

Prevalence and Associated Factors of Tobacco Smoking among Undergraduate Medical and Dental Students in Rajasthan

Jai Prakash Pankaj¹, Madan Singh Rathore², Pankaj Saini³, Anjali Mangal⁴

¹Post-graduate Student, Department of Community Medicine, Mahatma Gandhi Medical College, Jaipur, Rajasthan, India, ²Associate Professor, Department of Community Medicine, Mahatma Gandhi Medical College, Jaipur, Rajasthan, India, ³Assistant Professor, Department of Anatomy, Pacific Medical College, Udaipur, Rajasthan, India, ⁴Research Scholar, Department of Statistics, University of Rajasthan, Jaipur, Rajasthan, India

Abstract

Introduction: Tobacco smoking is one of the biggest public health problem as well as leading cause of preventable deaths worldwide. It is a common phenomenon among youth, and medical and dental students are also not sparing of it. It not only reduces their work efficiency at present but also increase their disability-adjusted life years in the long run. It may also threaten their professional efficacy to provide adequate patient care and put a negative impact on society as a doctor should be a role model for healthy lifestyle.

Aim: The main object of the study was to assess the prevalence of tobacco smoking and associated factors among medical and dental undergraduate students.

Materials and Methods: It was a descriptive cross-sectional survey, which was conducted in a private medical university in Rajasthan. A pre-structured and pre-tested questionnaire was administered to undergraduate medical and dental students after ethical approval. All the undergraduate students of medical and dental fraternity present on the day of survey and gave consent were included in the study.

Results: The overall prevalence rates of lifetime and current smoking were found to be 20.20% (39.05% among males and 7% among females) and 12.94% (25.24% among males and 4.33% among females), respectively. Individual and family characteristics of study subjects like age, sex, place of residence, fraternity, type of family, and socioeconomic status were significantly associated with habit of smoking ($P < 0.05$), while religion and caste were found to not be significant factors of smoking among students ($P > 0.05$).

Conclusion: The prevalence of tobacco smoking among undergraduate medical and dental students was unacceptably high. Hence, it needs proper education and counseling of students to minimize or eliminate smoking habit in institutions of higher education.

Key words: Dental students, Medical students, Prevalence, Smoking, Tobacco

INTRODUCTION

The tobacco epidemic is one of the leading causes of preventable deaths and is a major public health issue

worldwide. The harmful consequences of smoking on health are well-documented. In every 6.5 s someone dies from tobacco use. Research suggests that people who start smoking in their teens (as more than 70% do) and continue for two decades or more will die 20-25 years earlier than those who never smoked. It is not just lung cancer or heart disease that causes serious health problems and death; there are some less publicized side effects of smoking like, psoriasis, cataract, hearing loss, tooth decay, chronic pulmonary obstructive diseases, osteoporosis, stomach ulcers, discolored fingers, deformed sperms, and Buerger's disease.¹

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Corresponding Author: Dr. Jai Prakash Pankaj, 1/466, Manglam Apartment, Chitrakoot Scheme, Vaishali Nagar, Jaipur, Rajasthan, India. Phone: +91-9414663090. E-mail: drjppankaj@gmail.com

Health risks due to smoking result not only from direct consumption of tobacco but also from exposure to second-hand smoke. It was estimated that about six million people were dying annually from tobacco use and over 600,000 deaths due to exposure to second-hand smoke.² In 2012, the global prevalence of current tobacco smoking among adults was estimated at around 22%, with smoking rates varying widely across. Smoking prevalence in both high-income and upper-middle-income countries is broadly similar, although slightly higher in high-income countries at 25% and middle-income countries at 22%.³

In India, prevalence of current tobacco smoking among youth has been estimated as 14.60% (19% in males and 8.3% in females), while among adults the prevalence of current tobacco smoking has been estimated as 14% (24.3% in males and 2.9% in females).⁴ Some earlier studies showed the prevalence of smoking as 9% in undergraduate and 7.1% in post-graduate medical students in India.^{5,6}

This study aimed to estimate the prevalence of smoking among medical and dental students at a private medical university in Jaipur, Rajasthan (India) and assess the association between smoking and socio-demographic factors, reasons for smoking and attempts to stop smoking.

MATERIALS AND METHODS

This was a descriptive cross-sectional study, conducted in March-April 2015 among medical and dental undergraduate students of Mahatma Gandhi University of Medical Sciences and Technology, Jaipur, Rajasthan. A sample size was calculated considering the prevalence of substance abuse among medical students as 45.87% from a recent study by Padhy *et al.*⁷ in Bhubaneswar, Orissa. With alpha as 0.05 and an error margin as 4.58%, the appropriate sample size was 475.

A pre-structured, pre-tested questionnaire was used to collect information. After obtaining ethical clearance from the Institutional Ethics Committee, all undergraduate medical and dental students of the university were invited to participate in the study. Informed consent was obtained, and all possible measures were taken to ensure the confidentiality of the participants. The questionnaire were distributed and then collected by the data collection team.

Inclusion Criteria

All undergraduate students of medical and dental fraternity who were present on the day of data collection and gave valid consent were included.

Exclusion Criteria

Undergraduate students of medical and dental fraternity who were absent on the day of data collection or did not give valid consent were excluded from the study.

Statistical Analysis

The data obtained were entered on Microsoft Excel 2010 spreadsheets and analyzed. The results were presented in Tables 1-6, and Chi-square test was used for finding the association. A $P < 0.05$ was considered to be statistically significant.

RESULTS

A total of 510 respondents (370 from medical fraternity and 140 from dental fraternity) were participated in the study, out of them 210 (41.18%) were males and 300 (58.82%) were females. The prevalence of lifetime tobacco smoking was found to be 20.20% (39.05% among males and 7% among females; 23.24% among medical undergraduates and 12.14% among dental undergraduates), while prevalence of current tobacco smoking found to be 12.94% (25.24% among males and 4.33% among females; 15.14% among medical undergraduates and 7.14% among dental undergraduates) (Tables 1 and 2).

Table 3 shows the association of individual and family characteristics of the respondents with the tobacco smoking. It was found that age, sex, place of residence, fraternity, type of family, and socioeconomic status were significantly associated with habit of smoking ($P < 0.05$), while religion and caste were found not to be associated significantly ($P > 0.05$). The habit of smoking found more common with the advancement of age. Students in the age group < 20 years had a lower prevalence of current

Table 1: Sex-wise prevalence of tobacco smoking among respondents

Sex	n (%)	
	Lifetime smoking	Current smoking
Male	82 (39.05)	53 (25.24)
Female	21 (7.00)	13 (4.33)
Total	103 (20.20)	66 (12.94)

Table 2: Faculty-wise prevalence of tobacco smoking among respondents

Fraternity	n (%)	
	Lifetime smoking	Current smoking
Medical	86 (23.24)	56 (15.14)
Dental	17 (12.14)	10 (7.14)
Total	103 (20.20)	66 (12.94)

Table 3: Determinants of smoking: Individual and family characteristics

Variables	n (%)			Chi-square (df)	P value
	Yes	No	Total		
Age					
<20 years	12 (8.05)	137 (91.95)	149 (100)	14.863 (2)	0.000
21-25 years	39 (12.62)	270 (87.38)	309 (100)		
26-30 years	15 (28.85)	37 (71.15)	52 (100)		
Sex					
Male	53 (25.24)	157 (74.76)	210 (100)	46.078 (1)	0.000
Female	13 (4.33)	287 (95.67)	300 (100)		
Place of residence					
Hosteller	45 (15.57)	244 (84.43)	289 (100)	11.546 (2)	0.003
Day scholar with parents	10 (5.99)	157 (94.01)	167 (100)		
Day scholar at rented room	11 (20.37)	343 (79.63)	54 (100)		
Fraternity					
Medical	56 (15.14)	314 (84.86)	370 (100)	5.071 (1)	0.024
Dental	10 (7.14)	130 (92.86)	140 (100)		
Religion					
Hindu	52 (12.65)	359 (87.35)	411 (100)	0.158 (2)	0.954
Muslim	6 (14.29)	36 (85.71)	42 (100)		
Others	8 (14.04)	49 (85.96)	57 (100)		
Caste					
General	42 (14.43)	249 (85.57)	291 (100)	1.738 (2)	0.419
OBC	18 (11.92)	133 (88.08)	151 (100)		
SC ST	6 (8.82)	62 (91.18)	68 (100)		
Type of family					
Nuclear	37 (9.92)	336 (90.08)	373 (100)	10.276 (1)	0.001
Joint	29 (21.17)	108 (78.83)	137 (100)		
Socioeconomic status of family					
Upper	11 (27.50)	29 (72.50)	40 (100)	11.320 (4)	0.023
Upper lower	19 (16.10)	99 (83.90)	118 (100)		
Middle upper	22 (10.48)	188 (89.52)	210 (100)		
Middle lower	9 (8.74)	94 (91.26)	103 (100)		
Lower	5 (12.82)	34 (87.18)	39 (100)		

smoking of 8.05%, in comparison to 21-25 years age group (12.62%) and 26-30 years age group (28.85%). The prevalence of current smoking was significantly higher among males (25.24%) in comparison to females (4.33%). It was also higher (20.37%) among day scholars who were residing at a rented room in comparison to hostellers (15.57%) and day scholars who were living with parents (5.99%). The prevalence of current smoking was twice more common among medical undergraduates (15.14%) than dental undergraduates (7.14%). The smoking was more common among students of joint families (21.17%) in comparison to nuclear families (9.92%). The prevalence of current smoking was higher among students who belonged to upper class (27.50%) and upper lower class (16.10%) followed by lower class (12.82%), middle upper class (10.48%), and middle lower class (8.74%).

Cigarette (81.82%) was the most common form of tobacco smoke used by respondents followed by hukka (22.73%) and bidi (6.06%). About 15.15% of students were using other forms of tobacco smoke (Table 4).

The present study revealed that among current smokers 46.97% of students smoke daily or almost daily, while

Table 4: Types of tobacco smoking used for consumption

Types of smoking*	n (%)
Cigarette	54 (81.82)
Bidi	4 (6.06)
Hukka	15 (22.73)
Other	10 (15.15)

*Multiple responses

53.03% students smoke sometimes. Duration of smoking was found <1-year among 43.94% of current smokers, while it was 1-5 years among 48.48% and 6-10 years among 7.58% of current smokers. It was observed from the present study that 19.70% current smokers started to smoke between 12 and 18 years of age, while rest (80.30%) started to smoke after 18 years of age. The most common reason of smoking was found "for fun" (37.88%), followed by peer pressure (30.30%), to relieve tension (18.18%), and to show off (13.64%). Highest numbers of smokers were inspired from friends (59.09%), 22.73% self-inspired, 12.12% inspired from celebrities, and 6.06% inspired from parents and other family members. It was an important finding of this study that 100% students, who smoke were

aware of harmful effects of tobacco smoking and majority of them (68.18%) got this knowledge from electronic media followed by newspaper (42.42%), other sources (31.82%), and friends (24.24%). Among current smokers, only 36.36% wanted to quit smoking, while others felt that they were not addicted to it. The study showed that 21.21% users expend more than 500 rupees per month on smoking, 39.39% users expend Rs. 201-500, 25.76% users expend Rs. 101-200 and 13.64% users expend <Rs. 100 per month. Source of money was pocket money among 62.12% of smokers, from friends in 18.18% smokers and from other sources in 19.70% of smokers (Table 5).

It was observed from the present study that among non-smokers 3.15% students quitted smoking and 5.18% students tried but not started to smoke, while 91.67% students never tried the tobacco smoke. Among those who quitted 64.29% students quitted before 1-year of use, while the rest (35.71%) quitted between 1 and 5 years of use. Among non-smokers, it was found that 59.91% students did not smoke due to their belief that smoking adversely affects health, while 17.79% believed that tobacco smoke was not a good thing. About 6.53% students were not smoking due to family and society factors and 4.28% due to lack of money. Among non-users only 2.70% students wanted to smoke in the future while, 22.07% did not sure about the use of tobacco smoke in future (Table 6).

DISCUSSION

In the present study, prevalence of lifetime and current tobacco smoking among undergraduate medical students was found to be 23.24% and 15.14%, respectively, which was much lower when compared with earlier foreign studies among medical students like, Zhu *et al.*⁸ in China (lifetime smoking 53.9% and current smoking 26.8%), Al-Kaabba *et al.*⁹ in Riyadh, Saudi Arabia (lifetime smoking 39.8% and current smoking 17.6%), Chkhaidze *et al.*¹⁰ in Georgia (lifetime smoking 49.5%), and an Indian study by Padhy *et al.*⁷ in Bhubaneswar, Orissa (lifetime smoking 45.87%). Our study showed higher prevalence of smoking among medical students as compared to earlier studies in India like, Ramakrishna *et al.*⁵ in Orissa (lifetime smoking 9.8% and current smoking 3.7%), Rai *et al.*¹¹ conducted during an inter-state cultural event (Pulse 2003) at AIIMS Delhi (lifetime smoking 20.9% and current smoking 5.3%), and a multi-centric study by Goel *et al.*,¹² where they found overall smoking prevalence of 8%.

In the present study, prevalence of lifetime and current tobacco smoking among undergraduate dental students was found to be 12.14% and 7.14%, respectively, which was also much lower when compared with earlier studies among

Table 5: Distribution of smokers according to their habits

Characteristic	n (%)
Frequency of smoking	
Daily or almost daily	31 (46.97)
Sometimes	35 (53.03)
Duration of smoking	
<1 years	29 (43.94)
1-5 years	32 (48.48)
6-10 years	5 (7.58)
Age at which start smoking	
12-18 years	13 (19.70)
>18 years	53 (80.30)
Reason of smoking	
Peer pressure	20 (30.30)
For fun	25 (37.88)
To show off	9 (13.64)
To relieve tension	12 (18.18)
Inspired from	
Friends	39 (59.09)
Parents other family members	4 (6.06)
Self	15 (22.73)
Celebrities	8 (12.12)
Are you aware of harmful effect of smoking?	
Yes	66 (100.00)
Source of knowledge*	
Newspaper	28 (42.42)
Electronic media	45 (68.18)
Friends	16 (24.24)
Other	21 (31.82)
Do you want to quit smoking?	
Yes	24 (36.36)
No	42 (63.64)
Monthly expenditure on smoking	
Rs. <100	9 (13.64)
Rs. 101-200	17 (25.76)
Rs. 201-500	26 (39.39)
Rs. >500	14 (21.21)
Source of money	
Pocket money	41 (62.12)
Friends	12 (18.18)
Others	13 (19.70)

*Multiple responses

Table 6: Distribution of non-smokers according to their habits

Characteristic	n (%)
Past history of smoking	
Quitted	14 (3.15)
Tried but not started	23 (5.18)
Never tried	407 (91.67)
Duration of smoking before quitting	
<1 year	9 (64.29)
1-5 years	5 (35.71)
Reason for not smoking	
Due to some disease	51 (11.49)
Lack of money	19 (4.28)
Due to family and society	29 (6.53)
Not a good thing	79 (17.79)
It adversely affect health	266 (59.91)
Would you like to smoke in future?	
Yes	12 (2.70)
No	334 (75.23)
Don't know	98 (22.07)

dental students like, Fotedar *et al.*¹³ in Himachal Pradesh (lifetime smoking 15.1% and current smoking 9.09%) and Singh *et al.*¹⁴ in Jaipur, Rajasthan (lifetime smoking 25.11%).

In our study, it was found that males had higher (5.8 times) prevalence of current smoking as compared to females. Similar results were found in earlier studies conducted in India.^{5,7,11,14} Our study revealed that religion and caste were not significantly associated with the smoking habit though these factors were not analyzed in previous studies. Prevalence of smoking was found more among medical undergraduates as compared to dental undergraduates. This might be due to female predominance in a dental fraternity.

Prevalence of smoking was found more among those students who were not living with their parents. This reflected that social and family values play a potential role in the development of smoking habit among youth. Similar findings were observed by Padhy *et al.*⁷ in their study. Prevalence of smoking was more among students of joint families. This might be due to close attention on children in nuclear families. Similar findings were observed by Padhy *et al.*⁷ in Bhubaneswar, Orissa.

It was observed in the present study that the prevalence of smoking was more among students from more affluent social class and lower social class. Students from middle class less likely involved in smoking habits. This might be due to more concern of money and lack of freedom in middle class.

Although the majority of students started smoking after attainment of 18 years of age, but some of them started between 12 and 18 years of age, which was alarming to policy makers. It means that the anti-smoking campaigns must start at schools to eliminate smoking among students. The most common reason reported for smoking was “for fun,” which showed negligence toward self-health. Another reason was “peer pressure” which was also a reason of relapse for most of those who wanted to quit. More than half of smokers were inspired from their friends. Hence, antismoke campaign for behavior change should be focused on small groups instead of the individual student.

Our study showed that the majority of the smokers did not want to quit smoking due to the belief that they were not addicted to it, although all were aware of harmful effects of tobacco smoke. They got this knowledge largely

from electronic and print media. The majority of smokers expend Rs. 100-500 per month and the main source of money was pocket money.

CONCLUSION

It is clear from this study that too many medical and dental students continue to use tobacco smoking. Keeping in view their important role in future, some preventive measures should be applied to eliminate smoking among future to-be doctors and health policy makers. Hence, it is suggested that smoking prevention programs or campaigns should be implemented in institutes of higher education as a first step for getting them involved in smoking cessation.

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