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Original Article

Smoking status of medical students in the English program of a university in Nicosia

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Abstract

Objectives: The objective of this study was to determine the status of smoking among medical students and related factors. **Methods:** A cross-sectional study was conducted among the total 566 medical students enrolled in the English program of the Near East University, Faculty of Medicine in Nicosia, Northern Cyprus. A questionnaire of 20 questions was handed out to the students to find out about their smoking status (lifetime and current smoking), and related factors. The data were analyzed using SPSS 18.0.0. For the analyzed parameters, descriptive statistics were calculated and marginal and cross tables were prepared. The p value accepted as significant was $p \leq 0.05$. **Results:** The response rate was 80.6% (456 of 566 students). Lifetime smoking rate was 47.7%, (60.3% of for male students, 35.6% for female students) and current smoking rate was 32.7% (42.4 % for male students, 23.4% for female students); 41.3% of the smokers had started smoking after admission to medical school. **Conclusions:** The smoking prevalence among medical students was high. Medical education did not seem to be influential on the smoking status among students of the English program of the medical school.

Keywords: Smoking, medical students, medical education

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Lefkoşa'daki bir üniversitenin İngilizce programındaki tıp öğrencilerinin sigara içme durumu

Özet

Amaç: Bu araştırmanın amacı tıp öğrencilerinin sigara içme durumunu ve ilişkili etmenleri belirlemektir. **Yöntem:** Lefkoşa, Kuzey Kıbrıs'ta bulunanYakın Doğu Üniversitesi İngilizce Tıp programında kayıtlı 566 tıp öğrencisi arasında kesitsel bir araştırma yürütülmüştür. Öğrencilere 20 soruluk bir anket uygulanarak yaşam boyu ve halen sigara içme durumu ve ilişkili etmenler araştırıldı. Veriler SPSS 18.0.0. programı ile değerlendirildi. Tanımlayıcı istatistikler hesaplanarak marjinal ve çapraz tablolar hazırlandı. Önemli kabul edilen p değeri <0.05 idi. **Bulgular:** Ankete yanıt hızı %80.6 (566 öğrencinin 456'sı) bulundu. Yaşam boyu sigara içme hızı %47.7%, (erkeklerde %60.3, kadınlarda %35.6) ve halen sigara içme hızı %32.7% (erkeklerde %42.4, kadınlarda %23.4) olarak saptanmıştır; sigara içenlerin %41.3'ü sigaraya tıp fakültesine girdikten sonra başlamışlardır. **Sonuç:** Tıp öğrencilerindeki sigara içme prevalansı yüksektir. Tıp eğitiminin İngilizce tıp öğrencilerinin sigara içme durumuna etkili olmadığı izlenimi edinilmiştir.

Anahtar Kelimeler: Sigara içme, tıp öğrencileri, tıp eğitimi

Introduction

Smoking is one of the leading causes of death and the second major preventable cause of death in the world, claiming more than seven million lives per year. By 2030, the estimated death toll will increase to about eight million per year.[1] One of the best ways proven to fight against smoking and promote cessation is through counseling provided by general practitioners and other physicians in public health settings.[2] Yet, smoking prevalence among doctors[3] and medical students[4] continues to stay relatively high in a number of countries.

Smoking is a key issue of the medical profession, negatively affecting just about every organ in the body. Since the first tobacco report of the US Surgeon General in 1964, more than 20 million premature deaths can be attributed to cigarette smoking, as a result of smoking toxicity of the seven thousand chemical compounds and seventy carcinogens found in tobacco smoke.[5,6,7,8]

Research has shown that physicians and medical interventions can be very effective in the cessation of smoking.[9] Hence, doctors should set examples by presenting a non-smoker environment since it is well known that non-smoking doctors are more successful at promoting smoking cessation.[2]

A review published in 2007 looked through 81 studies published between 1974 and 2004 about smoking among health professionals to determine smoking trend changes and has concluded that although smoking habits vary widely through the years and among countries; still, it is not uniformly low from an international perspective.[3]

Medical school students, who are the focus of our research, were studied in an international review of tobacco smoking conducted in 2007. The prevalence of smoking ranged from 3% in the United States to 58% in Japan.[4]

The prevalence of lifetime smoking among university students in the Turkish Republic of Northern Cyprus (TRNC) in a 2007-2008 study was found as 69.5%.[10] There is no study conducted yet on the smoking status of only medical students in TRNC. In Turkey, prevalences among

medical students in various surveys were found to range between 30-40%.[11,12,13,14]

In Nigeria, a study on university students revealed lifetime tobacco use as 9.6%.3. Rates of ever smoking and current smoking in this country were 9.6 and 1.2%, respectively among medical students in a study of 2010-2011.[15] A 2007 study on medical students in Syria found the smoking prevalence as 10.9%.[16]

A study among medical students in Jordan found the prevalence to be 26% for males and 7% for females.[17] These findings indicate that smoking status among universities, and specifically medical schools, of different societies reveals diversity, probably related to the specific conditions of the countries.

A cohort study conducted in Turkey in 2006 to detect incidence of smoking during the medical education period, found that 30% of students who were not smokers at the time of registration to medical school have become smokers by the time they reached the final grade, and that most new smokers took up the habit during the first three grades.[18] Besides, attitudes of medical students toward anti-smoking efforts have not always been positive according to previous research in other countries.[19]

Using tobacco products other than cigarettes is a worldwide issue that adds up to the cigarette epidemic. Water pipe (Nargileh, hookah) is considered the second most prevalent international smoking fad.[20] It is especially prevalent among adolescents and university students in many countries including Turkey, Middle East countries, and the USA21. In Turkey a study showed that 32.7% of the university students and 28.6% of the medical students were using water pipes to consume tobacco.[22,23]

According to current literature review, there are no studies on tobacco use conducted exclusively among medical students in any of the TRNC universities. Thus the study was intended as a baseline survey for further research. The aim of this study was to determine the prevalence of smoking and other tobacco product use among medical students and related factors on smoking habits among medical students enrolled in the English language program of Near East University Faculty of Medicine (NEUFM) and to contribute to the development of future public health and medical education programs on the issue.

Method

The study was carried out among the medical students attending the NEUFM in Nicosia, TRNC during November and December 2017. The study followed the cross-sectional method, targeting all the medical students attending the English language program, which is one of the two medical programs of the university, the other being the Turkish language program. Of the 566 students enrolled in the program, 456 participated in the study with a response rate of 80.6%.

Variables of the study

Independent variables included age, sex, grade, nationality, residence until age 12, economic status, and smoking among family members.

Dependent variables were smoking status, number of cigarettes smoked daily, duration of smoking, time of first cigarette, smoking initiation in relation to starting medical school, attitudes toward smoking bans, and attitudes toward doctors being non-smoking role models.

Method of data collection

The survey was conducted by a questionnaire filled by the participants under observation. The questionnaire consisted of 20 questions regarding socio-demographic features (9 questions), smoking behaviors(10 questions), family history(one question).

Terms and definitions:[24,25]

Tobacco dependency: Current use of any of tobacco products including smokeless forms.[24]

Current tobacco smoker: A person who smokes tobacco products every day or occasionally.

Current daily cigarette smoker: A person who smokes cigarettes every day.

Current occasional cigarette smoker: A person who smokes cigarettes occasionally.

Former daily smoker: A person who used to smoke cigarettes every day but not currently.

Ever (lifetime) smoker: A person who has smoked at least 100 cigarettes in his or her lifetime. [24,25]

Countries by income: Classification of countries of origin (nationality) and residence of the participants until age 12 were done by using the World Bank's (WB) new country classification by income 2017-2018.326 The countries included in the study are:

- High income countries: TRNC, USA, Austria, Saudi Arabia, England, Qatar, United Arab Emirates, Kuwait, Oman, Germany, Australia, Sweden.

- Upper middle income countries: Turkey, Libya, Iraq, Lebanon, Algeria, Iran, South Africa, Azerbaijan, Kazakhstan, Brazil, Saint Kitts and Nevis.

- Lower middle income countries: Syria, Jordan, Palestine, Egypt, Nigeria, Sudan, Yemen, Morocco, Kenya, Philippines, Pakistan, Bangladesh, India.

- Low income countries: Uganda, Somalia, Tanzania.

Pre-test: Pre-test of the questionnaire was performed on 20 first grade students of English program of the Dentistry School.Statistical Analyses: Data were analyzed using SPSS 18.0.0 (Statistical Package for the Social Sciences) software. Descriptive statistics (frequencies, mean, median, standard deviations, maximum and minimum values) were calculated and marginal and cross tables were prepared. $P<0.05$ was accepted as significant.

Ethical issues: Permission from the Dean of the Faculty of Medicine was provided and approval of the NEU Ethics Committee was obtained (Research Project Evaluation Report with Project No.482, Meeting number 2017/52, dated 23 November 2017). Questionnaires were answered anonymously and the informed consent of the participants was attained.

Results

Of 566 students, 456 (80.6%) participated in the study. Some socio-demographic features of the participants are given in Table 1.

Table 1. Some socio-demographic characteristics of the English program students of the Medical School of NEU (Nicosia, December 2017)(N= 456)

Socio-demographic characteristics	n	%
Age(years)(n=447)		
≤17	20	4.5
18-24	391	87.4
≥25	36	8.1
Mean ± SD 20.87± 02.48 min=16 max=30		
Sex(n=451)		
Male	229	50.8
Female	222	49.2
Grade(n=456)		
1st	137	30.0
2nd	103	22.6
3rd	105	23.0
4th	51	11.2
5th	39	8.6
6th	21	4.6
Marital status(n=450)		
Single	436	96.9
Married	5	1.1
Relationship	8	1.8
Divorced	1	0.2

The distribution of the participants according to nationalities, and according to country groups (based on World Bank (WB) income groups and WHO regions[26,27] are presented in Table 2.

Table 2. Distribution according to major nationalities, and according to country groups* of the English program students in the Medical School of NEU(Nicosia, December 2017)(N=456)

	Nationality n=451			
	n	**%**		
Turkey	101	22.4		
Nigeria	68	15.1		
Jordan	60	13.3		
Syria	57	12.6		
TRNC	48	10.6		
Palestine	14	3.1		
Egypt	11	2.4		
Iraq	11	2.4		
Libya	10	2.2		
Oman	10	2.2		
Country group according to income	**n=451**		**n=452**	
High income	75	16.6	162	35.8
Upper middle	140	31.0	128	28.3
Lower middle	233	51.7	160	35.4
Low	3	0.7	2	0.4
Countries according to WHO geographical regions(n=451)	**n=451**		**n=452**	
East Mediterranean	204	45.2	210	46.5
European	159	35.3	157	34.7
African	75	16.6	76	16.8
Americas	9	2.0	6	1.3
South East Asian	3	0.7	1	0.2
Western Pacific	1	0.2	2	0.4

* Based on World Bank[WB] income group classification and WHO regions

Smoking features of the students regarding lifetime cigarette smoking, current smoking status, cigarette smoking profile, time of starting smoking in regard to admission to medical school, grade of medical school when smoking started are given in Table 3.

Table 3. Cigarette smoking profile and the association of starting smoking and admission to medical school of the English program students in Medical School of NEU (Nicosia, December 2017) (N= 456).

Lifetime cigarette smoking(n=455)	**n**	**%**
Never smoked	238	52.3
Only tried	58	12.1
Smoked once but quit	13	2.9
Smoking at least 1 cigarette/day	119	26.2
Smoking less than 1 cigarette/day	30	6.6
Current cigarette smoking(n=455)		
Smoker	149	32.7
Non-smoker	306	67.3
Duration of cigarette smoking(n= 147)		
1 year or less	38	25.9
2-5 years	76	51.7
6-10 years	26	17.7
More than 10 years	7	4.7
Number of cigarettes smoked daily(n=148)		
Less than 1	30	20.3
1-5	27	18.2
6-10	34	23.0
11–15	16	10.8
16-20	26	17.6
More than 20	15	10.1
Time of he first cigarette after waking up(n= 131)		
First 5 minutes	25	19.1
In 6-30 minutes	40	30.5
More than 30 minutes	66	50.4
Time of initiation of smoking in relation to admission to the Medical School(n=109)		
Before admission to medical school	64	58.7
After admission to medical school	45	41.3
Grade when smoking started(n=28)		
1st	11	39.3
2nd	10	35.7
3rd	5	17.9
4th	1	3.6
5th	1	3.6
6th	-	0.0

The number of students who had never smoked are 238 (52.3%), while lifetime smokers are 217 (47.7%). Current smokers are 149 (32.7). Upon waking up, 49.6% of smokers started smoking in the first 30 minutes.

In relation to medical school admission, 57.7% (n=60) of smokers said they had initiated smoking before medical school, while 42.3% (n=44) indicated starting during their medical school years. Of the latter, the first grade ranked first by 39.9% regarding initiation of smoking.

Places of exposure to environmental tobacco smoke, tobacco product consumption other than cigarettes, and the attitudes of the participants toward smoking ban and doctors being role models are given in Table 4 and Table 5.

Table 4. Exposure to environmental tobacco smoke, tobacco product consumption and attitudes towards smoking ban and doctors being role models of the English program students in Medical School of NEU (Nicosia, December 2017)(N=456)

Exposure to environmental smoke(n=444)*	**n**	**%***
Cafes and restaurants	246	55.4
While visiting others	145	32.7
Campus	139	31.3
People indoors	115	25.9
Visitors at home	88	19.8
At home	70	15.8
Outdoors	36	8.1
Use of tobacco products other than cigarettes(n=454)		
Yes	123	27.1
Use of tobacco products(n=448) **		
Hookah	89	19.9
Cigar	45	10.0
Vaporizer or e-cigarettes	22	4.9
Pipe or Medwakh	22	4.9
Support for ban in closed public areas(n=405)		
Yes	324	80.0
No	81	20.0
Doctors' role model status(n=441)		
Yes	352	79.8
No	89	20.2

*Row percentage over 444 **Row percentage over 448

The places where the students were most exposed to environmental tobacco smoke were stated as cafes and restaurants. Of the participants, 324 students (80.0%) supported the ban on smoking in closed public areas. Similarly, 352 (79.8%) of the participants shared the opinion that doctors should be role models for the community by not smoking. Regarding the evaluation of this opinion according to smoking status, 83 (60.1%) of smokers and 269 (88.8%) of non-smokers thought that doctors should be role models by not smoking; this difference is statistically significant (χ^2=48.26, p<0.001), showing higher positive attitudes for non-smokers.

Table 5. Tobacco products consumption and attitudes towards smoking ban and doctors being role models according to cigarette smoking status of the English program students in Medical School of NEU (Nicosia, December 2017)(N=456)

	Smoker		**Non-smoker**		χ^2	*p*
Other tobacco product use according to smoking cigarettes(n=448)	**n**	**%***	**n**	**%***		
Hookah	62	69.7	27	30.3	72.80	<0.001
Cigar	39	86.7	6	13.3	68.99	<0.001
Vaporizer or e-cigarettes	19	86.4	3	13.6	31.56	<0.001
Pipe or Medwakh	20	90.9	2	9.1	37.05	<0.001
Attitude towards ban in closed areas(n=405) public settings	n	%	n	%	χ^2	*p*
Positive	95	76.0	229	81.8	1.81	0.18
Negative	30	24.0	51	18.2		
Attitude towards doctors being role models(n=441)						
Yes	83	60.1	269	88.8	8.26	0.001
No	55	39.9	34	11.2		

*Row percentages

Of the participants, 27.1% indicated use of tobacco products other than cigarettes. Sixty two (69.7%) of the students who used hookah (water pipe) were smoking cigarettes, while 27 (30.3%) were not cigarette smokers. Thirty nine (86.7%) of cigar consumers, 19 (86.4%) of vaporizer or e-cigarettes consumers, 20 (90.9%) of pipe or medwakh users were smoking cigarettes as well. The differences between smokers and non-smokers regarding other tobacco product use are all statistically significant, indicating other tobacco users are mostly also cigarette smokers. Noteworthy is the fact that 27 students (30.3%) of hookah users were not cigarette smokers.

Associations of gender and smoking are given in Table 6, reflecting that male students smoke at significantly higher levels.

Ninety seven (42.4%) of the male students and 52 (23.4%) of the female students stated they were smoking. Males smoke more than females and this difference is statistically significant (χ^2=18.27, p <0.001). The male students who never smoked in their lifetime were 91 (39.7%), while lifetime non-smokers were 143 (64.4%) for females. The lifetime non-smoker female students are more than the male students; which is also statistically significant (χ^2=33.3, p<0.001).

Associations of the smoking status of the students with their nationalities and countries of residence until the age of 12 (countries grouped as WB income groups and WHO regions) are presented in Table 7. Lower middle and low income countries were analyzed as one group.

Table 6. Smoking status according to gender of the English program students in the Medical School of NEU (Nicosia, December 2017) (N=456)

	Male		Female			
Smoking status	**n**	**%**	**n**	**%**	χ^2	***p***
Current smoking (n=451)*					18.27	<0.001
Smoker	97	42.4	52	23.4		
Non-smoker	132	57.6	170	76.6		
Lifetime smoking (n=451)					33.3	<0.001
Never smoked	91	39.7	143	64.4		
Tried	34	14.8	21	9.5		
Used to smoke	7	3.1	6	2.7		
At least 1/day	83	36.2	36	16.2		
Less than 1/day	14	6.1	16	7.2		

*Includes both cigarette smokers and other tobacco product users

Twenty seven (36.0%) of the students from high income countries, 55 (39.3%) of students from upper middle income countries, and 66 (28.0%) of students from lower middle and low income countries were smokers. Smokers were higher among upper middle income country students than in high income countries. The smoking status was lowest among lower middle and low income country students but these differences were not significant (χ^2=5.52, p=0.06).

Regarding country of residence until age 12; 65 (40.1%) of students who lived in high income countries, 46 (35.9%) of students who lived in upper middle income countries, and 37 (22.8%) of students from lower middle and low income countries were smokers. Smokers were highest among students residing in high income countries until age 12, whereas lowest among students residing in lower middle and low income countries until age 12. These results were statistically significant (χ^2=11.82, p=0.003).

Seventy eight (38.2%) of students from Eastern Mediterranean countries, 64 (40.3%) from European countries, and 2 (2.7%) from African countries were smokers. Likewise, regarding the country of residence until age 12 of the students, the smoking frequency was lowest for African countries.

Smoking status according to the time of admission to medical school of the participants revealed no statistically significant differences between genders.

Of the students whose fathers were smokers, 39 (48.1%) were smoking themselves. On the other hand, 62 (27.0%) of the students whose fathers were non-smokers were smokers. The difference of the groups was statistically significant (χ^2=12.26, *p<0.001*).

Regarding students whose mothers were smokers, 24 (50.0%) were smokers, while 77(29.3%) of the students whose mothers were non-smokers were smokers. The difference was statistically significant (χ^2=7.94, *p=0.005*).

Students without any smoker siblings smoked less than the students who have at least one smoker sibling. This difference also was statistically significant (χ^2=6.154, *p=0.011*).

The opinions about smoking ban in closed public areas of the participants according to gender showed no significant differences. The opinions about smoking ban in closed public areas according to grade revealed lower percentages for first and second grades.

Table 7. Smoking status according to nationalities and countries of residence until the age of 12 (countries grouped according to WB income groups and WHO regions) of the English program students in the Medical School of NEU (Nicosia, December 2017)(N=456)

	Smoker		**Non-smoker**			
	n	%*	**n**	%*	χ^2	***P***
Country of origin according to income (n=451)					5.52	0.06
High	27	36.0	48	64.0		
Upper middle	55	39.3	85	60.7		
Lower middle and low	66	28.0	170	72.0		
Country of residence until age 12 according to income(n=452)					11.82	0.003
High	65	40.1	97	59.9		
Upper middle	46	35.9	82	64.1		
Lower middle and low	37	22.8	125	77.2		
Country of origin according to WHO region(n=451)						
East Mediterranean	78	38.2	126	61.8		
Europe	64	40.3	95	59.7		
Africa	2	2.7	73	97.3		
Americas	4	44.4	5	55.6		
South East Asia	-	0.0	3	100.0		
Western Pacific	-	0.0	1	100.0		
Country of residence until age 12 according to WHO region(452)						
East Mediterranean	79	37.6	131	62.4		
Europe	63	38.9	96	61.1		
Africa	2	2.6	74	97.4		
Americas	5	83.3	1	16.7		
South East Asia	-	0.0	1	100.0		
Western Pacific	1	50.0	1	50.0		

*Row percentages

Discussion

The current cross-sectional study evaluated the smoking behaviors of the students of a medical school in the TRNC. The smoking prevalence was high, especially for the male students (42.4%) compared to female students (23.4%). The overall prevalence was 32.7% with a lifetime smoking rate of 47.7%. Of the smokers, 49.6% stated smoking in the first 30 minutes upon waking up. The lifetime smoking frequency is high, as was in a 2014 study conducted in

six universities of TRNC that found lifetime cigarette smoking among students from all faculties to be 69.5%.[10]

Male students were found to smoke more than female students with the lifetime smoker frequency being 60.3% for male students compared to 35.6% for female students. The large difference between the lifetime smoker and current smoker frequencies among both male and female students is mainly due to the students who tried but did not pick up the smoking habit. The finding that male students smoke more than female students is consistent with other studies' findings.[17,28] Since our study included medical students in the English language program, it was possible to evaluate the variations in the smoking status among students of different nationalities. The countries were categorized according to World Bank country income groups regarding countries of origin and the countries lived in until the age of 12. Students from upper middle income countries smoked the most, followed by students from high income countries, with the lowest frequency for low and lower middle income countries combined. Similarly, WHO data by World Bank income group reveals that smoking rates for male adults is highest in upper middle income countries with 42.7% and highest in high income countries for adult women with 17.8%.[29] It seems that the richer the country the students were living in, the higher the chance for them to be smokers.

On the other hand, a recent meta-analysis done in 2016 found that cigarette smoking was significantly associated with lower income worldwide, suggesting a change in smoking trends according to income.[30] Even though our findings are consistent with the WHO data by World Bank income group,[29] our results may not reflect the smoking status of the other students of their countries. NEU is a private university and most students come from higher socio-economic families affected less by the costs of smoking.

Specific country smoking prevalences regarding highest rates revealed five nationalities starting with Jordan with 50%. Turkey was in the second place with 43.6%, followed by Syrians with 35.1% and TRNC citizens with 33.3%. Smoking frequency was low for Nigerian students (1.5%) and the African region in general (2.7%). The overall smoking status in our study, however, was higher than previous research for medical students.[15,16,17]

In Nigeria, rates of ever smoking and current smoking were 9.6% and 1.2%, respectively among medical students in a study of 2010-2011,[15] which is close to the results of our Nigerian group.

A 2007 study on cigarette smoking in Syria on medical students found the prevalence to be 10.9%[16] way lower than our result of 35.1%. A study among medical students of a university in Amman, Jordan revealed the prevalences as 26% among males and 7% among females.[17] Jordanian students' results in our study are also higher than the literature available, which might be due to the fact that Jordanian students studying in NEU have higher income levels than most students in Jordan. These findings indicate that the mean frequencies of smoking among students in the Middle East countries remain relatively high.

Our results have shown considerable smoking onset after admission to medical school. Of the smokers in our study, 58.7% started smoking before entering the medical school while 41.3 started after admission. More males picked up smoking before the medical education period than females but the difference was not statistically significant.

Contrary to other research, a study[31] from China found that medical students have higher rates of smoking than other students but most of the smokers were occasional smokers.

A cohort study conducted in Turkey to monitor the incidence of smoking during the medical education period, found that 30% of non-smoking students at registration have become smokers by the time they reached the final grade, and that most new cases occurred during the first

three grades[18] which is similar to our study. This suggests that university education in general might be a factor for adoption of the smoking habit, and medical education is insufficient for raising awareness among students towards the dangers of smoking and preventing new incidences. This observation demands further research for evidence. Additionally, the attitudes of medical students toward anti-smoking efforts are not always positive,[2] [19] as was also seen in our study.

The data on medical students demonstrate the inadequacy of the medical education in both preventing and ending the smoking habit among medical students. Thus, there is a necessity for assessing the status of medical education and curricula regarding the tobacco issue worldwide.

An international survey looked up for the tobacco education in medical schools on a country basis.[32] The survey investigated medical schools from 109 countries with a response rate of 31.8% from medical schools and 64% of countries. Of the respondent 665 medical schools, 39% were from developed and 28% from less developed countries. Of 561 medical schools responding to questions on teaching options, 27% indicated teaching a specific module on tobacco; 77% integrated tobacco education with other topics; 31% included tobacco information in some topics related to tobacco use and 4% did not teach about tobacco at all. Most common topics in the programs were health effects of smoking (94%), health effects of passive smoking (84.5%), epidemiology of tobacco use (81%), nicotine dependence (78%) and taking a smoking history (75%). Most popular methods were lectures, case study discussions and problem-based learning exercises and patient-centered approaches like role plays. This survey showed a progress of tobacco education in medical schools over the previous 10 years worldwide although far from being sufficient.[32]

A study in the USA investigated the first and third year medical students of 10 medical schools regarding extensive tobacco education. The tobacco education included a Web-based course, a role-play classroom demonstration, and a clerkship booster session, which was found as more efficient than classic training hours.[33,34]

Learning is optimal when knowledge and experience is taught early, reinforced consistently, and integrated through all aspects of a curriculum.[34] Early education on tobacco dependence treatment skills, using "didactics, preceptor modeling, patient observation, instruction with receipt of feedback, behavioral counseling" may be helpful tools for medical students. A standardized tobacco education is needed for the medical education process at a global perspective.[35]

A tobacco control and cessation program has been included and implemented for the past three years (2015-2018) in the Public Health Committee of NEU medical education curriculum. The program starts in the first year, continuing in the third year and ending up with the intern program in the sixth year. The tobacco control program consists of all aspects of comprehensive tobacco control and interventions with special emphasis on tobacco cessation. The methods of the program mainly include lectures, group studies, case study discussions, behavioral counseling exercises and role plays on cessation and health education. The results of the present study and continuous monitoring afterwards may highlight the efficacy of tobacco education in the prevention of smoking among medical students of NEU in the future and may help develop new programs to this end.

Limitations: Because the native language of the majority of the students is not English, some of the answers might not reflect accurate information but instead their perception of the questions.

Since the study design is cross-sectional, the results reflect the momentary status and features of the problem. The influence of medical education on our study population can be determined only after further and long term research comprising comparisons with other student groups as well.

Authors' contributions:

All of the authors have participated in all stages of the study. Ozen Asut has written the article and all other authors have reviewed ad approved the article.

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