

EFFECTS OF RECREATIONAL PHYSICAL ACTIVITIES ON WOMEN'S MENTAL AND PHYSICAL HEALTH DURING THE PANDEMIC CAUSED BY THE CORONAVIRUS (COVID 19)

Jasmin Bilalić¹, Osman Lačić¹, Zada Tomić², Berina Pezerović², Sanja Mujkanović Mujezinović³,
Nevres Muminović¹, Sanjin Hodžić¹

¹ Faculty of Physical Education and Sports, University of Tuzla, Bosnia and Herzegovina

² An independent researcher, Tuzla, Bosnia and Herzegovina

³ Lung Disease Clinic, University Clinical Center of Tuzla

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Abstract

The aim of the research is to determine the effects of the pandemic caused by the Coronavirus (COVID-19) on the mental and physical health of young adult women, using standardized instruments for the assessment of mental and physical health. The sample of 40 women was selected into two groups according to the continuity of recreational physical activity during the pandemic caused by the Coronavirus. An increase in symptoms of depression and anxiety was recorded in both groups during the pandemic, but it could be noted that respondents from the discontinuous level of physical activity group recorded a higher degree of depression and anxiety compared to respondents from the continuous level of physical activity group. In terms of physical health, respondents who continued physical activity maintained relatively stable physical health results during the pandemic, while respondents who did not maintain continuity of work showed significantly worse results compared to the period before the pandemic. Thus, regular physical activity is associated with better mental and physical health during the pandemic caused by the Coronavirus (COVID-19). Overall, this research emphasizes the importance of maintaining regular recreational activities, even during crisis situations, as a key factor for preserving psychophysical health.

Keywords: Depression, anxiety, HAD scale, EQ thermometer.

INTRODUCTION

The Coronavirus is a new strain of virus, which has not been detected in humans before. The World Health Organization has named it SARS-CoV-2, and the disease it causes is COVID-19. It was discovered in China in late 2019 (Hrvatski zavod za javno zdravstvo, 2021).

In 2020, this virus was a turning point in life around the world. Given that the virus was transmitted directly through close contact, the only way to stop the spread of this virus was to introduce extreme restrictive measures (LOCKDOWN). Therefore, there was a complete interruption of all the possibilities of performing activities that by their nature required the stay of several people in one place, which included playing sports through an organized group form of work. Thus, activities of a recreational nature could only be realized through an individual training process, including a group form of work, but only through online platforms.

The term physical activity usually refers to some form of recreational or organized physical activity that is mainly carried out within the framework of a program and under professional guidance, with the aim of improving health, physical status and general well-being for the individual (Bunjić & Barić, 2009). Through restrictive measures in the form of reduced physical activity, people also faced serious health risks. According to the definition of the World Health Organization health is "a state of complete physical,

mental and social well-being and not merely the absence of disease or infirmity" (Ware, Brook, Davies, & Lohr, 1981). Similarly, the World Health Organization (WHO) describes mental health as "a state of well-being in which the individual realizes his or her abilities, can cope with the stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community" (Robinson, 1981). The attainment of the highest attainable standard of health is one of the fundamental human rights (Medicinski leksikon, 1992).

Health is extremely important to people, domestic and foreign experts have agreed, confirming through a series of studies that for most people the aforementioned concept is more important than relationships with friends and family, a sense of protection and security, material status and prestige (Miljković, 2013). Health can be viewed in a positive and negative context. Positive refers to the ability to enjoy life and perform everyday demands placed on an individual, and in this context, health is not associated only with the absence of illness. Positive health can be described as the ability to cope with stressful situations, integration into the community, high morale, psychological well-being, and physical health and fitness (Havelka, 2002). The negative context associates health with the occurrence of illness and premature mortality (Howley, 2001).

There are two main concepts of health: mental and physical. Mental health is a state of well-being in

which an individual realizes his or her abilities, can cope with the normal stresses of life, can work productively and is able to contribute to his or her community (WHO, 2010). Mental health is not simply the absence of mental illness. Mental health is a state of general well-being, emotional and social adjustment, and a mentally healthy person is content, enjoys life and feels that he or she is successfully achieving his or her potential (Petz, 1992). Physical health refers to the general state of physical health, which includes the physiological and physical state of the body (Ware et al., 1981), and is usually expressed in terms of the presence or absence of disease, injury or infirmity. Although mental and physical health are two distinct concepts that are closely related, the state of one often affects the state of the other (Ware et al., 1981).

RESEARCH METHODOLOGY

Participants

The sample for the experiment consisted of 40 young adult women (20-40 years old).

Variables

Standardized instruments were used to assess mental health (*DEP-depression*; *ANK-anxiety*) and physical health (*SFZ*) in the period before the onset of the pandemic (*P*) and during the pandemic (*N*):

- *HAD scale - Hospital Anxiety and Depression Scale*

The HAD scale is a self-assessment scale used as a method for detecting symptoms and assessing the degree of depression and anxiety in the general population. It contains 14 questions, 7 of which relate to depression and 7 to anxiety. Responses are scored on four levels from 0 to 3, so the results can vary from 0 to 21. Respondents with a score of 0-7 are not depressed/anxious, 8-10 indicate a borderline state, and 11-21 represent depression or anxiety.

- *EQ thermometer*

The EQ thermometer is an integral part of the Euro-Qol standardized European questionnaire. The EQ thermometer is a vertical visual analog scale of 20 cm with a range of 0 to 100 numerical values, where 0 is the worst and 100 is the best imaginable physical health on which subjects respectively rate themselves.

Research description

The researched sample of 40 women of young adulthood in the period before the onset of the pandemic caused by the Coronavirus were active members of organized programs of recreational activities of group forms of work. As part of the aforementioned treatments, the state of the entity's anthropological status was continuously monitored and recorded, with an emphasis on self-assessment of mental and physical health, which served as the basis for the formation of the database.

The total effective sample was selected in two groups according to the continuity of recreational physical activity during the pandemic caused by the Coronavirus. The group of respondents who continued the continuity of work in the form of an individual recreational training process during the pandemic was defined as the "*Group of Continuous Level of Physical Activity (CONT)*", while the "*Group of Discontinuous Level of Physical Activity (DISC)*" includes respondents who did not continue the training due to the introduced restrictive measures. For all respondents, the current self-assessment of mental and physical health during the pandemic caused by the Coronavirus was determined for all respondents using the survey technique, and based on the above indicators, a comparison was made with the indicators registered in the period before the onset of the Coronavirus pandemic, when organized physical activities of a recreational nature took place without hindrance in the form of a group form of work.

RESULTS AND DISCUSSION

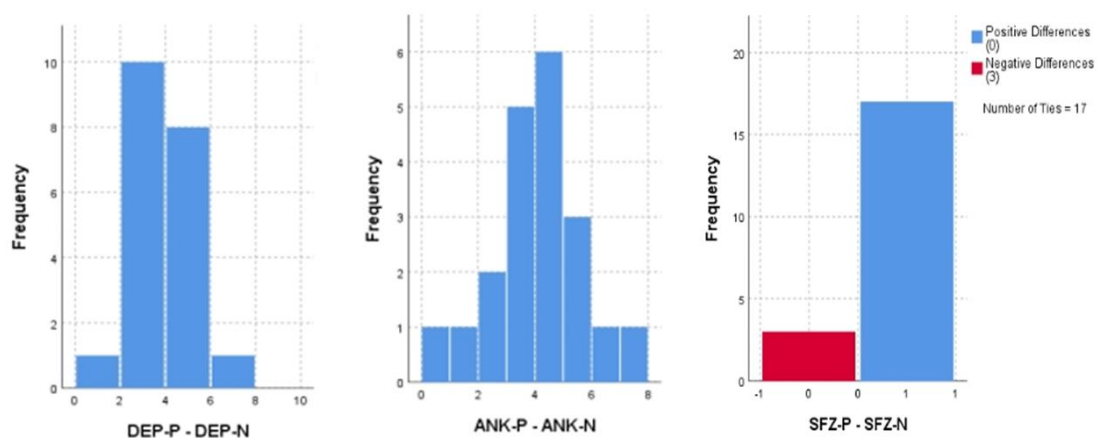
The differences within the investigated subsamples in the period before the onset of the pandemic and during the pandemic caused by the Coronavirus (Covid-19) were analyzed using the *Wilcoxon Signed-rank test*. The following tables and graphs present the results of testing the differences according to the overall level of depression, anxiety and physical health detected in the period before the onset of the pandemic and during the pandemic in the sample of continuous and discontinuous levels of physical activity.

Table 1. Wilcoxon signed-rank test of the total degree of depression, anxiety and physical health of the continuous level of physical activity group – Ranks

		Ranks		
Group = KONT		N	Mean Rank	Sum of Ranks
DEP-P - DEP-N	Negative Ranks	0	.00	.00
	Positive Ranks	19	10.00	190.00
	Ties	1		
ANK-P - ANK-N	Negative Ranks	0	.00	.00
	Positive Ranks	19	10.00	190.00
	Ties	1		
SFZ-P - SFZ-N	Negative Ranks	3	2.00	6.00
	Positive Ranks	0	.00	.00
	Ties	17		

Table 2. Wilcoxon signed-rank test of the total degree of depression, anxiety and physical health of the continuous level of physical activity group –Test Statistics

Test Statistics			
Group = KONT	DEP-P - DEP-N	ANK-P - ANK-N	SFZ-P - SFZ-N
Z	-3.874	-3.846	-1.732
Asymp. Sig. (2-tailed)	.000	.000	.083

**Graph 1.** Frequencies of positive, negative and zero differentiations of the total degree of depression, anxiety and physical health of the group of continuous level of physical activity

By reviewing the statistical parameters of the analyzed equivalent pair of variables for assessing the overall level of depression and anxiety in the period before the onset of the pandemic and during the pandemic of the continuous level of physical activity group (Table 1.), we can state that a large number of positive ranks were recorded, only one rank of zero value, while no negative ranks were recorded in the analyzed data matrix. The dominance of positive ranks indicates the conclusion that respondents of the group of continuous level of physical activity during the pandemic mostly

recorded an increased overall level of depression and anxiety. In the area of physical health, significantly different values emerged, where a large number of zero value ranks were recorded, only three negative ranks, while no positive ranks were recorded in the analyzed data matrix.

Bearing in mind the mathematical characteristics of the mentioned parameters, we can conclude that the period of the pandemic caused by the Coronavirus compared to the period before the pandemic had a negative effect on the overall level of depression and anxiety. On the other hand, the

predominance of zero value ranks in the area of physical health indicates that the subjects of the continuous level of physical activity during the pandemic mostly maintained their level of physical health compared to the period before the pandemic.

By testing the hypotheses, the indicators of the *Test Statistics* (Table 2.) indicate that according to the

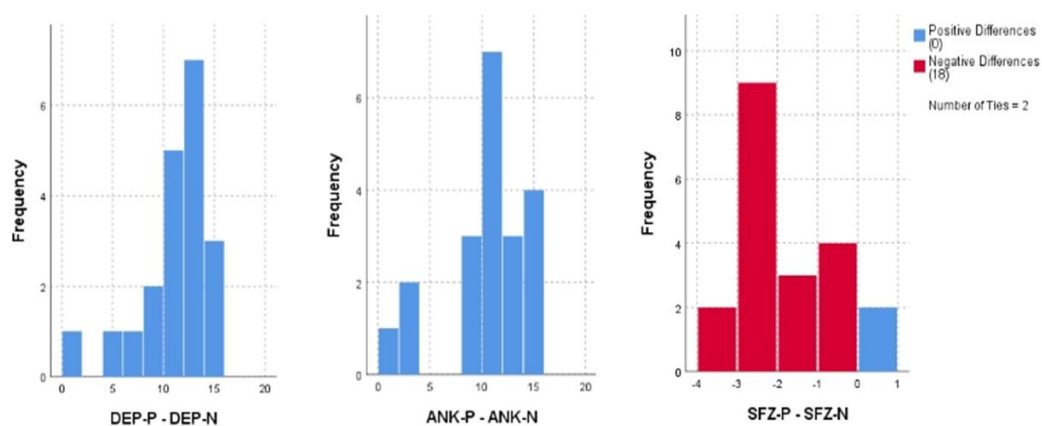
characteristic values *Z* of the researched areas of depression ($Z=-3.874$) and anxiety ($Z=-3.846$), a statistically significant difference was profiled at the strictest level of reasoning (*Asymp. Sig.=.000*), while in the area of physical health, considering the small characteristic value ($Z=-1.732$), no statistically significant difference was recorded.

Table 3. Wilcoxon signed-rank test of the total degree of depression, anxiety and physical health of the discontinuous level of physical activity group – Ranks

		Ranks		
Group = DISK		N	Mean Rank	Sum of Ranks
DEP-P - DEP-N	Negative Ranks	0	.00	.00
	Positive Ranks	20	10.50	210.00
	Ties	0		
ANK-P - ANK-N	Negative Ranks	0	.00	.00
	Positive Ranks	20	10.50	210.00
	Ties	0		
SFZ-P - SFZ-N	Negative Ranks	18	9.50	171.00
	Positive Ranks	0	.00	.00
	Ties	2		

Table 4. Wilcoxon signed-rank test of the total degree of depression, anxiety and physical health of the discontinuous level of physical activity group –Test Statistics

Test Statistics			
Group = DISK	DEP-P - DEP-N	ANK-P - ANK-N	SFZ-P - SFZ-N
Z	-3.931	-3.929	-3.785
Asymp. Sig. (2-tailed)	.000	.000	.000



Graph 2. Frequencies of positive, negative and zero differentiations of the total degree of depression, anxiety and physical health of the group of discontinuous level of physical activity

In the analysis of the differences in the investigated areas of mental and physical health of the discontinuous level of physical activity in the period before the onset of the pandemic and during the pandemic (Table 3.) exclusively positive ranks were

recorded in the area of depression and anxiety, while in the area of physical health negative ranks and two ranks of zero values dominate. Valorizing the above indicators, and bearing in mind the qualitative characteristics of the measurement

scales, we can state that the subjects of the discontinuous level of physical activity during the pandemic recorded an increased level of depression and anxiety and a lower level of physical health.

Statistical testing of the effects (*Table 4.*) clearly prove significant differences (*Asymp. Sig.=.000*) equivalent pairs of variables for assessing the overall level of depression, anxiety and physical health in the period before the onset of the pandemic and during the pandemic of the discontinuous level of physical activity group.

CONCLUSION

Based on all the indicators, we can conclude that in the era of the pandemic caused by the Coronavirus (Covid 19), compared to the period before the onset of the pandemic, there is an evident tendency to increase the depression and anxiety of the researched sample, where the respondents of the discontinuous level of physical activity recorded a slightly higher degree of depression and anxiety compared to the respondents of the group of continuous level of physical activity. Thus, the consequences of the comprehensive state of the pandemic had a negative effects on the mental state of the respondents, whereby regular physical activity of a recreational nature is associated with a significantly lower degree of depression and anxiety. On the other hand, when it comes to the level of physical health, we can state that the group with a continuous level of physical activity showed consistency, that is, it maintained relatively stable results during the pandemic compared to the period before the onset of the pandemic, while in the group with a discontinuous level of physical activity, a significant drop in values is evident, indicating a lower level of physical health during the pandemic compared to the period before the onset of the pandemic.

Thus, respondents who maintained continuity of work in the form of recreational activities of an individual character during the pandemic recorded qualitatively better results in the segment of mental and physical health compared to the sample of respondents who did not maintain continuity of work due to repressive measures. The general impact of the pandemic and oscillations in the continuity of physical exercise emerged as key factors that contributed to evident differences between the researched groups. This indicates the importance of maintaining physical activity as a means of supporting mental and physical health even in extraordinary circumstances such as a pandemic.

The obtained findings are in positive relations with the results of other studies that investigated this issue. Atiković et al. (2021) conducted a study that aimed to determine how restrictive measures due to the onset of the COVID-19 pandemic affected daily life, physical activity and mental health of students. The results clearly showed that inactivity had a negative effect on the researched areas, and the data clearly showed that the restrictive measures had a negative effect on the academic success of the majority of participants. Therefore, the conclusion of the research was that individual physical activities at home provide an opportunity for students to stay fit and healthy. In addition to research that establishes a positive relationship between playing sports and physical health, research also supports the positive effect of physical exercise and involvement in sports on psychological well-being (Biddle & Mutrie, 2007). Special importance in research is given to the relationship between training or exercise, involvement in sports, and anxiety, depression, self-esteem and psychosocial stress (Donaldson & Ronan, 2006). Programmed recreational activities over a three-month period had positive effects on self-rated mental and physical health in young women (Muminović et al., 2022). The effects of physical activity do not depend on the age of the subjects. It has been observed that children and teenagers who are more active are less depressed and that activity reduces the risk of developing depression later in life (Strawbridge, Deleger, Roberts, & Kaplan, 2002). Moderate mental disorders, especially depression and anxiety, respond positively to physical activity, and people feel better after practicing it (Stanescu & Vasile, 2014).

Bunjić and Barić (2009) pointed out positive changes in individual health under the influence of physical exercise, which refers to both the physical and psychological well-being of the individual, which indicates the direct impact of physical activity on increasing individual quality of life. Positive mood changes occur in a multidimensional way in the form of physiological and biochemical changes in the body, changes in the way of thinking, experiencing oneself and the environment. In addition to the direct effect on neurotransmitter systems, endorphins and hormones, physical exercise increases self-esteem and confidence, improves cognitive functions and socialization (Grošić & Filipčić, 2019). Increasing physical activity results in an increase in the level of general well-being and resistance to mental health disorders, which also increases the motivation to further participate in physical activities (Clow & Edmunds, 2013). Research by Downward and Rasciute (2014) found that engaging in sports is positively associated with subjective well-being, with sports that allow for

social interactions with others, such as team sports, further contributing to a greater sense of subjective well-being.

The above facts indicate the importance of promoting continuous physical activity as a possible factor for maintaining mental and physical health, especially in the context of global crises and

challenging times such as pandemics. It is important to recognize and address these facts and develop strategies for managing mental and physical health in crisis situations in order to mitigate the negative effects on the psychophysical state of people, especially sensitive populations.

LITERATURE

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Correspondence to:

Jasmin Bilalić University of Tuzla
Faculty of Physical Education and Sport
2. oktobra br.1, 75000 Tuzla, BiH
Phone: +387(0)35 278 535
E-mail: jasmin.bilalic@untz.ba