



Smoking behaviour and attitudes regarding the role of physicians in tobacco control among medical students in Kuopio, Finland in 2006

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KEYWORDS

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Summary

Background: The smoking behaviour of medical students may predict their intentions to counsel patients who are smokers about smoking cessation. The aim of this study was to assess the prevalence of smoking among medical students in Kuopio and whether attitudes towards tobacco control and future smoking cessation advice is related to their own smoking status.

Methods: A cross-sectional survey was conducted among medical students at the University of Kuopio, Finland in 2006 using a validated self-administered questionnaire about smoking behaviour and smoking cessation developed by the WHO. The final participation rate was 61%.

Results: Smoking prevalence among the students was 15% (daily smoking 3%, occasional smoking 12%). Smoking prevalence was higher among males than among females (23% vs 11%, respectively, p -value 0.006). Smokers perceived active and passive smoking as being less harmful to health than non-smokers (p -values <0.0001). More non-smokers (33%), compared with smokers (25%, p -value 0.006) planned to advise smoking patients who do not have symptoms or diagnosis of tobacco related disease and who do not raise questions about smoking to quit smoking. Non-smokers were more likely to believe that it is the doctor's responsibility to convince people to stop using tobacco compared with smokers (49% vs 33%, respectively, p -value 0.011).

Conclusion: Medical students' smoking behaviour negatively affects their plans to give smoking cessation advice once they become physicians and their attitudes on

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the roles of physicians in tobacco control programs. Hence, there is a need to introduce a well structured, compulsory tobacco control program into the medical curriculum at the University of Kuopio in order to prepare students for their future roles in promoting tobacco control initiatives.

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Introduction

Tobacco is the leading preventable cause of death in the world accounting for about 5 million deaths a year [1]. Presently, the number of deaths annually from tobacco is similar in both developed and developing countries but in developing countries, tobacco related deaths are projected to increase to 7 million annually by 2030, while those in developed countries are expected to rise to only 3 million [2]. This is because the prevalence of smoking is decreasing in many developed countries whereas it is increasing in developing countries [3].

Among medical students, the prevalence of smoking varies in different parts of the world and by sex [4–6]. A summary of results from 42 countries and 51 medical schools worldwide indicated that between 2–48% of males and 0–22% of female medical students smoke [4]. It is believed that medical professionals have the greatest potential among any group in society to promote a reduction in tobacco use by acting as non-smoking role models [7]. Apart from their exemplary roles, medical professionals can also reduce smoking prevalence in society by offering smoking cessation advice to patients [7]. Brief advice from a doctor to a smoking patient yields a 1 year quit rate of 5–10% [8,9] and more comprehensive interventions by doctors yield higher quit rates of 20–36% [10,11]. Hence, medical students as future doctors need to be well educated about tobacco control and smoking cessation during medical education because medical school is the optimal time to introduce smoking cessation teachings [12]. It is important to determine the smoking status of students because it has been shown that among physicians, smoking status usually affects the zeal to give anti-smoking advice [13,14]. The only study that has assessed smoking prevalence among medical students in Finland was part of a multi-national study done about 20 years ago. It reported a prevalence of 2% for daily smoking and about 14% for occasional smoking [15]. However, only 1st and 6th year medical students were included in that particular study.

The aim of this study was to assess the prevalence of smoking among medical students in Kuopio, their attitudes towards the role of physicians in tobacco control and whether future smoking ces-

sation advice is related to their own smoking status.

Materials and methods

A cross-sectional survey was conducted among medical students at the University of Kuopio, Finland in 2006. Kuopio is located in the Eastern part of Finland and the University is one of five medical schools in the country. The length of medical education is 6 years. The first 2 years are called pre-clinical studies where students have no contacts with patients and the last 4 years are considered the clinical period during which students have regular contact with patients. There were 737 medical students enrolled at the University and questionnaires were distributed to all the students during compulsory lectures. All students present during the lectures collected the questionnaires, which were taken home and then returned to the class representatives upon completion. Participation in the study was voluntary and confidentiality of volunteered information was assured. Permission from the ethics committee was not required for this study.

A validated self-administered questionnaire (International Tobacco Prevention Initiative for Medical Students) designed by the WHO but adjusted to the local settings was used in this cross-sectional survey. The four broad categories covered by the questionnaire include demographic information, smoking behaviour, perception of risks associated with active and passive smoking, as well as attitudes of the students towards smoking and tobacco control policies.

Smoking status was assessed using five categories: (i) experimental smoker: a person who has smoked at least one cigarette, but less than 100 in his/her lifetime and currently does not smoke; (ii) daily smoker: a person who smokes at least one type of tobacco product at least once a day; (iii) occasional smoker: anyone who smokes but does not smoke daily; (iv) ex-smoker: anyone who had smoked daily for at least six months but who had stopped smoking at the time of the survey; and (v) never-smoker: anyone who has never smoked. For the purpose of this study, smoking sta-

tus was re-grouped into three categories: (i) Daily smoker: anyone who smokes at least one type of tobacco product everyday; (ii) occasional smoker: anyone who smokes some days but not every day; (iii) non-smoker: anyone who does not smoke daily or some days at the time of the survey.

Perceptions of harm caused by active and passive smoking were obtained on a scale of 1 (not harmful) to 10 (very harmful).

Future intentions on dealing with smoking patients were assessed using five categories: Always, usually, about half the time, sometimes, never. For the purpose of this study, the categories were re-grouped as: (i) most of the time (always and usually); (ii) sometimes (sometimes and about half the time); and (iii) never (never).

Attitudes and beliefs about the role of a physician in smoking cessation/prevention were assessed using five categories: (i) Strongly agree; (ii) Somewhat agree; (iii) Neutral/Undecided; (iv) Strongly disagree; and (v) Somewhat disagree. In this study, the variables were re-grouped into: (i) Agree (strongly disagree and somewhat disagree); (ii) Neutral (neutral/undecided); and (iii) Disagree (strongly disagree and somewhat disagree).

The data were analyzed using SPSS 12 for Windows statistical software. A descriptive analysis of smoking status was done based on gender and le-

vel of study. Knowledge of the risks of smoking, attitudes towards anti-tobacco policy and behavioral intentions of dealing with smoking patients were explored by gender, level of study and smoking status. Fisher's Exact test was used to compare categorical variables between two groups while Pearsons χ^2 Test was used to compare categorical variables where the categories were more than two. The Mann-Whitney *U*-Test was used to compare continuous variables, which were not normally distributed. The level of statistical significance was set at a *p*-value of 0.05.

Results

A total of 450 students participated out of the 737 students enrolled in the medical school. The total participation rate was 61%; 35% among males and 65% among females (Table 1). The participation rate among clinical students was 62% (284 of the 461 clinical students in the school participated in the survey) and 60% among pre-clinical students (166 of the 276 pre-clinical students in the school participated). Among the non-respondents, 36% ($n = 103$) were males and 64% ($n = 184$) were females. More of the non-respondents were clinical students, 62% ($n = 177$) compared with pre-clinical students, 38% ($n = 110$).

Table 1 Baseline characteristics of the study sample according to gender and study level

	Males, % (n)	Females, % (n)
<i>Study level</i>		
Pre-clinical	40 (62)	35 (104)
Clinical	60 (94)	65 (190)
Total sample size	100 (156)	100 (294)
Response rate	35	65

Table 2 Smoking status of medical students in Kuopio by gender and study level in 2006

	Smoking status		Non-smokers, % (n)	Total, % (n)	<i>p</i> -value ^a
	Smokers, % (n)				
	Daily	Occasional			
All	3 (13)	12 (55)	85 (382)	100 (450)	
<i>Gender</i>					
Male	4 (6)	19 (29)	77 (121)	100 (156)	0.006
Female	2 (7)	9 (26)	89 (261)	100 (294)	
<i>Study level</i>					
Pre-clinical	1 (2)	12 (19)	87 (145)	100 (166)	0.231
Clinical	4 (11)	13 (36)	83 (237)	100 (284)	

^a χ^2 -test.

Overall the prevalence of smoking among the medical students was 15%. The prevalence of daily smoking was 3%, occasional smoking 12% and 85% of the students were non-smokers (Table 2). Among male medical students, 23% were smokers while among female medical students, 11% were smokers, p -value 0.006. About 4% of the males smoked daily and 19% occasionally whereas 2% of the female medical students smoked daily and 9% occasionally. No statistically significant differences were found in the prevalence of smoking between pre-clinical and clinical students (13% vs 17%, respectively, p -value 0.231). As many as 31% of the smokers did so in order to cope with stress, 17% smoked because of peer pressure and about 7% because of boredom. Other reasons for smoking included “loneliness” “when drinking alcohol”, “to socialise” “at parties”, “for fun, pleasure and enjoyment”. About 85% of the smokers had thought of quitting, but only 49% had actually tried to quit. More clinical students (60%) had tried to quit smoking compared with pre-clinical students, 27%, p -value 0.027. About 15% of the medical students were ex-smokers. Among ex-smokers, 52% quit more than 2 years before the study and 19% quit smoking less than 6 months before. Almost all the students (99%) believed an important reason not to smoke is to protect health, but 61% of the non-smokers compared with 35% of smokers believed that setting a good example is an important reason not to smoke.

Because the students’ perception of how harmful smoking is was not normally distributed, we compared the mean ranks by smoking status, gender and clinical levels using a non-parametric test, the Mann–Whitney U -test. Non-smokers were

more likely than smokers to perceive active (p -value < 0.0001) and passive smoking (p -value < 0.0001) as being more harmful to health (Table 3). Females perceived both active (p -value < 0.0001) and passive smoking (p -value < 0.0001) as being more harmful to health than males. Clinical students also perceived both active (p -value < 0.0001) and passive smoking (p -value 0.001) as being more harmful to health than pre-clinical students.

More non-smokers (33%) compared with smokers (25%, p -value 0.006) planned to advise smoking patients without symptoms or a diagnosis of a smoking related disease and who do not raise questions about smoking to quit using tobacco, once they become physicians. About 67% of the students planned to assess tobacco use in all their patients, but there was no statistically significant difference between non-smokers (69%) and smokers (57%, p -value 0.134).

While 82% (Table 4) of the students believed doctors can have an influence on the smoking behaviour of their patients, and 72% want doctors to be more active in speaking to lay groups about tobacco use, only 46% believe that it is the doctor’s responsibility to convince people to stop using tobacco. The students’ attitudes on the role of physicians in smoking prevention were however greatly influenced by their smoking status. Smokers have less positive attitudes on the roles of physicians in tobacco control and smoking prevention. Less smokers (53%) compared with non-smokers (76%, p -values < 0.0001) believed doctors should be more active in speaking to lay groups about tobacco use. Also, less smokers compared with non-smokers (33% vs 49%, respectively, p -value 0.011) felt it is the doctor’s

Table 3 University of Kuopio medical students’ perceptions of the risks associated with active and passive smoking

	Active smoking		Passive smoking	
	Mean rank	p -value ^a	Mean rank	p -value ^a
<i>Smoking status</i>				
Non-smokers	231.11 ^b	0.000	231.26 ^b	0.000
Smokers	161.73	0.000	172.36	0.000
<i>Gender</i>				
Males	178.69	0.000	186.53	0.000
Females	246.45 ^b		242.30 ^b	
<i>Study level</i>				
Pre-clinical	189.76	0.000	194.05	0.001
Clinical	241.12 ^b		238.12 ^b	

^a Mann–Whitney U -test.

^b Higher mean rank denotes higher median score.

Table 4 Proportion of students who agree with the following statements on the role of doctors in tobacco control/smoking cessation according to study level and smoking status in 2006

	All, % (n)	Study level			Smoking status		
		Pre-clinical, % (n)	Clinical % (n)	<i>p</i> -value ^a	Non-smoker, % (n)	Smoker, % (n)	<i>p</i> -value ^a
Doctors should be more active in speaking to lay groups about tobacco use	72 (323)	66 (108)	77 (215)	0.039	76 (288)	53 (35)	0.000
My present knowledge is sufficient to enable me to advise patients who want to stop using tobacco	62 (275)	38 (63)	75 (212)	0.000	61 (230)	68 (45)	0.112
I am confident in my abilities to discuss tobacco use with my patients and advise them to quit	68 (302)	53 (88)	76 (214)	0.000	68 (257)	68 (45)	0.851
I am confident in my abilities to communicate with young people about tobacco and why they should not use	72 (321)	68 (111)	75 (210)	0.185	72 (271)	76 (50)	0.665
I am confident in my abilities to promote policies and programs to reduce tobacco use in my community	25 (110)	15 (25)	30 (85)	0.001	24 (90)	30 (20)	0.426
I am confident in my abilities to promote policies and programs to reduce tobacco use in my state or nation	16 (72)	9 (14)	21 (58)	0.002	16 (59)	20 (13)	0.444
In general, I prefer to diagnose and treat ill patients rather than give preventive advice, such as tobacco use cessation	15 (66)	13 (22)	16 (44)	0.723	13 (49)	26 (17)	0.020
It is the doctor's responsibility to convince people to stop using tobacco	46 (206)	48 (78)	46 (128)	0.130	49 (184)	33 (22)	0.011
Doctors should set a good example by not using tobacco	72 (322)	77 (127)	69 (195)	0.164	80 (302)	30 (20)	0.000
Doctors can have an influence on the tobacco use behavior of their patients	82 (364)	86 (140)	80 (224)	0.248	83 (312)	79 (52)	0.761
Standard training of physicians should include education on how to counsel patients about tobacco use prevention and cessation	79 (353)	74 (121)	83 (232)	0.021	82 (312)	62 (41)	0.000
Most smokers could stop smoking if they wanted to	33 (145)	41 (67)	28 (78)	0.008	32 (120)	38 (25)	0.550
Doctors would be more likely to advise people to quit using tobacco if they knew a good approach that works	79 (351)	78 (128)	79 (223)	0.270	81 (305)	70 (46)	0.100

^a Pearsons χ^2 .

responsibility to convince people to stop using tobacco. More smokers preferred to diagnose and treat ill patients rather than give preventive advice including cessation of tobacco use (26% vs 13%, respectively, *p*-value 0.020).

Discussion

The prevalence of smoking was relatively low among the students. However, their smoking behaviour negatively affected their future plans

to give smoking cessation advice and also, their attitudes on the role of the physician in tobacco control and smoking cessation.

Overall, the prevalence of 15% is lower than the average for European medical students. However, among males, the prevalence of smoking was 23% which is within the European average for male medical students; 22–35% [4,15]. This study supports the findings of the study conducted in 1989 among 14 European countries where medical students in Finland had the lowest prevalence of daily smoking but one of the highest prevalence rates for occasional smoking [15]. Compared with that particular study [15], the prevalence of smoking has not changed much over time among the medical students. While 2% smoked daily and about 14% occasionally in 1989, 3% smoked daily and 12% occasionally in our study. However, methodological differences exist. Our study population consisted of medical students from all classes while the previous study by Tessier et al. consisted of only 1st and 6th year medical students. Therefore, our study was more representative of the whole student population. Tessier et al. conducted their survey in 14 European countries, involving a total of 2742 medical students: 1358 in the 1st year and 1384 in the 6th year. However, there was no information in their publication about which medical schools in Finland were involved in the study. Consistent with many studies, the prevalence of smoking was higher among males than among females [4–6,16] and the prevalence increased as students progressed through medical school [17,18]. A Turkish study was able to demonstrate that the first 3 years of medical education had the highest risk for initiation of smoking because up to 30% of those who were non-smokers at the time of registration became smokers within the first 3 years of starting medical school [18]. This indicates that in Finland, as in many other countries, medical education does not provide a deterrence to smoking. The prevalence of occasional smokers among medical students is higher than that among physicians in Finland [19]. However, when compared with the Finnish population of a similar age group, the overall prevalence of smoking among medical students is lower. About 24% of females and 22% of males in Finland aged between 15 and 24 years smoke [20].

Many students are likely to pick up the habit of smoking when they start their medical education. The reasons why medical students start smoking or increase cigarette consumption while in medical school is not very clear but the stress of a medical education may be a reason as indicated by the results of this study. The study among Turkish medi-

cal students [18] also found a relationship between initiation of smoking and high anxiety scores suggesting that medical education may possibly have an indirect negative effect on smoking.

Fewer final year medical students in Kuopio (27%) planned to advise a smoker without symptoms or a diagnosis of a smoking related disease and who does not raise questions about tobacco to quit smoking compared with final year students in Australia (57%), USA (61%) and Moscow (53%) [5]. Similar to findings in 10 African and Middle East countries [17] and among Australian, American and Russian medical students [5], more non-smoking medical students in Kuopio planned to advise a smoker, without symptoms or a diagnosis of a smoking related disease and who does not raise the questions, to quit using tobacco compared with smokers. This observation is similar to that seen among physicians where smoking behaviour often influences smoking cessation advice given to patients who are smokers [13,14]. This may stem from the fact that smoking medical students and physicians tend to perceive smoking as less harmful to health compared with non-smoking ones, as was demonstrated in this and other studies [21,22].

Smoking medical students in Kuopio are not as enthusiastic as non-smokers about the positive roles physicians can play in tobacco control and smoking prevention, an observation that has been documented in previous studies [21,22]. Smokers (62%) compared with non-smokers (82% p -value < 0.0001) in our study are less in favour of including education on how to counsel patients about prevention and cessation of tobacco use in the standard training of physicians. This is worrying because when such smoking education is introduced into the medical curriculum, smoking medical students may not be very enthusiastic to participate in it unless it is compulsory.

The proportion of students who plan to advise smokers without a diagnosis of a tobacco related disease and who do not raise questions about smoking, to quit smoking is very low regardless of smoking status. Also, smoking students in our study prefer to diagnose and treat ill patients rather than give preventive advice. The reason for this may be due to inadequate attention placed on preventive care in the medical curriculum at the University of Kuopio. Tobacco control is only offered as an elective course available to 1st and 2nd year medical students who choose the public health track; hence, very few medical students participate in the course. Presently, there are no separate preventive strategies taught at the Medical Faculty of the University of Kuopio.

However, some primary preventive issues are integrated into the teachings of the Department of Internal Medicine but there is no specific curriculum for these. This practice reflects some defects in the present focus of medical education worldwide which concentrates almost solely on reactive care of individual patients. In a worldwide survey of medical schools, only 11% of the schools teach tobacco issues as a specific module [4]. Modern medical education will need to change to include more proactive, planned and preventive care of populations [23]. The little emphasis placed on preventive care in the medical curriculum likely explains why as many as 58% of newly qualified doctors in a study in the UK had no knowledge of smoking cessation guidelines [24].

There is a need for qualitative research using in-depth interviews and focus group discussions to probe why the medical students' smoking behaviour affects their smoking cessation activities and their attitudes towards the role of physicians in tobacco control. A longitudinal study can also be conducted over the six study years to track changes in the knowledge, attitude and behaviour of the students in order to determine the effect of the present form of medical education on their smoking behaviour.

Our study had some limitations. The participation rate was 61%. It is possible that non-smokers were more likely to participate in the study thereby underestimating the prevalence of smoking. Smoking status could also not be validated using biochemical markers such as serum cotinine levels. However, as suggested by Tessier et al. [17], it may be impractical to use biochemical markers as these have seldom been used in such studies.

In conclusion, even though the prevalence of smoking is relatively low among medical students at the University of Kuopio, their smoking behaviour negatively influences their smoking cessation activities and their attitudes on the role of physicians in tobacco control. There is an urgent need to introduce a compulsory, well structured tobacco control and smoking cessation teaching program into the medical curriculum in order to equip the students with tobacco control skills for future clinical practice. The students also need to be taught the importance of smoking cessation counselling to all patient groups regardless of whether the patient presented with a smoking-related disease or not.

Conflict of interests

None declared.

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