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Lifestyles of university students in Bosnia and Herzegovina

Suada Branković[1]*, Aida Pilav[1], Šeila Cilović-Lagarija[2], Arzija Pašalić[1], Jasmina Mahmutović[1]

[1]Faculty of Health Sciences, University of Sarajevo, Sarajevo, Bosnia and Herzegovina, [2]Institute for Public Health of FBIH, Sarajevo, Bosnia and Herzegovina

ABSTRACT

Introduction: Currently, there is a growing interest in alcoholism-related studies among healthcare community. Cigarette smoking is five times more prevalent among adult men compared to women but these gender differences have been decreasing among young people. In developed countries, harmful effects of sedentary lifestyle and physical inactivity have led to increased rates of obesity in young population. The main aim of this study was to explore the lifestyles of students at the University of Sarajevo. We investigated the prevalence of cigarette smoking and alcohol consumption, eating habits, and physical activity in this student population.

Methods: Students from Faculty of Health Sciences [FHS], Faculty of Political Science [FPS], and Faculty of Traffic Engineering and Communications [FTEC]) voluntarily participated in this questionnaire-based study. We surveyed a total of 410 students.

Results: On average, 21.8% of participants consumed cigarettes (a significantly higher number of those who smoked cigarettes was in FPS group). The highest number of students who reported physical activity (recreational or active sport) was in FTEC group (66.5%), and the difference was statistically significant compared to FHS (48.2%) and FPS (51.9%) groups. Over 60% of participants in all three groups experienced stress occasionally. The majority of students in three groups consumed fast food while at campus. The highest number of students in all three groups reported to drink water compared to other drinks.

Conclusions: Our results indicate that the lifestyles of university students in Sarajevo are subject to concern. Frequent alcohol consumption and cigarette smoking are typical examples of behaviour that should be reduced through educative programs and workshops.

Keywords: Cigarette smoking; alcohol consumption; stress experience; student population; University of Sarajevo; eating habits

*Corresponding author: Suada Branković, Faculty of Health Sciences, University of Sarajevo, Bolnička 25, 71000 Sarajevo, Bosnia and Herzegovina. Tel.: 0038733 569 800.
E-mail: suada.brankovic@gmail.com

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INTRODUCTION

Due to the complex nature of alcoholism, numerous definitions exist; however, a widely accepted definition of this condition that could be used in different medical fields has not been developed yet (1,2). According to Jellinek (3), alcoholism is every use

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of alcohol harmful to the individual, society, or both (3). Studies on alcoholism among young adults are still relatively rare, but currently there is a growing interest in this field among healthcare community. In the past, alcohol use was the most prevalent among middle-aged adults and it was not very common among young adults. Today, it is estimated worldwide that excessive drinking among young people has doubled compared to their parents at the same age (4).

In general population, cigarette smoking is five times more prevalent among men compared to women; however, gender differences in cigarette consumption have been decreasing among young people. In developed countries, the number of adult male cigarette smokers has peaked and started to decline, while the number of adult female smokers is still increasing (5). Since 2002, approximately 20% of younger adolescents worldwide have been consuming tobacco products (6). Between 80.000 and 100.000 of adolescents are starting to smoke cigarettes every day, with half of them living in Asia. In addition, half of those young people continue to smoke throughout their adulthood, i.e., in the next 15 or 20 years. Also, according to the World health organization (WHO),"the burden of tobacco-related illness and death is the heaviest in low- and middle-income countries" (5).

Healthy eating has become one of the most challenging aspects of modern life. The term healthy eating refers to consuming a balanced diet that provides nutrients and energy necessary for our body to function properly (7,8). The lack of balance between energy intake and energy expenditure can lead to weight gain and result in obesity. Obesity is described as an excessive accumulation of fat in the body. It was shown that obese adolescents have higher morbidity and mortality rates. Psychosocial problems, increased arterial blood pressure, increased blood sugar level, as well as cardiovascular disease and diabetes are common in these young people. In addition, low self-esteem and negative perception of body image can result in aggressive and antisocial behaviour.

The main causes of obesity in young adults are intake of excess calories, lack of physical exercise, social and psychological factors, metabolic disorders, and genetic predisposition (9). Severe obesity causes not only esthetic and psychological problems, it is also a risk factor for various chronic diseases in older age. It is well-documented that rapid weight gain in the first year of life is more difficult to control compared to adulthood obesity. Healthy, balanced eating as well as adequate physical activity are necessary for maintaining good body weight (10). In developed countries, harmful effects of sedentary lifestyle have been observed, and physical inactivity has led to increased rates of obesity in children and young adults.

The main aim of this study was to explore the lifestyles of students at the University of Sarajevo. Specifically, we investigated the prevalence of cigarette smoking and alcohol consumption among these students, as well as their eating habits and physical activity.

METHODS

Participants

Students from three faculties of the University of Sarajevo (i.e., Faculty of Health Sciences [FHS], Faculty of Political Science [FPS], and Faculty of Traffic Engineering and Communications [FTEC]) voluntarily participated in this questionnaire-based study. We surveyed a total of 410 students.

Questionnaire

The questionnaire included general information of each participant and two separate sections. The first section of the questionnaire consist of questions related to lifestyles, i.e., cigarette smoking, alcohol consumption, physical activity, and stress experience. The second section concerns eating habits of participants, including food and drink choices. Optional answers to questions were provided, and the questionnaire was specifically developed for this population, i.e., adapted for this age group.

Statistical analysis

The obtained data were first organized in MS Excel 2013, and then analyzed using SPSS for Windows, Version 16.0 (SPSS Inc., Chicago, IL, USA). All data are presented in the form of tables and graphs. Qualitative data were analyzed using Chi-square test, and One-way analysis of variance (ANOVA)

test was used for quantitative data. The value of $p < 0.05$ was considered significant.

RESULTS

A total of 410 students, from three different faculties of the University of Sarajevo, were surveyed. Out of 410 students, 114 (28%) were enrolled at FHS, 135 (33%) at FPS, and 161 students (39%) were enrolled at FTEC (Figure 1).

Out of the total number of participants, 38.8% were male and 61.2% were female students. The results of the Chi-square test showed a statistically significant difference in the male to female ratio between the three groups ($\chi 2 = 12.902$; $p = 0.001$). The highest percentage of female students was in FPS group at 83.7%. The following was FHS group with 60.5% of female students. The lowest percentage of female students was in FTEC group [42.9%] (Table 1).

The average age ± SD for all participants was 19.56 ± 2.06. The results of ANOVA test showed a statistically significant difference in the average age between the three groups ($F = 7.679$; $p = 0.001$). The highest average age was in FPS group (20.05 ± 2.25), while the lowest was in FHS group [19.05 ± 1.99] (Table 2).

A statistically significant difference was observed in cigarette smoking between FTEC and FHS and FPS groups; i.e., the rate of cigarette smoking was significantly lower among students in FTEC group (14.3%) compared to FHS (24.6%) and FPS group (26.7%) [$\chi^2 = 4.962$; $p = 0.026$]. On contrary, no significant difference was observed in alcohol consumption between the three groups ($\chi^2 = 0.078$; $p = 0.781$). In FHS group, 28.9% of students consumed alcohol, 23.7% in FPS, and 29.8% of students in FTEC group consumed alcohol (Figure 2).

No significant difference was observed in the number of cigarettes smoked per day among the students between the three groups ($\chi^2 = 2.260$; $p = 0.133$). In a total sample, 9.5% of students smoked less than 10 cigarettes per day. There were 11.2% of those who smoked between 10 and 20 cigarettes per day. Only 2% of students smoked more than 20 cigarettes daily (Table 3).

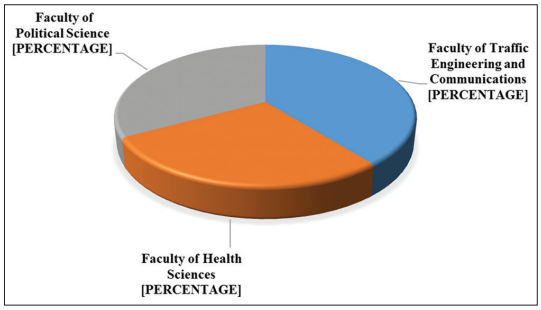

FIGURE 1. The ratio of participants by enrolled faculty.

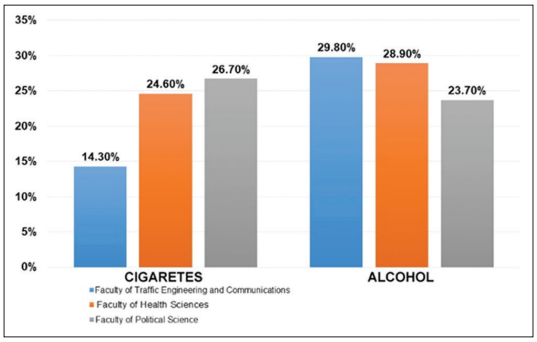

FIGURE 2. Prevalence of cigarette smoking and alcohol consumption among students from three faculties of the University of Sarajevo.

TABLE 1. Male to female ratio of students in three groups

Faculty name	Sex (N %)		Total
	Male	Female	
Faculty of health sciences	45	69	114
	39.5	60.5	100
Faculty of political science	22	113	135
	16.3	83.7	100
Faculty of traffic engineering and communications	92	69	161
	57.1	42.9	100
Total	159	251	410
	38.8	61.2	100

The highest number of students who reported physical activity (recreational or active sport) was in FTEC group (66.5%), and the difference was statistically significant compared to FHS (48.2%) and FPS (51.9%) groups [$\chi^2 = 9.721$; $p = 0.002$] (Table 4).

There was no statistically significant difference in the frequency of physical activity per week between the

TABLE 2. Average age of students in three groups

	N	X	SD	SEM	Minimum	Maximum
Faculty of health sciences	114	19.05	1.99	0.18	0	23
Faculty of political science	135	20.05	2.25	0.19	0	26
Faculty of traffic engineering and communications	161	19.51	1.84	0.14	0	26
Total	410	19.56	2.06	0.10	0	26

SD: Standard deviation; SEM: Standard error of the mean

TABLE 3. The number of cigarettes smoked per day among students in three groups

Faculty	Number of cigarettes per day (N %)				Total
	Non-smokers	<10	10-20	>20	
Faculty of health sciences	86	11	11	6	114
	75.4	9.6	9.6	5.3	100
Faculty of political science	98	20	17	0	135
	72.6	14.8	12.6	0	100
Faculty of traffic engineering and communications	133	8	18	2	161
	82.6	5	11.2	1.2	100
Total	317	39	46	8	410
	77.3	9.5	11.2	2	100

TABLE 4. Prevalence of physical activity (recreational or active sport) among students in three groups

Faculty	Involved in physical activity (N %)		Total
	No	Yes	
Faculty of health sciences	59	55	114
	51.8	48.2	100
Faculty of political science	65	70	135
	48.1	51.9	100
Faculty of traffic engineering and communications	54	107	161
	33.5	66.5	100
Total	178	232	410
	43.4	56.6	100

three groups (χ^2 = 0.840; p = 0.359). The highest number of participants in all three groups were engaged in physical activity 1-3 times/week. The second most frequent answer in all three groups was having no physical activity (Table 5).

Over 60% of participants in all three groups experienced stress occasionally (i.e., 63.2% in FHS, 71.9% in FPS, and 66.5% in FTEC), but a statistically significant difference was not observed in stress experience between the three groups [χ^2 = 0.851; p = 0.356] (Table 6).

No statistically significant difference was observed in breakfast habits between the three groups (χ^2 = 0.776; p = 0.376 for having breakfast before class and χ^2 = 1.564; p = 0.211 for having breakfast before 10 am). Among the students from FHS group, 48.2% reported having breakfast before class, 37.8% in FPS, and 52.2% in FTEC group. In FHS group, 57.9% of students reported having breakfast before 10 am, in FPS group that figure was 48.1%, and it was 64% in FTEC group (Figure 3).

The majority of students in all three groups consumed fast food while at campus (76.3% in FHS group, 74.8% in FPS, and 75.8% in FTEC group), with no significant difference in food choices between the three groups [χ^2 = 0.851; p = 0.356] (Table 7).

The highest number of students in all three groups reported to drink water compared to soft drinks and coffee (71.9% in FHS group, 70.4% in FPS, and 78.9% in FTEC). The results of Chi-square test showed no significant difference in the number of students who preferred water over the other drinks, between the three groups [χ^2 = 1.025; p = 0.311] (Table 8).

DISCUSSION

In our student population, the prevalence of alcohol consumption was higher compared to cigarette

smoking. On average, 21.8% of surveyed participants consumed cigarettes (a significantly higher number of those who smoked cigarettes was in FPS group). No significant difference was observed in the number of cigarettes consumed daily between the three groups (χ^2 = 2.260; p = 0.133). Less than 10 cigarettes/day consumed 9.5% of participants; 11.2% of participants smoked between 10 and 20 cigarettes per day. Only 2% of students smoked more than 20 cigarettes daily.

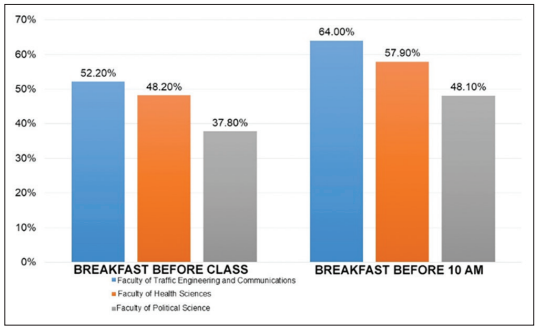

FIGURE 3. Eating habits among students in three groups.

The rate of cigarette smoking is associated with the level of education; the highest rate of cigarette consumption (43.2%) was observed in young people with primary school education, while in those with 9-10 years of formal education the rate of cigarette smoking was 32.6%. Generally, the rate of cigarette consumption is decreasing as the number of people with higher levels of education is increasing. The highest rate of cigarette smoking is among adults between 18 and 23 years old (24.4%) and among those aged between 25 and 44 years (24.1%). Currently, the rate of cigarette smoking is higher among people who live below the poverty line (29.9%) compared to those that are above this line (20.6%). Similarly to young people, the rate of cigarette smoking is associated with educational level in adults as well. The highest rate was reported in adults older than 25 years and with primary school education (44%). The following were adults with 9-11 years of formal education (33%). The rate was the lowest in those who had not yet completed a graduate degree (11.4%) and in adults with a university degree [6.2%] (11,12). In addition, the rate of cigarette consumption is higher

TABLE 5. The frequency of physical activity in three groups

Faculty	Frequency of physical activity (N %)				Total
	No physical activity	1-3 times/week	4-6 times/week	Daily	
Faculty of health sciences	33	49	13	19	114
	28.9	43	11.4	16.7	100
Faculty of political science	43	54	5	33	135
	31.9	40	3.7	24.4	100
Faculty of traffic engineering and communications	33	77	25	26	161
	20.5	47.8	15.5	16.1	100
Total	109	180	43	78	410
	26.6	43.9	10.5	19	100

TABLE 6. Stress experience in students from three groups

Faculty	Stress (N %)			Total
	Never	Occasionally	Continuously	
Faculty of health sciences	30	72	12	114
	26.3	63.2	10.5	100
Faculty of political science	30	97	8	135
	22.2	71.9	5.9	100
Faculty of traffic engineering and communications	35	107	19	161
	21.7	66.5	11.8	100
Total	95	276	39	410
	23.2	67.3	9.5	100

TABLE 7. Food choices of students while at campus

Food preferences of students	Groups (N %)			Total
	Faculty of health sciences	Faculty of political science	Faculty of traffic engineering and communications	
Not eating at campus	1	8	9	18
	0.9	5.9	5.6	4.4
Fast food	87	101	122	310
	76.3	74.8	75.8	75.6
Homemade sandwich	12	9	7	28
	10.5	6.7	4.3	6.8
Snacks	9	11	12	32
	7.9	8.1	7.5	7.8
Sweets	5	6	11	22
	4.4	4.4	6.8	5.4
Total	114	135	161	410
	100	100	100	100

TABLE 8. Drink choices of students in three groups

Type of drink	Groups (N %)			Total
	Faculty of health sciences	Faculty of political science	Faculty of traffic engineering and communications	
Water	82	95	127	304
	71.9	70.4	78.9	74.1
Soft drinks	14	11	9	34
	12.3	8.1	5.6	8.3
Coffee	8	22	16	46
	7	16.3	9.9	11.2
Carbonated soft drinks	10	7	9	26
	8.8	5.2	5.6	6.3
Total	114	135	161	410
	100	100	100	100

among women with lower educational level during their pregnancy (13).

Out of the total number, 27.46% of participants consumed alcohol in our study. This result is concerning considering that it relates to young adult population. In the '60s, due to increased use of drugs, the rate of alcohol consumption temporarily decreased among young people. Shortly after that, the rate of both alcohol and drug use increased. According to various authors, alcoholism is the third most common condition, right behind cardiovascular and malignant diseases. It is assumed that 10% of male world population are alcoholics. In one study, 1 in 8 of males younger than 25 years and 1 in 25 of females of the same age reported excessive and dangerous alcohol consumption (14).

Young people subjective experience of cigarette, alcohol, and psychoactive drug use is an important indicator of their beliefs, expectations, and risk perception, and it strongly influences their decision to start these activities. Thus, the risk perception can be viewed as a potential risk factor to start consuming these substances, especially psychoactive drugs. Also, one of the most important factors influencing these decisions is the environment in which young people grow and live (15).

The highest number of students who reported physical activity (recreational or active sport) was in FTEC group (66.5%), and the difference was

statistically significant compared to FHS (48.2%) and FPS (51.9%) groups. There was no statistically significant difference in the frequency of physical activity per week between the three groups. The highest number of participants in all three groups were engaged in physical activity 1-3 times/week; the following response among the students was having no physical activity. Physical activity should be performed daily. It is recommended to do at least 60 minutes of physical activity, if possible, every day in a week. These recommendations relate to additional physical activity, and do not include the usual daily activities (16). It is also recommended to swap 10 sedentary minutes of a day for 10 minutes of activity, to accumulate the total amount of daily activity. Examples of moderate physical activities include brisk walk, hiking, playing, swimming, off-road cycling, and using stairs instead of elevators.

Over 60% of participants in all three groups experienced stress occasionally (i.e., 63.2% in FHS, 71.9% in FPS, and 66.5% in FTEC), but a statistically significant difference was not observed between the groups.

In FHS group, 48.2% of students reported having breakfast before class, 37.8% in FPS, and 52.2% in FTEC group. This results was not statistically significant ($\chi^2 = 0.776$; $p = 0.376$). In FHS group, 57.9% of students reported having breakfast before 10 am, 48.1% in FPS group, and 64% in FTEC group; and these differences were also not significant.

The majority of students in all three groups consumed fast food while at campus (76.3% in FHS group, 74.8% in FPS, and 75.8% in FTEC group). The highest number of students in all three groups reported to drink water compared to soft drinks and coffee (71.9% in FHS group, 70.4% in FPS, and 78.9% in FTEC). The prevalence of eating disorders, such as anorexia and bulimia, has been increasing among female adolescents and young women in developed countries. These eating disorders are associated with personality traits and habits in young people. In addition, young people that have eating disorders also show other types of emotional and psychological instability.

CONCLUSION

Our results indicate that the lifestyles of university students in Sarajevo are subject to concern. Frequent alcohol consumption and cigarette smoking are typical examples of behaviour that should be reduced to a minimum through educative programs and workshops.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

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