

Cigarette Smoking, Knowledge, Attitude and Prediction of Smoking Between Male Students, Teachers and Clergymen in Tehran, Iran, 2009

Gholamreza Heydari, Mahmoud Yousefifard¹, Mostafa Hosseini², Ali Ramezankhani³, Mohammad Reza Masjedi⁴

Tobacco Prevention & Control Research Center, National Research Institute of Tuberculosis and Lung Diseases, Shahid Beheshti University of Medical Sciences Tehran, Islamic Republic of Iran,

¹Department of Physiology, School of Medicine, Tehran University of Medical Sciences, ²Department of Epidemiology and Biostatistics, School of Public Health and Institute of Public Health Research, Tehran University of Medical Sciences, ³Department of Public Health, Shahid Beheshti University,

⁴National Research Institute of Tuberculosis and Lung Diseases, Shahid Beheshti University of Medical Sciences Tehran, Islamic Republic of Iran

Correspondence to:

Prof. Mostafa Hosseini,
Department of Epidemiology and Biostatistics, School of Public Health and Institute of Public Health Research, Tehran University of Medical Sciences, Poursina Avenue, Tehran, Iran.
E-mail: mhosseini110@yahoo.com

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ABSTRACT

Background: Students, clergymen and teachers as role models can be very important in encouragement or prevention of cigarette smoking in young people. The aim of this study was to compare prevalence of smoking in 3 male groups of teachers, clergymen and university students. Also, study their knowledge and attitude towards it and the prediction of their future consumption.

Methods: In a cross sectional study in 2009 in Tehran, Iran, 1,271 male students, 549 clergymen and 551 teachers were randomly enrolled. Each participant completed the global adult tobacco survey questionnaire. Knowledge, attitude and prediction of smoking for the next 5 years were questioned in these 3 groups. Chi-squared test and logistic regression were used for analysis. $P < 0.05$ was considered significant.

Results: Prevalence of cigarette smoking was 31.1%, 21.9% and 27.2% among students, clergymen and teachers, respectively. Smoking in students was not associated with poor knowledge but were in teachers and clergymen. The odds ratio of smoking in students, clergymen and teachers was higher among those with having inappropriate attitude towards it (OR = 1.6, 6.1 and 4.5). Those with poor knowledge had an inappropriate attitude and predicted higher chance of cigarette consumption in the next 5 years ($P < 0.0001$). Inappropriate attitude in all 3 groups resulted in higher prediction of future smoking ($P = 0.008$).

Conclusions: This study revealed that the prevalence of smoking among male students and teachers was higher than general population and clergymen who equally smoked. Also, level of knowledge and attitude of students were lower than teachers and clergymen.

Keywords: Attitude, cigarette smoking, clergymen, knowledge, student, teacher

INTRODUCTION

Cigarette smoking is the most important preventable cause of mortality all over the world. Also, it is responsible for many non-communicable diseases such as cancers and cardiovascular

diseases.^[1-5] Risk of cancer in smokers is 23 times greater than non-smokers. Moreover, cigarette smoking is the cause of half of the death of those who smoke for a long time. In the year 2000, about 5 million adults died as a result of cigarette consumption (about 12% of total deaths in the year 2000). It is estimated that this rate reaches 8.3 million per year by the year 2030, which 70% of these deaths will occur in developing countries.^[2] According to the WHO estimation, there are about 1.3 billion smokers worldwide that comprise one third of the world population over the age of 15 years. If this pattern of smoking remains unchanged, this rate will reach 2 billion by the year 2030.^[6] Meysamie A and colleagues reported that prevalence of cigarette smoking is 23.4% and 1.4% in Iranian males and females, respectively.^[7]

Smoking is a behavior that children and adolescents learn from their role models.^[8] Teachers and other groups like clergymen who can be role models, play an important role in persuasion or prevention of cigarette smoking among the youth.^[9,10] Also, as students will enter the society and play key roles such as physicians, engineers, and teachers and so on; studying their smoking behaviors is very important. Therefore, students are also role model for the younger, as well as being a representative of youth in the population.^[11,12]

The rate and tendency toward smoking among students has increased as shown by several studies.^[13] For example, a national survey in the US demonstrated that during a 5-year period, the rate of smoking among students increased from 22% to 29%.^[12] Also, a study in Iran found similar results showing that 5% of the female students in medical schools who were non-smokers in their first year of study became cigarette users in their seventh year of education. These rates among male students were 2% in the first and dramatically increased to 34% in the seventh year.^[14] Heydari *et al.* also showed that prevalence of smoking was significantly higher in students in their last year of study compared with whom in the first year.^[15] In addition, several studies have demonstrated that prevalence of smoking was higher among students who had smoker teachers compared to those who had non-smoker.^[16,17] These imply the importance of study of prevalence of smoking in these groups and also their knowledge, attitude and practice on the matter.

Since the clergymen in any religion are one of the most influential groups in the society, study of their smoking habits has been of interest and several studies looked at the prevalence of smoking in this group. For example, a study on Buddhist monks demonstrated that prevalence of daily smoking was 12%, which was lower than general population. This study also showed that Buddhist monks with no history of smoking had a better knowledge and attitude towards the hazards of smoking.^[18] Another study in Laos showed similar results.^[19] However, there is no study about smoking status of clergymen in Islamic countries including Iran.

The aim of this study is to estimate and compare the prevalence of smoking in 3 groups of male teachers, clergymen and university students and also their knowledge, attitude and prediction of future smoking. This is the first study in Iran, which compares not only the prevalence of smoking but also evaluates knowledge, attitude and their future prediction of smoking and investigates inter-relationship in these 3 groups. This is a unique study in that enrolls clergymen.

METHODS

University students, clergymen and teachers were studied in Tehran, Iran during 2009. In this cross sectional study, the knowledge, attitude towards tobacco consumption and their prediction of smoking in the next 5 years of participants were asked by questionnaire. Since the understudy clergymen were all males, only males were selected for the study from the other two groups. First, Tehran Islamic religious school and Shahid Beheshti University were randomly selected from the corresponding lists. Then, four medical and randomly four non medical faculties from the Shahid Beheshti University were selected. One class per grade (from grade 1 to 4) was also randomly selected in these faculties. Besides, in Tehran Islamic religious school one class per grade (from grade 1 to 5) was also selected randomly. The students and clergymen were all 18-25 years old.

In each class, after explaining the aim of the study and also the confidentiality, all the students were invited to participate in the study. Then, the questionnaires were distributed and collected by our trained staff. The response rate for students

and clergyman were 73% and 88%, respectively. Male teachers (20-29 years) who thought boys in middle schools in Tehran were also randomly selected. First, from the list of districts provided by the Ministry of Education and Training 5 districts randomly selected. Second, in each district, 10 middle schools were randomly selected. Third, in each school, on average, about 10 teachers were randomly selected. The response rate for the teachers was 82%. So, participants voluntarily entered in to this study. For confidentiality, questionnaires were filled without name or place of residence/work. A written informed consent was also obtained from all subjects.

For calculation of the required number of subjects in each of 3 groups, the formula for sample size calculation for proportion was used.^[20] Considering $P = 50\%$, $\alpha = 0.05$ and precision of 0.05, a minimum sample size of 385 was computed for each group. A total of 1,271 university students were enrolled (765 medical and 506 non-medical). Also, 549 clergymen and 551 teachers were randomly studied. Therefore, in all 3 groups, we examined a larger population than the calculated required number, which generally can increase the power and precision of the analysis.^[21]

To examine knowledge and smoking status of the study subjects, a self-report questionnaire was adapted from the standard questionnaire of the global adult tobacco survey.^[22] Validity and reliability of this questionnaire had been confirmed in previous studies.^[22-24] This questionnaire evaluates age of smoking initiation, place of birth, history of smoking (one with consumption

of at least 100 cigarettes was defined as a smoker person), smoking status at present, also knowledge about tobacco consumption (including 4 general knowledge multiple choice questions with 4 options), attitude towards tobacco consumption (4 multiple choice questions with 5 options) and contains one question about the probability of tobacco consumption in the next 5 years, which is presented in details by Heydari *et al.*^[22]

Considering the subjects' total scores of knowledge and attitude, the answers were categorized into 2 groups of poor/inappropriate (no correct answer) and moderate or good/appropriate (at least one correct answer). The answer to the question about probability of smoking in the next 5 years was divided into 2 groups of yes or no.

Data was entered and analyzed using SPSS (11.5) and STATA (11.0). Chi-squared test and logistic regression were used for comparison of smoking status, knowledge, attitude, and probability of smoking in the next 5 years among the 3 groups. $P < 0.05$ was considered statistically significant.

RESULTS

In this study, 1,271 students, 549 clergymen, and 551 teachers were interviewed in Tehran during 2009. As Table 1 shows, 395 (31.1%) of students, (95% CI: 28.5%-33.6%) had a history of smoking more than 100 cigarettes. This rate was 21.9% (95% CI: 18.3-25.3%) among clergymen and 27.2% (95% CI: 23.4%-30.9%) among

Table 1: Smoking status of male students, teachers and clergymen in Tehran

Smoking status	Students N (%)	Clergymen N (%)	Teachers N (%)	P value
History of smoking more than 100 cigarettes	395 (31.1)	120 (21.9)	150 (27.2)	<0.0001
Quit	81 (6.4)	24 (5.8)	30 (5.4)	0.99
Occasional	98 (7.7)	32 (5.8)	40 (7.3)	
Daily	81 (17.0)	24 (11.7)	30 (14.5)	
Age of smoking initiation in smokers (Mean±SD)	17.4 (±3.2)	16.7 (±4.1)	16.8 (±4.1)	0.06
Daily smoking rate				
Less than 10 cigarettes	155 (49.4)	48 (50.0)	60 (50.0)	0.64
11-20 cigarettes	143 (45.5)	40 (41.7)	50 (41.7)	
More than 20 cigarettes	16 (5.1)	8 (8.3)	10 (8.3)	

teachers. As presented in this Table, the highest prevalence was seen among students and the lowest among clergymen ($P < 0.0001$). Logistic regression showed that prevalence of smoking was significantly higher among students and teachers than clergymen ($P < 0.0001$ and $P = 0.04$). However, the 3.9% difference in prevalence of smoking between students and teachers was not found significant ($P = 0.09$). Also, among the 3 groups, there was borderline difference in age of smoking initiation ($P = 0.06$). Neither, such difference was detected in terms of successful quit attempts, occasional smoking and daily cigarette consumption ($P = 0.99$). No significant difference was found in the amount of daily smoking (less than 10 cigarettes, 11-20 cigarettes and more than 20 cigarettes) between the 3 groups ($P = 0.64$).

There was a significant difference between the understudy groups in terms of their knowledge, attitude and probability of smoking in the next

5 years ($P < 0.0001$) as presented in Table 2. Also, Table 2 shows, 61.9% (787) of students had poor knowledge; whereas, this rate was 38.8% (213) among clergymen and 42.1% (232) among teachers. Inappropriate attitude (tendency) towards smoking was observed in 23.1% (294) of students, 10.2% (56) of clergymen and 12.7% (70) of teachers. In addition, 11.9% (151) of students, 5.8% (32) of clergymen and 7.3% (40) of teachers predicted that they will smoke cigarette in the next 5 years. It worth mentioning that the knowledge, attitude, and probability of smoking in the next 5 years of two groups of medical and non-medical students were not statistically significant ($P = 0.29$; $P = 0.28$; $P = 0.30$; data not shown), respectively. This was the reason that we combined these two groups of the students for comparisons between 3 groups.

Table 3 shows the odds ratio of smoking initiation in the understudy groups based on their level of knowledge, and attitude. Odds

Table 2: Knowledge, attitude and prediction of smoking in the next 5 years among male students, teachers and clergymen in Tehran

Knowledge, attitude and prediction of smoking	Students N (%)	Clergymen N (%)	Teachers N (%)	P
Knowledge				
Moderate and good	484 (38.1)	336 (61.2)	319 (57.9)	<0.0001
Poor	787 (61.9)	213 (38.8)	232 (42.1)	
Total	1271 (100.0)	549 (100.0)	551 (100.0)	
Attitude				
Appropriate	977 (76.9)	493 (89.8)	481 (87.3)	<0.0001
Inappropriate	294 (23.1)	56 (10.2)	70 (12.7)	
Total	1271 (100.0)	549 (100.0)	551 (100.0)	
Prediction of smoking in the next 5 years				
No	1120 (88.1)	517 (94.2)	511 (92.7)	0.008
Yes	151 (11.9)	32 (5.8)	40 (7.3)	
Total	1271 (100.0)	549 (100.0)	551 (100.0)	

Table 3: Likelihood of smoking in the next 5 years of male students, teachers and clergymen based on their knowledge and attitude in Tehran

Knowledge and attitude	Students OR (95% CI)	Clergymen OR (95% CI)	Teachers OR (95% CI)	P
Knowledge				
Moderate and good	1	1	1	0.01
Poor	1.2 (0.9-1.6)	3.1 (2.0-4.6)	2.7 (1.9-4.0)	
Attitude				
Appropriate	1	1	1	0.01
Inappropriate	1.6 (1.2-2.1)	6.1 (3.4-10.9)	4.5 (2.7-7.6)	

ratio of smoking cigarette was not significant in students with poor knowledge (OR = 1.2; 95% CI: 0.9-1.6). Whereas, odds ratio of smoking cigarette in clergymen (OR = 3.1; 95% CI: 2.0-4.6) and teachers (OR = 2.7; 95% CI: 1.9-4.0) with poor knowledge was significantly higher than those with moderate or good level of knowledge. Also, in all 3 groups, the odds ratio of smoking cigarette was higher among those with inappropriate attitude compared to those with appropriate attitude towards smoking. This chance was significantly more in clergymen than teachers and was the lowest amongst students ($P = 0.01$; Table 3).

In addition, when examining the effect of current smoking status on the likelihood of smoking cigarette in the next 5 years, the corresponding odds ratios for students, clergymen and teachers were 1.4, (95% CI: 0.98-2.0), 4.0 (95% CI: 1.9-8.2) and 2.9 (95% CI: 1.5-5.6) respectively, which were significantly different ($P = 0.0001$).

The results of study of association between knowledge, attitude and prediction of smoking in the next 5 in three groups are presented in Table 4. As shown in this Table, 25.9% (204) of students with poor level of knowledge had also inappropriate attitude towards smoking cigarette; whereas, only 15% (32) of clergymen and 17.2% (40) of teachers with poor knowledge had this attitude ($P < 0.0001$). Also, 7.8% (61) of students with poor knowledge predicted that they may smoke cigarette in the next 5 years, where these rates were 3.8% (8) and 4.3% (10) among clergymen and teachers, respectively ($P < 0.0001$). In addition, it was found that 20.4% (60) of students with inappropriate attitude predicted that they may smoke cigarette in the next 5 years however these were 28.6% (16) and 28.6% (20) in clergymen and teachers ($P = 0.008$). These finding revealed that although frequency of inappropriate attitude was higher among students, the chance of smoking in the next 5 years in this group was lower than clergymen and teachers.

As it is stated the age range of the students and clergymen were 18 to 25 years and of the teachers 20 to 29 years. When significant test was carried on grade (as a representative of age) of students and clergymen it was not significant ($P = 0.37$). Also, given the range of age (20 to 29 years), the mean age of teachers is not generally far from the other 2 groups to alter the findings.

DISCUSSION

The results of this study showed that prevalence of smoking was higher among students (31.1%) and teachers (27.2%) in comparison with clergymen (21.0%) and other males in general population (23.4%). Although, the lowest consumption was seen among clergymen, it was not significantly lower than general population ($P = 0.40$). Also, level of knowledge, attitude and prediction of smoking cigarette in the next 5 years were more favorable in teachers and clergymen. Although, whenever the range of age extended or the females are enrolled the findings could be different.

In general, limited studies have compared smoking status in different groups in a community, although there are many researches focusing on a specific group of people. The results of this study were compatible with those of Ansary *et al.* They evaluated 280 medical students in Isfahan University of Medical Sciences and found that prevalence of smoking was 34% among male students who were in last year of their training.^[14] Another study conducted in Saudi Arabia showed a relatively similar prevalence of smoking among students of different majors. In this study, which was conducted on 202 medical and 300 non-medical students, they demonstrated that the rate of smoking was 27.8% and 39.5% among medical and non-medical students, respectively.^[25] Frisch *et al.* in Malaysia examined the pattern of smoking, level of knowledge and attitude of 146

Table 4: Knowledge, attitude and smoking status of male students, teachers and clergymen in Tehran

Knowledge and attitude	Students N (%)	Clergymen N (%)	Teachers N (%)	P
Poor knowledge				
Inappropriate attitude	204 (25.9)	32 (15.0)	40 (17.2)	<0.0001
Prediction of smoking in the next 5 years	61 (7.8)	8 (3.8)	10 (4.3)	<0.0001
Inappropriate attitude				
Prediction of smoking in the next 5 years	60 (20.4)	16 (28.6)	20 (28.6)	0.008

medical and nursing students towards smoking and found that only 11% of male students and none of the female students smoked^[26] which is much lower than ours.

The level of knowledge and attitude were significantly lower in students compared with other groups in our study. However, other studies conducted in different countries demonstrated that level of knowledge and attitude of medical students towards smoking were more appropriate. A study conducted in the United Kingdom on 181 dental students showed that more than 90% of dental students had moderate or good knowledge and more than 80% had an appropriate attitude towards smoking^[27] Pizzo *et al.* in a study aiming to examine prevalence of smoking among dental students and their knowledge and attitude towards quitting showed that of 220 students 65% of students had appropriate knowledge and 87% had appropriate attitude towards smoking cessation activities.^[28] Although in their study, the level of knowledge and attitude of dental students were higher than our students, no significant difference was observed between prevalence of smoking. This indicates that appropriate knowledge and attitude alone cannot result in a proper behavior and other confounding factors like socioeconomic and family issues^[29,8] should also be taken into account. Waalkens *et al.*, in the Netherlands examined knowledge, attitude and rate of smoking in 3 groups of medical students (725 subjects), residents (126 subjects) and psychology counselors (236 subjects) and found that prevalence of smoking among medical students and residents was lower than the general population; whereas, prevalence of smoking among counselors was not different from general population. They also found that counselors had poorer knowledge and more inappropriate attitude towards smoking compared to the other 2 groups.^[30] The results of Glantz study on prevalence of smoking in comparison with general population were in contrast with ours, however he found similar association between knowledge, attitude and prevalence of smoking cigarette with our study.

Limited studies have been conducted on the smoking status among clergymen of other religions and those available have been mostly performed on Buddhist monks. A study conducted on 318 Buddhist monks in Cambodia showed that 44%

were smokers; whereas, prevalence of smoking in Cambodian general population was 65%. It shows a similar pattern to what we found in our study. In addition, most monks had a poor knowledge about hazards of smoking but as the result of social stigma, prevalence of smoking among them was lower than the general population.^[31] Another study conducted on Buddhist monks in Laos showed that prevalence of smoking among them was about 12%, which is much lower than the neighboring countries like Cambodia.^[19] This study also demonstrated that Lao monks had a good knowledge about hazards of smoking. The results of these 2 studies were in accord with those of ours demonstrating that Islamic clergymen and Buddhist monks both had a lower prevalence of smoking than general population and also had an appropriate level of knowledge in this respect.

In general, the majority of studies performed on teachers only studied the prevalence of smoking. Our study findings regarding high prevalence of smoking among teachers were in agreement with the findings of Talay *et al.*, in Turkey,^[17] and Sorensen *et al.* in India.^[32] On the contrary, a study in Bahrain on 1,140 teachers demonstrated that only 8.7% of Bahraini teachers smoked, which was lower than their general population. They could not find any association between teachers' knowledge and cigarette consumption. They also reported that these teachers had acceptable level of knowledge about hazards of smoking.^[17]

The results of this study revealed that clergymen and teachers with poor knowledge had lower chance for becoming a smoker. In all 3 groups, the odds ratio of smoking in those with inappropriate attitude was significantly different from those with appropriate attitude. However, this chance was not significantly different in clergymen than teachers. Also, it was found that smoking status had no significant effect on the probability of smoking in the next 5 years among students. However, for clergymen and teachers, likelihood of smoking in the next 5 years among current smokers was significantly different from non-smokers.

In a study on 5,112 teachers in Malaysia,^[33] it was found that 30% were smokers. It also showed that teachers' attitude affected their smoking status, which is in concord with our study findings. Another study conducted in Bosnia on 273 physicians and nurses found a significant difference in their

knowledge and attitude towards smoking. While, in each group, prevalence of smoking was inversely associated with level of knowledge and attitude.^[34] Walkens *et al.* also found a significant relationship between prevalence of smoking and level of knowledge and attitude in each group of medical students, psychologists and medical residents.^[30]

Preventing the initiation of smoking in the adolescents and decreasing the prevalence of smoking in adults are the most important methods for prevention of cancer and various diseases. Smoking control programs can be helpful in this respect. These programs may include increased price of cigarettes, ban of smoking in public places, limiting cigarette advertisements, restricting tobacco advertising, and establishment of counseling and treatment centers for nicotine dependence. Such programs in the US have resulted in decreased rate of smoking.^[2] Fortunately, smoking control programs are also implemented in Iran. However, for implementation of such programs at the national level, a correct estimate of the prevalence of smoking in different social and occupational groups seems necessary. Cigarette consumption has increased among the youth of various social levels in the recent years.^[35] This study also showed that prevalence of smoking was higher among male students (which represents the youth in the community) than general population. Considering this increase, new strategies are recommended to prevent smoking at young ages.

The strength of this study was looking at these 3 groups for the first time, having standard questionnaire, trained research staff and acceptable executive process. The weakness of the study was because the clergyman were male the other 2 groups were selected from males. Also, limiting the information on grades of the students and clergymen and age range of teachers and not recording exact age of participants was of the limitations of the study.

CONCLUSIONS

This study showed that prevalence of smoking among male students and teachers was higher than general population and clergymen, who smoked equally. Also, level of knowledge and attitude and prediction of future smoking in students were worse than teachers and clergymen, which is alarming.

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