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Tobacco use, exposure to secondhand smoke, and smoking cessation counselling among medical students from the University of Medicine and Pharmacy from Târgu-Mureș – baseline data of the first Smoke-Free Medical University Project

Prevalența fumatului activ și pasiv, cunoștințe despre consilierea antifumat în rândul studenților de la Universitatea de Medicină și Farmacie din Târgu Mureș, specializarea Medicină generală – datele inițiale ale primului proiect „Universitatea medicală liberă de fumat”

Abstract

The University of Medicine and Pharmacy from Târgu-Mureș launched the first smoke-free medical university effort in Romania in 2014. A baseline evaluation was conducted to inform the smoke-free policy and implementation strategy.

Aims. *To assess medical students' prevalence of smoking, attitudes towards smoking regulation policies, and the level of knowledge about current smoking cessation counselling methods.*

Methods. *Baseline, cross-sectional data were collected in March 2014. We adopted the Global Health Professions Students Survey items and added questions related to the smoke-free policy and implementation strategy. The target population was the total number of medical students of all years (2197) of which 1897 participated (86.3%). We used the IBM-SPSS version 22 program for descriptive statistical evaluation.*

Results. *The prevalence of current cigarette smoking was 33.7% (30.5% female, 40.5% male). The current use of other tobacco products was 15.1% (10.2% female, 25.5% male). Every fifth current smoker (21%) declared that he or she smoked cigarettes inside university buildings during the past year. Only 15.3% of the medical students declared they had received any formal training in smoking cessation approaches to help patients quit smoking. Only 26.6% reported that they've ever heard of using pharmacotherapy in tobacco cessation programs.*

Conclusions. *Smoking prevalence is high in medical students attending the University of Medicine and Pharmacy from Târgu-Mureș. Despite existing smoke-free regulations at all state-owned universities, more than one-fifth of smoker students reported smoking inside university buildings. The enforcement of existing smoke-free policies is needed to ensure the successful implementation and to reduce exposure to second-hand smoke. Additionally, there is an imperative need to increase medical students' knowledge about the current clinical approach of a smoking patient.*

Keywords: ***smoking, medical students, attitudes, second-hand smoke exposure, training***

Rezumat

Conducerea Universității de Medicină și Farmacie din Târgu-Mureș a declarat în 2014 că dorește să devină prima universitate medicală liberă de fumat. Pentru a orienta strategia de implementare a măsurilor de intervenție ulterioare, s-a efectuat o evaluare inițială în martie 2014.

Scopuri. *Evaluarea prevalenței fumatului activ și pasiv, a atitudinilor față de politicile de restricționare a fumatului, precum și a cunoștințelor despre metodele actuale de consiliere antifumat în rândul studenților de la Universitatea de Medicină și Farmacie din Târgu-Mureș, specializarea Medicină generală.*

Metode. *Am utilizat un chestionar derivat din cel folosit de Organizația Mondială a Sănătății în cadrul studiului GHPSS (Global Health Professions Students Survey). Populația-țintă a fost constituită din toți studenții Facultății de Medicină, specializarea Medicină generală, din toți anii de studiu. Din totalul de 2197 de studenți, au participat la evaluare 1897 (86,3%). Am utilizat programul IBM-SPSS, versiunea 22, pentru evaluarea statistică descriptivă.*

Rezultate. *Prevalența fumatului de țigarete a fost de 33,7% (30,5% femei, 40,5% bărbați). Prevalența utilizării altor produse de tutun a fost 15,1%, (10,2% femei, 25,5% bărbați). Fiecare al cincilea fumător activ (21%) a recunoscut că a fumat în incinta universității pe parcursul anului precedent. Numai 15,3% dintre studenți au declarat că au primit instruire formală despre abordarea pacientului privind renunțarea la fumat. Doar 26,6% dintre studenți au declarat că au auzit despre utilizarea metodelor farmacologice pentru tratamentul dependenței de nicotină.*

Concluzii. *Prevalența fumatului este crescută în rândul studenților din cadrul UMF din Târgu-Mureș, specializarea Medicină generală. În pofida regulamentului actual de interzicere a fumatului în clădirea universității, fiecare al cincilea student fumător recunoaște că a fumat în incinta universității. Este necesară reîntărirea și respectarea regulamentelor de interzicere a fumatului, pentru a reduce expunerea actuală la fumatul pasiv în clădirea universității. Totodată, este necesară creșterea nivelului de cunoștințe legate de metodele de abordare curentă clinică a pacientului fumător.*

Cuvinte-cheie: ***fumat, studenții la medicină, atitudini, fumat pasiv, instruire***

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Introduction

Tobacco use is an important health problem around the world. The World Health Organization (WHO) estimates globally over one billion people currently smoke tobacco, with approximately five million deaths per year attributable to tobacco use[1].

Healthcare professionals play a very important role in educating their patients about the health risks of tobacco use and in promoting cessation. Several studies demonstrated that smoking cessation rates increase after brief counselling by a healthcare professional[2]. Are healthcare providers prepared for this important role? The WHO, U.S. Centers for Disease Control and Prevention, and Canadian Public Health Association developed and implemented the Global Health Professions Students Survey (GHPSS) in order to assess the smoking behaviour, attitudes towards smoking, and the level of training of healthcare professional students in the field of smoking cessation counselling at an international level[3]. Romania joined the GHPSS project in 2010, but at this time no data are published about the local results of this study. Our study aimed to assess smoking habits, exposure to second-hand smoking (SHS), attitudes towards smoking regulation policies, and knowledge about smoking cessation counselling in all study years of health professionals (medicine, pharmacy, dentistry, nursing). This project extends the GHPSS methodology, which focuses exclusively on 3rd year students, in order to assess changes in uptake of smoking over the course of university study. We considered all study years to overcome this limitation of the GHPSS study[3].

All public universities in Romania are mandated as smoke-free. However, the policies governing smoke-free universities are rarely enforced. Therefore, Târgu-Mureș University of Medicine and Pharmacy decided to become the first enforced and reinforced smoke-free medical university in Romania. To inform the implementation of smoke-free policies, we conducted a baseline assessment of smoking habits, attitudes towards smoking and the level of knowledge related to smoking cessation counselling. These data were used to design implementation strategies that would achieve the following long-term goals: reduce second-hand smoke exposure in the buildings of the university, and increase medical students' knowledge in the field of tobaccology to support future patients in their efforts to quit smoking.

Aims

To assess medical students' prevalence of smoking, attitudes toward smoking regulation policies, and level of knowledge about current smoking cessation counselling methods at the University of Medicine and Pharmacy from Târgu-Mureș.

Methods

Baseline data were collected in March 2014 as a cross-sectional evaluation. The questionnaire we used was based on Global Health Professions Students Survey methodology, with our additional items concerning the projected plans of intervention. Questionnaires were answered voluntary and anonymously. The target population was the total number of medical students of all years. The overall participation rate of medical students was 86.3% (n=1897). The study obtained approval prior to initiation from the university's ethical board.

Measures: Current cigarette smoking was defined as those who answered "one or more days" to the question: "During the past 30 days (one month), on how many days did you smoke cigarettes?" was defined current use of tobacco products other than cigarettes, defined as those who answered "one or more days" to the question: "During the past 30 days (one month), on how many days did you use chewing tobacco, snuff, bidis, cigars, or pipes?". The desire to quit was measured with the item "Do you want to stop smoking cigarettes now?", and "During the past year, have you ever tried to stop smoking cigarettes?". The long-term perspectives of the students were measured with the item "Will you be a smoker after 5 years?", the possible answers being: "definitely not", "possibly not", "definitely yes", "possibly yes" (after five years most of the students will finish their university studies except first year students who have to spend more than five years at the university).

Tobacco policy awareness was assessed with the items: "Does your university have an official policy banning smoking in university buildings and clinics?", and "Is your university's official smoking ban for university buildings and clinics enforced?". Obedience of these regulations was measured with the items: "Have you smoked cigarettes on university premises/property during the past year?", and "Have you smoked cigarettes in university buildings during the past year?", respectively the same questions were asked related to the use of other tobacco products.

Secondhand smoke exposure was measured with items: "During the past 7 days, on how many days have people smoked where you live, in your presence?", "During the past 7 days, on how many days have people smoked in your presence, in places other than where you live?", "During the past 7 days, on how many days have people smoked in your presence in the university buildings (classrooms, corridors, toilets etc.)?", the possible answers for all these questions being: "0 days", "1 to 2 days", "3 to 4 days", "5 to 6 days", "all 7 days". Exposure of nonsmokers to secondhand smoke in university clinics and student dormitories was measured with items: "If you are a nonsmoker, are you exposed to passive smoking in the university hospitals?", "If you are a nonsmoker, are you exposed to passive smoking in the student dormitories?"

Students' attitude towards a smoker person was measured with the item: "If a person smokes inside a university building (classrooms, corridors, toilets), what is your reaction?", the possible answers included "It's not my business, he/she decides when and where to smoke a cigarette", "I tolerate the person as a smoker, but I think he/she should not smoke in these places", "I

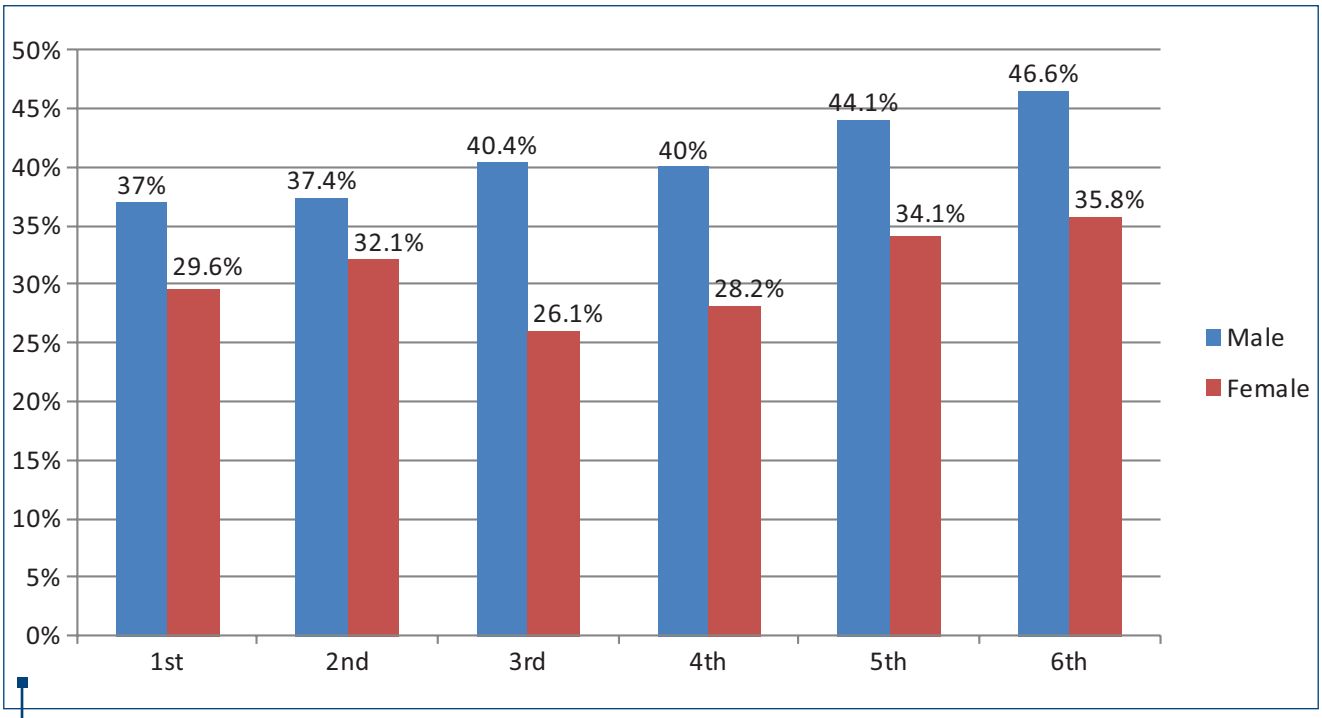

Figure 1. *Prevalence of cigarette smoking according to sex and study year*

advice him/her to smoke only at places designated for smoking", "I tell the person that is totally illegal to smoke in these places, and I ask him to stop smoking immediately", "I also light a cigarette".

Training of medical students in the field of tobaccology was assessed with items: "During your university training, were you taught in any of your classes about the dangers of smoking?", "During your university training did you discuss in any of your classes the reasons why people smoke?", "During your university training, did you learn that it is important to record tobacco use history as part of a patient's general medical history?", "During your university training, have you ever received any formal training in smoking cessation approaches to use with patients?", "During your university training, did you learn that it is important to provide educational materials to support smoking cessation to patients who want to quit smoking?", "Have you ever heard of using nicotine replacement therapies in tobacco cessation programs (such as nicotine patch or gum)?", "Have you ever heard of using drug therapy in tobacco cessation programs (such as bupropion or Zyban, varenicline or Champix)?". The level of confidence in delivering a smoking cessation advice to a patient was assessed with the question: "Based on your current knowledge, can you deliver a smoking cessation advice to a smoker person?", possible answers including: "Definitely yes", "Probably yes", "Probably not", "Definitely not".

As our university is a multicultural university with three teaching languages (Romanian, Hungarian, and English), we used the translated version of the GHPSS questionnaire, every student completing the translation corresponding to the study language. We used the IBM-SPSS program version 22 for descriptive statistical evaluation. For assessing statistical difference between qualitative parameters we used the *chi* square test. The level of significance was set at the p value lower than 0.05.

Results

Demographic characteristics: Among the medical student respondents, 67.9% were female and 32.1% were male. Most of the respondents (87.7%) were aged between 19 and 24 years.

Smoking status: 76.1% of all respondents reported experimenting with cigarettes in the past (including one or two puffs), 24% were introduced to cigarettes at 11-15 years of age, and another 26.5% started to experiment with smoking at 16-17 years of age, 19.3% of the students experienced cigarettes after the age of 18 years.

We considered students as current cigarette smokers if they smoked at least 1-2 days in the month preceding the survey. 66.3% were non-smokers, and 33.7% were smokers. Daily smokers were 8.6% of the students (n=163). Smoking among female students was less frequent (30.5%) than among male students (40.5%). There was significant difference in smoking status between genders (chi-square test $p<0.0001$, Odds Ratio [OR] 0.64; 95% CI: 0.52-0.78).

The current use of other tobacco products (at least once in the past month) was 15.1%, 10.2% for female and 25.5% for male students. There was a significant difference in smoking other tobacco products between genders (chi-square test $p<0.0001$, OR 0.33; 95% CI: 0.25-0.42).

According to study years, we observed an increasing tendency in cigarette smoking from the first to the sixth year (Figure 1) and a higher prevalence of other tobacco product use in the first study years (Table 1)

Table 1 Current use of other tobacco products among medical students in study years 1 to 6

Study year	Use of other tobacco products		
	Male%	Female%	Total%
1st	30.2	13.9	19.1
2nd	24.8	10.4	15.3
3rd	23.1	8.1	12.4
4th	22	9.1	13
5th	33	9.1	18.3
6th	15.1	9.1	10.9
Total	**25.5**	**10.2**	**15.1**

Dependence and quitting:

There were 634 medical students (33.7%) who smoked at least one cigarette in the past month. Although identified as smokers, some of these medical students do not consider themselves as smokers, as they responded affirmatively to "I am not a smoker". From the identified 634 smoker students, only 424 (66.8%) students considered themselves as smokers.

Among smokers, 31 students (1.6%) reported smoking a cigarette within 10 minutes after waking-up, and 105 students (5.5%) reported smoking a cigarette between 10 and 30 minutes after waking-up, a marker of nicotine dependence.

Two hundred and fifty-three medical students (59.6% of those considering themselves as smokers, 39.9% of all current smokers) expressed an interest in quitting. Many students reported quit attempts in the past year, including 270 medical students (63.6% of those considering themselves as smokers, 42.8% of all current smokers).

Most of the students think that they will not be smokers after five years ("definitely not" - 59.8%, "probably not" - 28.4%), and only a few students plan to continue smoking after five years ("probably yes" - 8.3%, "definitely yes" - 3.3%).

Tobacco Policy Awareness, enforcement and obedience: A majority of students was aware of the existence of a non-smoking policy in hospitals (83.8%) and in university buildings (80.7%). However, only 39.6% of the students believed that the policy was enforced, while 51.3% disagreed with this view. Only 8.1% of all students surveyed were unaware of the existing school policy. Five hundred students (26.4% of all students - 75.4% of current smokers) declared that they had smoked on university property, including 136 students (7.2% of all students - 21% of current smokers) who reported that they had smoked inside university buildings.

Ninety-eight students (5.2% of all students - 20.3% of current tobacco product users) declared that they used other tobacco products on university properties. Fourty-eight students (2.5% of all students - 13.5% of current tobacco product users) declared they had used other tobacco products inside university buildings.

Second-hand smoke exposure: During the 7 days preceding the survey, 44.7% of the students reported they were exposed to second-hand smoking in their homes, and 15.9% of the students reported daily exposure.

Outside their homes, during the 7 days preceding the survey, 87.3% of the students reported that they were exposed to second-hand smoking, and 18.7% of the students reported everyday exposure.

In the central building of the university, during the 7 days preceding the survey, only 33.9% of the students reported they were exposed to second-hand smoking, occasional exposure 1-4 days was reported by 24.6% of the students, but 8.3% of the students reported 5 or more days of exposure to second-hand smoking.

In university clinics, 43.9% of the non-smoker students reported second-hand smoke exposure.

In student's dormitories 71.7% of the non-smoker students reported second-hand smoke exposure.

Effect of parental smoking: Students reported that they have non-smoker parents in a proportion of 46%. Students with non-smoker parents have a greater likelihood to be non-smokers than students with at least one smoker parent (OR 0.49; 95% CI: 0.49-0.73; $p<0.0001$).

Attitudes toward smoking regulation policies: The students' attitudes towards smoking control legislation and the awareness of their impact as role models for their patients differ significantly for non-smoker and smoker students. Table 2 summarizes students' attitudes towards tobacco control and smoking according to their smoking status.

Students have a high tolerance towards their smoking peers even when they smoke inside university buildings where smoking is not permitted. Almost one-third (31.1%) reported that it was not their business if a person smoked inside a university building and just less than half (48.5%) reported that they think he/she should not smoke in the university buildings. Only 12.4% responded affirmatively to "I advise him/her to smoke only at places designated for smoking", and only 6.5% indicate that they would tell the person "that it is totally illegal to smoke in these places."

Table 2 Medical students' attitudes toward tobacco control and tobacco cessation support, stratified by smoking status – the percent of students who answered "Yes"

Question	Total %	Non- smokers%	Smokers%	p value
Should tobacco sales to adolescents be banned?	93.3	94.8	90.3	<0.0001
Should advertising be completely banned?	77.9	82.5	68.8	<0.0001
Do you agree with smoking ban in restaurants?	83.7	92.4	66.6	<0.0001
Do you agree with smoking ban in discos/bars/pubs?	59.2	70.5	36.8	<0.0001
Do you think that smoking in all public spaces should be banned?	75.4	85.1	56.3	<0.0001
Should health professionals get cessation training?	90.8	93.5	85.5	<0.0001
Are health professionals role models?	75	77.4	70.1	<0.0001
Should health professionals give quitting advice routinely?	90.7	93	86.6	<0.0001
Should health professionals advise stopping other tobacco products?	86.5	88.9	81.5	<0.0001
Do health professionals have a role in giving advice?	93.9	95.2	91.4	0.001
Do chances of quitting improve if a health professional gives advice?	78.7	82.6	70.8	<0.0001
Are health professionals who smoke less likely to advise patients to stop smoking?	39.9	43.6	32.5	<0.0001

Training of medical students in the field of tobaccology: Most medical students feel the need for additional training related to smoking cessation advice. Most students report that they were taught about the dangers of smoking (79.7%), about the importance of recording tobacco use history as part of a patient's general medical history (75.8%), and that they have heard about nicotine replacement therapies (93.1%). But our medical students' training is lacking information about the reasons why people smoke (32.3%), practical smoking cessation approaches to use with patients (15.3%), importance to provide educational materials to support smoking cessation to patients who want to quit smoking (23%), and the possibility of non-nicotine pharmacotherapy to support tobacco cessation programs (26.6%).

Only 26.6% of students feel confident that they are able to deliver smoking cessation advice to a smoker patient, based on their current knowledge, while 54.5% feel that they *probably* could deliver the advice. Most students (67.8%) declared that they would be interested in participating in a special tobaccology course related to the risks of smoking, cessation benefits, cessation techniques, basics of nicotine replacement therapy.

Discussion

Smoking habits: Medical students' smoking prevalence at the university of Medicine and Pharmacy from Târgu-Mureș is higher than in the general adult population of Romania (33.7% versus 26.7% national prevalence and versus 22.6% for the age group 15-24 years according to GATS 2011)[4] .

A former local study from Timișoara showed a prevalence of 33.6% (30.9% female and 39.5% male students), but this study focused only at the first three study years, it was done in 2005, and it also observed an increasing tendency in smoking prevalence from the first year until the third year[5] .

The prevalence of cigarette smoking in our university is also high, when compared to data reported in the GHPSS study for European countries. As the GHPSS study enrolled only the third year medical students, we can use these data for direct comparison prevalence data from our study for third year medical students (30.2% total prevalence, 40.4% male, 26.1% female) – Table 3.

The GHPSS study reveals the high prevalence of smoking among health professional students, and the gaps in the training of medical students. Two European countries, Albania and Czech Republic, have made repeated evaluation of medical students based on the same GHPSS methodology after 6 and 5 years, respectively. In both countries the prevalence of smoking among medical students decreased (Albania, 2005, 43.3% total, 35.7% female, 65.1% male, respectively Albania, 2011, 23.3% total, 17.5% female, 49.9% male; Czech Republic, 2006, 21.7% total, 19.8% female, 26.2% male, respectively Czech Republic, 2011, 19.7% total, 17% female, 24.9% male)[10,11]. This decrease in prevalence was obtained as a result of multifactorial interventions.

Despite the high prevalence of current smoking, daily smokers represent only 8.6% of the students, which means that the majority of the students are occasional smokers. This fact contrasts with the situation at national level where in the age group 15-24 years occasional smoking is wery rare (1.8-2.4%) compared with daily smoking. This fact helps to design antismoking strategies as banning smoking in the campus, increased educational efforts for understanding the mechanisms of nicotine addiction in order to prevent the progression of occasional smokers to higher levels of nicotine addiction. The percentage of students who declared smoking their first cigarette within the first 30 minutes after waking-up (7.1%) is similar to the percentage of current daily smokers, which shows the importance of asking this simple question for assessing nicotine dependence level.

Table 3 Prevalence of cigarette smoking among medical students in European countries according to studies done with the GHPSS methodology[3,6,7,8,9]

Country	year	Total%	Male%	Female%
Albania	2005	43.3	65.1	35.7
Bosnia & Herzegovina	2006	40.3	45	37.8
Russian Federation	2006	38.8	46.1	34.9
Croatia	2005	36.6	35.9	37.1
Kyrgyzstan	2008	36.6	50	27.9
Serbia	2006	34.7	31.2	36.7
Italy	2009	31.3	34.2	28.8
Slovakia	2006	30.4	36.5	27.9
UMPh Târgu-Mureș	**2014**	**30.2**	**40.4**	**26.1**
Spain	2009	28.9	32.7	27.3
Greece	2009	28.8	32.7	25.9
Poland	2009	28.7	25.7	37.5
Germany	2009	28	42.2	21.6
Lithuania	2006	27.3	48.6	19.5
Czech Republic	2006	21.7	26.2	19.8
Slovenia	2007	20.9	22.5	20.2
Armenia	2006	20.4	52.5	8.3
Malta	2010	14.3	-	-

Table 4 Second-hand smoking exposure in European Countries according to GHPSS study, compared with our results[3,6,10,11]

Country	Year	In the past 7 days, exposed to SHS at home	In the past 7 days, exposed to SHS outside home	Had an official policy banning smoking	The policy was enforced
Albania	2005	72.5	95.8	14.1	41.4
Albania	2011	52.8	82.5	90.1	32.7
Serbia	2006	67.8	89.5	67.4	81.2
Armenia	2006	65.1	80	54	90.5
Bosnia Herzegovina	2006	53	91.1	58.8	30.1
Croatia	2005	50.4	95.2	83.1	73.8
Russian Federation	2006	48.8	85.4	74.6	34.2
UMPhTârgu-Mureș	**2014**	**44.5**	**77.3**	**77**	**40**
Kyrgyzstan	2006	41.1	82.1	50.5	70.2
Lithuania	2006	34.9	68.1	78.5	57.3
Slovakia	2006	28.2	76.8	90.1	97.6
Czech Republic	2006	25.9	84.9	95.7	51.9
Czech Republic	2011	26.9	88.9	94.5	66.4

Exposure to second-hand smoking: The level of exposure to second-hand smoking was comparable with the levels reported in other European countries from the GHPSS study. In Albania, where the GHPSS study was repeated in 2011, there was a reduction of second-hand smoking exposure at home and outside home. In the Czech Republic, where second-hand smoking exposure was quite low, the reductions were not achieved, although policy enforcement increased. Table 4 shows the second-hand smoking exposure in countries participating in the GHPSS study compared with our data.

In spite of the existing smoking ban inside university buildings in our university, 21% of current smokers declared that they smoked inside university buildings in the last year, which means that every fifth current smoker is ignoring the existing smoking ban. There is an imperative need for enforcement of existing policies. The enforcement of non-smoking policies could help to avoid not only exposure to second-hand smoke, but also reduce the likelihood of smoking initiation among health professional students[12].

Attitudes toward smoking regulation policies: Three out of four students support a total ban of smoking in all enclosed public areas. As a result, total smoking bans would be welcome among medical students.

Curricular training: The results from the Medical GHPSS show that over 80% of medical students recognize that they are role models in society, but in our university this percent is only 75.4%, and mostly smoker students are unaware of their role as a model for patients. The awareness of medical students about their function as role models should be increased during the years of education.

According to the GHPSS study, over 80% think they should receive training on counselling and treating patients to quit using tobacco, but less than 40% have received formal training – a finding replicated in our study.

Based on this baseline data, we introduced a tobaccology course as an elective option for the 2nd year medical students within the university curricula (2014-15) and obtained the extension of eligibility of the course to first, second and third year medical students for 2015-2016. The effects of this training on students' knowledge will be assessed in repeated annual evaluations. In addition, Romania passed national legislation banning smoking in all public places, which entered into force in March 2016. This ban should reinforce the efforts of university officials who may have had difficulties enforcing smoking bans in the university buildings during the past years.

Conclusions

Smoking prevalence is high among medical students attending the University of Medicine and Pharmacy from Târgu-Mureș. Despite existing smoke-free regulations in publicly-owned university buildings, smokers report that they smoke in these buildings. Enforcement of existing smoke-free policies is needed in the intervention phase of the project, and there is an imperative need to increase medical students' knowledge and skills that will help then support the future patients in quitting smoking.

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