)	40(06.08%)
Brain Diseases	07(01.06%)	02(00.30%)	9(01.37%)
Gangrene	02(00.30%)	04(00.60%)	6(0.91%)
Hypertension	92(13.96%)	33(05.00%)	125(18.97%)
Eye Disease	103(15.63%)	38(05.77%)	141(21.40%)
Teeth Disease	66(10.01%)	22(03.34%)	88(13.35%)
Intestinal Disease	33(05.00%)	11(01.67%)	44(06.68%)
Urinary Disease	46(06.98%)	19(06.08%)	65(09.86%)
Respiratory Disease	46(06.98%)	02(02.88%)	48(07.29%)
Skin Disease	15(02.28%)	09(01.37%)	24(03.64%)
Neurogenic Disease	22(03.34%)	08(01.21%)	30(04.55%)
Others	26(03.95%)	13(01.97%)	39(05.92%)
Total	490(74.36%)	169(25.64%)	659(100 %)

Discussion:

An overview of the respondents in this study reflected the common socio-demographic characteristics. In our study highest age group 84 (32.9%) were in the 5th decade, 2nd highest 63 (24.7%) in the 6th decade. Among the subjects, highest 85 (33.3%) were primary education completed and 33 (12.9%) were illiterate respondents. According to the occupational distribution highest 103 (40.4%) were housewife, 2nd highest 69 (27.1%) were service holders and lowest 1(0.4%) are day labors, these socio-demographic characteristics of the respondents in this study are almost similar to the national census, surveys and other studies of this country.

The findings of the study showed that the rate of tobacco consumptions among the Diabetic patients aged < 20 years was 1.6%. This finding is not similar to that of our country and abroad. In Bangladesh, according to 2004 prevalence data (a study conducted by WHO), 37% people aged 15 years and above (i.e., 30.9 million) use tobacco in some form or other, Use of smokeless tobacco is a huge problem in women[13]. Another study on rural people in Pakistan found a high prevalence, 55% of current smokers among the rural population[14]. In a study of tobacco use in India showed those 28.1% men and 12.0% women) chewed tobacco/pan masala; and 30% of the study population (46.5% men and 13.8% women) either smoked or chewed tobacco[15].

In this study among the respondents of tobacco consumption, 60 (45.80%) consumed smoking tobacco, 48 (36.64%) consumed smokeless tobacco and 23 (17.56%) consumed both. This is almost similar to the study which showed that the rate of tobacco consumption among the study population was 36.14% and 46.53% of the respondents consumed smokeless tobacco, 45.05% smoked and 8.42% consumed both the items[16]. So, there should continue developing strategies and measures to reduce the rate of tobacco consumption, such as strengthening overall health education, particularly in

schools, and general programmers to discourage the initial use of tobacco products and to overcome tobacco addiction. And also we found that 31.34% of the smokers were in the age group as 40-50 years, 29.00% were in 50-60 years and then 26.50% were in 60-70 years. Smoking habit was highly prevalent in Service holder group (13.73%) and most of the smokers were primary educated people 29 (11.38%).

There was no significant difference between educational level and reasons the present study revealed the tobacco non-consumers by the reasons for not consumption of tobacco in relation to their educational levels. In the study showed that 124 were total tobacco non-consumers. But in education level, the same reasons for consumption of tobacco were found to be statistically significant (P<0.004). In this study, it was observed that out of 131 tobacco consumers, 88 (67.18%) were male and 43 (32.82%) were female. All female consumers had habit of smokeless tobacco consumption but not smoking habit which is nearly similar to another study[16]. 45.80% male consumers had the habit of smoking that is similar to the study done in Japan[17], they showed, 05 (03.82%) had habit of smokeless tobacco and rest 23 (17.55%) had the habit of both smoking and smokeless tobacco consumption. In another study showed more than 60 percent women use smokeless tobacco as a safe method of tobacco use[18]. The total habit of smoking respondents were 60 (45.80%) and the total habit of smokeless tobacco consumption respondents were 48 (36.64%) of the consumers. These are analogous to the study which revealed that 36.64% of the respondents consumed smokeless tobacco, 45.80% smoked and 17.55% consumed both the items[16]. This study also analogous to one more study done in China[19]. This study also showed the tobacco consumers by type of tobacco consumption habits in relation to their occupations. The highest tobacco consumption habits were in the service holder 41 (16.08%) then in the housewives 38 (14.90%) 2nd highest. And the lowest tobacco consumption habits were in student people (none). The difference between habit of tobacco consumption and occupation was found to be statistically significant (P<0.002). In one study shows that highest tobacco consumption habits were in labourer 24.45%, 2nd highest were in housewives 18.1% and lowest tobacco consumption were in students (none)[20]. So this study corresponding to our study.

A recent study conducted by WHO Bangladesh found that 41% of the major tobacco related diseases are attributable to tobacco usage[21]. But the knowledge on tobacco consumption related diseases of this study was found to be very good. In the study it was found that the multiple answers about adverse health effects were 486. Out of 486 multiple answers, the maximum frequency were for lung cancer/ lung diseases 183 (78.54%) and then for heart diseases 115 (49.36%), for peptic ulcer/stomach cancer of 57 (24.46%), for mouth ulcer/cancer 16 (6.87%), for diseases of blood vessels 10 (4.30%), for cataract 47 (20.17%), for gangrene 8 (3.43%) and for others 50 (21.46%). These findings of the study are identical to the following studies. One of the studies which found that more than 94% of the respondents had admitted that

smoking was harmful[16]. The relationship was found in the following studies that among the 73 respondent's 40 (54.8%) responded to have the knowledge about the health problems due to tobacco consumption and 33 (45.2%) responded to have no knowledge about it[7]. And in an interventional study, before intervention it was found that 16.0% respondents had good knowledge regarding the health effects of tobacco leaf use, which increased to 80.2% after the intervention[22].

The study also showed that the complications patterns among the tobacco consumers and non consumers diabetic patients it given a picture that indicates tobacco consumer is more suffered all complications. The study also indicates Tobacco user 46 (06.98%) too more suffered from respiratory diseases than non-tobacco user 02 (02.88%). Totally, majority of respondents suffered from eye diseases 141 (21.40%) and lowest suffered from gangrene 6 (0.91%). But in another study done in Nepal showed that gastrointestinal problems were the most common complaint among the tobacco users which is not matched with this study[20].

Conclusion:

Diabetes mellitus, the current pandemic is largely driven by the globalization of western lifestyles, specifically the inter-related problems of increasing obesity and decreasing physical activity levels. This is not a fatal disease but without control it is called silent killer. It is not proved that tobacco consumption is related or associated to the diabetes. Some complications of diabetes are associated with tobacco such as CHD, stroke, heart diseases, gangrene, cataract, hypertension etc. Diabetic patients and tobacco consumer are often suffered from these complications. Tobacco consumption rate among the study population was 51.04%, most common in the 50-60 years age group and most common in service holder 31.30% & house wives 25.95%. Among the tobacco consumer diabetic patients smokers were 45.80%, smokeless tobacco consumers 36.64% and 17.55% consume both smoking and smokeless tobacco. Among the respondents tobacco consumers were suffered from more complications. The results of the study suggested that prevalence of tobacco consumer were majority among the most productive middle aged group of diabetic patients and also lower-middle class socio-economic status. Preventive programme could be targeted among this group of patients and will be useful for programme managers and policy makers. Further research could be done on the risk assessment among the diabetic tobacco consumer group.

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