ISSN: 2148-1148

IntJSCS

International Journal of Sport Culture and Science (IntJSCS)

International Refereed Scientific Journal

Volume 11 Issue 3
September 2023

International Refereed Scientific Journal

International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS

INTERNATIONAL SCIENCE CULTURE AND SPORT ASSOCIATION

www.iscs-a.org

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International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2023.684

Analysis of artistic swimming technical element scores at the Tokyo 2020 Olympic Games

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Türü: Research Article (Alındı: 20.04.2023 - Kabul: 28.09.2023)

Abstract

The aim of the research is to analyze the duet and team competition performances by examining the technical routine element scores of the artistic swimmers in the Tokyo 2020 Olympic Games. The official results of Tokyo 2020 artistic swimming element scores are reviewed. Duet and team element scores were compared with each other. The element scores of the countries participating in the competitions were ranked from the highest to the lowest and analyzed statistically. The duet and team element scores of Tokyo 2020 and the last three world championships were compared. Tokyo 2020 element scores were found to be similar to each other. There was a significant difference between the element score rankings of the countries ($p<0.01$). The 3rd element score in the duet was statistically significantly lower ($p<0.05$). In the team, the 2nd element score was significantly lower and the 3rd element score was significantly higher ($p<0.05$). There is a significant difference in the duet between the element point averages of Tokyo 2020 and the last three world championships. In the team, there is a similarity between the element scores. The Tokyo 2020 artistic swimming element scores are higher than the averages in the last three world championships.

Keywords: Artistic swimming, artistic swimming elements, duet, team, Tokyo 2020

Introduction

Artistic swimming is one of the six sports branches affiliated to World Aquatics. Artistic swimming is an aesthetic sport and includes technical skills in the water, proper body position, synchronization, and choreographies made with music with artistic elements (Mountjoy, 1999). According to the competition types determined by World Aquatics, there are solo, duet, mixed duet, team, free combination and highlight programs in artistic swimming today (Fédération Internationale de Natation, 2018; Fédération Internationale de Natation, 2021). Solo, duet, mixed duet and team competition categories have two race types, both technical and free. The first world championship of artistic swimming was held in 1973. Artistic swimming, then known as synchronized swimming, was accepted into the Olympic Games in 1984 (Lundy, 2011; FINA, 2021). Today, only duet and team competitions are held in the Olympic Games (FINA, 2021).

Two athletes can compete in the duet category and eight athletes can compete in the team category. According to World Aquatics rules, only female athletes can compete in duet and team competitions. For this reason, only female athletes can take part in artistic swimming of the Olympic Games. Studies have been carried out on the difficulty levels of the movements and transition forms between the movements in artistic swimming. In this way, there are difficulty values of the movement transitions that make up the artistic swimming figures and elements. Evaluations made in competitions are scored according to these difficulty levels (FINA, 2018).

In the evaluation of technical elements, it has been understood that the video analysis method is useful for artistic swimming referee training. The use of videos is effective in the training of referees to explain the correct technical evaluations. Visual education methods are considered to be a reliable tool (Ponciano et al., 2018). It has been emphasized that artistic swimmers can provide effective functional adaptation in applications involving low volume and high pressure (Coates et al., 2021). In terms of the technical development of the athletes, the follow-up of the choreographic performances made with the elements is one of the studies considered necessary for adaptation. It is explained that there is little information about artistic swimming training and athlete development process. Although there is information about certain subjects, there are not enough studies on the effect of artistic swimming performance and physical and physiological correlations on scoring (Viana et al., 2019).

Elements in technical routines of artistic swimming are determined by the World Aquatics Artistic Swimming Technical Committee for a period of four years. According to the artistic swimming rules, the elements in the technical program competitions must be made following the order determined by the World Aquatics Artistic Swimming Technical Committee. The methods applied in the evaluation of the performances of the athletes in the competitions are determined by the same committee. Accordingly, there are five referees for element evaluations in the competitions in the Olympic Games. The highest and lowest points awarded by the referees are eliminated. The average of the remaining 3 points is taken and multiplied by the difficulty value of that element. The result is only one element score, and the same method is applied for a total of 5 elements. Then, the score of 5 elements is summed and 40% is determined to add to the total score of the competition (FINA, 2018).

It is aimed to examine the element scores in the technical routine of the 2020 Olympic categories in artistic swimming in terms of movement characteristics. It is aimed to obtain statistical data in duet and team competitions by examining the technical routine element performances of artistic swimmers in the Olympic Games in depth. Examining the elements that are mandatory movements in artistic swimming in terms of athlete performance is

important for the development of competition scores. The performances of the elite athletes who had the right to participate in the Olympic Games were compared in terms of points according to the movements in the elements. In this way, the relationship between the difficulty level of the element and the transition movements in it and the scores of the athletes was determined. It is thought that the research will enable the creation of score targets for each element group in terms of athlete development.

Material and Method

Research Model

The study was prepared according to the single scanning model within the scope of quantitative research. It is stated that researches are carried out to determine the variables as a single type or amount in the single screening model (Karasar, 2020).

Study Group

First of all, the elements of artistic swimming senior technical routine were examined. Since duet and team competitions take place in the Olympic Games, only the elements in these two categories have been examined. Elements are analyzed in terms of the number of transitions and difficulty level, according to the specifications specified in World Aquatics's artistic swimming rulebook. According to the rules of artistic swimming, there are 5 duet elements and 5 team elements. The difficulty level of the elements and the number of movement passes are given in table 1. Element competition scores in the artistic swimming duet and team technical routines of the Tokyo 2020 Summer Olympic Games were used to analyze the competition performances. The 2015, 2017 and 2019 world championships element scores of the same competition categories were also examined. The competition scores of the athletes were obtained from the official results of the Olympic Games (International Olympic Committee, 2021; FINA, 2021).

Table 1. Difficulty levels of elements for the periods 2013-2017 and 2017-2021

	2013-2017		**2017-2021**	
Elements	**Transition movements**	**Degrees of Difficulty (DD)**	**Transition movements**	**Degrees of Difficulty (DD)**
Duet 1	4	3.1	3	2.3
Duet 2	3	1.9	7	2.9
Duet 3	2	2.1	3	2.8
Duet 4	5	2.8	6	3.0
Duet 5	3	2.4	4	2.5
Total		**12.3**		**13.5**
Team 1	2	1.8	4	2.5
Team 2	3	2.4	2	2.2
Team 3	5	2.9	5	2.6
Team 4	4	2.5	8	3.1
Team 5	4	1.7	4	2.5
Total		**11.3**		**12.9**

Data Collection Instruments

Before starting the research, the ethics committee approval was obtained by the Ethics Committee of Istanbul Esenyurt University by 2022/10-3 on 11.11.2022. When we look at the element properties and the order of application in the 2013-2017 and 2017-2021 periods, it is understood that the element order is similar except for one change. It was seen that the movement structure, which includes only the 4th element of the team for the period of 2013-2017, was made in the 5th place in the team elements of the period of 2017-2021 (FINA, 2015; FINA, 2018).

The 5 element scores of the technical routine in the Tokyo 2020 Summer Olympic Games artistic swimming duet and team competitions were compared with each other. According to the Tokyo 2020 quota, 22 countries took part in the duet and 10 countries took part in the team. However, the athletes of 1 country whose Covid-19 tests were positive were withdrawn from the competition. For this reason, the technical routine results of 21 countries in the duet and 9 countries in the team were examined. In order to rank the element scores, the 5 element scores of each country were ordered from the highest to the lowest, and the relationship between difficulty levels and high scores was examined. For this, the element with the highest score is arranged in the 1st place and the lowest score in the 5th place. The same method was applied for the element scores of all countries participating in the competition. In this way, the element score ranking of the countries was created. Comparisons were made to determine in which order the elements took place in the scoring. For this, groups of 5 elements were formed. According to the order of the element score of the countries, which element is in which rank is written according to the groups.

In order to evaluate the general performance characteristics of the Tokyo 2020 Summer Olympic Games artistic swimming competition results, the results of the world championships held in the Olympic categories between 2015 and 2020 were examined. The official results of the world championships held between these dates in 2015, 2017 and 2019 were used. Since the artistic swimming competition times and scoring system are the same in the 2013-2017 and 2017-2021 periods, the world championships including these dates were preferred. The same method described above for the artistic swimming technical routine of the Tokyo 2020 Summer Olympic Games was applied to the world championships. In addition, the Tokyo 2020 results and the average scores of the 3 world championships examined were compared in two groups.

Data Analysis

Element groups prepared for statistical analysis do not show normal distribution. Therefore, the scores of the 5 elements were compared using the Kruskal Wallis test. In order to perform a statistical analysis of the element score order, the groups were first compared with each other using the Kruskal Wallis test, and then each element was compared with the other one by one with the Mann-Whitney U test. Tokyo 2020 results and the results of the world championships were used for statistical analysis by using the Mann-Whitney U test, one of the non-parametric tests, since the variables do not show normal distribution. SPSS 26.0 statistical program was used for the analysis.

Findings

The findings of the research should be given in this section. Tables, figures, and graphics, if any, should be explained by giving examples.

Tokyo 2020 Summer Olympic Games duet and team element scores were compared. According to the statistical analysis, it was understood that the scores obtained in the competitions were similar in both duet and team categories ($p>0.05$). In Table 2, the results of the Kruskal Wallis test used to compare the duet and team scores are given.

Table 2. Comparison of element scores

		Groups	n	Mean ± S.D.	sd	X^2	p
Tokyo 2020	**Duet**	1. element	21	8.58 ± 0.63	4	0.434	0.980
		2. element	21	8.60 ± 0.62			
		3. element	21	8.51 ± 0.70			
		4. element	21	8.56 ± 0.66			
		5. element	21	8.57 ± 0.62			
	Team	1. element	9	8.96 ± 0.72	4	1.226	0.874
		2. element	9	8.85 ± 0.72			
		3. element	9	9.01 ± 0.73			
		4. element	9	8.98 ± 0.75			
		5. element	9	8.94 ± 0.78			

The element scores of the countries are listed in order from highest to lowest. The high score ranking number of each element according to the countries has been determined. Thus, it was understood which of the duet and team elements got higher scores. Statistical analysis was performed to understand the difference and similarity in score ordering between the elements (Table 3). It has been determined that there is a difference between the order of duet and team elements. In this way, it was understood that some elements were generally scored higher ($p<0.01$). Looking at the ranking averages, it was understood that the countries scored the highest in the 2nd element in the duet and the highest in the 3rd element in the team (Table 3).

Table 3. Comparison according to the ranking of the element scores of the countries within themselves

		Groups	n	Mean ± SS.	sd	X^2	p
Tokyo 2020	**Duet**	1. element	21	2.62 ± 1.36	4	17.880	0.001*
		2. element	21	1.86 ± 1.01			
		3. element	21	3.81 ± 1.40			
		4. element	21	2.62 ± 1.53			
		5. element	21	2.62 ± 1.47			
	Team	1. element	9	2.78 ± 1.09	4	21.030	0.000*
		2. element	9	4.44 ± 1.33			
		3. element	9	1.44 ± 0.73			
		4. element	9	2.33 ± 1.00			
		5. element	9	3.11 ± 0.93			

*($p<0.01$)

The Mann-Whitney U test was used to determine which element scores were similar and different from other elements (Table 4). Accordingly, it was found that the lowest score among the elements in the duet was obtained in the 3rd element and there was a significant difference between the others in terms of ranking ($p<0.05$). As can be seen from the averages in Table 3, it is understood that the 3rd element is more in the top ranks due to its high score, and the 2nd element is more in the last place in the rankings due to its low score. Therefore, it

was found that there was a significant difference in the rankings of the 2nd and 3rd elements in the set with the others ($p<0.05$).

Table 4. Comparison of element scores with each other in order from high to low

	Duet					Team				
Elements	**n**	**Mean Rank**	**U**	**Z**	**p**	**n**	**Mean Rank**	**U**	**Z**	**p**
1. element	21	24.88	149.500	-1.860	0.063	9	6.11	10.000	-2.799	**0.006**
2. element	21	18.12				9	12.89			
1. element	21	16.62	118.000	-2.641	**0.008**	9	12.56	13.000	-2.541	**0.014**
3. element	21	26.38				9	6.44			
1. element	21	21.62	218.000	-0.065	0.948	9	10.56	31.000	-0.870	0.436
4. element	21	21.38				9	8.44			
1. element	21	21.60	218.500	-0.052	0.959	9	8.83	34.500	-0.555	0.605
5. element	21	21.40				9	10.17			
2. element	21	14.10	65.000	-4.012	**0.000**	9	13.33	6.000	-3.241	**0.001**
3. element	21	28.90				9	5.67			
2. element	21	18.71	162.000	-1.545	0.122	9	13.06	8.500	-2.932	**0.003**
4. element	21	24.29				9	5.94			
2. element	21	18.45	156.500	-1.683	0.092	9	12.44	14.000	-2.480	**0.019**
5. element	21	24.55				9	6.56			
3. element	21	26.10	124.000	-2.497	**0.013**	9	7.17	19.500	-1.974	0.063
4. element	21	16.90				9	11.83			
3. element	21	26.17	122.500	-2.534	**0.011**	9	5.72	6.500	-3.134	**0.001**
5. element	21	16.83				9	13.28			
4. element	21	21.45	219.500	-0.026	0.979	9	7.67	24.000	-1.544	0.161
5. element	21	21.55				9	11.33			

($p<0.05$)

In Figure 1 and Figure 2, the distribution of countries in Tokyo 2020 and the last three world championships by continents is given. The distribution of countries examined in the world championships was determined as the number of Tokyo 2020 quotas. Normally, the number of countries participating in world championships is higher. Since 21 countries in the duet and 9 countries in the team could complete the Tokyo 2020 artistic swimming competitions, the same number of duets and team scores were examined in the world championships. It has been understood that the distribution of the countries in the Olympic Games has changed due to the continental quotas.

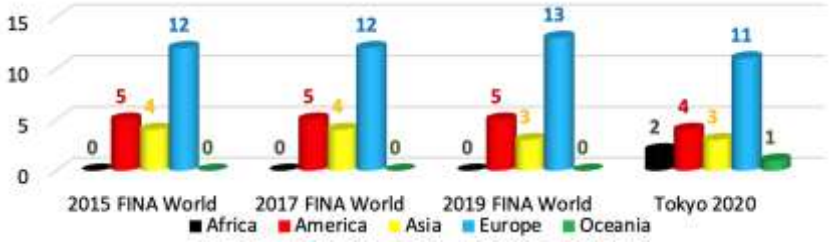

Figure 1. Distribution of countries in duet Tokyo 2020 and the last 3 world championships by continents

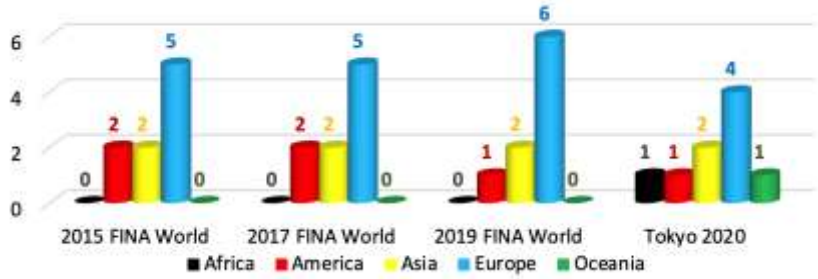

Figure 2. Distribution of countries in team Tokyo 2020 and the last 3 world championships by continents

When Tokyo 2020 and the last three world championship elements are compared in Table 5, it is understood that there is a significant difference between the duet scores (p>0.05). The same similarity was found between the team scores (p>0.05).

Table 5. Tokyo 2020 and last three world championship element scores

	Variable	N	Mean Rank	U	Z	p
Duet	1 – 5 element in Tokyo 2020	21	119.67	4025.000	-3.379	0.001
	1 – 5 element in last 3 world champ. mean	21	91.33			
Team	1 – 5 element in Tokyo 2020	9	49.23	844.500	-1.356	0.175
	1 – 5 element in last 3 world champ. mean	9	41.77			

(p<0.01)

Statistical analysis was carried out in order to understand which element scores in the duet were different or similar to each other. Accordingly, the scores of artistic swimming elements with similar structures in terms of movement characteristics were compared (Table 6). It was found that there was a similarity in the one-to-one analysis of all element scores (p>0.05). However, a significant difference was observed when all of the elements were evaluated as one (Table 5).

Table 6. Comparison of duet element scores of similar structure

Variable	n	Mean Rank	U	Z	p
1st element in Tokyo 2020	21	23.71	174.000	-1.170	0.242
1st element in last 3 world champ. mean	21	19.29			
2nd element in Tokyo 2020	21	25.00	147.000	-1.849	0.064
2nd element in last 3 world champ. mean	21	18.00			
3rd element in Tokyo 2020	21	24.33	161.000	-1.497	0.134
3rd element in last 3 world champ. mean	21	18.67			
4th element in Tokyo 2020	21	24.26	162.500	-1.460	0.144
4th element in last 3 world champ. mean	21	18.74			
5th element in Tokyo 2020	21	24.29	162.000	-1.472	0.141
5th element in last 3 world champ. mean	21	18.71			

Discussion and Conclusion

In terms of athlete development, it is thought that it will be beneficial to study the figures commonly used in artistic swimming in training. Recognition of the figures and a good understanding of their movement characteristics are recommended. It is recommended for performance improvement to use artistic swimming figures and movement transitions, which are widely used according to the age groups of athletes in training (Akgün, 2020). Working the basic movement structures that make up the elements from an early age provides benefits for the technical development of the athletes. It is important to be technically well-developed in order for athletes to score high in competitions involving elements. The fact that the athletes learn all the figure structures in the elements from an early age contributes to the ranking of the countries. Many basic movement transitions and figures in artistic swimming are included in the elements. For this reason, the successful performance of the basic movements of the athletes contributes to the good performance of more than one element.

In the study conducted on duet and team athletes, which are the Olympic competition categories of artistic swimming, the average age of the 2007-2019 FINA World Aquatics Championships were examined. Accordingly, it was understood that the average age of the athletes increased as the competition ranking increased. According to the results of the research, it was found that female athletes have an average age of 25 years in a duet and 23 in a team. It has been stated that the age variable of artistic swimming athletes is one of the important factors in the success of competition performance (Akgün, 2021). The importance of the age factor in the improvement of element performances in technical routines is understood. Since it is necessary to be well-developed technically in order to have high element scores, age-related technical skill is taken into account.

Schaal et al. (2013) investigated the physiological responses to repeated maximum performance training specific to elite artistic swimmers. Autonomic and metabolic recovery levels and repeated second competition performance of the athletes after the competition performance applied in the training were examined (Schaal et al., 2013). Intense dynamic exercise and prolonged and repetitive apnea processes are involved during artistic swimming routines (Rodríguez-Zamora et al., 2013; Zamora, 2013). It is understood that elements and figure structures containing them are also included in the performances of the athletes examined. The physiological responses created by the element movements in the athletes are among the factors that directly affect the scoring. It is important to examine physiological responses for technical development in element studies of athletes.

The technical team and free team routines of artistic swimmers were examined according to blood lactate concentration. During routines, phosphocreatine stores and aerobic metabolism are the dominant energy sources. It has been described that athletes' blood lactate concentration levels tend to increase during both technical and free routines. In competition routines, phosphocreatine stores and aerobic metabolism are dominant in the first section of the technical team and in the middle section of the free team. Depending on the energy requirement, glycolysis can be used in the last part of the routine (Yamamura, Matsui,

Kitagawa, 2000). In this study, the technical and free team competition times are longer than today. Therefore, Yamamura et al. (2000) it is thought that it would be more accurate to consider the first and middle parts of team routines in the results of their research.

Schaal et al. (2015) state that they support the daily use of whole-body cryostimulation to reduce overload during key periods of competition preparation. The use of whole-body cryostimulation during intense training helped alleviate functional overloads such as reduced sleep, increased fatigue, and impaired exercise capacity observed (Schaal et al., 2015). It has been stated that the artistic swimming duet competition performance during the training is almost the same as the competition situation in the real competition environment. Therefore, to increase cardiovascular fitness for the necessary fitness development of elite artistic swimmers; Ensuring the automaticity of the choreographic movements contributes to supporting the coordination and artistic artistic expressions among the team athletes (Zamora, 2013). Athletes in the same team must be at a similar technical level. For this, it is obligatory for the athletes to perform the duet and team elements at the same level as per the competition rules. World Aquatics has decided to make some changes in artistic swimming at the end of 2022. Accordingly, the scoring system was changed, but the difficulty values of artistic swimming movements remained the same. There was no change in the properties of the obligatory movements, that is, the elements examined within the scope of the research. It is possible to consider the research findings in the preparation of athletes for the new scoring system (World Aquatics, 2023).

As a result of the research, the element scores in the Tokyo 2020 Olympic Games artistic swimming technical routines were compared with the scores in the 2015, 2017 and 2019 world championships of the same competition types. Thus, the athletes' world championship element performance levels and their similarity to the scoring in the Olympic Games were tested. It has been understood that the distribution of points between the Tokyo 2020 duet elements of the athletes is similar. It has been observed that the same situation is valid for team elements as well. According to the countries, it was understood that the 2nd element score was the highest among the Tokyo 2020 duet element scores. Statistically, it has been found that the 3rd element score is usually at the bottom of the ranking. According to the countries, it was understood that the 3rd element score was the highest among the Tokyo 2020 team element scores, and the 2nd element score was mostly in the last place. Statistically, it has been seen that the scores of these two elements differ significantly from the others in the ranking, that is, the 3rd element is generally in the 1st place and the 2nd element is in the last place.

Countries in the European continent scored higher than others. More European countries participated in the Tokyo 2020 Olympic Games. It has been understood that African and Oceanian countries can only take place in the top 21 in the duet and in the top 9 in the team thanks to the Olympic quota. It has been understood that the Tokyo 2020 artistic swimming element scores are higher than the average scores of the last three world championships. Statistically, it has been understood that there is a significant difference in the element scores

of the duet between Tokyo 2020 and the average of the last three world championships. It was observed that there was a similarity in the element scores in the team. In order to get high scores, it is recommended to apply the training that will ensure the individual technical development of all athletes in duet and team element studies. In future studies, it is recommended to make a video analysis of the competition performances of the athletes for the detailed analysis of the element point deductions.

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International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2023.685

Investigating the Relationship between Athletes' Psychological Needs Thwarting and their Psychological Performance

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Type: Research Article (Received: 17.07.2023 – Accepted: 18.09.2023)

Abstract

This study aims to investigate the relationship between athletes' psychological needs thwarting and their psychological performance. A total of 404 athletes, consisting of 145 females and 259 males actively engaged in football, basketball, volleyball, and handball sports in the research. The data were collected through a questionnaire. The questionnaire items were administered through face-to-face interviews conducted by the researcher and online via Google Forms. The research instruments utilized were the Psychological Needs Thwarting Scale, the Psychological Performance Scale, and a researcher-designed personal information form. Upon analysing the present study's findings, there were no significant differences in psychological needs thwarting and psychological performance scale scores based on the variables of sports participation duration and educational background. However, significant differences were found based on the variables of gender, age, and sports discipline. In light of these findings, it is crucial for athletes to effectively manage negative emotional transitions such as anxiety, fear, unhappiness, anger, disappointment, jealousy, resentment, violence, and rage, as they exert a significant impact on competitive success. Therefore, ensuring athletes' internal and external motivation is of pivotal importance. Additionally, in addition to physical training, providing education for athletes to enhance their ability to manage mental processes can be beneficial in improving their performance.

Keywords: Performance, Psychological Needs, Psychological Performance.

Introduction

The success of athletes in any sport does not only depend on their physical abilities or competencies. It is also important that athletes' psychological needs are met as well as their physical and bodily well-being. Meeting psychological needs is one of the most influential factors in achieving sporting success, and athletes must maintain their psychological health and well-being by fulfilling their psychological needs (Cohn et al., 2016).

Individuals whose psychological needs are met tend to exhibit better mental and emotional responses (World Health Organization, 2014). Psychological well-being in athletes is important in determining their sporting performance, in addition to their physical health (Ghaderi et al., 2015). However, it is not sufficient for athletes to solely focus on having good performance to safeguard themselves and build a successful sports career. It also involves psychological processes such as gaining an advantage over competitors, reaching peak performance in training, and enhancing self-confidence (Ryan et al., 2000).

Psychological needs stem from the psychological qualities that individuals require. These qualities include autonomy, competence, and relatedness (Su et al., 2010; Ryan et al., 2000). Autonomy refers to the experience of independence in one's choices and a sense of self-determination. According to Yıldırım et al., (2021), autonomy is a concept that allows individuals to make a choice, decision-making, and agency in interpersonal contexts. Athletes who experience a sense of autonomy in sports can foster their own development and achievements during training and competitions (Gagné, 2009). Competence is the perception of being effective in one's social environment and abilities, while relatedness is the perception of being accepted in one's social relationships and belonging to a particular context (Deci et al., 2000).

Psychological barriers encountered by athletes can directly affect their performance and even hinder the continuation of their sports careers. According to Sucan (2012), psychological barriers that athletes may face refer to anxiety, lack of motivation, and lack of self-confidence, attention deficits, social pressure, and intra-team conflicts. Performance is defined as the meaningful and successful use of an individual's full abilities and capacities, exerting maximum effort in accomplishing assigned tasks (Baser, 1996). Psychological performance refers to the cognitive, emotional, and motivational factors that play a significant role in sports (Abiş, 2022). The mental state and well-being of athletes greatly influence their psychological performance.

The relationship between psychological needs and sporting performance is an important research area that needs to be considered for athletes. Failure to meet athletes' psychological needs can lead to deficiencies in their motivation, feelings of inadequacy, or discomfort. Therefore, addressing athletes' psychological needs is a crucial factor that should be carefully considered for psychological performance and adaptation. In light of this information, the aim of our research is to contribute to the literature on enhancing sporting success, particularly in team sports such as football, basketball, volleyball, and handball, by highlighting the importance of psychological needs that significantly affect athletes' psychological performance.

Material and Methods

Research Design

In the study, descriptive inquiry (questionnaire) and relationship research methods were used, the aim of which was to reveal the current situation. Descriptive research designs are research

methods that aim to describe an existing situation in its own terms, either in the past or present. The researched phenomenon, whether it is an individual or an object, is described as without any attempts to change or influence it. On the other hand, correlational survey designs aim to determine the presence and/or degree of change between two or more variables (Karasar, 2016).

Study Ethics

Given the use of human subjects and the need to protect individual rights, the study followed scientific ethics principles and rules throughout the research process. Prior to conducting the study, ethical approval was obtained from the Ethics Committee of Erciyes University, with reference number 160, on April 25, 2023.

Research Sample

The research sample consisted of athletes who participated in school sports competitions in the categories of juniors and youth (aged between 13 and 19) in the sports of football, basketball, volleyball, and handball in Kayseri during the 2022-2023 academic year. The convenience sampling technique was used in the selection of the sample.

Data Collection Instrument

The research data was collected through a questionnaire. The questionnaire consisted of items that were administered through face-to-face interviews with the researcher and online via Google Forms. The data collection instrument included the Scale of Inhibition of Psychological Needs in Sport, the Scale of Psychological Performance Inventory, and a personal information form prepared by the researcher.

Personal Information Form

The personal information form included variables such as gender, age, sports discipline, duration of sports participation, and educational status of the athletes.

Scale of Inhibition of Psychological Needs in Sport

The scale was developed by Bartholomew et al. (2011). It's was adapted into Turkish by Yıldırım, S. et al. (2022). The scale consists of three subscales (autonomy, competence, relatedness) with a total of 12 items. It utilizes a 7-point Likert scale and is evaluated based on the average score. The Cronbach's alpha reliability coefficients were calculated as 0.70 for the autonomy dimension, 0.82 for the competence dimension, 0.81 for the relatedness dimension, and 0.91 for the overall scale score.

Scale of Psychological Performance Inventory

Developed by Loehr, J.E. (1982), the scale was adapted to Turkish by Erman et al. (2002). It comprises seven subscales (self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, attitude control) with a total of 42 items. The scale employs a 5-point Likert scale. Scores obtained from the scale require specific attention within the range of 6-19, improvement within the range of 20-25, and indicate a high level of skill within the range of 26-30. The Cronbach's alpha reliability coefficients for the scale are as follows: self-confidence ,737, negative energy ,754, attention control ,761, visualization and imagery control ,761, motivation ,743, positive energy ,747, attitude control ,737, and the overall scale ,776.

Data Analysis

The collected data were analysed using the SPSS software package. Descriptive statistics, frequencies, and percentages were provided as distributions. The normality of the groups was determined by examining the skewness and kurtosis values. The skewness ranged from 0.044 to 1.451, while the kurtosis ranged from 0.073 to 3.842. Based on these values, it was determined that the data were not distributed normally, and therefore, nonparametric tests were chosen for analysis. Kurtosis and skewness values exceeding -1.5 and +1.5 are considered as indicators of non-normal distribution (Tabachnick and Fidel, 2013). For binary comparisons such as gender and educational status, the Mann-Whitney U test was used, while the Kruskal-Wallis H test was employed for comparisons involving three or more variables such as age, sports branch, and exercise duration. Additionally, the Spearman correlation test was conducted to examine the relationship between the scales.

Findings

Table 1. Frequency and Percentage Distribution of Athletes' Demographic Characteristics

Variable		N	%
Gender	Female	145	35.9
	Male	259	64.1
Age	13-14	181	44.8
	15-16	125	30.9
	17-19	98	24.3
Sport Branch	Football	113	28.0
	Basketball	102	25.2
	Volleyball	98	24.3
	Handball	91	22.5
Duration of Sports	1-3 years	185	45.8
	4-6 years	129	31.9
	7-9 years	74	18.3
	10 years and above	16	4.0
Education Status	Middle School	150	37.1
	High School and Equivalent	254	62.9

According to Table 1 it was determined that 35.9% of the athletes were female, 64.1% were male. In terms of age distribution, 44.8% of the athletes were in the 13-14 age range, 30.9% were in the 15-16 age range, and 24.3% were in the 17-19 age range. Furthermore, 28% of the

athletes participated in football, 25.2% in basketball, 24.3% in volleyball, and 22.5% in handball. Regarding the duration of sports participation, 45.8% of the athletes were engaged in sports for 1-3 years, 31.9% for 4-6 years, 18.3% for 7-9 years, and 4% for 10 years or more. In terms of educational status, 37.1% of the athletes were in middle school, and 62.9% were in high school or equivalent education.

Table 2. Descriptive Statistics of Athletes' Scores on the Scale of Psychological Needs Prevention and Psychological Performance Scale

Scale	Sub dimension	N	Min.	Maks.	X±SS	Skewness	Kurtosis	
Prevention of Psychological Needs	**Autonomy**	404	4.00	28.00	7.94±4.56	1,451	2,479	
	Competence	404	4.00	28.00	10.00±5.65	,874	,073	
	Relatedness	404	4.00	28.00	9.02±5.37	1,267	1,298	
Psychological Performance	**Self Confidence**	404	6.00	30.00	15.95±3.07	,781	2,995	
	Negative Energy	404	8.00	30.00	18.22±3.57	,044	,350	
	Attention Control	404	6.00	30.00	19.59±3.77	-,190	,554	
	Visualization and Imagery	404	600	30.00	13.59±4.59	,804	,792	
	Motivation Level	404	6.00	30.00	13.33±3.61	1,286	3,709	
	Positive Energy	404	6.00	30.00	13.65±3.55	1,212	3,842	
	Attitude Control	404	6.00	30.00	13.59±3.76	,963	2,169	

According to Table 2 it was found that the autonomy scores on the Scale of Psychological Needs Prevention were 7.94±4.56, competence scores were 10.00±5.65, and relatedness scores were 9.02±5.37 among athletes. Additionally, on the Psychological Performance Scale, the self-confidence scores were 15.95±3.07, negative energy scores were 18.22±3.57, attention control scores were 19.59±3.77, visualization and imagery control scores were 13.59±4.59, motivation level scores were 13.33±3.61, positive energy scores were 13.65±3.55, and attitude control scores were 13.59±3.76. It was determined that these scores were within the range requiring special attention.

Table 3. Comparison of Psychological Needs Prevention and Psychological Performance Scale Scores according to Gender

Scale	Sub Dimension	Gender	N	Median (25-75)	u	p

Prevention of Psychological Needs	**Autonomy**	Female	145	7 (4-12)	17055,000	,118
		Male	259	6 (4-10)		
	Competence	Female	145	10 (5-14)	16884,500	,091
		Male	259	8 (5-13)		
	Relatedness	Female	145	9 (6-13)	14954,500	**,001**
		Male	259	7 (4-11)		
Psychological Performance	**Self Confidence**	Female	145	16 (14-18)	19014,500	,832
		Male	259	16 (14-17)		
	Negative Energy	Female	145	19 (16-20)	18609,000	,881
		Male	259	18 (16-21)		
	Attention Control	Female	145	20 (17,5-22)	17878,500	,423
		Male	259	20 (17-22)		
	Visualization and Imagery	Female	145	14 (11-18)	14516,500	**,000**
		Male	259	12 (10-15)		
	Motivation Level	Female	145	13 (11-16)	16958,500	,105
		Male	259	13 (11-15)		
	Positive Energy	Female	145	14 (12-16)	16088,000	**,016**
		Male	259	13 (11-15)		
	Attitude Control	Female	145	13 (11-17)	16553,000	**,047**
		Male	259	13 (10-15)		

$p<0.05$

Based on the Table 3 presenting information pertaining to the gender, it was found that there was no significant difference in the autonomy and competence dimensions of the Scale of Psychological Needs Prevention among athletes, while a significant difference was found in the relatedness dimension. Moreover, in the Psychological Performance Scale, there was no significant difference in the self-confidence, negative energy, attention control, and motivation level dimensions, while significant differences were found in the visualization and imagery control, positive energy, and attitude control dimensions.

Table 4. Comparison of Psychological Needs Prevention and Psychological Performance Scale Scores according to Age

Scale	Sub Dimension	Age	n	Median (25-75)	X^2	p	difference
Prevention of Psychological Needs	Autonomy	13-14[a]	181	6 (4-10)	3,288	,349	
		15-16[b]	125	7 (4-11)			
		17-19[c]	98	7 (4-12)			
	Competence	13-14[a]	181	8 (5-12)	8,562	**,036**	b>a
		15-16[b]	125	10 (6-15)			
		17-19[c]	98	9 (5-14)			
	Relatedness	13-14[a]	181	7 (4-12)	2,234	,525	
		15-16[b]	125	7 (4-12,5)			
		17-19[c]	98	8 (5-11)			
Psychological Performance	Self Confidence	13-14[a]	181	16 (14-18)	2,529	,470	
		15-16[b]	125	16 (15-18)			
		17-19[c]	98	15 (14-18)			
	Negative Energy	13-14[a]	181	19 (16-21)	3,111	,375	
		15-16[b]	125	18 (15.5-21)			
		17-19[c]	98	18 (15-21)			
	Attention Control	13-14[a]	181	20 (17.5-22)	2,289	,515	
		15-16[b]	125	19 (17-22)			
		17-19[c]	98	21 (18-22)			
	Visualization and Imagery	13-14[a]	181	13 (11-17)	7,787	,051	
		15-16[b]	125	13 (10-16)			
		17-19[c]	98	12 (10-16)			
	Motivation Level	13-14[a]	181	13 (10.5-15)	6,404	,094	
		15-16[b]	125	13 (12-15)			
		17-19[c]	98	13 (11-15)			
	Positive Energy	13-14[a]	181	13 (12-15.5)	6,404	,816	

		15-16[b]	125	13 (11.5-15)			
		17-19[c]	98	14 (11-15)			
	Attitude Control	13-14[a]	181	13 (11-15)	3,861	,277	

p<0.05

When Table 4 examined according to the age variable, no significant differences were found in the autonomy and relatedness dimensions of the Scale of Psychological Needs Prevention among athletes, while a significant difference was found in the competence dimension. Additionally, no significant differences were found in the self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control dimensions of the Psychological Performance Scale.

Table 5. Comparison of Psychological Needs Prevention and Psychological Performance Scale Scores according to the Sports Branch

Scale	Sub Dimension	Sport Branch	N	Median (25-75)	X^2	p	difference
Prevention of Psychological Needs	**Autonomy**	Football[1]	113	7 (4-11)	1,669	,644	
		Basketball[2]	102	6 (4-10)			
		Volleyball[3]	98	6 (4-10)			
		Handball[4]	91	6 (4-11)			
	Competence	Football[1]	113	9 (5-14)	,562	,905	
		Basketball[2]	102	9 (5-13)			
		Volleyball[3]	98	9 (4-14)			
		Handball[4]	91	8 (4-14)			
	Relatedness	Football[1]	113	8 (4-12)	2,217	,529	
		Basketball[2]	102	7 (4-12)			
		Volleyball[3]	98	7 (4-10.25)			
		Handball[4]	91	8 (5-12)			
Psychological Performance	**Self Confidence**	Football[1]	113	16 (14-17)	9,876	**,020**	**2>1 2>4 3>4**
		Basketball[2]	102	17 (14-18)			
		Volleyball[3]	98	16 (15-18)			
		Handball[4]	91	15 (14-17)			

	Negative Energy	Football[1]	113	18 (15-20.5)	5,445	,142	
		Basketball[2]	102	18 (15-21)			
		Volleyball[3]	98	19 (17-21)			
		Handball[4]	91	19 (16-21)			
	Attention Control	Football[1]	113	19 (17-21.5)	14,578	**,002**	**3>1 3>2 3>4**
		Basketball[2]	102	19 (16-21)			
		Volleyball[3]	98	21 (18.75-23)			
		Handball[4]	91	20 (17-22)			
	Visualization and Imagery	Football[1]	113	12 (9-16)	10,149	**,017**	**2>1 3>1**
		Basketball[2]	102	13 (11-17)			
		Volleyball[3]	98	14 (10.75-17)			
		Handball[4]	91	12 (10-16)			
	Motivation Level	Football[1]	113	13 (10.5-15)	9,359	**,025**	**2>1 2>4**
		Basketball[2]	102	14 (12-16)			
		Volleyball[3]	98	13 (11-16)			
		Handball[4]	91	13 10-15)			
	Positive Energy	Football[1]	113	13 (11-14.5)	3,669	,299	
		Basketball[2]	102	13 (12-16)			
		Volleyball[3]	98	14 (12-15)			
		Handball[4]	91	13 (11-16)			
	Attitude Control	Football[1]	113	13 (11-15)	2,645	,450	
		Basketball[2]	102	14 (11-17)			
		Volleyball[3]	98	13 (11-15)			
		Handball[4]	91	13 (10-16)			

$p<0.05$

When Table 5 examined according to the sports branch variable, no significant differences were found in the autonomy, competence, and relatedness dimensions of the Scale of

Psychological Needs Prevention among athletes. Additionally, no significant differences were found in the negative energy, positive energy, and attitude control dimensions of the Psychological Performance Scale. However, significant differences were found in the self-confidence, attention control, visualization and imagery control, and motivation level dimensions.

Table 6. Comparison of Psychological Needs Prevention and Psychological Performance Scale Scores according to the Exercise Duration

Scale	Sub Dimension	Duration of Sports	N	Median (25-75)	X^2	p
Prevention of Psychological Needs	**Autonomy**	1-3 years	185	6 (4-10)	2,386	,496
		4-6 years	129	7 (4-10)		
		7-9 years	74	7 (4-12)		
		10 years and above	16	6 (4-13.75)		
	Competence	1-3 years	185	8 (5-13)	1,188	,756
		4-6 years	129	9 (5-13)		
		7-9 years	74	9(5-15)		
		10 years and above	16	13 (4-17.75)		
	Relatedness	1-3 years	185	7 (4-12)	1,738	,628
		4-6 years	129	7 (4-12)		
		7-9 years	74	7 (4-11.25)		
		10 years and above	16	10 (5,5-12.5)		
Psychological Performance	**Self Confidence**	1-3 years	185	16 (14-18)	4,486	,214
		4-6 years	129	16 (14-17)		
		7-9 years	74	16 (14-18)		
		10 years and above	16	15 (14-17.75)		
	Negative Energy	1-3 years	185	19 (16-21)	4,253	,235
		4-6 years	129	18 (15.5-20)		

		7-9 years	74	19 (15.75-20.25)		
		10 years and above	16	16 (14-22)		
	Attention Control	1-3 years	185	20 (17-22)	1,475	,688
		4-6 years	129	20 (18-22)		
		7-9 years	74	20 (17-22)		
		10 years and above	16	19 (17-20.75)		
	Visualization and Imagery	1-3 years	185	13 (10-17)	3,623	,305
		4-6 years	129	13 (11-16)		
		7-9 years	74	12 (9-16.25)		
		10 years and above	16	11,5 (9.25-15.75)		
	Motivation Level	1-3 years	185	13 (11-15)	1,883	,597
		4-6 years	129	13 (11-15)		
		7-9 years	74	13 (11-15)		
		10 years and above	16	12 (9-14)		
	Positive Energy	1-3 years	185	14 (11-15.5)	1,483	,686
		4-6 years	129	13 (11-15)		
		7-9 years	74	13 (11-15)		
		10 years and above	16	14 (11.25-16.5)		
	Attitude Control	1-3 years	185	13 (11-16)	1,327	,723
		4-6 years	129	13 (11-15)		
		7-9 years	74	14 (11.75-16)		
		10 years and above	16	12 (11.75-16)		

p>0.05

When Table 6 examined according to the exercise duration variable, no significant differences were found in the autonomy, competence, and relatedness dimensions of the Scale of Psychological Needs Prevention among athletes. Similarly, no significant differences were found in the self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control dimensions of the Psychological Performance Scale.

Table 7. Comparison of Psychological Needs Prevention and Psychological Performance Scale Scores according to the Education Level

Scale	Sub Dimension	Education Status	N	Median (25-75)	u	p
Prevention of Psychological Needs	**Autonomy**	Middle School	150	6 (4-10)	20345,000	,244
		High School and Equivalent	254	6.5 (4-11)		
	Competence	Middle School	150	8 (5-12)	21150,500	,062
		High School and Equivalent	254	9 (5-14)		
	Relatedness	Middle School	150	7 (4-11)	19962,000	,416
		High School and Equivalent	254	7 (4-12)		
Psychological Performance	**Self Confidence**	Middle School	150	16 (14-17.25)	20404,500	,229
		High School and Equivalent	254	16 (14-18)		
	Negative Energy	Middle School	150	19 (17-21)	16999,000	,069
		High School and Equivalent	254	18 (15-20)		
	Attention Control	Middle School	150	20 (17-22)	19162,000	,921
		High School and Equivalent	254	20 (17-22)		
	Visualization and Imagery	Middle School	150	13 (10-16)	17910,000	,313
		High School and Equivalent	254	12,50 (10-16)		
	Motivation Level	Middle School	150	13 (10-15)	20917,500	,098
		High School	254	13 (11-15)		

		and Equivalent				
	Positive Energy	Middle School	150	13 (11-15)	19377,000	,772
		High School and Equivalent	254	13 (11-15)		
	Attitude Control	Middle School	150	13 (11-15)	20576,000	,177
		High School and Equivalent	254	13 (11-16)		

p>0.05

When Table 7 examined according to the variable of educational background, no significant differences were found in the sub-dimensions of athletes' psychological need thwarting scale, including autonomy, competence, and relatedness, as well as in the sub-dimensions of psychological performance scale, including self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control.

Table 8. The Relationship between Athletes' Psychological Needs Thwarting and Psychological Performance Levels

Sub Dimension		**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Autonomy[1]	r	1									
	p	.									
Competence[2]	r	,621**	1								
	p	,000	.								
Relatedness[3]	r	,523**	,754**	1							
	p	,000	,000	.							
Self Confidence[4]	r	-,053	,016	-,042	1						
	p	,289	,747	,396	.						
Negative Energy[5]	r	-,136**	-,320**	-,298**	,219**	1					
	p	,006	,000	,000	,000	.					
Attention Control[6]	r	-,199**	-,305**	-,264**	,197**	,520**	1				

	p	,000	,000	,000	,000	,000	.				
Visualization and Imagery[7]	r	,070	,066	,028	,432**	,160**	,220**	1			
	p	,161	,184	,577	,000	,001	,000	.			
Motivation Level[8]	r	,146**	,190**	,119*	,440**	,011	,060	,523**	1		
	p	,003	,000	,017	,000	,831	,225	,000	.		
Positive Energy[9]	r	,131**	,121*	,117*	,399**	,073	,130**	,512**	,547**	1	
	p	,008	,015	,019	,000	,141	,009	,000	,000	.	
Attitude Control[10]	r	,214**	,345**	,311**	,336**	-,211**	-,136**	,444**	,513**	,501**	1
	p	,000	,000	,000	,000	,000	,006	,000	,000	,000	.

$p<0.01^{**}$, $p<0.05$

Table 8 presents the relationship between the scores obtained from the sub-dimensions of athletes' psychological performance scale and the scores obtained from the sub-dimensions of the psychological needs thwarting scale. The correlation analysis revealed insignificant relationships as follows: self-confidence with autonomy (r=-,053, p=,289), competence with autonomy (r=,016, p=,747), relatedness with autonomy (r=-,042, p=,396), visual imagery and control with autonomy (r=,070, p=,161), competence with autonomy (r=,066, p=,184) and relatedness with autonomy (r=,028, p=,577).

Significant negative relationships at a low level were found between negative energy and autonomy (r=-, 136**, p=, 006), competence (r=-, 320**, p=, 000), and relatedness (r=-, 298**, p=, 000). Similarly, low-level negative relationships were observed between attention control and autonomy (r=-, 199**, p=, 000), competence (r=-, 305**, p=, 000) and relatedness (r = -(r=-, 264**, p=, 000).

Furthermore, low positive relationships were identified between motivation level and autonomy (r=, 146**, p=, 003), competence (r=, 190**, p=, 000), and relatedness (r=, 119*, p=, 017). Positive relationships were also observed between positive energy and autonomy (r=, 131**, p=, 008), competence (r=, 121*, p=, 015) and relatedness (r=, 117*, p=, 019). Additionally, attitude control exhibited low-level positive relationships with autonomy (r = (r=, 214**, p=, 000), competence (r=, 345**, p=, 000), and relatedness (r=, 311**, p=, 000).

Discussion and Conclusion

Psychological needs are innate. These needs should not be ignored and on the contrary should be supported in order to reveal the potential of the athletes and to use it during the competition. In line with this information, the literature will be discussed to explore whether the thwarting of athletes' psychological needs affects their psychological performance.

When the table 3 were examined according to the gender variable, significant differences were found in the sub-dimension of relatedness in the psychological needs thwarting scale, while no significant differences were observed in autonomy and competence dimensions ($p < 0.05$). It was found that the averages of female athletes were significantly higher than those of male athletes. Given the literature, Serin (2021), found significant differences in favour of females based on gender in her study on psychological needs among middle school students. Çetiner (2021), Yüksel et al., (2021), and Akbağ (2017) also found significant differences in psychological needs based on gender in their studies. The results of these studies are parallel to the findings of our research. Atıcı (2023), in his study with secondary school students, found no significant differences in psychological needs based on gender. Ilıkkan (2021), Aydın (2020), and Dinçer (2019) also found no significant differences in psychological needs based on gender in their studies. However, these studies' results do not corroborate the findings of our research. Girls are inherently more emotional and can increase their sense of belonging by feeling connected to individuals, communities, or groups (Şirin, 2023). Based on our research, it can be argued that the difference stems from this characteristic. According to the sub-dimensions of the psychological performance scale based on the gender among athletes, significant differences were not observed in the sub-dimensions of self-confidence, negative energy, attention control, and motivation level. However, significant differences were found in the sub-dimensions of visualization and imagery, positive energy, and attitude control. It was observed that the average scores of female athletes were significantly higher than those of male athletes. Considering the literature, Şentürk and Özmutlu (2023), found significant differences in psychological performance favouring female athletes in their study on archers. Gürer et al., (2018), Karademir et al., (2018), and Kızıldağ (2007) also found significant differences in psychological performance based on the gender variable in their respective studies. The results of these studies are consistent with the findings of our research. In contrast, Biricik (2023) found no significant differences based on the gender variable in their study on athletes preparing for the Olympics, focusing on psychological well-being and performance. Abiş (2022), Doğan (2019), and Sucan (2012) also found no significant differences based on the gender variable in their respective studies on psychological performance. The results of these studies are not parallel the findings of our research. It can be argued that the ability of girls to exhibit better visual-spatial skills than boys, and their tendency to be more social, energetic, enjoy their work, and control their internal processes before making decisions, contribute to the emergence of these differences (Güvendi, 2019).

When the table 4 were examined based on the age, significant differences were not found in the sub-dimensions of psychological needs thwarting scale related to autonomy and relatedness, while significant differences were found in the competence dimension ($p<0.05$). It was observed that the averages of athletes in the age range of 15-16 were significantly higher than the averages of athletes in the age range of 13-14. When examining the literature, Yüksel et al., (2021), found significant differences favouring athletes in the age range of 25-28 in their study on athletes engaged in different sports. Kaşka (2022) and Çetiner (2021) also found significant differences in psychological needs based on the age in their respective studies. The results of these studies are consistent with the findings of our research. However, Aras (2019), Sarıdede (2018), Yasul (2016), and Pidecioğlu (2015) did not find significant differences based on the age in their studies. The results of these studies are not parallel the findings of our research. It can be argued that as athletes get older, they have a better understanding of the requirements of their specific sport, gain experience, and become more aware of their abilities, thus becoming more competent (Şirin, 2023). According to our research, it can be suggested that the difference might be attributed to this factor. No significant differences were found based on the age in the sub-dimensions of self-confidence,

negative energy, attention control, visualization and imagery, motivation level, positive energy, and attitude control of the psychological performance scale among athletes. When examining the literature, Gürer et al., (2016), found no significant differences based on the age in their study on athletes preparing for the Olympics regarding psychological performance. Sucan (2012) also found no significant differences based on the age in their study on individual and team sport athletes' psychological performance. The results of these studies are consistent with the findings of our research. According to our research, in team sports such as football, basketball, volleyball, and handball, the creation of more intimate environments, athletes behaving closer and more affectionate towards each other regardless of age, and performance-focused evaluations may contribute to the age having a similar impact on psychological performance. In other words, the age influences psychological performance at a similar level in these sports due to the establishment of more intimate team dynamics and supportive interactions among athletes (Gürer, 2016).

When the table 5 were examined based on the sport discipline, significant differences were not found in the sub-dimensions of psychological needs thwarting scale related to autonomy, competence, and relatedness. Despite the lack of significant differences, it is observed that athletes in the football discipline have higher averages in the sub-dimensions of autonomy and relatedness compared to athletes involved in basketball, volleyball, and handball disciplines. Based on the previous studies literature, Gezer (2018) found no significant differences based on the sport discipline in their study in terms of the psychological needs of university students engaged in individual and team sports. Gülşen et al., (2018) also found no significant differences based on the sport discipline variable in their study on the psychological needs of sports science faculty students engaged in team sports. The results of these studies are consistent with the findings of our research. However, Gezer (2018), found significant differences based on the sport discipline in their study with reference to the psychological needs of students engaged in individual and team sports, favouring individual sport athletes. Yüksel and Orhan (2021), Öner and Cankurtaran (2020), and Yarayan and İlhan (2020) also found significant differences based on the sport discipline in their respective studies. Based on the findings of the present study, it can be suggested that the similarity in psychological needs in team sports disciplines such as football, basketball, volleyball, and handball is due to the nature of team sports (Gezer, 2018). No significant differences were found in the sub-dimensions of negative energy, positive energy, and attitude control in the psychological performance scale of athletes. However, significant differences were detected in the sub-dimensions of self-confidence, attention control, visualization and imagery, and motivation level based on the variable of sports discipline. In the sub-dimension of self-confidence, it was determined that basketball players had significantly higher mean scores compared to football and handball players, and volleyball players had significantly higher mean scores compared to handball players. In the sub-dimension of attention control, it was found that volleyball players had significantly higher mean scores compared to athletes from other sports disciplines. In the sub-dimension of visualization and imagery, it was observed that basketball and volleyball players had significantly higher mean scores compared to football players. In terms of motivation level, it was determined that basketball players had significantly higher mean scores compared to football and handball players. A review of the literature indicates that Kaya and Onağ (2020), found significant differences based on the variable of sports discipline in their study on team athletes. Öztürk (2021) also identified significant differences based on the variable of sports discipline in their research. The findings of our study are in parallel with the results of these studies. Sports disciplines such as football, basketball, volleyball, and handball differ in terms of physical preparation, training style, training periodization, and the psychological readiness of athletes (Gezer, 2018). Therefore, it

can be stated that the differences in self-engagement, focus, and motivation levels among athletes in these sports are influenced by the internal dynamics of these disciplines.

When the table 6 were examined based on the variable of duration of participation in sports no significant differences were found in the sub-dimensions of psychological needs thwarting scale, including autonomy, competence, and relatedness ($p>0.05$). Despite the lack of significant differences, in the sub-dimension of autonomy, it was determined that athletes with a sports participation duration of 4-6 and 7-9 years had higher mean scores compared to those with a duration of 1-3 years and 10 years and above. In the sub-dimensions of competence and relatedness, it was found that athletes with sports participation duration of 10 years and above had higher mean scores than the others. A review of the literature reveals that Batu et al., (2020) did not find significant differences based on the variable of sports participation duration in their study on elite swimmers and psychological needs. Güler (2020), Öner (2019), and Sadıg (2018) did not find significant differences based on the variable of sports participation duration in their respective research. The results of these studies are consistent with the findings of our study. Kaşka (2022), in their research on psychological needs of individuals engaged in fitness exercises, found significant differences favoring individuals with sports participation duration of 4-5 years based on the variable of sports participation duration. Atıcı (2023) and Serin (2021) also found significant differences based on the variable of sports participation duration in their studies. The results of these studies do not align with the findings of our research. In team sports such as football, basketball, volleyball, and handball, as the duration of sports participation increases, experience grows, the requirements of the discipline are realized more extensively, and athletes may neglect their psychological needs as they have already attained a certain level of proficiency (Çırak, 2017). Based on our research, we can conclude that the lack of significant differentiation based on the duration of participation in sports is due to this phenomenon. No significant differences were found in the sub-dimensions of self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control in the psychological performance scale of athletes based on the variable of sports participation duration. As the duration of sports participation increases, athletes may become more focused on learning and developing regarding their sport, and they may become less concerned about future criticisms (Biricik, 2023). Based on our research, we can attribute the lack of significant differentiation based on the duration of participation in sports to this phenomenon.

When the table 7 were examined based on the educational level, no significant differences were found in the sub-dimensions of psychological needs thwarting scale, including autonomy, competence, and relatedness ($p>0.05$). Despite the lack of differences, it was observed that athletes with a high school or equivalent educational level had higher mean scores in the sub-dimensions of autonomy and competence compared to athletes with a secondary school educational level. Kaşka (2022), carried out a study by employing individuals engaged in fitness activities and psychological performance, significant differences were found in favour of individuals with a bachelor's degree in terms of educational level. The results of this study do not align with the findings of our research. According to Öztürk (2021), as educational level increases, individuals are expected to display more autonomous behaviour, make decisions independently, and have different perspectives on events and situations. Based on the results of our study, we can attribute the lack of significant differentiation based on educational level to various factors such as athletes' family environment, cultural background, and expectations from sports. These factors may account for the different characteristics observed among athletes (Öztürk, 2021).

No significant differences were found in the sub-dimensions of self-confidence, negative energy, attention control, visualization and imagery control, motivation level, positive energy, and attitude control in the psychological performance scale of athletes based on the variable of educational level ($p>0.05$). When reviewing the literature, it is found that the studies conducted by Gürer et al., (2018), on the psychological performance of athletes participating in outdoor sports activities and Sucan (2012), on the psychological performance of individual and team athletes did not find significant differences based on educational level. These findings are in line with the results of our research. Additionally, there are studies in the literature that do not support the findings of our study. In a study conducted by Abiş (2022), on the psychological performance of track and field athletes, significant differences were found in favour of athletes with postgraduate education. The results of this study do not align with the findings of our research. As educational level increases, individuals are expected to develop the ability to view events from different perspectives, allowing them to manage their mental processes more effectively (Abiş, 2022). Based on the results of our study, we can attribute the lack of significant differentiation based on educational level to the personality traits, social environment, and family background of the athletes in the sample. It is expected that athletes with higher levels of education will display desired behaviours (Öztürk, 2023).

Considering the table 8, a low level of negative and significant relationships was observed between the sub-dimensions of negative energy and attitude control and the sub-dimensions of autonomy, competence, and relatedness, based on the scores obtained from athletes' Psychological Performance Scale. On the other hand, low level of positive and significant relationships was found between the motivation level, positive energy and attitude control sub-dimensions, and the sub-dimensions of autonomy, competence, and relatedness. Thus, it can be said that as athletes' psychological performance scores increase, their psychological needs decrease. Similar studies in the literature reveal relevant findings. In a study conducted by Abiş (2022), a relationship between psychological performance and mental resilience was identified. Another study by Ekizoğlu (2023), found a negative correlation between psychological performance and mobbing behaviours. Biricik (2023), discovered significant relationships between psychological well-being and athletes' levels of burnout. In addition, studies in the literature indicate that when athletes are socially competent and autonomous, their ability to establish relationships can increase (Bakar, 2022), and when they feel better and have specific goals, they can increase their visualization and imagery abilities (Kara, 2022). However, it has been stated that in situations where negative energies such as lack of self-confidence, stress, anxiety, intense pressure, and lack of motivation are high, not only performance but also other competencies can decrease Sucan (2012). These findings support our research results.

In conclusion, relationships between the psychological needs and psychological performance of athletes participating in team sports such as football, basketball, volleyball, and handball have been found. As athletes' psychological performance increases, their psychological needs decrease. Additionally, it has been found that gender, age, and sports discipline have an impact on psychological needs and psychological performance. The duration of participation in sports and educational level were not found to significantly differentiate in terms of psychological needs and psychological performance.

RECOMMENDATIONS

• It is recommended to take sufficient precautions and provide expert support to enhance athletes' psychological performance.

• This research was conducted on athletes engaged in team sports. Similar and different results can be investigated by conducting further studies on athletes participating in individual sports as well.

• It is anticipated that conducting research with a larger sample size in future studies will contribute to the relevant literature.

• Incorporating different demographic variables into future studies will provide new insights into the field.

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International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2023.686

Investigation of Physiological and Kinematic Parameters of Tennis Players During the Simulated Games

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Type: Research Article (Received: 02.08.2023 – Accepted: 22.08.2023)

Abstract

In this study, it was aimed to examine the physiological and kinematic parameters of elite male tennis players during the simulated games. Ten male elite tennis players (age: 16.2±3.2 years, height: 179.4±4.7 cm, body weight: 67.3±8.1 kg, sports age: 9.7 years) voluntarily participated in the study. Each player was given two simulated games in the singles category. Research data were collected with the Catapult Sports Vector S7 GPS athlete tracking system, placed in the middle of each player's shoulder blades. Data were transferred to Openfield Console, and passive recovery periods were excluded. The Mann-Whitney U test was used in the comparative analysis of winner-loser and morning-afternoon games and the significance level was accepted as 0.05. The physiological activity variables of the players during the games were mean and maximum heart rate 144.9±13.5 beats/min and 178.2±11.05 beats/min, respectively; kinematic variables were determined as total running distance 4052.7±1034.3 m, maximum speed 19.01±2.07 km/h, maximum acceleration and deceleration values 3.49±0.42 m/s^2 and -3.75±0.61 m/s^2. It was determined that these variables did not differ statistically according to winning-losing and morning-afternoon games ($p>0.05$). The physiological and kinematic responses of elite tennis players differ when two consecutive games are played on the same day. These data may help to elucidate the need for specific pre-competition training loads or recovery strategies when faced with overloaded games. Physiological and kinematic findings obtained during competition are considered to be important for technical teams in planning training programs to improve athletes' performance.

Keywords: Match demands, athlete tracking systems, GPS, racket sports.

Introduction

Tennis is one of the most popular sports in the world, played according to the rules set by the International Tennis Federation (ITF). Tennis players participate in tournaments in different categories according to their ranking points in many countries (Fernandez et al., 2006). Men's Grand Slam competitions are played over five sets, all other national or international tournaments are played over three sets. Measuring the training and competition loads on the players in the competitions is an important process to manage the game profile (Gabbett, 2016). For this reason, the knowledge of the activity profile during the competition is very important for the preparation of appropriate training programs (Mendez-Villanueva et al., 2007).

The game of tennis is a sport that characteristically includes quick starts and finishes of varying intensity, and anaerobic movements such as slides, kicks and turns (Reid et al., 2013; Baiget, et al., 2014). However, it is very important to determine the physiological and kinematic requirements required during the competition in order to increase the training and competition performance of tennis players, with sports-specific tests and applications, and in laboratory and sports-specific field conditions (Cooke, Davey, 2005). With the recent technological developments, the physiological (heart rate, oxygen consumption, respiratory frequency, etc.) responses that occur during the competition and the kinematic findings (running speed, acceleration-deceleration, distance covered, etc.) become easy to measure, it is important for the instant status of the player (Fernandez-Fernandez et al.,2009; Fargeas-Gluck, Léger, 2012). Thus, as a result of instant measurements during the match, information about the match can be obtained, determining the competition profiles of the players and helping to plan appropriate training (Vickery et al., 2014).

The development of the global positioning system (GPS) and micro-electrical-mechanical-system (MEMS) has begun to provide real-time data collection to determine the performance of athletes. GPS devices have evolved over time from assessing physiological responses to assessing human movement in sports (Dokuma et al., 2014). Today, different versions of the GPS analysis system are widely used to measure external loads (running speed and distance covered) performed by athletes (Gabbett, Mulvey, 2008).

The performance of tennis players can be affected by various factors during the competition. Competition analyzes are made to define and evaluate the detailed competition performances of the players. When we review the literature, the most commonly used methods for performing competition profile analysis include video recordings (Martinez-Gallego et al., 2013; Pereira et al., 2016), Hawk-Eye (Reid et al.,2016) or different technologies (Reid et al., 2013; Gallo-Salazar et al., 2015) such as global positioning systems (GPS).

In this research, data were collected using Vector S7 brand GPS units designed by Catapult Sports (Catapult Sports, Melbourne, Australia). All physiological and kinematic parameters can be measured simultaneously with this system. The research, the physiological and kinematic analyzes of the players during the competition; It was designed to report the analysis results by detecting and evaluating the parameters of heart rate (beat/min), maximum heart rate, maximum speed (km/h), maximum acceleration (km/h), maximum deceleration (km/h), total distance (m) and total competition time (min). It is thought that obtaining this information during simulated tennis games will help coaches to obtain objective information about tennis competitions and to prepare an individual training program (Whiteside, Reid, 2017).

The aim of this research is to examine the physiological and kinematic parameters of elite tennis players during simulated games. It is assumed that these variables will be different between morning and afternoon games, as well as between winners and losers.

Material and Method

The study group consisted of 10 elite male tennis players who were in the top 100 in the country rankings in their age categories and were licensed athletes for at least 8 years (age: 16.2±3.2 years, height: 179.4±4.7 cm, body weight: 67.3±8.1 kg, sports age: 9.7±3.1 years). Players who did not have lower or upper extremity injuries within 6 months and did not take any drug supplements were included in the study group. Before starting the study, ethical approval was obtained with the decision of Gazi University Ethics Committee dated 20.03.2022 and numbered E-77082166-302.08.01-322518. In addition, after the players were informed about the study design and possible risks, their parents' consent was obtained and voluntary consent forms were filled.

In order to determine the physiological and kinematic parameters of the players during the competition, two simulated games were made for each player in the singles category. The games were played on the open hard-floor tennis court, in the morning and afternoon, by creating the official tournament conditions. Games were made based on the country rankings of the players. It was played over 3 sets (by applying a tie-break in each set) within the rules determined by the International Tennis Federation and federation approved tennis balls were used in the games. Each match was played against a different opponent to better adapt to the official tournament conditions. During the measurements, the experimental conditions (temp. mean 12-14^0 and relative humidity mean % 50-52) in morning and afternoon games were similar.

Statistical analysis

The data obtained in the study were evaluated by transferring them to the SPSS 26.0 program for statistical analysis. Descriptive data shown as “arithmetic mean+/- standard deviation”, median and minimum-maximum. After testing whether the data showed normal distribution with the Shapiro-Wilk test, the Mann-Whitney U Test was used for comparisons between groups (winner-loser and morning-afternoon games). The analysis results were evaluated within the 95% confidence interval, and $p<0.05$ statistically significant difference was accepted.

Findings

The descriptive features of the study group were determined as age: 16.2±3.2 years, height: 179.4±4.7 cm, body weight: 67.3±8.1 kg, sports age: 9.7 years) (Table 1).

Table 1. Descriptive data for the study group

Variables	Mean ± SD
Age (year)	16.2±3.2

Height (cm)	179.4±4.7
Body weight (kg)	18.6±2.5
Sports age (year)	9.7±0.5

Table 2. Physiological and kinematic measurement values of the players during all games

Variables	Mean ± SD	Min-Max
Heart rate (beat/min)	144.9±13.5	117-167
Maximum heart rate	178.2±11.05	150-195
Maximum speed (km/h)	19.01±2.07	15.1-21.4
Maximum acceleration (km/h)	3.49±0.42	2.6-4.4
Maximum deceleration (km/h)	-3.75±0.61	-5.2 - -3
Total distance (m)	4052.7±1034.3	2207.2-6129.1
Total competition time (min.)	75.43±20.28	49.16-119.19

The average heart rate of the players during all the games was 144.9±13.5 beats/min, the maximum heart rate was 178.2±11.05 beats/min, their maximum speed was 19.01±2.07 km/h, the maximum acceleration values were 3.49±0.42 m/s, the maximum deceleration values were -3.75±0.61 m/s and the total running distances were determined as -3.75±0.61 m/s and the total running distances of 4052.7 m (Table 2).

Table 3. Physiological and kinematic measurement values and comparison of the players during morning and afternoon games

Variables	**Morning Games** Mean ± SD (Med;Min-Maks)	**Afternoon Games** Mean ± SD (Med;Min-Maks)	***p***
Heart rate (beat/min)	144.6±12.3 (149.5;128-165)	145.1±15.3 (144;117-167)	0.853
Maximum heart rate	178.7±9.98 (177.5;164-195)	177.7±12.5 (179.5;150-189)	0.853
Maximum speed (km/h)	18.6±2.5 (19.2;15.1-21.4)	19.4±1.6 (19.8;16-21.1)	0.912
Maximum acceleration (km/h)	3.4±0.5 (3.4;2.6-4.3)	3.6±0.4 (3.6;3-4.4)	0.529

Maximum deceleration (km/h)	-3.7±0.5 (-3.6;-4.5--3)	-3.8±0.7 (-3.5;-5.2--3.1)	0.853
Total distance (m)	3962.7±824 (3695.5;3132.8-5630.8)	4142.7±1249.5 (3824.4;2207.2-6129.1)	0.796
Total competition time (min.)	75.4±14 (73;58-99)	75.2±25.9 (66;49-119)	0.684

When the physiological and kinematic measurement values of the players during the morning and afternoon games were examined, it was determined that there was no statistically significant difference between the heart rate (p=0.853), maximum heart rate (p=0.853), maximum speed (p=0.912), maximum acceleration (p=0.529), maximum deceleration (p=0.853), total distance (p=0.796) and total competition time (p=0.684) (Table 3).

Table 4. Physiological and kinematic measurement values and comparison of the winner and loser players during the games

Variables	**Winners** Mean ± SD (Med;Min-Maks)	**Losers** Mean ± SD (Med;Min-Maks)	***p***
Heart rate (beat/min)	144.2 ± 14.7 (146.5;117-165)	145.5±12.9 (147;128-167)	0.853
Maximum heart rate	180.1±12.4 (183.5;150-195)	176.3±9.8 (176;164-189)	0.393
Maximum speed (km/h)	18.6±2 (18.7;15.1-21.1)	19.5±2.2 (20.1;15.3-21.4)	0.247
Maximum acceleration (km/h)	3.4±0.4 (3.4;2.6-3.9)	3.6±0.5 (3.6;3-4.4)	0.353
Maximum deceleration (km/h)	-3.7±0.6 (-3.5;-5.2--3)	-3.8±0.6 (-3.7;-5.2--3.1)	0.353
Total distance (m)	4069.7±1045.6 (3825.6;2207.2-5630.8)	4035.7±1079.2 3694.4;3059.4-6129.1)	0.631
Total competition time (min.)	75.3±20.8 (72;49-119)	75.3±20.8 (72;49-119)	0.999

When the physiological and kinematic measurement values of the winner and loser players during the games were examined, it was determined that there was no statistically significant difference between the heart rate (p=0.853), maximum heart rate (p=0.393), maximum speed (p=0.247), maximum acceleration (p=0.353), maximum deceleration (p=0.353), total distance (p=0.631) and total competition time (p=0.999) variables (Table 4).

Discussion and Conclusion

When the kinematic findings of our study were examined, it was found that although there was no statistically significant difference, the players covered more distance in the afternoon games than in the morning games (Table 1), the winner and loser players were compared, it was determined that the total distance covered was higher in the winners than the loser players (Table 2). When the variables of maximum speed, maximum acceleration and maximum deceleration were examined, it was observed that the maximum speed was higher

in the afternoon games and in the losers, although there was no statistically significant difference (Table 1, Table 2). In the literature, it has been observed that running activities vary significantly according to age, gender, playing ground and competition results (Martinez-Gallego et al., 2013; Hoppe et al., 2016; Hoppe et al., 2014; Pereira et al., 2016). However, these differences were not observed for young elite players (Hoppe et al., 2016; Hoppe et al., 2014). Hoppe et al. (2014), found the total distance covered in simulated tennis games played on hard ground, especially in the morning tennis games, between 2900-3600 m (Hoppe et al., 2014), Pereira et al. (2016), the total distance covered in tennis games played on hard courts were 2012.3 ± 295.8 m (Pereira et al., 2016). Gallo-Salazar et al.(2019), determined that the total distance coveredby the winner players were 3668 ± 1313 m, and the total distance covered by the loser players were 3631 ± 1203 m (Gallo-Salazar et al., 2019).

Gallo-Salazar et al. (2019), study of game activity and physiological responses in young tennis players, found that all other variables did not change except maximum speed for afternoon games and for loser players (Gallo-Salazar et al., 2019). Our study results are also similar to other studies in the literature (Table 1, Table 2). In the literature, it has been observed that the total distance covered in the afternoon decreased in consecutive tennis games (Gescheit et al., 2015; Ojala, Hakkinen, 2013). In our study, the players covered more distance in the afternoon than in the morning games. It is thought that the reason for this may be related to individual player differences or fatigue levels. When the physiological results of our study were examined, it was determined that there was no statistically significant difference in the comparison of the heart rate (beat/min) and maximum heart rate of the players in the morning and afternoon games (Table 1). When the winner and loser players are compared, it is seen that the maximum heart rate is higher in the winner players than the loser players, although there is no statistically significant difference.

Girard and Millet (2004), in their study, determined that the average heart rate of the athletes during the competition was 181.8±11.9 and 172.8±17.2 beats/min, and their maximum heart rate was 201.1±8.5 beats/min (Girard, Millet, 2004). Fernandez-Fernandez et al. (2009), determined that the maximum heart rate of male (n=10) tennis players was 180.3±6.5 beats/min (Fernandez-Fernandez et al., 2009), as a result of the training match. Gallo-Salazar et al. (2919), determined the heart rate to be 157 ± 7 beats/min in morning games, and 154 ± 10 beats/min in afternoon games. In winners and losers, they determined that the winner heart rate was 156 ± 8, the loser 155 ± 9 beat/min, the maximum heart rate was 193 ± 5, the winner was 191 ± 8 beats/min (Gallo-Salazar et al., 2019). The results of our study are similar to other studies in the literature on elite tennis players.

As a result, it is thought that it would be more appropriate to make an individual training program by evaluating the physiological and kinematic parameters measured during the simulated games in tennis.

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International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2023.687

Studyıng Of Relatıonshıp Between A Person's Attitudes Towards Sport And Happiness Level: An Implementation Over Academic Staff Aydın Adnan Menderes University

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Türü: Research Article (Alındı: 06.06.2022 - Kabul: 28.09.2023)

Abstract

In this study, 190 academic staff of Aydin Adnan Menderes University in 2019. between attitude towards sports and happiness level were investigated. In our study, the "Attitude Scale towards Sport" and the "Oxford Happiness Scale-short form" are used. The data collected were analysed using the results of the t-test, one-way analysis ANOVA and postdoc analysis (Tukey test) in the SPSS package programme (Statistical Package for Social Science). Based on the obtained results, in one of the sub-dimensions of attitude towards sports, the level of attitude in the sub-dimension "being interested in sports and living with it" was determined to be below, while the level of attitude in the sub-dimension "actively playing sports" was determined to be higher. It was found that the academics have a higher-than-average attitude when we consider the attitude scale towards sport, i.e., their level of attitude towards sport was defined as high. As for their happiness level, their attitude was below average, i.e., their happiness level was defined as low. As for the general consideration, it was found that there was no significant relationship between attitude towards sport and happiness level.

Keywords: Academician, Happiness, Sport, Attitude, University.

Introduction

The fact that individuals spend more time at work and inadequate sports facilities play an active role in causing inactivity. Insufficient participation in sports influences the problem of inactivity not only among academics in the field of sports but also among individuals who spend most of their day in the office environment, such as office workers in general. The attitude displayed in the face of this situation is a mental, emotional, and behavioural response tendency based on the individual's experiences, knowledge, emotions and motivations towards himself or an object, social issue, or event around him (İnceoğlu, 2011).

When this trend and the direction of involvement are positive, an increase in the level of happiness can be observed. Happiness, on the other hand, is the common point that all people strive for and want to achieve in life (Kangal, 2013).

The time devoted to exercise, the attitude and determination, and the interest is shown all contribute to developing a positive attitude towards sport, positive gains in overall human health and developments in the life process (Huddleston et al., 2002).

It is a well-known scientific fact that sports programmes, especially aerobic exercise programmes, increase serotonin hormone levels in individuals (Terletmez, 2019). For this reason, in many countries, to promote and guide social happiness, mobility and health, especially in recent years; active living, happy living, healthy living and sports, sports for all, etc. Under such labels, states are trying to establish universal health and sports protocols and encourage people to take up sports and lead an active life. This is an important contribution to the literature and a study in which academics who have some importance or status in social class and who can serve as role models or examples of participation in an active lifestyle were selected as the sample group. The duration of happiness and satisfaction resulting from participation in physical activity is not only limited to the moment of activity but also has a lasting continuity. This is because participation in physical activity is recommended for being healthy and living a happier life. Moreover, participation in physical activities such as sports and exercise provides opportunities for socialisation and helps to lead a happier life with more efficient communication and cooperation. It is therefore possible to create not only temporary but lasting happiness with sport (Huang and Humphreys, 2012).

The insufficient number of studies in the literature addressing the relationship between attitudes towards sport and happiness will be among the seminal studies examining the relationship between sport and happiness. To highlight and disseminate this situation, the determination of attitudes and happiness levels of academics, who are a prominent occupational group in society, was addressed in the sample group of the study, with the assumption that it could provide average results. The goal of an active society, a healthy and conscious society was pursued.

In this study, the demographic characteristics (gender, age, marital status, academic title, length of service as an academic, the academic unit in which the most work has been done so far in higher education/organizations, weekly course load, last year) of academics, attitude towards sports and happiness level were investigated. whether there are differences in terms of academic activity (article, dissertation, project, etc.) pursued outside teaching. To determine whether there is a relationship between academics' attitudes towards sport and their level of happiness.

Method

By Decision No. 4 dated 25.04.2019, the Rectorate of Aydın Adnan Menderes University / Ethics Committee for Non-interventional Clinical Research confirmed that the ethical rules have been complied with. The Helsinki ethical rules were also complied with. The descriptive study model was used, which allowed a general judgement to be made about the population. A simple selection was used in the selection of the sample. The research group of our study consists of 190 academics who took an active role in Aydin Adnan Menderes University in 2019.

Data collection instruments

The data collection instruments used in the study were the "Personal Information Form", "Attitude towards Sport Scale" and "Oxford Happiness Scale Short Form" questionnaires prepared by the researchers.

Personal Information Form: A personal information form with 8 questions was used by the researchers in the study to elicit the demographic characteristics of the participants such as age, gender, marital status, and academic title.

Attitude toward sports scale: The "Attitude towards Sport Scale" (SYTO), created by Halil Evren Şenturk 2012, consists of 25 statements to identify attitudes towards sport. The statements are divided into three factors. The first factor is "interest in sports", the second factor is "living with sports" and the third factor is "actively doing sports". The KMO value was determined to be 0.958. As a result of the analysis, Barlett's test was found to be significant ($\chi 2$=8712.629; p <.001). The results for the overall correlation of the items vary between 0.50 and 0.74. As for the item invariance over time, the reliability of the SAS was measured using the test-retest method, and the correlation coefficient (r= .89) obtained by comparing the two application results also provides information about the reliability of the test. The Cronbach alpha values calculated separately for the two applications of the SAS were ".83" and ".87" respectively. In our study, a Cronbach's Alpha value of .93 was determined. It is a Likert scale consisting of 5 options. The rating on a Likert scale with 5 options to measure the attitude of academics towards sports based on their sports habits and responses is coded and gaining significance as follows. Accordingly, it is a scale graded as follows: '1-I do not agree at all, '2-I do not agree', '3-I am undecided', '4-I agree' and '5-I completely agree'. The minimum score that can be achieved on the scale is 25 and the maximum score is 125. A high score indicates a high attitude towards sport and a low score indicates a low attitude towards sport.

Oxford Happiness Scale Short Form (OMS-SF): The Oxford Happiness Scale-Short Form (OMS-SF), developed by Hills and Argyle 2002, consists of 8 statements and a single factor. A correlation of ".93 (p <.001)" was found between the original form with 29 statements. The Turkish adaptation of OMOe- SF was done by Doğan and Çötok 2011. Accordingly, the result of the explanatory factor analysis was a 7-item structure with an eigenvalue of 2.782 and a single factor explaining 39.74% of the total variance. The single factor structure of SMD-SF was examined by confirmatory factor analysis and the fit indices were found ($\chi 2$/df=2.77, AGFI=0.93, GFI=0.97, CFI =0.95, NFI=0.92, IFI=0.95, RMSEA=0.074). In terms of criterion-related validity, the relationships between SSQ-SF and the Life Satisfaction Scale (Diener et al., 1985), the Life Orientation Test (Scheier and Carver, 1985), and the Zung Depression Scale (Zung, 1965) were examined, and each found to be .61. (p <.001), .51 (p <.001), and (-.48, p <.001) correlations were found. In our study, a Cronbach's alpha of .91 was found for the scale.

Data Analysis

Analysis of data was done in a computer environment using SPPS (Statistical Package for Social Sciences) package programme. Parametric and non-parametric tests were used in the analysis of the data, depending on the results of the Kolmogorov-Smirnov test and whether the VCRs had a normal distribution or not. The statistical analyses in our study (t-test, one-sided ANOVA, post hoc (Tukey), correlation) can be listed. The significance level was accepted as ($p<0.05$).

Results

In this section, the percentage, frequency, standard deviation, and mean values of the results obtained from the investigation are presented in tables.

Table 1. Demographic Characteristics of Participants Frequency and Percentages (n=190)

Varieble		N	Percentage Distribution	Cumulative Percentage
Gender	Female	80	%42.1	%42.1
	Male	110	%57.9	%100.0
Age	21-25	12	%6.3	%6.3
	26-30	49	%25.8	%32.1
	31-35	36	%18.9	%51.1
	36-40	31	%16.3	%67.4
	41-45	30	%15.8	%83.2
	46-50	19	%10.0	%93.2
	over 50 years old	13	%6.8	%100.0
Marital Status	Single	98	%51.6	%51.6
	married	92	%48.4	%10.0
Academic Title	Research Assistant	56	%29.5	%29.5
	Instructor	52	%27.4	%56.8
	Instructor Dr.	19	%10.0	%66.8
	Doctor Lecturer	26	%13.7	%80.5
	Associate Professor Doctor	24	%12.6	%93.2
	professor Doctor	13	%6.8	%100.0
Academic Tenure	less than 1 year	12	%6.3	%6.3
	1-4 Year	50	%26.3	%32.6
	5-9 Year	40	%21.1	%53.7
	10-14 Year	33	%17.4	%71.1
	15-19 Year	26	%13.7	%84.7
	20 years and more	29	%15.3	%100.0
The Type of Academic Unit Worked For The Longest Time In Higher Education Institutions/Organizations	Faculty	112	%58.9	%58.9
	College	35	%18.4	%77.4
	Vocational School	43	%22.6	%100.0

Weekly Course Clock	0 hour	40	%21.1	%21.1
	1-20 hour	88	%46.3	%6.4
	21-40 hour	62	%32.6	%100.0
Academic Activities Carried Out In The Last Year Other Than Teaching Are Articles, Thesis, Projects, Etc.	No	19	%10.0	%10.0
	1-10	152	%80.0	%90.0
	more than 10	19	%10.0	%100.0

Table 1 examines the demographic data of 80 (42.1%) females and 110 (57.9%) males who participated in the study. In total, the demographic data of 190 persons were examined, 98 (51.6%) are single, 92 (48.4%) are married, 112 (58.9%) the faculty members, 35 (18.4%) are from the colleges, 43 (22.6%) of the professional schools have academics. General information on different units was obtained in this way.

Table 2. Descriptive Statistics Results of Academicians' Attitudes Towards Sports Scale

(n=190)	Min.	Max.	X	SS	Skewness
Interest in Sport Sub Scale	20.00	39.00	32.31	3.33	-.668
Living with Sport Sub Scale	12.00	32.00	22.35	4.32	-.233
Doing Sport Actively Sub Scale	8.00	26.00	16.73	3.63	.062
Attitudes towards Sport Scale	49.00	93.00	71.40	8.19	.110

$p<.05$

The study of Table 2 shows that the attitude of academicians toward sports is high on the 'Attitude Scale towards Sports'. Their attitude towards the sub-factor "Avoiding interest in sport" is low, their attitude towards the sub-factor "Living with sport" is low and their attitude towards the sub-factor "Active sport" is slightly high.

Table 3. Descriptive Statistics of Academicians on the Oxford Happiness Scale-Short Form

(n=190)	Min.	Max.	$\bar{x} \pm ss$	Skewness

Oxford Happiness Scale Short Form (OMS-SF)	8.00	35.00	25.34 ± 4.63	-.165

Examination of Table 3 shows that the minimum score of the academics on the scale is 8, the maximum score is 35 and the average is 25.34. The attitude of the academics towards the happiness level is below the average, i.e., the happiness level is low.

Table 4. Correlation Analysis Results Regarding the Relationship between Levels of Attitudes Towards Sports and Happiness Levels of Academicians

Correlation

		Attitudes towards Sport Scale	Oxford Happiness Scale Short Form
Attitudes towards Sport Scale	r	1	.027
	p		.709
Oxford Happiness Scale Short Form	r	.027	1
	p	.709	

p<.05

When Table 4 was examined, no significant difference was found between academics' attitudes toward sports and their happiness level. If we look at the values, there is a positive relationship, but no significance was found between these two scales. When looking at the demographic variables, no significant difference was found in the scale for gender, in the general scale for sport and in the sub-dimensions of doing sport and living with sport ($p>0.05$), a significant difference was found in the sub-dimension of interest in sport ($p<0.05$). The reason for this difference can be seen in the fact that male academics have more interest in doing and living with sport, or in the dominance in sports areas. Regarding the variable marital status, no significant difference was found in the scale for sports and in the sub-dimension of active sports participation ($p>0.05$), while a significant difference was found in the sub-dimension of living with sports and interest in sports ($p<0.05$). The reason for this difference can be seen in the fact that single academics spend more time on sports and

interests. The "test for homogeneity of variances" (sig.) value was checked because "interest in sport" p=.885 >.05 was heterogeneously distributed according to the academic title variable and "living with sport" p=.038 <.05 (sig.=.026). With this result, the Gamess-Howell test data were examined by post hoc tests and no significant difference was found. Since "Actively playing sports" p=.475 >.05 and since "Attitude scale towards sports total" p=.317 >.05 no significant results were obtained from the sub-factors of attitude towards sports and general total. No significant difference was found in the scale of interest in sports, sports participation, and attitude towards sports according to the unit in which they worked the longest. A significant difference was found with p=.027 <.05 in the sub-dimension of living with the sport. In this regard, the results of the post hoc / Tukey test were examined, and a significant difference was found between academic staff working in faculty and academic staff working in the university as (sig.027) value. The fact that the faculties are in the central campus and city centre might have caused this result. A significant difference was found with p=.001 <.05 with respect to the variable of several academic studies. It can be said that the happiness level increases in direct proportion to the satisfaction with the job and the professional field of the academics.

Discussion and Conclusions

In the sub-dimensions of 'interest in sports' and 'living with sports', their attitude was found to be below average i.e., low. In general, they were found to have above-average attitudes on the scales "Active participation in sports" and "Attitude towards sports".

In Temel's (2019) study, managers' interest in sports, living with sports and general attitude towards sports were found to be at a high level, while their attitude towards active sports was at a medium level. Results supporting our study were found in the sub-dimension of the attitude towards sport scale (general and active sport), and results supporting our study were found in the sub-dimension of interest in sport and living with the sport. When examining the literature, Gokdağ (2018) found different results than our study in the sub-dimensions of interest in sport and living with the sport.

In our study, when examining the descriptive analyses of the Oxford Happiness Scale-Short Form of academics (Table 3), it was found that the happiness level of academics was low. In parallel with our study, Ozgun et al., (2017) found in their study that the happiness level of the sample group was low.

As a result of the sub-dimensions of academics in relation to sport according to the gender variable and the total scale analysis (Table 4.), a significant difference was found in the sub-dimension "interest in sport" ($p < 0.05$). From this significance, it was concluded that male academics were more interested in sports than female academics.

Goksel, Çağdaş, Yazıcı and İkizler (2017) found that the mean scores of famale students were lower than the mean scores of male students in the sub-dimension of interest in sport according to the gender variable, but they could not find a significant difference in the sub-dimensions of attitude towards sport and the scale.

Temel (2019) found a significant difference in the sub-dimension of interest in the sport by gender variable in his study, like our study, and found in parallel that male managers in his work showed more interest in sport than female managers.

Tukel (2018) found similar results to our study in the sub-dimension of interest in sports according to the gender variable, but the significance was reversed compared to our study and found that females are more interested in sports than males.

In our study, no significant difference was found in terms of gender, living with sports, sports participation, and attitude towards sports. If we look at the attitude scale towards sport in general, there are studies that are like the results of our study. As an example of these studies, the studies by Efek et al., (2018), Goksel et al., (2017) can be cited. In the literature, some studies came to different results than our study, e.g., Grad and Baştuğ (2018), Gokdağ (2018), Turkmen et al., (2016), Temel (2019) found a significant difference in the attitude scale towards sport.

A significant difference was found only in the sub-dimension of "living with sport", while no significant difference in the happiness level was found in the other sub-dimensions and the scale. If we explain this situation; The fact that the campus within the university is very large and the sports fields and sports facilities on the campus grounds outside the central campus are less than the number of sports fields and sports facilities near the professional colleges cannot meet the sports needs of the academics. It is therefore suspected that this is the cause of this result.

No significant difference was found in the variable of the number of academic studies (article, dissertation, project, etc.) in the sub-dimensions of attitude towards sports and the total scale. A significant difference was only found in the happiness level. We can interpret this difference as follows: Because academics receive both a title and a promotion with their studies in academia, some financial increase in their salary is observed thanks to psychological satisfaction, job satisfaction, job satisfaction and these promotions and incentive bonuses. This is believed to lead to an increase in happiness levels due to factors. n their study, Demir and Duman (2019) found a significant difference between sports status, self-esteem, and happiness level of individuals. They observed an increase in happiness level with increasing sports status.

The result: in our study, it was found that the level of attitude towards sports, which is one of the sub-dimensions of "Interest in sports and living with sports", was low, while the level of attitude in the sub-dimension of "Active in sports" was high. We can explain this situation as follows: different sports or academic knowledge, rules, etc. It can be observed that interest in sports is low in terms of conceptual information such as or high results in participation rate due to compulsory conditions such as health, except for the time commitment related to participation in sports.

In general, academics were found to have above-average attitudes, i.e., their attitudes towards sports are high. They were found to have a below-average attitude towards happiness, i.e., their level of happiness is low.

In the general evaluation, it was found that there is no significant relationship between attitude towards sport and happiness level. If we look at the studies on attitude towards sport in the literature, Goktaş and Şenturk (2019) find that the perception of school climate increases when the level of attitude towards sport increases. Onal et al., (2017) found positive results between the level of attitude towards sport and quality of life in their studies. Belli, Bedir and Turan (2019) investigated the relationship between the attitude level of university students towards sports and their life satisfaction and found positive results. In another study, Çoban et al., (2020) found positive results between attitude toward sport and quality of life level. If we go through the literature, attitude towards sport is associated with quality of life,

happiness level, self-esteem, etc. It was found that the effects on the characteristics were generally positive, which is also true for our study.

As a result, an increase in the level of attitude towards sports was observed, while an increase in the level of positive happiness was observed. Exercise has an important place in the treatment of physical and mental disorders, which are especially common in office workers. Therefore, participation in sports can be beneficial for a healthy and happy life.

***** *The article was produced from the master's thesis of Aydın Adnan Menderes University, Institute of Health Sciences, Department of Physical Education and Sports Education.*

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International Journal of Sport Culture and Science
September 2023 : 11(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2023.688

The Problems of Transferring Athletes in Sports Multi-events

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Type: Research Article (Received: 19.11.2021 – Accepted: 18.09.2023)

Abstract

Multi-sport events are one of the attractions in the world of sports. One of the problems that occur in multi-sport events in the Special Region of Yogyakarta (DIY) is the phenomenon of athlete transfer. The transfer of athletes from one area to another is something that can cause pros and cons. The need to know data/information related to the transfer of athletes is very important. Therefore, this study aims to analyze the problem of transferring athletes in multi-sport events in the DIY Province. In this regard, this research uses descriptive qualitative research methods. Data collection techniques were carried out using document studies and interviews. Participants are experts in the field of sports, sports lecturers, athletes, coaches and administrators of sports organizations. Based on the research some opinions if the transfer of athletes can interfere with the process of coaching athletes in the regional area. While according to some parties if the transfer of athletes can be managed properly will be able to help improve the quality of athletes. So that this research can be used as an evaluation material to be able to minimize the negative impact caused by the transfer of athletes.

Keywords: Multi-Event Sports, Sports Coaching, Athlete Transfer.

INTRODUCTION

The world of sports is entering a new era where the sports industry has become the main goal. As we have known so far as a professional sport. Because achievement is no longer a benchmark for holding sports competitions. Professional sports are carried out commercially to get an income in the form of materials such as money and so on for the sports abilities that have been mastered (Russell Hoye, Aaron C.T.Smith, 2015). Referring to the achievement of sports achievements in Indonesia, it can be done through multi-sports events. The Indonesia's National Sports Week (PON) can be a bridge for athletes to achieve their dreams of becoming professional athletes. At the regional level, multi-events are also held to qualify for PON. The Special Region of Yogyakarta (DIY) holds a Regional Sports Week (PORDA) every 2 years. The fact is that not only local athletes can participate in PORDA DIY. The movement of athletes from one area to another or an area that brings athletes from outside the DIY area often occurs. Prestige bets between regions in obtaining medals at PORDA also encourage the transfer of athletes to occur.The impact of the frequent transfer of athletes that occurs in DIY can unconsciously inhibit the potential of existing athletes. There are athletes from DIY who decided to quit the world of athletes who are often called early retirement because they feel that their abilities are not appreciated by policy makers because they prefer mature athletes from outside the region to compete. This means that there are still many needs of athletes who can't be met, causing some problems (D. E. Prasetyo et al., 2018).The occurrence of piracy of athletes also often has a negative impact on the implementation of the multi-event itself. This can be influenced by several factors such as the amount of bonus that the athlete will receive, the distrust of the coach to the athlete so that the athlete decides to move or the limitations of training facilities (Prasetyo & Sakti, 2015). The transfer process for athletes comes from the athletes themselves or the organizations that oversee them. This can be influenced by the loyalty of the athlete concerned to his or her area of origin. The loyalty factor is based on the welfare that will be received by the athlete concerned from the athlete's destination (Ita, 2012).Professional sports are indeed close to the athlete transfer phenomenon, even now the athlete transfer phenomenon has become one of the consequences of the growing sports industry. Football leagues across Europe have shown what the real picture of professional sport is (Manoli, 2020). The evolution of the international transfer market continues to show its passion and appeal (Acheampong & Malek, 2019) especially in popular sports such as football. European football is undergoing rapid changes driven by massive investment from around the world (Sims, 2018). European football, which is clear evidence from the sports industry, has implemented Financial Fair Play to restore efficient managerial incentives in the football business (Dimitropoulos & Scafarto, 2019) because Financial Fair Play is designed to bring financial stability and improve competitive balance in the game (Plumley et al., 2019). Because the transfer of athletes aims to make the quality of the team stronger so that the team will have a greater chance of winning.In Indonesia, the phenomenon of transferring athletes in multi-events is not a ban in the world of sports. It's just that the disorderly perception of professional and amateur sports can change the paradigm about the goals of PORDA or PON itself. So there are always parties who take advantage of loopholes to trick the rule. The latest PORDA held in Yogya City revealed that there were many cases of athletes without mutations being able to compete in the 2019 DIY Porda (Tribun Jogja, 2019). Another phenomenon stated by the coach regarding the reasons for transferring athletes is the limitations of athletes who are in their team due to the lack of optimal regeneration of athletes. This case is

stated to always occur every time there is a multi-sport event. They admit that every PORDA or PON always transfers athletes to complete the available quota of players, it's just that the players who will be transferred are always changing and depending on their availability. Therefore, there are often pros and cons to the phenomenon of athlete transfer so that it can cause a problem.

METHODS

This article uses a qualitative descriptive research method. The research stage begins with the study of documents obtained through the general match rule book and the athlete transfer rule book at the National Sports Week (PON) championships, Regional Sports Week (PORDA) in DIY. The research was continued at the interview stage with several sources from various points of view. Participants were determined by the researcher according to the capacity needed in this study. The resource persons include experts in the field of sports, sports lecturers, athletes, coaches and administrators of sports organizations. Interviews were conducted using a semi-structured method so that the interview process can be carried out naturally without any pressure from the interviewer on the resource person. The total interviewees in this study amounted to 10 people with an average duration of 45 minutes for each interview conducted. Data analysis was carried out by means of qualitative data analysis, in this case the findings obtained were studied more deeply with the research process to be combined with supporting theories so that further conclusions could be drawn.

RESULTS

The results of this study began with a response to the phenomenon of athlete transfer that occurred. Some people agree with the transfer of athletes in PORDA DIY. They feel that the transfer of athletes is not something that violates the regulations of PORDA itself. Because from the transfer of athletes there are many things that can be benefited. On average, they benefit from the achievement of medals in the PORDA event. This means that there is progress or improvement from the person concerned in the implementation of the PORDA.Another thing shows that the transfer of athletes needs to be done to equip the team to be stronger and more reliable to win medals. In addition, the transfer of athletes is used as a coach to encourage the motivation of existing athletes so that there is healthy competition within the team to achieve the level expected from the coach. This is also considered as something positive if the imported athletes can provide knowledge transfer to athletes in the region.The rest of the transfer of athletes can push the budget because it can provide more targets for medals to be obtained. so that the regions can spend the appropriate funds or the regions have prepared funds to be able to achieve more achievements.On the other hand, regions that do not have financial strength will feel disadvantaged. Because it will be difficult to compete with superior regions. It doesn't stop there, for regions that do not have finances, they are more threatened with losing their flagship athletes because they are tempted by bonuses from other regions that are likely to become competitors. Some parties also mentioned that the transfer of athletes could hamper the potential of athletes in the area because they removed athletes from their positions. This will have a bad impact in the future because it is considered to threaten the future of the excluded athletes.In fact, the transfer process of athletes is also due to the athlete's own decision. Athletes tend to look for places to improve their abilities or more opportunities to come to areas that are considered to be

able to encourage their careers. So that it will be an advantage for the targeted area and a loss for the abandoned area. This is considered natural by sports experts because that is how an athlete should be. It's just that the transfer process must be passed officially so that it will not harm himself.DIY Province indeed has a lot of transfers of athletes, especially universities located in DIY Province, so that many students are interested in moving residents and playing in PORDA DIY. Because it is considered that the competition is not so tight because there are only five regions. It's just that this cannot be felt by all regions, only certain areas can attract students to join the team.It is undeniable that the government's demands for the medal target given sometimes get a bad response so that some sports management look for athletes and transfer athletes to meet the medal targets given.This is also sometimes regretted by some sports experts because this PORDA was issued using APBD funds but those who felt it were not people from the region itself. So that the transfer process of these athletes is often debated, causing several problems. Even in PORDA DIY in 2019 there were 9 athletes who were disqualified because they did not meet the requirements related to administration in the case of athlete transfer. If that happens, the athlete will be the most disadvantaged individual because it is almost certain that he will not get anything in terms of bonuses or the opportunity to enter a higher level

DISCUSSIONS

The purpose of transferring athletes by bringing in better athletes is of course to achieve the expected medal achievements. This can affect aspects of coaching athletes themselves. If it can be managed better, the transfer of athletes can have a positive impact because it is expected to be able to encourage the ability of athletes from the area to be able to motivate other athletes. One way to increase ability significantly can be done by creating competition within the internal team (Maelani, 2017). So that the system of degradation can be done against athletes who can't show their best ability (Jamalong, 2014).The process of achieving professional athletes cannot be done instantly. Many stages must be passed such as the number of competitions that must be followed, participating in tiered competitions from the lowest level, participating in competitions in age groups to provide a match experience (Moffat, 2019) and most importantly in the process athletes must be able to undergo a systematic and well-organized training program (Bompa & Carrera, 2015). The provision of interscried training must also be considered especially for a coach in order to improve the ability of athletes (Yudanto & Alfian, 2020).In addition, the availability of coaching funds and complete facilities can also support the success of an athlete or a sports team in giving birth to potential athletes. Because external support can support the spirit and motivation of athletes to be the best version. Support from the government is also important in the process of coaching athletes in the regions (Rasyono, 2016). If the achievement coaching is carried out with commitment, totality and good synergy from the government, sports management, athletes and coaches and is shown by maximum coaching management, it will produce an optimal coaching result (Alim, 2020). On the other hand, if the transfer of these athletes is not managed properly, it can potentially lead to social jealousy within the internal team. The results showed that many athletes were victims and hampered the potential of athletes in the region. This is due to the lack of coaching athletes from a young age by utilizing the athlete transfer process. This means that there is no transfer of knowledge that occurs, so that the competition to be the best also cannot run. The effect is that sports become difficult to regenerate athletes (Andrew & Suryawan, 2015).The future impact will be more detrimental because, firstly,

sports will always look for athletes to be recruited. As a result, the federation has to pay more to facilitate the imported athletes. The potential for piracy of athletes from rival regions will also have an effect. Then the athlete will also be harmed if later other regions find out and report it, the athlete may be declared disqualified if the athlete's transfer requirements cannot be met.Basically, multi-sport events are used as a forum to evaluate the existing coaching process in their respective areas in bringing out potential athletes. So it is very unfortunate if the phenomenon of transfer of athletes can harm the athletes themselves. Some athletes have also sacrificed themselves to become professional athletes where athletes deserve to get proper welfare as an athlete (Alim, 2020).Facilities such as money can be an important asset to support athletes to become representatives of their region. Because by providing a facility, the athletes can feel more comfortable because their rights are fulfilled. The delay in giving pocket money can also affect the economy of the athletes themselves. This means that being an athlete requires extra energy and time. Professional athletes spend almost all their time in the training ground to improve their abilities in the mission of achieving maximum performance (Taftazani & Fauziah, 2019).If it is understood more deeply the phenomenon of transfer of athletes should be able to provide many positive impacts for each actor. Recruitment of successful athletes can be used as an opportunity to get more budget to improve quality. Because athlete transfer policy is influenced by management or individuals who are in it (Tan et al., 2019).Determining the athletes to be recruited must also be based on the ability and *track record* of the athlete so far. Measuring an athlete's individual abilities and being able to translate the athlete's ability to increase productivity in that area is also important. Because it can guarantee achievement and have a positive impact on the team. So that the athlete transfer process will run optimally and achieve the expected results (Garcia-del-Barrio & Pujol, 2020).In addition, multi-events at the PORDA level can be used as a forum to develop the sports industry. Because it can encourage the public's perspective on PORDA as a professional sport. Seeing PORDA has potential in the design, implementation and evaluation of sports programs (Green, 2007). So the stakeholders should not turn a blind eye to learning from other regions or countries, especially countries that are successful in sports coaching (Zheng et al., 2019).The existence of athlete transfer can be a bridge for the world of sports to enter an industry. The availability of contract values for athletes in PORDA level events can increase the degree and welfare of an athlete. It's just that the rules must be adopted from the level of approach that places the athlete at the center of the regulatory framework and should not be biased towards one party (Yilmaz et al., 2018).Unfortunately, there is no clear legal protection for athletes in the athlete transfer contract agreement. So there is a need for regulations that do not harm various parties, especially for the development of sports in organizing multi-events, especially in PORDA. The level of legal regulation of the athlete transfer process must also be more specific so that it can be used as a strong foundation (Swastika & Turingsih, 2019).

CONCLUSION

PORDA as the most prestigious multi-event in DIY is a battle for prestige and pride in each region to show who is the best. The hunt for medals as a measure of success encourages regions to justify all means to get many medals. This study describes how the problems that occur in the implementation of PORDA DIY are related to the transfer of athletes. Therefore, the transfer of athletes is seen as a negative thing for some people in organizing PORDA events in DIY. It is

hoped that this research can be used as an evaluation material for each region that wants to transfer athletes. In order to minimize the negative impact that can be caused. Because the results of this study indicate that the transfer of athletes will affect several aspects in the field of sports including coaching sports achievements, athlete welfare and the sports industry.

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