Smoking behaviour among nursing students: attitudes toward smoking cessation

S. PROVENZANO1, O.E. SANTANGELO1, D. GRIGIS2, D. GIORDANO1, A. FIRENZE1
1 Department of Health Promotion, Maternal-Infant, Internal Medicine and Medical Specialties “G. D’Alessandro”, University of Palermo, Italy; 2 University of Bergamo, Italy

Introduction. The purpose of the study was to assess tobacco smoking habits among nursing students and how these are influenced by family members and cohabitants.

Methods. Cross-sectional study. An anonymous paper questionnaire was administered to nursing students of the three-year course of the University of Palermo. Adjusted Odds Ratio (aOR) are presented.

Results. 301 nursing students (63.12 % female) completed the questionnaire (response rate 61.17%). The average age of the sample is 21.88 years (SD ± 2.80). Considering as a dependent variable: “I currently smoke”, the statistically significant independent variables associated are: “Male gender” (aOR 2.09), “Single” (aOR 2.06), “Second year of study of the degree course in nursing” (aOR 0.46), “Third year of study of the degree course in nursing” (aOR 0.43), “Don’t think that warnings and pictures on cigarette packs can help stop smoking” (aOR 6.38), “Mother smoked in the past” (aOR 2.25) and “Brother or sister smoked in the past” (aOR 5.50).

Conclusions. Students and graduate nurses need to be aware of current knowledge in the smoking cessation field and they have an influential role in modifying patient behavior in order to assist them to smoking cessation.

Original article

Summary

Introduction

Nurses constitute the largest occupational group among health professionals and are employed in variety of settings such as schools, colleges, community and mental health settings, and others. As shown by systematic reviews [1] the behaviors of nurses influence public perception of the profession, are a powerful vehicle for promoting health, and have been used to influence public health in the worldwide. When nurses engage in behaviors that are contradictory to health, they put the profession in a negative light. Nursing leadership has been aware of the negative image of the nurse as smoker for decades. They are a potentially powerful resource for influencing the society smoking patterns and could play a key role in smoking cessation [2]. Recently published studies confirmed that smoking rates among nurses and nurse students are relatively high worldwide [3]. One of the main motivational reasons to become a health care worker is to assist people in achieving their full health potential, on the contrary, smoking is the most hazardous and avoidable health risk in our society. Tobacco smoking is a serious public health problem worldwide that the leading preventable causes of morbidity and mortality, leading to the death of more than 7 million people each year. More than 6 million of those deaths are the result of direct tobacco use while around 890,000 are the result of non-smokers being exposed to second-hand smoke [4]. Tobacco smoking, inclusive of secondhand smoke, is a leading risk factor attributable to 6% of global disability-adjusted life years [5]. As healthcare costs continue to rise, much more attention is being focused on unhealthy behaviors that contribute to the increasing expenses. An estimated that more of 960 million smokers are living in 187 countries of world and this number is expected to increase with the growing population and worsening tobacco epidemic in developing countries [6]. Around 80% of the world’s 1.1 billion smokers live in low- and middle-income countries [4]. In Italy, the Ministry of Health provides free smoking cessation information and support through various websites and telephone services [7]. Furthermore, many healthcare organizations have designed and implemented smoking cessation initiatives at local and regional levels, such as territorial services for the cessation of tobacco smoke (Centri Antifumo - CAFs, in the Italian language). The Smoking, Alcohol and Drug Observatory of the Istituto Superiore di Sanità every year update the census of the CAFs active at the National Health Service, at the Italian League for the Fight against Cancer and at the private social sector. In 2017, 366 CAFs are active, of this 307 at the National Health Service, 56 at the Italian League for the Fight against Cancer and 3 at the private social sector [8]. The World Health Organization (WHO) developed the Global Health Professions Student Survey (GHPSS) to collect data on tobacco use among health professional students in all WHO member states. According to study GHPSS, prevalence of smoking was highest in eastern Mediterranean (10-23%) and European countries (7-13%). 41.5% of third year nursing students are current...
The aim of the study was to assess tobacco-smoking habits among nursing students and how these are influenced by family members and cohabitants. A further objective was to investigate about the power of tobacco package health warning messages to implement the attitudes for smoking cessation.

Methods

The study employed a cross-sectional study design. In May 2018, an anonymous paper questionnaire was administered to nursing students attending the 3 year full-time course at the University of Palermo, Italy, in the academic years 2015/2016, 2016/2017 and 2017/2018, after giving informed consent. Data collection was self-completed, anonymously and voluntarily. The students were not coerced in any way into participating, and it was clearly explained that participating in the survey would not have any repercussions. The questionnaire was created by the authors for this study and consists in two sections. The first section of the survey consists of 18 questions and asked for personal data, information on the course of study undertaken, on the perception of the economic and health status and on voluputary habits. In the second part of the questionnaire, the Fagerström Tolerance Questionnaire (FTQ) [14] test was administered, this questionnaire was used in similar studies [15-19]. The FTQ consists in 6 questions with answers to which are assigned a score ranging. Based on the score the subjects are assigned to one of the following categories: 0-2 low dependence, 3-5 medium dependence, 6-7 high dependence, 8-10 very high dependence. The FTQ consists in 6 questions with answers to which are assigned a score ranging (Tab. I).

The FTQ has a scoring range of 0-10 points, with a score of 0 assumed indicative of minimum nicotine dependence and a score of 10 indicative of maximum nicotine dependence. Based on the score the subjects are assigned to one of the following categories: 0-2 low dependence, 3-5 medium dependence, 6-7 high dependence, 8-10 very high dependence. The FTQ correlates with nicotine dependence but connection between FTQ scores and withdrawal symptoms is weak [14].

The 18 questions asked in the survey and the categorization of the results of the Fagerström test are shown in Table I. The variable “age” was dichotomized in “Age class ≥ 22 years old and < 22 years old” considering that the mean age was 23.41 years old. For the statistical analysis, continuous variables were expressed as means and standard deviations (SD). For all qualitative variables absolute and relative frequencies have been calculated; categorical variables were analyzed by Pearson’s Chi-square test ($\chi^2$). A multivariable logistic regression model was used. Adjusted Odds Ratio (aOR) are presented, each independent variable is adjusted for all the other independent variables. The Statistical significance was established with p-value less than 0.05. Returned completed questionnaires were coded numerically, and the results were analyzed using the STATA statistical software version 14 [19]. Results are expressed as adjusted Odds Ratio (aOR) with 95% Confidence Intervals.

### Tab. I. Fagerström Tolerance Questionnaire. The final score is obtained from the sum of the individual scores of each question.

| How soon after waking do you smoke your first cigarette? | Within 5 minutes | 3 points |
|----------------------------------------------------------|-----------------|---------|
| 5-30 minutes                                              | 2 points        |
| 31-60 minutes                                            | 1 point         |
| > 60 minutes                                              | 0 points        |
| Do you find it difficult to refrain from smoking in places where it is forbidden? | Yes | 1 point |
| No                                                       | 0 points        |
| Which cigarette would you hate to give up?               | The first in the morning | 1 point |
| Any other                                                | 0 points        |
| How many cigarettes a day you smoke?                     | 10 or less      | 0 points |
| 11-20                                                    | 1 point         |
| 21-30                                                    | 2 points        |
| 31 or more                                               | 3 points        |
| Do you smoke more frequently in the morning?             | Yes | 1 point |
| No                                                       | 0 points        |
| Do you smoke even if you are sick in bed most of the day? | Yes | 1 point |
| No                                                       | 0 points        |
(95% CI). Ethical approval was not required because the data were provided and analyzed in anonymous and aggregated form.

Results

Table II shows descriptive analysis of the sample. 301 nursing students agreed to the informed consent and completed the questionnaire (response rate of 61.17%). The average age of the sample is 21.88 years (SD ± 2.80), 63.12% of the interviewees are female, 100.00% were born in Italy, 45.51% are single, 41.20% were in-site students, 79.73% report a low perceived economic status, 80.07% report a medium-high perceived health status. Regarding the smoking behavior: 32.89% currently smoke and only 35.05% of the whole sample think that warnings or pictures on cigarette packs can help to smoking cessation. The 63.12% of the sample live with their families and 59.46% currently live with smokers. At Fagerström test, the 67.68% of smokers have low dependence for nicotine, 25.25% have a medium dependence, 3.03% have a high dependence and 4.04% have a very high dependence.

Table II: Description of the sample (N = 301).

| Variables | N (%) |
|-----------|-------|
| Age class |       |
| ≥ 22 years old | 146 (48.50) |
| < 22 years old | 155 (51.50) |
| Gender |       |
| Female | 190 (63.12) |
| Male | 111 (36.88) |
| Country of birth |       |
| Italy | 301 (100.00) |
| Other | 0 (0.00) |
| Perceived economic status |       |
| Medium-high | 61 (20.27) |
| Low | 240 (79.73) |
| Perceived health status |       |
| Medium-high | 241 (80.07) |
| Low | 60 (19.93) |
| Are you engaged or single? |       |
| Engaged | 164 (54.49) |
| Single | 137 (45.51) |
| Year of study |       |
| First | 89 (29.57) |
| Second | 98 (32.56) |
| Third | 114 (37.87) |
| Are you in-site, commuter or off-site student? |       |
| In-site | 124 (41.20) |
| Commuter | 65 (21.59) |
| Off-site | 112 (37.21) |
| Who are you living with now? |       |
| With my family | 190 (63.12) |
| Not with my family | 111 (36.88) |
| Do you currently smoke? |       |
| No | 202 (67.11) |
| Yes | 99 (32.89) |
| Warnings and pictures on cigarette packs can help stop smoking? |       |
| Yes | 102 (35.05) |
| No | 189 (64.95) |
| Do you currently live with smokers? |       |
| No | 120 (40.54) |
| Yes | 176 (59.46) |
| Does your father currently smoke? |       |
| No | 209 (69.44) |
| Yes | 92 (30.56) |
| Does your mother currently smoke? |       |
| No | 242 (80.40) |
| Yes | 59 (19.60) |
| Does your brother/sister currently smoke? |       |
| No | 253 (84.05) |
| Yes | 48 (15.95) |
| Does your father smoked in the past? |       |
| No | 178 (59.14) |
| Yes | 123 (40.86) |
| Does your mother smoked in the past? |       |
| No | 235 (78.07) |
| Yes | 66 (21.93) |
| Does your brother/sister smoked in the past? |       |
| No | 268 (89.04) |
| Yes | 33 (10.96) |
| Fagerström Tolerance Questionnaire (FTQ) |       |
| Low dependence | 67 (67.68) |
| Medium dependence | 25 (25.25) |
| High dependence | 3 (3.05) |
| Very high dependence | 4 (4.04) |

Age: 21.88 (SD ± 2.80)*

*: mean Standard Deviation.
Table III shows the bivariate analysis. Only statistically significant results are reported in this section. 45.05% of male nursing students currently smoke compared to 25.79% of female students. 41.61% of students that are single currently smoke compared to 25.61% that are engaged in a relationship. To the question: “Warnings

| Tab. III. Bivariate associations between the students currently smoke or not and the variables of the questionnaire. Used Pearson’s Chi-square test. Statistically significant results are highlighted in bold. |
|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Do you currently smoke?          | No                               | Yes                             | Total                            | P-value                          |
|                                   | N  | %   |      | N  | %   |      | N  | %   |
| Age class                         |    |      |      |    |      |      |    |      |
| < 22 years old                    | 108| 69.68| 47  | 30.32| 155 | 0.329|
| ≥ 22 years old                    | 94 | 64.38| 52  | 35.62| 146 |         |
| Gender                            |    |      |      |    |      |      |    |      |
| Female                            | 141| 74.21| 49  | 25.79| 190 | 0.001|
| Male                              | 61 | 54.95| 50  | 45.05| 111 |         |
| Perceived economic status         |    |      |      |    |      |      |    |      |
| Medium-high                       | 37 | 60.66| 24  | 39.34| 61  | 0.230|
| Low                               | 165| 68.75| 75  | 31.25| 240 |         |
| Perceived health status           |    |      |      |    |      |      |    |      |
| Medium-high                       | 165| 68.46| 76  | 31.54| 241 | 0.316|
| Low                               | 37 | 61.67| 23  | 38.33| 60  |         |
| Are you engaged or single?        |    |      |      |    |      |      |    |      |
| Engaged                           | 122| 74.39| 42  | 25.61| 164 | 0.003|
| Single                            | 80 | 58.39| 57  | 41.61| 137 |         |
| Year of study                     |    |      |      |    |      |      |    |      |
| First                             | 53 | 59.55| 36  | 40.45| 89  | 0.094|
| Second                            | 73 | 74.49| 25  | 25.51| 98  |         |
| Third                             | 76 | 66.67| 38  | 33.33| 114 |         |
| Are you a in-site, commuter or off-site student? |    |      |      |    |      |      |    |      |
| In-site                           | 84 | 67.74| 40  | 32.26| 124 | 0.663|
| Commuter                          | 46 | 70.77| 19  | 29.23| 65  |         |
| Off-site                          | 72 | 64.29| 40  | 35.71| 112 |         |
| Who are you living with now?      |    |      |      |    |      |      |    |      |
| With my family                    | 154| 70.53| 56  | 29.47| 190 | 0.099|
| Not with my family                | 68 | 61.26| 43  | 38.74| 111 |         |
| Warnings and pictures on cigarette packs can help stop smoking? |    |      |      |    |      |      |    |      |
| Yes                               | 89 | 87.25| 13  | 12.75| 102 | < 0.001|
| No                                | 104| 55.03| 85  | 44.97| 189 |         |
| Do you currently live with smokers? |    |      |      |    |      |      |    |      |
| No                                | 83 | 69.17| 37  | 30.83| 120 | 0.558|
| Yes                               | 116| 65.91| 60  | 34.09| 176 |         |
| Does your father currently smoke? |    |      |      |    |      |      |    |      |
| No                                | 139| 66.51| 70  | 33.49| 209 | 0.737|
| Yes                               | 63 | 68.48| 29  | 31.52| 92  |         |
| Does your mother currently smoke? |    |      |      |    |      |      |    |      |
| No                                | 168| 69.42| 74  | 30.58| 242 | 0.084|
| Yes                               | 34 | 57.63| 25  | 42.37| 59  |         |
| Does your brother/sister currently smoke? |    |      |      |    |      |      |    |      |
| No                                | 176| 69.57| 77  | 30.43| 253 | 0.037|
| Yes                               | 26 | 54.17| 22  | 45.83| 48  |         |
| Does your father smoked in the past? |    |      |      |    |      |      |    |      |
| No                                | 123| 69.10| 55  | 30.90| 178 | 0.376|
| Yes                               | 79 | 64.23| 44  | 35.77| 123 |         |
| Does your mother smoked in the past? |    |      |      |    |      |      |    |      |
| No                                | 169| 71.91| 66  | 28.09| 255 | 0.001|
| Yes                               | 33 | 50.00| 33  | 50.00| 66  |         |
| Does your brother/sister smoked in the past? |    |      |      |    |      |      |    |      |
| No                                | 190| 70.90| 78  | 29.10| 268 | < 0.001|
| Yes                               | 12 | 36.36| 21  | 63.64| 33  |         |
and pictures on cigarette packs can help stop smoking?” 44.97% of smokers think that warnings or pictures on cigarette packs cannot help to smoking cessation compared to 12.75% of smokers that think the opposite. Furthermore, 45.83% of smoker have a brother or sister that currently smoke compared to 30.43% of smoker that have a brother or sister non-smokers. 50.00% of smokers have a mother smoked in the past respect to 28.09% of smokers who have a mother that has never smoked. Finally, 63.64% of smokers have a brother or sister that smoked in the past compared to 29.10% of smokers who have a brother or sister that have never smoked.

Table IV shows the adjusted Odds Ratio (aOR), considering as a dependent variable: “I currently smoke”, the statistically significant independent variables associated are: “Male gender” (aOR 2.09, 95% CI 1.13-3.87, p = 0.018), “Single” (aOR 2.06, 95% CI 1.14-3.73, p = 0.016), “Second year of study of the degree course in nursing” (aOR 0.46, 95% CI 0.21-0.99, p = 0.048), “Third year of study of the degree course in nursing” (aOR 0.43, 95% CI 0.18-0.99, p = 0.049), “Don’t think that warnings and pictures on cigarette packs can help stop smoking” (aOR 6.38, 95% CI 2.99-13.61, p < 0.001), “Mother smoked in the past” (aOR 2.25, 95% CI 1.12-4.59, p = 0.023) and “Brother or sister smoked in the past” (aOR 5.50, 95% CI 2.09-14.50, p = 0.001).

**Discussion**

It is crucial, especially among youth, the quality of information, the modes of communication, the development of critical skills towards a participatory and non-imposed choice of lifestyles and healthy behaviors. Young university students represent a unique population on which the interest of public health researchers and policy is focused to promote healthy lifestyles, well-being and increase the level of knowledge. Young people utilize a diverse variety of resources to acquire health

---

**Tab. IV.** Multivariable logistic regression. Adjusted Odds Ratio (aOR) are presented. Each independent variable is adjusted for all the other independent variables. Based on 289 observations. Statistically significant results are highlighted in bold.

| I currently smoke | aOR (95% CI) | P-value |
|-------------------|-------------|---------|
| Age class         |             |         |
| ≥ 22 years old    | 1           | 0.169   |
| < 22 years old    | 1.68 (0.80-3.51) |         |
| Gender            |             |         |
| Female            | 1           |         |
| Male              | 2.09 (1.13-3.87) | 0.018   |
| Perceived economic status |       |         |
| Medium-high       | 1           | 0.906   |
| Low               | 1.04 (0.51-2.13) |         |
| Perceived health status |       |         |
| Medium-high       | 1           | 0.971   |
| Low               | 1.01 (0.50-2.05) |         |
| Are you engaged or single? |   |         |
| Engaged           | 1           | 0.016   |
| Single            | 2.06 (1.14-3.73) |         |
| Year of study     |             |         |
| First             | 1           |         |
| Second            | 0.46 (0.21-0.99) | 0.048   |
| Third             | 0.43 (0.18-0.99) | 0.049   |
| Are you in-site, commuter or off-site student? | |         |
| In-site           | 1           |         |
| Commuter          | 0.69 (0.31-1.52) | 0.360   |
| Off-site          | 0.84 (0.29-2.47) | 0.757   |
| Who are you living with now? |   |         |
| With my family    | 1           | 0.362   |
| Not with my family| 1.65 (0.56-4.88) |         |
| Warnings and pictures on cigarette packs can help stop smoking? | |         |
| Yes               | 1           | < 0.001 |
| No                | 6.38 (2.99-13.61) |         |
| Do you currently live with smokers? | |         |
| No                | 1           | 0.838   |
| Yes               | 0.93 (0.47-1.85) |         |
| Does your father currently smoke? | |         |
| No                | 1           | 0.546   |
| Yes               | 0.81 (0.40-1.638) |         |
| Does your mother currently smoke? | |         |
| No                | 1           | 0.380   |
| Yes               | 1.42 (0.65-3.08) |         |
| Does your brother/sister currently smoke? | |         |
| No                | 1           | 0.804   |
| Yes               | 1.11 (0.47-2.61) |         |
| Does your father smoked in the past? | |         |
| No                | 1           | 0.678   |
| Yes               | 1.14 (0.62-2.09) |         |
| Does your mother smoked in the past? | |         |
| No                | 1           | 0.023   |
| Yes               | 2.25 (1.12-4.59) |         |
| Does your brother/sister smoked in the past? | |         |
| No                | 1           | 0.001   |
| Yes               | 5.50 (2.09-14.50) |         |
information, including Internet, television, family doctor, books, magazines, friends and family. Tobacco smoking is one of the most serious public health problems in the world. According to the WHO in the European region, people who die each year from smoking-related illnesses are 1.6 million, but in the absence of drastic control measures the figures are set to rise further [4]. This means, that Tobacco smoking is compared to a chronic disease manifesting its damage over a long period, given the latency between the beginning of habit and the onset of the disease caused.

This paper reports on a descriptive survey research design that examined nursing students’ behaviour, knowledge and attitudes towards tobacco cessation among nursing students attending the 3 year full-time course at the University of Palermo. In comparison to recent nursing students based studies, smoking prevalence in our sample was similar to other European population of healthcare students (45.05% and 25.79% of male and female nursing students are a smoker) [20]. Smokers compared to non-smokers believe that the damage caused by smoking is not immediate, moving the onset of both moderately severe and very serious diseases later, delaying their onset; this perception, which does not correspond to reality, called “Onset time delaying effect”, highlights a lack of understanding of the negative consequences that smoking has on people’s health and how quickly they can occur. The “Onset time delaying effect” has been defined as a new risk factor implicated both in the development of tobacco addiction and in the maintenance of such behavior, in fact it seems to be a possible risk factor in the development and maintenance of tobacco addiction [21].

WHO/Europe’s new evidence brief reviews the effects of large pictorial warnings on the packaging of tobacco products on knowledge and behaviour. Studies have shown that combined written and graphic health messages on the packaging of tobacco products are more effective than text-only warnings for increase attempts to quit and decrease smoking uptake [22]. For example, in a survey conducted in Canada in 2001-2003, 44% of smokers reported that pictorial health warnings had increased their motivation to quit [23]. In Romania, combined text and pictorial warnings prompted 31% of smokers to try to quit [24]. In the United Kingdom, the Department of Health has estimated that the introduction of larger text-warnings prompted an additional 2,000-4,000 calls to the toll-free number for the National Health Service smoking helpline, which was provided on tobacco packaging before the introduction of pictorial health warnings [25]. However, in our study 44.97% of smokers affirm that warnings and images on cigarette packs cannot help stop smoking and they have a greater risk of thinking that cigarette package health warnings do not help to smoke cessation (aOR 6.38, 95% CI 2.99-13.61, p < 0.001). The influence of family and friends on attitudes of the young to smoking it has been widely demonstrated in the literature [26] especially in the evolutionary age. As shown in Table IV, our sample is strongly influenced by family members who smoke. The risk of becoming a smoker is higher among those with a mother that smoked (aOR 2.25, 95% CI 1.12-4.59, p = 0.023) and a brother or sister that smoked in the past (aOR 5.50, 95% CI 2.09-14.50, p = 0.001). To underline the greater awareness acquired with university studies about the damages caused by smoking, it is possible to see that with the increase in the years of study there is a lowering of the risk of smoking. Second (aOR 0.46, 95% CI 0.21-0.99, p = 0.048) and third (aOR 0.43, 95% CI 0.18-0.99, p = 0.049) year of study of the degree course in nursing belong to lower reference classes to the risk of smoking compared to first year of study. The study has some limits therefore please consider that the findings represented here in should be interpreted with a degree of caution. First, it is a cross-sectional study, several independent variables could not be evaluated for the cause and effect associations. Second, the questionnaire included only a limited number of questions and probably some factors that could be associated with smoking behavior, attitudes toward cessation and nicotine dependence were not taken into consideration. Moreover, being addressed to students of a single University campus, it does not allow to generalize the results to other Universities despite number of the sample being relevant compared to number of students of the three years of the degree course in nursing.

Conclusions

Although tobacco use has declined markedly since 2000, according to a new WHO report, the reduction is insufficient to meet globally agreed targets aimed at protecting people from death and suffering from cardiovascular and other non-communicable diseases [27]. Tobacco kills over 7 million people each year, despite the steady reduction in tobacco use globally, as shown in WHO’s new Global Report on Trends in the Prevalence of Tobacco Smoking 2000-2025 [28]. Health professionals’ smoking habit may deter them from helping their patients, therefore cessation training for student health professionals may be a significant contribution towards tobacco use control. All of this could potentially have an impact on future professional practice by helping patients who smoke quit by either interviewing, simple advice or referrals to cessation clinics [29]. Our results show significant gender-related differences in smoking habits increased by having family members who smoke. Our study results show relatively high smoking prevalence among nurse students who attending the University of Palermo. Our results show significant gender-related differences regarding smoking habits and strong influence by family members and cohabitants, furthermore it is shown that for smokers the warnings and images on cigarette packets do not help to stop smoking (aOR 6.38, 95% CI 2.99-13.61, p < 0.001). So far, unfortunately,
little public attention was paid to these potential and future health promoters. As a reaction to this situation, it is essential that programs and preventive interventions be increased also using new forms of communications. In this context, growth in health literacy should be the way to increase health and comprehension the risk for tobacco smoking as demonstrated in international studies. As reported by Sreedharan et al., nurses have a positive attitude in providing tobacco cessation care to their patients and they can utilize their unique knowledge and know-how to promote tobacco cessation and prevent the spread of this public health crisis [30]. The information and training campaigns aimed at promoting the correct lifestyles and risks linked to wrong habits are important for educating in order to reduce the costs of public health. Students and graduate nurses have an influential role in modifying patient behavior in order to assist them in smoking cessation. Students need to be aware of current knowledge in the smoking cessation field and students who smoke should know how to access the resources to assist them in smoking cessation. Data from literature emphasize the importance of educational interventions and the efficacy of current smoking cessation methods and practices with a view to helping hospitalized patients to cease smoking. Nurses are clearly in a privileged position to assist hospitalized patients in establishing and implementing a personal plan to help them quit smoking [31].

Acknowledgements

All students who answered the survey. Funding sources: this research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Conflict of interest statement

None declared.

Authors’ contributions

AF, SP, OES and DG conceived, designed, coordinated and supervised the research project. AF, SP, OES and DG collected samples. AF, SP, OES performed the data quality control, optimized the informatics database, performed the statistical analyses and evaluated the results. AF, SP, OES and DG wrote the manuscript. All Authors revised the manuscript and gave their contribution to improve the paper. All authors read and approved the final manuscript.

References

[1] Sarna L, Bialous SA. A review of images of nurses and smoking on the World Wide Web. Nurs Outlook 2012;60(Suppl 5):S36-46. doi: 10.1016/j.outlook.2012.06.007.

[2] Geller AC, Brooks DR, Woodring B, Oppenheimer S, McCa-be M, Rogers J, Timm A, Resnick EA, Winickoff JP. Smoking cessation counseling for parents during child hospitalization: a national survey of pediatric nurses. Public Health Nurs 2011;28:475-84. doi: 10.1111/j.1525-1446.2011.00954.x.

[3] Berndt NC, Bolman C, de Vries H, Segaar D, van Boven I, Lechner L. Smoking cessation treatment practices: recommendations for improved adoption on cardiology wards. J Cardiovasc Nurs 2013;28:35-47. doi: 10.1097/JCN.0b013e318231424.

[4] World Health Organization. Tobacco. Available at: www.who.int/mediacentre/factsheets/fs339/en/ (accessed 2018, July 7).

[5] GBD 2015 DALYs and HALE Collaborators. Global, regional, and national disability-adjusted life-years (DALYs) for 315 diseases and injuries and healthy life expectancy (HALE), 1990-2015: a systematic analysis for the Global Burden of Disease Study 2015. Lancet 2016;388:1603-58. doi: 10.1016/S0140-6736(16)31460-X.

[6] Ng M, Freeman MK, Fleming TD, Robinson M, Dwyer-Lindgren L, Thomson B, Wollum A, Samman E, Wulf S, Lopez AD, Murray CJ, Gakidou E. Smoking prevalence and cigarette consumption in 187 countries, 1980-2012. JAMA 2014;311:183-92. doi: 10.1001/jama.2013.284692.

[7] Ministero della Salute. Come smettere di fumare. Available at: www.salute.gov.it/portale/temi/p2_6.jsp?id=46&area=stili Vita&menu=fumo (accessed 2018, July 7).

[8] Istituto Superiore di Santità. Osservatorio Fumo, Alcool e Droga. Elenco Centri AntifumoAggiornamento maggio 2017. Consulta l’elenco dei Centri Antifumo attivi presso il Servizio Sanitario Nazionale (SSN) e la Lega Italiana per la Lotta contro i Tumori (LILT). Available at: http://old.iss.it/binary/fumo4/cont/guida_caf_30_maggio_2017_rev2.pdf (accessed 2018, July 7).

[9] Sreeramareddy CT, Ramakrishnareddy N, Rahman M, Mir IA. Prevalence of tobacco use and perceptions of student health professionals about cessation training: results from Global Health Professions Students Survey. BMJ Open 2018;8:e017477. doi: 10.1136/bmjopen-2017-017477.

[10] World Health Organization. WHO Framework Convention on Tobacco Control. Geneva: World Health Organization 2014.

[11] Doxa: abitudine al fumo in Italia. Indagine Demoscopica effettuata per conto dell’Istituto Superiore di Sanità in collaborazione con l’Istituto di Ricerche Farmacologiche Mario Negri. Available at: www.doxa.it/fumo-in-italia-2017 (accessed 2018, July 7).

[12] Canadian Cancer Society. Cigarette package health warnings. 2016. Available at: www.tobaccoclouds.ca/wp-content/uploads/2016/11/Cigarette-Package-Health-Warnings-International-Status-Report-English-CCS-Oct-2016.pdf (accessed 2018, July 7).

[13] Legislative Decree 12th January 2016 no.6. Recepimento della direttiva 2014/40/UE sul ravvicinamento delle disposizioni legislative, regolamentari e amministrative degli Stati membri relative alla lavorazione, alla presentazione e alla vendita dei prodotti del tabacco e dei prodotti correlati e che abroga la direttiva 2001/37/CE. GU Serie Generale n.13; 2016. Available at: www.gazzettaufficiale.it/eli/id/2016/01/18/16G00009/sg.

[14] Fagerstrom KO, Schneider NG. Measuring nicotine dependence: a review of the Fagerstrom Tolerance Questionnaire. J Behav Med 1989;12:159-82.

[15] Yigitpal G. Factors Affecting smoking status of nursing students and their addiction levels. Turk Thorac J 2015;16:121-7. doi: 10.5152/ttd.2015.4357.

[16] Petrelli F, Scuri S, Tazzoli A. The impact of smoking on performance among vocational school students in Beijing, China. Respir Med 2018;135:8-11. doi: 10.1016/j.rmed.2017.12.008.
[18] Pardavila-Belio MI, Ruiz-Canela M, Canga-Armayor N. Predictors of smoking cessation among college students in a pragmatic randomized controlled trial. Prev Sci 2019;20:765-75. doi: 10.1007/s11121-019-01004-6.

[19] StataCorp. Stata Statistical Software. Release 14. College Station, TX: StataCorp LP 2015.

[20] Vitzthum K, Koch F, Gronenberg DA, Kusma B, Mache S, Marx P, Hartmann T, Pankow W. Smoking behaviour and attitudes among German nursing students. Nurse Educ Pract 2013;13:407-12. doi: 10.1016/j.nepr.2012.12.002.

[21] Pancani L, Rusconi P. The onset time delaying effect: smokers vs non-smokers place the adverse consequences of smoking further in the future. J Cogn Psychol 2018;30:3, 257-69. doi: 10.1080/20445911.2017.1415346.

[22] World Health Organization. Pictorial health warnings on tobacco products. Available at: www.euro.who.int/en/about-us/partners/news/news/2015/05/pictorial-health-warnings-on-tobacco-products (accessed 2018, July 7).

[23] Environics Research Group Limited. Evaluation of new warnings on cigarette packages. Focus Canada 2001-3. Ottawa: Canadian Cancer Society 2001 (www.cancer.ca/~/media/cancer.ca/CW/get%20involved/take%20action/Environicsstudy-on-cigarette-warning-labels_2002.pdf).

[24] Tobacco control in practice. Article 11: packaging and labeling of tobacco products. Case studies of implementation of the WHO Framework Convention on Tobacco Control in the WHO European Region. Copenhagen: WHO Regional Office for Europe 2013 (www.euro.who.int/__data/assets/pdf_8_file/0004/185584/Tobacco-Controlin-Practice-Article-11.pdf?ua=1).

[25] Hammond D, Fong GT, Borland R, Cummings KM, McNeill A, Driezen P. Text and graphic warnings on cigarette packages: findings from the international tobacco control four country study. Am J Prev Med 2007;32:202-9. doi: 10.1016/j.amepre.2006.11.011.

[26] McGee CE, Trigwell J, Fairclough SJ, Murphy RC, Porcello L, Ussher M, Foweather L. Influence of family and friend smoking on intentions to smoke and smoking-related attitudes and refusal self-efficacy among 9-10 year old children from deprived neighbourhoods: a cross-sectional study. BMC Public Health 2015;15:225. doi: 10.1186/s12889-015-1513-z.

[27] World No Tobacco Day: tobacco and heart disease. Available at: www.who.int/ news-room/detail/31-05-2018-world-no-tobacco-day-tobacco-and-heart-disease (accessed 2018, July 7).

[28] WHO global report on trends in prevalence of tobacco smoking 2000-2025 Second edition. Available at: www.who.int/tobacco/publications/surveillance/trends-tobacco-smoking-second-edition/en (accessed 2018, July 7).

[29] Sarna LP, Bialous SA, Kralikova E, Kmetova A, Felbrova V, Kulovaná S, Malá K, Roubíčková E, Wells MJ, Brook JK. Impact of a smoking cessation educational program on nurses’ interventions. J Nurs Scholarsh 2014;46:314-21. doi: 10.1111/jnus.12086.

[30] Sreedharan J, Muttappallymyalil J, Venkatramana M. Nurses’ attitude and practice in providing tobacco cessation care to patients. J Prev Med Hyg 2010;51:376f1.

[31] Moxham L, Dwyer T, Reid-Seark R. Graduate nurses and nursing student’s behaviour: knowledge and attitudes toward smoking cessation. Nurse Educ Today 2013;33:1143-7. doi: 10.1016/j.nedt.2012.11.024.