

Erol Kovačević¹, Ensar Abazović¹, Ivor Doder¹, Edin Užičanin², Fuad Babajić² and Rasim Lakota¹

ANALYSIS OF THE LIFESTYLE, HABITS AND PHYSICAL ACTIVITY OF STUDENTS DURING THE COVID-19 PANDEMIC

¹Faculty of Sport and Physical Education, University of Sarajevo, Sarajevo, B&H

²Faculty of Physical Education and Sports, University of Tuzla, Tuzla, B&H

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ABSTRACT

The main aim of this research was to determine the relationship between childhood lifestyle habits and the level of physical activity of students during the COVID 19 pandemic. For that purpose, the research included 85 respondents (58 women and 27 men) aged between 15 and 27 years (20.85 ± 2.77). Respondents were students of the 4 faculties from of the University of Sarajevo. Information's about the sample, lifestyle habits and level of physical activity were collected using a modified version of the short version of the International Physical Activity Questionnaire. The results indicate that 62.4% of respondents were involved in sports during the childhood, 28.2% had regular physical activity, while 9.4% were physically inactive. Analysis of differences by gender indicates that men were more physically active in childhood 96.3% compared to 87.9% of women. It was interesting to note that 92.6% of men were involved in organized physical activity through competitive sports in their childhood, while the number for women is significantly lower and amounts to 48.3%. According to this, the correlation analysis found that there is a statistically significant relationship ($p = .017$) between lifestyle habits that are reflected in playing sports in childhood and the frequency of practicing targeted forms of physical activity in the last 7 days. Based on the obtained results, it can be concluded that a significant number of students do not have a level of physical activity that is in accordance with the general recommendations which are necessary to preserve health.

Keywords: health, leisure activity, lifestyle, pandemic

Introduction

Physical activity contributes to reducing the risk of many cardiovascular (Hegde and Solomon, 2015), pulmonary (Garcia-Ayerich et al. 2007) and non-infectious chronic diseases (Lee et al. 2012) which results in a better quality of life and overall health well-being and outcomes (Penedo and Dahn, 2005). However, physical inactivity is one of the major health problems of the 21st century (Blair, 2009), and epidemiological studies associate insufficient physical activity with a higher prevalence of many chronic diseases (Mišigoj-Duraković et al. 1999). Sedentary behavior is defined as any waking behaviour practiced while lying down, reclining, sitting or standing, involving an energy expenditure < 1.5 metabolic equivalents (Tremblay ET al. 2017). Many previous authors investigated the reasons for participation and non-participation in sports activities (Allender et al. 2006; Brassai et al. 2015), and one of the key reasons for engaging in physical activity in adulthood is active

participation in programmed physical activities in childhood (Telama, 2009). During the COVID-19 pandemic and the public health measures introduced in the world that are key to suppressing the spread of the virus (Füzéki et al. 2020), regular sports, and in some cases physical activity in general, were impossible. Despite recommendations to exercisers of all levels that, if they are healthy, they should try to exercise as much as they can at home without changing their routine (Chen et al. 2020), due to strict hygiene rules, isolation measures, social distancing and quarantine, a significantly lower average level of physical activity compared to the period before the declaration of the pandemic was observed (Jurecka et al. 2021; López-Valenciano et al. 2021). In addition to researches related to the level of physical activity, the psychological effects of such measures may include emotional disturbances, depression, stress, bad mood, irritability, insomnia, post-traumatic stress symptoms and anxiety (Brooks et al. 2020). The need

for additional monitoring and improvement of the average level of physical activity during the pandemic of COVID-19 has increased significantly, because findings showed that not only was consistent adherence to physical activity guidelines strongly associated with reduced risk of severe outcomes (Sallis et al. 2021), it is also showed that physical activity can be beneficial in improving clinical conditions associated with COVID-19 (Dwyer et al. 2020). To the author's knowledge, no study has been published so far on the level of physical activity, as well as on the potential connection between the level of physical activity during the COVID-19 pandemic and the due some sport activities in childhood. According to that, the main objectives of this study were: 1) to determine the level of physical activity of the student population during the COVID-19 lockdown and 2) the correlation between the level of physical activity during the COVID-19 lockdown and some sport activities in childhood.

Methods

Sample of respondents

The sample of respondents for this research were 85 students (58 women and 27 men) from 4 faculties of the University of Sarajevo. The respondents were students between the age of 18 and 25 (20.85 ± 2.42). Students of the Faculty of Sport and Physical Education were not included in this research because it has been proven that they have a significantly higher level of physical activity compared to students from other faculties (Doder et al. 2021). Ethical consent was obtained from the ethic committee of University of Sarajevo, participation in the study was voluntary, and the subjects were informed about the aim and methodology of the study. All procedures were done in accordance with the Declaration of Helsinki.

The sample of variables

Information's about physical activity levels was collected online, using a Google online form of modified short version of the International Physical Activity Questionnaire (IPAQ SHORT). (Dinger et al. 2011).

Data processing

Data processing was performed using SPSS 25 (IBM Chicago, Illinois, USA) software package for Windows operating system. Frequencies are presented for all variables, and Spearman's correlation coefficient was

used to check the strength and statistical significance of the connection between the level of physical activity during the COVID-19 lockdown and some sport activities in childhood. The level of statistical significance was set at $p < 0.05$.

Results

Table 1. 7-day PA history presented in percentage

	Never	Rarely	Medium	Often
In the last 7 days, how many days did you perform strenuous physical activity such as lifting heavy objects, digging, climbing stairs in your daily routine (Does not include going to the gym and similar)?	17.6	38.8	36.5	7.1
During the last 7 days, how many days did you walk for at least 15 minutes without interruption during your free time?	2.4	31.8	36.5	29.4
During the last 7 days, how many days did you have targeted physical activity such as fitness, aerobics, running, fast cycling and fast swimming in your free time?	57.6	20	14.1	8.2
Female	69	17.2	10.3	3.4
Male	33.3	25.9	22.2	18.5

Results regarding the 7-day PA levels during COVID-19 lockdown is presented in table 1. The results show sample frequencies included in walking, strenuous or targeted activities with targeted PA presented for both female and male respondents. Targeted PA intensity details can be found in table 2. They are divided to 3 intensity levels.

Table 2. Targeted PA intensity levels

During your target physical activity, what was the intensity of work during exercise?		
Low	Medium	High
25.4	47.6	27

Additional to PA levels, daily sitting time during weekdays is presented in table 3. The results showed more than half of the respondents sat more than 4 hours daily.

Table 3. Sitting time duration during COVID-19 lockdown

During the last 7 days, how much time did you usually spend sitting during a workday?		
Some (Up to 2 hours)	Medium (3-4 hours)	Much (4 hours and more)
9.4	32.9	57.6

In order to correlate level of physical activity during the COVID-19 lockdown and some sport activities in

childhood spearman correlation coefficients are presented in table 4. A weak correlation was found between childhood and lockdown PA.

Table 4. Correlation between childhood sport involvement and targeted PA.

	Childhood sport involvement	Targeted PA during last 7 days
Childhood sport involvement	1	0.258*
Targeted PA during last 7 days	0.258*	1

*. Correlation is significant at the 0.05 level (2-tailed).

Discussion

The main objectives of this study were: 1) to determine the level of physical activity of the student population during the COVID-19 lockdown and 2) the relationship between the level of physical activity during the COVID-19 lockdown and the regular physical activity during a childhood. The results of this study showed that during the COVID-19 lockdown, 57.6% of respondents had no targeted physical activity at all, while only 8.2% of respondents had targeted physical activity 6 or 7 out of the past 7 days. Of the remaining 42.4% of respondents who had targeted physical activity, less than 50% (20% of the total sample) practiced high-intensity exercises during the training. Although there is a significant absence of targeted high-intensity physical activity, it is worth noting that 82.4% of respondents stated that they performed strenuous level of physical activity. Furthermore, although only 2.4% of respondents did not walk for a minimum of 15 minutes at all in the past 7 days, of the remaining 97.6% only 29.4% of them practiced for 6 or 7 days. Considering that the general recommendations for physical activity in adults are: at least 150-300 minutes per week of moderate intensity, 75-150 minutes per week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity (Yang, 2019; Oja and Titze, 2011; WHO, 2004), it can be noted that the weekly level of physical activities during the COVID-19 pandemic was significantly lower than the recommended. Although we do not have data of the level of physical activity before the pandemic, based on the results of similar studies in which a significant drop in the level of physical activity caused by the pandemic was observed, we can assume that same thing happened in this study. Castañeda-Babarro et al. (2020) observed in their research a significant drop in the level of physical activity among the student population. When it comes to moderate and vigorous physical activity, the registered drop amounted to

16.1% and 24.3%, respectively. The biggest drop was recorded in activities involving walking which amounted to 66.9%. In addition to the low level of physical activity, on the other hand, sedentary time had a large share during the day. Even 57.6% of respondents indicated that they spent more than 4 hours a day sitting. Similar results were observed in a recent study which recorded that medical student spent 10 hours per day sitting during the lockdown (Luciano et al. 2021). It is very important to evaluate this segment because it has recently been described that a major mortality risk factors (Rezende et al. 2016), independent of physical activity (Patel et al. 2010), and more than 5.3 million of deaths are attributed to physical inactivity (Wen and Wu, 2012). This problem has been approached earlier and previous authors (Chen et al. 2020) state that sedentary time has increased significantly, most likely due to switching between usual daily active behaviour (walking, cycling or commuting, etc.) and longer stay at home. Young people and students spent more time sitting during isolation, and this may be a consequence of e-learning/e-schooling associated with excessive time in front of screen. In addition to the above results, 9.4% of respondents did not have regular physical activity during a childhood, while 28.2% had regular physical activity and 62.4% actively played sports. Furthermore, a statistically significant weak correlation occurred between the regular physical activity during the childhood and the level of physical activity recorded during the COVID-19 pandemic. The results are in state with the findings of Telama et al. (2005). In their longitudinal study that lasted 21 years, they concluded that a high level of continuous physical activity significantly predicts a high level of physical activity in adulthood. Although the correlations are low and had medium strength, authors emphasize the importance of physical activity at school age due to its indirect influence on the promotion and improvement of public health. Physical activity should generally be recommended as a non-pharmacological instrument of well-being. In addition to improving psychological health, physical activity of low and moderate intensity can promote feelings of vitality (Liao et al. 2015; Reed and Buck, 2009).

Conclusion

Based on the results, it can be concluded that more than half of the students do not have a level of physical activity that is in accordance with the general recommendations necessary to preserve health. The results indicate that an extremely large group of students who did not have recommended 150 minutes of moderate or 75 minutes of intense physical activity

per week, had significantly higher sitting time than the generally recommendations are. According to self-assessment, the overall level of physical activity was very low in the entire evaluated sample, and significantly low values were recorded in the categories of intense physical activity and walking. This research has confirmed that there are significant differences in the level of physical activity between male and female students during the lockdown. Specifically, students had higher values in all categories of physical activity, which is positively related to regular physical activity during a childhood, which indicates significantly greater engagement in organized forms of physical exercise during the childhood.

A limitation of this study is that we chose a short version of the IPAQ questionnaire due to concerns that the length of the questionnaire would result in significant burden and dropout of the respondents. In addition, the existence of results that indicate the state before the pandemic would give a more detailed insight into the size of the impact of the lockdown on the general level of physical activity of the examined population.

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Corresponding author:

Erol Kovačević

Faculty of Sport and Physical Education,

University of Sarajevo, BiH Sarajevo,

e-mail address: erol.kovacevic@fasto.unsa.ba

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