CORRELATION BETWEEN PHYSICAL ACTIVITY, HEALTH HABITS AND PERSONALITY TRAITS OF STUDENTS

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Abstract

The aim of this research was to establish the correlation between the physical activity of students at the University of Zadar and possible gender differences, and to examine the relationship between physical activity and certain habits (health habits) and personality traits (self-esteem). A total of 100 students (56 women, 44 male sexes) were interviewed, of which 72 exercised two or more times a week, and 28 students who were practicing one or nothing weekly in the academic year 2016/17. The questionnaire assembly consisted of four parts (general information and health habits, Food frequency questionnaire - FFQ and personality traits - Rosenberg's self-esteem scale). The results showed that the students of the University of Zadar had an average wealth status, further 33.33% of the surveyed students are smoking cigarettes, while alcohol consume 65.28% There were no statistically significant differences in smoking habits in students who exercise as opposed to the students who rarely or do not exercise at all, while the t-test results of female students show statistically significant differences in alcohol consumption. Regularly trained students and those who rarely practice do not differ in the time spent sitting and sleeping, so we assume that the difference is in the structure of free time. Students who regularly exercise take more vitamins and minerals and drink more water, while those who rarely or never practice eat more fast food. Although the results of this research do not show a significant association between self-esteem and physical activity, because of their complexity it is difficult to determine their cause-and-effect relationship, but we can say that the relationship depends on several factors and that there is a tendency to increase self-esteem with the growth of the degree of physical activity. To conclude, we have taken this research further to determine the real structure of physical activity, health habits and personality traits of the student population. The obtained results can be a guideline in planning and programming the physical activity of students. Furthermore, the correlation between physical activity and personality features with no doubt exists. Also, given the results, it is obvious that the dietary habits of students need to be changed in the direction of more regular and balanced, and ultimately, healthy eating.

Key words: *students, physical activity, health habits, personality traits*

Introduction

Physical activity is a very complex component of everyday life, so measuring the level of individuals and the population is equally complex and important, especially from the public health aspect and activity in the field of kinesiological recreation in the direction of raising the level of health-worthy physical activity in the population (Mišigoj Duraković, M., Duraković, Z., 2006). Numerous studies confirm the influence of physical activity in the prevention and treatment of chronic diseases. Therefore, we can say that physical activity is a behavior that directly and indirectly affects the health of both the individual and the entire population. Numerous studies indicate that prolonged time spent in sitting position can be a risk for cardiovascular disease, type 2 diabetes, ovarian and prostate cancer and other causes of mortality (Bauman, Chau, Ding, & Bennie, 2013; Chau, Grunseit, Chey, et al.2013, Ford & Caspersen, 2012; Grøntved & Hu, 2011). Apart from healthcare, there is an increasing number of researches that point to the psychological, social, economic and ecological benefits of physical activity, especially the last two decades. It is known that moderate regular physical activity has a positive effect on the conservation of the health and prevention of various heart and circulatory diseases, as well as the prevention of some forms of tumors, diabetes and osteoporosis in adults (Pate et al., 1995). However, according to the World Health Organization's Declaration of Health (WHO, 1946), health is defined not only as absence of disease, but also as a state of complete physical, mental and social well-being. The evidence of the correlation between physical activity and psychological health gives many researches right to point the fact that regular physical activity is associated with a greater sense of well-being, especially with better mood (Edwards, 2006; Lauder et al., 2006, Faulkner and Carless, 2006) and stress reduction (Edwards, 2006; Faulkner, 2006, Hallal et al., 2006). WHO data (2018) show that physical inactivity across the globe is the fourth risk factor of mortality. In Croatia, the situation is also alarming. About 83% of people are not physically active enough. Being a student is a very specific and significant period in the life of young people. In fact, it is often the time when certain habits are formed. In this research we will focus on health habits. It is well known that students have many obligations, a large number of students change their place of residence, take care

of the type and frequency of meal consumption, leisure time organization and quality of sleeping. Balanced nutrition and physical activity are extremely important health factors. On the other hand, poor nutrition and health habits can cause problems with the body mass (Kolodinski et al., 2011). Research has shown that the student population is prone to skipping meals as well as more frequent consumption of "fast-food" foods (Banjari et al. 2011, Ivković et al., 2012).Drislk et al. (2005) consider that financial reasons cause the risk of skipping meals and frequently consumption of fast food, while Downes (2015) lists a low level of fruit and vegetable intake among students. In the research of Pedišić et al (2014), male students, non-smokers, students of higher education, students from larger cities and higher levels of self-assessed health had a higher level of physical activity in leisure time. Furthermore, proper nutrition is indirectly influenced by the academic effectiveness of students (Akdevelioglu & Gümüs, 2010; Thorsteinsdottir & Ulfarsdottir, 2008).

Stephens et al. (1985) state that the level of physical activity is significantly decreasing between the adolescent and the adult age, and the age of the students is a transitional period between adolescence and adult age, which is recognized as crucial for making a physical activity as a permanent habit. Inactivity in childhood and youth gradually distorts the health of an individual, and the more serious consequences are more significant in middle and older age. Since most students spend a lot of time learning and listening, including long-term sitting, it is easy to conclude that most of them take a mostly sedentary lifestyle (due to lack of free time, which is due to lack of will after a hard day). Including regular physical activity in your lifestyle also brings numerous benefits to health, both by individuals and students. What is so important in the student population is that physical activity increases a positive image of itself, reduces the possibility of anxiety and depression that is common among young adults, and prolongs lifespan and increases the quality of life itself (Whitney and Rolfes, 2011).

Methods

100 students from the University of Zadar participated in the study, out of which 72 students (Sport and Health Department) practiced two or more times a week and 28 students who practiced once or at all weekly in the academic year 2016/17. The questionnaire was composed of four units. The first part of the questionnaire refers to general socio-demographic data on gender, age, number of trainings per week, property status of family and place of residence. The place of residence was divided by the regions of Croatia: the coast, the hinterland and the continent. In the second part of the questionnaire, students completed Rosenberg's self-esteem and satisfaction with the overall look. The third part of the questionnaire related to health habits: smoking and drinking alcohol (yes 1, no 0), average sleeping on weekdays and spending time sitting in front of TV, computers, cell phones or books. The fourth part of the questionnaire - Food frequency questionnaire - FFQ - a questionnaire on the frequency of food and beverage consumption - estimates a relative rather than an absolute input; serves to classify subjects into classes of adequate or inadequate inputs.

Questions about the frequency of food and drink consumption are processed by scoring system from 0 to 3 on a weekly basis (0 for "never"; 1 for "1-2 times / s"; 2 for "3-4 times / s"; for "5-7 times / ton") and in this case the maximum number of points for assessing eating habits was 45. To determine the average frequency of food consumption, the average value of the default or selected intervals was taken. Based on these mean values, further statistical processing was performed for this part of the data. Food habits have been presented in form of questions about the number of meals a day, skipping meals, eating certain foods from different parts of the food pyramid, drinking liquids, sports drinks, and dietary supplements, with particular reference to specific supplements used by athletes.

Data analysis

For all the units of the questionnaire the frequencies and percentages were calculated, and the differences between the individual groups of t-test and the variance analysis. All coefficients were tested at the significance level $p<0.05$.

Results

The general data are shown in Table 1 and partly in Table 2. The sample structure by sex was composed of 44% male students (28.57% control group, 50% active students) and 56% female (control group 71.43%, while 50% are practicing). According to the answers, most students (82.15%) came from the family of average wealth.

Table 1. Sample structure by sex.

Sex	N	%	Control group	%	Active	%
M	44	44	8,00	28,57	36	50,00
F	56	56	20,00	71,43	36	50,00

Student health habits

It is well known that human health is negatively affected by bad health habits such as smoking, alcohol consumption, and unhealthy diet. Although many of the effects of active and passive smoking on individual organs and organic systems are described in the literature, 33.33% of respondents confirmed smoking while alcohol consumed 65.28%. Interestingly, there is no statistically significant difference in smoking habits among

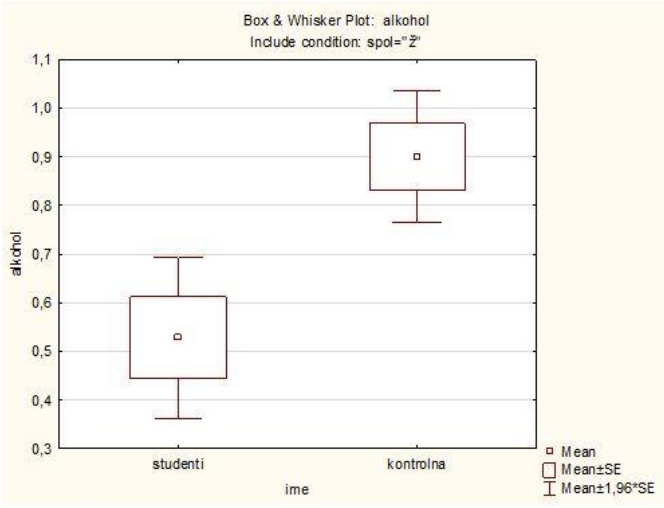
students who practiced more than the ones who practiced less, while t-test results (Figure1) show statistically significant differences in alcohol consumption. Namely, students from control group consume more alcohol than students who practice regularly. Research on athletes, team sports athletes and the population of over-active physical activity students (Sorić M. et al., 2006 and 2005) also indicate the harmful habits of smoking and drinking. Consequences of such behavior lead to greater risk for health problems than other student populations due to sports and academic requirements, which can adversely affect physical and mental health. Prolonged time spent sitting and sleeping reduces the time needed for other activities, as well as physical activity. Students who practice regularly and those who rarely practice do not differ in the time spent sitting and sleeping, so we assume that the difference is in the structure of leisure time. Questions about the frequency of food and drink consumption are processed by scoring system from 0 to 3 on a weekly basis (0 for "never", 1 for "1-2 times / s", 2 for "3-4pps", 3 for "5-7 times / th"). The outcomes of the student's health habits (Figure 2) considering the place they came from showed that those in area of hinterland have the best results (quality nutrition, lower proportion of students consuming cigarettes and alcohol), than follow those in the continental part, while in the coastal area have the worst results.

As we have previously stated, higher levels of physical activity in leisure time is characteristic for students from larger cities (Pedišić et al., 2014).

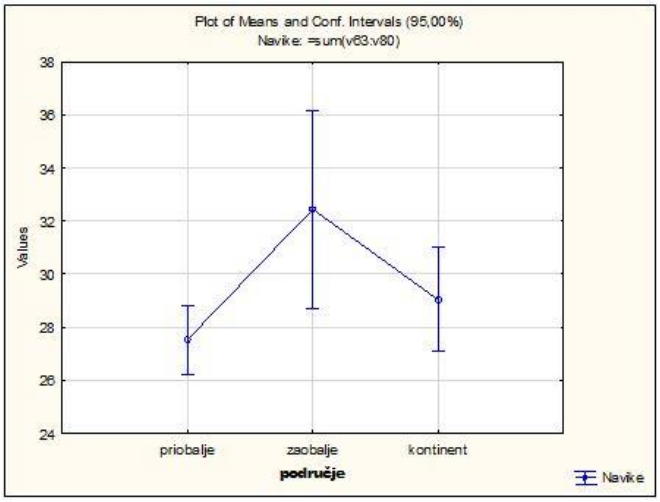
Table 2. Property Status and Student Health Habits

HEALTH HABITS	All students %	Active students %	Control group %
FAMILY			
Very wealthy	0,68	1,39	0
Above average	10,52	13,89	7,14
Average	82,15	75,00	89,29
Below	5,27	6,94	3,6
Poor	1,39	2,78	0
SMOKING			
Yes	33,33	33,33	32,14
No	66,67	66,67	67,86
ALCOHOL			
Yes	65,28	65,27	85,71
No	34,72	34,72	14,29
SLEEPING (WORKING DAY)			
Less than 6 hours	16,27	11,11	21,43
6 – 8 hours	73,52	79,17	67,86
More than 8 hours	10,21	9,72	10,71
SLEEPING (WEEKEND)			
Less than 6 hours	5,65	4,17	7,14
6 – 8 hours	46,43	50,00	42,86
More than 8 hours	47,92	45,83	50,00
TIME IN FRONT OF TV, COMPUTERS OR BOOKS (WORKING DAY)			
Less than 1 hour	17,96	18,06	**17,86**
1 - 3 hours	47,52	48,61	46,43
More than 3 hours	34,52	33,33	35,71
TIME IN FRONT OF TV, COMPUTERS OR BOOKS (WEEKEND)			
Less than 1 hour	15,18	12,50	17,85
1 – 3 hours	36,81	48,61	25,00
More than 3 hours	48,01	38,89	57,15

Picture 1. Alcohol consumption



Picture 2. Correlation between health habits and student residence.



Eating habits

Summing up the questionnaire responses to dietary habits (Table 4), results showed that there were significant differences in some variables ($p < 0.05$) between the control group and the physically active students. That is, active students regularly take more vitamins and minerals and drink more water, while those who rarely or never practice eat more often fast food. However, some studies have shown that eating habits are not related to smoking habits and consumption of alcoholic drinks (Ivković et al., 2012).

Table 4. Food Habits (FFQ) and personality traits (Rosenberg's Self-esteem Scale)

VARIABLE	T-tests; Grouping: name (Spreadsheet1 in sport and health satisfaction2)) Group 1: students Group 2: control group										
	Mean	Mean	t-value	df	p	Valid N	Valid N	Std.Dev.	Std.Dev.	F-ratio	p
Breakfast	1,81	1,89	-0,42	98	0,67	72	28	0,94	0,88	1,16	0,68
Skipping meals	1,57	2,04	-1,79	98	0,08	72	28	1,23	1,00	1,52	0,23
Often vitamins	1,22	1,89	-2,21	98	0,03	72	28	1,32	1,45	1,20	0,54
Often minerals	1,00	0,21	3,05	98	0,00	72	28	1,27	0,79	2,59	0,01
3 meals	1,86	1,61	1,22	98	0,22	72	28	0,94	0,92	1,05	0,92
Taking notes	0,56	0,32	1,09	98	0,28	72	28	1,03	0,77	1,79	0,09
Often water	1,75	1,07	3,57	98	0,00	72	28	0,96	0,47	4,25	0,00
Often drinks	1,64	1,54	0,39	98	0,70	72	28	1,18	1,20	1,04	0,87
Often diet	0,76	0,68	0,32	98	0,75	72	28	1,19	1,22	1,04	0,85
Often bread	1,63	1,43	1,15	98	0,25	72	28	0,81	0,63	1,64	0,15
Often fruit	1,92	1,71	1,15	98	0,25	72	28	0,78	0,81	1,07	0,79
Often vegetables	1,90	1,82	0,50	98	0,62	72	28	0,73	0,72	1,03	0,96
Often milk	2,07	1,68	2,31	98	0,02	72	28	0,79	0,67	1,40	0,33
Often sugar	1,85	1,82	0,11	98	0,91	72	28	1,06	0,98	1,16	0,69
Chips and cakes	1,78	2,14	-1,44	98	0,15	72	28	1,19	1,01	1,39	0,34
Snack	1,86	2,04	-0,88	98	0,38	72	28	0,91	0,84	1,18	0,65
Fast food	1,42	2,21	-2,87	98	0,00	72	28	1,26	1,20	1,11	0,77
Nutrition information	1,85	1,46	1,46	98	0,15	72	28	1,11	1,35	1,47	0,20
Satisfaction with the overall appearance	4,00	3,71	1,54	98	0,13	72	28	0,87	0,71	1,50	0,24
Self-esteem	32,53	30,96	1,35	98	0,18	72	28	5,05	5,59	1,22	0,49

Personality traits

Although the results of this study show no significant association between self-esteem and physical activity (Table 4), due to their complexity it is difficult to ascertain their causal relationship, but we can say that the relationship depends on several factors, and yet there is a tendency to increase self-esteem with the growth of the degree of engagement physical activity. Geckil and Dundar (2011) in research on over a thousand Turkish

adolescents have concluded that self-esteem is statistically significantly associated with the general population's health behavior, with adolescents with higher self-esteem being less involved in health risk behaviors, and more in positive behaviors such as more frequent physical activities. We can assume that students are primarily focused on their academic development and their performance directly influences their self-esteem. However, there are also students whose satisfaction with the overall look is also a high priority, and their self-esteem is achieved by physical exercise as a means of improving and maintaining health and subjectively valued good / better looks.

Discussion and conclusion

As the students who attended the Sport and Health course acquired theoretical and practical knowledge of nutrition and the importance of physical exercise, it was to be expected that students who regularly practice take more vitamins and minerals and drink more water, while those who rarely or never practice more often eat fast food. However, there were no statistically significant differences in smoking habits among physically active students and control group, while t-test results show that the female students statistically significant differ in alcohol consumption. Students who practice regularly and those who rarely practice do not differ in the time spent sitting and sleeping, so the assumption is that the difference is in the structure of free time. Male students are statistically more active in the domain of free time, and female students in the household domain (Pedišić et al., 2014). The research (Kinkela, D., Đonlić, V., Moretti, V, 2008) that was conducted on the students of the Faculty of Philosophy in Rijeka in July 2006 shows that although the vast majority of surveyed students consider physical exercise to be positive (92%) and has a number of positive effects (73%), most of them (59%) do not exercise in their free time, they consider that Physical and Health Education should not be mandatory (60 %). On the other hand, it has been shown that physical exercise is attainable and maintains health, so we can assume that awareness of this is low because the consequences of bad health habits are manifested mostly later when it is much more difficult to correct them. To conclude, we have taken this research further to determine the true structure of physical activity, health habits and personality traits of the student population.

The obtained results can be a guideline in planning and programming the physical activity of students. Although the results of this study show no significant association between self-esteem and physical activity, it is difficult to ascertain their cause-and-effect relationship because of their complexity, but we can say that the relationship depends on several factors and that there is a tendency to increase self-esteem with the growth of the degree of physical activity. Furthermore, in some studies in the student population, a positive correlation has been established between the degree of physical activity and extraversion and self-esteem, and the negative between the degree of physical activity and shyness (Babić J. et al., 2015). Therefore, there are certain deviations from the preferable recommendations on the structure of nutrition and the dietary habits of students, so they should be changed in a direction of more regular and balanced, and ultimately healthy eating.

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