

## RESEARCH PAPER (ORIGINAL)

# Tobacco dependence in nursing students

A dependência de tabaco em estudantes de enfermagem

La dependencia al tabaco en estudiantes de enfermeira

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## Abstract

**Background:** Nursing students should be aware of the harmful effects of smoking as a result of the knowledge acquired throughout their degree.

**Objectives:** To estimate the prevalence of tobacco consumption and identify the sociodemographic, academic, and psychological variables associated with tobacco dependence in nursing students.

**Methodology:** Analytical cross-sectional study. Sample of 404 nursing students, 86.1% of female students ( $M=23.60\pm6.67$  years). Questionnaire composed of sociodemographic and academic variables, the Portuguese versions of the Depression, Anxiety and Stress Scale and the Positive and Negative Affect Scale, the Fagerström Test for Nicotine Dependence, and the Eysenck Personality Inventory.

**Results:** Prevalence of tobacco consumption of 25.2%, higher percentage among male students (32.1% vs. 24.1%). Students started smoking at 16.8 years. A high level of dependence was found in 44.4% of the students who started smoking before the age of 15. Tobacco consumption was associated with extroversion and stress.

**Conclusion:** A quarter of the students smoke. Tobacco consumption was associated with psychological variables. Interventions to discourage the consumption of psychoactive substances should be created and implemented.

**Keywords:** students, nursing; smoking; personality; stress, psychological

## Resumo

**Enquadramento:** Os estudantes de enfermagem, pelos conhecimentos adquiridos ao longo do curso, devem estar conscientes dos malefícios do tabagismo.

**Objetivos:** Estimar a prevalência de consumo de tabaco e identificar as variáveis sociodemográficas, académicas e psicológicas, associadas à dependência de nicotina, em estudantes de enfermagem.

**Metodologia:** Estudo transversal analítico. Amostra de 404 estudantes de enfermagem, 86,1% género feminino ( $M=23,60\pm6,67$  anos). Questionário constituído por variáveis sociodemográficas e académicas, Escala de Ansiedade, Depressão e Stresse, Escala de Afeto Positivo e Negativo, o Teste Fagerström da Dependência à Nicotina e o Inventário de Personalidade de Eysenck.

**Resultados:** Prevalência de consumo de tabaco de 25,2%, género masculino com uma percentagem maior (32,1% vs. 24,1%). Os estudantes começaram a fumar aos 16,8 anos. Dos estudantes que começaram a fumar antes dos 15 anos, 44,4% apresentam um nível de dependência elevado. O consumo de tabaco associou-se à extroversão e ao stresse.

**Conclusão:** Um quarto dos estudantes fumam e o consumo associou-se com variáveis psicológicas. Há necessidade da criação e implementação de intervenções de dissuasão do consumo de substâncias psicoativas.

**Palavras-chave:** estudantes de enfermagem; tabagismo; personalidade; stresse psicológico

## Resumen

**Marco contextual:** Los estudiantes de enfermería, por los conocimientos adquiridos a lo largo del curso, deben ser conscientes de los perjuicios del tabaquismo.

**Objetivos:** Estimar la prevalencia del consumo de tabaco e identificar las variables sociodemográficas, académicas y psicológicas asociadas a la dependencia a la nicotina en estudiantes de enfermería.

**Metodología:** Estudio transversal analítico. La muestra estuvo formada por 404 estudiantes de enfermería, el 86,1% del género femenino ( $M=23,60\pm6,67$  años). El cuestionario estuvo constituido por variables sociodemográficas y académicas, la Escala de Ansiedad, Depresión y Estrés, la Escala de Afecto Positivo y Negativo, el Test de Fagerström de la Dependencia a la Nicotina y el Inventario de Personalidad de Eysenck.

**Resultados:** Prevalencia del consumo de tabaco del 25,2%, género masculino con un porcentaje mayor (32,1% vs. 24,1 %). Los estudiantes comenzaron a fumar a los 16,8 años. De los estudiantes que comenzaron a fumar antes de los 15 años, el 44,4% presenta un nivel de dependencia elevado. El consumo de tabaco se asoció a la extroversión y al estrés.

**Conclusión:** Un cuarto de los estudiantes fumam, y el consumo se asoció con variables psicológicas. Es necesario crear e implementar intervenciones de disuasión del consumo de sustancias psicoactivas.

**Palabras clave:** Estudiantes de enfermería; tabaquismo; personalidad; estrés psicológico

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## Introduction

Smoking is a worldwide epidemic and the most preventable cause of disease and premature death in developed countries. According to the World Health Organization (WHO), approximately 100,000 young people start smoking every day and 80% of them live in developing countries. Today, smoking initiation occurs around the age of 15, which has led WHO to consider smoking as a pediatric disease (Silva, Sales, França, & Siqueira, 2012). More than 90% of Portuguese smokers started smoking before the age of 25, and, according to recent studies, there has been an increase in tobacco consumption among school-aged young people (Direção-Geral da Saúde [DGS], 2013).

The fight against smoking should be a key concern of all societal players; however, and despite the need for collective participation, health professionals are on the frontline when it comes to educating for the acquisition and maintenance of healthy behaviors, having a primary role as educators and social role models. In our reflection on the key role of healthcare professionals, we decided to focus on the smoking habits of nursing students as future professionals who have scientific knowledge in the health area in an attempt to understand what might influence them to expose themselves to risk factors, a situation that is counterproductive to their function as role models in terms of health behaviors (Bonito, 2010).

Thus, the objectives of this study were to determine the prevalence of tobacco consumption among nursing students and identify sociodemographic, academic, and psychological variables associated with tobacco consumption among nursing students.

## Background

In 2014, the European Union established new policies on tobacco, which constitute an important step for the European public health policy that is expected to contribute to reducing by 2% the number of new smokers, particularly among younger people, in the European Union by 2020 (Borg, 2014). Some factors predispose the younger population to this type of behavior, contributing to their tobacco dependence. These factors vary from person to person, making it more dif-

ficult to address this issue. From the behavioral point of view, the act of smoking is governed by its immediate consequences and its recurrence results from learning processes and (positive and negative) reinforcement which are learned and become automatic over time, creating a behavioral pattern that leads to dependence (Martins, 2012).

Several factors, such as the influence of personality, can affect individual choices for less assertive behaviors. Historically, the term personality comes from the Latin word *persona*, which refers to the masks that were used by actors in the ancient theater to express several emotions. Eysenck and Eysenck (1968) defined two major dimensions of personality: Extraversion and Neuroticism. These authors believe that these dimensions represent the nervous activity and identify Extraversion as a continuum between Extraversion and Introversion, and Neuroticism as a continuum between Neuroticism and Emotional Stability. Thus, personality would be divided into four dimensions: Introversion-Extraversion and Stability-Neuroticism. Extroversion is composed of factors such as sociability, assertiveness, positive emotions, vivacity, and activity level. Neuroticism is composed of a set of personality traits, including anxiety, depression, psychological vulnerability, and hostility. Traits of neuroticism can make the smoker more vulnerable or sensitive to the properties of nicotine, thus contributing to adopting and maintaining the habit.

Other scientific studies have identified stress as a factor associated with tobacco consumption and found that students in health degrees have anxiety and depression levels above the normal levels, indicating stress, curricula overload, institutional environment, loss of control over time availability, and difficulties in managing leisure time as key factors. Tobacco consumption can be perceived as an effective resource to cope with stress and anxiety. These psychological changes trigger changes in these students' lifestyles, particularly regarding eating habits and alcohol/tobacco consumption. Therefore, smokers' perception of control and reaction is lower when they have to deal with more stressful situations or situations where smoking is not allowed. These consequences may explain how withdrawal symptoms (after smoking cessation) bring difficulties in dealing with socially stressful situations and may explain why stress increases the obsession with cigarettes and the relapses af-

ter treatments for smoking cessation (Rondina, Martins, Manzato, & Terra, 2013).

Taking into account that smoking is a disastrous epidemic for the health of human beings and that it differs according to each individual's personality, we focus on its prevalence among younger populations, particularly higher education students. The tobacco industry has been using increasingly subtle and ingenious marketing and advertising techniques to increase its sales and profit margins, targeting the most vulnerable groups, as is the case of young people, especially women, who have been the primary target of covert campaigns, such as the creation of light cigarettes, lipstick cigarettes, cigarettes with fruit and menthol flavoring, among others. On the other hand, young adults attending higher education experience serious changes in several domains, namely the choice of a career, a very differentiated socialization process (which may include staying away from their family, a strong feeling of freedom and autonomy), the beginning of the construction of a future in accordance with planned expectations, and the fact that society no longer sees them as adolescents but as adults, with financial and social responsibilities. Tobacco and alcohol consumption among these students can occur in academic settings of greater vulnerability due to a ritualized and institutionalized environment (Pimentel, Mata, & Anes, 2013).

This life stage, characterized by the pressure of *new friends* and the search for independence, can put the young person at risk for consumption of harmful substances. Most young people are aware of this risk but prefer to ignore it by assigning greater importance to the psychosocial consequences of these behaviors (Pimentel et al., 2013).

The school, as a teaching-learning space, should develop activities to promote and protect the health of the whole educational community, enabling healthy ways of working, studying, and living, protecting the environment and its sustainability, as well as fostering health promotion in education, research, and in the community (Pedroso et al., 2012). This is clearly one of the main goals of health promoting schools. According to Martins (2012, p. 57), "health promoting contexts are currently the most recommended model for promoting the citizens' health since the school is a privileged formal context

in which students' health education can be enhanced". Higher education institutions must be prepared to intervene in reducing the demand for psychoactive substances, thus transforming education into a pedagogical model for health promotion. The beliefs and attitudes related to this issue are important for nursing since it plays a key role in health care at the individual, family, and community levels. This type of care aims at the acquisition or maintenance of healthy lifestyles and must be consistent with the knowledge acquired by students during their degrees and professional lives (Montalvo-Prieto & Castillo-Ávila, 2013).

Nursing students are aware of the harmful effects of smoking as a result of the knowledge acquired throughout their degrees and the frequent campaigns about tobacco consumption. However, Montalvo-Prieto, and Castillo-Ávila (2013) report that students have insufficient knowledge on the subject, even though they show some positive attitudes regarding the prevention and control of the consumption of these substances. They also argue that nursing students' consumption of psychoactive substances, even though it is not of great magnitude, is an issue that needs to be addressed by those responsible for the university well-being programs and that it requires more curriculum contents on this phenomenon. Another study conducted by Bonito (2010) with nursing students found that 84.6% of the participants smoked, with a higher incidence in females, about 34.6% of them had smoked during the past month, and 50% had been exposed to smoke. These data contradict the image of health professionals as well-informed health promoters. Health agents who smoke send an inconsistent message to their patients since the sender's attitude in a process of changing attitudes is essential to enhance the message being communicated (Bonito, 2010).

## Research questions

In view of the above, we aim to answer the following questions: What is the prevalence of tobacco consumption among nursing students? Which sociodemographic, academic, and psychological factors influence tobacco consumption among nursing students?

Methodology

We conducted a quantitative, descriptive-correlational study. We used a nonprobability convenience sample composed of 404 nursing students (86.1% women and 13.9% men) attending public nursing schools in Portugal and who volunteered to participate in the study. The participants' age ranged between 18 and 54 years ( $M = 23.60 \pm 6.674$  years), most of them were single, living in an urban area, and were attending the 4th year of a nursing degree. Data were collected through an online questionnaire. The questionnaire had a short introduction (presenting the study, its purpose, and the basic instructions for questionnaire completion). It was then composed of sociodemographic and academic questions, the Portuguese version of the Depression, Anxiety and Stress Scale (Apóstolo, Tanner, & Arfken, 2012), the Portuguese version of the Positive and Negative Affect Scale (Galinha, Pereira, & Esteves, 2013), the Eysenck Personality Inventory for analysis of Neuroticism and Extraversion, and the Fagerström Test for Nicotine Dependence (Ferreira, Quintal, Lopes, & Taveira, 2009). This instrument had an estimated time of completion of 25 minutes and data were collected between February and June 2014. We obtained a positive opinion from the Ethics Committee of the School of Health of Viseu (Opinion no. 1/2014), as well as the authorization of the nursing schools that agreed to participate in the study. Participants' anonymity and data confidentiality were ensured, as well as

the respect for their autonomy, willingness, and freedom to participate in the study. Subsequently, data were analyzed using the Statistical Package for the Social Sciences, version 22.0 for Windows. We used parametric statistics (Student's *t*-test or ANOVA) and non-parametric statistics (Mann-Whitney *U* test, Kruskal Wallis test, and chi-square test) for the statistical analysis. In parametric statistics, we used a 95% confidence interval.

Results

We have found a prevalence of tobacco consumption of 25.2%: 24.1% in women and 32.1% in men. A quarter of the students (25.2%) smoked, with a higher percentage found in men (32.1% vs. 24.1%), and smoking initiation occurred at the mean age of 16.8 years (minimum age of 12 years and maximum age of 23 years). On average, women started smoking earlier, as can be seen through the youngest age of smoking initiation ( $M = 16.6 \pm 2.06$  vs.  $M = 17.6 \pm 2.97$  years). More than half of the students (58.8%) reported not considering themselves to be dependent on nicotine, (61.1% of men and 58.3% of women). It should be noted that 63.4% of women had a normal Body Mass Index (BMI) and only 16.3% of them were overweight or obese. Thus, when asked about the concern with gaining weight if they quit smoking, 67.6% reported that they did not have that concern.

Table 1  
Level of dependence by sociodemographic variables

	Level of dependence													
	Very low		Low		Mild		High		Total		X <sup>2</sup>	Monte Carlo 99%		
	N	%	N	%	N	%	N	%	N	%		<i>p</i>	L. inf.	L.su
	80	100	9	100	4	100	9	100	102	100				
Gender														
Male	12	15.0	3	33.3	-	0.0	3	33.3	18	17.6	4.290 <sup>a</sup>	0.232	0.221	0.242
Female	68	85.0	6	66.7	4	100	6	66.7	84	82.4		0.203		
Age of initiation														
≤15	19	23.8	2	22.2	3	75.0	4	44.4	28	27.5	9.747 <sup>a</sup>	0.132	0.123	0.141
16-17	23	28.8	3	33.3	1	25.0	4	44.4	31	30.4		0.106		
≥18	38	47.5	4	44.4	-	0.0	1	11.1	43	42.2				

Age groups														
≤20 years	36	45.0	2	22.2	2	50.0	1	11.1	41	40.2	7.106 <sup>a</sup>	0.316	0.307	0.325
21-22 years	17	21.3	2	22.2	-	0.0	2	22.2	21	20.6				
≥23 years	27	33.8	5	55.6	2	50.0	6	66.7	40	39.2		0.296		
Area of residence														
Urban	48	60.0	7	77.8	4	100.0	6	66.7	65	63.7	3.560 <sup>a</sup>	0.339	0.330	0.349
Rural	32	40.0	2	22.2	-	0.0	3	33.3	37	36.3		0.446		
Cohabiting														
Alone	1	1.3	-	0.0	-	0.0	1	11.1	2	2.0	6.064 <sup>a</sup>	0.377	0.367	0.386
Friends/ Dormitory	37	46.3	5	55.6	2	50.0	2	22.2	46	45.1				
Family	42	52.5	4	44.4	2	50.0	6	66.7	54	52.9		0.398		
BMI														
Underweight	5	6.4	-	0.0	-	0.0	-	0.0	5	5.0	15.429 <sup>a</sup>	0.095	0.089	0.161
Normal range	49	62.8	7	77.8	2	50.0	6	66.7	64	64.0				
Overweight	20	25.6	2	22.2	2	50.0	-	0.0	24	24.0		0.188		
Obese	4	5.1	-	0.0	-	0.0	3	33.3	7	7.0				

*Note.* Monte Carlo simulation for 10,000 samples with a 99% confidence interval. The results confirm the chi-square values and the lack of statistical significance. Fisher's test is also obtained through the Monte Carlo simulation.<sup>a</sup> cells (25.0%) have expected count less than 5. The minimum expected count is 2.29.

Students did not associate tobacco consumption with moments of sadness (71.6%), joy (86.3%), phone conversations (90.2%), and work (77.5%). On the other hand, they associated tobacco consumption with alcohol consumption (55.9%), meals (57.8%), coffee drinking (65.7%), and in situations of anxiety/stress (72.5%), with a higher percentage of women. Most participants reported having already tried to quit smoking; 43.1% of them tried to quit smoking between one and three times; 39.2% tried to stop smoking more than three times; 91% of them attended the smoking cessation consultation (74.2% of women

and 16.9% of men). Only 4.5% of women had already taken quit-smoking medications. More than half of the students (54.9%) lived with smokers - among these students, most of them were men (55.6% vs. 54.8%); 67.6% of the participants answered that they were not concerned with gaining weight if they stopped smoking, especially men (83.3%).

The mean nicotine dependence was higher in men ( $M = 1.944 \pm 2.460$ ) than in women ( $M = 1.392 \pm 3.702$ ); 85.0% of the participants had a very low or low level of nicotine dependence, 3.9% had a moderate level of dependence, and 8.8% had a high level of dependence.

Table 2  
*Statistics of the Fagerström test by gender*

	Minimum	Maximum	Mean	Standard deviation	Variation coefficient
Male	0.00	10.00	1.944	2.460	126.5
Female	0.00	10.00	1.392	3.702	265.9
Overall index	0.0	10.0	1.49	2.03	136.2

Of the students who started smoking after 18 years of age, 47.5% had a very low level of dependence and 44.4% of the students who started smoking at earlier ages (<15 years) had a high level of dependence. The level of dependence was higher in students over the age of 23 years (66.7%) and in students living in an urban area. The lowest levels of dependence were found in students who lived alone and had normal BMI.

With regard to the psychological variables, students showed low levels of depression, anxiety, and stress, with mean scores below the expected average. Men reported higher levels of depression and anxiety than women, but lower levels of stress, with statistically significant differences ( $p = .006$ ) regarding stress. As for age, students aged between 21 and 22 years showed the highest mean score in stress, whereas students



≤ 20 years had the lowest levels of depression. Overall, positive affect is predominant in the sample, with higher mean scores ( $M = 30.047 \pm 8.208$ ) than negative affect ( $M = 17.997 \pm 6.908$ ). Gender had no influence on subjective well-being; younger students reported more positive affect, but also higher levels

of negative affect; students aged ≥ 23 years had lower rates of negative affect and a better affective balance. In general, students tend to be extrovert ( $M = 14.128 \pm 3.281$ ) and stable ( $M = 12.309 \pm 3.352$ ); men were more extrovert and women were more neurotic, with significant differences ( $p = .025$ ).

Table 3  
*Mann-Whitney U Test between Extroversion and Neuroticism and gender*

	Gender		UMW	<i>p</i>
	Male	Female		
Eysenk	Mean Rank	Mean Rank		
Extroversion/ Introversion	219.58	199.75	8787.500	0.236
Neuroticism/ Stability	170.07	207.72	7928.000	0.025

With regard to age, students aged ≤ 20 years were more extrovert, whereas stu-

dents aged ≥ 23 years were more introvert and neurotic.

Table 4  
*One-way analysis of variance between personality and age*

	Age						<i>f</i>	<i>p</i>	% VE
	≤ 20 years		21 - 22 years		≥ 23 years				
Personality	Mean	<i>SD</i>	Mean	<i>SD</i>	Mean	<i>SD</i>			
Extroversion/Introversion	14.87	3.10	13.67	3.30	13.65	3.31	6.73	0.001	3.24
Neuroticism/Stability	12.83	3.23	12.37	3.51	11.62	3.24	4.72	0.000	2.30

## Discussion

A prevalence of tobacco consumption of 25.2% was found among the nursing students who participated in the study, being higher among men. These values are slightly lower than those found by Bonito (2010), with a prevalence of 34.6% in the past month. However, Silva et al. (2012) found that only 14.7% of the nursing students smoked and Rondina et al. (2013) showed a prevalence of smoking of 8.61%. In Lao People's Democratic Republic, a study found that only 5.1% of students in the health areas smoked and, according to the authors, this percentage was lower than the one obtained in a national study (Sychareun et al., 2013).

The analysis of the sociodemographic characteristics of the sample in this study showed that most students are women (86.1%), confirming

the results of studies conducted with students in the area of life sciences, which reflect that the culture of the nursing profession is characterized by the predominance of women since its origins. Silva et al. (2012) also obtained similar results, with 60.7% of women, thus reflecting the culture of the nursing profession. Based on the analysis of the age of smoking initiation, we concluded that the mean age was 16.8 years, although 42.2% started smoking after the age of 18, with 32.4% of them being women. These data are in line with Silva et al. (2012), who found that most (60%) nursing students started smoking between the ages of 16 and 20. In another study with higher education students, Marques, Corte, Videira, and Bidarra (2011) showed that the mean age of smoking initiation was 15 years for male students and 16 years for female students. These data corroborate the findings reported in the

National Tobacco Control and Prevention Program (DGS, 2012) in which, according to the 2012 Eurobarometer survey, approximately 90% of Portuguese smokers reported having started to smoke on a regular basis before the age of 25, 22% before the age of 15, and 51% between the ages of 15 and 18. Granville-Garcia et al. (2012), in their study on smoking among academics in the health area at the State University of Paraíba, found that 63.2% of students started to smoke between the ages of 13 and 18.

With regard to nicotine dependence and the age of smoking initiation, 47.5% of the students who started smoking after the age of 18 reported a very low level of dependence and 44.4% of the students who started smoking before the age of 15 reported a very high level of dependence. These data are corroborated by Nunes, Vargas, Nunes, and Noto (2011), who claim that 25% of the 70% of adolescents who start smoking rapidly become dependent. The later they start smoking, the less is the likelihood of becoming dependent. Of the total sample in our study, 58.8% of students do not consider themselves to be dependent on nicotine.

When asked about the attempts made to quit smoking, we realized that 43.1% of the students had already tried between one and three times and 91% had already attended a smoking cessation consultation. These results are relevant and inconsistent with those obtained by Bonito (2010), who applied the Global Health Professional Survey in Portugal with nursing students for the first time, and found that 62% had never received counseling to quit smoking.

In relation to the socialization with smokers at home, 54.9% answered affirmatively – among these, 45.1% are women. This result is in line with Silva et al. (2012), who showed that 58.5% of respondents socialize with smokers, 53% have relatives who smoke, and 32.4% have close friends who smoke.

The results obtained through the Fagerström Test for Nicotine Dependence allowed us to characterize tobacco consumption in this sample regarding the level of nicotine dependence. The level of dependence on this substance was very low (78.4%) and only 8.8% of the students had a high level of dependence. These

data are similar to those obtained by Santos (2012) in which 75% of the sample had a very low level of dependence. When asked about everyday situations associated with smoking, 55.9% of the participants mentioned alcohol consumption and 72.5% mentioned situations of increased anxiety and stress. Granville-Garcia et al. (2012) also confirmed in their research with students in the health area that 75% of them smoked more when they drank alcohol. In addition, we found that some psychological variables influence tobacco consumption, with Extraversion being inversely predictive of nicotine dependence, which means that more extrovert students are less dependent on nicotine. This habit became undesirable in many countries and many extrovert smokers have been penalized or discriminated against in their social interactions. This situation may have contributed to decreasing the level of association between smoking and this personality trait. Stress is also a predictor of nicotine dependence, and, in this study, participants with higher levels of stress have higher tobacco dependence. These results are consistent with those found by Afonso and Pereira (2013, p. 24), who claim that “smokers with more symptoms related to psychological morbidity (e.g., more psychological stress or anxiety) tend to be more dependent on nicotine, and smoke more. . .”.

A methodological limitation of this study was the fact that it had a cross-sectional focus, with the assessment being made at a single moment, without a follow-up period. Despite this limitation, the results improved our knowledge about tobacco consumption among nursing students, taking into account the sociodemographic, academic, and psychological variables of the sample.

## Conclusion

We concluded that the prevalence of tobacco consumption in this study was 25.2%, being higher in men (32.1% vs. 24.1%). The mean age of smoking initiation was 16.8 years, and women started smoking earlier. More than half of the students did not consider themselves to be dependent on nicotine, with this percentage being higher in men (61.1% vs. 58.3%).

More than half of the sample had already tried to quit smoking and attended a smoking cessation consultation.

Most students did not associate smoking with phone conversations, moments of sadness or joy, and work. However, they associated it with alcohol consumption, meals, coffee drinking, and situations of anxiety/stress.

In this study, positive affect was predominant, with higher mean scores than negative affection. Gender did not influence subjective well-being. Younger students revealed more positive affect and students aged 23 or more years have lower levels of negative affect and better affective balance. In general, students tend to be extrovert and stable. We found that stress and Extraversion are the psychological variables with the highest predictive power, thus proving to be predictors of tobacco consumption. Stress has borderline significance varying in straight line, and Extraversion is significant and establishes an inverse relationship. Based on this result, we can conclude that more introvert students with higher levels of stress tend to smoke more.

The fight against smoking is a priority recognized by everyone, and health professionals play a key role in the promotion of health and health literacy. Nurses are among the most relevant actors in the fight for better health standards regarding the consumption of psychoactive substances. As role models and mentors for healthy behaviors, they have a valuable positive impact on changing risk behaviors. In this sense, tobacco consumption is inconsistent with this role. Therefore, nursing students, as future health professionals, are an important target for future interventions and studies in the area of health promotion and disease prevention.

In light of the results of this study, awareness must be raised on the need for effective interventions toward smoking prevention and control among future health professionals. We also emphasize the importance of providing psychological support and even social animation to more introvert and distressed higher education students such as those identified in this study since they tend to smoke more. Future studies should explore the association between tobacco consumption with night outings among these students and check if there is

a correlation and to what extent. It would also be interesting to verify if the results are similar among students from other areas who do not have the same level of health-related knowledge.

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