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The Effects of Covid-19 Prevalence on the levels of Sport Activities in Ilam

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Abstract

The aim of this study was to investigate the effects of Covid-19 Prevalence on the levels of sport activities in Ilam city. This article is a descriptive-analytical and a field-study research. The statistical population of this study includes all non-professional male and female athletes in Ilam city before the prevalence of Covid-19 disease. In order to collect the required data, the standard questionnaire of the International Group of Covid-19 Researchers and Sports was used. The reliability of this questionnaire was determined by Cronbach's alpha 0.822 and the validity was confirmed by a panel of experts in this field. The questionnaire was distributed electronically and online with the help of the Sport for all commission and 122 questionnaires were collected from Ilam city in a completely random sampling method and were selected as the study population.

The results indicated that 73.4% of indoor sport places and 56.2% of outdoor sport places are closed during lockdown and 24.9% of people have lost their jobs due to the prevalence of Covid-19. The results of the corona test were positive for 7.4% of athletes and 48.4% have not tested yet. The results also showed that there is a significant statistical difference between the number of sessions and the intensity of training before and during the corona period; But there is no significant difference between the results of Covid-19 test and the degree of adherence to guidelines and protocols. It can be concluded that sports activities have been severely affected and decreased by Covid-19.

Key words: Coronavirus, Exercise parameters, Physical activity, Ilam city

1. Introduction

Coronaviruses are a large family of viruses from which seven strains of them transmitted to humans have been identified. Coronaviruses mostly attack the respiratory tract and sometimes show their symptoms in the intestines and gastro of the patients as gastrointestinal symptoms (1). They usually cause respiratory tract infection at first in the throat and nose resulting in the symptoms similar to the common cold. Sometimes, they may cause more

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serious illnesses such as terminal bronchitis and asthma exacerbation, chronic bronchitis and even lung infection (pneumonia) in adults, the elderly and people with weakened immune systems (1, 2).

Following the increase in the incidence and global spread of the virus, the World Health Organization issued a statement on January 30, 2020, declaring the new coronavirus to be the sixth leading cause of public health emergency worldwide which threats not only China but also all countries of the world (3). On February 11, 2020, the World Health Organization (WHO) selected an official name called "Covid-19" for the new coronavirus, and on the same day, changed the scientific name of the virus from 2019-nCoV to SARS-CoV-2 (3).

Epidemic Covid-19 is spreading worldwide and till August 1, 2020, it has affected almost all countries in the world, including Iran. According to global statistical data, the mortality rate is 3.4 percent for this disease (4); although the results of the research done by Wang et al. (2020) showed that the mortality rate is 2.84 percent (5). However, according to the research conducted by Huang et al. (2020), this rate was equal to 15% (6). Wu et al. (2020) reported the rate of 14% (7). In the research by Zhou et al. (2020), the morality rate is equals to 33% (8). Guan et al. (2020) reported the morality rate of 1.4% (9). According to the China's official statistics, the morality rate equals 3.2% and according to the published meta-analysis, this rate is equal to 6.4% (10).

As reported by health care workers who were responsible for caring for Covid-19 patients, severe acute respiratory syndrome is the most important feature of the disease. They also mentioned that human-to-human transmission is widespread (11). According to these reports, social distancing and home quarantine are the most important ways to reduce exposure and break the Covid-19 chains of transmission. Since, non-compliance for social distancing as well as physical contact are important factors in the transmission of Covid-19 virus and public and indoor places such as sports complexes are considered as gathering places for people in the community; to prevent the transmission of coronavirus and maintain public health, it is of high importance to pay attention to the issue of social distance and home quarantine. The results of a study by Perlman (2020) show that the best way to deal with coronavirus is to comply with health issues such as quarantine in the community, timely

diagnosis and strict adherence to global health efforts in public health issues, patient care in the hospitals and no gatherings (12). Also, Ali Mohammadi et al. (2020), pointed out that the prevalence of infection caused by Covid-19 disease in Iran can be decreased by intervening in factors such as health education, preventing human gatherings, active disease detection and contact tracking, separating sick people from the rest of the society during the period of disease transmission, and quarantine (13).

Therefore, continuing sports activities at any level increases human-to-human contact which makes it more difficult to control the prevalence of Covid-19. On the other hand, apart from the economic issues of closing gyms and sports venues, it should be noted that physical activity and regular exercise strengthen the immune system and make a person less prone to infectious diseases. Those who engage in sports and physical activity in the city of Ilam are no exception to this rule, and the absolute cessation of exercise and physical activity during the Covid-19 disease may cause serious harm to them. Being in isolation without access to gyms, fields and sports clubs do not mean that the citizens of Ilam stop exercising. According to the latest government guidelines on social distancing, regular and daily exercise, when many people in the world are in complete quarantine, plays an important role in helping maintain a healthy immune system. Therefore, the purpose of this study is to investigate the effects of Covid-19 prevalence on the amount of sports activities in Ilam.

2.Review of Literature

All living creatures have their basic needs required for the survival without which life loses its meaning and concept. One of the most basic needs of living creatures, which may have received less attention, is the need for mobility and physical activity. Due to the fact that the achievements of machine life in today's advanced societies for human beings is inactivity, physical weakness, mental and psychological problems and deviation from human morals and values, the importance of sports in various aspects of individual and social life becomes more apparent. In the meantime, sport as a strategic solution and sport for all and recreational sport in the position of a cheap and pleasurable tool can

solve this problem in a desirable way (14). Today, sport has become highly important for all governments; Because by using sports, various goals are pursued in terms of economic, political, cultural, welfare and health improvement, and if there is proper management and structure, these goals can be achieved (15). The evolution of sport in life begins with playing, which is necessary for the growth and development of the child, and then joins the sport in which competition is concerned. This competition is initially informal and in its evolution leads to organized competitive sport which is the same as Athletics and professional sport (14).

The widespread outbreak of the new and deadly Covid-19 virus has led to the postponement or closure of public centers, venues, and especially sports facilities and important events, including various levels of sporting events around the world and even the 2020 Olympics in Japan. On the other hand, the results of exercise immunology research have proven that exercise and physical activity is one of the healthy and effective ways to reduce the risk of disease and mortality (16). Niemann and Nelson (2020) has described the relationship between the risk of "Upper Respiratory Tract Infections (URTI)" and the amount of physical activity in a J-shaped curve (Figure 1). This means that with increasing in the amount of exercise, the risk of infection initially decreases; But at some levels of sport it increases (17).

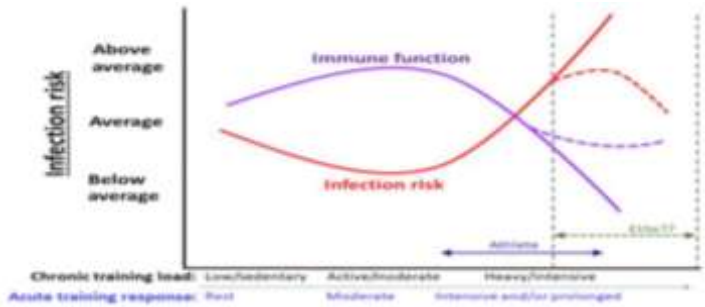

Figure 1. J-shaped curve

Figure 1 illustrates the J-curved model, i.e. the relationship between exercise load and the risk of "Upper Respiratory Tract Infections (URTI). Of course, other factors such as travel, exposure to pathogens, sleep disorders, psychological stress and dietary patterns may affect this relationship. While the

new study differences between elite athletes, non-elite and ordinary people (18).

In addition to the proven benefits of exercise, epidemiological studies on humans have shown that intense and competitive aerobic exercise leads to increased susceptibility to upper respiratory tract infections (based on the Open Window theory); while gentle physical activities reduce these symptoms (according to the J-shaped curve) (19). Recent research; however, has challenged and questioned the open window theory.

With the prevalence of Covid-19 disease, exercise and physical activity, like all environmental variables, were affected; But in the meantime, the behavior of different countries with this particular phenomenon was different and variable. It was natural for China, as the origin of the disease, to have the first sports reactions in this field and to hold all its domestic league games (during the first two weeks after the prevalence of the disease) without spectators, and then all further games were canceled and suspended (20). Also, due to the severity of Covid-19 disease and the announcement of the International Olympic and Paralympic Committee, all 2020 Olympic and Paralympic Games and competitions, as the most important sporting events in the world, were postponed to next summer 2021. In the first stage of dealing with Covid-19 in the Iranian sports industry, all sports activities in different parts of the industry, including the activities of the organization of leagues, holding various domestic leagues, stadiums, halls and sports fields by the order of the National Headquarters against Corona was postponed. They mentioned that the reason for postponing these activities is to prevent the widespread presence of people, fans, gatherings, as well as the health of athletes, players, coaches, executives, and so on. According to various reports in the field of public health, one of the ways in which Covid-19 disease spreads is by participating in various gatherings; Therefore, it should be noted that due to the nature of sports in which physical clashes and gatherings are inevitable, the openness of sports venues and facilities and holding any kind of competition, even at the level of non-professional (sport for all and educational) sports, causes more prevalence of this disease.

3. Methodology

The present study is applied in terms of purpose; But in terms of data collection, it is descriptive-analytical that has been done in the form of field study. The statistical population of this study includes all non-professional male and female athletes who have been engaged in physical activities and sports in sports venues in Ilam city before the Covid-19 era. In order to collect the required data, the standard questionnaire of the International Group of Covid-19 Researchers and Sports (consisting of researchers from around the world, including Iran with a focus on Germany) was used.

The reliability of the questionnaire was determined by Cronbach's alpha (0.822) and the validity was confirmed by a panel of experts in this field. The questionnaire was distributed electronically and online with the help of Ilam Sport for all commission as well as virtual sport groups and sport science students and 122 questionnaires were completed and collected randomly from different parts of the city and were selected as the research sample of the study. In order to analyze the data, two methods of descriptive statistics including mean, standard deviation, frequency distribution tables and graphs and inferential statistics including independent t-test, Kendall rank correlation test (Tai Kendall) and chi-square test were used using SPSS22 software.

4. Findings

The descriptive results of the study showed that 93 (76.2%) of the participants were male and 29 (23.8%) were female. The highest frequency of participants in the research was related to the young age group (n=86, 70.5%) and the lowest frequency value for the participated group was pertinent to the elders (n=1, 0.8%). Out of 122, 91 people (74.6%) were single and 31 people (25.4%) were married. 114 of the participants (93.4%) were living in the urban areas and 8 of them (6.6%) were living in the suburbs. The highest frequency belonged to the middle income group with 56 people (45.9%) and the lowest frequency belonged to the high income group with 6 people (4.9%). Also, number of participants with a degree below the diploma was 2 people (1.6%), Diploma (n=18, 14.8%), A.A. (n=23, 18.8%), B.A. (n=46, 37.7%), M.A. (N=29, 23.8%), AND Ph.D. (n=4, 3.3%). The highest number of employees

was related to the student group with 63 people (51.7%) and the lowest number was related to retired and military groups with 2 persons (0.16%).

Table 1. Comparison of the number of sessions of exercise and physical activity before and during the corona

During the Corona		Before the Corona		
Percent	**Frequency**	**Percent**	**Frequency**	**Options**
14.8	18	-	-	**Never**
21.3	26	9.8	12	**Once a Week**
13.9	17	13.1	16	**Twice a week**
27	33	45.9	56	**Three times a week**
2.4	3	8.1	10	**Four times a week**
2.4	3	4.9	6	**Five times a week**
3.4	4	4.2	5	**Six times a week**
1.7	2	6.6	8	**Everyday**
13.1	16	7.4	9	**Sometimes**
100	122	100	122	**Total**

Other research results indicate that, at the present time, 73.4% of indoor sport places and 56.2% of outdoor sport places are closed. In addition, 24.9% of the athletes have completely lost their jobs due to the prevalence of Covid-19. Table 1 indicated comparison of the number of sessions (frequency) of exercise and physical activity before and during the corona:

Table 2. Comparison of the number of sessions of exercise before and during the corona

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	113.651	14	0.001
N of Valid Cases	122		

The results of the chi-square test in Table 2 showed that there is a significant difference between the number of training sessions and exercise before and during the corona. As is clear in Table 1, it can be concluded that the total number of training sessions for athletes during the Corona period has decreased compared to the past.

Table 3. Comparison of the intensity of exercise before and during the corona period

During the Corona		Before the Corona		
Frequency	**Frequency**	**Percent**	**Frequency**	**Options**
26.2	32	7.4	9	**Low Intensity**
51.6	63	42.6	52	**Moderate Intensity**
15.6	19	41	50	**High Intensity**
6.6	8	9	11	**Very high Intensity**
-	-	-	-	**Missing**
100	122	100	122	**Total**

Other findings also showed that the duration of each exercise and physical activity session decreased during the corona period. Before Corona period,

97.8% of people had a training session lasting more than 10 minutes; while, during the corona period, 88.9% of the participants exercised for more than 10 minutes per session.

The results of chi-square test in Table 4 shows that there is a significant difference between the intensity of exercise and physical activity before and during the corona period. As is apparent in Table 3, it can be concluded that the total intensity of exercise during the Corona period has decreased compared to the past and tended to moderate and low intensity:

Table 4. Comparison of the intensity of exercise before and during the corona

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	65.715	6	0.001
N of Valid Cases	122		

Other results show that corona test of 54 athletes (44.2%) was negative and 9 athletes (7.4%) reported a positive Corona test; while, 59 (48.4%) have not tested, yet. 23 (18.9%) athletes pointed out that they strictly adhered to the health guidelines and protocols; 19 (15.6%) athletes mentioned that they never follow the guidelines; and 80 (65.5%) athletes also mentioned that they are almost indifferent to these health guidelines and protocols. The results of chi-square test in Table 5 revealed that there is no significant difference between the results of Covid-19 test and athletes' adherence to the health guidelines and protocols:

Table 5. Comparison of the results of Covid-19 test and athletes' adherence to the health guidelines and protocols

Test	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.564	6	0.068
N of Valid Cases	122		

Table 6 indicates grouping the degree of change in training parameters and physical activity (number of training sessions, exercise duration, and training intensity).

Table 6. Grouping the degree of change in training parameters exercise before and during the corona period

Group	Number of Training Sessions		Exercise Duration		Training Intensity	
	Frequency	Percent	Frequency	Percent	Frequency	Percent
Increase	13	10.7	12	9.9	4	3.3
No Change	19	15.6	64	52.44	31	25.4
Decrease	90	73.7	46	37.7	87	71.3
Missing	-	-	-	-	-	-
Total	122	100	122	100	122	100

Table 6 illustrates that training parameters, especially training intensity, have decreased significantly among athletes compared to period before the prevalence of Covid-19 disease. Table 7 shows the relationship between training parameters (number, duration and intensity of training sessions) and athletes' ages:

Table 7. The relationship between training parameters and athletes' ages

N	Sig. (2-tailed)	Correlation Coefficient	Variable	
122	0.041	-0.23	**Number of Training Sessions**	
122	0.122	-0.092	**Exercise Duration**	**Age**
122	0.033	-0.323	**Training Intensity**	

According to Table 7 and using the Kendall rank correlation test (Thai Kendall), there is a meaningful relationship between athletes' age and the number of training sessions and exercise intensity, but there is no significant relationship between age and training duration ($p<0.05$).

Table 8. The relationship between Number of Training Sessions and Research variables

N	Sig. (2-tailed)	df	Value	Variable	
122	0.221	14	13.754	**Number of Training Sessions during the Corona Period**	Educational Level
122	0.232	6	6.324		Living Environment
122	0.048	13	8.111		Income
122	0.034	8	14.435		Age Groups

The results of Table 8 indicate that there is no significant difference between the variables of educational level and living environment and the number of training sessions during the corona period. This means that the variables of educational level and living environment do not have a significant effect on the number of training sessions during the corona period. However, income variables and different age groups have significant effects on the number of training sessions during the corona period:

Table 9. The relationship between Exercise Duration and Research variables

N	Sig. (2-tailed)	df	Value	Variable	
122	0.042	14	13/767		**Educational Level**
122	0.034	6	6/232	**Exercise Duration during the Corona Period**	**Living Environment**
122	0.611	13	14/114		**Income**
122	0.001	8	9/865		**Age Groups**

Table 9 shows that there is a significant difference between the variables of education level, living environment and different age groups of athletes and duration (duration during corona training), meaning that the variables of education level, living environment and different age groups Athletes have a significant effect on the length of training sessions during the corona period, but the income variable has no significant effect on the length of training during the corona period.

Table 10. The relationship between Training Intensity and Research variables

N	Sig. (2-tailed)	df	Value	Variable	
122	0.012	14	16.412		**Educational Level**
122	0.043	6	7.331	**Intensity of Training during the Corona Period**	**Living Environment**
122	0.045	13	15.465		**Income**
122	0.048	8	10.811		**Age Groups**

Table 10 illustrate that there is a significant difference between the intensity of training and the variables of educational level, living environment, income and different age groups, meaning that the variables of educational level, living environment, income and different age groups have significant statistical effects on the intensity of training during the corona period.

5. Conclusion

This study aimed to investigate the effects of the prevalence of the new coronavirus 2019 (Covid-19) on the levels of sports activities in Ilam city. Before any discussion, it should be noted that the present study is one of the first studies conducted on the effects of Covid-19 on the activities of non-professional athletes in Ilam, Iran and perhaps in the world; Therefore, reporting this part of the article according to the common approaches of the past to compare the results of this study with the results of similar sports research at the time of Covid-19 was practically impossible. Therefore, in this section, it is necessary to report, discuss and conclude about the results of the present study, as well as compare it with the findings of a few studies conducted in the field of general physical activity.

The prevalence of Covid-19 disease has limited the conditions for physical activity and exercise outside the home by restricting life with the aim of reducing the number of patients. However, physical activity and exercise are so

essential to the health of our body and mind that we must have a regular schedule for it. Findings from various studies show that people who exercise regularly, their immune and defense systems are more resistant to diseases and even infections (18). Therefore, doing any kind of physical activity and exercise is one of the ways that in addition to strengthening the body's immune system against diseases, can also play a preventive role in the time of Covid-19. However, the results of a limited number of new studies show that this effect depends on the amount and type of sport and not all exercises are necessarily effective. On the other hand, activity and participation in any kind of sport activity is one of the ways to prevent the harms of physical poverty and obesity during the home quarantine period due to the prevalence of Covid-19. Decreased muscle strength and decreased cardiovascular and pulmonary capacity following immobility, especially in the elderly population and people with underlying diseases, are among the causes of increased disability in this vulnerable segment of society against this deadly disease. Therefore, what is certain is that creating suitable methods with the aim of providing vitality and happiness among people and reducing stress and psychological pressures caused by Covid-19 disease requires the development of well-written programs in which paying attention to sports such as cycling, walking, running, jogging, resistance training and mountaineering in accordance with health protocols seem necessary.

The inferential results of this study showed that there is a significant difference between the number of football training sessions before and during the corona period. By comparing and analyzing the statistical data of the study, it can be concluded that the total number of training sessions and physical activity during the Corona period has decreased compared to the past. Other results of this study also indicated that the duration (length) of each training session decreased during the corona period. Other results showed that there is a significant difference between the intensity of exercise before and during the corona, which can be inferred that the total intensity of exercise during the corona compared to past has decreased and It tends to be moderate in severity, which may be due to past medical advice according to the "open window hypothesis". According to the open window theory, moderate physical activity

can improve the immune system; But doing high-intensity, high-volume physical activity can reduce immune function. The results of the study of Ong et al. (2020) showed that during corona disease in Indonesia, the average level of physical activity decreased sharply by 38% (21). The results of the study of Zenic et al. (2020) also indicated that during corona disease, the levels of physical activity in adolescents in Croatia decreased, which showed decrease more in people living in cities than people living in villages (22). Dunton et al. (2020) also stated that the intensity of exercise in adults in The United States has decreased significantly during this period, which is consistent with the results of the present study (23).

The results of this study showed that 9 people (7.4%) who received Corona test were reported to be positive and the rest were negative. However, 59 people (48.4%) said that they had not yet taken the test. Another result of this study was that 80 athletes (65.5%) were almost careless and indifferent to the health guidelines and protocols, which indicated that athletes did not pay serious attention to the consequences of this deadly disease. Therefore, it is necessary for the relevant institutions and organizations to give serious warnings to all athletes about the adherence to health and prevention protocols and to inform them of the serious and lasting consequences of Covid-19. Also, the results of Chi-square test indicated that there is no significant difference between the results of Covid-19 test and the level of football players' adherence to the guidelines and health protocols which this, in turn, complicates the issue a bit and It opens the way to justify athletes' disregard for health rules and regulations. It is also recommended by the World Health Organization that people with Covid-19 disease who have not had any symptoms so far can continue to engage in moderate-intensity physical activity and exercise and they should use the onset of symptoms as a guide to their immediate quarantine.

In a study by Lesser and Nienhuis (2020) in Canada, it was found that people with higher levels of physical activity during the corona had less anxiety and better welfare levels (24). Wolff et al. (2020) stated that social distance affects boredom and self-control (25). The results of a study by Zhao et al. (2020) in China revealed that people who are physically active have a

better emotional state (26). Brand, Timme and Nosrat (2020) conducted a study in 18 countries of the world (with 13696 people as the statistical sample). Their study revealed that Covid-19 has changed sports behaviors and mood. The results of this study also showed that there is a significant positive relationship between the amount of sports activities and individuals' mood meaning that people's mood was affected by the amount of sports activities (27).

The results also showed that there is a significant relationship between the age of athletes and the number of training sessions and training intensity (at the significance level of 0.05). Other results indicated that there is no significant difference between the variables of educational level and living environment and the number of training sessions during the corona period; this means that the variables of educational level and living environment do not bear a significant effect on the number of training sessions during the corona period. However, income variables and different age groups have a significant effect on the number of training sessions during the corona period. There is also a significant difference between the variables of educational levels, living environment and different age groups of athletes and the duration (length) of training during the corona period.

This means that the variables of educational level, living environment and different age groups of athletes have a significant effect on the length of training sessions during the corona. But the income variable has no significant effect on the length of training during the corona period. Another result of this study was that there is a significant difference between the variables of educational level, living environment, income and different age groups and intensity of exercise during the corona period. This means that the variables of educational level, living environment, income and different age groups have a significant effect on the intensity of exercise during the corona period. In general, the results of various studies on the relationship between exercise and the immune system show that exercising directly cannot reduce the chances of developing any type of infection such as Covid-19; But doing moderate-intensity exercise and physical activity is safe and can even boost the immune system. However, it should be noted that the latest results of various studies show that the reason for the immediate decrease in immune cells in the blood

after intense exercise is temporary and it is due to the stress resulted from heavy exercise and it may also boost a person's immune system in the long time. However, it should be noted that moderate to vigorous exercise for people who have not done any exercise in the past may have temporary negative effects on the immune system which can be dangerous during the Corona period.

Finally, it must be admitted that in the global crisis of Covid-19, one of the fundamental weaknesses of sports management in the world was clearly highlighted. Its fundamental weakness is that most sports institutions and organizations do not have a well-written or well-stocked plan for critical days. Except on special occasions during the world wars, sports venues and complexes have never been so severely closed, and so far no one has been able to offer a solution to manage such a crisis in the sports industry. This economic crisis has caused significant damage to the world sports industry and has endangered the general health of individuals due to the closure of physical activity and sports. Now the Corona crisis may be a major spark to the global sports industry to reconsider its decisions.

Prevent sports from becoming luxurious, communicate more with the general public, and provide more support to the poor instead of making exorbitant payments to famous players, reconsider relationships with transfer agencies, support public sports, and reduce costs in non-essential areas are among the strategic decisions that managers in the sports industry, especially in the professional sector, will have to make in the future. The management of the sports industry in the world should have a well-written and predetermined plan for such difficult days and the experience of Covid-19 proved that this issue is almost impossible with the current policies of this industry, and it is needed to have a fundamental change in the management of the world sports industry and how it is run. Finally, it must be acknowledged that regular and daily exercise will play an important role in helping to maintain the physical and mental health of the communities at a time when many people around the world are in isolation due to the prevalence of the Corona virus.

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