Original Article

PREVALENCE OF AND FACTORS ASSOCIATED WITH ALCOHOL AND TOBACCO CONSUMPTION AMONG PHYSICAL EDUCATION UNDERGRADUATES

PREVALÊNCIA E FATORES ASSOCIADOS AO CONSUMO DE ÁLCOOL E TABACO ENTRE ESTUDANTES DO CURSO DE EDUCAÇÃO FÍSICA

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ABSTRACT

We assessed the prevalence of and factors associated with alcohol consumption and smoking among Physical Education undergraduates of the city of Brasília, Brazil. This epidemiological, cross-sectional study was conducted with 903 second-semester students during the academic year of 2016. We used a self-administered questionnaire on health-related life habits. Of the 903 participants, 57.4 % were female and 42.6% were male; mean age was 24.4±5.0 years. Sixty-eight point eight percent of students consumed alcohol, 37.3% of them at least once per month, with no differences between sexes (p=0.435). Ninety-two point seven percent of females and 91.7% of males reported that the habit of consuming alcohol had been acquired before entering university. Twenty-nine point one percent of participants reported being smokers, of which 7.0% only smoked at parties or on weekends. There was a higher prevalence of alcohol consumption (69.8%) and smoking (31.2%) among students who lived with their parents or relatives. Based on our findings, we propose that the dissemination of information on the harmful effects of excessive consumption of alcohol and smoking may contribute to the prevention of health and social damages caused by these habits.
Keywords: Alcohol. Tobacco. Physical Education. University students. Epidemiology

RESUMO

Este estudo verificou a prevalência e fatores associados ao consumo de álcool e tabaco entre estudantes do curso de Educação Física da cidade de Brasília, Brasil. Trata-se de um estudo epidemiológico de corte transversal, realizado com 903 estudantes matriculados no segundo semestre de 2016. Foi utilizado um questionário autoaplicado com perguntas referentes aos hábitos de vida relacionados à saúde. Participaram do estudo 903 estudantes, sendo 57,4 % do sexo feminino e 42,6% do masculino, a média de idade foi de 24,4±5,0 anos. Observamos que 68,8% dos estudantes ingerem álcool, e destes, 37,3% consomem pelo menos uma vez ao mês, não mostrando diferença segundo o sexo (p=0.435). As mulheres (92,7%) e homens (91,7%) relataram que este hábito foi adquirido antes de ingressar na Instituição. Sobre o tabagismo, 29,1% afirmaram fumar, e destes, 7,0% fumam em festas ou final de semana. Os estudantes que moram com os pais ou parentes apresentaram maior prevalência do consumo de álcool (69,8) e tabagismo (31,2%). Considera-se que a disseminação de informações sobre os efeitos nocivos do consumo exagerado de álcool e do tabaco podem contribuir para a prevenção de danos à saúde e dos agravos sociais decorrentes deste.
Palavras-chave: Álcool. Tabaco. Educação Física. Universitários. Epidemiologia

Introduction

Consumption of (legal or illegal) drugs has become a worldwide concern in recent decades, due to the high incidence of and health risks caused by their use[1].

Several studies have shown that alcohol consumption has increased and started earlier every year. Studies conducted in Brazil, such as the one by the Brazilian Center for Information on Psychoactive Drugs (CEBRID) on improper substance use by high school students from ten state capitals, corroborate these findings[2]. Many individuals first try drugs during adolescence, when they long to become independent from their families. Most substance-dependent persons were 14-18 years old when they used drugs for the first time[3].

When students enter university, they experience many new things, such as staying away from their families, living with other students, and spending most of their time in the university environment. In addition, they enjoy greater freedom and independent decision-making. These new experiences may favor greater alcohol and tobacco consumption, as well as consumption-associated risks[4]. Therefore, entering university has been considered a critical period, when students are more vulnerable to start smoking and using alcohol and other drugs.

Drug use, particularly tobacco and alcohol use, is associated with educational delay, work and school absence, and violence and criminality. Additionally, most drugs of abuse cause physical harm to their users. Substance use is a complex and multifactorial issue[5].

Alcohol consumption by university students has been the topic of many studies, especially due to concerns about abusive and prejudicial alcohol use. These studies aimed to identify both consumption patterns and effective preventive interventions to reduce consumption[6]. Javier et al.[7] also state that alcohol risk consumption has been associated with several problems, such as: drunk driving, unsafe sex, involvement in fights and accidents, social and interpersonal losses. Moreover, these problems may compromise students' academic development. Other studies, such as the ones conducted by the National Secretariat for Drug Policy (SENAD)[8] and Simons-Morton et al.[9] also revealed a greater occurrence of alcohol-related problems among university students and a higher prevalence of consumption among male students.

University students in Health Sciences generally represent a social segment with access to goods, services and, above all, information that would be expected to be associated with healthy living habits. In addition, it has the potential to occupy influential positions and to represent models and examples of behaviors and attitudes.

Despite the knowledge offered to these future health professionals about the effects related to alcohol and tobacco abuse, this is not always translated into healthier habits, which may make them a risk group. Thus, information about factors associated with the onset and persistence of this unhealthy habit could support the implementation of effective preventive measures during their academic training.

The analysis of these data is timely considering the current issues addressed, and the use of these data as a reference to evaluate changes in the scenario, since we know that university students have a low perception of consumption risk, which allows the use any time, thus implying an increase in the level of risk and vulnerability.

It is therefore important to get to know the profile of higher education students in order to recognize their resources and vulnerabilities. Given the increasing concern in universities about alcohol and tobacco consumption, it is important to identify students' consumption patterns and related risks[10].

Thus, this study aimed to investigate the prevalence and factors associated with alcohol consumption and smoking among Physical Education undergraduates from a private university in Brasília, Brazil.

Methods

Study Design, Population and Sampling

This epidemiological, cross-sectional study was conducted with students of the Physical Education Undergraduate Program at the Centro Universitário do Distrito Federal (UDF), in Brasília, FD, Brazil.

The study population included students (from semesters 1-8) from the physical education program. The study intended to include all the students from the program, participation was voluntary and participants signed na informed consent.

Measurements

We first conducted a pilot study with Odontology undergraduates of the UDF, who were not selected for the study. We applied 50 questionnaires with dental students in order to verify the appropriate form of application (applicability) and the level of reliability (reproducibility and objectivity).

Data collection was performed in the classrooms by trained students between August and November 2016. The instrument was administered during the break between lessons, in a classroom with a seating capacity for 60. Respondents had enough distance from each other to maintain confidentiality. The questionnaire was completed and placed in a brown envelope with no personal identification, just the major group name and whether they had day or night classes.

Before being handed the instrument for self-completion and the informed consent form, all participant Physical Education undergraduates received instructions on how to complete the questionnaire. We used a self-administered questionnaire on health-related life habits.

The instrument was composed of the following sections: personal and demographic information, type of school in high school, place of residence, self-perception of health, consumption of alcohol and tobacco and the moment that started this consumption.

To assess alcohol consumption, we asked respondents a question on how often they drank. Students who self-reported drinking were administered the CAGE questionnaire. The instrument is composed of four questions represented by key letters, namely: C – Cut Down; A – Annoyed; G – Guilty; E – Eye-Opener.

All four questions have dichotomic answer options (positive and negative). Two or more positive answers confirm the suspicion of alcohol abuse. In addition to the questionnaire, we asked students whether they had started consuming alcohol before or after entering university.

In addition, students were divided into two groups: "consumers", those who reported drinking alcohol at least once per month, and "non-consumers", those who had never consumed alcohol. To assess smoking habit, we used a pre-tested questionnaire[18]. Respondents who self-reported smoking were asked whether they had acquired the habit before or after entering university. For analysis, students were divided into two groups: smokers, i.e., those who self-reported smoking at parties or on weekends, and those who smoked regular basis; and non-smokers, i.e., those who never smoked or quitted smoking.

In addition, we also investigated demographic variables, such as gender (male or female), age, type of high school attended (public or private school, a few years at private school or others), place of residence (with their parents or relatives, in a boarding house, in a house/apartment with friends, alone or others), socioeconomic level based on the family income, which is calculated according to the total number of minimum wages (MW = 880 Reais) received in the family per month: level A: more than 20 MW; level B: 10-20 MW; level C: 4-10 MW and level D: 2-4 MW (ABEP – Brazilian Association of Research Companies – 2014 – www.abep.org); and behavioral and health aspects, including health self-perception (excellent, very good, good, moderate or poor).

This study complied with guidelines of Resolution #466/2012 of the National Health Council and was approved by the Research Ethics Committee of the Centro Universitário do Distrito Federal – UDF (protocol number CAAE: 59713316.0.0000.5650). All participants signed the Informed Consent Form

Statistical Analysis

All data were typed twice, and these double entries were cross-checked for errors. All statistical analyses were performed using the statistical package Stata 12.0. First we performed descriptive analysis (with means and proportions) and then association analyses using chi-square tests for heterogeneity.

Possible confounding variables were identified as those associated ($p<0.20$) in the univariate analyses, and were included in the final multivariate analysis models. Logistics regressions with robust standard errors were used to obtain adjusted effect estimates (including confounding factors). The p-value for statistical significance was <0.05 in the final model.

Results

A total of 903 students (who were 18 or older) out of the total of 1208 students enrolled in the program during the academic year of 2016 were included in the study. The loss of 305 students representing 25% of the population is because students did not attend to the university in the day of data collection. A second attempt to include the students that missed the first day of data collection was made during another day. If the student missed both opportunities, he/she was not included in the study.

Of these 903 students, 57.4 % were female and 42.6% were male. Mean age was 24.4 years (SD = 5.0) and 67.6% were 20-29 years old. Table 1 describes the sample according to sociodemographic, socioeconomic and health characteristics. We found that 76.4% of respondents attended a public high school and 73.4% lived with their parents or relatives. With regard to their self-perception of health, 39.5% self-assessed their health as "good".

Table 1.Description of the sample according to demographic and socioeconomic variables

Variables		N	%
Sex	Female	518	57.4
	Male	385	42.6
Age	< 20	143	15.8
	20-29	610	67.6
	> 30	150	16.6
Type of high school education	Public school	690	76.4
	Private school	179	19.9
	Partly in private schools	21	2.3
	Other	13	1.4
Socioeconomic level	A	23	2.6
	B	230	25.4
	C	515	57.0
	D	135	15.0
Place of residence	With parents or relatives	663	73.4
	House/apartment with friends	81	9.0
	Alone	72	7.9
	Other	87	9.7
Self-perception of health	Excellent	153	17.0
	Very good	262	29.0
	Good	357	39.5
	Moderate	109	12.1
	Poor	22	2.4
	Total	903	100

Source: Authors

Alcohol consumption and smoking habits are described in Table 2. Sixty-eight point eight percent of students consumed alcohol, 37.3% of them at least once per month, with no differences between sexes (p=0.435).

Table 2. Use of alcohol and tobacco among Physical Education undergraduates

	Total		Female		Male	
Variables	N	%	N	%	N	%
Alcohol consumption		P = 0.435				
Never used	282	31.2	174	33.6	108	28.0
Monthly or less frequently	337	37.3	189	36.4	148	38.4
2-4 times a month	197	21,8	107	20.7	90	23,4
2-3 times a week	78	8,7	44	8.5	34	8.9
4 or more times a week	09	1.0	04	0.8	05	1.3
Total	903	100	518	100	385	100
Smoking		P = 0.005				
Never smoked	640	70.9	389	75.1	251	65.2
Don´t smoke regularly	150	16.6	68	13.1	82	21.3
Smokes at parties or on weekends	63	7.0	38	7,3	25	6,4
Former smoker	32	3.5	15	3.0	17	4,4
Current smoker	18	2.0	08	1.5	10	2,7
Total	903	100	518	100	385	100

Note: *Chi-square test for heterogeneity
Source: Authors

As for smoking habits and tobacco consumption, 29.1% reported having smoked at some time and 7% reported smoking at parties or on weekends. Three point five percent of all respondents reported being former smokers, and 70.9% reported never having smoked.

Of the students who reported consuming alcohol 2.1% (n=19: 8 males and 9 females) were considered to be at risk for alcoholism on the basis of high scores on the CAGE instrument.

Ninety-two point seven percent of females and 91.7% of males reported that the habit of consuming alcohol had been acquired before entering university, showing no significant differences between sexes. Similar results were found for smoking: 84.5% of female and 82.8% of males reported that they had started smoking before entering university (Table 3).

Table 3. Description of the sample according to the time when first started using alcohol and/or tobacco

Variables	Female N (%)	Male N (%)
Time they started consuming alcohol	P = 0.183	
Before entering University	319 (92.7)	121 (91.7)
After entering University	25 (7.3)	11 (8.3)
Total	344 (100.0)	132 (100.0)
Time they started smoking	P = 0.716	
Before entering University	109 (84.5)	111 (82.8)
After entering University	20 (15.5)	23 (17.2)
Total	129 (100.0)	134 (100.0)

Note: *Chi-square test for heterogeneity
Source: Authors

Table 4 shows the association between alcohol consumption and smoking and demographic, socioeconomic and health variables. There was a higher prevalence of alcohol consumption (69.6%) and smoking (28.6%) among students aged 20-29 years. Students who had attended a private high school for at least a few years were more likely to consume alcohol (76.1%) and tobacco (38,1%). Likewise, the group with socioeconomic level D was also more likely to use alcohol (74.1%) and tobacco (34.8%).

There was a higher prevalence of alcohol consumption and smoking among students who lived with their parents or relatives (69.8% and 31.2%, respectively) and self-assessed their health as "good" (42.7% and 42.6%, respectively).

Table 4. Association between alcohol consumption and smoking and demographic, socioeconomic and health variables

Variable	Alcohol consumption[a]		Smoking[b]	
	%	OR (95%CI)	%	OR (95%CI)
Sex				
Female	55.3	1.00	49.0	1.00
Male	44.6	1.29 (0.97-1.72)	50.5	1.60 (1.20-2.14)
Age				
< 20	66.4	1.00	33.5	1.00
20-29	69.6	1.16 (0.78-1.71)	28.6	0.79 (0.53-1.17)
> 30	67.3	1.04 (0.64-1.69)	26.6	0.71 (0.43-1.18)
Type of high school education				
Private school	74.8	1.00	38.5	1.00
Public school	66.9	0.68 (0.46-0.98)	26.3	0.57 (0.40-0.80)
Partly in private schools	76.1	1.07 (0.37-3.10)	38.1	0.98 (038-2.48)
Other	69.2	075 (0.22-2.57)	30.7	070 (0.21-2.38)
Socioeconomic level				
A	73.9	1.00	17.3	1.00
B	72.1	0.91 (0.34-2.42)	32.6	2.29 (0.75-6.99)
C	65.4	0.66 (0.25-1.72)	26.6	1.72 (0.57-5.15)
D	74.1	1.04 (0.38-2.87)	34.8	2.53 (0.81-7.89)
Place of residence				
House/apartment with friends	71.6	1.00	28.4	1.00
With parents or relatives	69.8	0.91 (0.55-1.52)	31.2	1.14 (0.68-1.90)
Alone	68.1	0.84 (0.42-1.68)	19.4	0.60 (0.28-1.29)
Other	58.6	0.56 (0.29-1.07)	21.8	0.70 (0.34-1.42)
Self-perception of health				
Good	74.2	1.00	31.3	1.00
Excellent	58.1	048 (0.32-0.71)	26.1	0.77 (0.50-1.18)
Very good	70.9	0.84 (0.59-1.21)	30.1	0.94 (0.66-1.33)
Moderate	61.4	0.55 (0.35-0.87)	24.7	0.72 (0.44-1.17)
Poor	63.6	0.60 (0.24-1.49)	22.7	0.64 (0.23-1.78)

Note: [A]Alcohol consumption more frequent than once per month; [B]Smoking (smoker, already tried it, smokes at parties or on weekends)
Source: Os autores

Discussion

Although many antismoking campaigns are promoted by the Ministry of Health in Brazil, initiation into smoking chiefly happens during adolescence. A study conducted with adolescents and adults from Belo Horizonte found that 51% of participants were smokers[11]. In Colombia, a study revealed that 80% of Nursing undergraduates are smokers[12]. This is a significantly higher percentage than the one found in this study (29.1%). This difference may be explained by the social and cultural characteristics of the region where the study was conducted.

Epidemiological studies indicate that undergraduate students are the main consumer group, showing higher consumption rates than the general population and high school students[7].

Our study showed a prevalence of alcohol consumption and tobacco use among Physical Education undergraduates of 68.8% and 29.1%, respectively. This is rather a worrying result, since alcohol and tobacco use is associated with several behavioral disorders and health problems.

The highest percentages were recorded in age group 20 to 29 years. Similar results were found in another study, which also identified an association between casual use of alcohol and use of psychoactive drugs[13].

Involvement with illegal drugs mainly occurs during adolescence and young adulthood. In Brazil, where about 35 million people are younger than 30 years, problems related to psychoactive drug use can be worrisome[5].

When asked about their personal experience with tobacco, 29.1% of students responded that they had already smoked at least once. This finding is in line with the national literature[14], where we found that 22.3% of Nursing undergraduates, 28.4% of Pharmacy undergraduates, 27% of Odontology undergraduates and 22% of medical students had had some personal experience with tobacco use. Of note, we found that tobacco use among Physical Education undergraduates is lower than among the general population, who shows a 44% lifetime use, 19.2% annual use and 18.4% monthly use[15].

Studies show that the percentage of smokers among Brazilian undergraduate students ranges from 8.1% to 17.8%. The southern region of the country is highlighted as the biggest producer of tobacco in Brazil[16-20]. According to the National Cancer Institute (INCA) the rate of smokers among the urban population of Brazil is as high as 16.5%[21].

In Brazil, smoking is directly related to 30% of cases of acute myocardial infarction, 25% of cases of stroke, 85% of deaths from chronic obstructive pulmonary disease and at least 90% of deaths from lung cancer[21]. Just like smoking, alcohol consumption can cause health damages and several economic and social problems in our country. For instance, a paper describing epidemiological studies on alcohol consumption in Brazil shows that, of 130 cases of homicide in Curitiba, over 50% of the victims and 58.9% of crime perpetrators were under the influence of alcohol.

We found that the prevalence of females (7.3%) who only smoked at parties or on weekends was higher than that found for males (6.4%). This result differs from those of other studies that found a higher prevalence among men, although consumption among women is currently on the rise[17]. It was found that, in private schools in the Federal District (Brazil), there was a higher prevalence of tobacco use among girls than boys aged 9-19 years[20].

In this study, the prevalence of alcohol consumption was higher (68.8%) than in British students (25-42%)[22], medical students from public and private universities in the USA (6-12%)[23] and medical students in Crete, Greece (3.6%)[24].

Of those who consumed alcohol, 2.1% were suspected of alcohol abuse on the basis of their scores on the CAGE instrument. A study conducted with 3.644 undergraduates from both sexes in Jequié, BA, Brazil, found a more expressive result, with 13.4% of participants being suspected of alcohol abuse[25].

A national survey on the consumption of alcohol among university students that was performed in Brazil in 2010 found revealed that 86.2% of respondents had used alcohol at least once in their lives[26]. When comparing the results of the aforementioned survey with the First National Survey on the Patterns of Alcohol Consumption in the Brazilian Population in 2007, we found that 52% of people older than 18 years had consumed alcohol at least once in the previous 12 months, whereas 48% were abstinent[26].

There was no association between use of alcohol and socioeconomic level. These data corroborate the study by Lucas et al.[27], in which no association was found either. Their study, however, had different findings. They found a higher prevalence of alcohol consumption among medical, pharmacy and odontology students with socioeconomic level B (87.7%), while in this study we found that the lower the socioeconomic level, the higher the probability of using alcohol (74.1%) and tobacco (34.8%).

The vast majority of students reported first trying cigarettes and alcohol before entering university. Sixty-seven point six percent of the students in our sample were younger than 20 years. A study conducted with university students in Gurupi (TO), Brazil, showed that first cigarette use occurs around age 17[28]. In line with these results, a study performed at the medical school of Passo Fundo, Brazil, found that 69.2% of smokers started smoking between ages 15 and 19 years[29].

It is mistakenly believed that health sciences students are more aware of the harmful effects of alcohol and drugs.

Our study has limitations and the results need to be interpreted taking them into account. The first is the difficulty to include 25% of the students due to the fact that they were missing on the day of data collection. Given that there were two different opportunities in different times and classes to collect the information, the possibility that this loss introduces a selection bias is low. The other limitation is about memory bias which could lead to error in the reporting of the habits that were of interest in the study.

Finally, we believe that most university students need to be better informed of the harms of alcohol abuse related to mental and physical health. According to the National Institute on Drug Abuse, properly informing users of the adverse consequences of drug use to their social and personal lives is important, because it helps them stay away from drugs[30].

Conclusions

Most students use alcohol and tobacco. We believe that university entrance may represent an important risk factor for drugs and alcohol consumption.

Moreover, intensification of antismoking campaigns among Physical Education students may contribute to improve their quality of life and raise awareness of their future mission of promoting health.

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