

Original Article

Global virus vs. global industry: explaining and classifying the effects of corona outbreaks on sports industry

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Citation Asadollahi, E. Heydari, R. Aghaei shahri, M.S. Shojaei, M. Perić, M. (2021). Global virus vs. global industry: explaining and classifying the effects of corona outbreaks on sports industry. *Humanistic approach to sport and exercise studies (HASES)*, 1(1), 1-20.

Received: 07 July 2021

Accepted: 05 September 2021

Published: 09 November 2021

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Abstract: The spread of coronavirus in the world has had various effects on industries, especially the sports industry. The purpose of this study was to explain and classify the effects of coronavirus outbreak on the dimensions of the sports industry. The present study was applied in nature, mixed in terms of data retrieval and descriptive-exploratory in terms of data analysis method that data collection was done in the field. The statistical population in the qualitative section included sports experts, 18 people were purposefully selected, and the statistical population in the quantitative section included all activists in the field of sports and sports industry, of which 600 samples were selected by simple random sampling. Data collection in the qualitative part was done by the systematic method of data theory and in the quantitative part, using a researcher-made questionnaire obtained from the qualitative part of the present study with 79 items in 2 dimensions of direct effects and indirect effects on a 5-point Likert scale. Research data were analyzed using descriptive and inferential statistical methods with the help of SPSS24 and Amos statistical software. The results showed that the outbreak of coronavirus had a direct and indirect role in the production and distribution sectors, private and public sectors, sports education and research, trade, events and competitions, technology, services and economics of the sports industry. This finding can help the country's sports managers and officials to improve the situation of the sports industry in the post-Corona era.

Keywords: Sport, Outbreak Effects, Corona Virus, Sports Industry, Trade and Sports Economics;

1. Introduction

Today, the world is facing a much more serious crisis than the previous ones. Coronavirus epidemics continue to spread (Craven, Liu, Mysore, & Wilson, 2020). The corona virus epidemic has had effects beyond human safety and public health in the world, one of the most important effects of which is undoubtedly felt on the global economy, and it seems that the global economy is shaking affected by this virus (Mennati, 2020: 165). After the virus became a pandemic and many countries, especially Western countries, became infected, the world economy suffered a great recession and its scope is increasing day by day. This Great Recession, which some say is the biggest in the last 90 years, has affected many aspects of the economy, including markets for goods and services, financial and monetary markets, and the labor market. Many businesses have been standstill, widespread unemployment has spread everywhere, and it has caused serious damage to many jobs and large industries, such as the sports industry (Motalebi, 2020: 184).

Just as the corona virus has severely affected the world's industries and economics (falling stock market values, stagnant investments, stagnant real estate markets, goods and services markets, etc.), it has also transformed the sports industry (Futterman, Panja & Keh, 2020). Temporary closure of various leagues and competitions in countries affected by the disease, holding competitions without spectators, whispers of cancellation of some leading national and international competitions, and closure of health centers and sports clubs and consequently, the slump in the retail and wholesale markets for their sporting goods has been evidence of the economic effects of the disease on the sports industry (Australian Institute of Sport, 2020). In this regard, different estimates of economic losses in different countries that have suffered to the sports economy were published. Unfortunately, it must be said that the effects and consequences of the spread of the corona have been negative in the economic dimension, and this is inevitable for all countries of the world (Brett & Irfan, 2020). As it turns out, the effects of the corona virus have not only been on the economic sectors of sport, or it can even be said that not all effects of the virus on sport have been negative, and it has also had positive effects that are worth studying and debating (National Basketball Association, 2020). Cruyff (2020) states that the

impact of the Corona virus crisis on sport varies anywhere in the world. In professional sports, the effects of the corona virus become more apparent when big stadiums, TV rights, sponsors and significant revenue streams are taken into account. In a situation where everyone was preparing to watch the football competitions of the European Cup and then the Olympics in the summer of 2020, after holding and ending various sports competitions in the current and upcoming months, the arrival of the corona virus disrupted all the predetermined plans of the world, and now there is not even a clear prospect of normalization.

It is not yet clear what the long-term effects will be on other factors, including fan engagement, sports participation, employment in the sports industry, and the well-being of staff and athletes (Cohen, Robinson & Flint, 2020). The one-year postponement of the Tokyo Olympics and Euro 2020 is only part of the impact of this virus on the world of sports, a postponement that has caused the organizers of these games to face huge financial losses (International Olympic Committee, 2020). The impact was similar to inter-school athletics in the United States as part of the sports industry (Barbara, Jonathan, & Arayan, 2019). Further, the suspension of world football leagues in the early months of the outbreak of the corona virus and after the matches without spectators has significantly reduced the sources of income of football clubs such as the right to broadcast television and ticket sales, which was dependent on the league and even club stocks are falling and jeopardizing their financial future (Hughes, 2020). The closure of sports centers was one of the negative consequences of the spread of the corona virus in the world. Centers that were built for the health and entertainment, but suddenly with the spread of the virus, locks were knocked on the doors of small and large stadiums. Places where large crowds of enthusiasts from all various groups spent part-time or full-time there doing bodybuilding and competition, these days, they are immersed in a despondent silence without even one athlete. The closure of sports centers, in addition to the quarantine of athletes, also leads to the economic quarantine of club owners, and the economic situation of many owners of these centers has brought them to the brink of bankruptcy. Csato (2020) findings show that with the cessation of sports due to the outbreak of the Corona virus, the sports community is facing an irreparable crisis and according to the provided ratings and quotas, the



resumption of work is done under unfair conditions. Therefore, he has proposed policies as an alternative to the earned quotas in sports competitions and states that in order to play the games fairly after the end of the restrictions, the quota must be re-earned and new strategies and regulations must be developed to deal with these conditions.

Regarding the effects of the outbreak of coronavirus in sports, it can be acknowledged that due to the multiplicity of sports clubs, most of which are private clubs, now the business and livelihood of coaches, assistant coaches, hall managers, service and other staff have endangered due to closure and non-realization of received fees and in the professional clubs' section, there is a risk of canceling or dampening the contract with the sponsors and consequently moderating the players' contracts. One of the indirect effects of the corona outbreak, apart from the economic effects resulting from the closure of sports clubs and even camps, parks and outdoor sports spaces, is the reduction of public mobility, which is certainly a consequence of overweight and obesity, and in the coming months because of this increase in inactivity and overweight, the growth of cardiovascular disease and diabetes and abnormalities of the erectile structure, etc. is not far from expectation. Ravalli & Musumi (2020) stated that quarantine and staying at home cause immobility and its negative effects may be even greater than the negative effects of corona; therefore, sports organizations are obliged to provide solutions for the development of sports at home. Hammami et al. (2020) also stated in their research that Corona has changed the general form of sports and with the formation of home quarantine, the house is the main environment for sports activities. Corona is also facing a financial crisis in the sports community, which has resulted long-term unemployment of coaches, managers and staff at sports and competition venues, and compensation for this huge financial loss is another corona pandemic problem. In the business sector related to the production and supply of sports goods and equipment, due to the closure of sports venues, spaces and clubs and the impossibility of engaging in sports, people feel the need to buy sports equipment and clothing less than before. On the other hand, sports clubs do not need to buy equipment due to closure, and the consequence of this is a decrease in domestic production and sales, as well as a decrease in imports of sports goods and equipment (Tempka, 2020: 643). But in the face of the negative effects of the

coronavirus, the positive effects should be considering, which in the meantime have created opportunities for creative and positive people to show off, and such that in the days of the corona and home quarantine outbreak, the sale of some appliances and sports equipment has become much more common than ever, and even some sports items have become scarce. One of the cases that has proven its effectiveness more than ever in the present time is virtual and IT-based businesses, which in the field of sports, various home sports applications, sports consulting and online sports stores have been complimented and have had more development space (Rizvandi, Afroozeh & Jalilvand, 2020: 18). Also in this period, education and development of sports has continued and with the use of virtual training and the use of software and social networks, the process of teaching and learning has been established (Parnell, Widdop, Bond & Wilson, 2020, 2).

Since the outbreak of the coronavirus, researchers in various fields have studied the phenomenon from different aspects. In general, research on the corona virus can be divided into two streams. The first stream is epidemiological studies in order to identify the pattern of virus outbreak and predict its future trend under various assumptions of intervention measures and estimating the consequences of the outbreak on public health that the results of these studies are used in health planning as well as the development of health protocols and control measures. The second stream is studies that have been done to estimate the effects of the outbreak on different communities. In the research conducted in the field of sports industry, we can refer to the research of Soleimani, Barani, Inanloo and Khojasteh (2020) who modeled the shopping behavior of sports shop customers during the outbreak of Corona virus (preconditions and consequences) and found that effective components on purchasing behavior (preconditions) are as follows: desire to exercise, factors related to marketing mix, demographic factors, psychological factors, social networks, environmental factors, knowledge factors, personality traits and situational factors. Also, positive consequences take precedence over negative ones. Also, Rizvandi, Afroozeh and Jalilvand (2020) conducted a study entitled "Identifying the challenges of acquiring and doing sports in the corona crisis and providing a solution". The results of the challenges were classified into two areas as structural and business, which structural



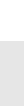
level had two sub-branches as macro and micro. The business challenges section also included two sub-branches of infrastructure and human resources. Safania and Brahmand (2020) also found in their research that the corona pandemic in the sports industry has numerous positive and negative effects. They also said that most of the researches focused on the financial losses caused by the corona virus, while other losses such as psychological, social and political trauma have not received much attention. Among the positive effects of Corona can be mentioned the development of sports at home, according to the leisure time for individuals. Abroad, researchers have examined the effects of the corona virus on the sports industry, stating in a study by Al-Safi, Sohrabi, Kerwan, Al-Jabir, Iosifidis, and Agha (2020) express that a major crisis has occurred in the sports industry and the industry is struggling with many problems. Parnell et al. (2020) also examined the effects of corona on sports and sports competitions in their study entitled "Corona and Sports" and stated that managers are not currently prepared to face such a crisis. The results of this study showed that Corona has caused fundamental changes in the overall performance of sports organizations. Also, risk assessment has been mentioned as one of the most important factors and stated that with proper risk assessment and management, it is possible to perform better in the face of similar crises.

With regard to the provided content, we find that the corona is in fact a real global phenomenon; but it must be borne in mind that global threats and opportunities must be considered together. What is certain is that living in the world and space after Corona requires a rethinking of the biological and intellectual system (Wu, Yi, Chen, Chan and Yu-Jiun, 2020). From this perspective, it should be considered as an opportunity to make great changes in the future life. Also, given that the sports industry has grown steadily over the past few decades, and significantly, the professional leagues of baseball, football, basketball and volleyball have all grown quantitatively and qualitatively and become important sectors in the sports industry (Young and Nicholas, 2019). It can be said that sports and the economy caused by the sports industry, just at a time when it has grown more than before and covers a significant percentage of GDP, in order to deal with the negative effects of the virus on it, should not be left alone. According to the research literature, it should be acknowledged that in addition to

economic effects, the outbreak of coronavirus has been able to affect the development of health, well-being and vitality of the community, which deserves more in-depth study and in the current context, sports managers and policymakers must effort to protect these elements in the sports industry from the destructive effects of the coronavirus outbreak and turn this threat into an opportunity. Therefore, designing a comprehensive model of the effects of coronavirus outbreak on the sports industry is necessary to help sports managers and officials to maintain and develop the current context of the sports industry by focusing on different parts of the industry to plan and take the necessary measures to reduce the negative effects of the Corona virus epidemic on sport industry. Also, in some sectors, by using of the obtained opportunities to provide the grounds for development, so in the present study, researchers seek to explain and classify the effects of the outbreak of coronavirus on the dimensions of the sports industry so that they can provide executive suggestions to managers and activists of sports industry in the post-corona era. The purpose of this study was therefore to explain and classify the effects of coronavirus outbreak on the dimensions of the sports industry. Next section explains the methodological approach. Discussion will follow presentation of study findings. This paper finishes with some concluding remarks.

2. Materials and Methods

The present study is an applied research in terms of nature and purpose, in view point of the type of data search is mixed (qualitative and quantitative), in terms of data collection time, is in the category of current research and from the aspect of data analysis method is descriptive-exploratory that data collection was done in the field. The statistical population in the qualitative section included professors and university experts, manufacturers of sports products, chiefs, supervisors and secretaries of sports federations, managers of Premier League sports clubs, managers, deputies and officials of the Ministry and departments of sports and youth and managers of sports complexes in Iran. Total of 18 people were targeted as a sample, which also led to information saturation. Also, the statistical population in the quantitative part of the research included an unlimited number of all sports directors, sports teachers and professors, sports coaches, sports producers, sports service providers, sports referees, athletes, sports equipment sellers and sports media



activists in Iran. In order to obtain the maximum opinions of the statistical population, 600 people were considered as a sample who were selected by simple random sampling and answered the online questionnaire. The systematic method of foundation data theory was used to collect data in the qualitative part. At this stage, descriptions of aspects of the phenomenon of COVID-19 disease on various dimensions of the sports industry were examined and the data were obtained through in-depth and semi-structured interviews that by examining the content of the interviews after initial coding and analysis, all the details of the sports industry that were affected by COVID-19 disease were identified. These details included 79 codes that have been categorized into direct effects and indirect ones.

The results of this section formed the researcher-made questionnaire for the quantitative study. 79 items were divided in two groups of direct (55 items) and indirect effects (24 items). Direct effects were further divided into eight dimensions including: production and distribution section (7 items), media and communications section (8 items), government and private sector (6 items), education and research section (9 items), business/trade section (7 items), sports events and competitions section (5 items), technology section (5 items) and service section (8 items). Indirect effects were consisted of four dimensions including public health and community wellness section (6 items), cultural and social section (7 items), economic section (6 items) and political and legal section (5 items). All items are operationalized with a five-point Likert scale (strongly disagree= 1 ... completely agree= 5).

3. Results

Description of the demographic information of the sample under study showed that the respondents were mostly in the age group of 36 to 40 years with 40.8% (245 people) and in the field of activity of the teacher with 32.8% (197 people). Also, most of the respondents at the master's level with 40.3% (242 people) and the highest frequency of gender was related to men with 52.5% (315 people).

A quantitative description of the amount of research variables and the values of skewness and Kurtosis is shown in Table 1. The results of Table 1 showed that the average direct effects of coronavirus on the

After confirming the content validity of the questionnaire by experts, the researchers collected quantitative data. In order to evaluate the reliability of internal consistency and its stability, Cronbach's alpha index was used in a preliminary study (including 30 people) (Asadollahi, Gholami Bidkhani, Mahian Jaghargh & Yazdani, 2019: 493) that the alpha value for the whole questionnaire was 0.972 (Direct effects $\alpha = 0.983$ and indirect effects $\alpha = 0.960$) which this coefficient was confirmed again after complete collection of questionnaires. Sample adequacy was also evaluated as desirable one according to the index (KMO = 0.9). In order to analyze the research data, demographic data and a questionnaire were first examined using descriptive statistical methods (mean, standard deviation, percentages, etc.). Then, in the inferential statistics section, via the exploratory factor analysis test and the Varimax rotation method, the structure of the general factors of the sports industry was determined. Two factor analysis were conducted, one for direct and one for indirect effects. According to the results of exploratory factor analysis, the sports industry affected by COVID-19 disease includes eight factors in direct effects and four ones in indirect effects. Then, by using of one-sample t-test, of the effect of the outbreak of COVID-19 disease on each of the extracted factors was determined, and finally, path analysis was modeled by structural equation modeling and according to the results of the exploratory model. It must be noted that all statistical analyzes were performed through SPSS 24 and Amos statistical software.

sports industry is 3.73 and the average indirect effects of coronavirus on the sports industry are 3.36 of the maximum score of 5 and the median of 3, are above average. Also, among the components of direct effects of the virus, the component of sporting events and competitions with an average of 4.46 and among the components of indirect effects of the virus, the economic component with an average of 4.38 had the highest rate. In addition, skewness and Kurtosis values show that the findings have a normal distribution, so parametric tests will be used to analyze the data.

Table 1. Quantitative description of the amount of research variables



	Mean	Std. Deviation	Median	Minimum and maximum of possible score	Skewness	Std. Error of Skewness	Kurtosis	Std. Error of Kurtosis
Direct Effects	3.73	1.89	3	1-5	0.917	0.100	0.492	0.199
Production and distribution	3.42	1.94	3	1-5	1.131	0.100	0.476	0.199
Media and Communications	3.11	1.70	3	1-5	-0.261	0.100	-0.101	0.199
Government and private sector	3.47	1.80	3	1-5	0.054	0.100	-0.528	0.199
Education and Research	4.01	1.95	3	1-5	0.586	0.100	-0.135	0.199
Business(trade)	4.23	1.95	3	1-5	0.825	0.100	-0.172	0.199
Events and competitions	4.46	1.54	3	1-5	0.762	0.100	0.158	0.199
Technology	3.51	1.36	3	1-5	0.574	0.100	-0.147	0.199
Services	3.66	2.11	3	1-5	0.836	0.100	0.186	0.199
Indirect effects	3.36	2.04	3	1-5	0.845	0.100	0.347	0.199
General health and community wellness	3.09	2.13	3	1-5	0.545	0.100	-0.819	0.199
cultural and social	3.01	1.83	3	1-5	0.925	0.100	0.272	0.199
Economic	4.38	1.94	3	1-5	0.581	0.100	-0.128	0.199
Political and legal	2.98	2.21	3	1-5	0.749	0.100	0.138	0.199

Before the exploratory factor analysis test, the adequacy of the samples was measured by KMO and Bartlett tests (Table 2). The KMO index value for items related to the direct effects of corona on the sports industry was 0.960, which is a very well value for the good fit of the factor model. The value of Bartlett test statistic was 4075/880, which confirms

the use of this method for data. Also, the value of KMO index for items related to indirect effects of corona on the sports industry was equal to 0.949, which is a very well value for the good fit of the factor model. The value of Bartlett test statistic was equal to 907/14180, which confirms the use of this method for data.

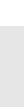
Table 2. KMO and Bartlett test results

	Direct Effects	Indirect Effects
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.960	0.949
	Approx. Chi-Square	40754.880
	df	1485
Bartlett's Test of Sphericity	Sig.	0.000
		0.000

In this section, we will review the exploratory factor analysis tests. It must be noted that the exploratory factor analysis was performed using Varimax rotation. The results showed that the direct effects can be dgrouped into eight factors (Table 3). It must also be noted that 72.08% of the data variance in the above model can be explained. The results showed

that the indirect effects can be grouped into four factors (Table 4). Each factor was named according to the factor loads of the items. It can be said that 71.10% of the variance of the data in the above model can be explained (it must be noted that the two items no. 77 and 65 were removed due to a factor load of less than 0.3).

Table 3. Exploratory factor analysis of the direct effects of the corona virus on the sports industry



Number of Item	Items	Factors							
		1	2	3	4	5	6	7	8
Production and distribution									
1	Effect on the activity of sportswear manufacturers	0.514							
2	Effect on the activity of sports equipment manufacturers	0.638							
3	Effect on new programs and projects of infrastructure production and sports venues	0.613							
4	Effect on the activity of sales agents (retailers) of sports products	0.651							
5	Effect on the activity of manufacturers of supplements and sports drugs	0.650							
6	Effect on the activity of suppliers of raw materials for the production of sports products	0.685							
7	Effect on the activity of sales sites and telephone sales of sports goods and services	0.675							
Media and Communications									
8	Effect on sports advertising		0.779						
9	Effect on advertising through sports		0.713						
10	Effect on sports reporting, news and information activities in mass media		0.623						
11	Effect on the activity of communication between clubs and fans		0.326						
12	Effect on the activity of virtual and social networks related to sports		0.726						
13	Effect on public and international relations activities of sports organizations and clubs		0.609						
14	Effect on media content production activity (audio and video)		0.517						
15	Effect on television and radio broadcasting activities of events, competitions and sports programs		0.320						
Government and private sector									
16	Effect on the construction time of sports clubs and enterprises			0.658					
17	Effect on the activity and participation of sponsors			0.721					
18	Effect on the activity and participation of investors and shareholders			0.318					
19	Effect on maintenance of stadiums and sports venues			0.404					
20	Effect on income-generating activities of sports delegations and federations			0.782					



21	Effect on salaries and operating expenses of coaches and team players	0.856
Education and Research		
22	Effect on job and professional training of employees and managers in sports	0.762
23	Effect on academic sports activity	0.884
24	Effect on sports in schools and vocational schools	0.907
25	Effect on the activity of scientific conferences and seminars	0.854
26	Effect on research and development plans and projects in sports	0.762
27	Effect on sports talent identification	0.841
28	Effect on educational activities of coaches and referees	0.857
29	Effect on public and championship sports education	0.826
30	Effect on the activity of sports science associations	0.810
Business (trade)		
31	Effect on exports of sports products	0.296
32	Effect on imports of sports products	0.311
33	Effect on the activity and entry of sports companies in the stock market	0.454
34	Effects on sports marketing and through sports in manufacturing and service companies	0.523
35	Effect on transfer of players and coaches	0.814
36	Effect on creating new sports startups	0.566
37	Effect on the formation of new business models in existing enterprises	0.571
Events and competitions		
38	Effect on holding domestic events of countries	0.807
39	Effect on planning for current international events	0.740
40	Effect on national team camps and friendly competitions	0.903
41	Effect on hosting future international competitions	0.839
42	Effect on event ticket sales	0.891
Technology		
43	Effect on the use of intelligent and analytical systems in sports	0.659
44	Effect on production and use of sports software	0.756
45	Effect on robotic exercise	0.765



46	Effect on e-sports	0.854
47	Effect on the use of artificial intelligence and virtual reality in sports	0.807
Services		
48	Effect on the activity of health and fitness centers	0.796
49	Effect on recreational sports activities (in parks and gardens)	0.813
50	Effect on the activity of special sports service centers for special people (disabled people, etc.)	0.837
51	Effect on tourism activity and sports tourism	0.889
52	Effect on the activity of sports consulting and specialized services	0.523
53	Effect on the activity of legal services in sports	0.579
54	Effect on the activity of sports medicine centers	0.709
55	Effect on managerial activities in sports	0.625

Table 4. Exploratory factor analysis of the indirect effects of the corona virus on the sports industry

Number of Item	Items	Factors			
		1	2	3	4
Public health and community wellness					
56	Effect on general mobility of society	0.602			
57	Effect on organizational sports of employees in departments and institutions	0.416			
58	Obesity and overweight people	0.856			
59	Outbreak of erectile dysfunction	0.837			
60	Outbreak of cardiovascular disease or diabetes	0.886			
61	Outbreak of neurological and mental illnesses	0.887			
Cultural and social					
62	Active lifestyle changes		0.806		
63	Effect on the amount of social capital caused by sports		0.469		
64	Effect on leisure time and alternative activities		0.615		
65	Effect on the rate of reading books, articles and virtual sports networks		0.218		
66	Effect on sports solidarity and social empathy		0.571		
67	Effect on cultural and artistic affairs in sports such as sports museums and etc.		0.850		
68	Effect on the activity of volunteers in sports		0.743		
Economic					
69	Effect on financial and economic interactions related to sports			0.856	
70	Effect on holding sports exhibitions			0.850	
71	Effect on betting activities in sports competitions			0.794	
72	Effect on services and income of sports insurance companies			0.784	
73	Effect on hoteling and transportation			0.835	
74	Effect on income and activity of sports-related jobs			0.619	
Political and legal					
75	Effect on international relations along with sports				0.820
76	Effect on licensing of sports activities and activities				0.766



77	Effect on the issuance of restrictive health instructions and regulations	0.212
78	Effect on budget allocation to sports and sports organizations	0.797
79	Effect on sports-related loans and bank facilities	0.714

In order to confirm the structure of the questionnaire and explain the factor load of the effect of COVID-19 on each of the factors of the sports industry, the

first-order factor analysis was performed by using of the Maximum likelihood method (Figure 1).

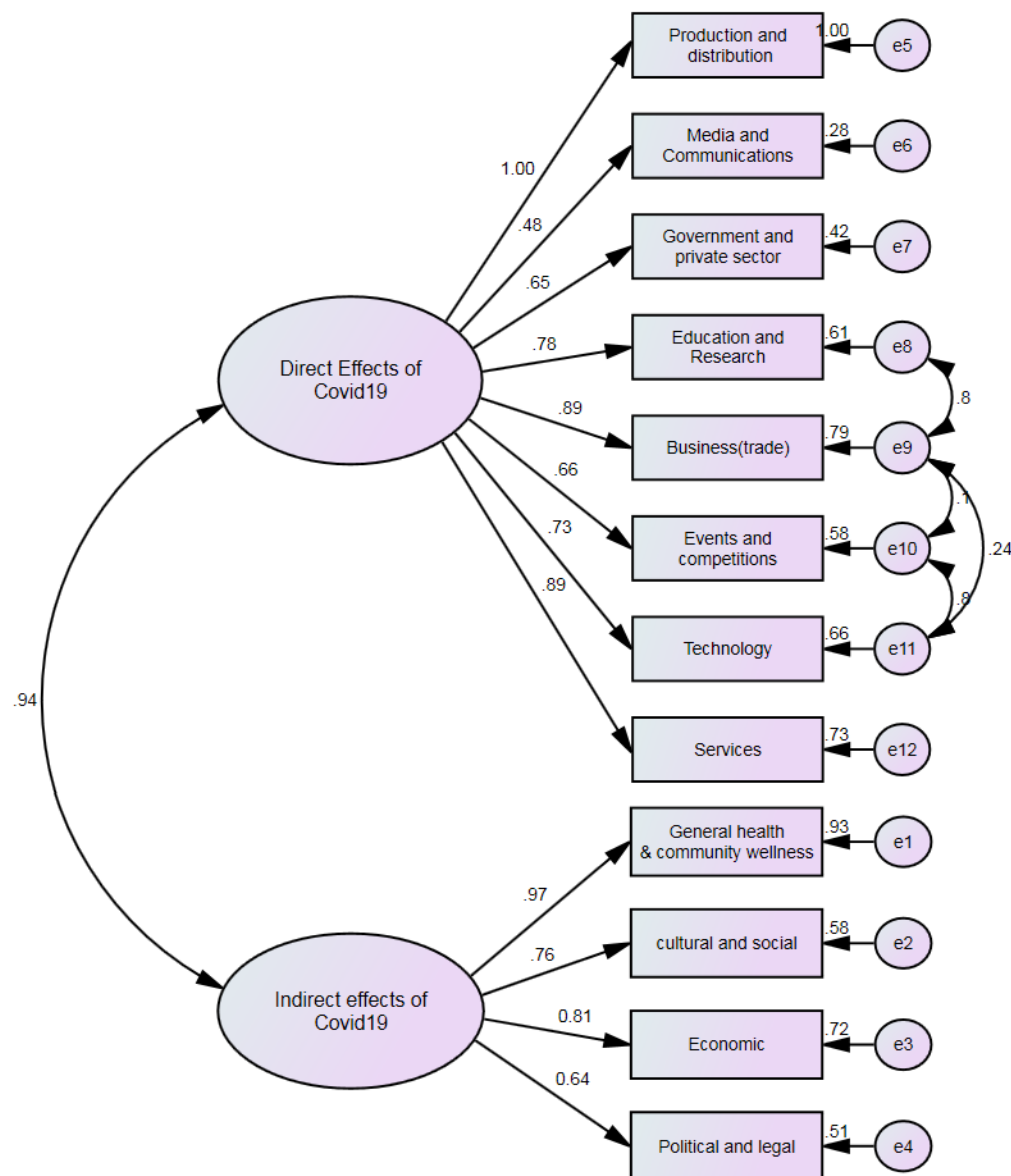


Figure 1. Model of the sports industry affected by COVID-19 in standard mode

The Desirability indexes show that the research model has a good fit (Table 5).

Table 5. Indicators of model fit



Index	RMSE A	CFI	AGF I	GFI	CMIN/D F	P	D F	CMI N
Standard d value	<0.08	>0.9	>0.9	>0.9	Between 1-5	<0.0 5	9	36.12 2
The obtained value	0.071	0.99 3	0.949	0.98 3	4.014	0.00 1		

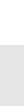
Table 6 shows that the outbreak of coronavirus has directly and indirectly affected the sports industry.

Table 6. Factor loads in standard and non-standard mode and significant values of model relationships

Relationships			Standard factor loading	Non-Standard Factor Loading	P	C.R.
Indirect Effects of Virus	→	Public health and community Wellness	0.971	0.931	0.000	23.192
Indirect Effects of Virus	→	Cultural and Social	0.761	0.582	0.000	25.746
Indirect Effects of Virus	→	Economic	0.813	0.723	0.000	21.547
Indirect Effects of Virus	→	Political and legal	0.641	0.512	0.000	19.362
Direct Effects of Virus	→	Production and distribution	1.00	1.00	0.000	18.672
Direct Effects of Virus	→	Media and Communications	0.481	0.283	0.000	13.260
Direct Effects of Virus	→	Government and Private Sector	0.652	0.421	0.000	20.334
Direct Effects of Virus	→	Research and Education	0.780	0.611	0.000	27.427
Direct Effects of Virus	→	Business(trade)	0.891	0.790	0.000	43.561
Direct Effects of Virus	→	Events and competitions	0.663	0.581	0.000	17.852
Direct Effects of Virus	→	Technology	0.732	0.660	0.000	15.159
Direct Effects of Virus	→	Services	0.891	0.733	0.000	22.348

Further, one-sample t-test was used to investigate the role of COVID-19 virus on the sports industry and its sections (Table 7). From the perspective of the

respondents, the outbreak of coronavirus has played a direct and indirect role on the production and distribution, government and private, education and



research of sports, business (trade), holding events and competitions, technology, service and economic sectors of the sports industry. It seems that its role on the sections of holding events and competitions in

sports, economics and sports trade, as well as sports education and research has been more than other sections.

Table 7. One-Sample t-test

	Test Value = 3.2					
	t	df	Sig. (2-tailed)	Mean Difference	mean	St. deviation
Direct effects of the Virus	14.110	599	.000	0.531	3.731	1.89
Production and distribution	17.801	599	.000	0.222	3.422	1.94
Media and Communications	-16.078	599	.052	-0.087	3.113	1.70
Government and Private Sector	14.514	599	.000	0.271	3.471	1.80
Research and Education	33.833	599	.000	0.813	4.013	1.80
Business(trade)	21.740	599	.000	1.031	4.231	1.95
Events and competitions	47.344	599	.000	1.262	4.462	1.54
Technology	34.231	599	.000	0.312	3.512	1.36
Services	29.784	599	.000	0.461	3.661	2.11
Indirect effects of the Virus	31.647	599	.000	0.163	3.363	2.04
Public health and community Wellness	-10.548	599	.124	-0.108	3.092	2.13
Cultural and Social	-16.103	599	.067	-0.188	3.012	1.83
Economic	19.854	599	.000	1.181	4.381	1.94
Political and logical	-12.567	599	.276	-0.218	2.982	2.21

4. Discussion

The coronavirus has transformed the main and well-known form of activities by making changes in economic, social, cultural, and political conditions and has confronted the world with problems that have both positive and negative aspects. Also, due to the spread of coronavirus worldwide, the performance of industries has undergone many changes. Today, sport is an important part of people's lives, and with the outbreak of the coronavirus, the sports industry, as an active and influential industry, is facing different conditions. Therefore, the purpose of this study was to examine the effects of coronavirus outbreak on the sports industry. According to the results of the present study, the outbreak of coronavirus directly affects the production and distribution, media and communications, government and private, education and research, business/trade, events and competitions, and technology sectors of the sports industry. On the other hand, it indirectly affects the

public health and community wellness, cultural and social, economic, political and legal sectors. Cruyff (2020) states that the impact of the Coronavirus crisis on sport varies from place to place in the world. In professional sports, the effects of the corona virus become more pronounced when big stadiums, TV rights, sponsors and significant revenue streams are taken into account. Also, Safania and Brahmand (2020) in a study entitled "Evaluation of the effects of coronavirus on the sports industry" found that the corona pandemic in the sports industry has numerous positive and negative effects that confirm the findings of the present study.

The outbreak of corona in the production and distribution of sports goods and equipment has a direct impact and in many cases has led to the closure of factories and manufacturing workshops in this part of the industry. Since the closure of sports venues and events has greatly reduced the demand for sports goods and clothing, and on the other hand, home quarantines and social distancing have reduced the possibility of customer presence in shops, it is



clear that this part of the industry has encountered many problems. But on the other hand, it has had positive effects on some creative and innovative manufacturers, so that by changing the mechanism of devices or inventing suitable multifunctional equipment for home use, they have been able to create a new market for themselves. Similarly, the effect of the corona on the activities of suppliers of needed raw materials by factories and workshops is also considered, and these people have also suffered huge losses. In relation to the impact that Coronavirus has had on sports product manufacturers and suppliers of raw materials, its effect on the activities of sales agents (retailers) of sports products has also been correctly predicted; because they operate in a chain. The effect on the production of infrastructure and sports facilities is another central factor that must be considered. Another factor that is clearly emphasized in the production and distribution of sports goods was the effect of closures of clubs on the activities of supplement manufacturers and sports drugs. Also, another effect of this virus is the impact on the activity of sales sites and telephone sales of equipment, goods and sports facilities. Perhaps one of the few industries that has not only not experienced a decrease in sales and demand, but in some cases such as marketers and sellers who have tried to attract customers and sell products through cyberspace and the Internet, we have even seen an increase in transaction rates.

With the outbreak of the coronavirus and the closure of public centers and the beginning of home quarantine and social distancing, we have witnessed interesting and dramatic developments in the media and communications sector. Another important effect of this pandemic has been the effect on sports advertising and through sports via the media, which can be seen by the closure and postponement of national and international sports competitions, and even leads to losses and reduced income of athletes, clubs, leagues and sports federations. Meanwhile, a number of industries have been able to greatly reduce the negative effects of these events by making positive use of the situation and producing creative advertisements related to the situation and based on online sales in online media. Other changes that we have witnessed in this situation have been the effect on the activity of television broadcasting and sports programs, the effect on the activity of reporting, news and information, and also the effect on the activity of producing media content (audio and

video). As Wu, Yi, Chen, Chan, Yu-Jiun (2020) emphasize, although news and information have never been shut down since the outbreak of the coronavirus, many of these activities have changed, both in appearance and content. Changes such as producing and presenting news from home instead of studios, getting news and conducting interviews in a virtual platform instead of face-to-face interviews, changing the content of news from sports activities to coronavirus works in sports, holding online workshops and educational classes in the context of social networks and finally the news that addressed the social responsibility of the sports community against the virus worldwide. Another new change that coronavirus has made in the world of sports has been the effect on the communication activities of clubs and fans, as well as the effect on activities in media such as virtual and social networks related to sports, and finally, the effect that can be mentioned in the communication sector is the effect on the activities of public and international relations of sports organizations and clubs after the coronavirus outbreak. On the one hand, with the closure of international competitions and the closure of the international transfer market, during this period, we saw a decrease in the international relations of sports clubs, but on the other hand, with the spread of this virus and the importance of educating the public to deal with it, social responsibility of clubs has increased the public relations work of a number of cultural and sports clubs in some media and social pages in order to create culture and educate people so that they can show their social responsibility. The outbreak of coronavirus also had several direct and negative effects on the private and public sports sector. One of the most important effects of this pandemic was the effect on the activities and participation of sponsors, the effect on the activity and participation of investors and shareholders, and finally the effect on the income-generating activities of sports delegations and federations. Since the most important source of income for sports is the issue of sponsorship or sponsors (Rezaei Sufi & Shabani, 2013) The outbreak of coronavirus, which led to the closure of leagues and consequently the lack of live television broadcasting, caused many sponsoring companies to reconsider their sponsorship deals with clubs and cancel their sponsorship fees for the rest of the season under the terms of the contracts. This may seem like a one-sided loss to the sports club, but the sponsors have suffered more from the lack of sports advertising, and thus the response has only been to

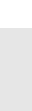


reduce the damage (Australian Sports Association, 2020). It should also be said that a large part of the income of the sports delegations of the provinces and cities is based on holding coaching classes, refereeing, seminars and training workshops, renting sports facilities and receiving tuition fees from their sports facilities, which unfortunately in during the outbreak of the coronavirus, they were affected and could not perform well financially.

One of the first sections to be closed due to the outbreak of the coronavirus and due to high susceptibility was the education and research section, which includes different sections in all age groups. As reported by the Australian Sports Association (2020) and Brett and Irfan (2019), the most important effects of the coronavirus epidemic on education and research section are as: the effect on vocational training in sport, the effect on academic sport activity, the effect on School sports, the effect on the activity of scientific conferences and seminars, the effect on research and development plans and projects in sports, the effect on sports talent identification, the effect on the educational activities of coaches and referees, the effect on public and championship sports education, the effect on the activity of sports science associations that confirms the findings of the present study. The impact of the closure of sports venues on the education sector is well known, although many sports teachers and coaches in various disciplines have tried to keep preparation of their students and players by telecommunications and virtual challenges and home training programs, the negative effects are still visible. But in the field of research, these effects occur differently, in the meantime, the effect that the closure of places, research institutes, universities, events and stadiums on field research, and especially laboratory research in sports, has had on human specimens is quite clear. Another category of research that has continued to survive somewhat cleverly, and in some cases we even see the unprecedented growth of such research are content analysis research on virtual and online media, as well as the use of interviews and questionnaires in order to complete and collect data in field research. Another direct effect of the coronavirus epidemic on sport is its impact on the trade sector of the sports industry, which includes important effects. Export and import of sports products, due to the fear of infection of these products with the virus, not only in our country but also in many countries has faced serious problems. On the other hand, the strictness of

governments in importing and exporting materials, and on the other hand, the exorbitant costs of maintenance, quarantine and disinfection of imported and exported goods have reduced the prosperity of this influential sector of the world sports economy. Another impact of this section is on sports marketing and through sports; As mentioned, the closure of leagues and the lack of live TV broadcasts on the one hand, and the creativity of some brands in creating advertisements related to coronavirus, on the other hand, have cause many positive and negative effects on this sector and change the face of sports advertising and marketing through sports. Another negative impact of the coronavirus epidemic has been on the transfer of players and coaches, especially in international markets. Aside from the slump in the transfer market over the past few months, clubs have decided that in addition to routine initial medical tests, specific tests are needed to screen incoming players before entering the country and practice to ensure they do not catch the coronavirus. And even in some cases we see the quarantine of new players entering the teams before the tests. The effects of the coronavirus on sports startups, new business models, and stock market participation have also been positive. In the field of sports startups and new business models, we have witnessed the growth of new ways of generating income and the creation of new companies in the field of sports that have been shaped their place of recovery based on the principles of social distance, buying, selling and online marketing and using internet platforms.

According to the latest reports of the International Olympic Committee (2020) in this section, the multiple effects of the corona outbreak on sports events and competitions. In a study by Parnell et al. (2020) stated that managers are not currently prepared to face such a crisis. The results of this study showed that coronavirus has caused fundamental changes in the overall performance of sports organizations. The first effect of the coronavirus pandemic occurred on the holding of domestic events and, consequently, international events, national team camps and friendly competitions. With the outbreak of the corona immediately, the involved countries closed their leagues and began to maintain social distance and quarantine of players and coaches at home. Countries with more active leagues and more powerful and wealthy clubs resumed their leagues with a slight delay and adequate arrangements such



as spectator-free games and corona testing of all players and team agents. Another effect of the corona outbreak has been the hosting of international competitions, as we know the world's largest sporting event is held every four years under the title of Olympics in a selected country, and this summer the city of Tokyo, Japan was ready to host these competitions. Until an uninvited guest called coronavirus took a different turn and caused the International Olympic Committee to postpone this important competition to a year later. However, some international competitions were held in the heavy shadow of health protocols, which can be referred to the centralized holding of football competitions of Asian clubs that were hosted by Qatar. Due to the closure of prestigious leagues and the postponement of important competitions such as the Olympics, ticket sales for events have also been hampered. Since one of the most important sources of income for clubs is ticket sales (Deloitte, 2012), and given that sports fans, as customers of a club, are the most important source of income for them, for people who have not yet purchased a ticket, This is not a big problem, the main problem starts from the fact that a large number of fans of a prominent team at the beginning of the season have pre-purchased all the tickets for the season and have already booked a plane and hotel to watch away games. The closure has caused huge losses to league organizations, clubs, fans and national and international competition institutions. According to the International Olympic Committee (2020), the financial loss from cancellations of flights, hotels, etc. of these games have been amounted to 3 billion euros. Some teams, such as Real Madrid, have offered suggestions to support their spectators, such as: refunding canceled games, transferring tickets to the next season, or donating tickets to help the club (Marca, 2020). Other direct effects of coronavirus epidemic on sports include the impacts of the virus on technology in the sports industry. The effects of the Corona outbreak on the use of intelligent and analytical systems in sports, the production and use of sports software, the promotion of robotic sports, the promotion of electronic sports, and the use of artificial intelligence and virtual reality in sports are undeniable (Brett & Irfan, 2020: 224; Cohen, Robinson & Flint, 2020). From advanced virus detection and recovery systems to the use of online systems and artificial intelligence as a home training coach for professional players, as well as the use of virtual reality technology for home training, the use

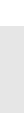
of audio technology and telecommunications in the Japan Football League are examples of the technology's impressive presence in sports so that fans can cheer on their team at home in stadiums. Meanwhile, a number of leagues, in order to increase the morale of their players and fans, held virtual leagues based on advanced game consoles. Some sports, such as golf, also offer online events. One of the main sectors in the sports industry that has always been considered is the service sector in the sports industry, which has undergone many changes with the spread of the corona. The effect of coronavirus epidemic on the activity of health and fitness centers, the effect on the activity of recreational and public sports (in parks and gardens), the effect on the activity of special sports service centers for special people (disabled ones, etc.), the effect on tourism activity and sports tourism, the effect on the activity of sports consulting and specialized services, the effect on the activity of legal services in sports, the effect on the activity of sports medicine centers and the effect on the activity of management in sports are among the effects of Corona virus outbreak on the sports industry (Futterman, Panja & Keh, 2020, Cohen, Robinson & Flint, 2020). The spread of the coronavirus caused many people in the community to stay at home so has led to a sharp decline and even zero income in the sports tourism industry in some cases. Considering that today the development of sports tourism industry and hosting of important sports events has become one of the important strategies for the development of infrastructure and places of recreation and sports for most countries (Ahmadzadeh, Moosavi & Dousti, 2013: 12; Sayadchi, Zeytounli & Zeytounli, 2013: 31). An interesting point that is prominent in the research findings was that the outbreak of coronavirus in the sports industry, in addition to its direct effects on the industry and its revenues, it has also indirectly affected the general health and community wellness, the cultural and social, the economic, political and legal sectors. The first effect of coronavirus in society is its destructive effects on public health and wellness. These effects include the effect on general mobility, obesity and overweight, the prevalence of erectile dysfunction, the prevalence of cardiovascular disease or diabetes, the prevalence of neurological and mental illnesses. With the decrease of mobility in the society, day by day, we will see an increase in the average weight of the people in the society and the society will be prone to



cardiovascular diseases, erectile dysfunction, diabetes, etc. Ravalli and Musumeci (2020) also pointed out in their research the importance of developing sports at home and its positive effects on people of Italy. They stated that quarantine and staying at home make people inactive, and the negative effects may be even greater than the negative effects of coronavirus, so sports organizations must offer solutions for the development of sports at home. Hughes (2020) also examined Australian sports in the face of the coronavirus. Australia is a leader in sport, so it has chosen three strategic levels to develop sport in order to counter the effects of coronavirus. At level 1, quarantine exercise is done individually while keeping distance from others in the open space; Level 2 allows individuals to gather in small groups of up to 10, as long as they are in good condition and have been free of coronavirus symptoms for 14 days. Level 3; allow full return to sports activities. Activity at level 3 requires reducing the prevalence of coronavirus. It is necessary for the relevant institutions and sports federations to maintain this dynamism and desire for sports at the community level by taking the necessary measures and providing creative solutions so that we do not see such problems in the future. Also, changes in active lifestyles and ways of spending leisure time and alternative activities instead of sports, have adverse effects on the social dimension that the outbreak of coronavirus has on society and will lead to many consequences, which on the positive side, it is possible to take advantage of the created leisure opportunities of families by playing appropriate group sports games in the home environment. On the other hand, according to studies, the prevalence of coronavirus has had a positive effect on the rate of reading books, articles and virtual sports networks, and in a way, with the increase of people's free time, we are witnessing a growing interest in reading, both traditionally in the form of paper resources and online in the form of e-sports magazines. In the meantime, it is necessary to appreciate the scientific and cultural sites related to sports, which have contributed to the growth of this popular culture in the society by making free access to their study resources. And also the importance of monitoring the production of created content in this spaces are highlighted. One of the undeniable effects of sports has always been to create solidarity and social empathy in the heart of society, empathies that are significantly seen among fans of sports teams and

even fans of certain sports. Unfortunately, with the spread of the coronavirus and the closure of sports, these empathies and solidarity have been significantly reduced. According to Cohen, Robinson and Flint (2020), the effect of the coronavirus epidemic on the amount of derived social capital from sport is also evident. With the spread of coronavirus in various communities, we have seen many volunteer athletes and sports teams to help governments and responsible institutions encounter it. Supports that have been from providing food for the vulnerable to providing gyms and sports facilities for the hospitalization of patients.

The other sector that is directly and indirectly affected by the corona virus in sports is the economic sector. Nikola, Al-Safi, Sohrabi, Kerwan, Al-Jabir, Iosifidis, and Agha (2020) also stated in their study entitled "the socio-economic Impacts of Coronavirus" that there is a huge crisis in the sports industry and this industry is struggling with many problems. Also, the effects that Corona has on the financial and economic interactions of sports, sports fairs, hotel and transportation, income reduction and unemployment of sports-related jobs in different societies are undeniable. As we have seen, the suspension of world sports leagues such as the US National Basketball League in the last two months has caused basketball clubs' sources of income, including television broadcasting and ticket sales, which depended on the league, to decline significantly, and even club stocks are falling and jeopardizing their financial future (National Basketball Association, 2020). Sports manufacturers are not immune to the coronavirus. Nike stocks have plummeted during the outbreak of the Corona virus. Since the beginning of 2020, the value of Nike stocks has decreased by 26.5%. Socks of Adidas, Germany's German rival Nike, have also fallen by 40% since the beginning of 2020 (Brett and Irfan, 2020). All these factors have caused huge losses in sports and related jobs (such as hotel management, transportation, etc.), which once again shows the power and impact of the sports industry on the global economy. The last part of the sports industry that is indirectly affected by the coronavirus outbreak is the political and legal part of sports, which includes the impact on international relations and relations with sports, licensing of sports activities, publishing restrictive health instructions and regulations, allocation rates of budget for sport and sports organizations, and ultimately the impact of the disease outbreak on sports-related loans and banking



facilities. With the outbreak of Corona, many sports-related businesses were suspended, and as a result of an order from National Countermeasure Headquarters on COVID-19 the sports venues that violated, were faced with the revocation of their licenses and exploitation licenses. In order to continue their activities, sports companies have to follow and perform instructions such as testing all athletes, coaches and those who involved in terms of coronavirus disease before reopening sports venues, maintaining a proper social distance before, during and after of training, regular disinfection of sports facilities, equipment and facilities and holding sports events without spectators. Finally, the last factor we examine in this section is the impact of coronavirus disease on sports-related loans and banking facilities. Many start-up clubs and emerging sports businesses have used bank loans to raise the needed funds to set up and purchase necessities, as the only source of income for these businesses is through customer acquisition and monthly membership fees. In the club, in the last few months, these businesses have been practically closed and have no income. Therefore, the relevant institutions should consider special facilities for such businesses in order to prevent the closure of many of these places due to debts resulting from the closure.

5. Conclusions

In general, the forthcoming trend indicates that many actors in the sports industry need to prepare for a medium-term downturn, and the manufacturing and services sectors need to connect with their audiences and customers through available communication channels. Also, they must create programs for the period of end of the disease and resumption of executive activities so that they can compensate the suffered economic losses. However, several methods can be envisioned for the sports industry. First, sport of government and quasi-government sector will experience the least amount of economic losses due to the lack of an economic executive approach at the management level. Second, private sector sports, however, will be severely affected, especially the sports services industry. The nature and income of many private sector activities are directly related to the audience and participants (customers) of sports, and their absence and referral can lead to irreparable losses for them, and it will have the most impact on start-up sports business. And third, in another part of private sector sport, the production of sporting goods, which will be far less effective in the short

term; Because most of these manufacturers carry out their activities on a custom basis (order registration by corporate customers) and deliver their manufactured goods on time.

It should be said that in the current situation, many sectors in the sports industry are considered as bankrupt sectors, so sports organizations, government and voluntary institutions have a duty to first identify these sectors and then create opportunities from the constructed threat for the sports industry with proper management. Sports organizations have a duty to bring the sports industry out of crisis by accurately identifying the harms and benefits of these conditions, by holding effective meetings on the main issues, by thinking together and by designing practical and creative strategies. Through preparing and approving new regulations and conducting more research and studies on this situation, we can be better prepared to face the next crises. Some of sports organizations' operations in post-coronary conditions will be very different. As a result, sports managers and officials need to focus a lot on the starting conditions of the sports industry with the weakening of the Corona pandemic, because at this time many athletes and even employees of sports organizations not only materially but also socially, mentally and psychologically, are struggling many challenges. Therefore, it is very important to pay attention to this issue. Based on the direct and indirect effects of the coronavirus outbreak and the issues were raised, it is suggested that sports clubs take the capacity of the Internet, social media and the virtual world more seriously to interact with their customers and alleviate some of their concerns.

Other solutions for owners of private sports clubs should involve providing training programs through cyberspace to athletes and their customers, designing and building sports applications for sports clubs and programs for sports during illness in the form of CDs, tracking and creating support platforms and financial support for club owners and sports coaches, creating customer relationship management system in sports clubs and the development of information registration systems for sports club managers and their coaches as well as the provision of various services at specific times. In addition, one of the sciences that helps in these critical situations is the science of marketing in sports, people who studied marketing topics used this science and created solutions for their business. It is necessary to add clauses in the contracts of insurance companies so



that they suffer less losses in the event of similar conditions in clubs and sports venues. Government grants, voluntary grants, use of virtual networks, getting help from the municipality, use of government loans, elimination of taxes due to reduced sports revenues, advertising awareness, home quarantine and home sports, changes in sports culture, use of strategy of reduction in sports organizations, the use of management and risk assessment in the sports industry and the development of sports are among the solutions that according to the research results can be a way for stakeholders in this industry.

Author Contributions: The authors participated in Conception of the work, Acquisition of data, Analysis and interpretation of data for the work, Writing, and revising the work, Final approval of the version to be published and agreement to be accountable for all aspects of the work.

Data Availability Statement: The measured data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest: Authors indicate no conflict of interest.

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ویروس جهانی در تقابل با صنعت جهانی: تبیین و طبقه‌بندی آثار شیوع ویروس کرونا بر ابعاد صنعت ورزش

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چکیده: شیوع ویروس کرونا در جهان، اثرات گوناگونی بر صنایع خصوصاً صنعت ورزش داشته است. هدف از پژوهش حاضر تبیین و طبقه‌بندی آثار شیوع ویروس کرونا بر ابعاد صنعت ورزش بود. پژوهش حاضر از حیث ماهیت از نوع کاربردی، از لحاظ نوع جستجوی داده‌ها از نوع آمیخته و بلحاظ روش تحلیل داده‌ها توصیفی - اکتشافی بود که جمع‌آوری داده‌ها به صورت میدانی انجام شد. جامعه آماری در بخش کیفی شامل خبرگان ورزشی بود که تعداد ۱۸ نفر به صورت هدفمند انتخاب و همچنین جامعه آماری در بخش کمی شامل کلیه فعالان حوزه ورزش و صنعت ورزش بودند که تعداد ۶۰۰ نفر نمونه به روش تصادفی ساده انتخاب شدند. جمع‌آوری داده‌ها در بخش کیفی با روش سیستماتیک نظریه داده‌بنیاد و در بخش کمی، با استفاده از پرسشنامه محقق ساخته حاصل از بخش کیفی پژوهش حاضر با ۷۹ گویه در ۲ بعد آثار مستقیم و آثار غیرمستقیم در مقیاس ۵ گزینه ای لیکرت صورت پذیرفت. تجزیه و تحلیل داده‌های پژوهش با روش‌های آماری توصیفی و آمار استنباطی و با کمک نرم‌افزارهای آماری spss²⁴ و Amos انجام گرفت. نتایج نشان داد که شیوع ویروس کرونا بر بخش‌ها تولید و توزیع، بخش خصوصی و دولتی، آموزش و پژوهش ورزش، تجارت، برگزاری رویدادها و رقابت‌ها، فناوری، بخش خدمات و اقتصادی صنعت ورزش به صورت مستقیم و غیرمستقیم نقش داشته است. این یافته می‌تواند برای بهبود وضعیت صنعت ورزش در دوران پساکرونا به مدیران و مسئولان ورزش کشور کمک نماید.

واژه‌های کلیدی: آثار شیوع، ویروس کرونا، صنعت ورزش، تجارت و اقتصاد ورزش؛

ارجاع: اسداللهی، ا، حیدری، ر، آقایی شهری، م.س، شجاعی، ح، مارکو پریچ، م. (۱۴۰۰). ویروس جهانی در تقابل با صنعت جهانی: تبیین و طبقه‌بندی آثار شیوع ویروس کرونا بر ابعاد صنعت ورزش. فصلنامه رویکرد انسانی در مطالعات ورزشی. ۱(۱): ۱-۲۰.

دریافت: ۱۶ تیر ۱۴۰۰

پذیرش: ۱۴ شهریور ۱۴۰۰

انتشار: ۱۸ آبان ۱۴۰۰



این نماد به معنای مجوز استفاده از اثر با دو شرط است یکی استناد به نویسنده و دیگری استفاده برای مقاصد غیرتجاری.