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ORIGINAL ARTICLE

A Review of the Participation ın the Olympics by Country and the Success ın the Cycling Branch at the Tokyo 2020 Olympic Games

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ABSTRACT

Background: The popularity of cycling is increasing day by day all over the world. Correspondingly, cycling is involved in more and more branches in the Olympic Games day by day. In addition, it is seen that the number of medals increases depending on the increasing branches.

Aim: The research the connection between the success of the countries that won medals in the cycling branch, both and in the general Olympics. In this regard, overall Olympic achievements and achievements in cycling have analyzed in terms of the number of medals won by the countries that won medals in cycling.

Methods: The data from the Tokyo 2020 Olympics have been accessed from the official website of the IOC (International Olympic Committee) and the data obtained have been classified in accordance with the purpose. In the statistical analysis, the skewness and kurtosis values of the classified data were analyzed first, and it was determined that the data did not show a normal distribution. In this direction, Spearman correlation analysis was performed in order to determine the connection between the variables.

Results: it has been determined that there is a positive and significant connection between the total number of medals won in all branches of the countries that won medals at the Olympics cycling branch and the total number of medals won in the cycling branch. It has also been determined that there is a strong positive connection between the total number of athletes participating at the Olympic cycling branch and the total number of medals won in the countries' cycling branch.

Keywords: Olympics, cycling, countries, medal ranking

INTRODUCTION

The Olympic Games are described as "faster, higher, stronger," in line with the philosophy of the beginning of the modern Olympics[1]. When the Olympics are analyzed, they play an important role in the promotion of countries from past to present in terms of both the host country and the countries participating in the games. Especially with the start of the modern Olympic Games, the Olympics are thought to be interpreted as a struggle for prestige among the countries. Countries always want to participate in major sports organizations. They always make an intense effort to raise athletes who will represent themselves best for this purpose. The Olympic Games are considered the top of the sport for many sports branches[2]. In addition to attracting tourists and contributing to their economies through the Olympic Games, countries contribute greatly to improving the country's public image in both politically and sportingly[3].

The Olympics are sports organizations that are important and watched by a wide range of audiences, especially in terms of the development of women and young athletes and the ability to show themselves in the international arena[5]. Especially, countries that host the Olympics in particular follow the Games, both in the areas where the games are held and on television. According to the BBC, the UK broadcaster that hosted the 2012 London Olympic Games, 51.9 million people in the UK only watched the games on screen. Besides, the 2012 London Olympics were recorded as the most watched sports organization in the history of England[4].

Cycling has always had an important place in the Olympic Games. Like fencing and athletics, cycling is one of the rare sports branches in the Olympic program. The first Olympic cycling event was held in 1896 Olympic Games in Athens. However, the highly popular sport of cycling in Europe is among the branches that dominate the Olympics, with contributions from French and Italian[6].

The popularity of cycling is increasing around the world. In addition to this increase, it is seen that the number of medals distributed in the Olympics has also increased with the cycling. The latest addition to cycling branches at the Olympics is the Bmx. The Bmx races have two disciplines in the Olympics. The first is Bmx supercross and the second is Bmx Freestyle[7]. While the Bmx supercross was included in the Olympic calendar in 2008 Beijing Olympics, the Bmx freestyle was included in the games for the first time with the Tokyo 2020 Olympics. In addition, the BMX freestyle is the last cycling discipline to be included in the Olympic calendar[8].

In the cycling, while the athlete performs sportingly, s/he also performs during the race in the equipment s/he uses. This situation plays a key role in the success of the equipment used by the athlete as well as physical and mental performance. It is thought that the opportunities that countries have at this point financially and the ability of athletes to take advantage of these available opportunities may be effective in the medals received in the Olympics[9]. Based on the history of the Olympic Games, the use of performance boosting (doping) by athletes in the medals won in cycling is seen in the examples. Lance Armstrong, one of the well-known cyclist in the cycling, was stripped of the 7 time general classification titles he won in the Tour de France, which is considered one of the most prestigious organizations of cycling, after his doping confession during his retirement, and the bronze medals he won in the Men's time trial road race at the Sydney 2000 Olympic Games were returned to the International Olympic Committee[10].

In this study, when looking at the Olympic Games, cycling was ranked among the majors with the highest number of medals at the Olympics, with a total of 66 medals. For this reason, it is important to research how many athletes are represented by the countries in the cycling branch and how many medals they have achieved in different branches of cycling as a result of the games.

The aim of this study the how connection between the success of the countries that won medals in the cycling branch, both and in the general Olympics. In this regard, overall Olympic achievements and achievements in cycling have analyzed in terms of the number of medals won by the countries that won medals in cycling.

MATERIAL AND METHODS

this study is to research the connection between the success of the countries that won medals in the cycling branch, both and in the general Olympics. The data from the Tokyo 2020 Olympics have been accessed from the official website of the IOC (International Olympic Committee) and the data obtained have been classified in accordance with the purpose[20]. Due to the categorized data, a theoretical framework was created and interpreted about the research topic. In the statistical analysis, the skewness and kurtosis values of the classified data were analyzed first, and it was determined that the data did not show a normal distribution. In this

direction, Spearman correlation analysis was performed in order to determine the connection between the variables.

RESULTS

Table 1: Total number of medals received by country at the Tokyo 2020 Olympic Games

Country*	Gold	Silver	Bronze	The number of the total medals	How many athletes participated in total (all branches)
United States	39	41	33	113	613
China	38	32	18	88	406
Japan	27	14	17	58	552
Great Britain	22	21	22	65	376
Russian Olympic Committee (ROC)	20	28	23	71	328
Australia	17	7	22	46	478
Netherlands	10	12	14	36	274
France	10	12	11	33	398
Germany	10	11	16	37	425
Italy	10	10	20	40	372
Canada	7	6	11	24	370
New Zealand	7	6	7	20	223
Spain	3	8	6	17	320
Switzerland	3	4	6	13	106
Denmark	3	4	4	11	105
Belgium	3	1	3	7	12
Slovenia	3	1	1	5	53
Ecuador	2	1	0	3	41
Ukraine	1	6	12	19	155
Venezuela	1	3	0	4	44
Hong Kong	1	2	3	6	42
Austria	1	1	5	7	60
Colombia	0	4	1	5	71
Malaysia	0	1	1	2	30

(*medal ranking in all branches by country)

Looking at Table 1, in the medal ranking at the Tokyo 2020 Olympics, the United States (113 medals) is in first place, China is in second place (88 medals) and the host country is Japan (58 medals) in third place.

Table 2: The ranking of the countries that awarded medals in the cycling branches and the total number of athletes in the cycling branch at the Tokyo 2020 Olympic Games

Country*	Gold	Silver	Bronze	The number of the total medals	Total number of cyclists participating in the Olympics	The number of medals awarded in all branches	The number of athletes in all branches
Great Britain	6	4	2	12	26	65	376
Netherlands	5	3	4	12	28	36	274
Switzerland	1	3	2	6	20	13	106
Denmark	1	2	0	3	17	11	105
United States	1	1	1	3	27	113	613
Germany	1	1	0	2	28	37	425
Australia	1	0	2	3	30	46	478
Italy	1	0	2	3	24	40	372
Canada	1	0	1	2	23	24	370
Slovenia	1	0	1	2	6	5	53
Austria	1	0	0	1	8	7	60
China	1	0	0	1	7	88	406
Ecuador	1	0	0	1	4	3	41
New Zealand	0	2	0	2	19	20	223
Colombia	0	1	1	2	10	5	71
Belgium	0	1	0	1	15	7	12
Japan	0	1	0	1	16	58	552
Malaysia	0	1	0	1	2	2	30
Ukraine	0	1	0	1	4	19	115
Venezuela	0	1	0	1	2	4	44
France	0	0	2	2	28	33	398
Russian Olympic Committee (ROC)	0	0	2	2	2	71	328
Hong Kong	0	0	1	1	5	6	42
Spain	0	0	1	1	12	17	320

(*medal ranking for cycling branches)

Looking at Table 2, it is seen that in the total medal ranking for the cycling branch in Tokyo 2020 Olympics, Great Britain (12 medals) is in the first place, Netherlands (12 medals) is in the second place, and Switzerland (6 medals) is in the third place.

Table 3: Medals awarded from men's and women's Road cycling at the Tokyo 2020 Olympic Games

Road Cycling	Gold	Silver	Bronze
Men's Road Race	Ecuador	Belgium	Slovenia
Men's Individual Time-Trail	Slovenia	Netherlands	Australia
Women's Road Race	Austria	Netherlands	Italy
Women's Individual Time-Trail	Netherlands	Switzerland	Netherlands

Looking at Table 3, it is seen that Ecuador ranked first in the men's road cycling race, while Austria ranked first in the women's road cycling race. Furthermore, Slovenia ranked first in the men's time-trail race, while the Netherlands ranked first in women's time-trail race.

Table 4: Distribution of medals for men's track cycling at the Tokyo 2020 Olympic Games

Track Cycling (men)	Gold	Silver	Bronze
Keirin	Great Britain	Malaysia	Netherlands
Madison	Denmark	Great Britain	France
Omnium	Great Britain	New Zealand	Italy
Team pursuit	Italy	Denmark	Australia
Sprint	Netherlands	Netherlands	Great Britain
Team sprint	Netherlands	Great Britain	France

Looking at Table 4, the men's gold medals are respectively Keirin and Omnium in the Great Britain, Denmark in Madison, Italy in the Team Pursuit, and the Netherlands in the sprint and team sprint.

Table 5: Distribution of medals for women's Track cycling at the Tokyo 2020 Olympic Games

Track Cycling (woman)	Gold	Silver	Bronze
Keirin	Netherlands	New Zealand	Canada
Madison	Great Britain	Denmark	Russian Olympic Committee
Omnium	United States	Japan	Netherlands
Team Pursuit	Germany	Great Britain	United States
Sprint	Canada	Ukraine	Hong Kong
Team Sprint	China	Germany	Russian Olympic Committee

Looking at Table 4, the women's gold medals are respectively the Netherlands in Keirin, Great Britain in Madison, America in Omnium, Germany in Team Pursuit, Canada in Sprint and China in Team Sprint.

Looking at Table 6, the gold medal in mountain biking is won by men in Great Britain and women in Switzerland.

Table 6: Distribution of medals for men and women in mountain bike at the Tokyo 2020 Olympic Games

Mountain Bike	Gold	Silver	Bronze
Men	Great Britain	Switzerland	Spain
Women	Switzerland	Switzerland	Switzerland

Table 7: Distribution of medals for men and women in Bmx Freestyle at the Tokyo 2020 Olympic Games

Bmx	Gold	Silver	Bronze
Men	Netherlands	Great Britain	Colombia
Women	Great Britain	Colombia	Netherlands

Looking at Table 7 the gold medal in Bmx is won by men in Netherlands and women in Great Britain.

Table 8: Distribution of medals for men and women in Bmx Freestyle at the Tokyo 2020 Olympic Games

Bmx Freestyle	Gold	Silver	Bronze
Men	Australia	Venezuela	Great Britain
Women	Great Britain	United States	Switzerland

Looking at Table 8 the gold medal in Bmx Freestyle is won by men in Austrailia and women in Great Britain.

Table 9: Tokyo 2020 Olympic Games Spearman correlation Table

Variable	N	Ort.	Ss	1	2	3	4
1. Total number of Olympic medals won by country *	24	30,41	29,88	-	,437	,909	,553
2. Total number of Olympic medals won in cycling	24	2,75	3,06	,437	-	,418	,711
3. Total number of athletes participating in the Olympics by country *	24	242,25	187,56	,909	,418	-	,654
4. Total number of athletes participating in the Olympics in cycling	24	15,12	9,92	,553	,711	,654	-

The correlation is significant at the p<0.05 level (*Countries that have received medals in the cycling branch)

Looking at Table 9, there is a positive and significant connection between the total number of Olympic medals won by countries and the total number of medals won in the cycling branch (r=0,473).

There is a strong positive connection between the total number of athletes participating in the Olympic cycling branch and the total number of medals won in the countries' cycling branch (r=0,711).

There is a positive significant connection between the total number of athletes participating in the Olympics by country and the total number of medals won in the cycling branch (r=0,418).

There is a positive significant connection between the total number of athletes participating in the Olympics by country and the total medal received at the Olympics (r=0,909).

DISCUSSION AND CONCLUSION

Olympic Games have always been a means of prestige and promotion for countries. When considered from this point of view, sporting achievements and medals received have an increasing impact on the country's prestige and promotion. It is thought that being successful in the cycling, a total of 66 medals are given in the Olympics, will carry the countries to the top of the total medal ranking won in the games. Accordingly, it is assumed that countries that are successful in cycling will have an impact on overall Olympic success.

Yıldız, Aydın 2013, in their work on sustainability and development at the Olympic Games, concluded that the Olympic Games are not important only for success but also for the development and sustainability of the countries[4].

Grous 2012, in his study of the impact of UK cycling medals in the London 2012 Olympics on cycling in the UK, found that participation in various cycling activities increased as a result of medals won. He concluded that cyclists and non-cyclists showed greater interest and participation in organizations as racers and spectators[13].

When Table 1 is reviewed, in the overall medal ranking of all sports branches in Tokyo 2020 Olympics, the United States of America (113 medals) is in the first place, China (88 medals) is in the second place and the host country Japan (58 medals) is in the third place. In accordance with these results, it can be said that the United States is the most successful country within the Tokyo 2020 Olympic Games.

(Zheng, 2016) In his study of the development of cycling in China, he established that China in general remained weak in winning medals at the Olympics in cycling. This result shows that a country that ranks high in the total medal ranking in the Olympic Games has not benefited enough in medals distributed in cycling[11].

When Table 2 is reviewed, it is seen that Great Britain (12 medals) is in the first place, Netherlands (12 medals) is in the second place, and Switzerland is in the third place (6 medals) in total medal ranking in the cycling branch in the Tokyo 2020 Olympics. Although these three countries took the first three places in cycling at the Olympic Games, it is seen that none of them took the first three places in the medal ranking won in all branches of the Olympics.

When the Olympic history is analyzed, it is seen that the country with the first 4 athletes who have won the most medals in the Olympic Games in the cycling branch is Great Britain. These athletes are ranked as 1st Jason Kenny, 2nd Bradley Wiggins, 3rd Chris Hoy and 4th Laura Kenny[16]. When the athletes are reviewed, it is seen that all of the medals except the medal that Bradley Wiggins received from the road bike men's time trail in the London 2012 Olympics were taken from the track bike. In parallel with this result, it is seen that Great Britain focuses on track bike. In addition, this result shows that athletes switch between cycling branches in the Olympics at regular intervals. As an example of this, Peter Sagan, who competed for Slovakia in road cycling at the 2012 London Olympics, preferred to compete in mountain biking, another branch of cycling, considering that road cycling was not suitable enough for him due to the fact that it included a very steep path at the 2016 Rio Olympic Games[18]. When the career of Tom Pidcook, who won the Tokyo 2020 Olympics mountain bike gold medal, is reviewed, it is seen that he actively competed in mountain bike and cyclecross branches, especially road bikes[19]. Likewise, Mathieu Van der Poel, who competed in similar branches, preferred to compete in mountain bike in the Tokyo 2020 Olympics[17].

When Tables 4 and Table 5 are reviewed, it is seen that Great Britain is the country that has won the most medals in the total medal ranking of track bike men and women. This result shows that England continued its success in track bike in the last Olympic games[14].When Table 3 is reviewed, it is seen that the country that has won the most medals in road cycling in Tokyo 2020 Olympics is the Netherlands. As in the last Olympics, the Netherlands has become the country with the most medals in road cycling in Olympic history with a total of 18 medals in road cycling[15].

In order to win Olympic medals in cycling, athletes must have special skills in specialized branches. In their study Ofoghi, Zeleznikow, MacMahon, Dwyer, 2010, they concluded that the cyclist's sprinting ability would be decisive to win a medal at the track cycling Omnium at the Olympic Games[12].

As a result of the research; It has been determined that the total number of Olympic medals won at the Olympic Games Tokyo 2020 by country and the total number of medals won in the cycling branch was positive and significant connection.

There is a strong positive connection between the total number of athletes participating in the Olympics and the total number of medals won in the countries' cycling branch.

At the Olympic Games Tokyo 2020, a significant positive connection has been determined between the total number of athletes participating in the Olympics and the total number of medals won in the cycling branch.

Moreover, it has been determined that there is a positive and significant connection between the total number of athletes participating in the Olympics and the total medals received in the Olympics

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