Association between binge drinking and smoking in nursing students

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ABSTRACT

The aim of this paper is to evaluate binge drinking and its association with tobacco use in nursing students. This is a cross-sectional study conducted with 182 students. Data were collected using a socio-demographic information form, the Alcohol Use Disorders Identification Test (AUDIT-C), and the Fagerström Test for Nicotine Dependence (FTND). It was observed that 48.9% of the participants were classified as binge drinkers and 6% were smokers. Binge drinking was associated with frequency of drinking, dosage, and frequency of drinking five or more doses on a single occasion. Moreover, this consumption pattern was associated with time of smoking after waking, number of cigarettes per day, morning consumption, smoking at any time of the day, prohibition situations, and cases of illness. Binging has been associated with the frequency and amount of alcohol consumption and smoking; however, this conclusion may not portray the situation in Brazil as it deals with a specific population.

Descriptors: Students, Nursing; Alcohol-Related Disorders; Binge Drinking; Tobacco Use.

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INTRODUCTION

The use of alcohol and tobacco is a common and growing habit in universities. Many times, this habit is triggered by the social experiences of students, who often feel the urge to consume these substances in parties. The biopsychosocial changes that students experience, the easy access to these substances, and the difficulties and tribulations of university life may also motivate them to adopt this habit. These driving factors may increase stress levels and alcohol and tobacco can be a source of modulation and immediate relief, or used as a way of coping with various situations[1]. When it comes to alcohol consumption, binge drinking (BD) among college students has been repeatedly reported in the literature[2-4].

Binge drinking is defined as heavy consumption in a single episode, until blood alcohol concentrations reach 0.08 g/dL[3-5]. In adults, binge drinking is equivalent to consuming five or more drinks for men, or four or more drinks for women, ingested within 2 hours[6].

In addition to alcohol consumption, smoking is considered a health hazard. Smoking in universities has frequently been investigated in international studies[7], and is often associated with alcohol use. In a sample of 237 nursing students, 24% were smokers and 82% consumed alcohol; with regard to consuming alcohol and tobacco, 98% of the students who smoked were also high alcohol consumers[8].

A study conducted in the United States revealed that tobacco use among college students spread together with heavy drinking[7]. This data suggests the associated use of these two substances can be triggered by facilitated social interactions, staying awake, and the calmness students feel when drunk, especially at university parties when these *benefits* are more appreciated.

However, according to a national survey with students from 27 Brazilian state capitals, students who binge drink are often exposed to the immediate and inherent risks of this pattern of consumption, namely traffic accidents, unprotected sex, trouble with the law, acute alcohol intoxication, academic difficulties, and violence and sexual abuse under the influence of alcohol[9].

Healthcare students, especially future nurses, are considered an important and particularly interesting population group in Brazil, since it is they who will transmit organized knowledge to the community and use their professional skills and competencies to implement healthy practices, habits, and behaviors[10]. In this context, it is important to understand tobacco and alcohol use in this population in order to create strategies to promote health and prevent the use of hazardous substances among college students. Thereby, educational institution would be investing in reducing the problems that affect the social, economic, and political sectors linked to the non-recreational use of psychoactive substances.

According to Brazilian studies, all available evidence on the consumption of psychoactive substances focuses mainly on frequency of use and its association with socio-demographic data[11], gender-related differences[12], and over-the-counter drug abuse[13].

Although epidemiological studies have evaluated binge drinking and smoking separately[14-15], in Brazil, there is little evidence on the association between both substances, especially with regard to nursing students. Notably, binge drinking is more common in men; however, it is evidently growing among women, which is a recent and scarcely studied phenomenon that should be better investigated.

Considering the relevance of this subject and the need for consistent evidence, the aim of this study is to evaluate binge drinking and its association with tobacco use in nursing students.

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METHOD

This is a descriptive, cross-sectional study with a quantitative approach conducted with nursing students at a higher education institution in Ribeira Valley, on the southern coast of the state of São Paulo, Brazil. The nursing course is divided into semesters, totaling 10 academic semesters (five years).

Considering the 261 (100%) students enrolled in all the course semesters and according to the sample calculation (95% reliability and 2% accuracy), the minimum required sample was 156 students. The students were selected according to the eligibility criteria, namely male or female students who had enrolled in the course, over 18 years of age, and in class at the time of data collection.

In the end, 182 (69.7%) students voluntarily participated in the study. Data were collected from August to November 2016, during class, after approval of the course coordinators, using a questionnaire containing the following: (1) socio-demographic information form; (2) Alcohol Use Disorders Identification Test (AUDIT-C); (3) Fagerström Test for Nicotine Dependence (FTND).

(1) The socio-demographic form collected data on sex, age group, income, course year, marital status, children, living companion, work, and religion.

(2) The Alcohol Use Disorders Identification Test (AUDIT-C) is an abbreviated version of the full AUDIT. This instrument contains three items relating to the quantity, frequency and hazardous consumption of alcohol[16]. To interpret consumption, the answers must be added together, resulting in a score from zero to 12 points. The final classification differs in relation to sex: men (five points) and women (four points). In this study, item three of this test was used as the dependent variable to characterize binge drinking. The other instrument variables were used to determine an association with this pattern of consumption. A study has shown very good levels of instrument sensitivity (0.90) and specificity (0.91). The authors presented the weaknesses and potential use of the AUDIT on samples of university students and women[17]. In addition, AUDIT-C has been compared to the original AUDIT and AUDIT 3, and showed the highest efficiency and best results in comparison to these other versions[17].

(3) Fagerström Test for Nicotine Dependence (FTND): this instrument is used to evaluate levels of nicotine addiction[18]. The FTND was adapted for use in Brazil, and contains six items regarding tobacco-related habits and behavior. The items are classified at five levels according to the following scores: 0-2 very low, 3-4 low, 5 average, 6-7 high, and 8-10 very high.

To determine whether the participants understood the items, a pilot test was applied to 10 students enrolled in different semesters who were not part of the sample. The time needed to complete the instrument was approximately 20 minutes. Once completed, the questionnaires were kept in sealed, unidentified envelopes to ensure respondent anonymity.

This study was approved by the committee of ethics in research involving human beings, filed under opinion No. 1.589.998 (CAAE: 56601316.4.0000.5490) of the Union of Service, Teaching, and Research Institutions - UNISEPE and conducted according to resolution 466/2012 of the National Health Council. All participants signed an informed consent statement.

Data were double entered into a database and statistical analyses were conducted using the Statistical Package for Social Science (SPSS) version 19.0. The descriptive analysis was carried out by calculating frequency,

mean, and standard deviation. The Fisher exact test and the chi-squared test[2] were applied to measure the association between binge drinking the socio-demographic variables, the AUDIT-C, and the FTND. A significance level of 5% based on a confidence level (CI) of 95% was considered for all the tests.

RESULTS

The sample was composed of 182 nursing students, predominantly women, 137 (75.3%), with an average age of 26.6 (SD = 8.0), in their fourth year, 45 (24.7%), single, 105 (57.7%), without children, 115 (63.2%), and employed, 126 (69.2%). Their average income was BRL 1,203.13, and 90.7% lived with their families. Approximately half of the students were binge drinkers (48.9%). Moreover, binge drinking was more common among the students who stated they were practicing Catholics (Table 1).

Table 1: Socio-demographic information and BD among nursing students (N = 182). Registro, SP, Brazil, 2016.

		BD					
		Yes (n = 89)		No (n = 93)		Test	p value
		n	%	n	%	χ²	
Sex	Women	65	73.0	72	77.4	0.470	0,30[a]
	Men	24	27.0	21	22.6		
Age group	17 to 29	55	61.8	65	69.9	2.360	0.30[b]
	30 to 40	29	32.6	21	22.6		
	41 to 57	5	5.6	7	7.5		
Current year of study	1st and 2nd year	39	43.8	41	44.1	0.001	0.54[a]
	3rd, 4th, and 5th year	50	56.2	52	55.9		
Marital status	Single	49	55.1	56	60.2	0.496	0.29[a]
	Consensual union	40	44.9	37	39.8		
Living arrangements	Alone	11	12.4	6	6.5	1.874	0.13[a]
	Family members	78	87.6	87	93.5		
Religion	Catholic	49	55.1	29	31.2	10.584	<0.01[a]
	Non-Catholic	40	44.9	64	68.8		
Practicing religion	Practicing	45	50.6	62	66.7	4.869	0.02[a]
	Not practicing	44	49.4	31	33.3		

χ² Chi-square test; [a] Fisher exact test; [b] Chi-square test.

The binge drinkers drank more frequently (two to four times a month) and had eight or more drinks on a typical day. In addition, the consumption of five or more drinks on a single occasion occurred with a frequency of once a month (Table 2).

The assessment of tobacco use (FTND) showed only 6% of students were smokers. In this population, BD was associated with the habit of smoking in the morning (31 to 60 minutes after waking), difficulties not smoking in non-smoking locations, and the most satisfying cigarette of the day could be smoked at any time. Furthermore, smoking between 11 to 20 cigarettes a day, not smoking frequently in the morning, and smoking even when sick were associated with BD (Table 3).

When comparing binge drinking and smoking, BD was prevalent among the smokers (11.1% versus 1.1%). However, among the smokers, BD was prevalent among students with low and medium levels of consumption (p< 0,01), which is not presented in the table.

Table 2: Evaluation of BD and pattern of alcohol consumption in the past 12 months (AUDIT-C) among nursing students (N = 182). Registro, SP, Brazil, 2016.

		BD				Test χ²	p value
		Yes (n = 89)		No (n = 93)			
		n	%	n	%		
Frequency	Never	2	2.2	77	82.8	127.300	<0.01
	Once a month or less	29	32.6	13	14.0		
	2-4 times a month	32	36.0	3	3.2		
	2-3 times a week	10	11.2	-	-		
	4 or more times a week	16	18.0	-	-		
Doses in a normal day	0 - 1	19	21.3	88	94.6	13.424	<0.01
	2 - 3	21	23.6	3	3.2		
	4 - 5	18	20.2	-	-		
	6 - 7	5	5.6	-	-		
	8 or more	26	29.2	2	2.2		
Frequency of consumption of five or more drinks on a single occasion	Abstinent	-	-	93	100.0	182.000	<0.01
	Once a month or less	24	27.0	-	-		
	Once a month	28	31.5	-	-		
	Once a week	11	12.4	-	-		
	Almost every day	26	29.2	-	-		

χ² Chi-square test.

Table 3: Comparison of tobacco consumption (FTND) and BD among nursing students (N = 182). Registro, SP, Brazil, 2016.

Tobacco		BD (yes)			
		n	%	Test χ²	p value
How soon after waking up for the first cigarette	Abstainers	78	87.6	12.234	<0.01[b]
	31 to 60 minutes	8	9.0		
	6 to 30 minutes	3	3.4		
Difficulty not smoking in prohibited places	Abstainers	79	88.8	8.476	0.01[b]
	No	4	4.5		
	Yes	6	6.7		
Most satisfying cigarette of the day	Abstainers	78	87.6	12.234	<0.01[a]
	Any cigarette	11	12.4		
How many cigarettes smoked per day	None	78	87.6	12.234	<0.01[b]
	Less than 10	3	3.4		
	From 11 to 20	6	6.7		
	From 21 to 30	2	2.2		
Smoking more often in the morning	Abstainers	78	87.6	12.234	<0.01[b]
	No	7	7.9		
	Yes	4	4.5		
Smoking even when sick	Abstainers	78	87.6	12.141	<0.01[b]
	Yes	5	5.6		
	No	6	6.7		

χ² Chi-square test, [a] Fisher exact test; [b] Chi-square test.

DISCUSSION

Results revealed a significant number of students are engaged in binge drinking regardless of gender, and significance in relation to frequency, number of drinks, and high drinking rates (Table 2). In relation to smoking, despite the low frequency (6%), significant associations with binge drinking were found.

Alcohol and tobacco use is common among university students[2-3,8]. National studies on this behavior among nursing students are still incipient; however, available studies reveal hazardous alcohol[14] and tobacco[15] consumption. This behavior is a challenge to public health, as it can negatively affect social relations[19], decrease immunologic resistance, increase the propensity to cardiovascular and liver diseases[6], and promote involvement in risky behavior.

The use of AUDIT-C in research involving university students showed that almost half of the 163 nursing students were engaged in hazardous consumption and 19% used alcohol at harmful levels[14]. A study on tobacco use in nursing students revealed that 83.6% of the 344 subjects had never smoked[20]. Alcohol and tobacco use may be considered by college students as a socially acceptable "usage package", especially in university parties and other informal occasions, where it favors social interaction[7].

In contrast, research on alcohol and tobacco use in universities can identify and provide insight into how these two substances are related and enhance their effects on the population. According to the national curriculum guideline for nursing education, "nurses must be competent at taking care of their own physical and mental health and seek their well-being as citizens"[21]. However, when they do not attend to their self-care, healthcare students/professionals may encourage the communities in which they work to engage in behavior that poses a health risk.

Early identification of problems associated with alcohol and tobacco use combines brief and simple intervention methods professionals can implement in university education. The literature offers tools to screen alcohol and tobacco use. The most important standardized tools adapted for the Brazilian population are AUDIT[16], FTND[18], and Alcohol, Smoking and Substance Involvement Screening – ASSIST[22].

In this study, BD was prevalent in students who smoke (descriptive data) and who were classified as low and medium tobacco users. When alcohol and tobacco are used together, they are known to be strongly mutually related[23] and believed to enhance one another. This consumption occurs primarily in situations involving BD. Evidence suggests tobacco use, even in light smokers, can rapidly increase after binge drinking[24]; that is, the more a person drinks (frequency and dose), the greater the desire to smoke.

Alcohol consumption among college students is still an obstacle that needs to be overcome, especially when it comes to binge drinking. Its use is probably related to a setting of social conviviality without family supervision, which makes students vulnerable to substance abuse[25]. Alcohol use among college students is frequent and it is their preferred substance. They often falsely believe they will be able to control the risks linked to drinking[25]. In the long term, this situation can lead to problematic use with negative effects on students' professional, personal, and social life.

The transformations of society in recent decades have changed how people view smoking and what was once permissively considered an attractive and glamorous habit is now regarded as unwanted and disrespectful[20]. Moreover, the Brazilian legislation regulating smoking restrictions in collective environments and increased awareness of the harm associated with smoking has limited tobacco use and contributed to its declining consumption.

Another important finding refers to the association between binge drinking and tobacco use variables. Nursing students who binge drank also had the habit of smoking 31 to 60 minutes after waking up, had difficulty

not smoking in prohibited places, and stated the most satisfying cigarette of the day could be smoked at any time. Furthermore, smoking between 11 to 20 cigarettes a day, not smoking frequently in the morning, and smoking even when sick were associated with BD (Table 3). Therefore, it is critical to stimulate preventive actions and education on the biopsychosocial losses involving the use of these substances in universities. New studies involving alcohol/tobacco in universities are also required to provide evidence for these preventive actions.

This study has some limitations. Firstly, the results should be evaluated with caution since only one sample of nursing students from a small Brazilian municipality was used. Secondly, despite studies showing good sensitivity levels and specificity of the AUDIT-C, the tool used in this study was an abbreviated version of the original instrument (AUDIT). Finally, the study involved only a top private institution in the Vale do Ribeira, thus limiting the assessment of other public or private institutions. Therefore, further studies should be conducted to investigate different factors related to binge drinking and tobacco use in other locations.

On the other hand, this study provides a detailed investigation on BD/tobacco use in Vale do Ribeira, a region with a low human development index (HDI), which had never previously been the object of research of this nature. Furthermore, this study provides unique data to further investigate alcohol and tobacco use in nursing students.

CONCLUSION

Binge drinking was high in the investigated population. However, BD was associated with low and medium nicotine dependence. The data in this study can support decision making for the prevention of alcohol and tobacco use in universities, in order to minimize problems arising from the use of these substances in Brazilian locations with a low HDI. The results shed light on professional training in Nursing and encourage the early creation of self-care strategies to protect student health.

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