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The effect of corona virus related anxiety of students at faculty of sports science on their physical activity levels

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This study aimed to examine the effect of Covid-19 anxiety on physical activity levels of the Faculty of Sports Sciences students. The information was obtained from 233 students of the Faculty of Sport Sciences. As a result of the reliability analysis of the scales, the Cronbach's Alpha value of the coronavirus anxiety scale in athletes was found to be 93; Cronbach's Alpha value of the cognitive behavioral physical activity scale was found to be 83. Structural equation model (path) analysis was applied so as to determine the effect of coronavirus anxiety on the athletes who participate in physical activity, and as a consequence of the analysis, it has been recorded that Covid-19 had a statistically noteworthy and negative effect on physical activity (β=0.353, p<0.05). 1 unit increase in Covid -19 anxiety causes 0.353 decrease in physical activity participation. It has been concluded that it explains 12.5% of the change in physical activity participation.

Key words: Corona virus, anxiety, physical activity.

INTRODUCTION

A disease seen in a number of people in a certain place and in a given time period is called "epidemic", and if this disease should spread to other continents and is observed between continents, it is called "pandemics". There have been many examples throughout the history that infectious diseases have turned into epidemics that affect the public health and lead fear and anxiety to be common in the society (Afacan and Zeynep, 2020). In today's world, the latest example of the pandemic is the Covid-19 virus, which is the mutated version of the Sars-CoV-2 virus. The Covid-19 infection appeared in Wuhan city of China with a population of 11 million in December

of 2019 and it has severely affected the whole world. From this date onward, it has been declared as a pandemic by the World Health Organization (WHO) as of March 11 (Tural, 2020). Many countries all around the world, mainly Italy and Spain, have affected by the pandemic. The Covid-19 virus, which spreads very fast while in contact, has caused people to put physical distance and led governments to take some measures. The biggest one of these measures has been to quarantine people for the sake of public health. It has been observed that physical inactivity occurred in the community during the lockdowns leading people to spend

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time at home. Quarantine is a process that both leads emotional changes and inactivity by causing person to stay away from his routine (Eskici, 2020).

In contrast, WHO recommends physical activity should be done for at least 1 h per day. It is known that physical activities prevent cardiovascular diseases and weight gain by improving the skeletal muscle system and increasing the ability of humans to be active. With precautions taken, the change in the social environment of people who protect themselves from germs outside affects their living conditions (Hidalgo et al., 2020). Studies show that in this quarantine period, university students' mental health were really affected (Prilutskaya and Grjibovski, 2020). Due to the uncertain intervals of the lockdown experienced, it has been thought that anxiety and mental problems in university students resulted in many situations and also reduced the level of their physical activity. Therefore, the purpose of this study is to examine the effect of Covid-19 anxiety on the physical activity levels of faculty of sports sciences students.

METHODOLOGY

Research model

The study conducted according to the general scanning model consists of the students of the Faculty of Sport Sciences and the School of Physical Education and Sports in the Southeastern Anatolian region. Scanning model is a research approach which aims to define a given situation as it is (Karasar, 2015).

Research group

The research group consists of a total of 233 participants, 109 of whom are female and 124 male, who study at Siirt University School of Physical Education Sports, Şırnak University School of Physical Education and Sports, Gaziantep University Faculty of Sport Sciences in the 2020-2021 academic year. The data have been delivered to the participants by means of Google forms and their participation in this research was voluntarily. A total of 240 people were reached and 7 incomplete or incorrect forms were not evaluated. Thus, the number of forms to be included in the analysis is 233.

Data gathering tool

In the second part of the personal information form developed by the researcher, the Athletes' Anxiety Scale for the New Type of Coronavirus (Covid-19) was used, and the Cognitive Behavioral Physical Activity Scale (CBPAS) was utilized in the third part.

Cognitive behavioral physical activity scale

Athletes' anxiety scale for the new type of coronavirus (Covid-19) (NTCAA):

The scale with 16 articles, which Demir et al. (2020) tested for validity and reliability, consists of 16 articles and 2 dimensions. It consists of Individual Anxiety Scale (IAS) with 11 items and sub-dimensions of Socialization Anxiety (SA) with 5 articles. The lowest score to be obtained in the evaluations that will be made on the total score of NTCAA is 16 and the highest score is 80. The scale with 16 articles is a five-point Likert type. All expressions in the scale is scored as 1 "totally disagree" and 5 totally agree". Since only the 2nd article in the scale includes negative expressions, it ought to be reverse coded.

Data analysis

The obtained data were statistically analyzed by using AMOS 21.0 SPSS 25.0 package programs. Structural equation model (path) analysis was applied with the aim of determining the effects of coronavirus anxiety on athletes' participation in physical activity. The scale's reliability was determined by Cronbach's Alpha parameter. It has been found that Cronbach's Alpha value of the coronavirus anxiety scale in athletes was 93 and Cronbach's Alpha value of the cognitive behavioral physical activity scale was 83.

RESULTS AND DISCUSSION

The study findings are described using tables and figures. Table 1 contains demographic information. Table 2 shows Model results of the first-order multifactor confirmatory factor analysis of the cognitive behavioral physical activity scale. Table 3 demonstrates the model related with the multifactor confirmatory factor analysis of the coronavirus anxiety scale in athletes. Table 4 shows model results for the first level multifactorial confirmatory factor analysis of the coronavirus anxiety scale in athletes. Table 5 shows the goodness of fit results of the model for the first-order multifactorial confirmatory factor analysis of the scale. Table 6 shows results as to the research model. Figure 1 shows cognitive behavioral physical activity scale (CBPAS) and multifactor confirmatory factor analysis (CFA). Figure 2 shows path diagram of the proposed model for the effect of coronavirus anxiety on physical activity participation. This study has been conducted to examine the effect of coronavirus anxiety on physical activity levels of students who study at the Faculty of Sport Sciences.

Governments have taken some precautions to reduce the risk of transmission of the Covid-19 virus affecting the whole world both physically and mentally. The main precautions are social distance, mask and home isolation. With these preventive measures, the time that individuals spend in their own living spaces has increased. It is emphasized that low physical activity level will have effect physical and mental health in short periods (Öncen et al., 2020). According to WHO, the definition of health is not only protection from diseases, but also physical, mental and social well-being. As the time spent at home increases, some mental disorders and anxiety occur. A total of sport sciences faculty students (n = 233) between the ages of 18-22 male (n = 124) and female students (n = 109) voluntarily participated in this study. The number of the students who participated in the study in which Ceviz et al. (2020)

Table 1. Demographic information.

Demographic variable		f	%	Total
Age	18-19	46	19.7	
	20-21	92	39.5	
	22 and over 22	95	40.8	
Sex	Female	109	46.8	
	Male	124	53.2	
Grade	1	107	45.9	233
	2	23	9.8	
	3	40	17.2	
	4	63	27.0	
Department	Teaching	71	30.5	
	Coaching	85	36.5	
	Management	69	29.6	
	Recreation	8	3.4	

The majority of the participants are aged 22 and over with a rate of 40.8% (n=95). As for the highest variable in their own category, the students are male with a rate of 53.2% in gender variable (n=124). The first graders are with a rate of 45.9% in grade variable (n=107) and the students of the coaching department are with a rate of 36.5%.

Table 2. Model results of the first-order multifactor confirmatory factor analysis of the cognitive behavioral physical activity scale.

Factor	Terms	Parameter estimate (factor loading)	Standard error	t-Value	p-Value
Expected Results	A1	0.881	-	-	-
	A2	0.878	0.059	16.547	***
	A9	0.697	0.059	12.033	***
	A13	0.691	0.063	11.891	***
	A14	0.459	0.078	7.084	***
Self-regulation	A3	0.656	-	-	-
	A4	0.652	0.105	8.139	***
	A5	0.789	0.110	9.250	***
	A6	0.660	0.122	8.222	***
	A8	0.411	0.127	5.462	***
Individual Barriers	A7	0.757	-	-	-
	A10	0.683	0.090	8.997	***
	A11	0.580	0.090	7.784	***
	A12	0.625	0.090	8.336	***
	A15	0.450	0.090	8.997	***

When the correlations between variables are examined, it is seen that the factor loads of the items are above 0.40 and all correlations are significant (*p<0.05).

analyzed the variables affecting the anxiety levels of university students during the Covid-19 period was 262. Moreover, the number of male participants in the same study is 182 and female participants is 26. It shows similarities with other studies (Göksu and Kumcağız, 2020; Altun, 2020; Rogowska et al., 2020) in terms of the

Table 3. The model related with the multifactor confirmatory factor analysis of the coronavirus anxiety scale in athletes.

Variables	Structural equation model value	Recommended value	Goodness of fit	Resources
χ2/df	2.700	≤ 5	0≤ χ2≤ 3	Meydan and Şeşen (2015: 37)
RMSEA	0.086	≤ 0.08	0≤ RMSEA≤ 0.05	Simon et al. (2010: 234-243)
GFI	0.876	≥0.80	≥0.90	Simon et al. (2010: 234-243)
AGFI	0.826	≥0.80	0.95≤ AGFI≤ 1.00	Shevlina et al. (2000: 181-185)
CFI	0.893	≥0.80	0.90≤ CFI≤ 1.00	Dehon et al. (2005: 799-810)
SRMR	0.074	≤ 0.10	0≤SRMR≤0.05	Schermelleh-Engel (2003: 23-74)

Table 4. Model results for the first level multifactorial confirmatory factor analysis of the coronavirus anxiety scale in athletes.

Factor	Terms	Parameter stimate (factor loading)	Standart error	t-Value	p-Value
Individual anxiety	K1	0.505	-	-	-
	K2	0.555	0.171	6.496	***
	K3	0.717	0.185	7.512	***
	K4	0.551	0.138	6.470	***
	K5	0.738	0.155	7.618	***
	K6	0.775	0.167	7.785	***
	K7	0.814	0.188	7.956	***
	K8	0.711	0.175	7.479	***
	K9	0.818	0.179	7.978	***
	K10	0.797	0.167	7.896	***
	K11	0.844	0.183	8.084	***
Social anxiety	K12	0.786	-	-	-
	K13	0.845	0.075	14.099	***
	K14	0.802	0.073	13.216	***
	K15	0.862	0.073	14.453	***
	K16	0.635	0.072	9.971	***

When the correlations between variables are examined, it is seen that the factor loads of the items are above 0.40 and all correlations are significant (*p<0.05).

Table 5. Goodness of fit results of the model for the first-order multifactorial confirmatory factor analysis of the scale.

Variables	Structural equation model value	Recommended value	Goodness of fit	Resources
χ2/df	2.938	≤ 5	0≤ χ2≤ 3	Meydan and Şeşen (2015: 37)
RMSEA	0.091	≤ 0.08	0≤ RMSEA≤0.05	Simon et al. (2010: 234-243)
GFI	0.856	≥0.80	≥0.90	Simon et al. (2010: 234-243)
AGFI	0.806	≥0.80	0.95≤ AGFI≤ 1.00	Shevlina et al. (2000: 181-185)
CFI	0.919	≥0.80	0.90≤ CFI≤ 1.00	Dehon et al. (2005: 799-810)
SRMR	0.056	≤ 0.10	0≤SRMR≤0.05	Schermelleh-Engel (2003: 23-74)

According to the Confirmatory Factor analysis, it is seen that the structural equation model (Structural Equation Modeling Results) of the scale is significant at the p = 0.000 level. CFA was performed on 12 items that make up the scale and it was determined that it was related to 16 items and 2-dimensional scale structure (Table 4). It is pointed in the table that the values accepted for the fit index in the calculations of fit index are met.

age and gender range of the participants. When the correlations between variables are examined in this study, it is seen that the factor loads of the items are above 0.40 and all correlations are significant in terms of

Table 6. Results as to the research model.

Effect	Estimate (β)	Standart error	t-value	p-value	Result
Health →YK	-0.353	0.044	-3.763	***	Significant
Compliance index:					
CMİN/DF	2.163				
GFI	0.800				
CFI	0.874				
RMSEA	0.071				

Covid 19 appears to have a statistically significant and negative impact on physical activity (β=0.353, *p<0.05). 1-unit increase in Covid-19 anxiety leads a 0.353 decrease in participation in physical activity. This explains the change with a rate of 12.5% on participation in physical activity (R^2=0.125).
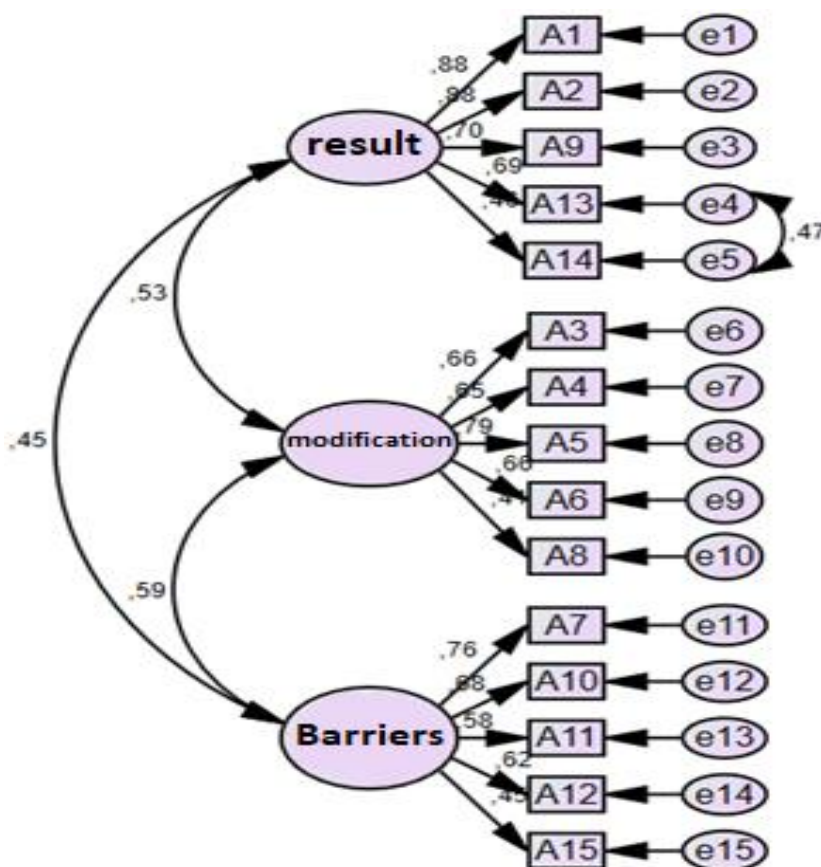

Figure 1. Cognitive behavioral physical activity scale (CBPAS) and multifactor confirmatory factor analysis (CFA).

social and individual anxiety (p<0.05). In a study conducted in the People's Republic of China, where Covid-19 first appeared, Cao et al. (2020) has revealed that university students' anxiety levels caused by Covid-19 increased and they have found that anxiety level of the students with a rate of 24.1% who participated in the study increased. Since anxiety causes fear in individuals and hence in the society, it is inevitable for them to develop protective attitudes. Accordingly, Wang et al. (2020) has revealed that taking precautions such as masks and distance reduces anxiety. In the study conducted in the USA, an increase in anxiety was observed in the sample group during the swine flu epidemic (Wheaton et al., 2012). On account of the uncertainty of academic calendar of the universities, falling behind from the practical lessons that could have
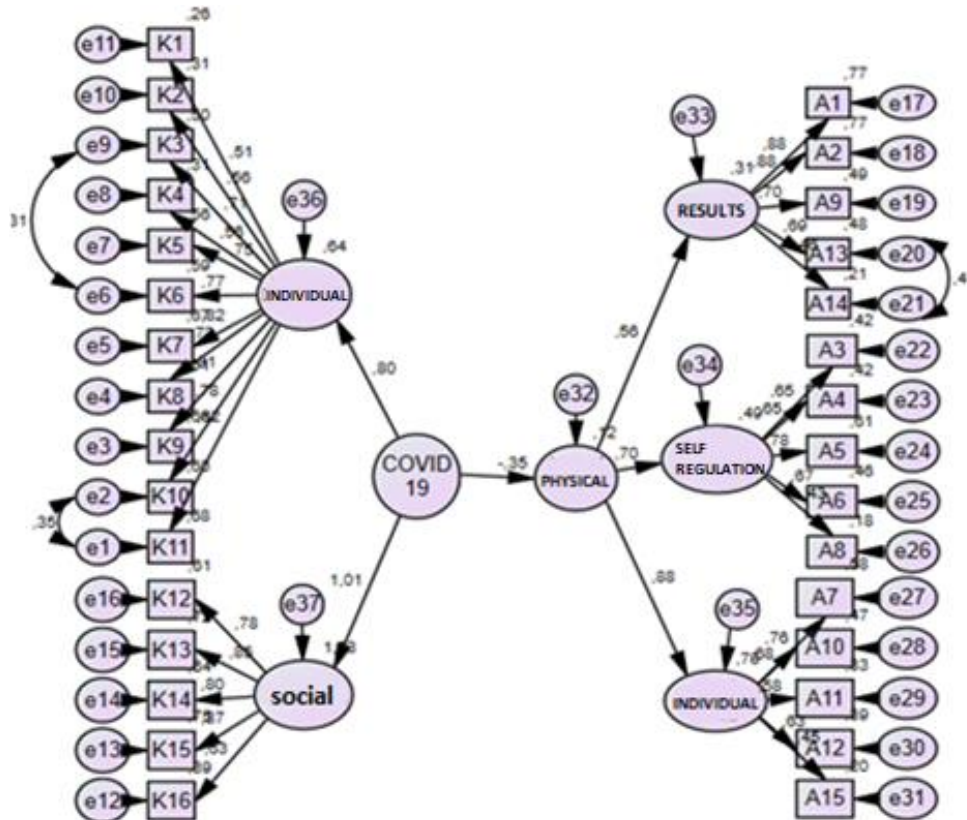
Figure 2. Path diagram of the proposed Model for the effect of coronavirus anxiety on physical activity participation.

done face to face both in our country and all over the world, students are the most damaged ones among the groups in terms of mental health. With the help of this information, Alyami et al. (2020) found that anxiety was seen at a rate of 19% during the Covid-19 pandemic period. In a study conducted with 400 university students in Saudi Arabia, it has been observed that 35% of the students have normal and high levels of anxiety. Having regard to related literature, it has been found in other similar studies (Inam, 2007) that the anxiety levels of university students increased during the Covid-19 period. It is thought that not solely leaving their schools academically but also reduced frequency of physical activity as a result of some precautions leads mental and physical discomfort in students. According to current studies, it is seen that daily physical activity decreases the risk of depression or anxiety (Dunn et al., 2005; Penedo and Dahn, 2005). Depending on these studies, when the anxiety level increases, the frequency of physical activity decreases. When the results of this study are concerned, a 1-unit increase in Covid -19 anxiety causes a 0.353 decrease in physical activity participation. The change in physical activity participation is explained with a rate of 12.5%. There are studies supporting the findings in the related literature.

Biddle and Mutrie (2001) have found that physical activity and exercise positively affect anxiety. Physical activity intensity is thought to have different mental effects. It occurs especially when the young people are mentally tired. In a study in which physical activity and mental health are examined in university students, it has been seen that physical activity has a positive effect on students mentally and in the same study, it has been found that students having more physical activity have a healthier mental structure (Tyson et al., 2010). With the sports halls and recreation areas closed as a result of the Covid-19 pandemic, the range of places at which university students can exercise is also restricted and the time period spent in the state of inactivity has increased. Spending leisure time in a wrong way and physical inactivity increase anxiety in university students. Lee and Kim (2018) have revealed that an average of 7.96 h of sitting per day increases the anxiety and stress levels of university students. University students should do physical exercise at home or places that is suitable for the protection rules against Covid-19 by remembering that health is not all about protecting ourselves from microbes in this lockdown period. The exercises which can be followed by using internet connection and some mobiles apps can increase the intensity or frequency of

physical activities and can be used in future researches.

CONFLICT OF INTERESTS

The author has not declared any conflict of interests.

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