

Evaluation of alcohol addiction among Brazilian Northeast medical students through the alcohol use disorders identification test and the relation with body mass index and smoking*

Avaliação da dependência alcoólica entre estudantes de medicina no nordeste brasileiro pelo teste de identificação de distúrbio de uso do álcool e a relação com o índice de massa corpórea e tabagismo

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SUMMARY

BACKGROUND AND OBJECTIVES: The aim of this study was to identify the pattern of physical activities, alcohol consumption, and its influences among medical students.

METHOD: Cross-sectional study with 203 Northeast students from a medical school of João Pessoa/state of Paraíba. The following variables were evaluated: physical activity (IPAQ short version), tobacco dependence (Fagerström test) and alcohol dependence (AUDIT test). The associations were identified using Pearson correlations and Odds Ratio, with a confidence interval of 95%.

RESULTS: 76.8% of the total sample ingested alcohol, from which 29,6% showed alcohol problems at some level. A significant correlation ($p < 0.05$) was detected between AUDIT

and: body mass index (BMI) ($r = 0.397$); Fagerström sum ($r = 0.300$). “Problems with alcohol” had a correlation with BMI ≥ 25 (OR = 5.1), smoking (OR = 6.1), and the number of federal university entrance exams undergone. Respondents with moderate drinking problem showed associations with higher Odds Ratio.

CONCLUSION: Alcohol consumption is a serious problem among medical students because of the tensions experienced during the course, and acts as a strong risk factor for weight gain and smoking, possibly because its damages are underestimated by students, which shows the need for awareness campaigns aimed at this population.

Keywords: Addictive behavior, Alcoholism, Medical students.

RESUMO

JUSTIFICATIVA E OBJETIVOS: O objetivo deste estudo foi identificar o padrão de atividade física, ingestão de bebidas alcoólicas e suas influências em estudantes de medicina.

MÉTODO: Estudo transversal com 203 estudantes nordestinos de medicina de João Pessoa/PB. Avaliaram-se as seguintes variáveis: atividade física (IPAQ), dependência ao tabaco (Fagerström) e alcoólica (AUDIT). Associações foram identificadas utilizando-se a correlação de Pearson e *Odds Ratio* com intervalo de confiança de 95%.

RESULTADOS: 76,8% da amostra total ingeria álcool, dentre os quais 29,6% mostraram problemas com álcool em algum nível. Foi detectada associação estatisticamente significativa ($p < 0,05$) entre AUDIT e: índice de massa corpórea (IMC) ($r = 0,397$); soma do Fagerström ($r = 0,300$). “Problemas com álcool” obteve correlação com IMC ≥ 25 (OR = 5,1), tabagismo (OR = 6,1), e o número de vestibulares prestados em universidades federais. Participantes com problemas moderados com álcool mostraram associações com maiores *Odds Ratio*.

CONCLUSÃO: O consumo alcoólico é um sério problema entre estudantes de medicina graças às tensões vivenciadas durante o curso, agindo como um forte fator de risco para ganho ponderal e tabagismo, possivelmente porque seus danos são subestimados pelos discentes, o que denota a necessidade de campanhas de conscientização voltadas para esse grupo.

Descritores: Alcoolismo, Comportamento aditivo, Estudantes de medicina.

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INTRODUCTION

In South America, Brazil has led the production of data about addiction and the profiles of drug and alcohol users in specific populations, including undergraduate students of medicine¹. The use of psychoactive substances among medical students has been reported in several studies²⁻⁴, with alcohol being the most commonly used substance. In the U.S., researches have shown that the consumption of alcohol and other drugs is present endemically in the medical community, which usually begins during college⁵.

A study⁴ conducted in Germany showed that more than one-third of medical students have a problematic drinking behavior, and made an association between high consumption of illegal substances in the age group between 18 and 24 years, but confirmed that those students smoke less than the general population.

In another study⁶ in Canada, 175 medical students were interviewed, of which 6% were smokers and 86% consumed some type of alcoholic beverage. The research associated risky behavior with drinking, because the study population accepts drunkenness at parties and overlooks the problems of long term alcohol consumption. An internet survey⁷ questioned 2.710 medical students from first to fourth year of 36 U.S. colleges, including the AUDIT scale to assess risk behavior on alcoholism. More than 15% of respondents (n = 412) had positive risk of problems with alcohol (AUDIT \geq 8). An analysis of the data revealed statistical significance between risky behavior with drinking, low age, male sex, bachelorhood, illegal drug use, smoking, impulsive behavior, depression and gambling problems.

Students (n = 285) of a medical school at Minas Gerais were assessed with the AUDIT in the year 2008⁸; 85.3% did use some kind of alcoholic beverage, 39.6% showed an excessive alcohol consumption level with consequent health risks, and male students were more likely to use it compared to women (p < 0.001; OR = 4.1).

In another study⁵ with medical students, data were collected from a sample of 303 academics with an anonymous questionnaire. It was found that 66.3% of the respondents did consume alcoholic beverages, that there is an increased consumption of alcohol along the course and that men consume it more than women. The article suggests that the awareness about the dangers of smoking is higher than that the harms of alcoholic beverages consumption, in which risky behavior are observed.

Another study⁹, from the University of Caxias do Sul evaluated a sample of medical students, with a total of 183 valid questionnaires, recording the prevalence of certain substances, in descending order: alcohol, tobacco, marijuana, inhalants, tranquilizers, amphetamines and cocaine. It also showed that respondents who lived with their parents disapproved the use of drugs, were non-smokers, had religious beliefs and showed lower rates of alcohol and illicit drugs consumption.

With the opening of new medical schools in Brazil, the concern for medical education by international agencies as PAHO (Pan-American Health Organization), WHO (World Health Organization) and ABEM (Associação Brasileira de Educação Médica) has been intensified and there is a need to better understand the medical student, so there could be investments in an education that meets the requirements of its population and be in line with the public health system. Moreover, there are questions that need to be clarified,

such as whether the students form their own points of view during medical school or if it comes from the family and personal aspirations⁵. For a transformation of the teaching, it is necessary to investigate the aspirations of the students, their cultural background, social and health contexts and how the consumption of tobacco, alcohol and the practice of physical exercise interfere with their life.

METHOD

This cross-sectional study was conducted with 203 medical students from 1st to 5th year of a medical college in the capital of Paraíba, João Pessoa, between 2010 and 2011. The city of João Pessoa has 723.514 habitants, with demographic characteristics similar to those of most urban cities of Brazil in terms of age, family income (average of R\$ 890,00) and educational level (average of 7,4 years). To guide a coherent report of the data, the STROBE (Strengthening the Reporting of Observational Studies in Epidemiology) declaration was adopted.

The selected college has 10 classrooms which are used by students from first to fourth year of medical school (averaging 50 students per classroom in a total of 500) from 8:00AM to 5:00PM, and for students in fifth and sixth year from 5:00PM to 8:00PM.

No exclusion criteria were used; the respondent simply needed to be a student regularly enrolled in medicine on that institution. Data were collected by using a questionnaire in classroom after the candidate's consent, with prior contact with the teacher and the presence of researchers trained to answer questions on how to fill out the research tools. No identification was asked for the respondents and the answers were kept confidential. The accession was voluntary and the answering average time was about 30 minutes; there were no refusals and respondents were aware that no harm or benefits would result from filling out the questionnaire. The surveys were conducted from June to December 2010.

The questionnaire concerned personal details such as the reason to choose medicine, how the respondent would want to practice the future profession, if and what they wanted out of their post-graduation (e.g. surgery, pediatrics, obstetrics and gynecology, etc...), family income, if the family had less than three children, how many college entrance exams were done, place of birth and age at enrollment in college as well as weight and height to calculate BMI (body mass index). The instrument used to assess the severity of nicotine dependence was the Fagerström Tolerance Questionnaire; it was chosen because it is widely used and validated in Brazil by Carmo and Pueyo in 2002. It consists of six questions: two scored from 0 to 3 and the other from 0 to 1, the classification of nicotine dependence varies between: mild: 0-4, moderate: 5-7; high: 8-10 points. The Alcohol Use Disorder Identification Test (AUDIT), created by Piccinelli et al. In 1997, is currently the best method for the identification and classification of alcoholism, evaluating the possibility of alcohol problems using 10 questions including the frequency, amount and consequences of alcohol abuse, scoring from 0 to 40, where a low level of problems with alcohol corresponds to a score of 8 to 15, moderate level between 16 to 19, and severe level of problems with alcohol scores above 20. The questionnaire model used to classify physical activities was the IPAQ: International Physical Activity Questionnaire (short version) pro-

posed by the World Health Organization in 1998 and validated in Brazil by Matsudo in 2001. It consists of questions about the time used for daily walking, time and number of days of light, moderate and vigorous activity, and how much time the students spent sitting during a weekday and weekend. Then the MET-minute/week is calculated according to the recommendations of analysis and bias of the instrument, thus determining if the student falls into the category of light, moderate or vigorous physical activity level. The authors decided to add weight and height of survey respondents for later calculation of body mass index (BMI).

All records were included in the study, although seven candidates did not fill in their weight. Those data were considered for statistical analysis. The total number of analyzed questionnaires was of 203.

The data were stored and analyzed with PASW STATISTICS software version 18. Frequency, Mean (M) and Standard Deviation (SD) were analyzed for the exposure of data. Chi-square, Odds Ratio (OR) and confidence interval (CI) were used for categorical variables. Ordinal variables were compared using correlation coefficient (Pearson's *r*). The adopted value of statistical significance was 5% ($p < 0.05$).

The data were categorized according to the recommendations of the adopted questionnaires, and/or the determination of its authors.

Dichotomous variables were categorized according to the final interpretation of all the generated tables, such as smoking/non smoking, sedentary/non-sedentary, drinking/not drinking, light alcohol problems/no light alcohol problems, moderate alcohol problems /no moderate alcohol problems, serious alcohol problems/no serious alcohol problems, high weight (BMI ≥ 25)/non-high weight (BMI < 25).

The study was approved by the Ethics Committee of the Faculdade de Ciências Médicas da Paraíba (FCM-PB), under protocol number 073/2011.

RESULTS

The sample comprised 203 students, with 63.3% aging between 17-21 years old and 36.7% above 22 years old. When asked what was the major reason for choosing de medical school, students answered because of affinity (86.6%) and labor market (42.1%). For their residency, surgery was chosen by 33.2% of candidates, 19.3% marked physician, 6.9% pediatrics, 3% obstetrics and gynecology and 1% for public health. The city of birth was Paraíba (41.3%), Pernambuco (20.4%), Alagoas (13.4%), Ceará (10.9%), Rio Grande do Norte (4%) and other cities (10%). When the question was "how many federal college previous entrance exams have you made?", 5.9% answered none, 59.4% have made 1-2 exams, 26.2% have made 3-5 and 7.9% more than 5 exams.

The Alcohol Use Disorders Identification Test (AUDIT) scored 5.18 points (SD = 5.15). Pearson's *r* correlation coefficient was statistically significant ($p < 0.05$) between the sum of AUDIT and the following categories: BMI ($r = 0.40$), sum of Fagerstrom's table ($r = 0.30$) and time spent sitting during a weekday ($r = - 0.14$). Variables concerning the AUDIT's frequency are shown in graph 1 and variables which correlate the alcohol problems degree are shown in table 2.

Table 1 - Scaled variables used.

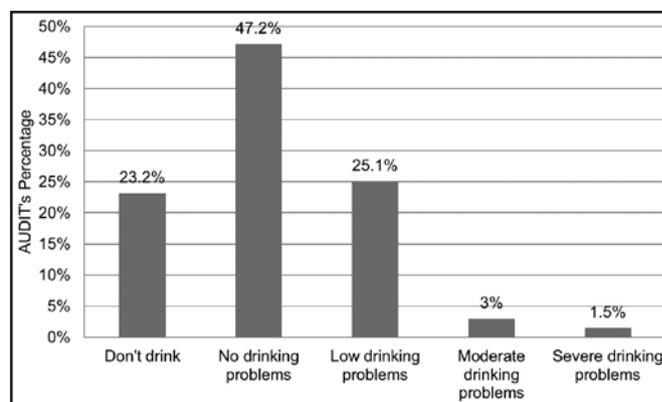
Escale	Rating	Category
AUDIT (alcohol problems)	≥ 1	Drinking alcohol
	≥ 8	Alcohol problems
	8 – 15	Low alcohol problems
	16 – 19	Moderate alcohol problems
	20 – 40	Intense alcohol problems
BMI	< 18.5	Below ideal weight
	18.5 – 24.9	Eutrophic
	25 – 29.9	Overweight
	30 – 34.9	Class I obesity
	35 – 39.9	Class II obesity
	≥ 40	Class III obesity

AUDIT = Alcohol Use Disorders Identification Test; BMI = body mass index.

Table 2 - Characterization of the sample's alcohol problems (n = 203).

Variables	Associations	p	OR*	CI*
AUDIT ≥ 1 (drinking)	BMI ≥ 25	0.006	3.4	1.3-8.5
	25 < BMI < 29	0.017	3.1	1.1-8.6
AUDIT ≥ 8 (problems)	BMI ≥ 25	0.000	5.1	2.6-9.9
	Smoking	0.004	6.1	1.5-24.7
	PVFF	0.004	2.8	1.3-5.7
AUDIT 8-15 (low problems)	IMC ≥ 25	0.000	3.4	1.7-6.7
	25 < BMI < 29	0.000	4.1	2.0-8.3
	FVFC***	0.020	2.3	1.1-4.9
AUDIT 16-19 (moderate problems)	BMI ≥ 25	0.003	13.5	1.5-118.9
	BMI ≥ 30	0.000	13.5	2.1-86.9
	Smoking	0.000	27.1	4.6-159.2
AUDIT 20-40 (severe problems)	Born in Ceará	0.002	18	1.5-207.4

AUDIT = Alcohol Use Disorders Identification Test; * = Odds Ratio; ** = confidence interval; *** = few college entrance exams in federal colleges; BMI = body mass index.



Graph 1 - Characterization of AUDIT's mean score and frequency (n = 203).

DISCUSSION

The main findings of the study were related to the frequency of alcohol consumption, which were categorized according to table 1, and its interference in the other realms of the survey. It was found that 76.8% of the students consume some type of alcoholic drink in varying degrees of intensity, ranging from harmless consumption to serious alcohol problems. There was a direct association between alcohol consumption and high BMI ($r = 0.40$), smoking ($r = 0.30$), and an inverse association between alcohol consumption and the time spent sitting in a weekday ($r = -0.14$). This value is above the alcohol consumption percentage of the Brazilian population (74.6%) and of its northeastern region (66.8%)¹⁰. Compared to other medical students samples⁵⁻⁸, who also had mean values above the general population, it is clear that the medical undergraduate consumes alcohol in a more pronounced level, suggesting that the specific situations of the physician's course provide more consumer demand for alcohol, such as weekends and after the tests, turning the alcohol into an "escape" from the tiring routine of the course and the situations of greater stress, since the causes of alcohol abuse have variations that depend on personal internal factors (individual), the effects of the substance (alcohol) and external factors (living environment)¹¹. Among the study population, drinking alcohol (AUDIT ≥ 1) increases the odds of overweight or obesity by 3.4 times. As the degree of alcohol problems increased, there were new and stronger associations, as in general alcohol problems (AUDIT ≥ 8): the subjects were 5.1 times more prone to overweight or obesity and 6.1 times to smoking. In mild alcohol problems (AUDIT between 8 and 15) the subjects were 3.4 times more likely to a high weight, and 2.3 times more likely have undergone college few entrance exams in federal universities. This could be an explanation for the inexperience of the students who enter college too early and gets influenced by the group. Moderate alcohol problems (AUDIT between 16 and 19) imply a 13.5 times greater chance of high weight, and 27.1 times to be a smoker. Interestingly, serious problems with alcohol (AUDIT ≥ 20) were associated only with students from Ceará. A study¹² with medical students in Ceará revealed that 92% consumed alcohol, and 31.5% related some loss in aspects of academic life at least once in their lifetime. In addition, the study reports that there is an increase in alcohol consumption during the medical course.

CONCLUSION

Alcohol consumption is a serious problem among medical students because of the tensions experienced during the course, and acts as a strong risk factor for weight gain and smoking, possibly because its damages are underestimated by students, which shows the need for awareness campaigns aimed for this population.

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ACADEMIC LINK

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