Alcohol consumption among medical university students

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ABSTRACT

Introduction: Due to their future job and the specificity of academic classes, the exposure to alcoholic beverages constitutes the specific threat in the case of medical university students. Despite this, the frequency of alcohol consumption by this group of young people has not been analyzed in detail, thus far.
Objective: To evaluate the prevalence of alcohol consumption among students of the Medical University of Białystok.
Materials and methods: The study was performed in March 2011 and included a representative group of 504 students from various faculties of the Medical University of Białystok. All participants completed the standardized, anonymous question-nnaire on drinking alcohol.
Results: Only 14.4% of students reported never having tasted alcohol. Beer was the most consumed drink by both genders. Almost 16% of respondents declared consuming alcohol at least 40 times in the last 12 months. More than 60% of respondents reported consuming wine, spirit, or beer at least one time in the last month. Only a small percentage (2.8% - 5.4%) of students reported consuming alcohol at least 10 times during the analyzed period. Half of the participants reported consuming five drinks per occasion. More than 15% of respondents reported alcohol consumption at least 3-5 times per month. Most respondents neither declared undertaking risky behaviors under the influence of alcoholic beverages nor admitted experiencing consequences of such behavior.
Conclusion: Patterns of alcohol consumption among the students participating in this study do not differ markedly from population-based characteristics of the respective age group; they are still associated with specific risks resulting from studying medical disciplines and future employment in a healthcare sector.
Key words: alcohol abuse; alcoholism; drinking; spirits

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INTRODUCTION

Alcoholism and its health and social consequences aspire to be among the principal public health challenges of the 21st century [1]. Besides many negative health effects, including liver and pancreatic injury, functional disorders of alimentary tract and circulatory system, neurological and mental disorders, or even involvement in carcinogenesis [2], excessive consumption of alcohol can have an array of harmful social consequences: impaired environmental relations, including family relations, financial problems, resort to rape and violence, and entering the route of crime [3,4].

Based on the results of previous studies of association between alcohol consumption and the prevalence of abovementioned health consequences, the World Health Organization (WHO) had identified the levels of consumption that are defined as harmful and risky drinking. The former of these patterns is directly associated with health risk, while the latter predicts it in a future with high probability [1].

Chronic alcohol abuse, particularly associated with other risk factors (including genetic predisposition) promotes the development of alcoholism – a disorder associated with the loss of control on the volumes of consumed alcohol [1]. This process progresses gradually, and includes several stages that were described by Jellinek for the first-time [5]. Risk groups of alcoholism comprise children of alcoholics, individuals with mental disorders, adolescents, and individuals living alone – particularly males [1].

The fraction of Poles who overuse alcohol is estimated at several percent. This group includes nearly one million of people who represent alcohol dependence and approximately two million of individuals whose pattern of drinking can be considered risky or harmful [6].

As previously mentioned, adolescents constitute one risk group of alcoholism [1,7]. The results of many studies suggest the gradual decrease in the age of alcohol initiation [7,8]. According to some authors, an average Polish adolescent reaches for alcohol as early as in 13 to 14 years of age [8]. The risk factors of early alcohol initiation include passive acceptance of parents and the fear of being excluded from the group of peers [9,10]. The effects of these factors can be strengthened by independence of young people associated with the beginning of higher school education. Frequently, young people study outside the place of their residence, where they lack parental control, and accommodation in student houses constitute additional factor promoting alcohol abuse [11].

Alarming data on the early age of alcohol initiation, in recent years many studies were undertaken dealing with alcohol consumption among school adolescents [12-14]. Besides a few exceptions [15-17], the problem in question has not been analyzed in detail in regard to students – mostly due to maturity of this group and associated organizational and legal problems. Due to their future job and the specificity of academic classes, the exposure to alcoholic beverages constitutes the specific threat in case of medical university students [18-21]. Despite this; the frequency of alcohol consumption by this group of young people had not been analyzed in detail, thus far.

The aim of this cross-sectional study was to evaluate the prevalence of alcohol consumption among the students of the Medical University of Białystok.

MATERIALS AND METHODS

The study was performed in March 2011 included a group of 504 students from the Medical University of Bialystok. This representative sample, corresponding to 10% of the entire student population, was selected by means of stratified sampling based on the university faculty, study discipline and year, and participant's gender. Characteristics of participants are presented in table 1.

Table 1. Sociodemographic characteristics of study participants

Variable	Mean ± SD	Range
Age (years)	21.7±2.3	18-27
	N	**%**
Gender		
-males	112	22.2%
females	392	77.8%
Study discipline:		
medicine/dentistry	192	38.1%
pharmacy	127	25.2%
health sciences	185	36.7%
Year of study:		
I	126	25.0%
II	108	21.4%
III	78	15.5%
IV	73	14.5%
V	80	15.9%
VI	39	7.7%
Place of residence		
village	78	15.5%
town up to 5 000 inhabitants	40	7.9%
town 5 000 - 50 000	112	22.2%
town 50 000 - 200 000	99	19.6%
city above 200 000	175	34.7%

The protocol of this study was approved by the Local Bioethical Committee of the Medical University of Bialystok. All participants were familiarized with the study objectives and protocol, and gave their written consent to participate.

All students completed standardized anonymous questionnaire on drinking alcohol. The questionnaire was prepared and kindly provided by the PBS DGA Sp. z o.o. Research Agency (Sopot, Poland). The participants were asked to complete the questionnaire during their academic classes.

Statistical analysis of the results was carried out using Statistica 10 (StatSoft, Tulsa OK, USA) package. Normal distribution of continuous variables was verified with the Shapiro-Wilk test. Descriptive analysis and Chi square test were used as appropriate. The critical level for test of significance was <0.05.

RESULTS

Significantly ($p<0.001$) more female (n=392) than male (n=110) participated in this study. In the present study, more often ($p<0.001$) were students from the first years of study than the last year. Students more frequently ($p<0.001$) lived in their homes (38.1%) than in dormitory 19.6%. Significantly, ($p=0.019$) there were more medical students than pharmacy students. Similarly more health sciences' students were than pharmacy students. Details are shown in table 1.

Approximately, 80% of respondents consumed wine at spirits at least once during 12 months prior to this study, while more than 90% of students declared at least one episode of beer consumption (Table 2). Beer was the most consumed drink by both genders. Of the participants, 10.1% drinking beer, 23.2% wine, and 20.8% vodka once or twice per month. This group included relatively a high percentage of individuals who declared at least 40 episodes of alcohol beverage consumption.

Table 2. Answer distribution to the question "Did you drink any of these beverages during recent 12 months; if so, how many times?"

Type of beverage	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	≥40 times
Beer	46 (9.1%)	51 (10.1%)	97 (19.2%)	76 (15%)	96(19%)	59(11.7%)	79 (15.7%)
Wine	102 (20.2%)	117(23.2%)	98 (19.4%)	78(15.5%)	59(11.7%)	19(3.8%)	31 (6.2%)
Vodka (cognac, whisky)	105 (20.8%)	105(20.8%)	92 (18.3%)	68(13.5%)	63 (12.5%)	35(6.9%)	36 (7.1%)

The response distribution to another question, regarding to average single consumption of beer during 12 months preceding this study, suggests that some respondents completed the questionnaire inattentively, or did not give the true answers. This is indicated by different numbers of individuals who declared abstinence from beer answering to two consecutive questions of the questionnaire. About half of the participants declared that their average single consuming of beer ranged between 0.5 and 1 liter. Details are presented in table 3.

Table 3. Answer distribution to the question "What was your average single consumption of beer during recent 12 months?"

Answer	n (%)
I did not drink beer during recent 12 months	41 (8.2%)
Less than one regular bottle or cane (less than 0.5 liter)	85 (17.0%)
1-2 regular bottles or canes (0.5-1 liter)	234 (46.8%)
3-4 regular bottles or canes (1-2 liters)	95 (19.0%)
More than 4 regular bottles or canes (more than 2 liters)	45 (9.0%)

Almost 80% of students reported an average single consuming of wine did not exceed 300 g. Details are shown in table 4. .Most respondents declared a high single consuming of spirits: more than, 70% participants reported consuming at least 100 g of beverages of this type per occasion, and in case of more than one-fourth of respondents the single consumption exceeded 250 g. A total of 14.4% of students reported never having tasted alcohol. Of the students, only 41 (8.1%) did not drink beer; 89 (17.7%) did not drink wine, and 88 (17.5%) have never drank vodka (Table 5).

Table 4. Answer distribution to the question "What was your average single consumption of wine during recent 12 months?"

Answer	n (%)
I did not drink wine during recent 12 months	89 (17.7%)
Less than one glass (less than 100 g)	109 (21.6%)
1-3 glasses (100-300 g)	211 (41.9%)
More than 3 glasses but less than a bottle (300-750 g)	63 (12.5%)
One bottle or more (more than 750 g)	32 (6.3%)

Table 5. Answer distribution to the question "What was your average single consumption of vodka or other spirits during recent 12 months?"

Answer	n (%)
I did not drink vodka during recent 12 months	88 (17.5%)
Less than one glass (less than 50 g)	49 (9.8%)
1-2 glasses (50-100 g)	115 (22.9%)
3-5 glasses (100-250 g)	120 (23.9%)
More than 5 glasses (more than 250 g)	130 (25.9%)

Approximately one-half of the participants reported consuming at least five drinks per occasion ("drink" was considered as a glass of wine, bottle of beer, small glass of vodka or other spirit, or a glass of low alcoholic cocktail. More than 15% of students reported alcohol consuming at least 3-5 times per month (Table 6).

Most respondents neither declared undertaking risky behaviors under the influence of alcoholic beverages nor admitted experiencing consequences of such behavior.

Table 6. Answer distribution to the question „Considering recent 30 days, how many times (if any) did you consumed at least five drinks once?"

Answer	n (%)
Never	260 (51.9%)
Once	81 (16.2%)
Twice	81 (16.2%)
3-5 times	53 (10.6%)
6-9 times	15 (3.0%)
≥10 times	11 (2.2%)

Only a few students reported driving a car, sex, problems with recalling any activities or participating in the classes and lectures under the influence of alcohol.

More than 60% of respondents consumed at least one drink of wine or spirit during 30 days preceding this study, and nearly 70% of participants reported consuming at least one beer during this period. Details are shown in table 7.

Table 7. Answer distribution to the question "Did you drink any of these beverages during recent 30 days; if so, how many times?"

Type of beverage	Never	1-2 times	3-5 times	6-9 times	10-19 times	20-39 times	≥40 times
Beer	155 (30.8%)	196 (38.9%)	95(18.8%)	31 (6.2%)	18 (3.6%)	6 (1.2%)	3 (0.6%)
Wine	292 (57.9%)	143 (28.4%)	41 (8.1%)	14 (2.8%)	10 (2.0%)	0	4 (0.8%)
Vodka (cognac, whisky)	287 (56.9%)	125 (24.8%)	60(11.9%)	15 (3.0%)	11 (2.2%)	3 (0.6%)	3 (0.6%)

DISCUSSION

This study revealed that the frequency of alcoholic beverage consumption among medical university students is not high and does not differ markedly from population-based average value for this age group [15-17,19]. Nevertheless, the group of our respondents included approximately 10% of individuals, whose answers suggest regular alcohol consumption and who can be qualified as risky drinkers.

Even more alarming is data on the amounts of alcoholic beverages consumed on a single occasion, particularly spirits. The results of this study suggest that considerable fraction of students does not consume alcohol regularly, but drinks it occasionally at high amounts. In many cases, this leads to alcohol intoxication associated with transient unconsciousness. Although not associated with a direct risk of dependence development, this pattern of consumption can have an array of negative health consequences. The results of many previous studies suggest than occasional single consumption of alcohol at high amounts, i.e., so-called binge drinking, can cause the symptoms of acute intoxication, and can be associated with the risk of obesity and its consequences [2,22,23].

The qualitative distribution of alcoholic beverages consumed by participants of this study is unfavorable. Our respondents declared relatively high consumption of spirits and quite low consumption of wine. According to literature, in turn, the type of preferred beverage constitutes important factor determining consumer's health.

Many large epidemiological studies revealed that the predominant consumption of spirits is associated with the risk of many disorders, including hypertension, alcoholic cardiomyopathy and arrhythmia, ischemic heart disease and cerebral

vessel pathologies [2,22,23]. In contrast, moderate consumption of wine, particularly the red one, seems to exert protective effect on the cardiovascular system, plausibly due to high content of flavonoids, considered so-called free radical scavengers [24]. Many authors observed that individuals drinking regularly moderate amounts of wine have lower risk of circulatory and neurodegenerative disorders when compared to complete abstinents [25,26]. Unfortunately, this potentially favorable pattern of alcohol consumption is still not very popular in our country, as confirmed by the results of our study, among others [6]. Both our findings and the reports by other authors suggest that the selection of alcoholic beverage by adolescents is determined by the content of ethanol rather than by the sensory parameters or health aspects [27,28].

Another alarming finding of this study pertains to sporadic participation of students being under the influence of alcoholic beverages in academic classes. In case of the students of medical university, who frequently contact with patients during their practical classes, such attitude can be particularly devastating, leading to direct risk of patient's health and life. Moreover, it is blameworthy in the context of building social authority of future healthcare professionals, who should represent an example of healthy lifestyle.

Finally, one should mention potential limitations of this study. Interpreting the results of questionnaire studies dealing with such sensitive issues as alcohol consumption one should consider possibility of giving dishonest replies by at least some of respondents [29]. This was unequivocally confirmed by the results of our survey; some respondents gave conflicting responses to several quite similar questions on the frequency and quantity of various alcoholic beverage consumption. Consequently, one can suppose that the true rate of alcohol consumption could be even higher than that revealed in our study. Although our results were not directly affected by another potential interpretative problem, namely the definition of alcoholic "drink", this latter hinders comparison of our findings to those of other studies. In this study, we used the units of alcohol consumption approved by WHO and the State Agency for the Prevention of Alcohol-Related Problems [1]; however, the authors of previous surveys used different definitions of „drink" which markedly hinders the possibility of comparative analyses [30]. Finally, one should keep in mind that questionnaire surveys usually refer to average consumption of alcohol during a time period given [31]. Consequently, none can distinguish between individuals who drink alcohol regularly and those who use it compulsively. We tried to avoid this limitation, analyzing the frequency of alcohol consumption during the two periods: one year and one month preceding the survey.

CONCLUSION

Although the quantitative and qualitative patterns of alcohol consumption in the students participating in this study did not differ markedly from population based characteristics of respective age group, they are still associated with specific risks resulting from studying medical disciplines and future employment in healthcare sector.

Conflict of interest

None of the authors have any conflicts of interest.

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