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Effects of Alcohol as on Chemical and Behaviors Influence on College Students

KEYWORDS: Alcohol chemical effects, College students, and educational research.

ABSTRACT

The topic of alcohol consumption among young people is not a new one. In this paper we investigated the chemical and behavioral effects of alcohol consumption. It belongs to an area of research of plethora of psychologists, sociologists, teachers, etc. There are some differences depending on the country of origin, yet this problem has not been resolved. The research was conducted on 480 Slovak college students having used the modified Engs´ Student Alcohol Questionnaire (SAQ). The MANCOVA data evaluation method with emphasis on the age as a covariate and Pearson´s product moment were used. The focus is on the gender, year of study, gross grade average, religion, field of study and orientation on knowledge and experience of alcohol. The year of study is insignificant in effecting the experience of alcohol among students while the effect of other categorical variables turn out to be significant. The gender and year of study have a significant influence on students' knowledge of alcohol.

INTRODUCTION

Drinking and alcohol abuse is a widespread problem of the society worldwide. In Slovakia, Central Europe, it is common to drink alcohol for many reasons and opportunities. Young people build the habits and social issues in their early age. Drinking among college students has traditionally been a part of the college experience (Black et al., 2004). College students belong to a risk group due to being away from home, family and longstanding friendships as well as them going through a phase of vulnerability in a new environment characterized by considerable peer influence and often aggressive promotion of alcoholic beverages (Karam, Kypros & Salamoun, 2007). Chen & Feeley (2015) claim students with more favorable attitude toward drinking and less perceived control of drinking are associated with drinking more alcohol together with students with higher stress engaged. Landry et al. (2014) focusing on the relationship between alcohol use and protective behavioral strategies. The authors found women who used the fewest protective behavioral strategies reported the highest levels of alcohol consumption and harmful drinking patterns. Protective behavioral strategy use was associated with lower levels of alcohol-related negative consequences.

De Visser & Birch (2012) state many young people may lack the knowledge required to monitor their alcohol consumption or give accurate self-reports in research. McKee & Weinberger (2013) were focused on the relationship between the use of alcohol and tobacco within the American society and also focused on the relationship between knowledge of alcohol and alcohol consumption. Syden & Landberg (2017) also examined the effect of knowledge on the consumption of alcohol. The respondents with lower level of knowledge were more alcohol drinkers and the mortality in this group was higher. More than 3.3 million students were engaged in heavy drinking within the past 30 days (Hingson et al. 2002; Nakash et al., 2016). They asserted that approximately 87.6% of Greek students consumed at least 5 drinks in the past 2 weeks. One third of them has been intoxicated at least once a week.

METHODOLOGY

Respondents

The research was conducted on 480 students of two Slovak universities. The boys made up 16.25 % of respondents. The age of respondents ranged from 19 – 29 (x = 20.78; SD = 1.59). The students according to their study orientation were divided into two groups. The number of major science students was higher (n = 279) in comparison with non-major science students (n = 201). The information about alcohol is presented to students in subjects belonging under science subjects. The students were grouped on the basis of this fact mentioned above. The division of students according their year of study, gross grade average and religion is in table 1.

variables	groups of variable	n	%
year of study	1	188	39.17
	2	149	31.03
	3	43	8.96
	4	86	17.92
	5	14	2.92
gross grade average	A	49	10.21
	B	105	21.88
	C	276	57.50
	D	32	6.66
	E	18	3.75
religion	non-atheist	362	75.42
	atheist	118	24.58

Table 1. Distribution of selected demographic variables. n – number of cases

Measurement tool
Being translated into Slovak language with the help of an interpreter, we used modified Engs´ SAQ. The original version was created in English. The questionnaire was divided into three parts. The first part contained demographic variables. The second part consisted of 18 items focused on the respondents' experience of alcohol. The responses were coded as follows: 5 points – at least once in the past two months and at least one additional time during the past year; 4 points – at least once within the past two months but not during the rest of this past year; 3 points – not during the past two months but at least once during the past year; 2 points – has happened at least once in life but not during the past year; 1 point – has not happened to me up to now. The last part of the questionnaire consisted of 36 items of alcohol knowledge. These items could be divided into four areas: 1. General knowledge of alcohol (13 items); 2. The effect of alcohol on the human body (12 items); 3. Alcoholism outsight (7 items); 4. History of alcoholism (4 items). The responses were coded as follows 1 point for correct answer and 0 point for incorrect answer.

The distribution and statistical analysis
The distributors of the questionnaire were the authors of the research. The respondents were assured of the anonymity of the measurement tool. The total time for the filling of questionnaire was no longer than 25 minutes. All filled questionnaires were available for the next analysis. The MANCOVA data evaluation method with emphasis on the age as a covariate was used. The score from experience and knowledge part was used as a dependent variables and demographic variables were used as independent variables. The relationship between dependent variables was measured by Pearson´s product moment. The normality was checked for the experience and knowledge part by the using of Kolmogorov-Smirnov test. The reliability of the questionnaire was measured by the using of Cronbach´s alpha coefficient. For the experience part it was 0.76 and for the knowledge part it was 0.73 (the values of □ for the knowledge category were from 0.58 till 0.77).

RESULTS

What is students' knowledge and experience of alcohol?
According to the Slovak college students', their experience of alcohol is on the low level (x = 1.36). The basic statistical analysis for the knowledge categories are presented in the table 2. It is obvious, that the first category "General knowledge about alcohol" was the most problematic. The students achieved very similar score in the categories "Alcoholism outsight" and "History of alcoholism".

categories	mean score	% of correct answers	α
general knowledge of alcohol	5.20	40.00	0.68
the effect of alcohol on human body	5.70	47.50	0.58
alcoholism outsight	4.85	69.29	0.77
history of alcoholism	2.76	69.00	0.60

Table 2. The basic statistical analysis about categories. α – Cronbach's alpha

Associations between knowledge and experience
A series of correlations (Pearson) between categories of knowledge of alcohol and experience of alcohol showed some significant correlations, which are presented in table 3. The knowledge about history of alcohol had got positive significant relationship with all other categories regarding to knowledge about alcohol. The variable called experience of alcohol positively and significantly correlated with two knowledge categories. It was interesting, that if the experience of alcohol was higher also the general knowledge of alcohol and knowledge of effects on human body was better.

	general knowledge of alcohol	effect on human body	alcoholism outsight	history of alcoholism
experience of alcohol	0.13**	0.23***	0.03	0.08
general knowledge of alcohol		0.28***	0.06	0.26***
effect on human body			0.16***	0.23***
alcoholism outsight				0.26***

Table 3. The values of correlation among experience of alcohol and categories of knowledge of alcohol.
** p < 0.01
*** p < 0.001

What factors influence students' experience of alcohol?
We used a multivariate analysis of variance (MANCOVA) for further examination of potential factors that could influence students' experience of alcohol. The age of respondents was used as a covariate. The results are shown in table 4. The year of study was insignificant in effecting the experience of alcohol among students while the effect of other categorical variables was significant. Some interaction of both categorical variables were significant, but the majority of interactions was insignificant.

variables	F	p
age	0.05	0.82
gender	14.92	< 0.001
study orientation	4.22	< 0.05
year of study	2.17	0.07
gross grade average (GGA)	4.66	< 0.01
religion	5.57	< 0.05
gender*study orientation	0.05	0.82
gender*year of study	1.13	0.34
study orientation *year of study	1.16	0.33
GGA*religion	3.66	< 0.01
gender*GGA	0.66	0.62
gender*religion	1.80	0.18
study orientation *GGA	2.58	< 0.05
study orientation *religion	6.15	< 0.05
year of study*religion	0.80	0.53
year of study*GGA	0.75	0.48

Table 4. Results of a multivariate analysis of variance (MANCOVA) examining effects of selected factors on students experience of alcohol.

The mean score for every group of variables is presented in the figure 1. Males had higher experience of alcohol in comparison with girls. Students who studied science subjects proclaimed higher experience of alcohol. Students in first and last year of their studies and students with gross grade average achieved the highest score.

The atheists showed higher experience of alcohol in comparison with non-atheists.

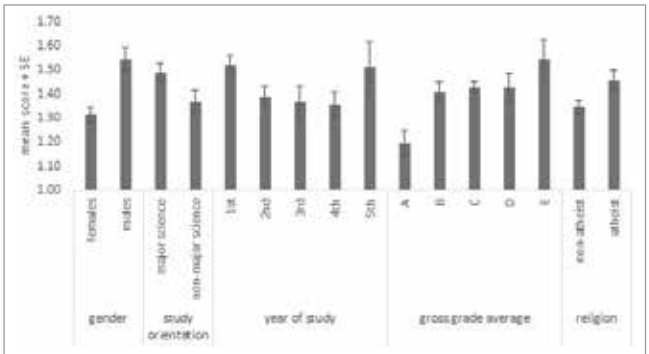

Figure 1. The mean score of experience of alcohol with respect to categorical variables.

What factors influence students' knowledge of alcohol?
As in previous part, MANCOVA was used for examination of potential factors that could influence students' knowledge of alcohol. The results of analysis are presented in table 5. The gender and year of study have a significant influence on students' knowledge of alcohol, while other factors were insignificant. The interaction of factors had got a significant influence only in one case (study orientation*year of study).

variables	F	p
age	2.03	0.07
gender	4.98	< 0.001
study orientation	1.59	0.16
year of study	1.81	< 0.05
gross grade average (GGA)	1.25	0.22
religion	1.61	0.14
gender* study orientation	0.22	0.95
gender*year of study	1.19	0.25
study orientation *year of study	1.59	< 0.05
GGA*religion	1.48	0.08
gender*GGA	0.85	0.65
gender*religion	0.91	0.47
study orientation *GGA	1.36	0.13
study orientation *religion	1.63	0.15
year of study*GGA	0.94	0.58
year of study*religion	0.93	0.55

Table 5. Results of a multivariate analysis of variance (MANCOVA) examining effects of selected factors on students' knowledge of alcohol.

The analysis showed, that gender was significant factor in two dimensions, "General knowledge of alcohol" ($F = 7.54$; $p < 0.01$) and "Effect on human body" ($F = 3.86$; $p < 0.05$). The year of study was significant factor in the dimension "General knowledge of alcohol" ($F = 2.41$; $p < 0.05$). Other factors were insignificant in every area. Table 6 contains the mean score for every area with respect to categorical variables. The results in separate variables are in consistent, only in categorical variable "religion", atheists had got better knowledge in all knowledge dimensions.

categorical variables	groups of variables	general knowledge about alcohol	effect on human body	alcoholism outsight	history of alcoholism
gender	females	5.26	5.66	5.02	2.90
	males	6.13	6.27	4.61	3.03
study orientation	major science	5.91	6.19	4.86	2.90
	non-major science	5.49	5.74	4.77	3.03
year of study	1st	4.85	5.86	5.02	2.72
	2nd	5.60	5.80	4.74	3.06
	3rd	5.65	5.66	5.01	2.97
	4th	5.66	5.83	4.39	2.72
	5th	6.72	6.66	4.91	3.34
gross grade average	A	5.21	5.68	5.11	3.14
	B	5.76	5.75	4.87	2.82
	C	5.17	5.82	4.83	2.73
	D	5.47	5.70	4.83	2.95
	E	4.96	6.17	5.17	2.67
religion	non-atheist	5.16	5.68	4.85	2.74
	atheist	5.46	5.96	5.08	2.99

Table 6. The mean score for categories of knowledge of alcohol with respect to categorical variables.

DISCUSSION

Using the modified questionnaires created by Engs (1978), the research provides a brief view on the Slovak college students´ knowledge and experience of alcohol. Our study focusing on the knowledge and experience of alcohol could be the first in the region of Central Europe.
The gender had got significant effect, males had got more experience of alcohol in comparison with females and also the knowledge of males of alcohol was higher nearly in all areas, except one called "Alcoholism outsight", where females achieved higher score. Our results are in concordance with results from other studies, which have shown that more men drink and experience drinking-related problems than women (LaBrie et al., 2008). Men also tend to consume alcohol in greater quantities and more frequently than women (French et al., 2014). Hasking, Shortell & Machalek (2005) found out that men have better knowledge and also recognize harmful effect of alcohol on human body. Why do they have more experience of alcohol? There are some reasons. The total body weight of the man is composed of between 55 and 65 percent water while the total body weight of the woman is typically between 45 and 55 percent water. Therefore, alcohol becomes more diluted in the male system and men are allowed to consume physically a greater amount. Men also metabolize alcohol more quickly than women, due to the prevalence of an enzyme known as gastric alcohol dihydrogenase. The males´ better knowledge could be explained by the relationship between experience and knowledge, as the higher experience influences the knowledge in a positive way.
The study orientation has got significant influence on experience of alcohol, students with major science combination, had got higher experience and better knowledge of alcohol in three knowledge categories (except "history of alcoholism"). This effect is possibly caused by more males in the sample of science major students. Other explanation could be in the difficulty of their study combination. The majority of non-science major students study humanities and these are considered easier to study. And as Simons et al. (2005) suggested the study problems and problems connected with study could lead to drink alcohol more often.

The year of study was a significant factor in the students' knowledge of alcohol, the oldest students had got the best knowledge in comparison with younger students. However, this variable was insignificant in effecting the experience of alcohol among students. The students of 1st year of study and the oldest students had the highest experience of alcohol. It is not in concordance with findings from other studies, for example Leigh & Stacy (2004), which reported higher experience of alcohol among younger students in comparison with older. Being far from the hometown, without any control over, the students of the 1st year can have the highest experience of the alcohol. For the students from the last year of study there could be the following reasons: graduating from college and celebrating it or leaving the campus. The better knowledge of the oldest students could be connected with the influence of the lectures and seminars at university. Atheists had got highest experience of alcohol consumption and achieved better score in all categories related to knowledge of alcohol. It is probable, that there is the same relationship as it was mentioned in previous paragraph. Considering the relationship between religious affiliation and permissive attitudes toward drinking, alcohol consumption has been found to be the highest among Jews, followed by Catholics, and lowest among Protestants (Engs, Diebold & Hanson, 1996). It can be inferred that strong religious messages (and moral messages proposed by the church) about alcohol abstinence can have a major impact on personal rates of alcohol consumption. The influence of religiosity was confirmed also in our study. The Roman-Catholic students had the lowest experience of alcohol, but their knowledge of alcohol is also the worst. This could be caused by their disinterest about circumstances regarding alcohol.

CONCLUSION

The lack of knowledge of alcohol can lead to irresponsible drinking or alcoholism. The alcohol education programs at the college level are important (Engs, 1978). At Slovak universities there are no such programs. Young adults tend to consume alcohol relatively frequently. The educational campaigns are considered ineffective intervention strategy to minimize alcohol-related harm (Hasking, Shortell & Machalek, 2005). These high rates of alcohol consumption among young adults are of concern since such heavy drinking has been demonstrated to lead to many social and/or physical problems such as vandalism, car accidents, unsafe sex, academic failure, drunk driving and sexual assault and/or victimization (Perkins, 2002). Other problem is also very early consumption of alcohol. In many countries, involving Slovakia, primary-school pupils consume alcohol. It can be caused by the effect of peers and other factors (problems in family, low socio-economical situation and others). The consuming of alcohol at the early age is in positive correlation with the huge consuming of alcohol in the early adolescence and in adolescence also. So, the education programs focused on how alcohol is harmful to human body should be implemented in the curriculum from primary schools, because later these activities could have no appropriate effect.

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