

Original Article

Prevalence and characteristics of smoking among youth attending the University of Brasília in Brazil*

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ABSTRACT

Objective: To determine the prevalence of smoking and to describe the profile and smoking habits of students attending the Universidade de Brasília (University of Brasília) in Brasília, Brazil. **Methods:** A total of 1341 students responded to a smoking questionnaire, adapted from the World Health Organization questionnaire, including questions directed at smokers, former smokers and nonsmokers. Twenty different courses in the areas of health, exact sciences and human sciences were evaluated. The students included in the study were duly enrolled in day courses and were evaluated during the second semester of 2003. **Results:** The overall prevalence of smoking was 14.7%. Approximately 80.8% of the students were nonsmokers, and 4.5% were former smokers. In the study sample, 57.3% of the students were male. No significant difference ($p > 0.05$) in the prevalence of smoking was observed in terms of gender or class year. The mean age of the study population was 21.6 ± 3.6 years, and the mean age at which the smoking habit was acquired was 17 ± 2.8 years. The percentage of smokers was higher in the Geology, Communication, and History courses (32.9, 26.3 and 24.4%, respectively). Mean consumption was 7.5 cigarettes per day. The majority (72.6%) of the students used commercial cigarettes rather than other types of tobacco. **Conclusion:** The high prevalence of smoking observed in the present study is similar to that reported for other universities and indicates the need for smoking control policies in university environments.

Keywords: Smoking/epidemiology; Students; Questionnaires

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INTRODUCTION

Smoking is currently referred to as a 'silent pandemic'⁽¹⁾ since approximately 4 million people worldwide die from smoking-related diseases each year.⁽¹⁻³⁾

It is believed that, if appropriate measures are not taken in order to control this pandemic, smoking will be responsible for 10 million deaths per year, at a ratio of one in every six smokers worldwide, by the year 2020.^(1-2,4)

Of those deaths, 7 million will occur in developing countries.

The panorama in Brazil is no different: smoking constitutes a serious public health problem.⁽⁵⁾

Several studies conducted in Brazil⁽⁶⁻⁹⁾ and around the world⁽¹⁰⁻¹²⁾ show that the smoking habit is acquired early. Among the current population of adult Brazilian smokers, 80% report having started smoking before the age of eighteen.^(1,13-14)

This finding confirms the global tendency toward an increase in the prevalence of smoking among the population composed of adolescents and young adults,⁽¹⁵⁻¹⁶⁾ especially among university students,^(12,17) who are considered to be highly susceptible to become involved with tobacco.⁽¹⁵⁾

In view of the gravity of the situation, several authors have suggested that anti-smoking measures should target this population as a priority.⁽¹⁸⁾

Therefore, the objective of the present study was to characterize smoking among students attending the Universidade de Brasília (UnB, University of Brasília) as a means of furthering the development of strategies aimed at the prophylactic treatment of smoking among youth.

METHODS

We carried out a cross-sectional study of students who were duly enrolled in graduate day courses at the UnB during the second semester of 2003.

In order to calculate the size of the sample, the value of *p* for smokers between 18 and 24 years was estimated to be 29.4% in the population studied. This datum was obtained from a study carried out in 2001 by the Brazilian Center for Information on Psychotropic Drugs.⁽¹⁹⁾

In order to allow the calculation of 95% confidence intervals, we adopted an alpha error of

3% as the desired level of precision for determining prevalence.

Based on these parameters, we initially identified 923 as the number of university students that would compose an ideal sample for the development of the present study.

Students attending 20 of the 57 day courses were selected by simple random sampling to obtain the study sample.

In order to compare the prevalence of smoking between the initial phase (from the first to the fifth semester) and final phase (from the sixth semester onward) of each course, we invited 30 students who were in the initial phase of the course and 30 students who were in the final phase of the course to participate in the study (assuming 60 to be the average number of students per course evaluated).

Therefore, we obtained the number of students that would complete the necessary sample, including a 20% surplus of questionnaires to compensate for possible losses and incomplete responses.

The following courses were randomly chosen for the study sample selection process: Agronomy, Architecture, Computer Sciences, Communications, Law, Forestry, Civil Engineering, Physical Education, Nursing, Pharmacy, Physics, Geology, Geography, History, Medicine, Veterinary Medicine, Mathematics, Nutrition, Dentistry and International Relations.

In order to obtain the necessary data on tobacco consumption, we used a questionnaire that was developed by the World Health Organization questionnaire, adapted for use in Brazil and validated by the Brazilian Instituto Nacional do Câncer (National Cancer Institute) This questionnaire is divided into three domains and is directed at regular smokers, occasional smokers, former smokers and nonsmokers.

To evaluate the degree of nicotine dependence, we used only the question concerning the time elapsed between waking and lighting the first cigarette. Students who smoked within the two first hours were considered more dependent on nicotine.

The questionnaire was administered in the classroom. Clarifications and basic orientation on the objectives of the study were given beforehand, and students were free to decide whether they would participate or not.

The study was approved by the Ethics in Human Research Committee of the UnB School of Health Sciences.

The chi-square test was used to identify correlations among the variables analyzed, and p values < 0.05 were considered statistically significant.

RESULTS

A total of 1341 students were interviewed, the majority (1084) of which declared themselves to be nonsmokers, representing 80.8% of the sample.

The prevalence of smoking was 14.7% (197). Of those, 9% (121) were regular smokers, and 5.7% (76) were occasional smokers.

A total of 4.5% of the students (60) were classified as former smokers.

There were no statistically significant gender-based differences, 57.3% of the total number of interviewees being male, and 64.7% of the smokers being male ($p > 0.05$).

The evaluation of the prevalence of smoking according to the initial and final semesters revealed no statistically significant differences ($p > 0.05$). A total of 51.9% of students in the sample were in the initial phase of the course, and 48.1% were in the final phase.

The mean age of the population studied was 21.6 ± 3.6 years.

With regard to the age at which the smoking habit was acquired, we found that 89.2% (173) of the 194 smokers responding to that question started to smoke before the age of 18 (Table 1).

The mean declared age at which the smoking habit was acquired was 17 ± 2.8 years.

Considering regular and occasional smokers as a single group of smokers, we observed the highest prevalences of smoking in the following courses: Geology (32.9%), Communications (26.3%), History (24.4%), International Relations (20%) and Forestry (19.4%).

The following were the courses that presented the lowest prevalences of smoking: Mathematics (5.5%), Dentistry (5.6%), Physics (6.3%), Nursing (7%) and Nutrition (8.6%).

With regard to the question about the types of tobacco used by the students, there were various responses. Of the student smokers, 72.6% (143) smoked commercial cigarettes, and 15.2% (30) "rolled their own".

Cigar and pipe smoking was reported by 8% (16) and 4.2% (8) of the smokers, respectively.

On average, 7.5 ± 7.3 cigarettes were smoked per

day, and 77.5% (93) of the student smokers smoked between one and ten cigarettes per day (Table 1).

The evaluation of the combined distribution of the number of years the student had smoked and the quantity of cigarettes smoked per day revealed that the longer the duration of the smoking habit, the larger the quantity of cigarettes smoked per day, this correlation being statistically significant ($p < 0.05$).

Approximately 46.1% of the smokers started to smoke within the first two hours after waking, which indicates heavy nicotine dependence (Table 1).

There were statistically significant differences between regular and occasional smokers ($p < 0.05$) in their responses to questions regarding smoking habits and attitudes: smoking even when sick (regular smokers: 49.1%; occasional smokers: 12.3%), the health hazards secondary to tobacco consumption (regular smokers: 48.7%; occasional smokers: 20.5%) and physician recommendation to stop smoking (regular smokers: 49.2%; occasional smokers: 20.3%).

Even though there was no statistically significant difference ($p > 0.05$) between regular and occasional smokers, 90.6% (161) of the student smokers claimed that they were able to stop smoking, approximately 68% (127) stated that they intended

TABLE 1

Characteristics of smoking among students attending the University of Brasília, including age at which the smoking habit was acquired, number of cigarettes smoked per day and degree of nicotine dependence

	n	%
Age at acquisition		
10 to 14 years	44	(22.7)
15 to 19 years	129	(66.5)
20 to 24 years	19	(9.8)
> 25 years	2	(1.0)
Number of cigarettes per day		
1 to 5 cigarettes/day	65	(54.2)
6 to 10 cigarettes/day	28	(23.3)
11 to 15 cigarettes/day	9	(7.5)
16 to 20 cigarettes/day	14	(11.7)
>20 cigarettes/day	4	(3.3)
Degree of nicotine dependence*		
Up to half an hour	20	(15.6)
1 to 2 hours	39	(30.5)
> 2 hours	57	(39.9)

*determined by the interval between waking and smoking

TABLE 2

Distribution of nonsmoker responses according to their interaction with smokers

Interaction with smokers	n	%
University	419	(33.2)
Work	317	(25.1)
Home	286	(22.6)
None	241	(19.1)

to stop smoking, and 38.7% (74) reported having tried to stop smoking within the last twelve months.

Among the reasons that led interviewees to start smoking, a desire to do so was the most often reported, accounting for 57.6% of the responses (129).

This was followed by 23.2% (52) who were influenced by friends, 8.5% (19) who succumbed to peer-group pressure and 4% (9) whose parents had an influence.

Of the students who characterized themselves as former smokers, 84.5% (49) reported having managed to stop smoking using willpower alone, whereas 3.4% cited the use of nicotine gum, the use of nicotine patches, participation in sports activities, becoming pregnant or having lost the desire to continue smoking.

Most of the students who reported being former smokers (68.3%) also reported interacting with smokers, either on campus, at work or at home. Of the responses given, 80.9% (1022) indicated such interaction in at least one of those locales, interaction with smokers on campus accounting for 33.2% (419) of the responses (Table 2).

DISCUSSION

Several epidemiological studies describing the prevalence of smoking among university students have been carried out in Brazil since the 1980s, most evaluating the characteristics of smoking among students attending courses in the area of health.^(6-8,20-22)

The present study aimed to evaluate the prevalence of smoking among university students attending courses in the areas of health, human sciences and exact sciences in order to obtain a diverse sample that would represent the smoking profile of the distinct courses.

Some authors^(12,17,23) have demonstrated that the

prevalences of smoking among students attending courses in the area of health, especially among medical students, are lower than the results found among students attending courses in other areas.⁽²³⁾

In a study involving all students attending the University of Jordan, lower prevalences of smoking were found among students in the health science colleges.⁽¹²⁾

This was also observed in another study, which was carried out in 1995 and included students attending Cambridge University. In that study, it was determined, once again, that the prevalence of smoking among students attending courses in the area of human sciences was higher than that found among students attending courses in the area of health (17% vs. 7.7%), which is in accordance with the findings of our study.⁽¹⁷⁾

A study of the prevalence of smoking among medical students attending UnB was carried out in 1985, and 14% of the students were found to be smokers.

In our study, however, we registered a lower rate (9.4% of the medical students were smokers), which demonstrates a significant reduction in smoking in this particular course.⁽⁶⁾

These data reinforce the fact that students attending courses in the area of health show a higher level of awareness regarding the hazards of smoking.^(20,23)

Various smoking prevalence studies conducted in other countries have presented different characteristics from those found in Brazil.

In a 1999 study on the use of alcohol and tobacco among university students at 119 North American institutions, it was observed that, among the students who smoked, approximately 28.5% had done so within the last month, and 38.1% had done so within the last year.⁽¹⁵⁾

In another study, it was reported that more than 50% of regular smokers tended to increase tobacco consumption after admission into the university environment.⁽²⁴⁾

Despite this growing tendency toward an increase in smoking among university students worldwide, the results of studies evaluating smoking trends among students attending the principal Brazilian universities have indicated a tendency toward a reduction in smoking in recent decades among university students.^(7,8,21)

A factor that is noteworthy in studies on the

prevalence of smoking is the type of tobacco that is most commonly used in a given population of smokers.

In a study evaluating the types of tobacco products preferred by North American university students,⁽¹⁵⁾ more than half of the smokers were found to use commercial cigarettes.

According to other authors, this is the type of tobacco most commonly used among university students, followed by pipe tobacco and cigars.⁽¹²⁾

Among the students attending UnB, we observed a similar characteristic regarding the use of commercial cigarettes.

This preference of tobacco consumption is alarming and represents the current reality among youth.⁽¹⁶⁾

In addition, it is important to emphasize that the early age at which they experiment and acquire the smoking habit, that is, before the age of twenty years, is commonly related to the period of transition of the individual, from high school to higher education, and that many students may have their first contact with cigarettes when they enter the university.^(11,25)

Therefore, it is essential that anti-smoking measures be taken in order to prevent the youth from acquiring the smoking habit in the school environment.

The evaluation of the opinion of smokers attending UnB about their capacity for and intention to stop smoking revealed that a significant percentage of the smokers underestimated their tobacco dependence since the great majority believed that they would be able to break the habit in the future.

This profile of smoking cessation was also reported in the study of smokers attending the University of Jordan, approximately 69.4% of which reported having an intention to abandon the habit in the future.

Another important finding of that study was that a great percentage of the nonsmokers interacted with smokers in an involuntary way, especially on the campus.⁽¹²⁾

Preventing youth from acquiring the smoking habit is a worthy goal, as are aiding in smoking cessation and interrupting the passive social interaction between nonsmokers and smokers. To that end, several international organizations, such as the American College Health Association and

the American Cancer Society, have recommended that universities prohibit the sale, advertising and distribution of free samples of tobacco and tobacco-based products on university campuses, as well as banning the use of tobacco on the premises of the institution.⁽²⁶⁻²⁷⁾

We understand that the time spent at college may offer great opportunities to intervene in the smoking habits of students. Offering anti-smoking measures to aid in smoking cessation, could, over time, result in lower rates of smoking-related morbidity and mortality.

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