
Did unprogrammed tobacco control efforts over seven years decrease smoking prevalence in the medical school?

Celal KARLIKAYA¹, Levent ÖZDEMİR²

¹ Trakya Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları Anabilim Dalı, Edirne,

² SB Dörtöyol Devlet Hastanesi, Hatay.

ÖZET

Tıp fakültesi öğrencilerinin sigara içme oranları, yedi yıl süresince gerçekleştirilen programsız tütün kontrolü çabaları ile azaldı mı?

Tıp fakültesi öğrencileri tütünün ölümcül etkileriyle mücadele etmede önemli rollere sahip olacaklardır. Bu çalışmada, birçok tütün kontrolü girişiminin sonucu olarak yedi yıllık bir sürede tıp fakültesi öğrencileri arasında sigara prevalansında değişiklik olup olmadığını değerlendirmek amaçlanmıştır. Toplam 854 tıp fakültesi öğrencisinden 764 (%89.4)'üne tütün kullanımı ile ilgili bilgi, tutum ve davranışlarını ortaya çıkarmaya yönelik kendi kendine yapılan bir anket uygulandı. Sonuçlar aynı yöntemlerin kullanıldığı ve yedi yıl önce yapılan tarihi kontrolle karşılaştırıldı. Öğrencilerin %25.9'u sigara içicisi idi (erkeklerin %36.6'sı, kızların %16.3'ü), %4.9'u bırakmıştı ve %69.2'si hiç içmemişti. Bırakma hızları erkeklerde kızlardan daha yüksekti (%6.8'e karşı %3.3, $p < 0.05$). 1999 yılındaki tarihi kontrole göre sigara içme hızı erkeklerde sadece %3.8, kızlarda %5.5 azalmıştı ve bırakma hızları daha yüksek değildi. Fakültenin ilk yıllarında olmak, sigara içmenin ve çevresel sigara dumanının zararlarına dair düşük bilgi düzeyi, bekar evinde yaşamak, kaçak sigaralara kolay ulaşmak ve sigara dışında tütün ürünü kullanmak sigara içimi için başlıca etkenlerdi. Bu yedi yıllık sürede birçok yerel ve ulusal tütün mücadele yönteminin yürürlüğe girmesine karşın tıp fakültesi öğrencilerinin sigara içme hızlarında çok az bir azalma saptandı. Sonuç olarak, Türkiye'deki tıp fakültelerinde, özel dikkate, organize ve programlı çabalara gereksinim vardır.

Anahtar Kelimeler: Sigara, tıp fakültesi öğrencileri, tütün kontrolü.

SUMMARY

Did unprogrammed tobacco control efforts over seven years decrease smoking prevalence in the medical school?

Celal KARLIKAYA¹, Levent ÖZDEMİR²

¹ Department of Chest Diseases, Faculty of Medicine, Trakya University, Edirne, Turkey,

² Dörtöyol State Hospital, Hatay, Turkey.

Yazışma Adresi (Address for Correspondence):

Dr. Celal KARLIKAYA, Trakya Üniversitesi Tıp Fakültesi, Göğüs Hastalıkları Anabilim Dalı, 22030 EDİRNE - TÜRKİYE
e-mail: celalk@trakya.edu.tr

Medical students will have significant roles in combating against death tool of tobacco. The aim of this study is to evaluate whether any decrease in the smoking prevalence of the medical students over seven years of many tobacco control efforts. A self-administered questionnaire was carried out among 764 of 854 (89.4%) medical students in order to determine the knowledge, attitudes and behaviors towards tobacco use. Chi-square tests, Student's t-test and multiple logistic regression methods were used. Results were compared with the historical control study that was done seven years ago with same methods. 25.9% of the students were smoker (36.6% of males, 16.3% of females), 4.9% was exsmoker and 69.2% was non-smoker. Quit rate was high among males than females (6.8% versus 3.3%, $p < 0.05$). When compared with historical cohort in 1999, smoking rate decreased only 3.8% for males and 5.5% for females, and quit rates were not higher. Lower curriculum year, and lower knowledge level about the harms of smoking and environmental tobacco smoke in lower grades, living in bachelor homes, easy access to smuggled cigarettes, using non-cigarette tobacco products were main factors for smoking. There was little decline in smoking rates of medical students despite of many local and national tobacco control efforts over seven years. Special attention and organized, programmed efforts are needed in medical schools in Turkey.

Key Words: Smoking, medical students, tobacco control.

Tobacco products, primarily cigarettes, cause serious illnesses and deaths all around the world. Tobacco control efforts must be increased promptly especially in developing countries where smoking rates are increasing. Since many smokers have to visit the doctor, doctors and medical students as future doctors have a significant role in combating against this death tool. It has been noted that smoking is widely common among doctors and a meaningful difference from the general population was not stated for the doctors who are considered to contribute in fighting against the tobacco to a large extent with their attitudes and behaviors (1). To train doctors of the future against smoking is one of the primary objectives of Turkey's National Tobacco Control Program. More effective education for Tobacco Control is an inescapable and urgent necessity in Medical Faculties of Turkey (2). Already, the World Health Organisation (WHO) has suggested that training of medical students has to be restructured to include competencies to help health workers manage today's most prevalent health problems like tobacco control (3).

The purpose of our study is to research the smoking prevalence of medical students and the knowledge, behaviors and attitudes towards the tobacco use and to compare with historical control to evaluate whether any decrease in the smoking prevalence despite of many local and national tobacco control efforts over seven years, and to determine educational needs and get clues to develop effective programs.

MATERIALS and METHODS

764 students out of 854 students, who were attending Medical Faculty in 2006-2007, formed the study group. To reach all the students was aimed, so sampling procedure was not performed. A self-administered survey questionnaire, which was prepared based on WHO questionnaires, was first administered to 20 nursing

students, and the framework of the survey was formed after it was validated in aspects of reliability and consistency. The survey questionnaire consisted of questions about demographics, smoking status, accommodation conditions, and knowledge level about harms of smoking and environmental tobacco smoke. In addition, the questionnaire consisted of questions on attitude and behaviors about smoking and tobacco control efforts. The definitions for smoking status were as in WHO's criteria [never smoker, current smoker (occasional and daily smoker) and exsmoker] (4). These definitions and questions to assess that were identical with our study done in 1999.

Pearson and Fisher's exact chi-square methods for univariate analysis were used as descriptive statistics. Student t-test was used to compare the difference between means. Multiple logistic regression method was used in multi-variate analysis of nominal values. Statistica 7.0 was used for statistical analysis.

RESULTS

764 out of 864 students (89.4%) were reached and completed the questionnaire. Answers of eight students were out of consistency, so they were excluded and 758 questionnaires (88.7%) were taken into evaluation. Out of 758, 355 (46.8%) were males and 403 (53.2%) were females. Average age of trying smoking for the first time was 14.3 ± 4.2 years for males and 15.3 ± 3.8 years for females ($p < 0.05$). It was found that 25.9% of the students was current smoker (36.6% of males, 16.3% of females), 4.9% was exsmoker, and 69.2% was non-smoker (29% experimenter, 40.2% never smoker). It was found that smoking rate was increasing from the first grade to the sixth grade and smoking rate was low in the first three years (19.3%, 19.1%, 16%). Students staying in dormitories had lower smoking prevalence (18.5%) than the ones staying in bachelor homes

(28.5%) or living with their families (25.4%). Smoking status in regard to sex, grade and accommodation conditions is shown in Table 1.

Average age for regular or frequent smoking was 18.2 ± 2.7 years for males and 18.8 ± 3.2 years for females. Males were smoking much more than females (11.9 ± 8.9 cigarettes/day for males and 7.1 ± 7.2 cigarettes/day for females, $p < 0.05$). When smoking periods were compared, it was found that males smoked for 4.2 ± 3.2 years and females smoked for 3.1 ± 2.4 years, $p < 0.05$.

Consumption of duty free/smuggled/tax stamp free cigarettes was significantly more common among males than females (33% vs. 10.2%, $p < 0.05$) (Table 2). Consumption of tobacco products other than cigarettes was also more common among males (19.7% vs. 7.9%, $p < 0.05$), and the rate was lower among third year students. Students who stated using other tobacco products had used water-pipes (37.2%), cigars (9.2%) and pipes (0.5%).

When the knowledge level about the harms of tobacco was evaluated, it was found that knowledge about the harms of active smoking was increasing as the grade was higher (grade 1: 77.4%, grade 2: 81.6%, grade 3: 88.9%, grade 4: 94.4%, grade 5: 94%, grade 6: 94.5%). The knowledge level of students who had been smoking for a long time was lower ($p < 0.05$). Knowledge level of females in grade 1 was significantly higher than males ($p < 0.05$). The most known illnesses related to smoking were lung cancers, heart diseases, larynx cancers, peripheral vascular diseases, mouth cancers, infections, sudden infant death syndromes, emphysema, cerebral vascular diseases, leukoplakia, and the least known were bladder cancers and stillbirths. Knowledge level about the harms of active smoking was found to be lower in preclinical classes (grade 1, 2, 3) than clinical classes (grade 4, 5, 6) ($p < 0.05$). Bladder cancer (65.8%) and stillbirth (72.5%) were significantly less known in preclinical grades (Figure 1).

It was found that the knowledge level about harms of passive smoking was higher in higher grades (grade 1: 82.3%, grade 2: 93.6%, grade 3: 93.6%, grade 4: 94.9%, grade 5: 94%, grade 6: 94.2%, $p < 0.05$). Females knew significantly more than males about the harms of passive smoking ($p < 0.05$). Knowledge level about passive smoking and lung diseases was higher in preclinical grades (95.6%) than knowledge of heart diseases (86.7%) and lower respiratory tract infections in children (88.6%) (Figure 2).

Attitudes of students towards protecting people from passive smoking, and their thoughts about medical staff as role models for smoke-free life, behaviors of tobacco industry, minors' access to tobacco products and their knowledge level about addiction are shown in Table 3. There was general consensus on need for legislations on passive smoking in public places. However, there was some confusion about smoking restrictions and total ban. While 94% of students agreed on banning smoking in public places like hospitals and schools, 80.1% disagreed on annihilation of smoking rooms.

In general, there were agreements ($> 85\%$) about the health professionals' being role models in society. In general, they thought that doctors must help for smoking cessation. However, 24.8% of students thought that professional advice could not help. And 28.9% of students thought smoker doctors can help smokers as much as non-smoker doctors. Their thoughts about behaviors of tobacco industry were that sponsorship must be prohibited (79.8%), and explicit and hidden advertisements of tobacco products must be prohibited (82.3%). And also, they thought that adolescents' access to tobacco products must be restricted. But, their knowledge about the fact that tobacco price policy is an effective tobacco control method was lower (71.5%). Only 33.3% of students were confident about helping people for quitting. More than half (50.8%) of the students did not warn smokers smoking in hospitals, faculties or other closed areas. Most of the students (88.4%) did not have enough knowledge about how addictive smoking is.

DISCUSSION

In this study, we found that smoking prevalence among medical students was 25.9% (36.6% for males and 16.3% for females). In our 1999 historical control study, smoking prevalence was 30.5% (40.4% for males, 21.8% for females) (5). We thought that decrease in smoking prevalence is not significant over these seven years (only 3.8% drop for males and 5.5% for females) (5). Local tobacco control efforts during these seven years from 1999 to 2006 were local awareness campaigns twice or thrice in a year, institutions of smoking cessation clinic in the hospital (in 2001), organizing uncoordinated lectures about harms of tobacco smoking from grade 1 to 5 (from 2001), public declarations and setting the hospitals as smoke-free in 2005. During these seven years, at national level, health warnings appeared in 2006 and national public awareness campaigns on mass media were seen twice or thrice in a year from 2000s.

Table 1. Smoking status in accordance with sex, grade and accommodation status of medical students.

	Never smoker		Experimenter		Smoker						Ex smoker		
	n	%	n	%	Occasional smoker	Daily smoker	Total	Occasional smoker	Daily smoker	Total	n	%	
Sex													
Female	187	46.4	137	34*	17	4.2*	49	12.1*	66	16.3*	13	3.3*	
Male	118	33.2	83	23.4*	21	5.9*	109	30.7*	130	36.6*	24	6.8*	
Grade													
Grade 1	57	50	31	27.2**	8	7	14	12.3	22	19.3*	4	3.5	
Grade 2	55	47.8	33	28.7**	5	4.3	17	14.8	22	19.1*	5	4.3*	
Grade 3	53	40.5	52	39.7**	4	3.1	17	13	21	16*	5	3.8	
Grade 4	50	42	28	23.5**	3	2.5	31	26.1	34	28.6*	7	5.9*	
Grade 5	42	26.9	51	32.7**	5	3.2	46	29.5	51	32.7*	12	7.7*	
Grade 6	48	29	25	20.3**	13	10.6	33	26.8	46	37.4*	4	3.3	
Living													
In dorm	85	46.2	58	31.5	8	4.4*	26	14.1	34	18.5	7	3.8	
In home (bachelor)	195	37.9	147	28.5	30	5.8*	117	22.7*	147	28.5	26	5	
With family	25	42.4	15	25.4	0	0	15	25.4*	15	25.4*	4	6.8	
Total	305	40.2	220	29	38	5.1	158	20.8	196	25.9	37	4.9	

* Smoking prevalence between males and females was significant (p< 0.05).

* Smoking status in accordance with grades was significant (p< 0.05).

* Smoking status in accordance with accommodation conditions was significant (p< 0.05).

** Smoking status in accordance with grades was significant (p< 0.0001).

Table 2. Consumption of tax free-smuggled-tax stamp free cigarettes and other tobacco products according to sex and grade.

	Tax stamp free cigarettes usage		Other tobacco products usage	
	n	%	n	%
Sex				
Female	11	10.2*	32	7.9**
Male	58	33*	70	19.7**
Grade				
Grade 1	9	26.5	21	18.4
Grade 2	14	41.2	17	14.7
Grade 3	8	21.6	10*	7.6*
Grade 4	10	21.7	16	13.4
Grade 5	20	25.6	25	16
Grade 6	8	14.5	13	10.5

* The rates of smoking tax free-smuggled-tax stamp free cigarettes between females and males were significantly different ($p < 0.05$).

** Consumption rates of non-cigarette tobacco products between females and males were significantly different ($p < 0.05$).

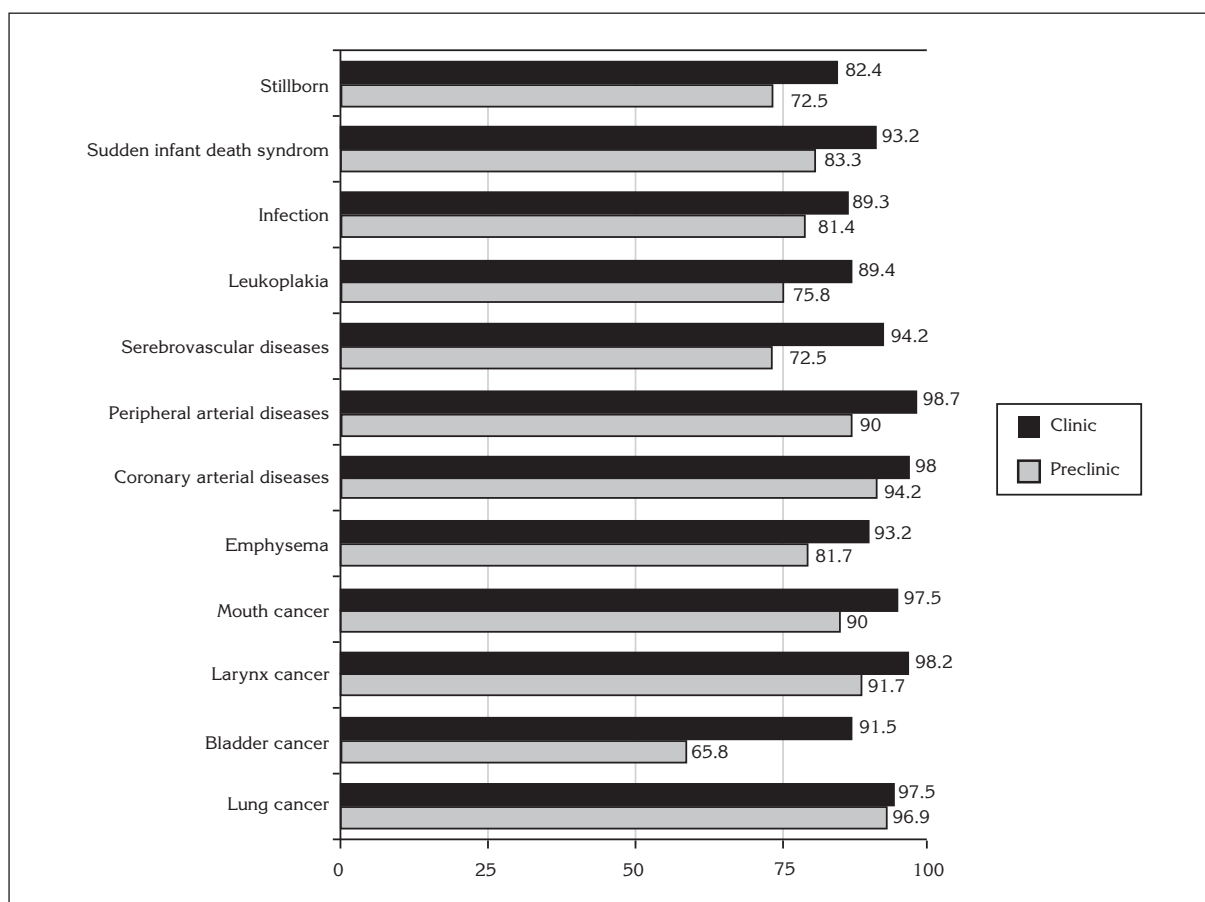


Figure 1. Knowledge level of medical students in preclinical and clinical years about the diseases related to tobacco.

In the studies worldwide, which included more than 9000 medical students in 51 faculties in 42 countries, smoking prevalence was 0-56.9% for males and 0-44.7% for females (6,7). The surveys done among the students of faculty of medicine in Turkey are shown on Table 4 (5,8-16). When compared, our findings are similar with the results of the studies done by Can et al. and İlhan et al (8,9).

One of the proposed reasons for medical students' starting to smoke or smoking more during their university years is insufficient education (6,17). Like some other studies done in Turkey, attention was drawn to the fact that smoking habit of the medical students grew as their grades did (5, 9,11,16). In the present study, it was found that smoking rises from grade 1 to grade 6 except that it is in the lowest rate in grade 3 (16%). As in other studies, smoking was distinctly low in the first three years in this study as well (9,15). Hence, we concluded again that education against tobacco must start from grade 1st. In present study, it was found that quit rate among grade 4th students was higher. We evaluated that it was due to special lectures against tobacco and effective encouraging for smoking cessation.

When the relationship between accommodation and smoking status was evaluated, we found that smoking rate for students living with their families and staying in bachelor homes were much more than those staying in dormitories. These results were consistent with the study done by İlhan et al. and our historical control study (5,9). The reason for that may be that the students staying with their families or in bachelor homes could behave more freely in social and economic aspects.

As a difference from the other studies done in Turkey, we investigated the effects of tax free, smuggled or tax stamp free cigarettes on smoking behaviors. Because Edirne is a cross country border city, access to tax free, smuggled or tax stamp free tobacco products is easier than some other cities (18). In this study, 33% of males and 10.2% of female students declared consuming such products. These results were lower than 1999 study (50% for males, 23.1% for females) (5). We speculated that this might be due to some socio-economical improvements, some additional official measures for preventing smuggling and some awareness against such products. We speculated that reasons for higher consumption rate of such products among males are mostly economic and it is easier for them to get access to such sellers.

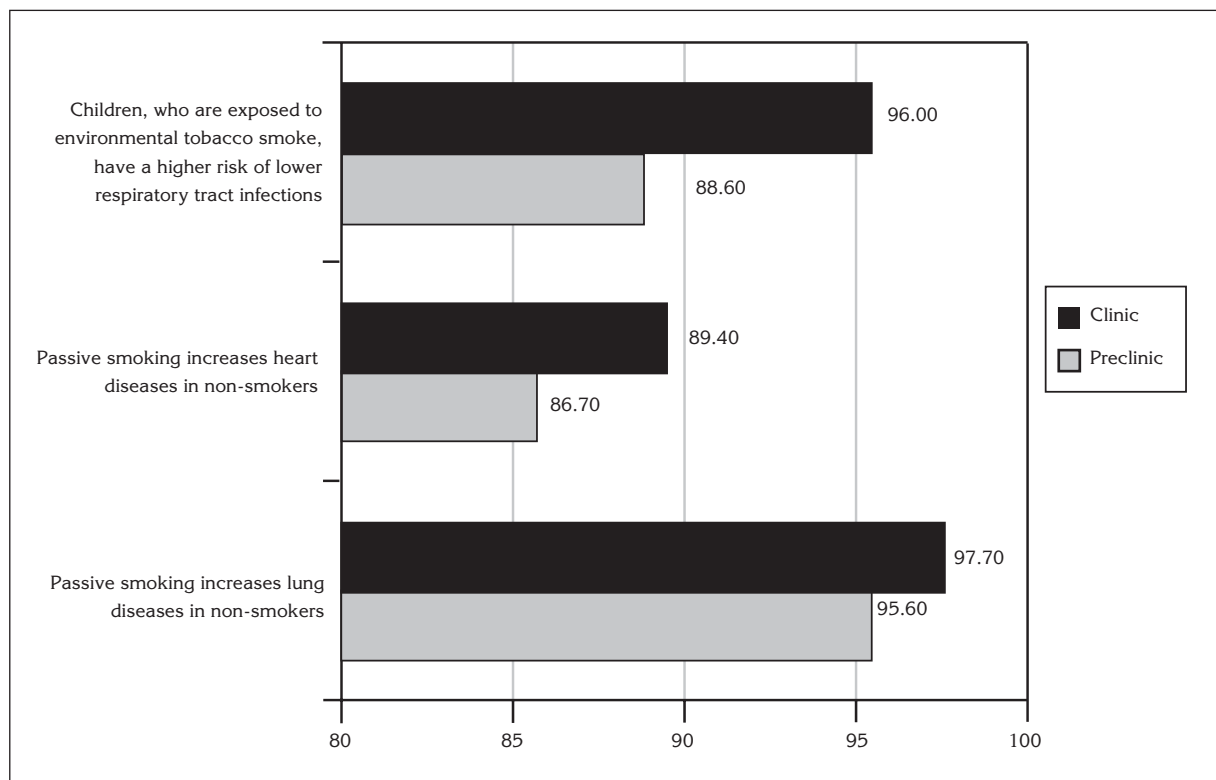


Figure 2. Knowledge level of the medical students in preclinical and clinical years about the diseases related to passive smoking.

Table 3. Medical students' attitudes, behaviors and thoughts about tobacco control and smoke-free life.		
Students' attitudes, behaviors and thoughts	Yes (%) They agree	No (%) They do not agree
1. Students' thoughts about legislations on passive smoking		
Smoking must be banned in public places like hospitals, schools etc.	94	6
Smoking rooms must be reserved	80.1	19.9
Smoking must be restricted in hospitals	93.6	6.4
Smoking must be restricted in schools	93.8	6.2
Smoking must be restricted in sports facilities	93.5	6.5
Smoking must be completely banned in hospitals and all other medical establishments	85.5	14.5
Smoking has to be completely banned in all public areas	89.3	10.7
2. The thoughts about the health professionals' being role models and professional roles		
Doctors have to be examples of non-smokers for society	87.9	12.1
Doctors have to be role models for their patients and community	86.7	13.3
Health professionals have to be good samples by not smoking	89.3	10.7
Quitting chance of patients increases with health professionals' advice	75.2	24.8
Doctors have to ask smoking habits of their patients routinely	92.7	7.3
Doctors have to advise their patients to quit smoking routinely	90.6	9.4
Success probability of smoking doctors' advice to people to quit smoking is less	71.1	28.9
Health professionals must have special training for smoking cessation	87.7	12.3
Health professionals must make speeches to the community about dangers of tobacco use	91.8	8.2
3. Thoughts about tobacco industry behaviors		
Sponsorship of cigarette firms must be prohibited	79.8	20.2
Hidden or direct advertisements of tobacco products must be prohibited	82.3	17.7
4. Thoughts about adolescents' access to tobacco products (sales prohibition)		
Cigarettes must not be sold to people under 18	94.2	5.8
Cigarettes must not be sold in health, education and sports facilities	88.7	11.3
Cigarette must not be sold to children and adolescents	94.2	5.8
Price of tobacco products has to be seriously increased	71.5	28.5
5. Behaviours and attitudes towards helping smokers and warnings against passive smoking		
I have enough information to help patients to quit smoking	33.3	66.7
I warn everyone smoking in hospitals, faculties or other closed areas	49.2	50.8
6. Knowledge about addictive nature of tobacco smoking		
Most smokers can quit smoking when they want	88.4	11.6

Water-pipe smoking has increased significantly among the adolescents in Turkey, recently (19). Using tobacco product other than cigarette was asked as well in the present study and the rate was stated as 19.7% for males and 7.9% for females using other tobacco products. It was stated that 37.2% of students using water-pipe, 9.2% cigar and 0.5% pipe. We concluded that harms of all tobacco products must be learned during curriculum.

When the students' knowledge level was investigated according to curriculum taught, Itil et al. found a significant difference between preclinical and clinical years (16). They found that students knew more on the relationship between tobacco and lung cancers and coronary artery diseases. However, their knowledge about the relationship with peripheral vascular diseases, bladder cancer and esophagus cancer was insufficient. Yildirim et al. found that students knew that lung cancers, coronary artery diseases, throat cancers and mouth cancers were caused by smoking, but the effects of cigarettes on bladder cancers, infant deaths and cerebrovascular diseases were known less (15). In our study, the most known diseases caused by cigarettes were respectively lung cancers, heart-artery diseases, throat cancers, peripheral artery diseases, mouth cancers, infections, sudden infant death syndromes, emphysema, strokes and leukoplakia, and the least known were bladder cancers and stillbirth. It was stated that in the first three years (preclinical term), knowledge level was low in comparison with the clinic term and knowledge level incre-

ased as the grades did. As a difference from the other studies, in our study, knowledge level of medical students about passive smoking was evaluated and we concluded that lectures about the harms of passive smoking must be increased.

Since the behaviors of health professionals have the potential to affect the community, they have important missions and responsibilities. Although students accepted that the doctors have to be role models, smoking of some medical lecturers led them to experience a lack of role model or even exposure to a wrong model. When the thoughts of the students about health professionals' role model were asked, it was said that primarily university lecturers and health professionals have to be role models.

Advertisements, promotions and sponsorship of tobacco industry, easy access to tobacco products and low prices affect smoking behaviors of adolescents (20). Legislations for adolescents' access to tobacco products are important for tobacco control. We analyzed thoughts of the students about industry behavior and adolescents' access. Most of the students stated that advertisements, sponsorship, sales to people under 18 years old and sales in health, education and sports facilities must be banned. But, consensus on raising cigarette prices was not so high.

In conclusion, smoking prevalence was not significantly decreased during the last seven years and it is still high in the Medical School. We thought the reason

Table 4. Distribution of smoking prevalence according to sex in medical faculties in Turkey.

Medical faculty	Year	Male (%)	Female (%)	Total (%)
Cumhuriyet University (10)	1984	42	25	33.5
Anadolu University (11)	1989	48	29	38.5
Akdeniz University (12)	1992	41.8	25.5	33.6
Istanbul University (13,14)	1993-1995	18-20.8*	5-8.4*	
Akdeniz University (12)	1994	26.2-35*	5.4-13.8*	
Karadeniz Technical University (8)	1996	38.5	17.7	28.1
Trakya University (4)	1999	40.4	21.8	30.5
Celal Bayar University (15)	2002	25	12.1	18
Dokuz Eylul University (16)	2004	45.6	29.1	39
Gazi University (9)	2004	35.5	13.8	24
Trakya University**	2006	36.6	16.3	25.9

* Smoking prevalence in the first and sixth years.

** This study.

for that as lack of knowledge, social and cultural context and tobacco industry efforts like smuggling. As in many medical schools of Turkey, special and comprehensive tobacco control efforts must be organized and coordinated. Education for tobacco control and smoking cessation treatment must be revised and programmed in medical schools of Turkey.

CONFLICT of INTEREST

None declared.

REFERENCES

1. Beyer J, Waverly I. *Tobacco Control Policy, Strategies, Successes and Setbacks*, Washington: The World Bank, 2003: 1-12.
2. Republic of Turkey Ministry of Health, *National Tobacco Control Programme and Action Plan of Turkey 2000-2012*. Ankara: TŞOF Plaka Matbaacılık, 2008.
3. Pruit SD, Epping-Jordan JAE. *Preparing the 21st century global healthcare workforce*. *BMJ* 2005; 330: 637-9.
4. World Health Organization. *Guidelines for the Conduct of Tobacco-Smoking Surveys of the General Population*. WHO/SMO/Geneva, 1983; 4: 83.
5. Karlıkaya C, Erdoğan S, Çakır E, Hatipoğlu ON. *Smoking habits and related factors of students in Trakya University, Faculty of Medicine*. *Journal of Trakya University Faculty of Medicine* 2000; 17: 161-9.
6. Richmond R. *Educating medical students about tobacco*. *Thorax* 1999; 54: 70-8.
7. Crofton JW, Freour PP, Tessier JF. *Medical education on tobacco: implications of a worldwide survey*. *Tobacco and Health Committee of the International Union against Tuberculosis and Lung Disease (IUATLD)*. *Med Educ* 1994; 28: 187-96.
8. Çan G, Özlü T, Bülbül Y, Torun P. *Smoking habits of students in Karadeniz Technical University, Faculty of Medicine*. *Tüberk Toraks* 1998; 46: 245-9.
9. İlhan F, Aksakal NF, İlhan MN, Aygün R. *Smoking State of Students in Gazi University Medical Faculty*. *TAF (Turkish Armed Forces) Protective Medicine Bulletin* 2005; 4: 188-98.
10. Yardımcı E, Kıyan A, Özbilen T. *Meta-analysis related to prevalence of smoking of medical students in Turkey*. (Summary) *V. Public Health Congress Book*. İstanbul, 1996: 175-7.
11. Uçkun İ, Metintaş S, Özdemir N, et al. *Smoking habit of beginner university pupils and their families: first results of four years' cohort study*. *Tüberk Toraks* 1999; 47: 305-10.
12. Özdemir T, Saka O, Artvinli M. *Smoking habits of medical students in Akdeniz University and their thoughts about cigarette effect on health*. *Journal of Akdeniz University Faculty of Medicine* 1992; 9: 7-10.
13. Erkan F, Sabuncu H, Ertuğrul E. *Smoking behaviours of lecturers and students in Istanbul University, Faculty of Medicine*. (Summary) *Istanbul Faculty of Medicine 12th General Assembly Summary Book*, 1993.
14. Sahip Y, Özbilen T, Erkan F. *Knowledge, attitude and behaviours of Istanbul Medical Faculty students related to smoking*. (Summary) *Istanbul Faculty of Medicine General Assembly Summary Book*, 1995.
15. Yıldırım Ç, Çelik P, Şakar A, Dinç G. *Attitude of medical students against cigarette*. *Respiration* 2004; 6: 30-5.
16. İtil O, Ergör G, Ceylan E. *Knowledge and Attitudes about smoking student in a medical faculty*. *Turkish Respiratory Journal* 2004; 5: 86-91.
17. Allen MB. *Medical students' knowledge of smoking*. *Thorax* 1999; 54: 2.
18. Karlıkaya C. *Smoking prevalence of high school students in Edirne. Smuggling, advertisements and accessing cigarette of adolescents*. *Tüberk Toraks* 2002; 3: 6-12.
19. Subaşı N, Bilir N, İlhan E, Ayluk A. *Knowledge, Attitude and Behaviours of Hookah Smokers about Smoking Hookah*. *Tüberk Toraks* 2005; 6: 137-43.
20. Benowitz N. *Nicotine addiction*. *Prim Care Clin Office Prac* 1999; 26: 6111-31.