The movement activity enhancement after the COVID19 pandemics (COVIDMOVE)
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PHYSICAL ACTIVITY LEVELS AMONG COLLEGE STUDENTS DURING THE PANDEMIC – A NARRATIVE REVIEW

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ABSTRACT

Keywords: physical activity, PA, COVID-19, pandemic, students, Poland, Slovakia, Czech Republic

The period of the pandemic and government restrictions introduced many changes in health-promoting behaviors among college students. It is known that insufficient levels of physical activity are associated with a number of chronic diseases and mental health disorders. The aim of this study was to provide an overview of the current state of art regarding the level of physical activity during the pandemic among students in Poland, the Czech Republic and Slovakia. Analysis of included studies revealed a decrease in the level of physical activity. Thus, the implementation of education programs to increase physical activity levels to counteract the effects of the pandemic remains crucial.

INTRODUCTION

Coronavirus 2019 (COVID-19) is a viral disease that was first reported in the city of Wuhan, China in December 2019. In March 2020, the World Health Organization (WHO) declared Coronavirus 2019 (COVID-19) to be a pandemic. Since then, as the number of infections has increased (1,2,3). The pandemic has changed the functioning of people in every age group and in every aspect of life. In an attempt to control the pandemic and stop COVID-19 transmission, a worldwide lockdown, isolation, quarantine, restriction on travel, e-learning and remote work were implemented. The pandemic brought widespread panic, sadness, financial losses and economic slowdowns in many countries (4). A number of scientific studies point to multiple problems occurring during this period. The social connection has been identified as a key factor in human development, length and quality of life, whereas pandemic isolation is considered to have negatively impacted mental health (5). Mental health is negatively affected, with an increase in depressive symptoms, anxiety, elevated stress levels, insomnia, and suicide in the general population (6,7,8,9,10). It is estimated that the prevalence of mental illness has increased by up to 20% since the pandemic outbreak (11). The restriction placed on people' s mobility also has a negative impact on reducing their level of physical activity (PA).

Recreational and sports facilities, parks and playgrounds were closed. Outdoor recreation and sports have been restricted. PA in the outdoor environment is considered to be the most beneficial to health due to the increased exposure to nature. Studies have shown that exposure to nature positively impacts feelings of happiness, improves mood and self-esteem, increases vitality and reduces stress. (12,13). Numerous scientific studies show a decrease in PA levels due to pandemics in the general population. This led to increases the risk of chronic diseases and mental health disorders (14,15). It has been shown that even a 14-day restriction of PA contributes to numerous health consequences: accumulation of body fat, hyperinsulinemia, decreased cardiorespiratory fitness, impaired skeletal muscle protein synthesis, loss of muscle mass, atrophy of lower limb muscles, and increased inflammatory cytokines (16). In addition, prolonged inactivity can lead to hypertension, obesity, and ischemic heart disease (17,18). It is important for young people to prevent chronic diseases by PA. The purpose of this literature review was to determine the level of activity among students during a pandemic in Poland, Czech Republic, and Slovakia.

SEARCH STRATEGY

An initial search of the PubMed database with the search strategy ((physical activity) AND (students) AND (COVID-19)), revealed 573 manuscripts matched the search criteria. Moreover it was decided to focus only to the studies performed among students from Poland, the Czech Republic and Slovakia. Thirty one manuscripts that met the search were found, after reviewing the abstracts, 6 manuscripts were accepted for review. Moreover two studies have been added to the review as own studies in this area. A total of 8 manuscripts were analyzed.

RESULTS

A study by Rutkowska et al., compared the level of physical activity among students during the first lockdown in april 2020, as a result of government restrictions with with the next month may during the so-called “unfreezing” stage (19). During the lockdown, e-learning was introduced for students, outdoor sports and recreation and all sports centers were closed. Eighty-nine young adult students were enrolled in the study. The respondents fill the International Physical Activity Questionnaire (IPAQ) on-line. The average total PA equivalent among all surveyed students during the first measurement was 8,640 MET-min/week and at the second was to 10,560 MET-min/week. The analysis of the value of total energy expenditure for all participants showed a statistically significant difference between the lockdown and “unfreezing” periods ($p<0.029$). The results clearly indicate that the restriction period decreased PA among Polish students (19). Another group of researchers found that during the second lockdown period in November 2020, a decreased level of PA. In the study group of 141 students, only one in five

achived a high level of PA. Moreover, the researchers found that decreased activity level correlated with the prevalence of back pain (21). Next, a one-year analysis of physical activity levels was conducted among medical students in Poland, including 2920 students. Measurements were taken between March 2020 and March 2021.The analysis of the results of IPAQ showed that the PA of subjects was gradually decreasing during the COVID-19 pandemic. In fact, during the restrictions, students modified their lifestyles, increasing sedentary time as they spent more time at home and decreased PA during e-learning. Decreased PA in the group of medical students may in the future be associated with reduced resistance to work-related stress, which is particularly noticeable in health care workers (22). Another study showed a number of negative health behaviors: alcohol consumption and smoking (23). A study by Jodczyk et al., one year after the onset of pandemic, showed that the pandemic had a negative impact on their PA levels. It was shown through the IPAQ questionnaire that there were low levels of PA among the students (24). However, noteworthy, no information was found on the further steps that should be taken.

Physical exercise is considered a good method of dealing with mental fatigue: it improves mood, has a positive effect on the proper functioning of the mind and reduces anxiety. Another group of researchers from Poland found that only 19.9% of the 141 students surveyed reported high levels of physical activity. Furthermore, the results showed an association with depressive symptoms in students with low levels of PA (25). In contrast, researchers from the Wroclaw University of Health and Sport Sciences conducted a physical activity assessment among students in December 2019 and February 2021 showing no significant changes in physical activity levels (26). Similar results were found among Tourism and Recreation students, where despite a 14-week lockout due to COVID-19 from November 2020 to March 2021, no change in physical activity levels was found in the study group. This may be related to the high level of awareness among the students (27), where within analyzed cohorts, students represent disciplines with high the awareness of the importance of PA.

The only available evidence on activity levels among Slovak students presents similar results with reduced levels of PA during the pandemic. A large group of 21 % of 3128 students did not undertake physical activity at all, or only 1-2 times a month (20).

CONCLUSIONS

The analysis of the included studies shows reduced levels of PA as a result of pandemic, which can lead to numerous consequences of insufficient activity. Education and PA programs should be implemented among students. This review reported a lack of ample information on physical activity levels in the Czech Republic and Slovakia. To prevent the

effects of a pandemic regular physical activity assessments should be considered.

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Conflicts of Interest

The authors declare no conflict of interest.

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