

*Opportunities, Issues and Best Practices in Online
Education and Examination of University Students*

PHYSICAL (IN)ACTIVITY DURING A PANDEMIC LOCKDOWN

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Abstract. The aim of the study (survey) is to trace how the physical activity of Bulgarians has changed during the state of emergency. The survey was conducted online between 10 and 20 June 2020. It contained 26 questions related to physical activity and nutrition habits. The questions were divided into 5 parts: 1. The attitude to nutrition and physical activity in general - 4 questions; 2. Level of physical activity before the state of emergency (based on an unpublished questionnaire of B. Palatova) – 11 questions; 3. Physical activity and nutrition during the state of emergency – 9 questions; 4. Motivation, physical activity and nutrition after the end of quarantine – 3 questions; 5. Demographic data. In this study we used 1 question from the first part, of the questionnaire for physical activity and 3 questions from the third part, which examines the type, purity and satisfaction with physical activity during the state of emergency. 329 men (39.9%) and women (60.5%) were surveyed, with a BMI of 15.22 to 42.73, 74.5% from Sofia, and 45.9% with a master's degree. Only 5% of participants did not appreciate the importance of physical activity. The highest percentage of 33.4% (110 people) tried to increase their physical activity in general. From those 110 people, 85 continued to train actively during the state of emergency. 43% (141 people) of all respondents trained at home, of whom 8.5% used a training plan from an online application, 31.2% followed an instructor online, and 60.3% compiled their own training program. From that we can conclude that the online instructors and applications are still not so popular among respondents. The most satisfied with their training load are people who used an online instructor – 73%, which in our opinion is a potential niche for the market of online instructors.

Keywords: physical (in)activity; COVID-19; lockdown; body weight

Introduction

COVID-19 began to spread in late 2019 from Huang Province, China. As early as the beginning of 2020, the virus had spread to almost the entire globe. As a result, and of the uncertainty surrounding the consequences of the infection, a lot of the countries in which it spread in early 2020 had decided to close their borders and minimize physical contact between people with the measures being

taken (Hammami, 2020; Dietz & Santos-Burgoa, 2020) Travel, cultural and sports events, and all social events in general were prohibited. This social and physical distancing more or less turned the life / routine of people all over the world of all ages, including Bulgaria. The pandemic forced a lot of people to stay at home. Social distance during the COVID-19 pandemic limited the scope for meeting the World Health Organization's physical activity recommendations (Hammami, 2020). The health, social and economic consequences will be felt around the world. Physical activity is defined as “any movement of the body performed by the body's muscles that required energy expenditure in excess of that at rest” (World Health Organization, 2010). As such it comprised activities as diverse as work, playing in school, carrying out household chores, transport from place to place (walking or cycling), and engaging in recreational pursuits (gardening, dancing, yoga, swimming, running, team sports etc.) (World Health Organization, 2018; Weber et al., 2014). Exercise (also referred to physical training) is a subcategory of physical activity that is planned, structured, repetitive and purposive, with the goal to improve or maintain one or more components of physical fitness, performance and health (Panayotov, 2014). Another concept frequently discussed is that of Health-enhancing physical activity (Physical Activity Guidelines for Americans, 2008) which is physical activity that, when add to baseline activity, produces health benefits (Physical Activity Guidelines for Americans, 2008). Physical inactivity is defined as not meeting the applicable physical activity recommendations. Physical inactivity should not be confused with sedentary behavior. Sedentary behavior refers to any waking behavior characterized by energy expenditure ≤ 1.5 METs, while in a sitting, reclining or lying position (World Health Organization, 2010; Tremblay et al, 2017). Sedentary behavior usually encompasses screen time (such as watching TV, playing video games, e-reading, using of computer), driving a car, and reading. According to the World Health Organization, the recommended physical activity for people aged 18 – 64. is not less than 150 minutes of moderate intensity, or not less than 75 minutes of high intensity (World Health Organization, 2020). Each series of exercises should be at least 10 minutes. Physical activity for muscle strength and endurance should be trained 2 – 3 times a week (World Health Organization, 2020). Recommendations during a state of emergency were a challenge for a lot of people, and for others it became an opportunity because they already had more time to use. The sudden restriction of physical activity, for people who exercised regularly, went to work on foot or by bicycle, and for people whose work associated with physical exertion could lead to a gradual deterioration in health. Isolation combined with reduced physical activity, predisposition to more lying down, sitting, watching TV, prolonged inactivity and food abuse could lead to: insulin resistance, muscle atrophy and bone loss, decreased aerobic capacity, increased blood pressure and heart rate, fatty liver, important biological and metabolic adaptations that lead to an increased risk of developing osteoporosis, diabetes and cardiovascular disease,

dementia, increased risk of obesity, etc. (Gallus et al., 2015; Verduin et al., 2005). In general, physical inactivity not only increases the risk of harm to our health, but as a whole is associated with almost 24% higher mortality among the general population (Lippi et al., 2020; Panayotov et al., 2014). The increase risk of obesity is one of the most significant consequences of reduced physical activity. Overweight and obesity lead to a lot of metabolic disorders, which in turn lead to many pathological conditions such as cardiovascular disease, pulmonary embolism, diabetes, cancer, lower back pain and more. It will be good to make dietary recommendations for people who have been isolated for a long time because of the COVID-19 virus, to control their weight and to avoid pathological diseases due to overweight and obesity (Lippi et al., 2020; Seidell, 1999). Physical activity is one of the most commonly prescribed therapies for both health and disease. Studies show that moderate-intensity exercise for up to 45 minutes is most effective in boosting the immune system, while prolong and high-intensity exercise suppressed immune function (Woods et al., 2020; Panayotov et al., 2017).

Aim and objectives of the study

The aim of the study was to determine how physical activity of Bulgarians changed during the state of emergency compared to their physical activity before the COVID-19 pandemic.

To achieve the set goal, we formulated the following tasks:

1. To develop a questionnaire to study the problem.
2. To recruit a group of participants through online advertising.
3. To conduct the survey via online contact channels.
4. To process and analyze the results.

Methods

The study was based on an online survey conducted in the period 10 – 16. 06.2020. It contained 26 questions related to the physical activity, nutrition and body weight of the participants. The questions were grouped into 5 parts: First part examined the attitude to physical activity, nutrition and weight in general; Second part examined the level of physical activity in the period before the state of emergency. This part contained 11 questions about the physical activity at the workplace, related to transport and leisure activity (an unpublished questionnaire for the level of physical activity of B. Palatova was used); Third part was physical activity and nutrition during the state of emergency; fourth part – Motivation for healthy eating and physical activity after the end of the state of emergency; Fifth part – demographic data. For the purposes of this study, we used 1 question from the first part, the physical activity level questionnaire and 3 questions from the 3rd part, which examined the type, frequency and satisfaction of physical activity during the state of emergency.

Results

The participants in the sample were 329 people aged 18 to 70. The average age was 37 years. 130 (39.5%) were men and 199 (60.5%) were women. BMI from 15.22 to 42.73 kg/m². 74.5% of the respondents were from Sofia. 45.9% had a master's degree.

To study the attitude of the respondents to physical activity, the question “What is your attitude to physical activity in general?” Was used with possible answers: 1. not for me; 2. loss of time

3. It will be useful for me to increase my activity; 4. I try to include it in my daily life; 5. I like to play sports; 6. I cannot live without sports. The sample was of the “convenience sample” type, which explained the high interest of the respondents in physical activity.

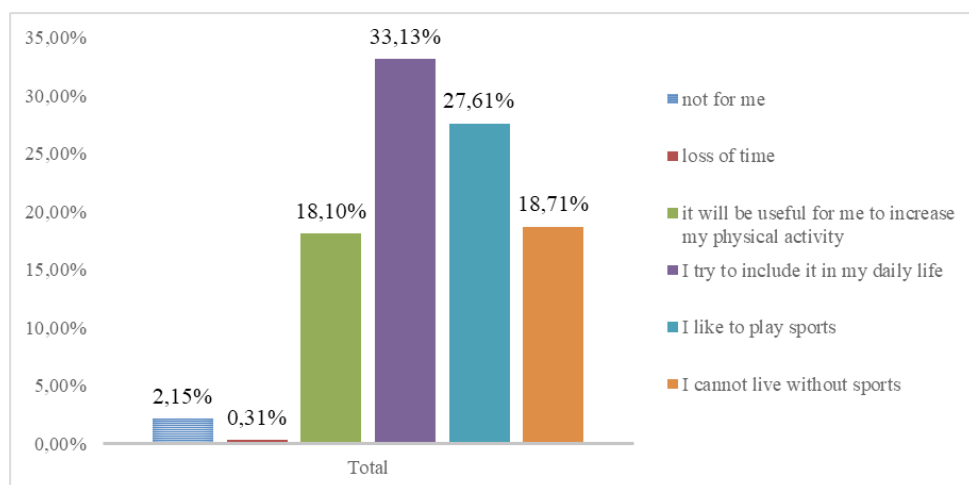


Figure 1. Distribution of respondents in relation to physical activity

It can be seen from the histogram in Figure 1, only 7 people (2.1%) of the respondents believe that physical activity is not for them. 1 person (0.3%) of all respondents believe that physical activity is a waste of time. 59 people (17.9%) think that it will be good to increase their physical activity, 110 people (33.4%) try to include physical activity in their daily lives. 91 people (27.7%) like sports. 61 people (18.5%) say they cannot do without sports.

The results of the pre-emergency physical activity level questionnaire are presented in Figure 2. Only 29.7% of study participants report low or very low pre-quarantine physical activity.

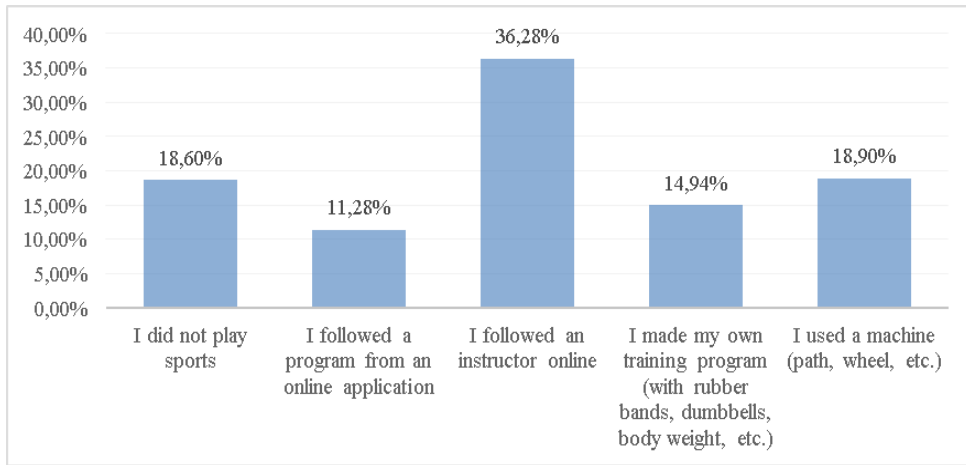


Figure 2. Distribution of results of the respondents in what way they play sports during the quarantine

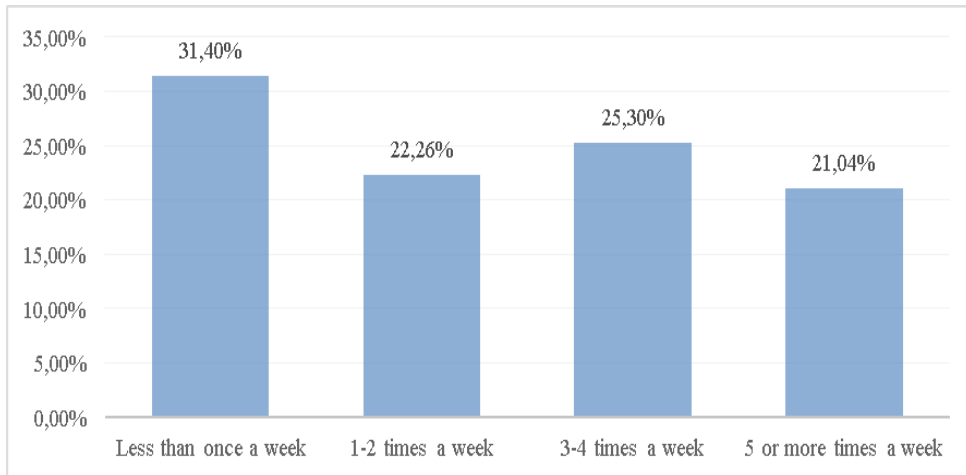


Figure 3. Distribution of respondents depending on the frequency of physical activity

A third figure we used for our analysis addresses the question “How often did respondents play sports during the pandemic?” 103 people (31.3%) exercised less than once a week; 74 people (22.5%) had physical activity 1 – 2 times a week; 83 people (25.2%) had physical activity 3 – 4 times a week. 69 people (21%) had physical activity 5 or more times a week.

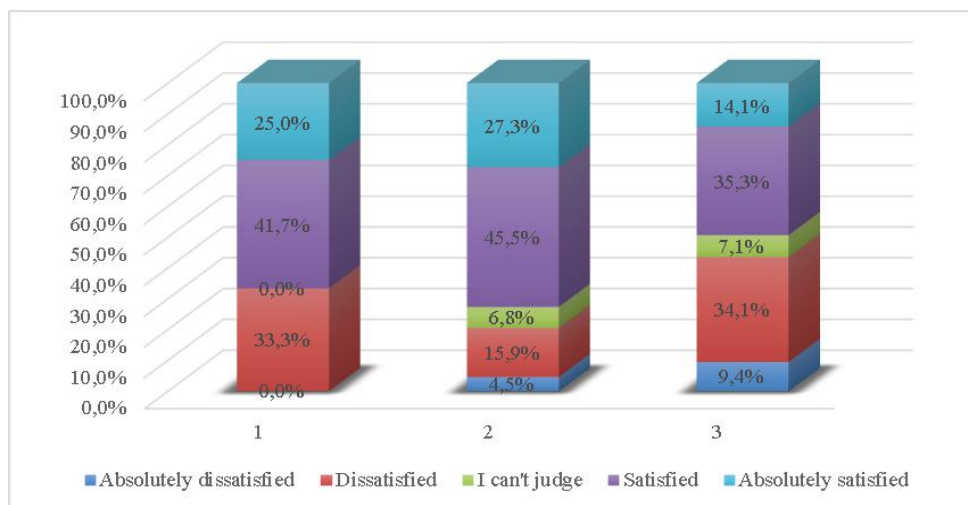


Figure 4. Satisfaction of respondents with their training during the emergency
Legend: 1 – people who used the online application; 2 – people who used the online instructor; 3 – people who used a self-made program

Figure 4 shows the satisfaction of the participants in the survey with their training load during the emergency situation depending on the type of physical activity practice. It can be seen from the figure, the groups who use an online application and an online instructor, there is high satisfaction observed, respectively 66.7% for the people who use an online application and 72.8% for the people who use an online instructor. Satisfied with their training load are the group of people using a self-prepared program, less 49.4%.

Discussion

In the present study, a “convenience sample” was used. Respondents are people who are aware of the importance of physical activity, which explains the low percentage (2.1%), people who believe that physical activity is not for them or a waste of time a very small proportion of respondents (2.1%) do not assess the importance of physical activity. 17.9% of respondents believe that they should increase their physical activity. 33.4% try to increase their physical activity, but do they succeed? 27.7% like sports, 18.5% cannot live without sports. Despite the large percentage of people who are physically active in our sample, in fact Bulgaria is one of the last places in Europe in terms of physical activity, according to Eurostat data (Ujvari, Joawn, 2020). The world has been living in another pandemic for several years and it is called physical inaction (Panayotov, 2019). According to the World Health Organization, 31% of the population aged 15 and

over are physically inactive and approximately 3.2 million deaths are attributed to unhealthy lifestyles (World Health Organization, 2015). The effects of COVID-19 on the pandemic of physical activity and physical inactivity are yet to be measured. This is a pandemic that the world has not been able to deal with for quite some time. Should we ask ourselves the question COVID-19 made the world / people move less? Given the significant impact that COVID-19 has dealt on people's ability to leave their homes and engage in their regular activities (eg school, work, fitness) and use community resources (parks, playgrounds, stadiums), if the response the first question is “yes”, is this becoming a new social norm (Hall et al., 2020)? This is not something we can ignore. The benefits of physical activity for our physical and mental health are known and we must do everything possible to sit less and move more as a prevention for human health. How can physical activity be encouraged? The sample was equal to the percentage of people who did their own training program and those who had outdoor physical activity. Few people still trust online instructors and online applications as this sector has potential for development. On the other hand, despite the small number of people using the online instructor and online application, these people are very satisfied with their work with them. In order to find out what proportion of overweight and obese people have benefited from an online application and online instructor, we have done a cross-stabilization, which shows that there are no overweight people who have used an online application and only 2% have used an instructor, which shows the need to develop online applications adapted to overweight people, as well as the development of methodologies and training of online instructors to work with obese and overweight people, because this is the group that is highly endangered in the conditions of COVID-19.

As a conclusion, in our opinion, to prevent people's health and avoid inactivity and sedentary lifestyle, which necessitates social isolation in connection with COVID-19, aggressive actions must be taken to get people moving. Based on the survey results, online applications and instructors could be useful and their potential should be developed and adapted to different groups (such as children, adults and overweight and overweight people) and thus reach to the widest possible audience.

NOTES

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