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INVESTIGATION OF THE EFFECT OF PHYSICAL ACTIVITY LEVELS ON QUALITY OF LIFE OF PATIENTS WITH COVID -19[i]

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Abstract:
It is thought that knowing the situations that minimize the negative effects of Covid-19 on human health will be useful in the fight against the epidemic. In this study, it was aimed to investigate the relationship between the level of physical activity and the effect of Covid-19 on quality of life. 200 people who had previously had Covid-19 participated in the study voluntarily. An international physical activity questionnaire was applied to the participants to determine their pre-disease physical activity levels, and an international quality of life scale was applied to determine the effect of Covid-19 on the quality of life during the disease. SPSS 22 package program was used in the analysis of the data. In the study, the relationship between age, marital status, gender, education and physical activity level and the effect of Covid-19 disease on quality of life was examined. There was no statistically significant difference between the age, gender and marital status of the participants and the scores they got from the quality-of-life questionnaire ($p<0.05$). On the other hand, there was a statistically significant difference between the education levels of the participants and the scores they received from the quality of life, between those who received high school education and those who received education at the undergraduate level, in favor of those who received undergraduate education, in general health scores and social health scores ($p<0.05$). On the other hand, the general health score between the physical activity level and the quality-of-life scores, the physical activity level between the active and the very active, in favor of the very active, the general health score between the inactive and the active and the very active, the general health score in favor of the active and very active statistically significant difference was found ($p<0.05$). As a result, it can be said that those with good educational status and those with active and very active physical activity levels are more advantageous in

[i] This article was adapted from the master thesis named *Investigation of the Effect of Physical Activity Levels on Quality of Life of Patients with Covid -19.*

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feeling less of the symptoms associated with Covid-19 and reducing its negative impact on quality of life.

Keywords: Covid-19, physical activity, quality of life

1. Introduction

The Covid-19 epidemic has affected our country as well as the whole world and has caused problems in almost every field. Covid-19 is a virus-borne disease and has turned into an epidemic that has very different symptoms and threatens human health significantly (1).

In this study, it was aimed to investigate the relationship between the level of physical activity and the effect of Covid-19 on quality of life.

First, cases of shortness of breath and respiratory tract infection of unknown cause were detected on 31 December 2019 in the city of Wuhan, China. Initial cases were classified as 'pneumonia of unknown origin' because the diagnosis was not made immediately (2). After the research, a new virus belonging to the coronavirus (CoV) family was announced as the disease agent (2). On February 11, 2020, the WHO Director-General announced the disease caused by Covid-19, which was seen for the first time, as the abbreviation of "corona virus disease 2019" and the isolation process as "COVID-19 disease" (3).

It was stated that as of 6 May 2020, there were more than 250,000 deaths and more than 3.7 million confirmed cases of COVID-19 worldwide, including more than 200 countries and regions (4). As of August 2020, the total death caused by the epidemic, which is still ongoing today, is over 800 thousand in the world, 6 thousand in Turkey, the total number of cases is over 23 million in the world and over 260 thousand in Turkey (5). The COVID-19 pandemic and the developments after it has become a situation that affects the world in many respects, especially in health, economy, education, transportation, agriculture, etc. It is thought that the ongoing corona pandemic process may have economic and political effects, as well as serious effects on people's social, psychological, physical and mental health, as well as on the economy of our country and the World (6).

Scientific studies are of great importance in order to reduce the negative effects of this rather new epidemic. In our study, the quality-of-life levels of the patients in the Covid-19 process were determined and compared with the physical activity levels before the disease. In this way, it has been tried to find the answer whether the level of physical activity has an effect on reducing the negative effects of Covid-19 disease on the quality of life. In addition, the quality-of-life scores of the patients in the covid 19 process with age, gender, educational status and marital status were also compared and it was also investigated whether there was a relationship with the mentioned variables.

2. Material and Method

2.1 Purpose and Model of the Research

This study was carried out using a scanning design, one of the qualitative research methods. This study was carried out to examine the relationship between the level of physical activity and the level of being affected by the Covid-19 disease. In the study, the physical activity levels of the participants were determined by applying the International Physical Activity Questionnaire Short Form in order to determine the pre-weekly physical activity levels of individuals who had recently had Covid-19 disease, and then the World Health Organization Quality of Life Scale Short Form (SF 36) was applied during the period of covid-19 disease. tried to determine the quality of life. Finally, the relationship between the quality of life and the level of physical activity during the period of Covid-19 disease was examined.

2.2 Universe and Sample

The population of this study is people who have had Covid-19 disease. The sample consists of 200 volunteer participants living within the borders of Gaziantep province.

2.2 Data Collection

2.2.1 International Physical Activity Questionnaire Short Form

In order to determine the physical activity levels of the participants in the study; "International Physical Activity Assessment Questionnaire Short Form (IPAQ Short Form - International Physical Activity Questionnaire Short Form) was used (7).

2.2.2 World Health Organization Quality of Life Scale Short Form Turkish Version

"World Health Organization Quality of Life Scale Short Form Turkish Version (WHOQOL-BREF-TR)" was used in order to determine the quality of life of the participants who contracted the Covid-19 disease during the disease process. The long form of the scale consists of 100 questions and the short form consists of 26 questions. The Turkish validity and reliability study of the scale was carried out by Eser et al. (1999). There are 26 questions in the scale that measure the physical health, mental health, social health and environmental well-being of the participants (8).

2.3 Data Analysis

SPSS statistical program (SPSS for Windows, version 20.0, 2008, SPSS Inc. Chicago, Illinois, USA) was used for data analysis. Data were evaluated according to 95% confidence interval ($p<0.05$). The mean value and standard deviation values were used for the descriptive parameters of the participants. Shapiro Wilk and Kolmogorov Smirnov tests were used to test the normality of the data sets.

In data sets with 2 groups, Independent Sample T test was used for normally distributed data sets, and Man Whitney U test was used for data sets that did not show normal distribution. One Way ANOVA test was used for normally distributed datasets

where the number of groups is more than 2, Kruskal Wallis test was used for datasets that did not show normal distribution, and the LSD test was used to determine which group the significance was in.

3. Results

Table 1: Descriptive parameters of the participants

Variables		**N**	**%**
Gender	Male	119	59,5
	Female	81	40,5
Marital Status	Never married	123	61,5
	Living like married	5	2,5
	The married	66	33,00
	Divorced	2	0,1
	Divided	3	1,5
	His wife does not live	1	0,5
Age	18-21 ages	38	19,00
	22-25 ages	55	27,05
	26-34 ages	55	27,05
	35 ages and above	52	26,00
Educational Status	High school	54	27,00
	Associate degree	26	13,00
	Undergraduate	93	46,5
	Post graduate	27	13,5
Physical Activity Level	Inactive	121	60,5
	Active	68	34,00
	Very active	11	5,5

When Table 1 is examined, it is seen that 119 (59.5%) of the participants are male and 81 (49.5%) of them are female. On the other hand, the marital statuses were 123 never married (61.5%), living as if married 5 (2.5%), married 66 (33.0%), divorced 2 (0.1%), separated 3 (1.5%), spouse does not live 1 (0.5%). When looking at the age range, 38 people (19.0%) aged 18-21, 55 people aged 22-25 (27.0%), 55 people aged 26-34 (27.5%) 52 people aged 35 and over. It is seen that it is 26.0%. In terms of education, there are 54 high school students (27.0%), associate degree 26 (13.0%), undergraduate 26 (46.5%), and postgraduate 27 (13.5%). When the physical activity levels are considered, it is seen that there are 121 inactive people (60.5%), active 68 people (34.0%), and 11 very active people (5.5%).

Table 2: Comparison of the Gender variable and the mean scores of the participants from the Quality-of-Life Scale (Independent Sample T Test)

	Gender	N	Mean.	Std. Dev. (±)	t	p
General Health	Male	119	52,20	19,16	0,234	0,815
	Female	81	51,54	20,38		
Physical Health	Male	119	49,81	12,16	-0,556	0,579
	Female	81	50,79	12,12		
Psychological Health	Male	119	56,37	14,08	0,733	0,464
	Female	81	54,83	15,23		
Social Health	Male	119	53,79	17,89	-0,196	0,844
	Male	81	54,32	19,28		
Environmental Health	Female	119	54,22	13,84	0,386	0,700
	Male	81	53,43	14,95		

When Table 2 is examined, no statistically significant difference was found between the total mean scores of the participants' quality of life in terms of gender variable ($p<0.05$).

Table 3: Comparison of Participants' Educational Status Variable and Mean Scores from the Quality-of-Life Scale (One Way ANOVA Test)

		N	Mean.	Std. Dev. (±)	p	Significant Difference
General Health	High school (1)	54	45,37	20,50	0,007	1-3
	Associate degree (2)	26	48,07	20,82		
	Undergraduate (3)	93	56,31	17,54		
	Post Graduate (4)	27	53,70	20,10		
Physical Health	High school (1)	54	49,33	12,010	0,917	-
	Associate degree (2)	26	51,09	13,00		
	Undergraduate (3)	93	50,26	12,23		
	Post Graduate (4)	27	50,92	11,66		
Psychological Health	High school (1)	54	54,24	16,17	0,053	-
	Associate degree (2)	26	50,16	15,34		
	Undergraduate (3)	93	58,42	12,48		
	Post Graduate (4)	27	54,93	15,63		
Social Health	High school (1)	54	52,46	19,66	0,008	2-3
	Associate degree (2)	26	44,55	17,62		
	Undergraduate (3)	93	57,97	17,58		
	Post Graduate (4)	27	52,54	16,22		
Environmental Health	High school (1)	54	52,02	15,69	0,361	-
	Associate degree (2)	26	51,20	16,81		
	Undergraduate (3)	93	55,07	12,32		
	Post Graduate (4)	27	56,25	14,88		

When Table 3 is examined, a statistically significant difference was found between the high school group and the undergraduate group in favor of the undergraduate group in the mean scores of the participants in the quality-of-life scale in terms of the education level variable, and in the general health score ($p<0.05$). Similarly, a statistically significant difference was found between the high school group and the undergraduate group in social health scores in favor of the undergraduate group ($p<0.05$).

Table 4: Comparison of Participants' Age Variable and Average Scores from the Quality-of-Life Scale (One Way ANOVA Test)

		N	Mean.	Std. Dev. (±)	p	Significant Difference
General Health	18-21 age	38	49,34	19,69	0,827	-
	22-25 age	55	52,50	20,60		
	26-29 age	55	52,04	19,05		
	35 ve age and above	52	53,12	19,47		
Physical Health	18-21 age	38	52,25	11,81	0,723	-
	22-25 age	55	49,87	12,21		
	26-29 age	55	49,67	12,39		
	35 ve age and above	52	49,65	12,17		
Psychological Health	18-21 age	38	57,23	14,90	0,374	-
	22-25 age	55	56,36	14,54		
	26-29 age	55	56,96	14,02		
	35 ve age and above	52	52,72	14,78		
Social Health	18-21 age	38	59,21	19,83	0,214	-
	22-25 age	55	54,24	17,92		
	26-29 age	55	52,87	18,71		
	35 ve age and above	52	51,16	17,27		
Environmental Health	18-21 age	38	55,42	17,00	0,298	-
	22-25 age	55	52,44	13,81		
	26-29 age	55	51,93	12,43		
	35 ve age and above	52	56,43	14,29		

When Table 4 is examined, no statistically significant difference was found between the groups in the mean scores of the participants from the quality-of-life scale in terms of the age variable ($p<0.05$).

Table 5: Comparison of the Mean Scores of the Participants from the Marital Status Variable and the Quality-of-Life Scale (One Way ANOVA Test)

		N	Mean.	Std. Dev. (±)	p	Significant Difference
General Health	Never married	123	53,04	19,02	0,445	-
	Living like married	5	62,50	8,83		
	The married	66	48,48	21,31		
	Divorced	2	62,50	8,83		
	Divided	3	54,16	19,09		
	His wife does not live	1	62,50	21,31		
Physical Health	Never married	123	51,30	10,35	0,173	-
	Living like married	5	55,00	6,96		
	The married	66	47,29	15,06		
	Divorced	2	50,00	8,75		
	Divided	3	59,52	7,43		
	His wife does not live	1	57,14	5,63		
Psychological Health	Never married	123	56,36	14,61	0,386	-
	Living like married	5	66,66	4,16		
	The married	66	53,66	14,95		
	Divorced	2	56,25	14,73		
	Divided	3	61,11	6,36		
	His wife does not live	1	45,83	4,62		
Social Health	Never married	123	54,89	18,76	0,118	-
	Living like married	5	53,33	13,94		
	The married	66	52,90	17,26		

	Divorced	2	29,16	29,46		
	Divided	3	69,44	17,34		
	His wife does not live	1	25,00	5,96		
Environmental Health	Never married	123	54,75	14,06	0,484	-
	Living like married	5	61,87	11,13		
	The married	66	52,27	14,89		
	Divorced	2	42,18	11,04		
	Divided	3	52,08	14,43		
	His wife does not live	1	46,87	11,25		

When Table 5 is examined, no statistically significant difference was found between the groups in the mean scores of the participants from the quality-of-life scale in terms of the marital status variable ($p<0.05$).

Table 6: Comparison of the average scores of the participants from the Quality of Life scale according to the Variable of Physical Activity Level (One Way ANOVA Test)

		N	**Mean.**	**Std. Dev. (±)**	**p**	**Significant Difference**
General Health	Inactive (1)	121	49,17	18,66	**0,006**	1-3, 2-3
	Active (2)	68	54,41	20,00		
	Very active (3)	11	67,04	20,36		
Physical Health	Inactive (1)	121	48,90	12,48	0,156	-
	Active (2)	68	51,99	11,04		
	Very active (3)	11	53,57	13,64		
Psychological Health	Inactive (1)	121	56,47	13,66	0,580	-
	Active (2)	68	55,02	15,19		
	Very active (3)	11	52,27	19,92		
Social Health	Inactive (1)	121	53,85	18,78	0,970	-
	Active (2)	68	54,41	18,29		
	Very active (3)	11	53,21	16,54		
Environmental Health	Inactive (1)	121	53,48	14,64	0,823	-
	Active (2)	68	54,77	13,52		
	Very active (3)	11	53,12	15,62		

When Table 2 is examined, a statistically significant difference was found between the group with very active physical activity level and those with active or inactive physical activity level in favor of the group with very active general health score ($p<0.05$). On the other hand, no statistically significant difference was found between the groups in other sub-dimensions ($p<0.05$).

4. Discussion

The findings obtained in this part of the study were discussed by comparing them with similar studies in the literature, and suggestions were presented in the last section.

There was no statistically significant difference between the age, gender and marital status of the participants and the scores they got from the quality-of-life questionnaire ($p<0.05$). On the other hand, there was a statistically significant difference between the education levels of the participants and the scores they received from the

quality of life, between those who received high school education and those who received education at the undergraduate level, in favor of those who received undergraduate education, in general health scores and social health scores ($p<0.05$). On the other hand, the general health score between the physical activity level and the quality-of-life scores, the physical activity level between the active and the very active, in favor of the very active, the general health score between the inactive and the active and the very active, the general health score in favor of the active and very active. statistically significant difference was found ($p<0.05$).

Tunç et al. (2020), in their study called The Effect of Exercise on Quality of Life during the Covid 19 Epidemic, reported that those who exercise were less affected by Covid-19 than those who did not exercise (9).

Leandro et al. (2020), in their study examining the relationship between Covid-19 and Exercise, reported that moderate and low-intensity exercise can be effective in alleviating the symptoms associated with the disease by positively affecting the immune system (10).

Colley et al. (2020), in their study examining the effects of regular exercise during the Covid-19 process, reported that the quality of life of those who exercise regularly is beneficial in terms of general health and mental health (11).

Simpson et al. (2020), in their study examining the relationship between exercise and immune system, reported that moderate and low-intensity exercise can be effective in alleviating the symptoms that occur due to diseases by positively affecting the immune system (12).

Chen et al. (2020), in their study on the importance of exercise during the Covid-19 epidemic, emphasized that staying at home for a long time during the epidemic management process may lead to negative consequences due to a sedentary lifestyle, and stated and recommended that regular exercise should be continued at home as well. However, they emphasized that regular exercises can also help alleviate the negative symptoms that may occur due to Covid-19 disease (13).

Ricci et al. (2020) emphasized that it is extremely important to stay physically active in their studies, where they mentioned the possible risks of staying at home during the Covid-19 epidemic, and stated that the symptoms that will occur due to Covid-19 may be more severe depending on the decrease in physical activity (14).

Lippi et al. (2020), in their study examining cardiovascular problems that may arise due to lack of physical activity during the Covid-19 epidemic, reported that Covid-19 causes symptoms that adversely affect cardiopulmonary and cardiovascular. For this reason, they stated that being physically active can be beneficial in reducing the negative effects of Covid-19 due to its positive effects on the cardiovascular and cardiopulmonary system (15).

The above-mentioned literature studies support the findings of our study. Various scientific studies have shown that exercise contributes to the strengthening of the immune system and thus helps fight diseases (16). It is thought that the results of our findings arise due to this situation.

During the Covid-19 epidemic, it has become very difficult to access areas where exercise can be done due to both the closures and the measures taken. This situation increases the risk of cardiovascular diseases due to lack of physical activity in individuals and may cause weakening of the immune system (15). During the Covid-19 disease period, the disease may progress more severely due to weakened immune system and cardiovascular system disorders, and quality of life may be adversely affected (13).

As a result, it is thought that staying as physically active as possible and increasing the level of education during the epidemic process may be beneficial in reducing the negative effects that may arise due to Covid-19 and in reducing the negative impact of this situation on the quality of life.

It is thought that conducting similar studies in larger groups may contribute to the scientific literature. In addition, it is thought that it may be useful to conduct research on the course of the disease in sports groups. It is thought that conducting studies on the effect of different exercise types on the Covid-19 disease process can contribute to the scientific literature.

Conflict of Interest Statement

There are no potential conflicts of interest on this article.

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