

Prevalence of narguile use among university students in the health area

Prevalência do uso de narguilé entre universitários da área da saúde

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ABSTRACT: Narghile is the main form of smoking in many countries and occupies the second position in Brazil. Considering this scenario, and this growing form of smoking, we aimed to identify the prevalence of water tobacco pipe, frequency and harm use among health students¹⁰. This is an exploratory-descriptive study with a quantitative approach, aiming to know the reality of biomedical, medical, nursing undergraduate students from a philanthropic institution from Curitiba¹¹. Of the total sample, 39 (33.8%) referred using some form of cigarette smoke, with some regularity, considering occasional smokers, 92.8% reported using narghile, 59% used for the first time between 13 and 16 years of age. 61.5% believe that narghile does not cause diseases like cigarettes and 89.75% have never been advised to stop smoking. As a conclusion, the high prevalence of smoking and the use of narguile reiterates the actions in order to maximize the prevention and combat against smoking.

Keywords: Public health; Tobacco products; Smoking; Smoking water pipes; Tobacco use disorder.

RESUMO: Narguilé é a principal forma de uso do tabaco e ocupa a segunda posição no Brasil. Considerando esse cenário e a forma crescente de utilização, buscou-se identificar a prevalência, frequência e malefícios do uso de narguilé entre os estudantes da área da saúde¹⁰. Trata-se de um estudo descritivo exploratório com abordagem quantitativa, visando conhecer a realidade dos estudantes universitários dos cursos de biomedicina, medicina e enfermagem de uma instituição filantrópica de Curitiba¹¹. 39 (33,8%) referiram tabagistas, com utilização regular, 92,8% afirmaram realizar uso do narguilé, sendo que 59% utilizou pela primeira vez entre 13 e 16 anos. 61,5% acredita que o cachimbo d'água não causa danos quando comparado ao cigarro e 89,75% nunca foram aconselhados a abandonar o vício. Em suma, a alta prevalência relevante de tabagismo e utilização de narguilé reitera a importância de ações de enfrentamento, a fim de maximizar a prevenção e combate ao tabagismo.

Descritores: Saúde pública; Produtos do tabaco; Fumar; Cachimbos de água; Tabagismo.

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INTRODUCTION

The water pipe, popularly known as narghile, is a form of the traditional use of tobacco that began to be used many centuries ago in ancient Persia and India as a way of consuming opium. It was even in the form of a narghile that tobacco was introduced to China during the Ming dynasty, in the 16th century¹.

According to the World Youth Tobacco Survey², the prevalence of narghile use in the Middle East exceeds conventional cigarette consumption, 6-34% among teenagers, and 5-17% among young Americans. Its use has become increasingly popular in Europe and the Americas, especially among young people, placing itself as the second most consumed form of tobacco in the USA, France, the United Kingdom, and Brazil.

The Narghile consists of the bowl, body, water vase, and mouthpiece. The holes in the bottom of the bowl allow the smoke to pass through the central channel of the body, which is submerged in water, then passes through the tobacco which, when heated, produces the smoke. The smoke passes through the body of the hookah, bubbles into the water in the pot and is carried by the hose to the smoker³.

In a study carried out in 2011 with students in the health field in Brazil, 55% declared to use a water pipe². Due to this growing increase in consumers in recent years, in 2012 in the campaign for the National Day to Combat Tobacco, the theme chosen by the Ministry of Health was: “Alert for the harms of hookah”. And what makes young people more and more interested in this drug? The answer is simple: insertion and acceptance through the medium.

In the search for requirements that make the young person join a group or have “affinity” with a couple, they predispose themselves to chemical dependence on nicotine early. In addition to being a means of acceptance, the varied odors and flavors of the product have an attraction, which masks the irritating effects of smoke.

Due to the exposure of tobacco to high temperatures, by burning charcoal, a session of hookah (60 minutes) is equivalent to an average consumption of 119 liters of smoke, which corresponds to 4 times more nicotine, 60-100 times more tar and 15 times more carbon monoxide when compared to traditional cigarettes. These high concentrations of carbon monoxide can cause intoxication, generating a picture of headache, dizziness, nausea, weakness and syncope⁴.

Akl et al.⁹ carried out a systematic review of 24 studies on the health effects of hookah use. Hookah use was found to be significantly associated with lung cancer (OR = 2.12; 95% CI: 1.32-3.42) and respiratory diseases (OR = 2.3; 95% CI: 1.1- 5.1). In addition to the previous complications, a single smoking session (45 minutes) causes transient dysfunction of autonomic cardiac regulation, which increases the risk of cardiac events.

The erroneous knowledge that the hookah has less harmful effects on health than the cigarette, generates several impasses to the tobacco control community, as it increases the need for intervention by these bodies on the awareness of the risks to which smokers are exposed. It is also important to remember the importance of the role of health professionals in approaching and passing on information to patient users.

In this sense, the following question is posed for this research: What is the prevalence of waterpipe use among students in the health field at a Higher Education Institution in Curitiba?

METHOD

This is a descriptive-exploratory study, with a quantitative approach⁵. According to Roesch, “*the focus of quantitative is to use the best strategy to control the research design to ensure a good interpretation of the results*” (p.50). Through the quantitative approach, it is possible to analyze statistical techniques, quantify opinions, and information. Associated with the descriptive-exploratory study, it was possible to describe the characteristics of a population, allowing greater familiarity between the researcher and the researched topic.

The research was carried out in a Higher Education Institution, in the health area, in Curitiba. Through data analysis, collected through a Questionnaire on the Use of Hookah among Students in the Health Area (adapted through the Questionnaire on Smoking FURG\99 and Ministry of Health. The research sample was initially composed of 150 students, however, the research was carried out effectively with 106 students in the health field, 39 of them in the medical sciences undergraduate course (8th term), 32 in Biomedicine (3rd and 6th term) and 35 in Nursing (2nd and 4th periods) at a health sciences faculty in Curitiba. The sample loss was due to questionnaires not answered properly of inconsistent information. According to Barbetta¹¹, samplings are used in scientific research in which one wants to know a characteristic of the population, “*it is common to observe only a sample of its elements, and from the results of this sample, obtain approximate or estimated values for the population characteristics of interest*” (p.41).

Data collection took place in September 2018, through a questionnaire consisting of semi-structured questions, containing the following approaches: sex, age, ethnicity, smoking-related condition, what do you smoke, at what age did you smoke, how old do you smoke, association with other drugs, frequency of smoking, knowledge of the harm, smoking indoors, how you started smoking and when you smoke. Thus, the information was collected in the interval of the curricular activities of a Higher Education Institution in the Health Area, of the Medicine,

Biomedicine, and Nursing undergraduate courses, under the supervision of a faculty member of the faculty and with the consent of the participants.

Data analysis was performed by combining responses collected through the semi-structured questionnaire. Similar “opinions” were separated and simple frequency calculations were performed for the answers obtained for each question in the questionnaire. With the percentages determined, the data were interpreted. Thus, the organization and analysis of the data were carried out according to the following construction steps: determination of the research objectives, selection of the points to be surveyed, elaboration of the collection instrument, selection of the sample to be researched, joining of the data collected, analysis and interpretation of data using statistical methods and finally, the presentation of results in a descriptive way.

The inclusion criteria selected students who agreed to participate in the work, over 18 years of age, and who signed the free and informed consent form. The exclusion criteria were university students under the age of 18 or who did not agree to sign the informed consent form.

Therefore, this study respected the guidelines and criteria established in Resolution 466/12 of the National Health Council, the ethical precepts established with regard to ensuring the legitimacy of information, privacy, and confidentiality of information. The research was approved by the Ethics and Research Committee, number 2.865.655.

RESULTS

Through the analysis of the data, collected through a Questionnaire on the Use of Narghile among Health Students (adapted through the Questionnaire on Smoking FURG / 99 and the Ministry of Health), 106 students from

the biomedicine, nursing and medicine undergraduate courses participated in the research. 35 students (33%) from the 2nd and 4th periods of the nursing course, 32 students (30,2%) from the 3rd and 6th periods of biomedicine, and 39 students (36,8%) from the 8th period of the medical course.

Of the total respondents, 85.8% were female and 14.2% male, and this proportion were due to the greater number of women enrolled in the analyzed courses. The average age of the participants was 22.8 years for females and 21.7 for males, thus there is no great age distinction between genders. As for ethnicity, a greater number is considered white, with 86.8% of the total, another 9.4% brown, and 3.8% yellow.

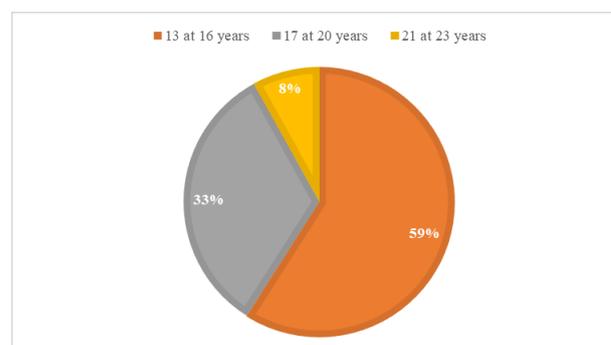
Of the total sample, 33.8% said they were smokers, of which 31% considered themselves occasional smokers and only 2.8% smokers. A higher rate of smokers was found among students of the undergraduate biomedicine course, out of the total number of students on the course, 43.75% said they were occasional smokers and 6.25% smokers. It is important to highlight that among all smokers who say they are occasional smokers, 72% answered that they smoke monthly and 26% weekly, in addition, the present study also showed that among these same smokers, 64.1% do it using only the narghile. 23.6% use both cigarettes and narghiles and 5.1% said they use narghile, cigarettes, and cigars, demonstrating a significantly lower number in relation to students who use only conventional cigarettes, which was 5.1% (Table 1). It can be noted a high prevalence of narghile users, totaling 92.8% of the sample of smokers and occasional smokers. Of these, 71.8% said they prefer to smoke in the presence of friends and 2.6% alone, which points to a relationship between socialization and narghile use.

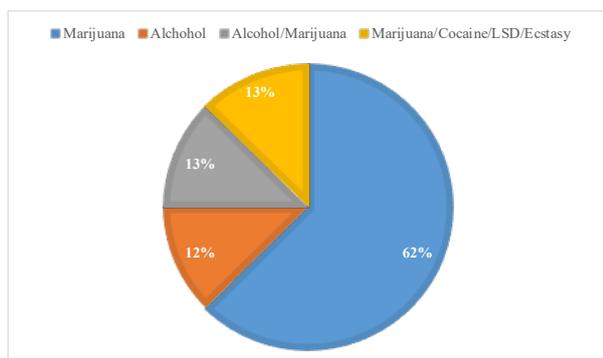
Table 1 - Forms of smoking among smokers in the sample (in percentage)

| | Cigarette | Cigarette and cigar | Narghile | Cigarette and narghile | Cigarette narghile and cigar |
|--------------------------------------|-----------|---------------------|----------|------------------------|------------------------------|
| % | 5,1 | 2,1 | 64,1 | 23,6 | 5,1 |
| Total narghile smokers: 92.8% | | | | | |

Narghile users were also asked about the age they started smoking and the results showed that 59% started between 13 and 16 years old, 33% between 17 and 20 years old and 8% between 21 and 23 years old, with these results a lower rate of smoking initiation is also obtained as age increases (Graphic 1). The results also reveal that 20,5% of the sample of those who use hookahs associate tobacco with other drugs, such as marijuana, mentioned in more than 50% of cases and alcohol in 12% (Graphic 2).

Graphic 1 - Age na onset of smoking by age group (N = 106)



Graphic 2 - Narguile associations with other drugs (N = 106)

Analyzing the responses in relation to the students' perceptions regarding the harms of the hookah use, 61.5% said that the narghile is not bad and 38.5% said it is bad. Of these 38.5%, 73.2% said that it can cause problems in the respiratory system, among which were cited: COPD, pulmonary emphysema, lung cancer, diseases of the respiratory tract, loss of cilia in the respiratory tract and shortness of breath; 6.7% said the harm depends on the frequency of use and 20% did not know how to respond, despite pointing out that narghile is harmful to health (Table 2).

Table 2 - Perceptions, habits, associations, and advice on smoking

| | Yes | No |
|--------------------------------|--------|--------|
| Is narghile harmful to health? | 38,5% | 61,5% |
| Do you smoke indoors? | 41% | 59% |
| Association with other drugs? | 20,5% | 79,5% |
| Advised to quit smoking? | 10,25% | 89,75% |

DISCUSSION

The narghile takes on the second largest form of tobacco consumption in countries such as the USA, the UK, France, and Brazil³, and has become more and more popular, establishing a status standard, as well as the consumption of cigars in the 20th century. The acceptance by the environment, attractive aromas, and flavors, socialization, false beliefs that there is not any harm to health and that it does not cause dependence, are pointed out in recent studies as important factors that contribute to the increase in its prevalence in recent years; leading to the acceptance of hookah as a safer smoking option in relation to cigarettes, especially among young people. Ribeiro et al.¹ put in an editorial this discussion about the false belief on the part of these adolescents referring to their origin in India when it was suggested that the water in the hookah container, through which the smoke passes, would filter impurities and so it would be less harmful to

the smoker's health.

Facing the fight against smoking nowadays, these young people end up looking for other ways to consume tobacco and find an alternative in the hookah⁶. The present work reinforces this idea through the numbers that demonstrate that more than half of the total of interviewees (61.5%), whether smokers or not, believe that the narghile is less harmful in relation to cigarettes, and also due to the fact that there are greater use of narghile in relation to cigarettes, 92.1% of the total sample. One possible reason for the idea of safe narghile consumption by these young people is that they do it with low frequency, thus mitigating the damage. Informative material about the narghile explains that young people tend not to believe that they are conventional smokers due to the low frequency of use and, therefore, do not consider themselves dependent on tobacco⁷.

In Brazil, according to the National Health Survey, among the 212.000 narghile users in the country, 112.000 (53%) smoke sporadically, while 27.500 (13%) use it once a month, 57.200 (27%) weekly and 14.8 thousand (7%) claim to carry out daily consumption. The proportion of users related to the frequency of consumption were also found in the present study: 71.8% of users use it monthly, 25.6% use it once a week, while 2.6% consume the product daily³.

That a single narghile session lasting approximately one hour, is equivalent to smoking approximately 100 cigarettes, which would mean smoking five cigarette packs, the smoker being exposed to the same toxic substances as the conventional cigarette. When we return to the frequency of use found in the present study, it can be seen that almost the total number of students (98%) says they smoke monthly or weekly. We also point out that there is no scientific evidence today that demonstrates safe means for tobacco consumption. This information still does not seem to be completely clear when it comes to narghile, and this understanding can still be reinforced if we relate the data obtained. However, many have associated the use of hookahs with the development of lung diseases, a fact that can be confirmed by a study the Government of Paraná. The work links the use of drug to an increased likelihood of developing diseases such as: pneumonia; cancer of the lung, larynx, mouth, stomach; infertility; among several others⁸.

In addition to the diseases mentioned, the shared use of hoses increases the occurrence of communicable diseases, including herpes, tuberculosis, hepatitis, influenza, including H1N1⁸.

Like other tobacco products, narghile contains nicotine and the same 4700 toxic substances from conventional cigarettes (tar, hydrocarbons, carbonyls, phenols, ammonia, hydrocyanic acid, heavy metals - lead, arsenic, nickel, mercury, nitrosamines, aromatic amines, NOx⁷. However, analyzes carried out by the Pulmonology and Tisiology Society of Rio de Janeiro, show that smoke contains higher amounts of nicotine, carbon monoxide, heavy metals, and carcinogens compared to

cigarettes. Nicotine, in addition to causing addiction, causes vasoconstriction, tachycardia, elevated blood pressure, and increased risk of atherosclerosis; therefore, the rates of cardiac alterations are higher among smokers. Carbon monoxide, performs a stable and irreversible combination with hemoglobin, reducing the oxygenation capacity of tissues, which can cause changes in the level of consciousness, suffocation, and death. The other chemical substances present in the composition of the drug, have the potential to alter genes (cancer), destroy the cilia present in the respiratory system - facilitating frequent contact with infections, causing inflammation of bronchi (bronchitis) and bronchioles and the progressive destruction of the pulmonary alveoli (emphysema), contributing to respiratory distress^{12,14}.

According to the World Health Organization, "*smoking is the leading cause of preventable death worldwide*". Six million people worldwide die each year due to cigarette use, and in Brazil alone, 75% of smokers start smoking before the age of 18. Teen smokers are highly likely to become adult smokers. The sooner you become dependent on tobacco, the greater the risk of developing cancer and other chronic non-communicable diseases⁶. Coming to the data collected through the questionnaire on the use of a hookah, 59% of smoking users started smoking at 13-16 years old, 33% at 17-20 years old, and 8% at 21-23 years old. Reaffirming this, that the first contact with tobacco has occurred more and more precociously.

In a study by Martins et al.⁵ applied to students of the 3rd and 6th years of a medical school in the state of São Paulo, it was pointed out that the proportion of narghile smokers was 47.32% and 46.75%, respectively, against 39,1% obtained in the present work. And still, with regard to the total number of narghile smokers in the survey, the finding shows a close number.

According to Albandar, "*it is believed that currently more than 100 million people in the world use narghile daily, being more prevalent than the use of cigarettes in some parts of the world*" Scenario proven by the analysis of medical records, with 64% of respondents using only the hookah, while cigarette use has only 5.1% of users.

With regard to data related to gender, 87% of users are female and 13% male, with the vast majority of respondents who participated in the survey, having courses that have a higher proportion of women enrolled. According to the data survey carried out by the Ministry of Education, through descriptive analysis, of students attending higher education at a private institution in Brazil, the percentage of female students (58%) is higher than that of male students (42%).

According to Reveles et al.¹³ "*the use of narghile allows socialization, socializing with friends and moments of relaxation*", which should be considered in the preference of younger individuals for the water pipe, an episode

verified in this study. Of the users interviewed, 71.8% say they use the drug when they are with friends, against 2.6% who use it when they are alone.

In addition to the harm caused by the use of narghile alone, the associated use is another problem faced, one of the reasons for the frequency of association, the ease of mixing with other substances. Marijuana is the most frequently associated drug (62%), even ahead of the most used legal drug among young people, alcohol (13%).

The erroneous perceptions of systemic damage caused by the use of narghile go back to the lack of guidance and knowledge about the toxic substances found in the product. In the present study, 68.5% of the students believe that the daily use of the water pipe does not harm health. Reinforcing the idea that the absence of information characterizes this situation, with 89.75% of the participants never being advised to stop smoking or receiving guidance on the harm caused by smoke inhalation. In short, the need for health measures to raise public awareness in general, including anti-smoking campaigns - as well as the anti-smoking movement in the last century, is indisputable. Furthermore, the role of the physician in the process of guiding the harm of drugs is also indisputable, as well as a more effective approach to the myths and realities about this form of tobacco use, in order to prevent occasional smokers become regular users. Such measures can have the effect of changing the behavior of future doctors, reflecting a decrease in the prevalence of narghile use and helping in the areas of prevention and health promotion.

CONCLUSION

Given the data obtained, it is evident that the use of narghile among students in the health field is prevalent and its use is reaching alarming proportions. Against this backdrop, the study also aimed to propose measures and reinforce existing actions, so that we can disseminate truthful information about the use of the water pipe, in order to raise awareness and reduce the number of users.

The popularization of narghile raises concerns and points to the need to reinforce existing public policies, such as the increase in taxes on tobacco products and educational actions, carried out by the School Health Program³, aimed at prevention and reduction of tobacco use. In addition, it is extremely important to disseminate campaigns, such as "It seems harmless, but smoking narghile is like smoking 100 cigarettes", launched by the Ministry of Health and INCA and disseminated in Basic Health Units so that the population is aware of the real harm caused by the narghile since many believe that the use of the drug is not harmful. And finally, it is essential to conduct courses aimed at health professionals, so that they can and know how to guide users, in addition to implementing the development of awareness and training programs for health professionals in training;

and thus complete the tripod to achieve the effectiveness

and effectiveness of health actions.

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