

Are age and gender associated to tobacco use and knowledge among general practitioners? Results of a survey in Italy

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Abstract

Objectives. The aim of this study was to assess knowledge and opinions of Italian general practitioners about the effectiveness of smoking cessation interventions and physicians' attitudes in addressing tobacco-related issues.

Methods. The survey was carried out through a questionnaire administered to general practitioners (GPs) attending a medical refresher course. 133 Italian GPs participated in the study with a mean age of 51.4 years (SD = 6.2).

Results. The GPs had good knowledge about the predictors of smoking onset, pharmacotherapies for tobacco cessation and the clinical guidelines recommendations. Wrong answers were encountered for the prevalence of smokers in Italy, the Fagerström Test for nicotine dependence and minimal advice. Females were more subjected to higher knowledge about tobacco, and at lower risk to be a smoker/ex smoker. Furthermore, physicians ≥ 50 years old living in northern Italy had higher knowledge score.

Conclusions. Physician education on tobacco counseling is associated to increased comfort and practice in advising patients who smoke. Tobacco cessation training might increase the success rate of helping patients to quit smoking.

Key words

- smoking
- cessation
- tobacco
- counseling
- general practitioner (GP)

INTRODUCTION

Tobacco use is the single most preventable cause of death today and it is responsible each year for nearly 6 million deaths in the world [1]. Tobacco causes more deaths than alcohol, AIDS (Acquired Immune Deficiency Syndrome), drugs, car accidents, murders and suicides combined together.

In the European Union (EU) each year 650 000 people die prematurely due to smoking related illnesses, of which around half are between 35-69 years of age. According to the Eurobarometer survey (2009), 29% of Europeans smokes (35% men and 25% women), although the number of smokers is decreasing in the EU (compared to 32% in 2006). The dangers of secondhand smoke should not be underestimated, in fact, each year 19 000 European non-smokers die from exposure to secondhand smoke at home or at work [2].

In Italy, there are 11.6 million smokers among

individuals from 14 years and above (22.3%), of which 7 million men (28.4%) and 4.5 million women (16.6%). Although in the past 50 years in Italy, and in the rest of the Western world, a gradual decline in smoking has been registered, active smoking remains the leading cause of preventable morbidity and mortality: deaths attributable to tobacco smoke vary from 70 000 to 83 000 per year.

From the geographical point of view, the highest percentage of smokers are observed in the central area (24.7%), followed by the southern area/ islands (21.9%) and the northern area (21.5%) [3].

Cessation activity is relatively common among smokers but only about 3-5% of them maintain abstinence up to one year after quitting [4]. Doctors now have access to pharmacotherapies that have been shown to increase the chances of success for people making quit attempts. In some healthcare settings they can also refer patients

to more intensive behavioural counselling and support, also through telephone quitline services [5].

It has been demonstrated that physician education on tobacco counselling is associated to increased comfort and practice in advising patients who smoke. Tobacco cessation training might increase the success rate of helping patients to quit smoking. Unfortunately, the tobacco-related content in medical curricula remains limited [6].

The aim of the present study is to assess the Italian General Practitioners' (GPs) tobacco-related knowledge and views about the effectiveness of smoking cessation programs.

MATERIALS AND METHODS

Participants

One hundred and thirty three Italian GPs, attending a medical refresher course on tobacco issues in 2008, participated voluntarily in the survey. Physicians were informed and invited to by the Local Health Unit (LHU) in Sapri (province of Salerno, Italy), where the training course took place.

Questionnaire

The questionnaire is based on the Global Health Professions Students Survey (GHPSS), developed by the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC) and the Canadian Public Health Association (CPHA) in 2004 [7]. The GHPSS collects data about: tobacco use prevalence, tobacco smoke, attitudes, smoking behaviour/cessation, curriculum and demographic information.

The questionnaire used in the present study is composed of two sections: the first part investigated socio-demographic data (8 questions) and smoking habits (5 questions); the second section was about knowledge, views and intervention behaviours of GPs (22 questions). Questionnaires were administered by the authors of the present investigation at the beginning of the course, then collected and stored for data analysis.

Data analysis

Descriptive statistics, means and standard deviation (SD) were calculated for all quantitative variables, while percentages and frequencies were generated for qualitative variables.

Univariate analysis was conducted to evaluate possible associations between the three groups (smokers, ex-smokers and non smokers) with regard to socio-demographic variables and smoking habits. Chi-square test was used.

Two binary logistic regression analyses were carried out to assess the association between:

- a) the dependent variable *ever smoking* and the explanatory variables: gender, age, North-South, number of patients, years of practice, knowledge score;
- b) the dependent variable *knowledge score* and the covariates: gender, age, North-South, number of patients, years of practice, ever smoking.

The variables included in the analysis had $p < 0.25$ and the models were constructed using the backward

elimination procedure. The model's goodness of fit was evaluated using the Hosmer and Lemeshow Test [8]; the level of statistical significance was set at $p < 0.05$. For data analysis we used the statistical software SPSS 19.0 for Windows.

Finally, a reliability analysis was computed using the "Cronbach's Alpha" [9].

RESULTS

Socio-demographic characteristics

The characteristics of the sample are presented in *Figure 1*. The participants are one-hundred thirty three Italian GPs, of which 38 (28.6%) females and 95 (71.4%) males, with a mean age of 51.36 years (SD = 6.19). The doctors interviewed are prevalently non-smokers (51.9%), followed by ex-smokers (36.8%) and 11.3% smokers. The average years in practice were 20.8 years (SD = 8.1) and more than 50% of the participants had ≥ 1500 patients; most responders reside in northern Italy (39.8%) Furthermore, 96 (72%) doctors had a specialization and the most representative specialities were cardiology (8.3%), surgery (7.3%) and diseases of the respiratory system (7.2%); about 6% of responders had two specializations. The differences between groups (smokers, ex-smokers, non-smokers) for all the socio-demographic aspects were not statistically significant.

Smoking habits

Smokers affirmed to smoke on average 13 cigarettes/day (SD = 9.4); 13.3% smoked 30 cigarettes/day. The average age of smoking initiation for active smokers was 26.3 (SD = 14.2) and 18.2 years (SD = 4.2) for ex-smokers. However, the difference in age of initiation was not statistically significant ($p = 0.10$).

Among smokers, there were no significant differences between gender for the number of cigarettes smoked and the age of initiation ($p = 0.10$ and $p = 0.80$ respectively). Regarding quitting attempts, 40% of smokers made 3-5 attempts and 20% tried 1-2 times or didn't make any attempt. Only one doctor tried more than five times. The number of attempts did not differ statistically regarding to gender ($p = 0.40$), the age of smoking initiation ($p = 0.1$), the quantity smoked per day ($p = 0.20$) and specialization ($p = 0.20$). Interestingly, smokers who made more attempts were 52 years old doctors (20%).

The mean age of smoking cessation, for ex-smokers in the sample, was 38 years (SD = 9.7). Significant differences between the age of initiation and the age of smoking cessation were observed ($p = 0.03$). In fact, for the responders who started smoking before 18 years the maximum age of cessation was 56 years. Those who started after 18 years quit smoking a bit earlier, at the age of 52. Smoking cessation didn't differ significantly in regard to gender ($p = 0.23$) and specialization ($p = 0.5$).

Tobacco-related medical knowledge

Out of 133 participants, only 15 (11%) knew the Italian smoking prevalence in 2008 and 39 (29%) were aware that the most frequent motivation for quitting is the excessive cost of cigarettes. Furthermore, 48% of participants knew that the predictors of smoking onset

are various and include environmental, behavioral, socio-demographic, intrapersonal and genetic factors. In the present study, 30.8% of doctors answered correctly that the rate of success of a program providing “minimal advice” is between 1-3% versus 69.2% who gave a wrong answer. According to the latest Italian and international guidelines, the time required to give an effective “minimal advice” is 3 minutes: the right answer was given by 18.8% of physicians. About 67% of the participants don't have any idea about the Fagerström Test for Nicotine Dependence, only 33% knew it. Among those who affirmed to know the test, 27.8% gave the correct definition. In the sample, 48% of GPs answered correctly that recommendations of the clinical guidelines for smoking cessation are “very strong”.

According to the recent meta-analysis by Eisenberg *et al.* (2008) the most effective pharmacotherapy for tobacco cessation, compared to placebo, is Varenicline (Champix in Canada, Chantix in the USA) [10]. Most participants (49.6%) answered correctly, while 24.8% declared Bupropione and 11.3% didn't know the answer.

GPs opinion about effectiveness of smoking cessation programs

For the majority of the sample (74.4%), the principal barriers to the efforts of physicians in providing their patients with smoking cessation support are lack of education or experience on tobacco counseling, lack of motivation and incentives.

The probability that a patient with no particular health problems ceases smoking after counseling is low for 68% of GPs. Furthermore, the influence of adverse conditions, such as respiratory issues, on patients' decision to quit smoking spontaneously is scarce (46%). Even after a cessation program, a patient with a disease of the respiratory track has low probability to quit smoking according to 58.6% of the sample. GPs (44%) affirmed that in presence of cardiovascular disease, the patients' probability to quit smoking spontaneously is high, while the probability to quit smoking after counseling is decent. The real efficacy of smoking cessation on the evolution of Chronic Obstructive Pulmonary Disease (COPD) is high according to 39% of doctors; also in presence of vascular disease (52%).

Most responders (62.4%) affirmed that few GPs collect data systematically on smoking status of their patients, while 21.8% was of the opposite opinion. For 74% of the sample few GPs carry out interventions for smoking cessation on their young patients without any health problems; only 18% of the responders affirmed the opposite. Regarding the number of GPs who tackle smoking issues with their patients with cardiovascular and respiratory disease, the prevalent answer was *enough* (38.3%), followed by *many* (30%) and *few* (26.3%).

Physicians' communicative competence is important for patient's compliance to therapy, medical controls and smoking cessation for 52% of responders. Contrarily, it's slightly important for 6.8% of the sample. The number of patients, with health problems, who quit smoking spontaneously is < 50 and 50-100 for 80.5% and 13.5% of GPs respectively.

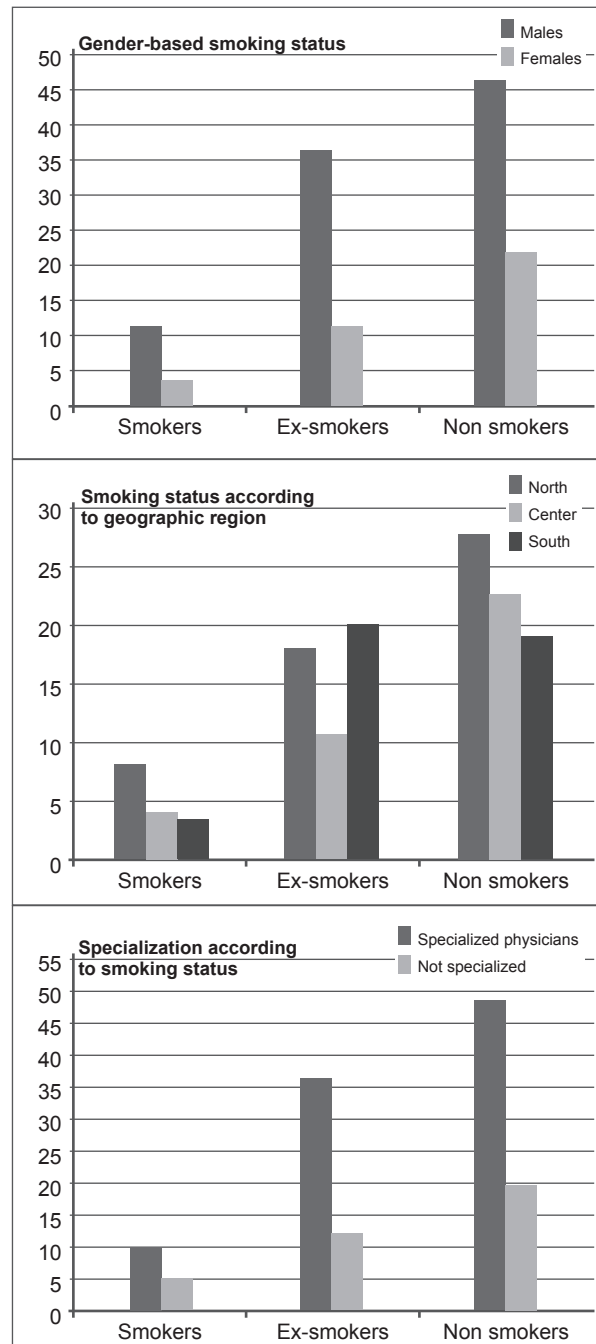


Figure 1
Socio-demographic characteristics of the responders.

Binary logistic regression analysis

Results of the two regression analyses are shown in *Table 1*. In the first analysis, ever smoking is the dependent variable and gender, age, North-South, over 1000 patients, years of practice, knowledge score are covariates. According to data, lower risk of being ever smoker is presented by: female gender (OR = 0.61; adjusted OR = 0.96), GPs with ≥ 12 years of practice (OR = 2.48; adjusted OR = 0.79) and good knowledge about smoking related issues (OR = 0.81; adjusted OR = 0.83). Consequently, male gender, GPs ≥ 50 years old, living in northern Italy, with ≥ 1000 patients have

Table 1
Results of the binary regression analyses

Covariates	Crude OR (95% CI)	Adjusted OR (95% CI)	Covariates	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender			Gender		
Male (reference)	1	1	Male (reference)	1	1
Female	0.61 (0.29-1.32)	0.96 (0.39-2.34)	Female	2.12 (0.98-4.56)	2.12 (0.98-4.56)
Age			Age		
< 50 (reference)	1	1	< 50 (reference)	1	1
≥ 50	4.34 (1.72-10.98)	4.19 (1.65-10.6)	≥ 50	1.06 (0.46-2.41)	1.18 (0.4-3.47)
Geographic area			Geographic area		
Center (reference)	1	1	Center (reference)	1	1
North	1.06 (0.53-2.13)	1.75 (0.71-4.31)	North	1.30 (0.64-2.64)	1.14 (0.46-2.79)
South	1.48 (0.71-3.08)	1.39 (0.65-3)	South	0.58 (0.26-1.25)	0.71 (0.31-1.61)
Years of practice			Years of practice		
≤ 11 (reference)	1	1	≤ 11 (reference)	1	1
≥ 12	2.48 (0.82-7.5)	0.79 (0.18-3.46)	≥ 12	1.24 (0.43-3.59)	1.51 (0.5-4.63)
Over 1000 patients			Over 1000 patients		
< 1000 patients (reference)	1	1	< 1000 patients (reference)	1	1
≥ 1000 patients	1.89 (0.70-5.09)	1.23 (0.36-3.58)	≥ 1000 patients	0.77(0.30-2.02)	0.73 (0.25-2.14)
Knowledge score			Smoking status		
Not good (reference)	1	1	Non-smokers (reference)	1	1
Good (4 correct answers)	0.81 (0.40-1.64)	0.83 (0.39-1.74)	Ever smoking (smokers and ex-smokers)	0.81 (0.40-1.64)	0.86 (0.42-1.78)
Dependent variable: ever smoking Covariates: gender, age, North-South, over 1000 patients, years of practice, knowledge score Hosmer and Lemeshow Test: p = 0.995			Dependent variable: knowledge score Covariates: gender, age, North-South, over 1000 patients, years of practice, ever smoking Hosmer and Lemeshow Test: p = 0.909		

higher risk to be a smoker/ex-smoker.

In the second binary logistic regression analysis, knowledge score is the dependent variable and gender, age, North-South, over 1000 patients, years of practice, ever smoking are covariates. Females resulted to be more subjected to higher knowledge about tobacco (crude/ adjusted OR = 2.12), compared to males as reference. In addition, physicians ≥ 50 years old, living in northern Italy and practicing for ≥ 12 years presented higher knowledge score (≥ 4 correct answers; maximum possible score = 9).

Having more than 1000 patients (OR = 0.77; adjusted OR = 0.73), being ever smoker (OR = 0.81; adjusted OR = 0.86) and living in southern Italy (OR = 0.58; adjusted OR = 0.71) seem to be associated with a lower knowledge about tobacco.

The results reported are not statistically significant, except for age when considering ever smoking as

dependent variable (p = 0.003) and gender when knowledge score is the dependent variable (p = 0.05); these results suggested the title for the present article.

The Hosmer and Lemeshow Test gave a good value for the two regression analysis, p = 0.995 and p = 0.909 respectively.

Cronbach alpha analysis

The highest value of Cronbach's alpha resulted on 15 items (alpha = 0.695).

DISCUSSION

The present study gathered useful and updated information on knowledge and opinions of Italian GPs about the effectiveness of smoking cessation interventions and physicians' attitudes in addressing tobacco-related issues.

In our sample the prevalence of smokers was 11.3%: this

percentage is lower than the ones reported by a previous study conducted among GPs, accounting for 18-30% [11]. Also, it could be of interest to make a comparison in tobacco use between GPs and other Italian healthcare personnel. Recently, a multicenter study conducted among hospital healthcare personnel reported a smoking prevalence of 44% [12]; this percentage is three times the one found in our sample. Probably this is due to the different occupational stress levels existing between hospital workers and other healthcare professionals as GPs, according to Kheiraoui *et al.* [13].

In line with the study carried out by De Col *et al.* 2010 [11], the majority of smokers are men and the mean age of GPs smokers is higher than non smokers; in particular, in our study doctors aged ≥ 50 years may increase the risk of being smokers more than four-fold as reported in *Table 1* (OR = 4.34; adjusted OR = 4.19).

Additionally, as showed in *Table 1*, results of the regression analysis underlined that women are more subject to higher knowledge about tobacco related issues (crude/adjusted OR = 2.12). This finding is confirmed in literature, reporting that females experience higher mean scores on the tobacco knowledge test [14].

The present study focused on medical doctors who represent the first point of contact between patients and the healthcare system and have a very high number of daily visits with their patients. For these reasons GPs appear to be in a privileged position to give anti-smoking counseling, thus they have a key role in the smoking cessation process. Nevertheless, our sample of GPs doesn't have a high level of knowledge about tobacco.

According to the Italian clinical practice guidelines for cessation, released in 2002 by the National Institute of Health (ISS), physicians should provide strong and clear advice to quit to any smoker at each visit [15]. Unfortunately, the available data report that the guidelines are not being followed as recommended. The first Italian study to examine provider-delivered advice to quit smoking in Italy found that only 22% of smokers reported that they received advice to quit smoking from their physician in the previous year [16].

In order to motivate increased smoking cessation interventions of GPs in Europe and to highlight long term health benefits and economic growth resulting from increased smoking cessation interventions, the European Commission funded the project "General Practitioners and the economics of smoking cessation in Europe (PESCE)" during the 2006-2008 period. Based on the results of a literature search and cost benefit projections, the Project partners (researchers, experts and policy

makers from 27 countries) developed 15 evidence-based policy recommendations and practice oriented implementation strategies to increase GPs engagement in smoking cessation interventions. The partners concluded that "GPs' role and activities must be integrated into the cultural environment, the legislative framework, and the different health systems according to the available financial resources of each country" [17].

In this context, our study contributes to add important knowledge on this issue, suggesting that efforts should be focused towards the benefits of smoking cessation counseling by GPs. Also, there is an urgent need for designing educational interventions to improve the level of knowledge among these professionals.

Some potential limitations of our study should be mentioned, they are mainly related to the study design. Regarding the prevalence of smokers, since smoking status was self-reported, our results could suffer from under-reporting and recall bias. In Italy, underreporting of smoking has been quantified as between 25 and 35% [18]. Also, the experimental design does not consider all possible confounding variables that could influence the results, though the structure of the questionnaire refers to surveys carried out internationally.

CONCLUSIONS

Physician education on tobacco counseling is associated to increased comfort and practice in advising patients who smoke. Tobacco cessation training might increase the success rate of helping patients to quit smoking. Unfortunately, the tobacco-related content in medical curricula remains limited. The principal barriers to the efforts of physicians in providing their patients with smoking cessation support are lack of education or experience on tobacco counseling, lack of motivation and incentives. To tackle the tobacco epidemic, smoking cessation and prevention strategies should be included in medical curriculum. Moreover, cooperation and coordination between different professionals and health institutions should be strengthened.

Conflict of interest statement

There are no potential conflicts of interest or any financial or personal relationships with other people or organizations that could inappropriately bias conduct and findings of this study.

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