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تأثير ممارسة الأنشطة الرياضية على مستوى الجوانب النفسية للمتعافين من فايروس كورونا

The effect of sporting activities on the psychological level of those recovering from the Coronavirus

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معلومات المقال

ملخص: الغرض الأساس من هذه الدراسة هو استكشاف مستوى الاكتئاب، المزاج ومشاعر والخوف لدى المتعافين من فيروس كورونا قبل تنفيذ برنامج الأنشطة البدنية. كذلك إلى تأثير برنامج الأنشطة البدنية على الجوانب النفسية للمتعافين من فيروس كورونا. ولتحقيق ذلك استخدم الباحثون المنهج التجريبي على عينة قوامها (30) ذكر (38.6 ± 2.3) سنة. لتحقيق ذلك استخدمنا مقياس PHQ-9 ، ومقياس الاكتئاب ، ومقياس الخوف من Coronavirus-19 ، والنسخة القصيرة لمقياس الحالة المزاجية والمشاعر. أظهرت نتائج الدراسة إرتفاع مستوى المؤشرات النفسية: الاكتئاب ، المشاعر السلبية ، والخوف في القياس القبلي (18.77 ، 3.94 ، 2.50) على التوالي ، كذلك كان هناك دور ايجابي للأنشطة البدنية في تحقيق متوسطات منخفضة للمؤشرات النفسية: الاكتئاب ، والمشاعر السلبية ، والخوف في القياس البعدي(9.20 ، 2.52 ، 0.94) على التوالي.

الكلمات المفتاحية: الأنشطة الرياضية، الجوانب النفسية ،كورونا فايروس، التعافي

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Abstract : The primary purpose of this study is to explore the level of depression, fear, mood, and feelings of those recovering from the Coronavirus before implementing the physical activities program. In addition, the impact of the physical activities program on the psychological aspects of study sample. To achieve this, the researchers used the experimental approach on (30) males (38.6 ± 2.3) years. We put the PHQ-9, Depression scale, Fear of Coronavirus-19 Scale, and mood and feelings scale: short version in an electronic questionnaire using Google Form. The study results in pre- measurement revealed an increase in the level of the psychological indicator: depression, negative feelings, and fear (18.77, 3.94, 2.50), respectively. On the other hand, the study results revealed the positive role of physical activities through the low averages of psychological indicators: depression, negative feelings, and fear (9.20, 2.52, 0.94), respectively.

Keywords: Physical activities ,Psychological aspects ,Coronavirus, Recovering

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1. Introduction

With the Coronavirus's arrival into a pandemic that could affect the world in a quick time, countries have taken preventive measures to limit the Coronavirus spread (Kalayc et al., 2021). Such as closures and quarantine, which negatively affected communication with friends, restricting activities and travel, closing schools and universities, and closing gyms, fitness centers, and parks (Theis et al., 2021). Forced isolation during the Corona pandemic affected individuals' movement regime and healthy lifestyles (Sunda et al., 2021). Usher et al. (2020) indicate that isolation and quarantine are associated with many negative emotions such as fear, stress, anger, and frustration, as well as restricted social relationships resulting from physical distancing.

These preventive measures contributed to the decrease in the physical activity level of individuals (Stockwell et al., 2021; Puccinelli et al., 2021). Gehalhar et al. (2022) indicate a decrease in physical activity by (49.4)% for those infected. The problem is that a few weeks of physical inactivity increase the risk of cardiovascular disease decreases muscle mass, and change metabolic processes and the immune system (Pc Canha et al., 2020). The decrease in physical activity also hurts the mental health and well-being of the population (Grazia et al., 2020).

Physical distancing and social isolation lead to individuals' psychological deterioration and emotional state and a decrease in the body's resistance to stress and depression (Grajek & Sobczyk, 2021). This may lead to disturbances in the functions of body systems associated with a lack of movement (Mozolev et al., 2020). It often leads to overweight and obesity (Jordan et al., 2020). Ayed & Oama (2022) indicate a high level of depression and anxiety during the lockdown phase. Yousfi et al. (2020) also indicate that the epidemic and quarantine increase psychological disorders such as fear, anxiety, and post-traumatic stress disorder.

Studies indicate the positive role of physical activity in reducing stress, anxiety, and depression (Kekalainen et al., 2020). Increased self-esteem and positive feelings (Silveira et al., 2020). Ayed & Oama (2022) indicate the positive role of physical activity in reducing anxiety and depression. Marquez et al. (2020) indicate that physical activity positively supports the quality of life for individuals aged (18-65) years. Physical activity also increases the quality of life (Slimani et al., 2020). Physical activities also improve physiological and functional abilities to improve heart function, lungs, agility, speed, and strength (Schnitzer et al., 2003). Physical activity also improves the immune system efficiency and reduces the risk of the duration of viral infection (Carvalho & Gois, 2020). They improve the lung's efficiency, pulmonary ventilation, and respiratory muscles (Woods et al., 2020). This is important and necessary for those infected with the Coronavirus (Powers et al., 2020).

On the other hand, recovering after infection with the Coronavirus has a risk of exposure to many problems such as a low level of physical fitness and a decrease in lung function and the respiratory system, which affects daily activities. Thus the quality of life becomes worse (Bansal, 2020). Closures with infection with this virus also raise psychological exhaustion (Gehalhar et al., 2022). Thus, the training program is essential to improve immune system efficiency and cardiorespiratory fitness (Carvalho & Gois, 2020). It reduces various risk factors such as high blood pressure and the possibility of repeated infection with the Coronavirus and improves mood (Chen et al., 2020).

After the previous presentation, a dearth of studies has attempted to verify the psychological

effects of physical activity on those recovering from the Coronavirus. Physical activities are a critical factor in post-recovery care, as the work of medical care during the closure period is limited to providing medicines and medical support only while neglecting the psychological aspects of the injured, which is an important aspect in improving the efficiency of the immune system. The primary purpose of this study is to explore the level of psychological aspects (depression, fear, and mood and feelings) of those recovering from the Coronavirus before implementing the physical activities program. Then explore the impact of the physical activities program on the psychological aspects of those recovering from the Coronavirus in preparation for presenting the results of the study to health care providers in the Ministry of Health so that psychological rehabilitation and physical activities are an essential part of the care program for those recovering from the Coronavirus.

2. Methods

2.1 Participants

To achieve the study objectives, we used the experimental approach on a sample of (30) males (38.6 ± 2.3) years. The study sample was also purposively selected from those who had recovered from the Coronavirus for a month.

2.2 The experiment

Participants completed the PHQ-9 depression scale, which has (9) items rated on a 4-point Likert scale from 0 (not at all) to 3 (nearly every day) and level of depression severity (Minimal, 1- less than 5; Mild, 5- less than 10; Moderate, 10- less than 15; Moderate severe, 15- less than 20; Severe, 20- 27). Furthermore, participants completed the Fear of Coronavirus-19 Scale, which has (7) items rated on a 5-point Likert scale from 0 (strongly disagree) to 5 (strongly agree)(Daniel et al., 2020). A total score is calculated by adding up each item's score (ranging from 7 to 35). In addition, participants completed Mood and feelings scale: short version 0 (not true), 1(sometimes), and 2 (true). The final questionnaires were uploaded on Google Forms (https://docs.google. com/forms/d/10h gWvfgw_ Xot 42P Eviue r8onvQBba7aDv VJs6B799VQ/edit). The web link to the questionnaires was distributed to students via WhatsApp.

Before applying the experiment, the level of the psychological aspect (depression, fear, mood and feelings) was measured. A program that includes a set of physical activities that can be practiced at home was sent through the WhatsApp application. The experimental group was asked to practice these activities for (150-200) min/ wk for (6) weeks. After the appropriate warm-up procedure focused on practicing these activities with moderate intensity (55-70) % of the maximum heart rate because they are Irregular in sports activities. In addition, the researchers also suggested the following activities: running in the step pinged, jumping, stepping up and down stairs, push-ups, sit-ups, walking lunges, short-distance running squats, andbody-weight squats. The experimental group was contacted during the performance of these activities through the Zoom and Skype applications. However, recommend exercising if you are experiencing any of these symptoms: severe sore throat, body aches, shortness of breath, general fatigue, chest cough, or fever. You should also seek medical care if you are experiencing those symptoms where it was agreed with the study sample to practice these exercises at the same time specified (9-10) AM, where the experiment was applied in the period (1/6 -15/ 7 /2021). The following equation calculates the maximum heart rate: HRmax = 207 – (0.7 x Age). The heart rate was calculated

by using the Garmin clock. After completing the physical activities program, the psychological aspects (depression, fear, and mood and feelings) were measured again.

2.3 Scientific coefficients of the study tool

To verify the validity of the study tool, the researchers presented it to a committee of (five) arbitrators with the competence and experience of the faculty members at the Universities of Jordan to find out the suitability of paragraphs of this questionnaire and its ability to achieve the goals of this study. To verify the consistency of the study tool, we used the Alpha Cronbach coefficient, where its value reached (0.71) for the depression items, (0.84) for the mood and feelings items, and (0.90) for fear items, and these values are considered a high indicator of the study tool's stability.

Table 1. Results of Cronbach's Alpha coefficient

Domain	Items	Cronbach's Alpha coefficient
Depression	9	0.71
Mood and feelings	13	0.84
Fear	7	0.90
The whole tool	**29**	**0.89**

Source: Osama et al., 2022, 4

2.4 Ethical considerations

The participants' rights were protected by explaining the purpose and significance of the study. The clients were informed that their participation in the survey would remain anonymous and that their privacy was respected. They were provided with a comprehensive explanation that their involvement in the study was voluntary and that they could withdraw at any time. Approval was obtained from all study participants when filling out the study tool.

2.5 Data analysis

To achieve the study's objectives, the researchers used means, standard deviations, frequencies, percentages, Paired Sample t. Test and the Alpha Cronbach coefficient using SPSS version 24 with a confidence level of 95% ($p< 0.05$).

3. Results

This chapter presents the study's findings, which aim to explore the level of psychological aspects (depression, fear, and mood and feelings) of those recovering from the Coronavirus before implementing the physical activities program. Then explore the impact of the physical activities program on the psychological aspects and descriptive statistics for participants' responses to questionnaire items. The data was collected from (30) males who had recovered from the Coronavirus for a month. Table 2

Table 2. Pre-study sample responses for depression, fear, and mood and feelings scales (n=30)

Nu	**Depression**	Mean	Standard. Deviation
1	Little interest or pleasure in doing things?	2.10	0.76
2	Feeling down, depressed, or hopeless?	1.97	0.85
3	Trouble falling or staying asleep, or sleeping too much?	2.10	0.88
4	Feeling tired or having little energy?	1.93	0.78
5	Poor appetite or overeating?	2	0.79
6	Feeling bad about yourself — or that you are a failure or have let yourself or your family down?	2.05	0.91
7	Trouble concentrating on things, such as reading the newspaper or watching television?	2.23	0.86
8	Moving or speaking so slowly that other people could have noticed?	2.27	0.78
9	Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?	2.12	0.82
Total Means		18.77	3.40
Nu	**Fear**	Mean	Standard. Deviation
1	I am most afraid of coronavirus-19	3.77	0.86
2	It makes me uncomfortable to think about coronavirus-19	3.67	0.84
3	My hands become clammy when I think about coronavirus-19	4.27	0.74
4	I am afraid of losing my life because of coronavirus-19	4.20	0.81
5	When watching news and stories about coronavirus-19 on social media, I become nervous or anxious	3.77	0.94
6	I cannot sleep because I am worrying about getting coronavirus-19	4.07	0.83
7	My heart races or palpitates when I think about getting coronavirus-19	3.87	0.94
Total Means		3.94	0.68
Nu	**Mood and feelings**	Mean	Standard.

			Deviation
1	I felt miserable or unhappy	2.48	0.49
2	I didn't enjoy anything at all	2.35	0.51
3	I felt so tired I just sat around and did nothing	2.45	0.50
4	I was very restless	2.45	0.50
5	I felt I was no good anymore	2.32	0.51
6	I cried a lot	2.68	0.38
7	I found it hard to think properly or concentrate	2.32	0.51
8	I hated myself	2.72	0.35
9	I was a bad person	2.55	0.47
10	I felt lonely	2.58	0.45
11	I thought nobody really loved me	2.52	0.48
12	I thought I could never be as good as other people	2.58	0.45
13	I did everything wrong	2.58	0.45
Total Means		2.50	0.27

Source: Osama et al., 2022, 6

To find out the differences in the responses of the study sample in (depression, fear, and mood and feelings scales) according to the physical activities program variable, the Paired Sample T. test was applied to explore differences between pre and post-measure. Table 3 shows that.

Table 3. Paired Sample T. test according to the physical activities program variable (n=30)

Scales	Measure	Means	Standard. Deviation	df	T	sig
Depression	Pre	18.77	3.40	29	7.207	0.000*
	Post	9.20	1.34			
Fear	Pre	1.66	0.27	29	18.566	0.000*
	Post	0.94	0.10			
Mood and feelings	Pre	3.94	0.68	29	10.086	0.000*
	Post	**2.52**	**0.29**			

*significantly ($p<0.05$)

Source: Osama et al., 2022, 6

3.1 Discussion

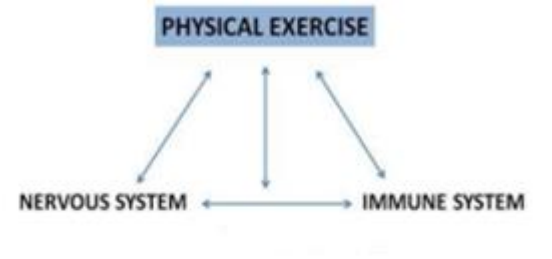
The study results in pre- measurement revealed an increase in the level of the psychological indicator: depression, negative feelings, and fear (18.77, 3.94, 2.50), respectively, which are high-level values. These results agree with previous studies that indicated isolation and quarantine are associated with many negative emotions such as stress, fear, and anger (Usher et al., 2020). Physical distancing and social isolation lead to a deterioration in the psychological and emotional state and a decrease in the body's resistance to depression and stress (Grajek & Sobczyk, 2021). Ayed & Oama (2022) also indicates the high depression and anxiety level during the lockdowns taken by countries to limit the spread of the Coronavirus.

The researchers believe that the inactive life of those recovering from the Coronavirus increases the level of psychological aspects (depression, negative feelings, and fear) because the low level of physical fitness and inactivity negatively affects the ability of those recovering from carrying out daily activities. Thus, they become more likely to be overweight and obesity. Yousfi et al. (2020) also indicate that quarantine leads to psychological disorders such as fear, anxiety, and post-traumatic stress disorder. Those who have recovered have a greater risk of experiencing problems in heart functions and the respiratory system; this may be the rise in negative psychological indicators. Excessive social media follow-up also contributes to the rise in negative psychological indicators, as these social networks are filled with rumors and false news.

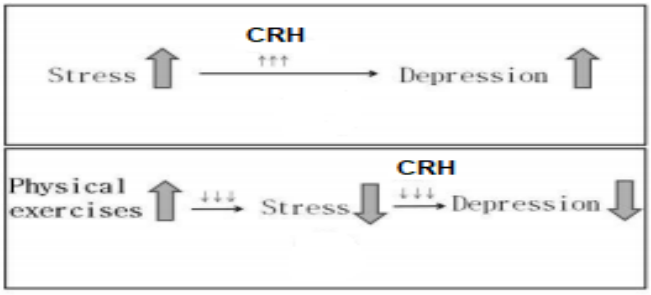
On the other hand, the study results revealed the positive role of physical activities through the low averages of psychological indicators: depression, negative feelings, and fear (9.20, 2.52, 0.94), respectively, which are low-level values, where there were statistically significant differences between the pre and post-measurements in the means of psychological indicators (depression, negative feelings, and fear) and in favor of the post-measurement, which indicates the positive impact of physical activities on those psychological indicators.

This can be explained based on the results of previous studies that indicated the positive role of physical activity in reducing stress, depression, and anxiety (Kekalainen et al., 2020). Improving the level of positive emotions (Silveira et al., 2020). Ayed & Oama (2022) also indicates that physical activity contributes to lowering the level of anxiety and depression. These physical activities also improve the heart's, and lungs' physiological and functional capabilities, agility, speed, and strength (Schnitzer et al., 2003). Physical activities are also essential to improve the immune system's efficiency and cardiorespiratory fitness of the affected individual (Carvalho & Gois, 2020). It reduces various risk factors such as high blood pressure and the possibility of repeated infection with the Coronavirus and improves mood (Chen et al., 2020). Figure (1) shows the interrelationships between the practice of physical activities, psychological indicators, and the nervous and immune systems.

Fig 1. The relationship between sports activities with psychological aspects and their relationship to the immune and nervous system (Alicia, 2015).



Visual representation of the complex interaction between sports and immune system-nervous system



Possible logical relatioship between physical exercises and depression, considering the Corticotropin Releasing Hormone (CRH)

Source: Osama et al., 2022, 8

In addition, physical activity increases the concentration of Norepinephrine, a chemical that reduces the brain's response to stress, prevents stress and depression, improves sleep quality, improves positive self-esteem, and improves mental health (Andree et al., 2005). In addition, during physical activities, the muscles relax in the evening. Thus the airway becomes wider, reducing the resistance to airflow, improving pulmonary ventilation, improving oxygen transfers through the blood, and improving muscles' ability to absorb oxygen (Mohammed, 2016).

In addition, physical activity contributes to an increase in endorphins, dopamine, and serotonin, which have a positive effect on resisting excess calories as a result of bad eating habits, as well as contributing to improving the mood and thus contributing to improving the functions of the immune system and the work of natural killer cells and rebalancing cortisol hormone (Valenzuela et al., 2021). Moreover, the positive role against anxiety and depressive disorders promoted by Physical activities is also due to the increased expression and release of neurotrophic and growth factors, including brain-derived neurotrophic factor (BDNF) and nerve growth factor (NGF), which are considered critical modulators of psychological well-being (Mondal & Fatima, 2019).

4. Conclusions

Based on the study results, there was an increase in the psychological indicators covered: depression, negative feelings, and fear among those recovering from the Coronavirus, perhaps isolation, quarantine, and a sedentary life contributed to this. There was also a positive effect of physical activities in reducing psychological indicators (depression, negative feelings, and fear) to a low level. This confirms the importance of the participation of the recovering in physical activity programs in order to return their lives to the correct path. Thus, there is a need to include physical activities, psychological rehabilitation, and drug treatment in medical care programs for those recovering from the Coronavirus and similar diseases. The researchers look forward to conducting more studies in the same field while taking other samples of different gender and age.

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