

Tobacco and e-cigarette smoking habits among Italian healthcare students

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Abstract

Background. Healthcare professionals might play a significant role in tobacco control. The aims of this study were to investigate tobacco cigarette and electronic cigarette (e-cigarette) consumption among university students enrolled in courses of the healthcare area, and to understand whether training in healthcare could induce to smoking cessation.

Study design. Cross-sectional survey using a self-administered, structured questionnaire.

Methods. Tobacco smoking habits of 560 students of four different medical area courses at the University of Milan, enrolled both in the first and in the last course year during the 2017-2018 academic year, were collected.

Results. The prevalence of smokers was 34.8%, almost the same for males and females, and higher in Italian students compared to foreigners. Smoking prevalence was higher among employed (46.9%) than unemployed (35.1%) students, without differences between healthcare and non-healthcare workers. The influence of family, and particularly friends, is confirmed to be relevant. About 25% of respondents tried e-cigarettes, mainly smokers (44.6%) and former smokers (38.6%) with the goal of quitting smoking. More than 44% were dual users of both tobacco cigarettes and e-cigarettes. Comparing smoking habits between first-year and final-year students, only students of healthcare assistance course showed a significant drop in smoking during the university studies.

Conclusions. The implementation of specific educational curricula on smoking dangers and on smoking cessation techniques might have the double effect of supporting students in quitting smoking and of properly preparing them for their future task of helping people to quit smoking.

Introduction

According to the World Health Organization (WHO) (1), in 2015 over 1.1 billion people smoked tobacco in the world, while about 6 million people a year die from tobacco smoking. This figure is set to grow

to more than 8 million a year by 2030. In Italy, 11.7 million inhabitants (22.2% of the population > 15 year old) are smokers; this percentage is close to the European average of 26% (2). In the last 25 years, a global decrease in the consumption of tobacco has been recorded: a drop of 9.9% in men (from

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34.9% to 25%) and 2.8% in women (from 8.2% to 5.4%) (3). In Italy, a decline of 34.6% in tobacco smoking has been observed in the same period (4). This drop probably reflects the efforts to implement tobacco control policies and programs such as the smoking ban in public places, dissuasive warnings on cigarette/tobacco packages, educational campaigns in schools and development of a smoking hotline.

E-cigarettes were introduced on the Italian market in 2010. The impact of this new device on the habits of traditional tobacco cigarette smokers and in young people is under study. In Italy, in 2017, the e-cigarette users were 1.3 million; of these, 14.4% declared to have quit traditional smoking thanks to them and 25.7% to have decreased the use of tobacco cigarettes; however, 22.1% of people claimed to have started again or started for the first time smoking traditional cigarettes (5). Surveys have been conducted about the use of e-cigarettes in the Italian population (5, 6), but not in specific groups, such as medical or healthcare personnel. On the contrary, many studies have been conducted in these groups concerning the use of traditional cigarettes.

Healthcare practitioners can play a significant role in tobacco control. For this reason, healthcare students, as future practitioners, may represent a significant target for tobacco-prevention programs. As reported by different surveys (7-9), a disparity in medical and healthcare students' curricula on counseling techniques, tobacco effects and tobacco dependence management, has been observed worldwide. A large range of tobacco smoking habits, from 2% to 20%, among medical students was reported in different countries (10). A lower rate of smokers has been observed in Countries where formation curricula regarding tobacco were more substantial (9).

A study on tobacco smoking habits among nursing students, conducted at the University of Milan (Italy) in the period 2006-2008,

showed a high rate of smokers (44%) and implementation of anti-smoking measures among these students was expected (11).

The main purpose of the present study was to investigate the smoking habits among students enrolled in healthcare area courses, also in the light of new devices such as e-cigarettes, and to understand whether training in healthcare could determine smoking cessation e/o smoking avoidance.

Methods

The target population consisted in students enrolled in four different healthcare area courses at the Università degli Studi di Milano: Nursing, Healthcare assistance, Environment and workplace prevention techniques, and Imaging and radiotherapy techniques. Students belonged to the first and to the third year, which is the last before graduation. First-year students were enrolled in the first four-month period of the course. The survey was carried out during the 2017-2018 academic year.

Tobacco smoking habits information were collected through an anonymous questionnaire. The participants were asked, on a voluntary basis, to self-complete the survey during lesson time. The questionnaire included demographic (age, sex, country of origin) and professional background information (unemployed, health field or non-healthcare field employed), tobacco smoking personal history (smoker, non-smoker or former smoker), and family/friends smoking habits. Smokers were asked for the type of tobacco smoking (manufactured or hand-rolled cigarettes; waterpipe), number of cigarettes smoked per day and the age of starting smoking. Former smokers were asked for the age and the reasons of quitting smoking, and methods used for smoking cessation (electronic cigarettes, nicotine patches or chewing gums). A further section included information about use of electronic

cigarettes (e-cigarettes) with or without nicotine, and reasons for using e-cigarettes. The questionnaire has been previously tested on students enrolled in the second year of Nursing (only one section) and in the course for Environment and workplace prevention Technicians. These results were not included in the study.

The sample of students involved in the study was a convenience sample and the questionnaire was handed in to all the students attending the lessons. The number of students varied according to the course: the Nursing students were the most numerous and the Healthcare assistance students the less numerous.

Chi-square test was used to compare the frequencies in two population categories. A p-value < 0.05 was considered as statistically significant.

Results

The questionnaire was filled in by 560 students (465 Nursing, 37 Environment and workplace prevention techniques, 32

Imaging and radiotherapy techniques and 26 Healthcare assistance), namely 378 enrolled in the first year and 182 in the last year of the university courses. The response rate was 88.9%, the remaining 11.1% did not reply to the questionnaire as they were absent from the lesson during which it was distributed. All the students present at the lesson decided to fill in the questionnaire.

Socio-demographic characteristics are reported in Table 1. Students were mainly females (74.3%), the average age was 21.6 years (range 18-43 years); 90.3% were Italian citizens mainly from Northern Italian regions. Among non-Italian citizens, 39.3% came from other European countries (mainly East Europe), 37.5% from South America, 19.6% from Asia, and 3.6% from Africa. Among foreign students, 41.2% have been living in Italy for more than 16 years and only 2% for less than 5 years. Most students were unemployed (Italians, 81.4% vs foreigners, 74% p=0.0689), 13.2% worked in non-healthcare field, and 6.3% had a healthcare job.

As reported in Table 2, tobacco smoking prevalence was 34.8%, and it was significantly

Table 1 - Socio-demographic characteristics

Students characteristics	Total	Females	Males
Number	560	416 (74.3%)	144 (25.7%)
Average age, years (range)	21.6 (18-43)	21.5 (18-43)	21.7 (18-32)
Italian	505 (90.3%)	376 (74.4%)	129 (25.5%)
Average age, years (range)	21.3 (18-43)	21.23 (18-43)	21.6 (18-32)
from Northern-Central Regions	388 (83.4%)	301 (87.5%)	89 (73.5%)
from Southern Regions - Islands	75 (16.1%)	43 (12.7%)	32 (26.4%)
Foreign	55 (10%)	40 (72.7%)	15 (27.3%)
Average age	23.5 (19-40)	24 (19-40)	22.4 (19-29)
years from immigration *			
≤5	1 (2%)	1 (2.6%)	0
6 - 10	11 (21.6%)	7 (18%)	4 (33.3%)
11- 15	18 (35.3%)	14 (36%)	4 (33.3%)
≥16	21 (41.2%)	17 (43.6%)	4 (33.3%)

* data were not available from all respondents

Table 2 - Tobacco smoking habits

	Total (n=560)	Males (n=144)	Females (n=416)
Never before smokers	308 (55%)	72 (50%)	236 (56.7%)
Former smokers	57 (10.2%)	17 (11.8%)	40 (9.6%)
Smokers	195 (34.8%)	56 (38.9%)	139 (33.4%)
Average age of starting smoking (years)	16.4	16.2	16.5
Occasional smokers	73 (39.7%)	19 (35.2%)	54 (41.5%)
Daily smokers	111 (60.3%)	35 (64.8%)	76 (58.5%)
Tobacco cigarettes per day			
<5	25 (22.5%)	7 (18.4%)	18 (24.6%)
5 – 10	59 (53.1%)	22 (57.9%)	37 (50.7%)
11 - 20	23 (20.7%)	8 (21%)	15 (20.5%)
>21	4 (3.6%)	1 (2.6%)	3 (4.1%)
Type of tobacco smoking			
Manufactured cigarettes	103 (54.6%)	18 (32.7%)	85 (62%)
Hand rolled cigarettes	83 (43.2%)	32 (58.2%)	51 (37.2%)
Waterpipes	6 (3.1%)	5 (9%)	1 (0.7%)

higher in Italians compared to foreigners (183 out of 505 = 36.2% vs. 12 out of 56 = 21.4%; $p=0.02$). Prevalence by gender was comparable (38.9% in males and 33.4% in females; $p=0.234$). The average age of starting smoking was 16.4 years (range 12-26 years). Among smokers, 39.7% were occasional smokers and 60.3% (111/184) reported to smoke daily, namely 5-10 cigarettes a day (53.1%, 59/111) and 11-20 cigarettes a day (20.7%, 23/111). Only 3.6% were heavy smokers (>20 cigarettes/day). Manufactured cigarettes were more common (54.6%) compared to the roll-your-own cigarettes (43.2%) or waterpipe (3.1%). Hand rolled cigarettes were preferred by males (58.2%).

About 10% (57/560) of respondents were former smokers, with no differences by gender. Former smokers started smoking at an average age of 15.6 years (range 12-26 years) and quit at 20 years (range 12-29 years). Reasons of quitting smoking were the knowledge of damages caused by smoke (79%), health problems (33.3%) and other reasons, as no pleasure or too expensive habit (28%).

E-cigarette use was investigated in all respondents (Table 3); 24.6% (138/560) had tried e-cigarettes, 44.6% (87/195) of smokers and 38.6% (22/57) of former smokers, with the goal of quitting smoking (50.7% and 47.4%, respectively) or to try something new (48%). In addition, 9.4% of never smokers had experienced an e-cigarette at least once to try something new or because used by friends. Students, who tried e-cigarettes, used those with nicotine (35.5%) and without nicotine (64.5%). Only 3.5% had also tried other devices to quit smoking, such as nicotine patches or chewing gums.

Analyzing the relationship between smoking habits and employment status, 35.1% of unemployed students were smokers compared to 46.9% of employed ($p=0.03$). On the contrary, there is no difference between smokers employed in healthcare and non-healthcare field (51.6% vs 44.6%, $p=0.41$).

The influence of the family on the smoking habits was investigated: 201 of never smokers (65.2%, 201/308) had both non-smoking parents compared to 110

Table 3 - E-cigarette status and habits

Never tried e-cigarette	414	73.9%
Tried e-cigarette	138	24.6%
Males	57	39.6 %
Females	81	19.5%
with nicotine	49/138	35.5%
without nicotine	89/138	64.5%
Smokers + e-cigarette users	87/195	44.6%
Former smokers + e-cigarette users	22/57	38.6%
Never before smokers + e-cigarette users	29/308	9.4%

(43%, 110/252) of smokers (smokers and former smokers) ($p=0.0001$). A significant difference was also observed between smokers and non smokers with at least one smoking parent (37.3% vs 24%, $p=0.0012$) or one smoking sibling (15% vs 2.8% $p=0.0001$). In addition, 71.8% of smokers had smoking friends, compared to 57.8% of non-smokers ($p=0.0006$).

No differences in the distribution of characteristics/number of smokers and non smokers (never smokers and former smokers) among students of the first and final year were observed, except the proportion of Healthcare assistance students. Among Healthcare assistance students, the 33% of the first- year students were smokers, but no one smoked in the last year ($p=0.033$).

Discussion and Conclusions

Healthcare professionals can give an important contribution to the education of patients and, more generally, of the population on smoking-related damages. For this reason, students of healthcare university courses have been chosen as target of this study. A total of 560 students were enrolled from a single University of Northern Italy; thus, the results of this study might not be representative of the Italian student population. However, it was possible to

compare these data to those of a previous study conducted in the same University ten years ago (11).

In the present survey, 34.8% of students were tobacco smokers, showing a decrease compared to the previous study (44.2%) (11), in agreement with the decrease observed in the Italian population (5). However, the prevalence of smokers in our sample was higher than that in the same age classes of general population (23.6%) (5).

The similar frequencies of smokers between genders (38.9% males vs 33.4% females) observed in this study is in contrast with data reported by a previous study of ours (11) and by ISTAT (Istituto Nazionale di Statistica – National Statistics Institute) statistics (5), which outline higher proportions in male (27.5%) than in female (19.3%) smokers.

Few surveys report the type of cigarettes preferred by Italian smokers; the “OSSFAD –Indagine DOXA-ISS 2017” (4) reported that manufactured cigarettes are the most common type, but males are more likely to smoke rolled cigarettes. In our study we observed the same trend, with 43.2% of students choosing rolled cigarettes (58.2% of males), probably because they are cheaper than the pre-packed ones. The frequency of smokers among unemployed students was lower than that reported in our previous study (35.1% vs 44.9%) and lower than that of employed students (46.9%), without differences between healthcare and non-healthcare workers.

The influence of family and friends on smoking habits confirms what has already been observed in several Italian and international studies (4, 11-14).

E-cigarettes were introduced on the Italian market in 2010; so far, there are few studies on their use, especially among the students of healthcare university courses. We observed that smokers and former smokers were more likely to try e-cigarettes, but also never-before-smokers decided to try them (9.4%).

The risk of switching from e-cigarettes to traditional cigarettes, especially among the youngest, is well recognized (15-17). For this reason, measures to limit the use of e-cigarettes have been taken in different countries. In Italy, the sale of liquid with nicotine and of e-cigarette device to minors has been banned. In our survey, people who tried e-cigarettes preferred those without nicotine (64% vs 35.5%) and the intention to quit smoking was the main reason to use them, but a not entirely negligible percentage, especially among never smokers, claimed to desire to try something new. More than 44% of respondents were dual users of both tobacco cigarettes and e-cigarettes, although probably not daily. The risk of becoming dual users has already been observed in other studies (4, 6). In 2017, 84.3% of e-cigarette users were also traditional cigarette smokers and only 15.8% were exclusively e-cigarette users. In our study, we observed that 38.6% of former smokers tried e-cigarettes, and 52.4% (9/21) of them with the goal to quit smoking. Therefore, we can deduce that at least 19.3% (11/57) of former smokers succeeded in abandoning smoking thanks to e-cigarettes. Other studies, conducted on representative samples of the Italian population aged ≥ 15 years, reported that 10.4%-14.4% of smokers had quit smoking after e-cigarette use (4, 6).

With the intent to understand whether a scientific training path actually prompts smokers to change their habits, we have compared smoking habits between first-year and final-year students, even if they did not belong to the same cohort. This is a limitation of such comparison. Only healthcare assistance students showed a significant drop in smoking when comparing the first year and the last year students. This may most likely be a consequence of better attention to prevention and counseling in these students when compared to those of the other curricula. In Countries where a greater focus on the danger of smoking or a specific

training in smoking cessation is provided during healthcare curricula, a reduced smoking attitude was observed among students (9). Implementation of specific educational curricula on smoking dangers and on smoking cessation might have the double effect of supporting student in quitting smoking and of properly preparing them for their future task of helping people to quit smoking.

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Riassunto

Abitudini al fumo di tabacco ed alle sigarette elettroniche tra gli studenti italiani dell'area sanitaria

Introduzione. Gli operatori sanitari possono svolgere un ruolo significativo nella lotta al tabacco. Obiettivi di questo studio sono stati indagare le abitudini al fumo negli studenti universitari dell'area sanitaria, anche alla luce di nuovi strumenti come le sigarette elettroniche, e verificare se il percorso di studi possa influenzare tali abitudini.

Disegno dello studio. Studio osservazionale trasversale con l'utilizzo di un questionario auto-somministrato.

Metodi. Sono state raccolte, mediante un questionario, le abitudini al fumo di 560 studenti, del primo e ultimo anno (a.a. 2017-2018), di quattro diversi corsi dell'area sanitaria dell'Università degli Studi di Milano.

Risultati. La prevalenza dei fumatori è stata del 34,8%, simile tra maschi e femmine, e superiore negli studenti italiani rispetto a quelli stranieri. La percentuale di fumatori era più alta tra gli studenti lavoratori rispetto ai non lavoratori (46,3% vs 35,1%), senza differenze tra operatori sanitari e non sanitari. L'influenza della famiglia e degli amici si è confermata essere rilevante. Tra gli intervistati, il 24,6% aveva provato sigarette elettroniche, principalmente i fumatori (44,6%) e gli ex fumatori (38,6%), con l'obiettivo di smettere di fumare. Oltre il 44% erano utilizzatori duali sia di sigarette di tabacco sia di sigarette elettroniche. Il confronto dell'abitudine al

fumo tra gli studenti del primo anno e dell'ultimo anno ha evidenziato una significativa diminuzione dell'uso di sigarette durante gli studi universitari solamente per studenti del corso di laurea in assistenza sanitaria.

Conclusioni. Specifici programmi sui danni del fumo e sulle tecniche per smettere di fumare potrebbe avere il doppio effetto di favorire l'abbandono di tale abitudine e fornire elementi per il loro futuro ruolo nel supportare la cessazione nella popolazione.

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