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Original Article

Predictive models for the problematic use of alcohol among healthcare university students

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Objective: to identify the prevalence and predictors for the problematic use of alcohol among university students in the health area. Cross-sectional study, conducted with 1,497 university students from 11 health courses, in the metropolitan region of Cuiabá-MT, Brazil. **Method:** The Test for Identification of Problems Related to the Use of Alcohol was used. Poisson regression was applied and the Prevalence Ratio was estimated. **Results:** the prevalence of problematic alcohol use was 23.6%. Problematic alcohol consumption was identified among men, single, who lived alone, who considered themselves aggressive and who used alcohol in festive moments to relax, have pleasure and improve social interaction. The one who lived with spouse and/or children, was in the 2nd year of the course, did not notice changes in the pattern of consumption in college; the non-participant of athletics, who considered himself calm and introverted and drank for problems or "nervousness" presented less frequent problematic use of alcohol. **Conclusion:** the search for socialization influences the use of alcohol among university students. It is suggested that the maintenance of the consumption pattern prior to the beginning of graduation protects them. The models are multi-determined and require, from educational institutions, student entities and health teams, timely actions.

Descriptors: Alcohol Drinking in College; Universities; Students; Alcoholic Beverages; Alcoholism.

Modelos preditivos para o uso problemático de álcool entre universitários da saúde

Objetivo: identificar a prevalência e os preditores para o uso problemático de álcool entre estudantes universitários da área da saúde. Estudo transversal, realizado com 1.497 universitários de 11 cursos da saúde, na região metropolitana de Cuiabá-MT, Brasil. **Método:** utilizou-se o Teste para Identificação de Problemas Relacionados ao Uso de Álcool. Aplicou-se a regressão de Poisson e estimou-se a Razão de Prevalência**. Resultados:** a prevalência de uso problemático de álcool foi de 23,6%. Identificou-se consumo problemático de álcool entre homens, solteiros, que moravam sozinhos, que se consideravam agressivos e que usavam o álcool em momentos festivos para relaxar, ter prazer e melhorar a interação social. Aquele que morava com cônjuge e/ou filhos, estava no 2º ano do curso, não percebeu mudanças no padrão de consumo na faculdade; o não participante de atléticas, que se considerava calmo e introvertido e bebia por problemas ou "nervosismo" apresentou uso problemático de álcool menos frequente. **Conclusão:** a busca por socialização influencia o uso de álcool entre universitários. Sugere-se que a manutenção do padrão de consumo anterior ao início da graduação os protege. Os modelos são multideterminados e requerem, de instituições de ensino, entidades estudantis e equipes de saúde, ações oportunas.

Descritores: Consumo de Álcool na Faculdade; Universidades; Estudantes; Bebidas Alcoólicas; Alcoolismo.

Modelos predictivos para el uso problemático del alcohol entre las universidades de salud

Objetivo: identificar la prevalencia y los predictores del consumo problemático de alcohol entre estudiantes universitarios en el campo de la salud. **Método:** estudio transversal, realizado con 1.497 estudiantes universitarios de 11 cursos de salud, em región metropolitana de Cuiabá-MT, Brasil. Se utilizó la prueba para identificar problemas relacionados con el consumo de alcohol. Se aplicó la regresión de Poisson y se estimó la razón de prevalencia. **Resultados:** la prevalencia del consumo problemático de alcohol fue del 23,6%. El consumo problemático de alcohol se identificó entre hombres, personas solteras, que vivían solos, que se consideraban agresivos y que usaban alcohol en momentos festivos, para relajarse, disfrutar y mejorar la interacción social. El que vivía con un cónyuge y/o hijos, estaba en el segundo año del curso, no notó cambios en el patrón de consumo en la universidad, no participó en el deporte, quien se consideró tranquilo e introvertido y bebió debido a problemas o "nerviosismo" presentó protección para el uso de alcohol. **Conclusión:** La búsqueda de la socialización influye en el consumo de alcohol entre los estudiantes universitarios. Se sugiere que mantener el patrón de consumo antes del comienzo de la graduación los protege. Los modelos son múltiples y requieren una acción oportuna por parte de las instituciones educativas, los cuerpos estudiantiles y los equipos de salud.

Descriptores: Consumo de Alcohol en la Universidad; Universidades; Estudiantes; Bebidas Alcohólicas; Alcoholismo.

Introduction

More than half of the world population has consumed some alcoholic beverage at least once in their lives[1]. In the Americas, this number is even higher: 83.1% of the population has used alcohol in their lives, and 54.1% have used alcohol in the last 12 months[1]. Data from the 3rd National Survey on Drug Use by the Brazilian Population[2] pointed out that more than half of the Brazilian population between 12 and 65 years old made use of alcohol, at least once in their life, 30,1% made use in the last 30 days, 16,5% made use in binge and 1,5% of the Brazilian population presents criteria for alcohol dependence.

Data from the First National Survey on the Use of Alcohol, Tobacco and Other Drugs among university students in 27 Brazilian state capitals[3] showed that alcohol is the most widely used substance among university students, with approximately 90% of university students having reported the consumption in life. It is noted that a large part of university students (72%) reported the consumption in the last year and 60.5% drank in the month preceding the survey, which shows the consumption of alcoholic beverages showing a frequent and repeated behavior among most students[3]. The university years are critical for the beginning and maintenance of the use of psychoactive substances. It is related to the distance from the old social groups and sometimes from the family itself, the permissiveness of the social group for the use of alcohol and the demand in academic performance, configuring a moment of greater vulnerability[4-5].

When considering the specificities of this population, the prevalence and losses resulting from the use of alcohol by university students have gained space in the Brazilian literature in the last decade[6-7]. National studies have verified that higher risk practices related to alcohol use, such as heavy episodic drinking, can reach a prevalence of 51.6%, as surveyed 619 students from 12 health courses in the north of the state of Rio Grande do Sul[8]. According to a study carried out with 142 university students in the health area, in Teresina, Piauí, the use of alcohol presented itself as a risk factor for suicidal ideation[9]. In the interior of Minas Gerais, 123 university students from several college courses expressed that behaviors such as involvement in accidents and with the law and non-use of condoms were associated with the use of alcohol and other drugs[10]. In Mato Grosso do Sul, a study with 163 Nursing students using the Alcohol Use Disorder Identification Test (AUDIT) revealed a high prevalence of probable alcohol dependence[11].

However, in relation to the studies developed in Brazil, new investigations are still necessary with representative samples of the university population, especially in the Midwest of Brazil and on factors related to problematic use, especially among students in the health area, since they seem to present a greater tendency to the more frequent use of alcohol[12]. Knowledge about models that predict problematic alcohol use can subsidize public policies and potentially effective institutional interventions, producing positive implications. An example of this is found in a review study that pointed out programs to reduce the consumption of alcohol and other drugs among university students in Mexico, which promoted a 74% reduction in variables suggestive of risk, an increase of 70.3% in those of protection and a greater mobilization of the local network to intervene on the problem[13].

In view of this, the question is: "What is the prevalence and the predictors for the problematic use of alcohol among university students in the area of Health Sciences in the capital city of the Midwest of Brazil?". To answer the question, the study sought to identify the prevalence and factors related to the problematic use of alcohol among university students in the Health Sciences area.

Method

Cross-sectional epidemiological study with students regularly enrolled in 11 health courses at a university center in the metropolitan region of Cuiabá-MT, Brazil, during the data collection period. Among the 11 courses, Psychology and Social Work were included, which are part of the health production group defined by the university center.

The determination of the sample size was based on the estimated population proportion, taking into account as population the contingent of 3,695 university students enrolled in health courses at the university center in May 2018, with the sampling error of 5% and the confidence level of 95%. The minimum sample size was 1,842 college students.

Students aged ≥ 18 were included who were present at the study site during the data collection period. The process of selecting participants was non-probabilistic for convenience and contact with participants took place in the classroom before or after regular class hours. The collection was carried out during the morning, afternoon and evening periods, on different days of the week and all the health students, from different classes and semesters of the courses, who were present in the classroom or at the school clinic located in the premises of the teaching institution, were invited to participate, so that potential participants, who were in practical activities, were not unaware of the selection and composition of the sample. In addition, data was collected from students of three courses at a time so that when the sub-samples corresponding to three courses were completed or approached the estimated size, they would move on to the next three courses.

It was not possible to reach the minimum sample size for the analysis per course due to facts that limited the data collection at the time it was performed, such as: some students were in practical activities outside the institution; a part of the students was not found because

the instruments were applied shortly before and shortly after the class schedules and because some teachers did not authorize the continuity of the students' filling of the instruments since, in some cases, the classes were already starting when the student was still responding to the instruments. A total of 1,497 university students participated in the survey.

Through GPower software, version 3.1.9.2, a retrospective analysis of the power of analysis of the total sample obtained was performed, which was estimated at 97.2%, considering as a proportion of the event of interest tested that listed for the calculation of sample size, which was 50%. It is noteworthy, calculating the power of analysis from the proportion observed for the event of interest, which is 23.6%, that the power of analysis of the final sample reaches 99.2%.

Data was collected between October and November 2018 and April and May 2019 through two self-structured questionnaires: one elaborated by the researchers involved from the literature, approaching the general characteristics that concern the individual variables (gender, age, marital status, income, behavioral characteristics and self-perceived personality, having religion, motivation for the beginning and maintenance of alcohol use, age at which the use of alcohol started, previous mental disorder), environmental (participation in athletics, period and semester in which he studies, participation in parties, participation in university prayer groups, people with whom he shares a house, use of alcohol by the person with whom he cohabits) and family members (self-reported family union, family history of alcohol use) and another, AUDIT, aiming at identifying the patterns of alcohol use.

The evaluation of the behavioral and personality variables and the motivation for the initiation and maintenance of alcohol use was based on the participant's self-report, questioning whether the individual observed certain characteristics in themselves, with the following possibilities of response: "true" and "false".

AUDIT is a screening test for problem alcohol use developed by the World Health Organization (WHO). The test was adapted and validated for Brazil in 1999[14] and in 2005[15], showing good sensitivity levels, respectively 87.8%[14] and 100%[15], and specificity, 81%[14] and 76%[15], for the detection of problematic alcohol use[14]. The instrument is composed of ten closed questions and allows the identification of problematic/risk use of alcohol from the cut-off point eight. The AUDIT allows the identification of the different patterns of alcohol consumption[16]. For this study, we considered the cut-off grade eight so that scores below eight were grouped in the category "Low/Abstinent Risk" and those scores equal or higher than eight grouped in the category "Problematic use of alcoholic beverage".

Absolute and relative frequencies of ordinal and nominal qualitative variables were observed and mean values of the score expressed from AUDIT were presented. The simple Poisson regression was applied for the raw (bivariate) analysis of possible relations with the dichotomous variable "Problematic use of alcoholic beverages". The relations with values of significance equal to or less than 20% (p≤0.20) were then verified and the respective variables passed to the adjusted analysis, performed by means of multiple Poisson regression.

The Prevalence Ratio (PR) with its 95% confidence interval (95% CI) was adopted as an association measure, which was obtained through Poisson's regression with a robust estimate in which the variables that indicated higher frequency of alcohol use (PR > 1.0) were inserted in the modeling defined as "Factors related to higher frequency of problematic use" and the variables that represented lower frequency (PR < 1.0) were inserted in the modeling defined as "Factors related to lower frequency of problematic use".

It is important to note that, for comparison purposes, the first category of each independent variable analyzed was listed as a reference category. Finally, the independent variables, which remained in each final model, were those with significance values equal to or lower than 5% (p≤0.05).

It is noteworthy that binary and Poisson logistic regression models were analyzed for the same variables and that smaller and, therefore, more accurate CIs were observed for PR than for the Chance Ratio.

The study was conducted in compliance with the required ethical standards and the precepts of Resolution No. 466 of December 12, 2012 of the National Health Council, and was approved by the Research Ethics Committee of UNIVAG according to the number of the Certificate of Presentation for Ethical Appreciation (CAAE) 2,899,574.

Results

The sample was predominantly female (68.5%), single (68.7%), with a mean age of approximately 25 years (SD=5.73; Min.=18 and Max.=54), so that the majority (53.8%) of individuals were aged between 18 and 24 years. The self-declared skin color prevailed as brown or black (55.8%), having religion (61.6%) and not working (62.3%). Most of the sample had family income between two and four minimum wages (40.9%) and lived with fathers, mothers and/or siblings (37.7%).

The results regarding the students' school profile indicate that most of them did not have another higher level course (89.4%), was in the 2nd year of graduation, had never been disapproved (68.8%), mainly in Medicine and Nursing courses, and did not participate in prayer groups, leagues/athletics or university parties (Table 1).

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Table 1 - Characteristics of the school profile and of participation in extracurricular activities of the university students. Várzea Grande, MT, Brazil, 2019 (n=1,497)

Variables	N	%
Other higher education		
Yes	158	10.6
No	1339	89.4
Period of the day		
Morning	477	31.9
Afternoon	140	9.4
Night	469	31.3
Full time	411	27.4
Year under study		
1st year	361	24.1
2st year	350	23.4
3st year	333	22.2
4st year	330	22.0
5st year	123	8.2
Course		
Biomedicine	137	9.2
Physical education	171	11.4
Nursing	215	14.4
Pharmaceutics	121	8.1
Physiotherapy	203	13.6
Speech Therapy	82	5.5
Medicine	220	14.7
Nutrition	53	3.5
Dentistry	115	7.7
Psychology	115	7.7
Social work	65	4.3
Reproval		
Yes	468	31.2
No	1029	68.8
Prayer group		
Yes	644	43.0
No	853	57.0
Athletic		
Yes	378	25.3
No	1.119	74.7
University parties		
Yes	538	35.9
No	959	64.1

Table 2 shows that most of the people the students live with do not consume alcohol and also that parents do not use alcohol. Also, most of the university students mentioned that they consider their family united. The beginning of the use predominated between 13 and 17 years old, so the college did not influence this initiative and did not even contribute to change the pattern of use. The main reasons to awaken the use were the curiosity followed by the socialization with friends/families and, to give continuity, the festive moments, the sensation of relaxation and the pleasure in making the use.

Table 2 - Family and personal characteristics related to the use of alcohol by university students. Várzea Grande, MT, Brazil, 2019 (n=1,497)

Variables	N	%
Who lives together and consumes alcohol		
Yes	502	33.5
No	995	66.5
Parents drink		
Yes	518	34.6
No	979	65.4
United Family		
Yes	803	53.6
No	694	46.4
Age group of beginning of alcohol use (n=1,464)		
Up to 12 years	117	8.0
13 to 17 years	1,039	71.0
18 to 30 years	308	21.0
Reason for beginning the use of alcohol (n=1,473)		
Curiosity	968	65.7
To socialize with friends/family	343	23.3
Pressure from another person	46	3.1
Nervous or having problems	116	7.9
Use after college started (n=1,487)		
Yes	468	31.5
No	1,019	68.5
College changed the pattern of alcohol use (n=1,487)		
Yes	549	36.9
No	938	63.1
Reasons for the continued use of alcohol Social groups		
False	1,436	95.9
True	61	4.1
Festive moments		
False	503	33.6
True	994	66.4
Negative life experiences/experiences		
False	1,402	93.7
True	95	6.3
Pleasure		
False	1,192	79.6
True	305	20.4
Feeling of relaxation		
False	973	65.0
True	524	35.0
Habit		
False	1,335	89.2
True	162	10.8
Social interaction		
False	1,275	85.2
True	222	14.8
Influenced by partners		
False	1,423	95.1
True	74	4.9

Part of the university students referred previous diagnosis of mental disorder (33.6%). Most of them reported neither low nor high self-esteem (Table 3). And regarding personality and behavior characteristics, the "false" response was more frequent for all of them, however, the characteristics where the "true" response appeared with higher frequencies were: calm; anxious; optimistic; extrovert and welcoming (Table 3).

Table 3 - Self-perceived behavioural and personality aspects. Várzea Grande, MT, Brasil, 2019 (n=1,497)

Variables	N	%
Self-esteem		
Low	257	17.2
High	616	41.1
Neither high nor low	624	41.7
Calm		
False	753	50.3
True	744	49.7
Agressive		
False	1,296	86.6
True	201	13.4
Anxious		
False	793	53.0
True	704	47.0
Resilient		
False	1,215	81.2
True	282	18.8
Impulsive		
False	1,078	72.0
True	419	28.0
Pessimist		
False	1,208	80.7
True	289	19.3
Optimist		
False	759	50.7
True	738	49.3
Welcoming		
False	934	62.4
True	563	37.6
Not very welcoming		
False	1,344	89.8
True	153	10.2
Extroverted		
False	925	61.8
True	572	38.2
Introverted		
False	1,110	74.1
True	387	25.9

The average score obtained by the university students with the application of the AUDIT instrument was 4.57 points (SD = 5.29; Min. = 0 and Max. = 38). Regarding the classification of the risk pattern of alcohol consumption, 76.4% (n = 1,144, CI 95% = 74.2;78.5) of the university students expressed low risk; 19.0% (n = 284, CI 95% = 17.0;21.0), moderate risk; 2.8% (n = 42, CI 95% = 2.0;3.7), harmful risk and 1.8% (n = 27, CI 95% = 1.2;2.6), very high risk. When dichotomized the variable aiming the analysis of the problematic use of alcohol, it was evidenced that 23.6% (n = 355, CI 95% = 21.5;25.8) of the university students referred some degree of the mentioned event. The frequencies of problematic use of alcohol were higher among students of Dentistry (40.9%), Pharmacy (33.9%) and Medicine (33.6%) and lower among the courses of Speech Therapy (8.5%), Psychology (9.6%) and Nutrition (11.3%).

From the multiple analysis, it was found that the chance to make problematic use of alcohol was higher among men, single, who live alone, drink for pleasure, in festive moments, to feel relaxed and to improve social interaction. Behavioral characteristics are also factors that may increase or decrease the chances of problematic alcohol use. Aggressiveness appears as a predictor of problematic alcohol use (Table 4), while recognizing oneself as calm and/or introverted is related to the lower frequency of problematic use (Table 5).

Table 4 - Logistic regression model of the factors related to the highest problematic consumption of alcohol among Health Sciences students at a university center. Várzea Grande, MT, Brazil, 2019 (n=1,497)

Variable	PR* (CI[†]95%)	p-value[‡]
Sex (male)	1.49 (1.25 – 1.77)	< 0.001
Marital status (single)	1.44 (1.07 – 1.94)	0.016
Who you live with (alone)	1.25 (1.02 – 1.54)	0.001
Self-perceived behavioral characteristics		
Agressive (true)	1.71 (1.21 – 2.42)	0.002
Motivation for use		
Festive moments	1.21 (1.01 – 1.52)	0.040
Pleasure (true)	2.08 (1.74 – 2.48)	< 0.001
Feeling of relaxation (true)	1.26 (1.06 – 1.49)	0.010
Social interaction (true)	1.46 (1.19 – 1.79)	< 0.001

*PR = Prevalence Ratio; [†]CI = Confidence Interval; [‡]p-value = p-value from Multiple Poisson Regression

Table 5 - Logistic regression model of factors related to lower frequency of problem alcohol use among Health Sciences students at a university center. Várzea Grande, MT, Brazil, 2019 (n=1,497)

Variable	PR* (CI†95%)	p-value‡
Who you live with (wife, spouse and children)	0.50 (0.37 – 0.67)	<0.001
Year under study (2nd year)	0.67 (0.52 – 0.88)	<0.001
Athletic (No)	0.68 (0.56 – 0.83)	< 0.001
Reason for starting the use (nervous or with problems)	0.18 (0.08 – 0.39)	< 0.001
College changed usage pattern (No)	0.51 (0.42 – 0.61)	< 0.001
Calm behavior (true)	0.79 (0.62 - 0.98)	0.012
Introverted behavior (true)	0.78 (0.58 – 0.93)	0.034

*PR = Prevalence Ratio; †CI = Confidence Interval; ‡p-value = p-value from Multiple Poisson Regression

These factors were related to the lower frequency of problematic use of alcohol: living with spouse and/or children; attending second year; not having noticed changes in the pattern of alcohol use after the beginning of college; referring, as a reason for the beginning of use, to be nervous or having problems and not getting involved with athletics. The second year of the course is worth mentioning as a protector, which may be related to the frequency of problematic use, which was higher in the first year (28.5%) than in the second year (18.6%). The frequency of problematic use in the 5th year of the course was 31.7% and, when compared to the 1st year (reference category), did not express a significant difference to the extent that this period of the course is considered a risk factor.

The higher frequency of problematic alcohol use can also be related to the characteristics of the students who are in the 1st and 5th years of the course. Among 1st year students, there was also a higher frequency of participation in athletics and parties, besides the beginning of use between zero and 12 years old and use for pleasure and social interaction. Among the 5th grade students, there was a greater frequency of reference to the change in the pattern of use throughout the college, in addition to the students having informed, to a greater extent, that they were not considered calm.

Among the college students who declared a change in the pattern of consumption during the course, 53.4% started using alcohol after the beginning of the course, while 81.4% of those who declared that being at university did not influence their pattern of use did not start using during the course. It was observed that those students who did not change their usage pattern during college had lower frequency of living together with a person who consumes alcohol, previous mental disorder, low self-esteem, being impulsive, participating in leagues/

athletics, beginning to use between zero and 12 years old and being nervous or having problems, use for pleasure, relaxation and social interaction. On the other hand, higher frequencies of participation in prayer groups were observed.

Discussion

The prevalence of problematic alcohol use found was 23.6%. The observed prevalence was close to that obtained in other Brazilian cities. In Aracaju, the prevalence of problem or risk use (AUDIT score of eight or more points) was 21.1% among health students[7] and, in Rio de Janeiro, 23.4% among university students of Biomedicine, Biological Sciences and Nature Sciences[17]. It is noted that the prevalence of risk alcohol use is less frequent among university students in Brazil than in European countries, where a prevalence of up to 84% was recorded[18]. Data on alcohol prevalence among university students varies in the literature, but in most of them, low risk consumption predominated[19].

In this investigation, some consensual factors in the literature have been confirmed, such as those related to the most frequent problematic use: male gender; single marital status; use motivated by improved social interaction and relaxation. Those related to the less frequent problematic use were: living with spouse and/or children. On the other hand, the absence of related factors, such as the conflicting family environment and religion, called the attention.

In research with university students in the health area of Aracaju, the model of factors considered sociodemographic and associated with the consumption of alcohol at risk involved the male gender, studying at a private university and smoking, and variables such as the conflicting family environment and having permissive parents were not associated[8]. Likewise, this study did not identify the association with the use of alcohol by parents or with the lack of union in the family, showing, from this, that part of the determinants is predictor surrounded by socio-cultural aspects that extrapolate the family siege and produce socially acceptable behavior patterns.

The relationship between the male sex and the problematic use of alcohol has been frequently presented in the Brazilian scientific literature, either in the university population[7,17,20] or the general population[2]. This data can, in parts, be explained by a social code of masculinity that involves associating the use of alcohol with self-confidence, power over women, emotional control, among others[21].

Another variable that is often associated with problematic alcohol use among college students is single marital status. A study comparing alcohol consumption between married and unmarried twins (single and divorced) suggested that individuals, especially males,

change the amount of alcohol they drink when they start and end a marriage, drinking more when they are single, less when they are married, and more when they divorce[20].

In this study, it was identified that, among the factors related to the higher frequency of problem alcohol use obtained, the motivations for alcohol use are related to the positive impacts of alcohol use in life, such as improved social interaction, relaxation and pleasure. This is in line with national and international literature in which the use of alcohol as an agent of socialization by university students was evidenced in 95.5% of the articles that addressed the use of alcohol among university students[22].

A survey with Brazilian students pointed out that the group that presented the most exposed students to the negative consequences of alcohol use perceived less these problems as something that negatively impacts their lives[6]. The abusive use of alcohol by university students may be related to the appreciation of the positive effects and the non-perception of the problems arising from such use.

A study of the Psychology area showed that the university environment requires social skills such as self-control of aggressiveness, which is associated with classroom skills, self-exposure and assertiveness[23].

Thus, it is necessary to pay attention to the fact that the university student can bring with him a predisposition for aggressive behavior to be worked on, that interpersonal relationships (colleagues, teachers and other employees) and academic demands (presenting papers, meeting deadlines and rules, setting up groups, doing research, among others) can generate stress and, at the same time, opportunities for adaptation, and that the use of alcohol, in this context, can be seen as an alternative to relieve tensions, but also trigger or aggravate aggressive trends.

A review of studies carried out in different countries pointed out that the parties made up the most favorable environment for the consumption of alcohol[24]. In an analysis of the advertisements on campus parties, it was possible to verify that the mention of alcoholic beverage predominated informally in all images, associated, above all, with sexuality and the stimulus to a lifestyle related to alcohol[25].

It is considered that the reach of the university student who practices a pattern of harmful use and who lives alone can prove more challenging for educational institutions and health services due to the lack of a nucleus of support closer to the student, aggravated at times by the change of the city of origin and the distance from family and friends. Literature shows that living alone has emerged as the main risk factor for alcohol use among college students[24].

On the other hand, this study also found that living with one's spouse and children is a factor related to the lower frequency of problematic alcohol use. A similar result was found in an investigation with 2,641 university students from the five Brazilian regions where the frequency of a pattern of risk for alcohol use was significantly lower among those living with a spouse than among those living alone or with friends and colleagues[26]. It is believed that living alone can limit the repertoire of relationships, activities and support in difficult situations, leading the university student to resort to the use of alcohol as a resource for interaction, insertion into social activities and the relief of tensions.

The results obtained are partially in line with international studies that pointed out that the abusive use of alcohol increases according to the years studied[27]. It is believed that the initial and final periods of the undergraduate course are critical moments for the university student so that, in the first year, he is beginning a process of adaptation to new relationships and responsibilities, seeking social insertion and acceptance and facing different changes in his life, which makes the first year a period of greater vulnerability, especially in males[5]. In the intermediate years, students are faced with the first insertions in the field of practice, which may lead them to reduce consumption in order to meet the related demands.

In recent periods, there is a higher charge in relation to the future professional[28], the student finds himself about to face the job market and/or seek alternatives for improvement, dealing with the need to obtain livelihood, success and social recognition[28].

The fact that college students mentioned that the college did not change the pattern of alcohol use and that this was related to less problematic use allows us to infer that the frequency of the lower level of consumption was maintained despite the risks. It is hypothesized that the temporal factor is associated to the change in the pattern of alcohol use secondary to the exposure to the risks of the university environment, since the first year students did not indicate change while the last year students indicated a change in the pattern of alcohol use in college. A study conducted with 360 medical students pointed out that the use of alcohol and the reference to the drunkenness episode increased considerably during the graduation course[28].

It also raises the hypothesis that the individual characteristics that would protect for the abusive use of alcohol can be transformed along the course. First-year students were more likely to be "calm" as opposed to last year's college students, who did not recognize themselves as calm. And, in this sense, it is also inferred that there may be individual factors that protected the individual during the first years of the course and that need to be investigated, as well as factors of the

university environment that can modulate these individual characteristics.

The discussion on the factors related to the least problematic use of alcohol in the scientific literature falls short when compared to the discussion on the factors most frequently related to the abusive use of alcohol among university students. Religion and issues related to the family environment are some of the main protective factors identified in studies on the subject[9,17], while predictors related to the university environment are poorly addressed in studies, which makes it difficult to formulate inferences from the literature.

It is believed that the non-participation in athletics has proved to be a factor related to the lower frequency of problematic alcohol use, since it is opposed, to a certain extent, to the association expressed by the variable "festive moments" as a phenomenon that drives the continuity of use, since athletics are usually involved with the promotion of festive events in the university environment.

From the observation of the results, socialization is noted as a central factor in the use of alcohol among university students. However, it is not a question of discouraging the insertion of the student in university activities that promote socialization, but of understanding the perceptions that university students have about the place alcohol occupies in their social relationships, the quality of the relationships established and their influences on how people will act.

Being nervous or having problems was a characteristic that expressed lower frequency associated with alcohol use. Other factors contribute more to the beginning of the use, such as the influence of friends and curiosity, as pointed out a qualitative study carried out with 30 members of student entities linked to the Nursing course in Southeastern Brazil[29].

Defining oneself as calm and introverted can be linked, mainly, to the option of university students for less busy environments and events and, consequently, that favor less the problematic use of alcohol. In a study carried out with 123 university students from private institutions, in which 74.5% were already drunk, it was found that only 4.8% expressed introverted behavior in the environments where they frequent and relate to[10].

The period of graduation is recognized as being vulnerable to the initiation and maintenance of the use of alcohol and other drugs[4,10]. The use of alcohol by students as a source of pleasure, potentializer of socialization and relaxation, predictors of alcohol abuse identified in this study, may be related to the poor ability of university students to face the social demands and collections proper of the university period[8].

As for the limitations of this study, we highlight: the selection of individuals for convenience; the fact that

the estimated minimum sample size was not reached; the reduced sub-samples for some courses and the consequent difficulty in inferential analysis by course; the institutional and time barriers faced in data collection and limitations in explaining, for example, what factors would determine the maintenance of the pattern of alcohol use during the graduation period.

Some behavioral and personality variables may not have their reliability confirmed since no specific scales were used for their measurement, only the participant's perception of him/herself.

Conclusion

The prevalence of the problematic use of alcohol by university students, identified in the capital of the Midwest of Brazil, did not differ from the results obtained by other national studies. In terms of predictive model of factors related to greater frequency of alcohol problem use, it was identified that men, single, who lived alone, who considered themselves aggressive, who used alcohol, predominantly in festive moments, to have the sensation of relaxation, pleasure and promote social interaction presented greater prevalence of problem alcohol use.

On the other hand, the predictive model related to lower frequency of problematic alcohol use pointed out that college students who lived with spouses and/or children, who were in the second year of the course, did not notice changes in the pattern of use after graduation; those who did not participate in athletics and who considered themselves calm and introverted were those with lower prevalence of problematic alcohol use.

It is inferred that socialization is a factor that substantially influences the use of alcohol among university students.

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