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Original Research Article

A study of habits of tobacco use among medical students and influence of various factors including medical education

Shailesh P. Parmar, Tushar R. Gosai*, Krunal C. Solanki

Department of Pharmacology, M.P. Shah Govt. Medical College, Jamnagar, Gujarat, India

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***Correspondence to:**
Dr. Tushar R. Gosai,
Email: drsppa@yahoo.com

ABSTRACT

Background: Tobacco use is a major preventable cause of morbidity and mortality. Tobacco usage among medical professionals should be reduced. It is important that they are aware regarding effects/ill effects of tobacco use, anti tobacco strategies, tobacco cessation technique to reduce tobacco usage among population. Authors undertook this study to understand tobacco use among medical students.

Methods: Authors conducted cross sectional, descriptive study by collecting anonymous data of 414 undergraduate medical students of medical college, Jamnagar in predesigned forms. Data were analysed using MS-excel and graphpad prism. Authors used Fagerstrom test for nicotine dependence to assess nicotine dependence.

Results: Tobacco users were 19.57%, among them 83.95% were smokers. Prevalence was higher in male (34.35% in male and 1.09% in female subgroup) and students with positive family history (36.81% in positive and 6.03% in negative family history subgroup). Current users were 7.73%. They were 8.20% in hosteller and 2.78% day scholar subgroups. Authors didn't find statistical significant association of medical education with habit. Leading causes of starting tobacco use were curiosity/recreational purpose (35.8%), peer group pressure (32.10%) and stress (25.93%). Most of current user had low nicotine dependence (73.33%).

Conclusions: Tobacco use among medical students is a significant problem. Important factors affecting it are gender, family history, current living status, stress, peer group pressure, media influences. Authors recommend that special awareness programme and specific training regarding tobacco cessation should be given to medical students.

Keywords: Medical students, Nicotine dependence, Smoking, Tobacco usage

INTRODUCTION

Tobacco use is a major preventable cause of premature death and disease worldwide. Its usage is causally or strongly suspected to be associated with more than 25 diseases.[1] Smoking caused more than one in ten deaths worldwide in 2015.[2] WHO has estimated that tobacco use (smoking and smokeless) is currently responsible for the death of about six million people across the world each year with many of these deaths occurring prematurely.[3] In India, tobacco usage prevalence was 34.6 % among adults and 9.6 % among adolescent in 2009.[4] Since then, the prevalence of tobacco use is decreasing in India. Still population growth means that the number of smokers and hence the burden of harm from smoking, continues to rise.[2,3] Multidirectional approach is required to decrease this burden. Involvement of health professionals in tobacco-use prevention and cessation counselling can be one of the strategies to reduce tobacco use, smoking-related morbidity and mortality. However, tobacco usage by medical students and doctors sends an ambiguous message regarding ill effects of tobacco to the patients and population. Medical professionals with tobacco habit are less likely expected to advice against tobacco usage. Thus,

it is suggested that health care students be exposed to tobacco control policies and education from the outset of their training. It is necessary to have baseline data regarding current practices and factors influencing them before advising any intervention, educational programme. Authors undertook this study to understand habits of tobacco use among medical students and factors influencing tobacco usage among them.

METHODS

This cross sectional, descriptive study was carried out after approval from ethics committee of the institute. Authors used a sample consisting 414 students. Authors included first, second and third year MBBS students, of both sex. Duration of study was from July 2015 to December 2015. Survey was completed during class time in the absence of an invigilator. Purpose of study was explained to the participants. They had been assured about confidentiality of their identity and responses. Verbal informed consent was taken from study participants. Authors had prepared a questionnaire based on guideline from global tobacco surveillance system to measure variables like smoking status, demographic data, reason for smoking, habit (no. of cigarette per day, timing of smoking) and smoking-related knowledge.[5] Students were given this predesigned and pretested questionnaire and asked to fill it honestly without hesitation. All collected data were analysed using MS excel and statistical software 'graphpad prism'. For statistical significance of association, p-value <0.05 was considered significant. Authors used Fagerstrom test for nicotine dependence to assess nicotine dependence among current users.[6] Tobacco users were the users who had used tobacco in any form, smoking or chewing. The users who had used tobacco at least once in last month were considered current users. Never users were those who had never used tobacco.

RESULTS

In this study, 81 (19.57%) students had used tobacco in one form or another out of 414 responses. Prevalence of smoking was 16.43% and of smokeless tobacco use was 3.14%. Table 1 shows prevalence of tobacco use in medical students. Majority of tobacco users (83.95%) were smokers (Figure 1). Cigarette smoking (85.89%) was major form of smoking among smokers. Current users of tobacco were 7.73% in this study. In 2nd academic year, current users of tobacco were highest (10.2%). Authors didn't find statistical significant association (The chi-square statistic is 0.6832. p-value is 0.408474) between current usage habit and academic year advancing (1st to 3rd academic year). Table 2 shows academic year wise tobacco usage pattern.

Out of 81 ever user of tobacco, majority of students (50.62%) had started smoking between 16 to 20 years age. Two students (2.47%) had started tobacco use before 10 years of age. Average age of initiation of tobacco use was 17.1 years in this study (Table 3).

Table 1: Prevalence of tobacco users among medical students.

Tobacco use pattern		Medical students (n, %)	
Tobacco users	Smokers	68 (16.43 %)	81 (19.57%)
	Smokeless tobacco users	13 (3.14 %)	
Never tobacco user		333 (80.43 %)	

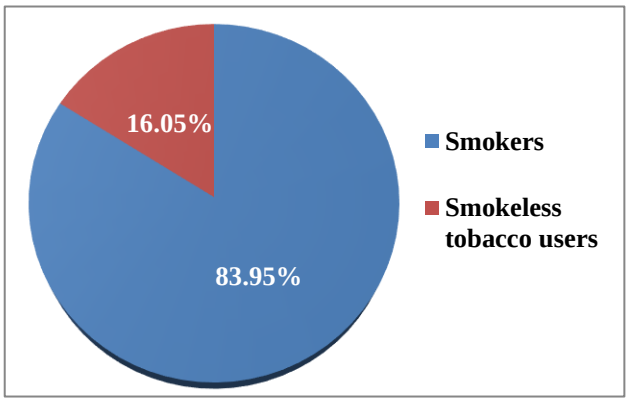

Figure 1: Tobacco users.

Table 2: Academic year wise distribution of tobacco users.

Academic year	Total students	Current users (no., % of students in corresponding year)	Ever users (no., % of students in corresponding year)
1st year	142	6 (4.23%)	24 (16.90%)
2nd year	147	15 (10.2%)	31 (21.90%)
3rd year	125	11 (8.8%)	26 (20.80%)

Table 3: Distribution of tobacco users as per age of starting tobacco use.

Age in years	Male	Female	Total
Less than 10 years	2	0	2
10 to 15 years	31	0	31
16 to 20 years	41	1	42
More than 20 years	5	1	6
Total	79	2	81

In this study, male students were 55.56%. Prevalence of tobacco usage among male students was 34.35%. Among female students, prevalence was 1.09%. Authors found statistically significant association of male gender with tobacco usage (The chi-square statistic is 71.8595. p-value is <0.00001). 43.96% students had tobacco using family member. Higher prevalence (36.81%) was seen among such students compared to the students (6.03%) without family history of tobacco use. Statistical significant association (The chi-square statistic is 61.3947. p-value is <0.00001) was also found between family history of tobacco usage and tobacco habit among students. Students

living in hostels were (91.30%) in this study. Among them, current users were 8.20%. Current users were 2.78% among students living under parenteral supervision (day scholar). The proportion of current users was higher in hosteller compared to day scholar. Table 4 shows tobacco usage pattern in subgroups.

Table 4: Prevalence of tobacco users among medical students in subgroups.

Characteristics	Total number of students (no., % of total students)	Tobacco users (no., % of students in corresponding group)
Gender		**Prevalence**
Male	230 (55.56%)	79 (34.35%)
Female	184 (44.44%)	2 (1.09%)
Family history of tobacco use		**Prevalence**
No family history	232 (56.04%)	14 (6.03%)
Family history	182 (43.96%)	67 (36.81%)
Current place of living		**Current users**
Hostellers	378 (91.30%)	31 (8.20%)
Day scholars	36 (8.70%)	1 (2.78%)

Figure 2 shows reasons for starting tobacco use. Leading cause of starting tobacco use was tobacco usage for curiosity or recreational purpose. About one third (32.10%) students had started usage because of peer group pressure. Educational or socioeconomic stress (25.93%) and advertisement/actor influence (4.94%) were also significant causes for tobacco use.

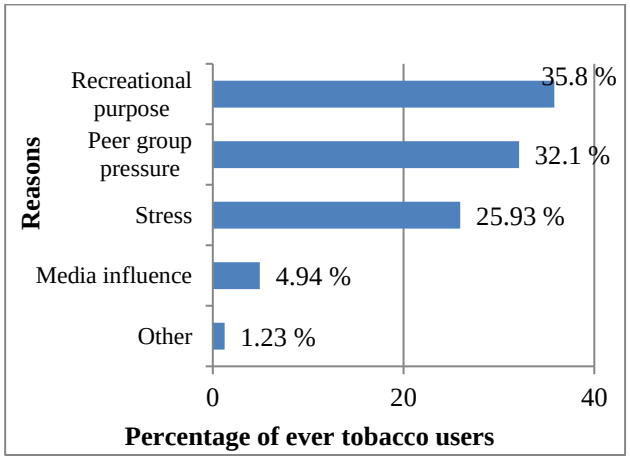

Figure 2: Reasons for starting tobacco use.

Out of 142 students of first year, two students (1.41%) had tobacco usage frequency of more than 5 per day. Four students (3.2%) out of total 125 students of third year had tobacco usage frequency of more than 5 per day. Authors didn't find statistical significant association (The chi-square statistic is 0.0156. p-value is .900569.) between frequency of tobacco usage and academic year advancing (1st to 3rd academic year). The highest usage was less than 20 times a day. Figure 3 shows current tobacco user as per frequency of use.

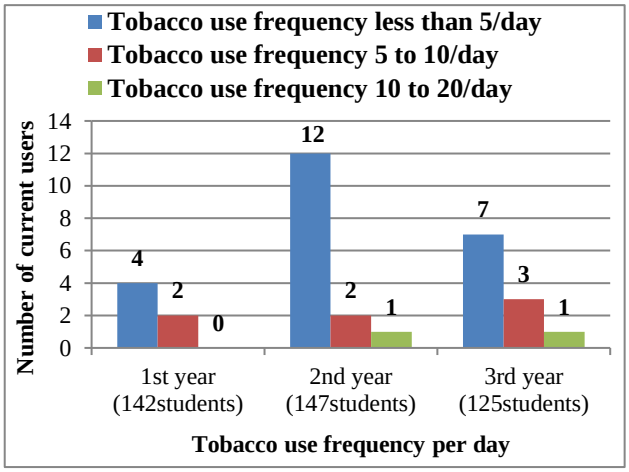

Figure 3: Current tobacco users as per academic year and frequency of use.

Authors analysed 30 current smokers with Fagerstrom scoring test for nicotine dependence which is shown in Figure 4. Authors found 73.33% of current users had low nicotine dependence. Only one student (3.33%) had high nicotine dependence.

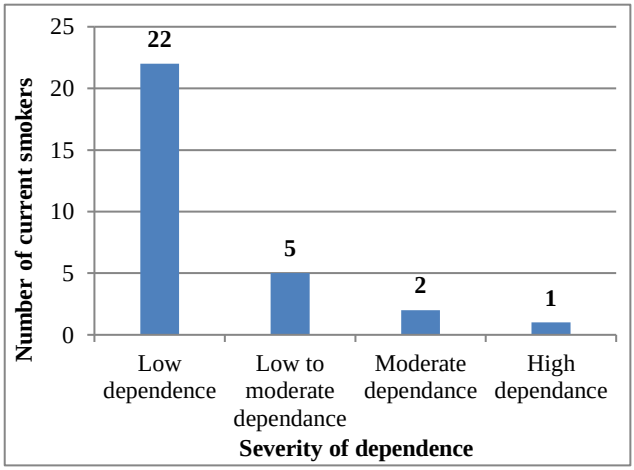

Figure 4: Nicotine dependence among current nicotine users as per fagerstrom test for nicotine dependence.

Out of 32 current tobacco users 62.5% of current user students responded that their usage habit increased due to educational or socio-economic stress. Out of 81 ever tobacco user, 54.32% students felt that their habit had been changed during college education. Out of all study participants, 90.82% students believed that health professionals serve as role model in society. 65.94% students believed that specific training for tobacco cessation should be given to medical students.

DISCUSSION

In this study, prevalence of tobacco usage was 19.57% in medical students. This finding is in consonance with similar studies.[7,8] In some previous similar studies, prevalence was higher compared to our study.[9-11] In 2009, prevalence was also higher (34.9% in adult and 9.6% in adolescent) among general population of India.[4] As per report of world health organization, prevalence of tobacco usage was in decreasing trend in India.[3] Thus our study showed low prevalence of tobacco use than similar past studies among medical students and among general population.[4,9-11] Factors like cultural values, peer groups, socioeconomic conditions in various geographical areas and colleges influence tobacco habits.

Major use of tobacco was in the form of smoking in this study. Usage of tobacco in the form of smoking was 5.23 times more than other smokeless forms of use. Smoking was the major form of tobacco use in other studies also.[8,9] As per global adult tobacco survey India 2009-10 (GATS India), smoking was less preferred compared to other forms of tobacco among general population in India.[4] Tobacco use practice appears to be different among medical students compared to general population in India as per results of our study and other Indian studies.[8,9] In developed western countries, tobacco usage pattern of smoking was higher compared to smokeless tobacco in general population.[12] Tobacco usage pattern of smoking among medical students in India is comparable to pattern among general population in developed western countries. Tobacco chewing leads to discoloration, ulcers and bad odour in oral cavity. Media influence may also lead to higher smoking. Cost of cigarettes are high compared to other smokeless forms prevalent in India and medical students can afford to spend more compared to low income general population. These may be the reasons for less preference of chewing tobacco among medical students. Smoking is more lethal compared to smokeless tobacco usage.[13] Thereby higher prevalence of tobacco usage in the form of smoking is a matter of concern.

In India, approximately 5500 children and adolescents start using tobacco products daily, some as young as 10 years. The majority of users have first used tobacco prior to the age of 18 years.[14] In this study, 2.47% students had started tobacco usage before ten years age. 92.59% students had started tobacco usage before age of 20 years. Average of initiation of tobacco use was 17.1 years in this study. Finding is in consonance with other study.[15] As per global adult tobacco survey India 2009-10, average age of initiation of tobacco use was 17.8 in general population.[4]

In this study, prevalence of tobacco usage among male students was higher (34.35%) compared to that among female students (1.09%). Similar high prevalence among male compared to female students was found in other Indian studies.[8-10] Findings in global adult tobacco survey India 2009-10 were also similar among general population.[4] Authors found statistically significant association of male gender with tobacco usage (*p*-value is <0.00001). In Indian culture, female tobacco usage is not common, which is also reflected in this study.

Students, who have seen tobacco using family member during childhood and adolescent age become less averse to habit. They may pick up habit early. Authors found statistical significant association (p-value is <0.00001) between family history of tobacco use with tobacco usage by students. Prevalence of tobacco usage was higher (36.81%) among students with family history of tobacco usage compared to the students without family history of tobacco use (6.03%). Our finding is in consonance with other similar studies.[9,16-18]

Tobacco usage for curiosity/recreational purpose (35.8%) and peer group pressure (32.10%) were two important causes for initiation of tobacco usage. The findings are in consonance with other studies.[8,9,11,15] It is very difficult to prevent effect of peer group pressure in students' age group who like company of their friends and get easily influenced by them, more so while living in a hostel away from their homes. The web of causation of this factor is very complicated and it has direct as well as indirect and synergistic effect with other factors. Thus, the effect of peer pressure on the initiation of tobacco use is a matter of concern. Educational/socio-economic stress and media influence were other important factors for initiation of tobacco usage.

In this study, current users (students who had used tobacco at least once in last month) were 7.73% among all students. Study in 2008 showed that current users were 28.8% and in 2013 showed that it was 8.9% among medical students.[9,10] As per report of world health organization, prevalence of tobacco usage was in decreasing trend in India in general population.[3] This was reflected in this study also. Higher percentage of current users was among 2nd year students followed by 3rd year and 1st year students. Among students living in hostel, current users were 8.20% and among day scholar, current users were 2.78%. Similar higher tobacco usage was seen among hosteller compared to students living in parenteral supervision in other studies.[9,18,19] Lack of supervision, freedom, peer group etc. leads to higher usage among hosteller.

The third year medical students have more knowledge about effects and ill effects of tobacco usage compared to first year students. They gain such knowledge as they learn various medical science subjects. Among first year students, tobacco users with tobacco usage frequency >5 per day were 1.41%. Among third year students, users with usage frequency >5 per day were 3.2%. Thus, Authors found increase in tobacco usage practice and frequency in third year medical students compared to first year even if increase knowledge about health-related aspects of tobacco use. However, Authors didn't find statistical significant association between academic year of students and tobacco usage. In the study conducted by Chatterjee T et al, tobacco usage practice was found to be decreasing in

higher academic years.[8] Tobacco usage among medical students has multi factorial causation. 62.5% of current users believed that their usage habit increased due to educational or socio-economic stress in this study. So to understand impact of medical education on tobacco usage practice, further study should be conducted. 90.82% of all students believed that doctors serve as role model in society and 65.94% students believed that specific training for tobacco cessation should be given to medical students. Only one student (3.33%) had high nicotine dependence and majority of current users were with low nicotine dependence in this study as per fagerstrom test for nicotine dependence. Even though low prevalence of high nicotine dependence among medical students, awareness programme regarding nicotine habit, health hazards, risk minimizing strategies, tobacco de-addiction should be implemented as doctors serve as example for habits affecting health in society.

This study was single centre study and authors didn't have objectively evaluated health related knowledge of effects/ill effects of tobacco use and stress. From our study, authors recommend that special awareness programme and specific training regarding tobacco cessation should be given to medical students. Authors recommend further studies to understand effect of some factors like medical education.

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