Drug use, smoking, alcohol abuse and assertiveness of medical students from Poland and Belarus

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ABSTRACT

Introduction: Human health is largely determined by factors such as human behavior and style of life.
Purpose: To evaluate selected patterns of behavior of medical students, such as smoking, alcohol abuse, drug use, and their assertiveness.
Materials and methods: The study included 338 students from Bialystok, Poland, and 339 from Grodno, Belarus. The original questionnaire, Fasterström's Nicotine Addiction Test, Michigan Alcoholism Screening Test, Drug Use Problem Test, and Assertiveness Test according to Grębski were all used.
Results: In both groups, the level of cigarette dependence was low, with 10% of the students from Poland and 15% from Belarus being habitual cigarette smokers. No significant differences were found in the frequency of alcohol consumption between Polish (57%) and Belarusian (52%) students. Of the respondents, 3.3% from Poland and 1.5% from Belarus met the criteria of alcohol dependence according to the MAST test. There were no statistically significant differences in the frequency of drug use between the Polish (1.5%) and Belarusian (1.8%) students. The average level of assertiveness was 16.2 for Polish students and 15.4 for Belarusian students, which was a significant difference.
Conclusions: These results indicate similar percentages of Polish and Belarusian students smoke cigarettes, drink alcohol, and use drugs. In addition, Polish students were more assertive than Belarusian students.
Keywords: Smoking, drugs, alcohol, medical students

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INTRODUCTION

Human behavior and a person's style of life are responsible for human health [1-4]. Many studies indicate [5-8] factors that protect against taking risky behavior. It is believed that the individual's individual resources and environmental characteristics reduce the impact of risk factors, helping to reduce the occurrence of risky behavior. Some authors [9,10] suggest that risky behaviors are modified by personality traits, such as, comprehension, openness to experience, neuroticism, or extraversion.

According to Problem-Behavior Theory, an adolescent who exhibits problem behaviors or any risk-taking behavior (e.g., alcohol and drug use, truancy, delinquency) is said to have Problem-Behavior Syndrome (PBS). PBS is not always persistent [11-14].

It has been demonstrated that smoking 20 cigarettes a day shortens the average life expectancy by about 5 years, and smoking 40 by over 8 years [15,16]. Alcohol abuse, especially at an early age, can lead to mental, physical and social developmental disorders [17,18]. It is estimated that on average a Pole consumes 50 grams of spirits a day, a Kazakh 54 grams, and a Russian 48 grams [19]. Drugs are another threat to health [20]. A survey conducted by the European Monitoring Center for Drugs and Drug Addiction (EMCDDA) on a representative sample of 1,000 Poles over the age of 15, found that 7.1% of the adolescents used drugs [21]. Among students, marijuana use has been shown to be associated with lower cognitive impairment, difficulty concentrating, missing classes, and putting oneself in physical danger [22].

Assertiveness is a form of behavior characterized by a confident declaration or affirmation of a statement without need of proof; this affirms the person's rights or point of view without either aggressively threatening the rights of another (assuming a position of dominance) or submissively permitting another to ignore or deny one's rights or point of view [23]. Several research studies have identified assertiveness training as a useful tool in the prevention of alcohol-use disorders.

To date and to the best our knowledge, there have not been published study reporting smoking, alcohol drinking, and drug abuse among medical students from Belarus.

The aim of this study was to evaluate selected patterns of behavior of medical students from Poland and Belarus, such as smoking, alcohol abuse, drug use and their assertiveness.

MATERIALS AND METHODS

The study was approved by the bioethics committee of the Medical University of Białystok, Poland (UMB R-I-002/448/2015) and the Head of the Department of Sports Medicine and Rehabilitation, Janka Kupala in Grodno, Belarus. The study was performed from December 2015 to March 2016. The study included 338 students (nursing, midwifery, and physiotherapy) from the Medical University of Bialystok, Poland and 339 students (nursing, midwifery, and physiotherapy) from the State University of Bialystok. Janka Kupala in Grodno, Belarus.

In both groups, 350 questionnaires were distributed and 338 were returned from Poland (response rate was 96.5%) and 339 were returned from Belarus (response rate was 96.8%)

We used the following instruments (in Polish and Russian): (a) A survey questionnaire specially designed for the current study, including the questions concerned: age, gender, direction, year of study, smoking (when, how many, how much), alcohol consumption (when, how many, what type) and drug use (when, what kind); (b) The Fagerström Test for Nicotine Dependence [24] is a standard instrument for assessing the intensity of physical addiction to nicotine. The test was designed to provide an ordinal measure of nicotine dependence related to cigarette smoking. It contains six items that evaluate the quantity of cigarette consumption, the compulsion to use, and dependence. In scoring the Fagerstrom Test for Nicotine Dependence, yes/no items are scored from 0 to 1 and multiple-choice items are scored from 0 to 3. The items are summed to yield a total score of 0-10. The higher the total Fagerström score, the more intense is the patient's physical dependence on nicotine. (c) Michigan Alcoholism Screening Test (bMAST) is screening tool identifying dependent drinkers [25]. The 10 items on the BMAST are answered "yes" or "no" and retain the original measure's weighted scoring scale. Total scores can range from 0 to 29. A score of 0 indicates no alcohol problems, 1 to 5 indicates potential alcohol problems, and a score of 6 or more indicates the presence of alcohol problems. (d) Problematic use of narcotics (PUN) test [26] contains 10 questions "yes" or "no" about the use of any drug during the past 12 months. The questions concern the various aspects of drug use: side effects, functioning at school, at work, people and police troubles, and the other - the style of drug use: taking on loneliness, feeling the need to take drugs, searching for drugs stronger than previously used, self-procured drugs and expenses incurred. The maximum result is 10 (all answers "yes"): which indicates that the tested person is problematic user; (e) Assertiveness test according to Gręboski - allows to assess whether the subject is assertive or not [27]. The assertiveness test consists of 26 questions, each of which has two versions of answers A or B. The test results are calculated based on the type of answer selected and the assertiveness is determined by the choice of specific answers to the question.

Statistical analysis

The data were analyzed using Statistica 13.0 PL. For categorical variables, we calculated percentages. For quantitative variables, we calculated the means, standard deviations. Chi-square test was used to analyze the dependence of qualitative features. U Mann-Whitney's test was used to compare two groups. Additionally, Spearman's rank correlation coefficient was used. A p-value <0.05 was considered significant.

RESULTS

The study group included 677 medical students comprising 338 from Poland and 339 from Belarus. The mean age of the students was 23.5 ± 3.60 years (60–88 years). In the studied population there was a significant (p<0.001) overrepresentation of women 76.7% versus men 23.3%. Details are shown in Table 1.

Table 1. Data of medical students from Poland and Belarus

	Country		**Total**
	Poland	**Belarus**	
Age (years)			
18-20	93 (27.5%)	204 (60,2%)	297 (43,9%)
21-30	245 (72.9%)	135 (39,8%)	380 (56,1%)
Gender			
female	268 (79.3)	251 (74%)	519 (76.7%)
male	70 (20.7%)	26% 88 (26%)	158 (23.3%)
Year of study			
I	20 (5,9%)	64 (18,9%)	84 (12,4%)
II	**132 (39.1%)**	6 (1,8%)	138 (20,4%)
III	59 (17,5%)	11 (3,2%)	70 (10,3%)
IV (M.Sc.)	76 (22,5%)	123 (36,3%)	**199 (29,3%)**
V (II M.Sc.)	51 (15,1%)	**135 (39,8%)**	186 (27,5%)
Total	338	339	677

Overall, 12.3% (83) of the respondents were smokers, 32 (9.5%) from Poland, and 51 (15%) from Belarus. Seventy-six (11.2%) students declared themselves as occasional smokers, 29 (8.6%) from Poland and 47 (13.9%) from Belarus. Cigarette smoking significantly differed (p = 0.0095) between the two groups. The year of study did not affect the frequency of smoking between the groups. Details are shown in Table 2.

Table 2. Cigarette smoking and a year of study

Cigarette smoking	**Year of study**					
Polish group (p = 0.1498)						
	I	**II**	**III**	**I M.Sc.**	**II M.Sc.**	Total
yes	2 (10.0%)	9 (6.8%)	3 (5.1%)	13 (17.3%)	4 (8.0%)	31
occasionally	3 (15.0%)	9 (6.8%)	5 (8.5%)	9 (12.0%)	3 (6.0%)	29
not	15 (75.0%)	114 (86.4%)	51 (86.4%)	53 (70.7%)	43 (86.0%)	276
total	20	132	59	75	50	336
Belarussian group (p = 0.3848)						
	licenciate	**III year**	**IV year**	**Total**		
yes	11 (13.6%)	13 (10.6%)	22 (18.5%)	46		
sporadically	14 (17.3%)	16 (13.0%)	15 (12.6%)	45		
not	56 (69.1%)	94 (76.4%)	82 (68.9%)	232		
total	81	123	119	323		

In a further evaluation, 159 subjects who smoked cigarettes, either continuously or sporadically, were asked to complete the Fagerström test. The level of nicotine dependence did not differ significantly (p=0.691) between the Polish (3.02±2.3 score) and (3.15±2.35 score) Belarusian students.

Polish respondents declared that they more often drank beer (68.2%), followed by wine (43.9%), and vodka (34.5%). Similarly, Belarusian students drank beer more often (53.9%), followed by vodka (43.6%) and wine (29.2%). No statistically significant differences were reported in the frequency of alcohol consumption (p=0.3591). In the Polish group, we found significant differences between the year of study and alcohol consumption (p=0.0013). Details are provided in Table 3.

Table 3. Alcohol consumption and a year of study

Alcohol consumption	**Year of study**					Total
Polish group (*p* = 0.0013)**						
	I	**II**	**III**	**I M.Sc.**	**II M.Sc.**	
yes	10 (50.0%)	28 (21.2%)	13 (22.0%)	16 (21.1%)	7 (14.0%)	74
sporadically	6 (30.0%)	72 (54.5%)	36 (61.0%)	52 (68.4%)	24 (48.0%)	190
not	4 (20.0%)	32 (24.2%)	10 (16.9%)	8 (10.5%)	19 (38.0%)	73
total	20	132	59	76	50	337
Belarusian group (*p* = 0.3848)						
	licenciate	**III year**	**IV year**	**Total**		
yes	11 (13.6%)	29 (23.6%)	38 (31.9%)	78		
sporadically	54 (66.7%)	60 (48.8%)	53 (44.5%)	167		
not	16 (19.8%)	34 (27.6%)	28 (23.5%)	78		
total	81	123	119	323		

Alcohol dependence was assessed using the MAST test. Table 4 shows the exact distribution of the point measure determined by the MAST questionnaire. The majority of the respondents were not alcohol dependent because 51.1% students from Poland had 1 point and 52.7% from Belarus had zero points in the MAST test. The difference in the MAST value distribution was found to be highly statistically significant (p = 0.0000). Only 2.5% of those surveyed – 3.3% from Poland and 1.5% from Belarus – met the criteria of alcohol dependence according to the MAST test (5 points or more).

Table 4. MAST test results

MAST test (point)	**Country (*p* = 0.0000***)**		**Total**
	Poland	**Belarus**	
0	80 (29.6%)	**137 (52.7%)**	217 (40.9%)
1	**138 (51.1%)**	93 (35.8%)	**231 (43.6%)**
2	24 (8.9%)	12 (4.6%)	36 (6.8%)
3	11 (4.1%)	4 (1.5%)	15 (2.8%)
4	8 (2.9%)	10 (3.8%)	18 (3.4%)
5	9 (3.3%)	0 (0.0%)	9 (1.7%)
8	0 (0.0%)	4 (1.5%)	4 (0.8%)
Total	270	260	530

Table 5 lists the types of drugs which were used by the students. Marijuana/hashish was used significantly more often (p=0.0127) by the Polish students. However, psychotropic drugs were used significantly (p=0.0127) more frequently by the Belarussian students.

We noted that the year of study significantly (*p*=0.0160) affected drug use in students from Belarus (Table 6). There were no statistically significant differences in the frequency of drug use between the Polish and Belarusian students. Drug users were asked to complete the PUN Test. In the Belarussian group, all respondents rated the degree of drug dependence at 0 points (Table 7). In the Polish group, nine students rated the degree of drug dependence at 2 points or more. The difference in the degree of drug dependence between the Polish and the Belarussian students was statistically significant (p=0.0375).

Table 5. Types of drugs used by respondents from Poland and Belarus

Drugs	Country				*p*
	Belarus n=24		Poland n=20		
	N	%[1)]	*N*	%[1)]	
Marijuana / hashish	4	16.6%	17	85.0%	0.0127*
Amphetamine	12	60.0%	1	5.0%	0.0861
Cocaine	0	0.0%	2	10.0%	0.3793
Psychotropic drugs	16	66.7%	0	0.0%	0.0127*
L.S.D	0	0.0%	1	5.0%	0.5436
Ecstasy	0	0.0%	1	5.0%	0.5436
Heroin	1	4.2%	0	0.0%	0.0852

[1)] The percentages were calculated within the group of drug addicts who answered the additional questions, could indicate several drugs

Table 6. Drug use and year of study

Drug	**Year of study (*p* = 0.1645)**					
Polish group (*p* = 0.1645)						
	I	**II**	**III**	**I MSc**	**II MSc**	Total
yes	3 (15.0%)	5 (3.8%)	5 (8.5%)	4 (5.3%)	1 (2.0%)	18
no	17 (85.0%)	127 (96.2%)	54 (91.5%)	72 (94.7%)	48 (98.0%)	318
total	20	132	59	76	49	336
Belarus group (*p* = 0.0160*)						
	licenciate	**III year**	**IV year**	Total		
yes	4 (5.0%)	0 (0.0%)	1 (0.9%)	5		
no	76 (95.0%)	119 (100.0%)	115 (99.1%)	310		
total	80	119	116	315		

Table 7. Assessment of the degree of drug dependence using the PUN test in the studied groups

PUN test (point)	Country (*p* = 0.0099**)		Total
	Belarus N=24	Poland N=20	
0	**24 (100.0%)**	**6 (30.0%)**	**30 (68.2%)**
1	0 (0.0%)	5 (25.0%)	5 (11.4%)
2	0 (0.0%)	5(25.0%)	5 (11.4%)
3	0 (0.0%)	2 (10.0%)	2 (4.5%)
4	0 (0.0%)	1 (5.0%)	1 (2.3%
7	0 (0.0%)	1 (5.0%)	1 (2.3%)
Total	24	20	44

The assertiveness level of the students was tested using the standardized assertiveness test according to Grębski.

The average level of assertiveness was (16.2 ±4.4) for Polish students and (15.4±3.6) for Belarusian students, which was a significant difference (p = 0.0127)

DISCUSSION

Our results revealed similar percentages of Polish and Belarusian students who smoked cigarettes, drank alcohol, and used drugs.

Smoking

In general, the level of cigarette dependence was low among the students; only 10% of students from Poland and 15% from Belarus were habitual cigarette smokers. In both groups of students, the year of study did not affect smoking frequency. Such percentages are lower than those of Bielawska et al. [28], who reported that 25% of first-year students at the Medical Academy in Wrocław were smokers, and of Stefanska et al. [29], who in 2010 reported that more than 60% of students at the Medical University of Białystok were smokers. In Germany that same year, Kusma et al. [30] found that 78.5% of medical students from Berlin smoked cigarettes. By contrast, Śniatała et al. [31] reported that, among 187 students (78.6% women, 21.4% men) in the Faculty of Medicine at Poznan University, only 5.4% smoked cigarettes every day.

Drinking

Karama et al. [32] have suggested that the incidence of alcohol consumption among students is similar in Europe, North America, South America, and Australia yet lower in Africa and Asia.

In Europe, in a study of alcohol consumption among students in Sweden, Andersson et al. [33] reported that 44.8% of men and 50.4% of women in their sample drank alcohol once per week and found a significant relationship between alcohol consumption among students and problems with academic performance, personal finances ($p < 0.001$), and sleep.

In France, Franca et al. [34] found that among 731 medical and humanities students, 26.0% of the former and 16.9% of the latter demonstrated episodes of severe drunkenness (i.e., up to 3 times a month). In Germany, Keller et al. [35] reported that 24.0% of first-year medical students had consumed alcohol in the 2 weeks prior to their study. In Poland in 2014, Kozłowski et al. [36] found that 95.7% of students not studying medicine and 100% of students at the Medical University of Lublin had drank alcohol regularly. In both groups of students, every fourth student consumed alcohol two or more times per week.

Among our results, 56.5% of students from Poland and 51.6% of students from Belarus consumed alcohol occasionally. A higher percentage of Polish students drank alcohol during their earlier years of study, whereas a higher percentage of Belarusian students drank alcohol during their later years of study.

In Kozłowski et al.'s [36] study, 69.6% of students not studying medicine and 57.1% of medical students declared drinking. The most common alcohol consumed by alcoholic students was beer, followed by wine, all kinds of drinks, and liquor. Significantly fewer women reported drinking beer (59.2%) than men (80%), and significantly few women (38%) reported consuming alcohol whatsoever. However, women were more likely than men to drink wine [35].

Similarly, respondents from the Polish and Belarussian student groups in our study declared that they mostly drank beer, presumably due to its lower cost.

Upon assessing the level of alcohol dependence with the MAST test, we found that only 3.3% students from Poland and 1.5% from Belarus showed signs of alcohol dependence.

Drug abuse

Few students from Belarus and only 17 students from Poland had used marijuana. No statistically significant differences emerged in the frequency of drug use between Polish and Belarusian students.

Such estimates are far lower than the estimates found by other authors. The Drug-Free Schools report [10], financed by the National Bureau of Drug Prevention in Poland's Ministry of Health, revealed that the highest percentage of occasional drug users among students were first-year students (35.4%). Of the drugs reported, cannabis was used by 35.6% of respondents, amphetamine by 11.1%, ecstasy by 4.7%, and sedative drugs by 4.1% [10]. Kozłowski et al. [36] found that 14.5% of medical students of the Medical University in Lublin had used drugs; the most popular drug was marijuana (37.5%), followed by amphetamine (8%), and heroin (1.4%).

Studying the various risk behaviors among young adults, especially university students, is of great importance to the whole population, especially because university students have access to means to not only sustain and improve society but also to make their social needs and rational behavioral patterns healthy.

CONCLUSIONS

Among both Polish and Belarusian students, smoking cigarette dependence was low, and the frequency of alcohol consumption and drug use were similar. However, students from Poland were more assertive in reporting their substance use than students from Belarus. Such results indicate that similar percentages of Polish and Belarusian students smoke cigarettes, drink alcohol, and use drugs.

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Conflicts of interest

The authors declare that they have no conflicts of interest.

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