

Awareness, Attitude and Use of Tobacco among Medical Students in Chennai

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Background: Health professionals have an important role to play in the fight against tobacco. As individuals, health professionals can help educate the population; as community members, they can support anti-smoking policies; and, at a societal level, they can influence national and global tobacco control efforts. The objectives of the study was to estimate the prevalence of tobacco use among medical students in Chennai and to measure the extent of attitude toward, behavior around and knowledge of tobacco use among medical students.

Methods: This cross-sectional study was conducted among 400 medical students from 4 randomly selected medical colleges, comprised of 1 government and 3 private medical colleges in and around Chennai, India. The Global Health Professional Students Survey (GHPSS), a standardized college-based tool, was administered to students in the four medical colleges.

Results: The proportion of students who ever tried cigarette smoking was found to be 10.9% (males, 23.5% and females, 1.8%). The prevalence of exposure to tobacco smoke at home was found to be 34.2%. A majority of students agreed that smoking should be banned. The proportion of students who wanted to quit smoking cigarettes and who ever tried to stop smoking were 29.8% and 34.6% respectively. Only 23.6% of the students said they have received formal training in smoking cessation techniques.

Conclusion: As indicated by the majority of the medical students queried, there is a need for formal training in smoking cessation techniques, and this training should be included in the medical curriculum, such that students can instruct or counsel their patients.

Key Words: Prevalence, Tobacco use, Attitude, Behavior, Cessation, Curriculum, Training medical students, Chennai

INTRODUCTION

Tobacco use is the single largest preventable cause of death and disability worldwide. Nearly 80% of these deaths occur in low- and middle-income countries [1]. Tobacco is one of the major causes of death and disease in India, accounting for nearly 900,000 deaths every year. About 53% of all deaths in India are caused by NCDs, for which tobacco use is one of the major risk factors. In India, 35% of all adults (275 million) aged 15 years and above are users of tobacco, according to the Global Adult Tobacco Survey

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India, 2009-10. India is the second largest consumer and third largest producer of tobacco and a plethora of tobacco products are available at very low prices [2]. Tobacco-related mortality in India is among the highest in the world [3]. Smoking among health care personnel, such as medical students, is an important public health issue. More effective measures to reduce tobacco smoking among medical students are needed worldwide [4]. Health professionals, while recognizing smoking as the leading preventable cause of death and disability, are not aware of their fundamental role in helping people quit smoking [5,6]. In some countries, the prevalence of smoking is higher among health professionals than among the general population [7,8].

Teaching about the effects of the use of tobacco and its related diseases is essential for undergraduate medical students, especially to counter the deadly effects of the same. Physicians occupy a key position in this regard, as they are uniquely placed to lead smoking cessation programs in the community [9]. In most developed countries where tobacco use has decreased, doctors often have set an example by being the first group to quit tobacco use [10]. Health professionals have an important role to play in the fight against tobacco. As individuals, health professionals can help educate the population; as community members, they can support anti-smoking policies; and at a societal level, they can influence national and global tobacco control efforts [11]. To date, very few studies had been conducted in India to understand the magnitude of knowledge of smoking as a public health problem among medical students. Medical students are better placed to understand and practice the latest developments in healthcare. Therefore, it is important to understand the factors affecting tobacco use among medical students and to know whether medical students perceive tobacco use as a public health problem. Hence, this study was undertaken to estimate the prevalence of tobacco use among medical students in Chennai and to measure the extent of attitude toward, behavior around and knowledge of tobacco usage among medical students.

MATERIALS AND METHODS

This cross-sectional study was conducted among 4 randomly selected medical colleges, comprised of one govern-

ment and three private medical colleges from a total of three government and nine private medical colleges in and around Chennai, India. The study was conducted from September 2013 to August 2014. With the prevalence of 22.4%, as per Kumar et al. [12], at a 5% significance level and 20% allowable error, the sample size was determined using the formula $n = 4pq/L^2$, which came to 340. Considering a 15% non-response rate, the sample size was rounded up to 400. The Global Health Professional Students Survey (GHPSS), a standardized college based tool, was used to collect data among medical students [13]. This tool was administered in colleges during regular class sessions. The questionnaire was pre-tested in a pilot study to assess the feasibility of adopting the questionnaire, and it was adopted without modification. The protocol was submitted to the institution ethics committee and approval was obtained.

After obtaining the permission of heads of the institutions, students were briefed about the questionnaire and purpose of the study. Informed written consent was obtained from the students and the students were informed about the confidentiality of the data. Data regarding demographics, knowledge of, attitude toward and behavior regarding tobacco were collected. It was ensured that participants answered all questionnaire items.

Data was entered into Microsoft Excel 2010 spreadsheet and analyzed using Epi Info version 3.4.3. Descriptive analyses were conducted (means, percentages, proportions, and 95% confidence intervals) for demographic data. A Chi-square test of significance was used for analysis of categorical variables. p -values < 0.05 were considered significant.

RESULTS

This study was conducted among 479 third year medical college students at four medical colleges. The mean age of study participants was 20.46 years, with 200 (41.8%) males and 279 (58.2%) females.

The proportion of students who ever tried cigarette smoking was found to be 10.9% (males, 23.5%; females, 1.8%). The prevalence of current cigarette smoking among students was found to be 4.8% (males, 11.5%; females, 0%). The proportion of cigarette smoking on college premises during the past year was found to be 1.9%. The proportion of students

who ever used smokeless tobacco (chewing tobacco, snuff) was found to be 1.9% (males 4.5%; females, 0%). The prevalence of current smokeless tobacco use among students was found to be 1.0% (males, 2.5%; females, 0%). The proportion of students using smokeless tobacco on college premises during the past year was 0.6%. The prevalence of exposure to tobacco smoke at home among students was found to be 34.2% (males, 49.5%; females, 23.3%). The prevalence of exposure to tobacco smoke at public places was found to be 50.3% (males, 58.5%; females, 44.4%; Table 1).

A majority of the students (96.5%) supported a tobacco

sales ban to adolescents, as well as a ban of tobacco product advertisements (91.6%). Most students agreed that smoking should be banned in restaurants (94.6%), in public places (93.7%) and in discos/bars/pubs (73.9%). Many students, 75.6% and 95.2%, indicated that health professionals should serve as a role model for patients and receive specific training on cessation techniques, respectively. The proportion of students who currently wanted to quit smoking cigarettes was 26.9%. The proportion of students who ever tried to stop smoking cigarettes during the past year was 34.6% and the proportions of students who stopped smoking cigarettes and using smokeless tobacco were 13.5% and 44.4%,

Table 1. Prevalence of tobacco use among medical students

Tobacco items	Male n=200	Female n=279	Total N=479	95% CI
Ever tried cigarette smoking	47 (23.5)	5 (1.8)	52 (10.85)	8.11-13.69
Current cigarette smoking habit	23 (11.5)	0 (0.0)	23 (4.80)	2.89-6.71
Smoking cigarettes on college premises/property during past year	8 (4.0)	1 (0.4)	9 (1.87)	0.68-3.12
Ever used smokeless tobacco	9 (4.5%)	0 (0.0)	9 (1.87)	0.68-3.12
Current smokeless tobacco use habit	5 (2.5)	0 (0.0)	5 (1.04)	0.11-1.89
Using smokeless tobacco on college premises/property during past year	3 (2.0)	0 (0.0)	3 (0.6)	-0.09-1.29
Exposed to ETS at home during the past 7 days	99 (49.5)	65 (23.3)	164 (34.23)	29.95-38.45
Exposed to ETS in public places during the past 7 days	117 (58.5)	124 (44.4)	241 (50.31)	45.82-54.78

Table 2. Attitudes of study population towards smoking and sale of tobacco products: distribution by gender

Attitude	Male n = 200 (%)	Female n = 279 (%)	Total N = 479	χ^2	p-value
	Yes	Yes	Yes		
Should tobacco sales to adolescents be banned?	186 (93.0)	276 (98.9)	462 (96.5)	11.9	0.001
Should there be a complete ban of the advertising of tobacco products?	179 (89.5)	260 (93.2)	439 (91.6)	2.0	0.150
Should smoking be banned in restaurants?	180 (90.0)	273 (97.8)	453 (94.6)	13.9	<0.001
Should smoking be banned in discos/ bars/pubs?	123 (61.5)	231 (82.8)	354 (73.9)	27.3	<0.001
Should smoking in all enclosed public places be banned?	181 (90.5)	268 (96.1)	449 (93.7)	6.1	0.013
Should health professionals get specific training on cessation techniques?	185 (92.5)	271 (97.1)	456 (95.2)	5.4	0.019
Do health professionals serve as role models for their patients and the public?	151 (75.5)	211 (75.6)	362 (75.6)	0.0	0.975
Should health professionals routinely advise their patients who smoke to quit smoking?	194 (97.0)	272 (97.5)	466 (97.3)	0.1	0.744
Should health professionals routinely advise their patients who use other tobacco products to quit using these products?	193 (96.5)	262 (93.9)	455 (95.0)	1.6	0.200
Do health professionals have a role in giving advice or information about smoking cessation to patients?	192 (96.0)	273 (97.8)	465 (97.1)	1.4	0.236
Are a patient's chances of quitting smoking increased if a health professional advises him or her to quit?	152 (76.0)	239 (85.7)	391 (81.6)	7.2	0.007
Do you feel that health professionals who smoke are less likely to advise patients to stop smoking? (n = 479)	135 (67.5)	203 (72.8)	338 (70.6)		66.52-74.68

respectively. A majority of students, 59.6%, reported they received help or advice to stop smoking cigarettes.

Among students who completed the questionnaire, 70.6% reported that health professionals who smoke are less likely to advise patients to stop smoking. Females were more likely than males to agree that health professionals should receive special training about smoking cessation techniques; 76% of males agreed that advice would enhance the possibility of patients quitting smoking compared to 87.5% of females. The difference in attitudes between males and females was significant ($p = 0.007$). The proportion of students who said health professionals who smoke are less likely to advise patients to stop smoking was 70.6% (Table 2).

Among the students who tried smoking/smokeless tobacco ($n = 52$), 29.8% and 34.6% wanted to quit smoking cigarettes and tried to stop smoking, respectively. The proportion of students who stopped smoking cigarettes and re-

ceived help or advice to stop smoking cigarettes were 13.5% and 59.6%, respectively. The proportion of students who wanted to stop using smokeless tobacco was 44.4% (Table 3).

Table 4 depicts that more than 90% of the students reported they were taught about the dangers of smoking and learned to record tobacco use history as a part of a patient's general medical history. Only 23.6% of the students reported that they received formal training in smoking cessation techniques. A majority of students, 57.6%, indicated that they discussed the reasons why people smoke with their classmates.

DISCUSSION

The current study was conducted to estimate the prevalence of tobacco use and to measure the extent of knowl-

Table 3. Cessation behavior among the medical students who have ever tried cigarette smoking/smokeless tobacco

Statement	Male (%) Yes	Female (%) Yes	Total (%) Yes	95% CI
Do you want to stop smoking cigarettes now?	14 (29.8)	0 (0.0)	14 (29.8)	17.37-42.23
Have you ever tried to stop smoking cigarettes during the past year?	18 (38.3)	0 (0.0)	18 (34.6)	21.67-47.53
Students who stopped smoking cigarettes	3 (6.4)	4 (80.0)	7 (13.5)	4.21-22.79
Have you ever received help or advice to stop smoking cigarettes?	27 (57.4)	4 (80.0)	31 (59.6)	46.26-72.94
Do you want to stop using smokeless tobacco now?	4 (44.4)	0 (0.0)	4 (44.4)	30.9-57.9

Table 4. Training and curriculum on smoking and tobacco use among male and female students

Curriculum/Training	Male $n = 200$ (%)	Female $n = 279$ (%)	Total $N = 479$ (%)	χ^2	p-value
	Yes	Yes	Yes		
During college, were you taught, in any of your classes, about the dangers of smoking?	171 (85.5)	264 (94.6)	435 (90.8)	11.6	0.001
During college, did you discuss, in any of your classes, the reasons why people smoke?	108 (54.0)	168 (60.2)	276 (57.6)	1.8	0.175
During college, did you learn that it is important to record tobacco use history as part of a patient's general medical history?	183 (91.5)	272 (97.5)	455 (95.0)	8.7	0.003
During college, did you ever receive any formal training in smoking cessation approaches to use with patients?	58 (29.0)	55 (19.7)	113 (23.6)	5.5	0.018
During college, did you learn that it is important to provide educational materials to support smoking cessation to patients who want to quit smoking?	143 (71.5)	195 (69.9)	338 (70.6)	0.1	0.703
Have you ever heard of using nicotine replacement therapies in tobacco cessation programs (such as nicotine patch or gum)?	161 (80.5)	215 (77.1)	376 (78.5)	0.8	0.366
Have you ever heard of using antidepressants in tobacco cessation programs (such as bupropion or zyban)?	107 (53.5)	139 (49.8)	246 (51.4)	0.6	0.427

edge of, attitude toward and behavior around tobacco usage among third year medical students in Chennai, India. The number of study participants was 479 students, with 200 males and 279 females. The majority of participants was female and aged between 19 to 22 years. The mean age of the students was 20.46 years.

1. Prevalence of tobacco use among medical students

In the present study, approximately one-third of the medical students tried cigarette smoking. Similar findings were reported by Selokar et al. [14] and Lam et al. [15], with 10.3% and 11.8% of students having tried cigarette smoking, respectively. In contrast, Alrsheedi et al. [16], Sreeramareddy et al. [17] and Surani et al. [18] reported that 23%, 31.7% and 40% of students tried smoking, respectively. In the present study, among male medical students, one-fourth had ever smoked cigarettes compared with 1.8% among female medical students. Similarly, Bartwal et al. [19] reported that 25.15% of males and 1.22% of females tried cigarette smoking. In contrast, a study conducted by Sinha et al. [20] showed 7% and Surani et al. [18] showed 23.5% of females tried cigarette smoking.

In the present study, less than 5% of students were current smokers. Similar findings were reported by Abdulghani et al. [21] with 4.3% and Ramakrishna et al. [22] with 3.7%. In contrast, a higher proportion of current smokers was reported by other researchers in India. Goyal et al. [17] found 14.2%, Bartwal et al. [19] reported 14.5% and Kumar et al. [12] reported 22.4% of medical students were current smokers. In the present study, none of the female students were current smokers, while 11.5% of male students indicated they were current smokers. Similar finding were reported by Ramakrishna et al. [22], with 12.4% of male and 0.8% of female medical students were current smokers. In contrast, Saule et al. [23] reported 20.4% of male and 19.1% of female medical students were smokers, and Jradi et al. [24] reported 18% of male and 12% of female medical students were current smokers. All studies conducted among medical students reported higher rates of male current smokers relative to females.

In the present study, the distribution of cigarette smoking on college premises during the past year was 1.9%. In contrast, studies by AlKawari et al. [25] and Surani et al. [18]

found that one-third of students smoked on college premises/property and 17.1% smoked in college buildings during the past year, respectively.

In the present study, the prevalence of smokeless tobacco ever used was found to be 1.9% and the prevalence of current smokeless tobacco use was found to be 1.0%. In contrast, a study by Joge et al. [26] reported the prevalence of smokeless tobacco was 5.8%, Selokar et al. [14] reported 10% and Surani et al. [18], 11.6%. In the present study, 2.5% of males and none of the females were current smokeless tobacco users, whereas Surani et al. [18] reported that 13.7% of males and 7.5% of females were current smokeless tobacco users. In our study, about 0.6% had used smokeless tobacco on college premises during the past year, whereas Surani et al. [18] found that 34.2% used smokeless tobacco on campus during the past year.

2. Exposure to environmental tobacco smoke

In our study, approximately one-third of the students had exposure to smoke at home. Nearly half of the male students and one-fourth of the female students had exposure to smoke at home. Similar findings was reported by AlKawari et al. [25], where 27.9% were exposed to smoke at home. In contrast, Sinha et al. [20] and Tacettin Inandi et al. [27] reported that upward of fifty percent of the students had exposure to smoke at home.

In the present study, approximately half of the participants had exposure to smoke at public places (58.5% among male students and 44.4% among female students). Similar findings were reported by AlKawari et al. [25] and Inandi et al. [27]. In contrast, studies by Sinha et al. [20] and Saade et al. [28] reported that two-thirds of the students were exposed to smoke at public places.

The study findings revealed that more medical students were exposed to environmental tobacco smoke than to active smoking among both males and females. This indicates the need for health education of families and the community about the health hazards of passive smoking.

Of the students in the study, 79.1% reported that their college has an official policy banning smoking in college buildings and clinics. A similar finding was reported by Inandi et al. [27], with 88.2% of students reporting that their college had an official policy banning smoking on col-

lege premises. In contrast, studies by Sinha et al. [20] in 2005-2011 and Saade et al. [28] found that only half the students reported that their college had an official policy banning smoking in college premises.

In the present study, two-thirds of the students said an official smoking ban in college buildings and clinics has been enforced. A slightly higher percentage of students reported a smoking ban was enforced in the studies done by Inandi et al. [27] with 87.2% and AlKawari et al. [25] with 88.1%. Surani et al. [18] found that a slightly lower number of students (53%) reported that there was official smoking ban enforcement in their medical school.

3. Attitude towards smoking and sale of tobacco products

In the present study, more than 90% of the students favored banning the sale of tobacco products to adolescents, banning the advertisement of tobacco products, and banning smoking in restaurants and in public places. Similar findings were reported by Sychareun et al. [29], Mehrotra et al. [30], and AlKawari et al. [25]. In the present study, nearly three-fourths of the students reported that smoking should be banned in discos/bars/pubs. Sychareun et al. [29] and Mehrotra et al. [30] reported that 70.5% and 66.9%, respectively, of students indicated smoking should be banned in discos/bars/pubs.

In our study, even though more than 90% of the students supported bans of tobacco products in public places and restaurants, sales to adolescents and advertisements of tobacco products, only three-fourths of the students believed that tobacco products should be banned in discos, bars and pubs; this finding was supported by other published studies [29,30]. In the present study, approximately three-fourths of the students reported that health professionals should serve as a role model for their patients. Similar findings were reported by Sinha et al. [20], where 73.8% of medical students believed that health professionals served as role models for their patients and the public. Thankappan et al. [31] reported that a slightly higher proportion (89%) of medical students believe that health professionals serve as role models for their patients and the public. In the present study, 95.2% of the students reported that health professionals should get specific training in smoking cessation.

Similar findings were reported by other investigators [24,32].

4. Behavior/cessation of smoking and smokeless tobacco

In the present study, one-third of students had ever tried to stop smoking. In contrast, the study done by other investigators found that more than 50% of medical students had tried to quit smoking [21,27]. In the present study, 59.6% of smokers ever received help/advice to stop smoking cigarettes. Similarly, studies conducted by other investigators found that more than half of smokers ever received help or advice to stop smoking cigarettes [18,27]. In our study, more than 70% of students reported health professionals who smoke are less likely to advise patients to stop smoking. Adeel Khan et al. [33] found that a slightly higher proportion of students (77.5%) reported that health professionals who smoke are less likely to advise patients to stop smoking.

5. Training/curriculum on smoking and tobacco use

In the present study, more than 90% of students reported they were taught about the dangers of smoking. In contrast, Adeel Khan et al. [33] reported that only 43.7% of students were taught about the dangers of smoking. In addition, in the present study, more than 90% of students were taught that it is important to record tobacco use as a part of a patient's history. Similarly, Adeel Khan et al. [33] found that 88.9% of students were taught the importance of recording tobacco usage history.

In our study, one-fourth of students received formal training in smoking cessation for patients. In contrast, Adeel Khan et al. [33] found that 34.2% of students received formal training in smoking cessation. In the present study, nearly three-fourths of the students are taught that it is important to provide educational materials on smoking to patients. In contrast, Adeel Khan et al. [33] found that 58.5% of students were taught the importance of providing educational materials on smoking to patients.

In the present study, more than three-fourths of students have heard of using nicotine replacement therapies in tobacco cessation programs. Lam et al. [15] found a slightly higher proportion (90.8%) in their study. In contrast, Jradi [24] reported that only 18.4% have heard of nicotine replace-

ment products. In the current study, more than half of the students are aware of the use of antidepressants in tobacco cessation programs. Jradi [24] found that a slightly higher proportion (63%) of students were aware of the use of antidepressants in tobacco cessation programs.

CONCLUSION

In our study, less than 5% of medical students were current smokers, but upward of one-third to one-half were exposed to environmental tobacco smoke at home and in public places. This indicates that a health awareness campaign for the prevention and control of smoking at home and public places must be intensified. As indicated by the majority of the participants, medical students need to receive formal training in smoking cessation techniques and this training must be included in the medical curriculum so that students can instruct or counsel patients.

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