

PHYSICAL ACTIVITY LEVEL OF STUDENTS OF THE FACULTY OF EDUCATION DURING THE COVID -19 VIRUS EPIDEMIC

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Abstract

Physical activity is an integral part and a vital factor in our lives. Scientists consider physical inactivity to be a major public health problem of the 21st century (Blair, 2009). The objective of this paper was to determine the physical activity level of students of the Faculty of Education in Osijek during the COVID-19 virus epidemic. Furthermore, the paper analyzed the difference in physical activity levels between male and female students. There were 100 participants included in the research, 50 female and 50 male students. The level of physical activity in students was assessed via a short version of the International Physical Activity Questionnaire (IPAQ - SF). The results indicate an average high level of physical activity in all students. There is a statistically significant difference between male and female students, with male students being more physically active than female students.

Keywords: physical activity, students, health, COVID – 19

INTRODUCTION

The awareness of the positive effect of exercise on the mental state of an individual dates back to ancient times and it can be recognized in the old Latin proverb – “Mens sana in corpore sano” – which translates to “a healthy mind in a healthy body” (wikipedia 2013). The World Health Organization (WHO) has defined physical activity as all bodily movements, i.e. any activity in everyday life, including activity at work or in school, leisure, or sports activity. Bralić, Jovančević, Predavec, and Grgurić (2012) define physical activity as any bodily movement that results in increased energy expenditure as opposed to inaction. Physical activity could be organized in various exercise programs, or leisure (walking, cycling, dancing...).

According to a report of the Lancet magazine, the technological advances in the civilization that have relieved man of many physically strenuous jobs have caused an evolutionary shift from a physically active to a predominantly sedentary lifestyle. The human organism, which was created to be in movement, in these new circumstances remains deprived of the opportunity to fulfil its basic needs. We are now in the era of physical inactivity, which, according to some authors, should be declared a pandemic (Plivazdravlje, 2012).

Physical exercise affects respiratory and circulatory functional abilities and develops cardiovascular and respiratory systems (Mišigoj-Duraković, 1999). Physical activity includes synchronized work and increased activity of the musculoskeletal, cardiovascular, and respiratory systems. Significant physiological changes are recorded in the production and release of body heat, as well as changes in the circulation of bodily fluids and electrolytes (Guyton & Hall, 2012). According to Guyton & Hall (2012), numerous studies show that people who maintain an adequate level of fitness with regular appropriate exercise and weight management programs live longer, have three times lower mortality between the ages of 50 and 70, and have a reduced risk of myocardial infarction, cerebrovascular incidents, and kidney diseases. It has

also been found that people with better physical fitness recover faster after illnesses such as infectious diseases, where increased respiratory (2 times higher) and cardiac (50% higher) reserves allow faster healing and a faster recovery in the elderly who have engaged in regular physical activity throughout their lives compared to those who have not. Regular exercise helps regulate body weight and reduce the incidence of chronic metabolic non-infectious diseases resulting from high body weight such as type 2 diabetes, elevated cholesterol levels, and hypertension. Regular exercise has also been proven to reduce the risk of developing some malignant tumours – breast, colon, and prostate (Guyton & Hall, 2012). Physical inactivity and increased calorie intake, i.e. energy not consumed and spent, affect the organism, which is manifested in the activation of pathophysiological mechanisms and the development of diseases (Damjanov, Jukić, Nola, 2008).

There are numerous scientifically proven positive effects of regular physical activity on health, and some of those benefits include increased bone density, normalization of blood pressure, lowering blood cholesterol levels, reducing obesity, preventing depression, and reducing the number of injuries (Blair & Morris, 2009; Strong, Malina, Blimkie, Daniels, Dishman, Gutin, 2005; Janssen & Leblanc, 2010; Miles, 2007). To achieve these benefits, the World Health Organization recommends at least 60 minutes of moderate-to-high-intensity physical activity per day for children and the young, while for adults, between 18 and 64, it is recommended 150 minutes of moderate-intensity aerobic activity or 75 minutes higher-intensity aerobic activities per week (WHO, 2012).

It is important to cultivate a positive attitude and habits towards physical exercise because it changes the level of skills and abilities as well as their inter-relationships (Bartoš, 2015). Furthermore, physical activity is in correlation with subjective health assessment (Andrijašević, 2005).

Physically active people are happier, more motivated, and more curious. They persist longer in carrying out certain activities – they are faster and more concentrated, without an aggressive approach, agitation, and frustration. Exercise increases an individual's quality of life because it makes the person more mature. This person can then deal with problems in a functional way (Bunjić & Barić, 2009).

Involvement in sports or any form of physical exercise can have a positive effect on self-esteem and reduce depression and psychosocial stress. People with higher self-esteem believe more in their abilities, skills and capabilities, and cope better with everyday situations. Also, they are better prepared for the challenges that life imposes on them. Higher physical activity lowers the probability of depression (Bunjić & Barić, 2009).

Exercise enables emotion regulation, relationship building, non-academic competencies, and a greater number of social contacts that contribute to the development of prosocial behaviour. Higher levels of physical activity represent reduced delinquent behaviour and play a significant role in addiction prevention. Exercise has multiple positive effects on the quality of life of a modern human (Bunjić & Barić, 2009).

Physical inactivity does not refer to a state of complete inaction, but to any condition in which a person does not use his potential slightly above its limits and thus lacks strong muscle contractions that would encourage their rebuilding, and lacks increased metabolism to stimulate various metabolic and other regulations. There is also a lack of skilful movements that maintain motor control of movements, etc. In physical exercise or training, this type of stimulation is called functional overload (Vouri, 2001). Thus, physical inactivity presents a lack of functional overload (Vouri, 2001).

“Physical inactivity results in 5.3 million deaths a year, or about 10% of all deaths caused by heart disease, diabetes, breast cancer, and colon cancer. One-third of the world's adults are insufficiently physically active. Lack of physical activity takes a similar number of lives as smoking,” quotes Lancet magazine (plivazdravlje, 2012).

The World Health Organization (WHO) emphasizes that physical inactivity is the fourth leading risk factor causing global mortality and is estimated at 3.2 million deaths per year worldwide.

Coronaviruses are a large family of viruses found in humans and animals. Under the electron microscope, these viruses are shaped like a crown, which is the origin of their Latin name (corona in Latin means "crown"). Since the 1960s some coronaviruses have been known to cause diseases in humans, from the common cold to severe respiratory infections. From 2003, new coronaviruses appeared, and they were passed from animals to humans, and began to spread from human to human (zzjzdnz, 2020). Furthermore, the World Health Organization states that the new coronavirus is a new strain of coronavirus that has not been detected in humans so far. It is called SARS-CoV-2 (SARS-coronavirus-2), and the disease it causes is called COVID-19 ("coronavirus disease"). It was discovered in China at the end of 2019. According to available information, the World Health Organization states that infection with the new coronavirus most often causes symptoms such as fever, dry cough, and fatigue, while body pain, nasal congestion, and sore throat are less common. One in five affected people has difficulties breathing and could develop pneumonia, which, in rare cases, could lead to death. Older people and people with chronic diseases (e.g., heart disease and diabetes) seem to be more susceptible to more severe symptoms of the disease. However, it should be noted that other people may also develop severe symptoms of COVID-19 infection. Some infected individuals, on the other hand, do not have any symptoms of the disease (i.e. asymptomatic cases) (zzjzdnz, 2020).

METHODOLOGY

Aim

The primary aim of this research is to determine the level of physical activity of students of the Faculty of Education in Osijek during the COVID-19 virus epidemic. We also want to determine if there is a statistically significant difference in the level of physical activity between male and female students.

Respondents

The research included 100 students of the Faculty of Education in Osijek (50 male and 50 female).

Sampling variables

The level of physical activity was assessed using a short version of the International Physical Activity Questionnaire (IPAQ-SF). A short version (IPAQ-SF) of the questionnaire was translated into Croatian and metric characteristics were determined. In 2016, Ajman, Đapić-Štriga & Novak tested the reliability of this questionnaire by the test-retest method, on a suitable sample of 103 students in the final grades of the Lucijan Vranjanin High School. The results obtained by the IPAQ-SF questionnaire were classified into three categories of physical activity: low physical activity (0 – 600 MET/min), moderate physical activity (600 – 3000 MET/min), and high physical activity (> 3000 MET/min).

Research protocol

Students filled in a short online version (IPAQ - SF) of the questionnaire so that we could measure the level of physical activity. The questionnaire was completed in the sixth week of the remote learning (classes on the Faculty premises were cancelled and they were held online via various platforms) due to the epidemic of the COVID-19 virus (20 – 26 April 2020).

Data analysis methods

The data were analysed using SPSS (IBM SPSS Statistics for Windows, Version 20.0.). The Kolmogorov–Smirnov test (K–S test) was done to determine the normality of the distribution. The prerequisites for the implementation of parametric procedures were met. Basic descriptive parameters were calculated, and a t-test was used to research whether there is a statistically significant difference in total physical activity between male and female students.

RESULTS AND DISCUSSION

Table 1. shows descriptive data. The average age of participants in this research was $M=20.15$ years ($SD=1.19$). The average physical activity of students is $M=5441.78$ MET/min ($SD=3611.65$ MET/min).

Variables	K-S	Skewness index	Kurtosis index	M	SD	Max.	Min.
Age	.00	0.94	0.51	20.15	1.19	23	18
Total physical activity	.00	0.56	-0.51	5441.78	3611.65	15225	330

Legend: K-S – results on Kolmogorov – Smirnov test; M – mean; SD – standard deviation, Max –maximum; Min. –minimum

The results of this research indicated high total physical activity of all students (> 3000 MET/min). The results of a research conducted by Poljak (2015) on 144 students at the Faculty of Education in Osijek found that students generally achieve average results, which shows that they engage in moderate physical activity. In comparison to research conducted by Pedišić (2011) in his Ph.D. thesis on a population of 1163 students situated in dormitories in Zagreb, the students at the Faculty of Education in Osijek are more physically active, i.e. they have a higher level of average physical activity. Jurakić, Pedišić, Andrijašević (2009) conducted a research on physical activity on the general adult population in Croatia. Comparing their results with the results of the students of the Faculty of Education, we conclude that students have a higher level of average physical activity compared to the general population.

Furthermore, this research observed differences in the level of physical activity between female and male students. A t-test was conducted to analyse if there is a statistically significant difference in total physical activity between male and female students. It indicated a statistically significant difference between male students ($M=7005.24$, $SD=2904.78$) and female students ($M=3878.32$, $SD=3595.55$) in total physical activity ($t(98)=4.78$, $p<0.01$), in that so male students are more physically active than female students (Table 2).

Sex	M	SD	t-test	df	P
Male	7005.24	2904.78	4.78	98	.00
Female	3878.32	3595.55			

Legend: *M* – mean; *SD* – standard deviation; *df* – degrees of freedom; *P* – the level of statistical significance

The results showed that male students are significantly more active than female students. The difference between the sexes was compared with the research conducted by Pedišić (2011) on a population of 1163 students situated in student dormitories in Zagreb. The results of average physical activity in both male and female students of the Faculty of Education are higher in relation to the level of total physical activity of students in Zagreb. The average results of physical activity of female students at the Faculty of Education are slightly higher than the average results of male students in Zagreb. Higher physical activity in male students is present due to their greater interest in sports and sporting events, and the fact that they are more often involved in a team sport in their leisure time, while young women are more into fashion and show business, and they more often exercise individually (Markuš, Andrijašević, Sprinkler, 2008).

The results lead to a conclusion that students of the Faculty of Education often engage in sport or other form of exercise. Such results could be attributed to the characteristics of the study programs of the Faculty of Education. Students of Class Teacher Education, Early and Pre-school Education Studies and Kinesiology Education attend a number of courses that require different forms of physical activity (Physical and Health Culture, Kinesiology, Kinesiology Practicum, Swimming, Rhythmics and Dance, Basic Kinesiological Transformations and Extracurricular Activities, etc.).

CONCLUSION

The main goal of this research was to determine the level of physical activity of students of the Faculty of Education during the epidemic of COVID-19 virus, and to determine whether there is a statistically significant difference between male and female students in the level of physical activity. The research included 100 students (50 F and 50 M). The average level of physical activity of students falls into the category of high-level physical activity, and the t-test indicates a statistically significant difference between male and female students in total physical activity, with male students being more physically active.

The results lead to a conclusion that students of the Faculty of Education often engage in some sport or other form of exercise. Such results could be attributed to the characteristics of the study programs of the Faculty of Education. Students of Teacher Education, Early and Pre-school Education Studies and Kinesiology Education attend a number of courses that require some form of physical activity (Physical and Health Culture, Kinesiology, Kinesiology Practicum, Swimming, Rhythmics and Dance, Basic Kinesiological Transformations and Extracurricular Activities, etc.).

The period of studying at the university is important for the adoption of healthy habits related to physical activity. The habits for regular physical exercise acquired during the university education will certainly help us to maintain the best possible health condition later in life, when various diseases strike us more frequently.

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