STM JOURNALS

Prevalence of Tobacco Use in Group C and D Employees in a Medical College of Delhi

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ABSTRACT

One in three adults worldwide smokes tobacco and smoking is characterized by chemical dependence which falls into a model of chronic disease. Consumption of tobacco is a public health problem, which involves all age groups and all strata of people. This study aims to find out the prevalence of tobacco use and smoking and nicotine dependence among Group C and D employees of a medical college. We carried out a cross sectional study among 115 Group C and D employees of a Medical College, New Delhi, using predesigned and pretested questionnaire to describe the tobacco consumption and the Fagerstrom test to screen the patients with nicotine dependence. The data were collected and analyzed using EPI- INFO 3.5.1 version. Results showed that the prevalence of tobacco use in Groups C & D was 38% with significant male preponderance and out of these daily user group accounts for 28.7%. Prevalence of tobacco use was significantly higher in Group D being 51% as compared to 24% in Group C. Very high nicotine dependency was seen in age group 31–40 years, which was 57.1%. Around 58% of employees with middle school education were tobacco users and as education level increased, the proportion of tobacco users declined. With rising income level, the tobacco use decreased. To conclude, tobacco use among Group C and D workers in a medical college is high and the major concern is nicotine dependence. This also highlights the need of an educational package to decrease the use of tobacco and motivation for accepting treatment for nicotine dependence.

Keywords: Tobacco use, smoking prevalence, nicotine dependence

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INTRODUCTION

Smoking tobacco is a public health problem in India affecting all age groups and sectors of the development. The adverse effects of tobacco smoking on health have been known since a long time. As well as being a risk factor for a variety of diseases, smoking is characterized by *chemical dependence*, and falls into a model of chronic disease with a long-term natural history and with periods of recurrence and remission [1, 2]. Smoking accounts for almost four million deaths per year worldwide, and half of these occur in developing countries. At the current trend, the number of deaths attributed to smoking will double by 2020, and seven of every ten tobacco-related deaths will take place in developing countries [3].

Tobacco dependence is recognized as a disease in the WHO's International Classification of Diseases (ICD-10) and the American Psychiatric Association's Diagnostic and Statistical Manual (DSM-D). It is pertinent to treat this smoking dependence so that diseases and deaths can be avoided. In India, over 600,000 men in the age group 25–

69 years die due to smoking every year [4]. Cancer Patient Aids Association reported that tobacco consumption was significantly higher in poor, less educated, scheduled caste, and scheduled tribe populations in India and the products used include cigarettes comprising 20%, *bidis* comprising 40%, and the remaining 40% made up by chewing tobacco, pan *masala*, snuff, *gutkha*, *masheri,* and tobacco toothpaste [5]. Despite this large problem, very little attempt has been made to study the smoking pattern and nicotine dependence among health care employees, particularly Group C and D employees. So this study aims to find out the prevalence of tobacco use and smoking and nicotine dependence among Group C and D employees of a medical college.

METHODS

Participants: This was a cross sectional study carried out in Group C and D employees of the campus of Maulana Azad Medical College, New Delhi. Study population constituted all males and females between 18 and 60 years of age and working in the college. Taking prevalence rate of tobacco use in Delhi to be 24%, it was calculated that a sample size of 115 is sufficient to detect true prevalence in the study population with 80% confidence and 80% power. We excluded those persons who were physically and mentally ill.

Study Tools: Subjects were interviewed using a semi-structured and pretested questionnaire.

The questionnaire consisted of items on demographic, educational, and economic assessment, etc. To screen the nicotine dependence among study population, Fagerstrom test was used containing six items. It is a validated, widely used test and its reliability is 80% [2].

Sampling and Procedure: The Group C and D employees of Maulana Azad Medical College working in different departments were listed. From the list, a minimum of five employee members were selected randomly from each department and information regarding their identification, education level, socio-economic status, tobacco use habits using semi-structured and pretested questionnaire was collected after taking informed consent. If any of the employees was found to be smoking or using tobacco, he/she was given Fagerstrom test to find out nicotine dependency. They were motivated and offered an educational package or referral services to quit.

Statistical Analysis: The data were collected in coded form and entered and analyzed in EPI-INFO 3.5.1 software using appropriate statistical methods.

RESULTS

Table I shows the socio-demographic profile of the study population. In the study, 53% of the subjects were Group D while 47% were Group C workers. Maximum cases were in the

age group of 31–40 years in Group C (44.4%) and 41–50 years in Group D (39.3%).There was male preponderance with overall male to female ratio being 3:2; however, in Group C, this ratio was almost equal. Of the total subjects, 91.3% were married and 59% belonged to nuclear family. Majority of the subjects was educated up to middle class (27%), followed by high school and graduates (25 and 24% respectively). In the study, 10.5%

of the subjects had primary education and same proportion was illiterate. 96% of subjects were Hindus, the rest 4% consisted of Christians and Muslims. Majority had income level up to Rs. 20000 per month, (37.5% had between Rs. 3,000–10,000, 39% had between Rs. 10,001 and 20,000, and 22% had between Rs. 20,000 and 30,000).

Table I Socio-demographic Characteristic of the Study Population.

	Group C n = 54 (%)	Group D n = 61 (%)	Chi square value	p-value
Age			7.8	0.04
18–30	1(1.85)	9(14.75)		
31–40	24(44.44)	17(27.86)		
41–50	19(35.18)	24(39.34)		
>51	10(18.53)	11(16.41)		
Sex			5.08	0.02
Male	26(48.1)	42(68.1)		
Female	28(51.9)	19(31.9)		
Type of Family			0	0.97
Joint	22(40.7)	25(41.0)		
Nuclear	32(59.3)	36(59.0)		
Marital Status			6.01	0.01
Unmarried	1(1.9)	4(6.6)		
Married	53(98.1)	52(85.2)		
Widow/widower	0	5(8.2)		
Education			45.0	<0.001
Illiterate	0	12(19.7)		
Primary school or Literate	1(1.9)	11(18.0)		
Middle school	8(14.8)	23(37.7)		
High school	17(31.5)	12(19.75)		

Graduate/post high school diploma	25(46.3)	3(4.9)		
Postgraduate or professional	3(5.6)	0		
Religion			3.5	0.1
Muslim	1 (1.9)	1(1.6)		
Hindu	50(92.65)	60(98.4)		
Christian	3(5.6)	0		
Personal Monthly Income			54.3	<0.001
3000–10000	4(7.4)	39(63.93)		
10001–20000	24(44.44)	22(36.07)		
20001–30000	25(46.29)	0		
30001–40000	1(1.87)	0		

The study revealed that prevalence of tobacco use was higher in Group D with 51% as compared to Group C with 24% (Table II). 37.7% of Group D was daily user while only 18.5% of Group C was in the daily user category. The highest prevalence of smoking, i.e., 53.5% was seen in 41–50-year age group and with decreasing age, prevalence of smoking decreased from 38.1% in the 51–60-year age group to 10% in 18–30-years age group. So, relatively younger generation (18–40 years) was avoiding consumption of tobacco-related products which was higher in employees in later two decades of service (41–60years). Prevalence of smoking in current users showed some decline with increasing age group indicating that people tend to quit consumption of tobacco with age. Prevalence of tobacco use was significantly higher in males. Among the study subjects, only 10.6% of female employees consumed tobacco as compared to 57.4% male users($p<0.005$). In the study, though the majority constituted of Hindus there was no case of tobacco use prevalence in other religions constituting Muslims and Christians. With education up to high school level, the prevalence of using tobacco was more than 40%, with a peak in people of middle school level having prevalence of 58%. With increase in education level, the prevalence decreased as it was 14.3% among graduates and none in postgraduates. In relation to income, the prevalence of tobacco use was highest in lowest income slab, i.e., 51.2% and with increase in income level the percentage showed a significant decline as it was 43.5% in middle income group and only 7.7% in the highest income group.

Table II Prevalence of Tobacco Use in Group C and D Employees According to their Sociodemographic Profile.

Variables	Tobacco USE n (%)	P-Value	Frequency of Use		
			Daily n (%)	Occasionally n (%)	Ever Used n (%)
Prevalence		0.005			
Group C (n=54)	13 (24.1)		10 (76.9)	0	3 (23.1)
Group D (n=61)	31 (50.8)		23 (74.2)	5 (16.1)	3 (9.7)
Age (years)		0.029			
18–30 (n=10)	1 (10)		1 (100)	0	0
31–40 (n=41)	12 (29.3)		10 (83.4)	1 (8.3)	1 (8.3)
41–50 (n=43)	23 (53.5)		16 (69.6)	3 (13.0)	4 (17.4)
51–60 (n=21)	8 (38.1)		6 (75.0)	1 (12.5)	1 (12.5)
Sex		<0.001			
Male (n=68)	39 (57.4)		30 (77.0)	4 (10.2)	5 (12.8)
Female (n=47)	5 (10.6)		3 (60.0)	1 (20.0)	1 (20.0)
Family		0.072			
Nuclear (n=68)	21 (31)		18 (85.7)	2 (9.5)	1 (4.8)
Joint (n=47)	23 (49)		15 (65.2)	3 (13.0)	5 (21.8)
Education		0.007			
Graduate & above (n=31)	4 (13.0)		3 (75.0)	0	1 (25.0)
High school (n=29)	12 (41.4)		9 (75.0)	1 (8.3)	2 (16.6)
Middle school (n=31)	18 (58.0)		14 (77.7)	3 (16.6)	1 (5.5)
Primary (n=12)	5 (41.7)		4 (80.0)	0	1 (20.0)
Illiterate (n=12)	5 (41.7)		3 (60.0)	1 (20.0)	1 (20.0)
Income (in Rs)		<0.001			
3,000–10,000 (n=43)	22 (51.2)		16 (72.8)	3 (13.6)	3 (13.6)
10,001–20,000 (n=46)	20 (43.5)		17 (85.0)	2 (10.0)	1 (5.0)
20,001–40,000 (n=26)	2 (7.7)		0	0	2 (100)

The proportion of nicotine dependence in Groups C and D was almost similar (Table III), with more than 50% in each group but high nicotine dependence was seen in Group D (29%). High nicotine dependency was more in the 31–40-years age group which was 41.6%, followed by 51–60-years age group in which it was 25%. Among female employees, one out of five (20%) tobacco users was found to be low nicotine dependent whereas 30.8% of males showed high nicotine dependence. Employees having low education level showed high nicotine dependence, which was 40% in both primary education and illiterate group. Analysis of type of product used (data are not shown in table) revealed that *beedi* was the commonest in use (76%) followed by non-smoking tobacco products (40%), and cigarette use being last (29%). Due to multiple use of products, the sum total percentage is more.

Table III Nicotine Dependence in Group C and D Employees According to Their Sociodemographic Profile.

Variables	Nicotine Dependence*		Total Nicotine Dependence
	Low n (%)	Medium & High n (%)	N (%)
Prevalence			
Group C	3 (27.3)	4 (30.8)	7 (29.1)
Group D	8 (72.7)	9 (69.2)	17 (70.9)
Age (in years)			
18–30	1 (9.1)	0	1 (4.2)
31–40	2 (18.2)	5 (38.5)	7 (29.1)
41–50	6 (54.5)	6 (46.1)	12 (50.0)
51–60	2 (18.2)	2 (15.4)	4 (16.7)
Sex			
Male	10 (19.9)	13 (100.0)	23 (95.8)
Female	1 (9.1)	0	1 (4.2)
Type of family			
Joint	3 (27.3)	6 (46.1)	9 (37.5)
Nuclear	8 (72.7)	6 (55.9)	14 (62.5)
Education			
Graduate and above	2 (18.2)	1 (7.7)	3 (12.5)
Intermediate	6 (54.6)	8 (61.5)	14 (58.3)

Primary	2 (18.2)	2 (15.4)	4 (16.7)
Illiterate	1 (9.1)	2 (15.4)	3 (12.5)
Income			
<10,000	7 (63.6)	1(7.7)	8 (33.3)
10,000–20,000	4 (36.4)	7 (53.8)	11 (45.8)
> 20,000	0	5 (38.5)	5 (20.9)

(* According to Fagerstrom test)

DISCUSSION

This study reveals that the overall prevalence of tobacco users in Groups C and D in a medical college is 38% with 28.7% being daily users. The finding of present study is similar to a survey in urban Chennai during 1998–2001 that found 38% men as ever smokers [6]. In another study, which was carried out in all employees (aged 20–59 years) of an industry located in Delhi, to evaluate their cardiovascular risk profile, the prevalence of current smoking was 36% [7]. Chhabra et al (2001) [8] determined 40% prevalence rate of current smoking in adult males of nine clusters in Delhi. The prevalence of current smoking is much higher than the prevalence observed in public health professionals [9]. This difference in two groups may be due to education, profession and understanding of the side effect of tobacco among persons related to health care.

Group D had higher prevalence and daily users of tobacco, 51% and 37.7% respectively, as compared to Group C in which it was 24% and 18.5% correspondingly. However, prevalence of smoking amongst current users was higher in Group C with 70% being smokers as compared to 61% in Group D. This could be due to the fact that Group C can afford to buy cigarette whereas *Gutka* or *Khaini or* chewing tobacco are little cheaper products preferred by Group D. Younger group in Group D (18–30 years) might be opting for more non-visual modes of tobacco use such as *Gutka or Khaini* as compared to older group in Group C (31–40 years).

Study also revealed that prevalence was higher in employees in later decades of service (41–60 years) with a peak in 41–50 years that was 53.5%. And younger employees had less prevalence (10% only), which could be due to the effect of age. A clear preponderance was observed for male employees with prevalence of 57.4% as compared to 10.6% in female employees. This is in conformity with various surveys carried out during 1980s and 1990s in which the prevalence of tobacco use among men above 15 years of age varied between 46% and 63% in urban areas. Among women it varied between 2% and 16% in urban areas [10, 11]. Also a definite higher prevalence of smoking in current users with very high nicotine dependency was observed in males as

compared to females, viz., 67.6% vs. 25% for smoking prevalence and 47.8% vs. 0% for very high nicotine dependency. Overall, male smokers percentage was 20% in the present study, in conformity with an earlier study of M. Rani et al [12], in which they found prevalence of male smokers in urban areas to be 21%.We found that higher percentage of females were able to give up tobacco usage than males (20% versus 12.8%). This has been the finding of Anantha et al [13] in which it was found that quitter rate amongst females after educational campaign was high. Prevalence as per type of family showed more tobacco users in joint family as compared to nuclear family (49% versus 31%). However, higher percentage of tobacco users gave it up after initial use in joint family as compared to nuclear family (21.7% versus 4.8%). Employees from joint family were more in non-smoke tobacco as compared to nuclear family (50% versus 25%). So, nuclear family had a preponderance of smokers. In the present study, all the cases of tobacco use were Hindus and none were from other religions (Muslim or Christian), though majority sample size was Hindu (95.7%).

Educational background seemed to have some bearing on the tobacco habit as prevalence in employees with up to middle school education was 51% as compared to 26.7% in categories above this level. Again, much less percentage of employees with middle school education was able to give up the habit after initial usage. This had a correlation with prevalence

in relation to income level also. It was found that prevalence of tobacco uses declined with rising levels of income because only better educated persons were in higher income brackets. The National Family Health Survey-3 (NFHS-3, 2004–5) [14] also revealed that tobacco consumption was significantly higher in poor and less educated. Product consumption pattern showed *beedi* being the predominant form of tobacco usage. More users were in non-smoke tobacco habit as compared to cigarette smokers in the present study. This is similar to the findings of NFHS-3 [14].

It is concluded that tobacco use among Group C and D employees in a medical college is high. The major concern is nicotine dependence, which is equal in proportion in both groups. The prevalence of tobacco use is associated with socio-economic factors such as age, marital status, educational and economic conditions. Finding also highlights the need of intervention programs such as behaviour change communication to decrease the use of tobacco and motivation for accepting treatment for nicotine dependence.

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