

A Cross Sectional Study on Self-Reported Tobacco Use and Tobacco Related Behaviour among Medical Students in Goa, India

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Abstract:

Introduction: Tobacco is a major cause of preventable mortality and morbidity. Healthcare personnel are involved with smoking cessation advice and treatment of patients; their use of tobacco and related behaviour is an important public health problem. **Objectives:** To determine the proportion of tobacco use, exposure to second-hand tobacco smoke among medical students and to describe their tobacco-related behaviour and attitude regarding tobacco use. **Method:** A cross-sectional study was conducted at Medical College of Goa from July-August 2023. The sample size was calculated using a standard formula based on results of a systematic review, it included 255 medical students and interns selected by simple random sampling. The Global Health Professions Student Survey (GHPSS) was used as the study tool which is specifically designed for knowing the tobacco usage. **Results:** Among medical students surveyed, 23.5% (n = 60) reported ever smoking cigarettes, with 8.6% (n = 22) being current smokers. Additionally, 7.1% (n = 18) reported using smokeless tobacco. Exposure to passive smoking was prevalent, with 31.3% (n = 80) experiencing it at home and 43.9% (n = 112) in public places, surpassing active smoking. The majority of students expressed support for tobacco ban (78.8%, n= 201), and nearly all (98.4%, n= 251) agreed that healthcare professionals should advise patients to quit tobacco use. While over half of the current smokers attempted to quit in the past year, only 15% received professional assistance in their cessation efforts. **Conclusion:** The results of this study indicate that while a significant proportion of students were exposed to tobacco use, there is a prevailing support for tobacco control measures among them but actual implementation of such measures is lacking.


Keywords: Medical Students, Smoking, Tobacco

Introduction:

Tobacco is a major risk factor for various non-communicable diseases and a major cause of preventable mortality and morbidity. According to the WHO, more than 8 million people die each year from tobacco use.^[1] Tobacco poses not only a threat to smokers but to non-smokers as well. Exposure to second-hand tobacco smoke is known to cause multiple adverse outcomes and causes 1.2 million

deaths annually.^[1] Tobacco is the only legally available consumer product that has the ability to not only produce addiction but to kill as well. Tobacco contains nicotine, which is highly addictive and is known to produce an even more severe addiction than cocaine, which is why its users find it difficult to quit.^[2]

Health care personnel are directly involved with smoking cessation advice and treatment of patients,

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and as such, their use of tobacco and related behaviours is an important public health problem. Counselling and pharmacotherapy provided by doctors to their patients were found to increase their likelihood of quitting smoking by twofold.^[3] It was found that doctors who use tobacco products were less likely to elicit tobacco use histories from their patients' and also less likely to give cessation advice.^[4]

The objective of this study was to determine the proportion of tobacco use and exposure to second-hand tobacco smoke among medical students at Goa. The secondary objectives were to describe the tobacco-related behaviour among these students and their attitude regarding use of tobacco products.

Method:

A cross-sectional study was conducted at Goa Medical College, the only Medical College in the State of Goa. The data was collected over a period of two months, i.e., July–August 2023, after obtaining Institutional Ethics Committee (IEC) approval.

The study tool used was the Global Health Professions Student Survey (GHPSS), which is a validated questionnaire. The GHPSS is a standardized, anonymous, self-administered questionnaire that included questions on demographics, the prevalence of cigarette smoking, and the use of other tobacco products. It also included questions on knowledge, attitude about tobacco use, exposure to second-hand tobacco smoke, desire to quit smoking and training received in regard to counselling and smoking cessation techniques.^[5] The questionnaire required 15-20 minutes to be filled out and was administered as a physical questionnaire. The study included undergraduate medical students from the first, second, third, and final years of MBBS, as well as MBBS interns enrolled for the academic year 2022-2023.

The sample size was calculated to be 255 with a 95% confidence interval, 5% allowable error, and 21% prevalence based on a study done by Sahu A et

al.^[6] The sample size was calculated using the formula $n = Z^2 p(1-p)/d^2$.

The study participants were selected using simple random sampling. A list of medical students and interns was obtained, and each participant's name was randomly selected from the list using the lottery method. The questionnaire was administered to each of the participants after their daily lectures or ward rotations. In case any of the participants were absent on the day of data collection, a second or third attempt was made to reach each of the selected participants. Those students who could not be reached even after three attempts were excluded from the study, and another student was randomly selected from the list.

Written informed consent was obtained from each of the participants prior to the commencement of the study. The ethical clearance for this study was obtained on July 12, 2023, from the IEC of Goa Medical College under the reference code GMCIEC/2023/231

Operational definition:

Current smokers were defined as those who smoked any tobacco product at least on one day during the last 30 days before the survey.^[7]

Statistical Analysis:

The data was entered in MS Excel and analyzed using SPSS version 26. Categorical data was expressed in frequencies and proportions. Chi-square was used for determining statistical significance. $p < 0.05$ was taken as the level of significance.

Results:

A total of 255 students participated in this study; among them, 148 (58%) were female and 107 (42%) were male. The majority of the students belonged to the 19–24 age group. There were 43 (16.9%) students from the first year, 52 (20.4%) from the second year, 48 (18.8%) from the third year, 43 (16.9%) from the final year, and 69 (27.1%) were

interns. The Socio-Demographic Characteristics of the study participants are given in (Table 1)

Tobacco use

The proportion of students who had ever smoked or experimented with smoking cigarettes was found to be 60 (23.5%). Among the students, only 22 (8.6%) reported that they currently smoke cigarettes. (Table 2) The majority of the students who smoked reported having their first cigarette between the ages of 20 - 24 (25, 9.8%), and only 2 (0.78%) students reported having tried a cigarette before the age of 10. The proportion of students who smoked cigarettes was highest among the third-year medical students and least among the second-year medical students.

The proportion of students who used smokeless forms of tobacco was found to be 18 (7.1%). Among these students, only 6 (2.3%) reported having used smokeless tobacco products in the last 30 days. (Table 2)

Use of tobacco products in college or hospital premises

A small number of students, 6 (2.4%), reported having smoked cigarettes in college or hospital premises, while 4 (1.6%) students reported having used smokeless tobacco on college or hospital premises. The Gender wise distribution of tobacco use among medical students is given in (Table 2)

Table 1: Distribution of Students by Age, Gender, and Year of Study (N= 255)

Variable	Total	Smokers n (%)	Non -smokers n (%)	Chi-square	p-value
Age (in years)					
15-18	3	0	3 (100%)	4.73	0.094
19-24	239	54 (22.5%)	185 (77.5%)		
25-29	13	6 (46.1%)	7 (53.9%)		
Year of Under Graduate Study					
First MBBS	43	9 (20.9%)	34 (79.06%)	8.506	0.075
Second MBBS	52	7 (13.46%)	45 (86.54%)		
Third MBBS Part-I	48	18 (37.5%)	30 (62.5%)		
Third MBBS Part-II	43	9 (20.9%)	34 (79.06%)		
Internship	69	17 (24.63%)	52 (75.37%)		
Gender					
Male	107	30 (28.03%)	77 (71.9%)	2.08	0.149
Female	148	30 (20.2%)	118 (79.7%)		

Table 2: Gender wise Distribution of Tobacco use among Study Participants (N=255)

Variables	Female n (%)	Male n (%)	Total n (%)
Ever tried cigarettes	30 (20.2%)	30 (28.02%)	60 (23.5%)
Current cigarette smokers	9 (6.08%)	13 (12.1%)	22 (8.6%)
Smoking in college premises	2 (1.3%)	4 (3.7%)	6 (2.4%)
Ever used smokeless tobacco	5 (3.3%)	13 (12.1%)	18 (7.1%)
Current use of smokeless tobacco	2 (1.3%)	4 (3.7%)	6 (2.3%)

Exposure to second-hand tobacco smoke and awareness about official policies banning tobacco

The prevalence of exposure to second-hand tobacco smoke at home was found to be 80 (31.3%), while the prevalence of exposure to second-hand tobacco smoke in public places was found to be 112 (43.9%). There was a statistically significant relationship found between tobacco use in medical students and exposure to second-hand tobacco smoke at home and in public places ($p < 0.05$). About 222 (87.1%) students reported that an official policy banning smoking was present for both college and hospital buildings, while 3 (1.2%) and 14 (5.5%) said that the policy was only for hospital buildings and for college buildings, respectively. Only a small number of students (6.3%) said there was no official policy banning smoking. Although 222 students reported that there was an official policy present at the college banning smoking, only 214 (83.9%) said that the policy was enforced. The relationship between cigarette smoking and reporting that an official policy regarding the banning of smoking is enforced

was found to be statistically significant. ($p < 0.05$) (Table 3)

Attitude regarding tobacco use

The majority of the students (91.8%) responded by saying that tobacco sales to adolescents should be banned and that there should be a ban on advertising tobacco products (78.8%). Most of the medical students responded by saying that smoking should be banned in restaurants (91.4%), pubs and discos (63.9%), and enclosed public places (97.3%). (Table 3)

Role of health care professionals in tobacco cessation

The opinions of smokers vs. non-smokers in regard to health care professionals serving as "role models" for their patients were found to be statistically significant ($p < 0.05$). The medical students who smoked were less likely to agree that health care professionals served as role models for their patients. The majority of the students (92.2%) responded by saying that a patient's chances to quit smoking increased if they received advice from a

Table 3: Association of Tobacco Use on Attitude of Medical Students towards Ban of Tobacco Products (N= 255)

Variable		Have used tobacco		Total	Chi-square	p-value
		Yes n(%)	No n(%)			
Should tobacco sales to adolescents be banned?	Yes	52 (20.3%)	182 (71.4%)	234 (91.7%)	2.698	0.1
	No	8 (3.1%)	13 (5.1%)	21 (8.2%)		
Should there be a complete ban of the advertising of tobacco products?	Yes	49 (19.2%)	152 (59.6%)	201 (78.8%)	0.38	0.53
	No	11 (4.3%)	43 (16.9%)	54 (21.2%)		
Should smoking be banned in restaurants?	Yes	47 (18.4%)	186 (72.9%)	233 (91.3%)	16.922	<0.001*
	No	13 (5.1%)	9 (3.5%)	22 (8.6%)		
Should smoking be banned in discos/bars/pubs?	Yes	26 (10.2%)	137 (53.7%)	163 (63.9%)	14.42	<0.001*
	No	34 (13.3%)	58 (22.7%)	92 (36%)		
Should smoking in all enclosed public places be banned?	Yes	57 (22.3%)	191 (74.9%)	248 (97.2%)	1.49	0.22
	No	3 (1.2%)	4 (1.5%)	7 (2.7%)		

* $P < 0.05$ = significant (Figures in the parenthesis are row wise percentages)

Table 4: Association of Tobacco Use with Attitude of Medical Students towards Role of Health Care Professionals in Smoking Cessation (N=255)

Variable		Have used tobacco		Total N=255	Chi-square	p-value
		Yes n(%)	No. n(%)			
Do health professionals serve as “role models” for their patients and the public?	Yes	42 (16.4%)	166 (65.1%)	208 (81.5%)	6.98	0.008*
	No	18 (7.1%)	29 (11.3%)	47 (18.4%)		
Do health professionals have a role in giving advice or information about smoking cessation to patients?	Yes	57 (22.3%)	193 (75.7%)	250 (98%)	3.77	0.05*
	No	3 (1.2%)	2 (0.8%)	5 (2%)		
Are a patients chances of quitting smoking increased if a health professional advises him or her to quit?	Yes	51 (20%)	184 (72.1%)	235 (92.1%)	5.56	0.018*
	No	9 (3.5%)	11 (4.3%)	20 (7.8%)		
Should health professionals routinely advise their patients who smoke to quit smoking?	Yes	59 (23.1%)	192 (75.3%)	251 (98.4%)	0.005	0.94
	No	1 (0.4%)	3 (1.1%)	4 (1.5%)		
Should health professionals routinely advise their patients who use other tobacco products to quit using these products?	Yes	60 (23.5%)	192 (75.3%)	252 (98.8%)	0.93	0.33
	No	0 (0%)	3 (1.2%)	3 (1.2%)		

* $P < 0.05$ = significant (Figures in the parenthesis are row wise percentages)

health care professional. There was no major difference in the opinion of the students who smoked versus those who did not, in regard to health care professionals giving routine advice on smoking cessation. (Table 4)

Behaviour and Cessation

Among the current smokers, 15 (68.1%) students said that they have tried to quit smoking in the past year, and 4 (18.1%) responded by saying that they did not want to quit smoking. All six of the students who currently use smokeless tobacco responded by saying that they wanted to quit. Only nine (15%) students who were ever smokers said that they had received professional advice to help them quit smoking.

The majority of the medical students, 203 (79.6%) and 187 (73.3%) responded by saying that health care professionals who smoked and used smokeless tobacco, respectively, were less likely to advise their patients to stop the use of tobacco.

Discussion:

The use of tobacco, both for smoking and in smokeless forms, has multiple adverse health implications for both active and passive smokers. Medical students being the future of today can greatly help reduce the adverse health outcomes of tobacco use, but the use of tobacco products by medical students and health care professionals alike poses a major shortcoming.

Tobacco use among medical students

In this study, nearly a quarter of the medical students i.e. 60 (23.5%) had ever smoked cigarettes, which is lower than that found by Brar M et al (42%) in Pune^[8] and Shrestha N et al (49.4%) in Kathmandu^[9], but higher than studies done by, Patel J et al (22.6%) in Belgaum^[10], Vankhuma C et al (9.3%) in Delhi^[4], and Boopathirajan R et al (10.9%) in Chennai.^[11] The findings of our study were similar to the pooled average of 21.95% found in a systematic review by Sahu A et al.^[6]

Current cigarette smokers were 8.6% of the total, which is much lower than that reported by Brar M et al (7, 24.3%) in Pune,^[8] Shrestha N et al (8, 30.1%) in Kathmandu^[9], and Patel J et al (9, 24.2%) in Belgaum.^[10]

Most of the students in this study i.e. 25 (9.8%) had tried their first cigarette between the ages of 20 and 24, which is similar to the findings by Shrestha N et al in Kathmandu^[9] and Patel J et al in Belgaum.^[10] A study done by Brar M. et al in Pune^[8] stated that most of the students started smoking before the age of 20. The high academic stress and demands of medical school could be one of the probable causes for students starting to smoke between the ages of 20 and 24. This study also found that 6.2% of students had tried their first cigarette before the age of 16, which emphasises the need for setting up counselling and regular health checkups at the primary and secondary school levels to address the factors that could have led to cigarette use. There should also be regular sessions conducted at schools to make students aware of the hazards of tobacco use.

In the current study, 18 (7.1%) of students had used smokeless forms of tobacco, while 6 (2.3%) were currently using smokeless tobacco, which was less than a study done by Brar M et al in Pune^[8] and Patel J et al in Belgaum,^[10] but more than a study done by Shrestha N et al in Kathmandu^[9] and Boopathirajan R et al in Chennai.^[11]

Exposure to second-hand tobacco smoke

In this study, about one-third i.e. 80 (31.3%) of students were exposed to second-hand tobacco smoke at home, while nearly half i.e. 112 (43.9%) were exposed to second-hand tobacco smoke in public places, which is less than that found by Brar M et al in Pune^[8] and Boopathirajan R et al in Chennai.^[11] Although in this study the exposure to second-hand tobacco smoke was less than that compared to other similar studies, the prevalence of exposure to second-hand tobacco smoke was higher than active smoking. This emphasizes the need for health education campaigns to make the community aware of the hazards of passive smoking in order to protect the innocent bystanders against its harmful effects.

The official policy banning tobacco on campus

Six (2.4%) students had smoked on college or hospital premises, while 4 (1.6%) had used smokeless forms of tobacco on campus. The majority of the students 222 (87.1%) were aware of an official policy against smoking on campus, and 214 (83.9%) responded by saying that the policy was enforced. This finding was higher than that reported by Brar M et al in Pune^[8] and Mahadeva DM et al in Bengaluru^[12] who found that a slightly lower number of students were aware of the official policy against tobacco on campus. The lower proportion of medical students smoking on college premises could be due to the presence and enforcement of the official policy against smoking on campus.

Attitude towards sales of tobacco products and smoking

In this study, majority i.e. 234 (91.7%) of students agreed that there should be a ban on the sale of tobacco products to adolescents. The majority of the students, i.e. 233 (91.3%) favoured the ban on smoking at restaurants and in enclosed public places 248 (97.2%). These findings are similar to studies done by Brar M et al in Pune^[8], Shrestha N et al in Kathmandu^[9], and Boopathirajan R et al in Chennai.^[11] A little over three-fourths of the students favoured

the ban on advertising tobacco products 201 (78.8%), which is less than that reported by Boopathirajan R et al in Chennai^[11] but similar to the findings of Shrestha N et al in Kathmandu.^[9]

Even though most of the students supported the ban on the sale of tobacco products to adolescents and smoking at restaurants and enclosed public places, only a little over half of the students i.e. 163 (63.9%) supported the ban on smoking at discos and pubs. These findings were similar to those of a study done by Shrestha N. et al in Kathmandu.^[9]

Attitude towards the role of health care professionals in tobacco cessation

Most of the medical students i.e. 208 (81.6%) responded that health care professionals serve as “role models” for their patients and the public. Almost all the students (98%) agreed that health care professionals have a role in giving advice regarding smoking cessation and 98.4% said that health care professionals should routinely give advice to their patients who smoke and (98.8%) use smokeless tobacco products to quit using these products. Majority (92.2%) of the students responded saying that a patient's chances of quitting smoking increased if they received advice from a health care professional. Similar findings were found in studies done by Shrestha N. et al in Kathmandu.^[9] This is a positive finding, as it showed that regardless of the smoking status, medical students were of the opinion that health care professionals should routinely advise their patients to quit the use of tobacco products.

Behaviour and Cessation

Over two-thirds of the medical students who were current smokers i.e. 15 (68.1%) said that they tried to quit smoking in the last year, but only 15% of the students who had ever tried tobacco products reported that they received professional help or advice to help them quit. This finding shows that there is a deficiency in reaching these medical students, even though more than half of them have tried quitting tobacco use.

Conclusion:

Almost a quarter of the students were found to have used tobacco or experimented with cigarette smoking at least once, while only 8% were found to be current smokers. Although the number of students who were current smokers was only 8%, it could be under reported. A large number of students were exposed to second-hand tobacco smoke both at home and in public places. Exposure to second-hand tobacco smoke can also be as harmful as active smoking, and even a brief exposure to second-hand tobacco smoke can cause severe damage. There needs to be strict enforcement of policies banning cigarette smoking in public places, and health awareness campaigns can be conducted to attempt to control smoking at home.

Most medical students (81.6%) agreed that health care professionals serve as “role models” for their patients and that their patients' chances of quitting smoking increased if they received advice from a health care professional (92.1%). The majority of the students responded that medical students who smoked (79.6%) or used other forms of tobacco (73.3%) were less likely to advise their patients to stop using tobacco.

Recommendation:

Medical students are the future of the health care system and it is for this reason that medical colleges should have a training program on tobacco cessation and counselling as a part of their regular curriculum. Medical colleges should also set up counselling sessions for medical students, which would serve the purpose of finding the cause behind students smoking along with other stressors that they may face.

Limitations:

Although this study used a self-administered anonymous questionnaire in order to maintain the anonymity and confidentiality of the study participants, there may have been some under reporting due to social desirability bias and reporting bias.

Declaration:

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Conflict of Interest: Nil

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