



Long-Term Effects of Covid-19 on Performance and Psychological Health of Boxing Athletes: Normalization Process Assessment

¹Mustafa KARADAĞ, ²Dilek KARADAĞ

¹Firat University Faculty of Sports Sciences, Elazığ / Türkiye, orcid: 0000-0001-8160-2991 e-mail: mkaradag@firat.edu.tr

²Firat University Faculty of Sports Sciences, Elazığ / Türkiye, orcid: 0000-0002-9608-168X, e-mail: dilekkaradag2323@hotmail.com

Abstract

Purpose: The aim of this study is to examine the effects of the COVID-19 pandemic on boxing athletes, especially within the framework of the restrictions applied in sports that require close contact and the normalization process. The study aims to evaluate the short-term and long-term effects of the pandemic on the physical, psychological health and training regimes of boxing athletes. In addition, it is aimed to provide information on the adaptation processes of boxing athletes after the normalization process.

Method: The research was carried out with a quantitative research design. A form consisting of 11 items developed by Demirtaş and Çıplak (2020) was used to collect data. The survey was evaluated on a 5-point Likert scale. The universe of the research consisted of athletes participating in the Turkish Boxing Championship. The research sample was limited to athletes aged 19 and under who participated in this championship and agreed to participate in the research. Frequency and percentage distributions, Chi-Square test and Compare Means analysis were used in the analysis of the data.

Findings: The effects of COVID-19 were examined through demographic variables such as age, gender and educational status of the participants. A significant relationship was found between the level of education and vaccination status ($p < 0.002$). Significant differences were found between age group, level of knowledge about COVID-19, and the status of having experienced the pandemic and not being vaccinated ($p < 0.000$). In addition, a significant relationship was observed between the educational status of the participants and their level of fear about mismanagement of the pandemic ($p < 0.020$). Other findings examining the effects of the pandemic process on athletes provide important clues about the psychological health of the athletes and the disruptions they experience in their training routines.

Conclusion: During the COVID-19 pandemic, it has been determined that the vast majority of athletes engaged in individual sports such as boxing, especially young athletes between the ages of 13-18, have low vaccination rates against COVID-19 and feel the negative effects of the pandemic. Factors such as training deficiencies, psychological concerns, and lack of information have directly affected the performance of athletes. In addition, poor management of the pandemic has created fear and anxiety among athletes. As a result, it is recommended that the relevant federations, the Ministry of Sports, and the Ministry of Health should take more effective measures in cooperation in order for training processes to continue more regularly and safely.

Keywords: COVID-19, Boxing, Pandemic effects, Psychological health.

Introduction

The COVID-19 pandemic has had profound effects on the world of sports, as it has on many sectors around the world. Sports that involve intense physical contact have been greatly affected by the pandemic, and this has negatively affected both the physical and psychological health of athletes (Ahorsu et al., 2020; Erdoğan, 2021). The uncertainties experienced in the first months of the pandemic and the fact that treatment and vaccine solutions have not yet been developed have increased athletes' emotional states such as anxiety, stress, and fear. This uncertainty has seriously affected athletes' daily lives, training, and competitions, leading to their isolation and separation from social life (Hall et al., 2020). The stress and anxiety they are constantly exposed to have increased sleep disorders and depressive symptoms (Maugeri et al., 2020; Jacob et al., 2020). In addition, athletes' physical training deficiencies, which have a direct impact on their performance, have also emerged. In the post-pandemic period, it has been emphasized that both mental and physical recovery processes should be addressed simultaneously in order for athletes to regain their performance (Reardon et al., 2019). The pandemic disrupted athletes' accustomed training routines, and factors such as the cancellation of national and international competitions, economic concerns, and a decrease in the number of training sessions negatively affected athletes' mental health (Lai et al., 2020). Olympic and Paralympic athletes, in particular, faced increased stress with the postponement of the Tokyo Olympics, and this made their mental health even more difficult (Şenişik et al., 2020). Individual sports such as boxing have been greatly affected by these effects due to the fact that athletes require both physical and mental endurance (Demirtaş & Çıplak, 2020). Factors such as the disruption of athletes' training processes, the deterioration of their psychological health, and social isolation are among the most obvious effects of the pandemic process (Håkansson et al., 2021). Boxing athletes have experienced performance losses due to the limitations they experienced in training and participation in competitions, and have also encountered psychological stress factors such as social isolation and uncertainty. This process has led to serious negativities in the development processes of young athletes, especially those between the ages of 20-24 (Şenel, 2021). Quarantine measures implemented in the first months of the pandemic have had negative consequences on the performance of boxing athletes, such



as lack of training and disruption of preparation processes. In addition, social distancing rules implemented to prevent the spread of COVID-19 have affected the psychological health of athletes, leading to an increase in conditions such as anxiety, depression and stress (Jahrami et al., 2022). The effects of the pandemic on the physiological and psychological health of athletes have been widely discussed in the literature. Research shows that these effects are directly related to the disruption of training routines and lack of psychological support (Szabó et al., 2020). Especially in a sport that requires intense physical and mental effort, such as boxing, the uncertainties experienced during the pandemic have led to loss of motivation and long-term psychological problems for athletes (Finlay et al., 2021). In this context, providing the necessary psychological support and physical preparations for boxing athletes to adapt to the normalization process after the pandemic is important both at the individual and social level. It has been concluded that the methods used to improve the performance of athletes in the post-pandemic period should have a balance that improves both psychological and physical health (Park et al., 2021). The effects of COVID-19 on athletes are being widely researched both physiologically and psychologically, and the uncertainties and adaptation difficulties experienced by athletes during this process have become more evident in sports such as boxing (Kelly et al., 2022).

The main purpose of this study is to comprehensively examine the long-term effects of the COVID-19 pandemic on boxing athletes. The physical, psychological and social difficulties that athletes have faced during the pandemic have become evident in individual sports that require high levels of physical and mental endurance, such as boxing, and this has deeply affected the athletes' performance and general health. In particular, the uncertainties, social isolation, training deficiencies and psychological stress brought about by the pandemic have left permanent marks on the athletes' mental health and significantly reduced their physical performance. In this context, the primary objective of the study is to develop a comprehensive recovery strategy for the normalization process by analyzing the difficulties experienced by boxing athletes during the pandemic in detail. The importance of this study manifests itself at several critical points. First, understanding the physical and psychological damage experienced by boxing athletes during the pandemic contributes to the existing literature in this field and provides a strategic guide against the difficulties that athletes may face in similar global health crises in the future. In a high-risk and mentally endurance sport such as boxing, it is extremely important to comprehensively address these effects, considering the possibility that the effects of the pandemic on athletes will leave not only short-term but also long-term marks. In addition, determining psychological support and physiological preparation methods that will facilitate athletes' adaptation to the normalization process after the pandemic will contribute to the long-term recovery processes of not only boxing athletes but all individual athletes.

As a result, this research aims to propose strategies that will accelerate the physical and psychological recovery of athletes by considering the effects of COVID-19 on boxing athletes from a multidimensional perspective. In addition, the findings will help to foresee the potential difficulties that athletes will face in future pandemic processes and will guide international sports organizations, federations and health experts in making data-based decisions that will ensure athletes' healthy adaptation to the normalization process. In this context, it is thought that the study will constitute an important reference source in the academic field and in practice.

MATERIAL AND METHODS

In this section of the study, explanations regarding the research model, universe and sample, data collection tools and data analysis are presented.

Model of the Research

In this study, a form consisting of 11 items developed by Özlem Demirtaş and Abdullah Çıplak (2020) was used. The form aims to evaluate the psychological effects of the COVID-19 pandemic on athletes and changes in their training habits. The form is supported by a 5-point Likert scale and is designed to allow participants to rate various psychological and physical conditions. The Likert scale allows participants to express their opinions on certain statements with a scoring system from 1 to 5. This model has been used as a tool with proven validity and reliability in measuring the effects of the pandemic process on athletes. Ethical approval for the research was received from Fırat University Social Humanities Ethics Committee (2024/24).

Universe and Sample of the Research

The universe of the research consists of all athletes participating in the Turkish Individual Boxing Championship organized by the Turkish Boxing Federation in 2024. This championship is one of the most prestigious and important organizations of boxing and includes athletes participating from various provinces of Turkey. These athletes include both female and male boxers. Although the universe consists of all athletes participating in this championship, the research only examined a certain segment. In this context, the sample of the study consists of athletes who agreed to participate in the research. A certain group was selected from the universe considering the ages and genders of the participating athletes. The sample of the research is limited to



athletes under the age of 19 who participated in the Turkish Boxing Championship and volunteered for the research. The athletes in the sample consist of those who were selected to participate in the championship determined by the Turkish Boxing Federation and those who voluntarily agreed to participate in the research. The sample group consists of a total of 92 volunteer athletes, 60 male and 32 female athletes whose permissions were obtained. The research was conducted on a voluntary basis and the selection of the sample group was made in accordance with the purpose of the study. This age group is one of the most affected groups during the pandemic and includes young athletes in the development stage of boxing. The athletes included in the research were determined by a selection made among boxers participating in the Turkish Boxing Championship.

Sample Selection Method: The sample used in the study is based on the purposive sampling method. This method allows the selection of participants who will best answer the research questions for a specific purpose. The sample was selected in accordance with the purpose of the research to evaluate the changes experienced by boxing athletes during the pandemic and the effects of these changes on performance and psychological health.

Data Collection Tools

The athletes participating in the study were informed about the purpose and method of conducting the study, and the study was conducted after obtaining permission from their coaches. A 3-item personal information form, a 4-item COVID-19 knowledge status questionnaire, and an 11-item "Impact of the Pandemic Process on Athletes" scale were applied to collect demographic information from the participants.

Personal Information Form

The Personal Information Form consists of 3 questions to determine the demographic characteristics of the individuals participating in the study, such as age, gender and educational status.

COVID-19 Information Status Questionnaire

The following form, created by the researcher and consisting of 4 items, was used to measure the knowledge status of the participants regarding COVID-19.

Have you had Covid19 before? Yes No

Has anyone in your family had Covid-19? Yes No

Have you been vaccinated? Yes No

Do you have enough information about Covid 19? Yes No

Pandemic Impact Scale

In this study, a semi-structured interview form consisting of two parts, developed by Özlem Demirtaş and Abdullah Çıplak (2020), was used. The form items below were applied to the participants using a 5-point Likert-type scale. The data obtained from the scales were analyzed with the IBM SPSS 22.0 package program. In all evaluations made in line with the purpose of the study, the statistical significance level was accepted as $p < 0.05$.

1. I spend more time with myself and my family due to the coronavirus
2. Coaches and authorities provide support during the coronavirus process.
3. I feel comfortable due to the measures taken during the pandemic
4. I accept the pandemic process
5. I prefer to spend this process resting due to injury
6. The anxiety and fear caused by the uncertainty caused by the pandemic creates a feeling of helplessness.
7. The pandemic disrupts my sleep and nutrition routine.
8. The pandemic causes me to lose my form.
9. Not being able to do branch-specific training due to the pandemic, not having a program affects me.
10. The anxiety and fear caused by the pandemic affects my training.
11. The fact that the pandemic process is not managed well scares me.

Data Analysis

The obtained data were analyzed using the licensed SPSS (Statistical Package for the Social Sciences) program. The conformity of the data to normal distribution was checked with the Kolmogorov-Smirnov test and the majority of the data were evaluated in accordance with parametric tests. In the analysis of differences between groups, t-test and analysis of variance (ANOVA) methods were used. In the analyses performed, the results obtained at the $p < 0.05$ level were considered significant.

Results



When the demographic information distribution of the athletes participating in the study was examined; it was seen that 65.2% (60 people) were male, 34.8% (32 people) were female, and the total number of participants was 92. When the age range of the participants was examined; it was seen that 5.4% (5 people) were 13 years old, 23.9% (22 people) were 14 years old, 18.5% (17 people) were 15 years old, 5.4% (5 people) were 16 years old, 21.7% (20 people) were 17 years old, 25.0% (23 people) were 18 years old. When the educational status of the athlete participants was examined; it was seen that 5.4% (5 people) of the athlete participants stated that they had secondary education, 79.3% (73 people) had high school education, and 15.2% (14 people) had university education.

Table 1. Covid 19 information status questionnaire

		N	%	Gender χ^2	Education Status χ^2	Age χ^2	Total %
Have you had Covid-19 before?	Yes	18	19,6	,880	,979	,698	92 %100
	No	74	80,4				
Has anyone in your family had Covid-19?	Yes	38	41,3	,914	,988	,050	92 %100
	No	54	58,7				
Have you been vaccinated?	Yes	35	38,0	,931	,002	,000	92 %100
	No	57	62,0				
Do you have enough information about Covid 19?	Yes	78	84,8	,128	,446	,035	92 %100
	No	14	15,2				

When the participants' answers to questions about Covid-19 were examined; It was seen that the percentage of those who had Covid-19 before said yes with 19.6% (18 people), and 80.4% (74 people) answered no. When the number of people who had Covid-19 in their families was examined, it was seen that 41.3% (38 people) answered yes, and 58.7% (54 people) answered no. When the rates of participants who have gotten the Covid-19 vaccine were examined; 38.0% (35 people) said yes, 62.0% (57 people) answered no and stated that they have not been vaccinated. It was seen that 84.8% (78 people) answered yes to the question "Do you have sufficient information about Covid-19 disease?", while 15.2% (14 people) answered no. According to the research findings, it was seen that there was no significance at the level of $p < 0.05$ between the variables according to the gender variable from the Chi-square (χ^2) analysis results of the participants. Among the educational status variables, a significance level of $p < .002$ was found with the opinion that they stated that they were not vaccinated at high school level. Among the age variables, a significance level of $p < .000$ was found between the ages of 13, 14, 15, 16 and 17 and not being vaccinated, a significance level of $p < .035$ was found for having sufficient knowledge about Covid-19, and a significance level of $p < .050$ was found for not having Covid-19 disease.

Table 2. The scale of the effects of the Pandemic Process on Athletes

No	Madde	I strongly disagree		I disagree		I'm undecided		I agree		I totally agree		Total	%
		N	%	N	%	N	%	N	%	N	%		
1	I spend more time with myself and my family due to the coronavirus.	16	17,4	12	13,0	19	20,7	34	37,0	11	12,0	92	100,0
2	Coaches and officials provide support during the coronavirus process.	11	12,0	11	12,0	17	18,5	39	42,4	14	15,2	92	100,0
3	I feel comfortable with the precautions taken during the pandemic.	11	12,0	14	15,2	24	26,1	30	32,6	13	14,1	92	100,0
4	I accept the pandemic process	12	13,0	14	15,2	20	21,7	33	35,9	13	14,1	92	100,0
5	I would prefer to spend this period resting due to injury.	14	15,2	16	17,4	18	19,6	33	35,9	11	12,0		



												92	100,0
6	The anxiety and uncertainty that the pandemic has created in me creates a feeling of fear and helplessness.	21	22,8	16	17,4	27	29,3	23	25,0	5	5,4	92	100,0
7	The pandemic causes my sleep and nutrition patterns to be disrupted.	18	19,6	21	22,8	22	23,9	22	23,9	9	9,8	92	100,0
8	The pandemic will make me get out of shape.	23	25,0	20	21,7	15	16,3	23	25,0	11	12,0	92	100,0
9	Not being able to do branch-specific training and lack of a schedule due to the pandemic affects me.	15	16,3	13	14,1	16	17,4	29	31,5	19	20,7	92	100,0
10	The anxiety and fear of uncertainty caused by the pandemic affects my training.	19	20,7	17	18,5	20	21,7	22	23,9	14	15,2	92	100,0
11	It scares me that the Pandemic Process is not managed well.	15	16,3	16	17,4	18	19,6	24	26,1	19	20,7	92	100,0

In item 1; it is seen that boxing athletes stated the level of impact of the pandemic process on athletes as “I spend more time with myself and my family due to the coronavirus” with a level of agreement with 37.0% (34 people).

In item 2; it is seen that boxing athletes stated the level of impact of the pandemic process on athletes as “Coaches and authorities provide support during the coronavirus process” with a level of agreement with 42.4% (39 people).

In item 3; it is seen that boxing athletes stated the level of impact of the pandemic process on athletes as “I feel comfortable due to the measures taken during the pandemic” with a level of agreement with 32.6% (30 people).

In item 4; it is seen that boxing athletes stated the level of impact of the pandemic process on athletes as “I accept the pandemic process” with a level of agreement with 35.9% (33 people).

In item 5; It is seen that boxing athletes stated that the pandemic process has an impact on athletes with 35.9% (33 people) agreeing on the item “I would prefer to spend this period resting due to injury”.

In item 6; boxing athletes stated that they were undecided on the item “The anxiety and uncertainty that the pandemic has created in me creates a sense of fear and helplessness”.

In item 7; boxing athletes stated that they were undecided and agreed on the item “The pandemic disrupts my sleep and nutrition routine”.

In item 8; boxing athletes stated that they were undecided and agreed on the item “The pandemic causes me to lose my form”. 25.0% (23 people) strongly disagreed and 25.0% (23 people) agreed on the item “The pandemic causes me to lose my form”.

In item 9; boxing athletes stated that the item “Not being able to do branch-specific training due to the pandemic, lack of a program affects me.” has an opinion that 31.5% (29 people) agree with regarding the level of impact of the pandemic process on athletes.

In item 10; boxing athletes stated that the item “The anxiety and fear caused by uncertainty due to the pandemic affects my training.” has an opinion that 23.9% (22 people) agree with regarding the level of impact of the pandemic process on athletes.

In item 11; boxing athletes stated that the item “Not being able to manage the pandemic process well scares me.” has an opinion that 26.1% (24 people) agree with regarding the level of impact of the pandemic process on athletes..

Table 3. The significance level of the effects of the Pandemic Process on Athletes on demographic variables

No	Item	Gender	Age	Education	Total %
		Status			
		p	p	p	
1	I spend more time with myself and my family due to the coronavirus.	,417	,280	,695	92 100,0
2	Coaches and officials provide support during the coronavirus process.	,460	,493	,951	92 100,0
3	I feel comfortable with the precautions taken during the pandemic.	,472	,808	,709	92 100,0



4	I accept the pandemic process	,821	,411	,257	92	100,0
5	I would prefer to spend this period resting due to injury.	,410	,765	,352	92	100,0
6	The anxiety and uncertainty that the pandemic has created in me creates a feeling of fear and helplessness.	,444	,185	,626	92	100,0
7	The pandemic causes my sleep and nutrition patterns to be disrupted.	,876	,079	,807	92	100,0
8	The pandemic will make me get out of shape.	,225	,101	,620	92	100,0
9	Not being able to do branch-specific training and lack of a schedule due to the pandemic affects me.	,563	,810	,110	92	100,0
10	The anxiety and fear of uncertainty caused by the pandemic affects my training.	,362	,333	,550	92	100,0
11	It scares me that the Pandemic Process is not managed well.	,240	,815	,020	92	100,0

$p < 0,05$.

When the significance levels of the effects of the pandemic process on athletes on demographic variables were examined; no statistical significance was found at the $p < 0.05$ level according to the gender and age variables, but a significance of $p < 0.020$ was found between the educational status variable and the opinion that the poor management of the pandemic process scares me.

Discussion and Conclusion

This study aimed to examine the psychological and physical effects of the COVID-19 pandemic on athletes and the relationship between these effects and demographic factors, and the findings revealed that the pandemic created multidimensional effects on athletes. The results of the study show that COVID-19 has significant negative effects on both the psychological and physical health of athletes, and these effects vary in relation to demographic factors. These findings, in parallel with previous studies in the literature on the effects of the pandemic on athletes, have emerged as a situation that increases athletes' anxiety levels, impairs their physical health, and creates long-term effects on their general well-being (Mann et al., 2020; Szabó et al., 2020; Dehghansai et al., 2023; Lima et al., 2021). The negative effects of the pandemic on the psychological health of athletes have been confirmed by many studies. Eirale et al. (2020) stated that the pandemic process increased athletes' anxiety, stress, depression, and other psychological problems. These findings are consistent with our study. In a study conducted by Yavuz and İlhan (2020), stress levels and positivity profiles of COVID-19 on athletes were examined and findings were reached that athletes' anxiety levels increased and their mental well-being deteriorated. Similarly, in this study, it was observed that the pandemic caused an increase in psychological problems such as anxiety, stress, and uncertainty on the mental health of athletes. In particular, it was stated that athletes' anxiety increased due to their concerns about the long-term health effects of the pandemic. This finding reveals that anxiety and stress, as stated in previous studies, had serious effects on the psychological health of athletes during the pandemic and their mental well-being deteriorated (Eirale et al., 2020; Yavuz and İlhan, 2020). In a study, it was emphasized that emotional regulation had an important effect on the physical recovery of athletes. In particular, it was stated that the reappraisal strategy contributed to positive emotions and a sense of self-efficacy, which helped athletes cope with stressful situations. This situation shows that emotional regulation skills help athletes increase their psychological resilience during crisis periods and that education level can play an important role in coping with stress (Molina, Oriol, & Mendoza, 2018). The negative effects of the pandemic on the physical health of athletes are also an important finding. In a study conducted by Mehrafar et al. (2020), it was stated that the physical and mental health of elite athletes were negatively affected during the pandemic process, physical recovery processes became difficult, and this situation could affect the health of athletes in the long term. In our study, it was determined that the sleep patterns of the athletes were disrupted, their eating habits were negatively affected, and their physical recovery processes were interrupted. These findings are parallel to the study conducted by Arslan and Ercan (2020). It was concluded that training deficiencies during the pandemic process negatively affected the performance of athletes and this had deep effects on mental health. These data reveal that the decrease in physical activity is a multifaceted factor that negatively affects not only physical health but also psychological well-being. "In the study conducted by Lima et al. (2021), it was stated that the effects of COVID-19 on the mental health of elite football players are directly related to performance loss and may have long-term negative consequences." The role of demographic factors on the effects of the pandemic is one of the important findings of the study. In this study, it was observed that demographic factors such as gender and age did not make a significant difference on the effects of the pandemic. However, previous studies show that female athletes experienced more psychological stress during the pandemic. Eirale et al. (2020) stated that female athletes experienced more anxiety, especially during periods of uncertainty and intense stress. Yavuz and İlhan (2020) emphasize that female athletes are more exposed to factors such as social isolation and stress, and that this has negative effects on their mental well-being. The fact that there was no significant difference between genders in this study also shows that we need to evaluate the effects of the pandemic from a broader perspective and that other factors on psychological health should also be taken into consideration.

Education level plays an important role in the effects of the pandemic. In this study, a significant relationship was found between education level and anxiety levels, and it was determined that athletes, especially at the high school level, were more concerned about the poor management of the pandemic process. This finding is consistent with a study conducted by Hebert and Newland (2023). The study drew attention to the fact that individuals with lower levels of education experience more uncertainty and fear during crisis periods. It is emphasized that individuals with lower levels of education experience more



stress during crisis periods, and this stress results in lower resilience to crisis management and uncertainty. In this context, understanding the psychological reactions of individuals with lower levels of education to the pandemic will allow the development of more appropriate intervention strategies for athletes in this group. Another striking finding is that young athletes are more anxious about the pandemic and have less information. It was observed that athletes between the ages of 13-17 felt the effects of the pandemic process more intensely, and that this age group is more fragile both psychologically and physically. This finding is parallel to the findings of the study conducted by Chin et al. (2022) that revealed that children and adolescents' perceptions of COVID-19 and the psychological effects of these perceptions are more pronounced. Athletes in the younger age group experience more anxiety due to lack of information and uncertainty and need more support in coping with the psychological burden brought by the pandemic. Therefore, it is emphasized that young athletes need more psychological support and guidance. In a study conducted by Cleofas (2020), the life interruptions, learning, and hopes experienced by Filipino university students during the COVID-19 process were examined. This study examined how young people experienced major changes in their lives, developed various coping strategies to cope with feelings of uncertainty and anxiety, and how they coped with the effects of the pandemic. This finding once again emphasizes that young athletes feel a similar need for psychological support and guidance and the importance of developing coping strategies.

Another striking finding of the study is that vaccination rates are low. The fact that 62% of the participants have not been vaccinated against COVID-19 shows that young athletes, in particular, are hesitant about vaccination despite having sufficient knowledge about the pandemic and health. Doğan (2021) stated that athletes who are concerned about catching COVID-19 may be more cautious about vaccination. This situation indicates that young athletes may develop negative attitudes towards health policies. The uncertainty about health information and vaccination during the pandemic has affected young athletes' attitudes towards vaccination, and this situation offers important implications for future health policies.

Conclusion

This study examined in depth the psychological and physical effects of the COVID-19 pandemic on athletes and revealed how these effects are related to demographic factors. The findings show that the pandemic has multidimensional and negative effects on athletes. It has been determined that the pandemic increases athletes' anxiety levels, negatively affects their physical health, disrupts their sleep patterns and eating habits, and has long-term effects on their general mental well-being. These findings reveal that the pandemic has serious effects on athletes not only physically but also psychologically, and that these effects can negatively affect athletes' performance. Demographic factors, especially educational status and age, shape athletes' psychological responses to the pandemic; this shows that interventions against the pandemic should be more individualized and personalized. Another important finding in the study is that young athletes are more anxious during the pandemic and that their lack of knowledge increases this anxiety. In addition, it has been observed that athletes' lack of sufficient information about health policies in order to protect their psychological and physical health during the pandemic leads to hesitations in vaccination rates. It is emphasized that young athletes especially need more psychological support and guidance.

Suggestions

1. **Strengthening Psychological Support Programs:** The findings of the study reveal the importance of increasing psychological support programs to protect the psychological health of athletes and to help them cope with stress during the pandemic. Considering that athletes in younger age groups have higher anxiety levels and limited access to information, special psychological guidance services should be strengthened for this group. Individual or group therapies conducted by trained psychologists and sports psychologists can increase athletes' emotional resilience to the pandemic.
2. **Special Interventions Based on Education Level:** It has been observed that education level plays an important role in coping with stress during the pandemic. It has been determined that high school athletes have more anxiety. In this context, more comprehensive psychological trainings should be developed for athletes with lower education levels, and programs should be developed to provide crisis management and stress coping skills.
3. **Information on Vaccination and Health Policies:** In order to eliminate young athletes' hesitations regarding the COVID-19 vaccine and health policies, more education and information studies should be conducted on vaccines and health policies. Seminars and information sharing can be organized to provide athletes with more information about vaccination. In addition, in order to increase confidence in health policies, athletes should be provided with clear and understandable communication based on scientific data.
4. **Organizing Physical Recovery and Training Processes:** The pandemic has had negative effects on the physical health of athletes, and it has been determined that their physical recovery processes have been disrupted. In this regard, it is important to organize training processes and accelerate rehabilitation processes in order to protect the physical health of athletes. Training programs should be personalized to take into account the mental health of athletes, and post-pandemic recovery processes should be accelerated.
5. **Separate Intervention Strategies According to Age Groups:** Young athletes are a more psychologically and physically fragile group during the pandemic. Special support programs should be created for this group, and interventions for athletes in this age group should be designed according to their developmental needs. In addition, different strategies should be determined according to their level of education, and additional training and guidance services should be provided for athletes with lower levels of education.



In conclusion, the COVID-19 pandemic has negatively affected both the psychological and physical health of athletes, and these effects have varied according to demographic factors. In this context, developing more targeted and personalized strategies for the effects of the pandemic can help athletes emerge from this crisis period in a healthier way. Post-pandemic recovery processes and ensuring the continuity of long-term mental health support will enable athletes to become more resilient in such crisis periods.

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