

Global Health Professions Student Survey among Healthcare students: a cross sectional study

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Abstract

Background. Healthcare professionals have the potential to influence patients' smoking status; however, their smoking habits and their opinions about tobacco use can hamper an effective counselling about smoking to patients.

Method. A cross-sectional survey was carried out among healthcare students from the Sapienza University of Rome using a previously validated Italian version of Global Health Professions Student Survey (GHPSS) online questionnaire.

Results. Overall, 349 students filled out the online survey: 158 (45%) were current smokers and 191 (55%) were nonsmokers. Nurses students had the highest percentage of smokers (55%). Healthcare students declared they had learned about the health consequences about tobacco use during their academic course (90%), however, only 24% received specific training on smoking cessation.

Conclusion. It is necessary to implement a smoking cessation course in the undergraduate curriculum in order to train healthcare professionals to provide patients an effective counselling against smoking.

Introduction

The tobacco epidemic is one of the most difficult to eradicate. In 2017, smoking was responsible for the death of about six million people per year worldwide. Although a legal drug, tobacco smoke is a risk factor for the development of six of the eight leading causes of deaths considered preventable (1).

In 2017 the Doxa-ISS survey registered 11.5 million smokers in Italy (22% of the population, 27.3% of men and 17.2% of

women) (2), while the surveillance programs PASSI (3) showed the prevalence of smokers 25.7% of the population between 2015 and 2018. Moreover, a geographic variability of the tobacco behavior does exist, with highest values in regions such as Lazio, Umbria, Molise.

Surprisingly, lower percentages were not found among Healthcare Professionals (HPs) and Healthcare students. A survey conducted in a hospital in Central Italy in 2014 showed a smoking rate of 42% among physicians and 43% among nurses; moreover, around

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30% of HPs reported smoking in the hospital (4). Over the past decade, few studies have investigated the distribution of risky behaviour such as smoking among Italian healthcare students. Saulle et al. (5) found that the prevalence of smoking was 20.4% among students of nine Italian medical schools, La Torre et al. (6) found 20.9% smokers among residents in Public Health. The survey of Armstrong et al. (7) found that Italian students compared to US students were more likely to smoke (29.5% vs. 6.1%) and less likely to receive smoking cessation training (9.4% vs. 80.3%), even though the majority of students in both countries desired smoking cessation training (98.6% at Brown University, 85.4% at Bologna University). The study of La Torre et al. showed an overall smoking prevalence of 29.3% among students of 12 medical schools in four European countries (Germany, Italy, Poland and Spain) (8). Among others, the existing scientific literature identified differences on smoking habits between males and females, with male students being significantly more likely to be current smokers than females (9-12).

The role of HPs in smoking prevention and cessation interventions is demonstrated. Results of the systematic review of Lancaster et al. showed that brief advice from the doctor during routine care, both in primary care and hospital wards, increased the quitting rate OR: 1.69, (95% CI: 1.45-1.98); individual counselling of nurses was also effective (13).

Nevertheless, the HPs' attitude and opinion about tobacco use and their skills to provide advices against smoking can influence their willingness and self-efficacy to provide an effective counselling (14). Another factor that may be a significant barrier to discouraging smoking is the lack of knowledge about effective counselling and treatment (15). Only 16.5% of European students reported receiving smoking cessation training at medical school, with

the lowest proportion in Italy, 3.5% (8). Therefore, it is important to examine attitude and skills about counselling against smoking since the university courses (16, 17).

In order to provide an effective counselling by HPs, the World Health Organization (WHO) has recommended that education and training on tobacco cessation should be included in all HPs' curriculum (18). The main aim of this research was to examine knowledge, attitudes about tobacco use and training against smoking using the GHPSS (Global Health Profession Students Survey). The other objective of this study was to explore differences between smokers and non-smokers and to investigate differences between genders.

Materials and Methods

Study design and study setting

A cross-sectional study was carried out among healthcare professions students of the Faculty of Pharmacy and Medicine, Sapienza University of Rome, for all three years of course. The survey was administered using the online version of the Global Health Professions Student Survey (GHPSS) questionnaire. The research was conducted in 2017; prior to the survey, resident HPs representatives were informed, and students received informed consent to join the survey. The questionnaires were self-administered with close-ended type questions, in an anonymously and voluntarily manner, in accordance with the protocol developed by WHO Europe and the US CDC (18).

Participants and Data collection

The survey addressed the following participants among healthcare profession students: nurses, medical radiology and prevention technicians, and dental care professionals. Instead, the survey did not include physiotherapists, orthoptists, and midwives. The questionnaire instruments

included information about main demographic characteristics and attitudes, beliefs and behaviours about smoking. The tool was the Global Health Professions Student Survey (GHPSS) questionnaire (19), designed by WHO and Centers for Disease Control and Prevention (CDC). The researchers of the Department of Public Health and Infectious Disease of “Sapienza” University of Rome used the Italian validated version (20).

The final form of the Italian questionnaire was composed of 44 questions, distributed in six sections as follows:

1. Prevalence of tobacco use (Questions 1-9);
2. Exposure to environmental tobacco smoke (i.e., time spent with people who smoke in confined spaces) (Questions 10-13);
3. Attitudes (i.e., opinions about no-smoking policies, laws, the role of HPs in smoking cessation) (Questions 14-24);
4. Behaviour/cessation (i.e., smoking habits, willingness to stop, and opinions about HPs who used to smoke) (Questions 25-32);
5. Curriculum/training (i.e., formal training in smoking cessation techniques on the university curriculum and knowledge about methods (pharmacological or counselling techniques) for helping smokers to quit) (Questions 33-41);
6. Demographics (age, gender and course year) (Questions 42-44).

Statistical analysis

Descriptive statistics were performed using absolute frequencies and percentages for qualitative variables, mean and standard deviation (SD), and 95% confidence intervals (95% CI) for quantitative variables. Chi-square test was performed to evaluate differences for categorical variables, with a p-value of <0.05 taken as a threshold for statistical significance. Data were analyzed with the software SPSS 25.0 for Windows.

Results

Description of participants

The final sample consisted of 349 students enrolled in all three years of undergraduate health professional courses. The response rate was 98%, and the characteristics of the sample are reported in Table 1. Among the total population, 28% were males and 72% females, most students were between 19 and 24 years old (74.5%), while 25.5% were >25 years old. The participants were mainly nursing students (194, 55%) followed by dental hygienist students (105, 30%). Regarding their smoking status, 158 students (45%) were current smokers, 52% among males, and 43% among females, and around 22% declared to have smoked more than 20 days in the last month. The analysis according to the healthcare profession chosen showed that nursing students had the highest percentage of smokers, 106 (55%), followed by dental care students (44%); medical radiology technicians students presented the lowest rate of smoking (31%) ($P = 0.001$). Most students declared that they had tried their first cigarette when they were 16-17 years old (24%) followed by 11-15 years old (19%). When compared to males, more females declared they had never tried a cigarette ($P = 0.011$).

Exposure to second-hand smoke at home and university

Results about smoking exposure showed that 46% of students were not exposed to smoke at home, compared to 54% who were exposed; 34% of the sample was exposed every day. Smokers resulted to be more exposed to everyday secondhand smoke both at home and outside compared to nonsmokers ($P < 0.001$). Males were more exposed to secondhand smoke at home compared to females ($P = 0.026$). The university was the setting where more than half of the students declared the presence of a cigarette ban, and 42% declared that the ban

Table 1 - Characteristics of the sample and smoking status

		N (%)	Non smokers N (%)	Smokers N (%)	p ¹	Females	Males	p ¹
Sample		349 (100)	191 (55*)	158 (45.3*)		250 (72*)	99 (28*)	/
Age	19-24	260 (74.5)	139 (72.8)	121 (76.6)	0.387	192 (76.8)	68 (68.7)	0.226
	25-29	59 (17)	32 (16.8)	27 (17.1)		37 (14.8)	22 (22.2)	
	>30	30 (8.5)	20 (10.5)	10 (6.3)		21 (8.4)	9 (9.1)	
Year of attendance	1st	60 (17)	35 (18.3)	25 (15.8)	0.409	39 (15.6)	21 (21.2)	0.059
	2nd	128 (37)	68 (35.6)	60 (38)		97 (38.8)	31 (31.3)	
	3 rd	161 (46)	88 (46.1)	73 (46.2)		114 (73.7)	47 (26.3)	
Course of study	Nursing	194 (55)	88 (45.3*)	106 (54.6*)	0.001	143 (58.7*)	51 (26.3*)	0.001
	Dental care and dentistry	105 (30)	69 (65.7*)	36 (34.2*)		82 (73.7*)	23 (21.9*)	
	Medical Radiology and prevention technicians	48 (14)	33 (68.8*)	15 (31.3*)		23 (47.9*)	25 (52.3*)	
	Others	2 (1)	1 (50.0*)	1 (50.0*)		2 (100.0*)	0 (0.0*)	
How old were you when you tried to smoke the first time?	never tried	164 (47.0)	164 (85.9)	0 (0)	<0.001	128 (51.2)	36 (36.4)	0.011
	14-15	65 (18.6)	8 (4.2)	57 (36.1)		36 (14.4)	29 (29.3)	
	16-17	84 (24.1)	12 (6.3)	72 (45.6)		60 (24)	24 (24.2)	
	18-19	28 (8.0)	5 (2.6)	23 (14.6)		21 (8.4)	7 (7.1)	
	20-24	4 (1.1)	1 (0.5)	3 (1.9)		2 (0.8)	2 (2)	
	25-29	3 (0.9)	0 (0)	3 (1.9)		3 (1.2)	0 (0)	
	>30	1 (0.3)	1 (0.5)	0 (0)		0 (0)	1 (1)	
How many days did you smoke in the last month?	never	191 (54.7)			0.134	143 (57.2)	48 (48.5)	
	1-2	5 (1.4)				2 (0.8)	3 (3)	
	3-5	36 (10.3)				26 (10.4)	10 (10.1)	
	6-9	29 (8.3)		/		22 (8.8)	7 (7.1)	
	10-19	9 (2.6)				8 (3.2)	1 (1)	
	20-29	12 (3.4)				9 (3.6)	3 (3)	
	all days	67 (19.2)				40 (16)	27 (27.3)	
Did you smoke in university during last year? (missing=164)	yes	32 (9.2)			0.02	24 (19)	8 (13)	
	no	153 (43.8)		/		98 (81)	55 (87)	

¹chi square

Row percentage

Table 2 - Exposure to smoke by smoking status and gender

		N	Nonsmokers N (%row)	Smokers N (%row)	p ¹	Female	Male	p ¹
In the last week how many days someone smoked in your house in your presence?	never	162 (46)	122 (63.9)	40 (25.3)	<0.001	129 (51.6)	33 (33.3)	0.026
	1-2	34 (9.7)	16 (8.4)	18 (11.4)		24 (9.6)	10 (10.1)	
	3-4	20 (5.7)	5 (2.6)	15 (9.5)		14 (5.6)	6 (6.1)	
	5-6	16 (1.1)	9 (4.7)	7 (4.4)		9 (3.6)	7 (7.1)	
	every day	117 (33.5)	39 (20.4)	78 (49.4)		74 (29.6)	43 (43.4)	
In the last week, how many days someone smoked in your presence, but in places different from your house?	never	32 (9.1)	27 (14.1)	5 (3.2)	<0.001	20 (8.0)	12 (12.1)	0.209
	1-2	61 (17.5)	51 (26.7)	10 (6.3)		48 (19.2)	13 (13.1)	
	3-4	80 (22.9)	48 (25.1)	32 (20.3)		62 (24.8)	18 (18.2)	
	5-6	51 (12.9)	31 (16.2)	20 (12.7)		37 (14.8)	14 (14.4)	
	every day	125 (35.8)	34 (17.8)	91 (57.6)		83 (33.2)	42 (42.4)	
In your university are there specific signs prohibiting smoking in university and hospital settings?	yes, only in university setting	6 (1.7)	2 (1)	4 (2.5)	0.531	3 (1.2)	3 (3.0)	0.015
	yes, only in hospital setting	90 (25.8)	50 (26.2)	40 (25.3)		73 (29.2)	17 (17.2)	
	yes both in university and hospital setting	206 (59.0)	110 (57.6)	96 (60.8)		136 (54.4)	70 (70.7)	
	no official ban	47 (13.5)	29 (15.2)	18 (11.4)		38 (15.2)	9 (9.1)	
In your university, is the ban strictly applied?	yes	146 (41.8)	79 (41.4)	67 (42.4)	0.919	101 (40.4)	45 (45.5)	0.219
	no	102 (29.2)	55 (28.8)	47 (29.7)		70 (28)	32 (32.3)	
	there is no specific ban of smoking	101 (28.9)	57 (29.8)	44 (27.8)		79 (31.6)	22 (22.2)	

¹chi square

was strictly applied. The results of exposure to smoke are reported in Table 2.

Beliefs, opinions and attitude toward tobacco control

Most students (average 94%) agreed with the ban of smoking in public and enclosed places. Females, compared to males, were more likely to think that smoking prohibition in public places was fair ($P = 0.028$). Many students considered the prohibition of selling tobacco to minors as fair. The belief that smoking advertising should be prohibited is more prevalent among smokers than non-smokers ($P = 0.025$). Around 94% of participants thought that HPs should advise smokers to quit smoking and should give information about smoking cessation. Smokers and males were less

confident compared to nonsmoker about the role of HPs to give advice on how to quit smoking.

Almost all students (96%) confirmed the necessity of receiving training on smoking cessation techniques. Only 79% thought that people could stop smoking when helped by HPs, more among non-smokers than smokers ($P < 0.001$), and more among females than males ($P = 0.026$). Health professions students declared to have received good instruction concerning smoking during their postgraduate course: 90% learned about the risk of smoking, more females than males ($P = 0.004$), 87% had heard about nicotine patches, and 86% knew the importance of registering the smoking history of patients. However, only 24% received specific training on smoking cessation. There were

Table 3 - Beliefs, opinions and attitude toward tobacco control

	N*	Nonsmokers N (%row)	Smokers N (%row)	p ¹	Female	Male	p ¹
Is the ban of selling tobacco to minors fair?	yes 334 (95.7)	184 (96.3)	150 (94.9)	0.521	239 (95.6)	95 (96.0)	0.881
Should the advertising of cigarettes be categorically prohibited?	yes 291 (83.3)	167 (87.4)	124 (78.5)	0.025	212 (84.8)	79 (79.8)	0.258
Is the ban of smoking in restaurants fair?	yes 344 (98.5)	190 (99.5)	154 (97.5)	0.116	246(98.4)	98 (99)	0.676
Is the ban of smoking in discos, bar e pub fair?	yes 313 (89.6)	180 (94.2)	133 (84.2)	0.002	228 (91.2)	85 (85.9)	0.139
Is the ban of smoking in public places fair?	yes 334 (95.7)	186 (97.4)	148 (93.7)	0.089	243 (97.2)	91 (91.9)	0.028
Should HPs get specific training on cessation techniques?	yes 335 (95.9)	185 (96.9)	150 (94.9)	0.362	241 (96.4)	94 (94.9)	0.534
Do HPs serve as role models for their patients and the public?	yes 297 (85.1)	165 (86.4)	132 (83.5)	0.458	218 (87.2)	79 (79.8)	0.08
Should HPs regularly advise smokers to quit?	yes 328 (93.9)	185 (96.9)	143 (90.5)	0.013	242 (96.8)	86 (86.9)	<0.001
Should HPs regularly advise smokers to quit chewing tobacco/smoking cigar or pipe?	yes 331 (94.8)	188 (98.4)	143 (90.5)	0.001	242 (96.8)	89 (89.9)	0.009
Do HPs have a role in giving advice or information about smoking cessation to patients?	yes 328 (93.9)	185 (96.9)	143 (90.5)	0.013	241 (96.4)	87 (87.9)	0.003
Have patients more chances to quit smoking if helped by HPs?	yes 277 (79.4)	167 (87.4)	110 (69.9)	<0.001	206 (82.4)	71 (71.7)	0.026
Have you been taught about smoking risk during your postgraduate course?	yes 317 (90.8)	172 (90.1)	145 (91.8)	0.579	234 (74)	83 (26)	0.004
Have you ever received specific training on smoking cessation during your postgraduate course?	yes 85 (24.3)	44 (23)	41 (25.9)	0.528	60 (70)	25 (30)	0.806
Have you ever heard, during your postgraduate course, about nicotine patches or gum used in cessation programs?	yes 304 (87.1)	161 (84)	143 (90)	0.085	218 (72)	86 (28)	0.934
Have you been taught about the importance of providing informative materials to help patients quit smoking?	yes 217 (62.1)	120 (62.8)	97 (61.4)	0.783	159 (73)	58 (27)	0.384
Have you been taught about the importance of registering patients smoking history as part of the anamnesis?	yes 301 (86.2)	167 (87.4)	134 (84.8)	0.479	221 (73)	80 (27)	0.063

¹chi square

HPs: healthcare professionals

no significant differences regarding the postgraduate course knowledge between smokers and nonsmokers, and neither between genders. Results about tobacco control beliefs are reported in Table 3.

Attitude and beliefs about smoking cessation

Among 158 smokers, 63.3% smoke the first cigarette one hour after waking up, more females compared to males ($P=0.01$). Most smokers would like to stop smoking (70%), 57% tried to stop in the last year. More than half (55%) did not think that HPs who are smokers were less likely to give advice to their patient about quitting smoking. Results of attitude and beliefs about smoking cessation are reported in Table 4.

Discussion

Main findings

This survey reported a very high prevalence of smokers among healthcare professions students in Italy. The results of

the Italian GHPSS questionnaire revealed that around 45% of students were smokers, 19% daily smokers, and that nursing students showed the highest smoking prevalence (55%). These data are extremely high compared to the DOXA smoking prevalence of about 22% in people aged ≥ 15 years old (2). Additionally, other recent GHPSS surveys were conducted among healthcare students from different countries. The study of Warren et al. (18) investigated smoking rates among dental students from all over the World. In the African Region it reported 10.2% of smokers in Algeria and 16.7% in Senegal. In the Eastern Mediterranean Region, smoking prevalence ranged from 33.4% in Gaza Strip/West Bank to 2.3 % in Libya. In the European region, current cigarette smoking was over 20% in all countries except for Slovenia and Lithuania, while in the American countries smoking rate had a median percentage of 20 everywhere, except for few countries. Barbouni et al. (21) showed that smoking rate among medical students was 28.8%, among dental students 39.1%, among

Table 4 - Attitudes and beliefs about smoking cessation¹

		Smokers N=158 (%)	Female N=107	Male N=51	p ²
How long after wake up do you smoke the first cigarette?	Less than 10 minutes	8 (5.1)	4 (3.7)	4 (7.8)	0.01
	10-30 minutes	31 (19.6)	14 (13.1)	17 (33.3)	
	31-60 minutes	19 (12.0)	15 (14.0)	4 (7.8)	
	after 1 hour	100 (63.3)	74 (69.2)	26 (51.0)	
Would you like stop smoking?	yes	112 (70.9)	75 (70.1)	37 (72.5)	0.751
In the last year, did you try to stop smoking?	yes	88 (55.7)	65 (60.7)	23 (45.1)	0.064
Have you ever received advices to stop smoking?	yes	88 (55.7)	59 (55.1)	29 (56.9)	0.839
Do smoking health profession advice less to stop smoking to their patients?	yes	71 (44.9)	46 (43.0)	25 (49.0)	0.476

¹Analysis among smokers

²chi square

nursing students 30.9%, and 33.3% in nutrition science students.

With respect to gender, most smokers were males (51/99=52%), in agreement with differences shown by the literature (8-11). Most smokers tried their first cigarette at 11-17 years, confirming that most smoking uptakes take place during preadolescence and adolescence.

Healthcare students showed a positive attitude and belief about tobacco control strategies, such as the ban of smoking indoors and in public places, the prohibition of selling to minors and the banning of tobacco advertising. Considering protection from exposure to tobacco smoke (SHS), smokers of the survey were more exposed at home and more days per week compared to nonsmokers.

There was general agreement with the ban of smoking in public premises (restaurants, bar, discos) and closed public spaces, in agreement with the Italian smoking ban (22), and the article 8 "protection from exposure to tobacco" of the Framework Convention on Tobacco Control (FCTC) (23). In line with this approach, hospitals worldwide are becoming increasingly smoke-free (24). Ensuring a smoke-free environment has the objective both to protect against second-hand smoke and to promote smoking cessation.

In view of the new Tobacco Products European Directive (25), this study showed that most students would prohibit smoking advertising, with a higher percentage among smokers than non-smokers. Smoking status is important both for the personal health condition and for its potential to affect the attitude towards smoking cessation (26). Smokers expressed less confidence in the chances of patients being able to stop smoking when they were helped. Additionally, smokers were less confident about the importance of health HPs as healthy role models and about their role in giving advice about smoking cessation. This finding suggests that smoking status

can influence opinion and attitude towards smoking cessation and is in agreement with the study of Duaso et al. (27) that showed that smoking nurses were 13% less likely to advise their patients to quit and 25% less likely to arrange smoking cessation follow-up.

Students in this survey declared that they had received information about the damages caused by tobacco, although most students stated they did not receive specific training on smoking cessation.

The undergraduate Italian HPs' curriculum does not include a specific module on tobacco cessation training, but throughout their studies, students learn about the health consequences of smoking and tobacco-related illnesses. In line with previous literature, limited and inconsistent levels of specific training on smoking cessation are provided during university courses (11, 28, 29). Instead, HPs have an important role in promoting smoking cessation; according to WHO estimates, if all primary care providers routinely asked about tobacco use and advised tobacco users to quit, more than 80% of all tobacco users could be reached each year.

The WHO advises a model including 5As: Ask, Advise, Assess, Assist, Arrange. This is a brief intervention that a primary care provider can do to help a tobacco user to stop smoking in a primary care setting (30). In order to increase motivation to quit, the 5R's (Relevance, Risks, Rewards, Roadblocks, and Repetition) can be used in a counselling session (31).

The strengths of this study were the use of a validated tool and the realization of the first Italian survey using GHPSS standardized methodology that involves healthcare professions students. The strict definition of smoking status, according to the WHO's standard definition, was used. Another point of strength of this study was the high response rate (98%). Nevertheless, it is important to acknowledge that this was

a cross-sectional study and data were self-reported, which could have led to incorrect estimations. Physiotherapists, orthoptists and midwives were not included, although most health professional disciplines were represented.

Conclusion

This study established the prevalence of smoking among a sample of healthcare Italian students. The highest prevalence was observed for nursing students and the majority of health professions students declared they learned about the health risks of smoking during their academic course, but only a few received formal training on smoking cessation.

This study confirms the lack of formal education during undergraduate studies. Consequently, there is a need to put tobacco education in the curriculum of medical and healthcare professions schools. Students need to strengthen correct beliefs about smoking; the development of related skills is important for their health, to help their future patients and to make them a healthy role model.

Riassunto

Una "Global Health Professions Student Survey" negli studenti delle professioni sanitarie: uno studio trasversale

Introduzione. I professionisti sanitari possono influenzare l'abitudine tabagica dei pazienti; e non di meno, le loro abitudini fumatorie e le opinioni nei confronti del fumo di tabacco possono creare un serio ostacolo all'effettuazione di un counselling per la cessazione del tabagismo.

Metodi. È stato realizzato un studio trasversale fra gli studenti delle professioni sanitarie della Sapienza Università di Roma utilizzando un questionario validato, il Global Health Professions Student Survey.

Risultati. Complessivamente hanno preso parte allo studio online 349 studenti, di cui 158 (45%) hanno dichiarato di essere fumatori e 191 (55%) non fumatori/ex

fumatori. Gli studenti di infermieristica hanno mostrato la prevalenza di fumatori più elevata (55%). Gli studenti delle professioni sanitarie hanno dichiarato di aver appreso sulle conseguenze per la salute del fumo di tabacco durante i corsi universitari (90%), ma solo il 24% ha ricevuto una formazione specifica sulla cessazione.

Conclusioni. È necessario implementare un corso di cessazione del fumo di tabacco nel curriculum delle lauree triennali di tipo sanitario per poter preparare adeguatamente i futuri professionisti sanitari a fornire un efficace counselling anti-fumo.

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