ISSN: 2148-1148

International Journal of Sport Culture and Science (IntJSCS)

International Refereed Scientific Journal

Volume 10 Issue 3

September 2022

International Refereed Scientific Journal

International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS

INTERNATIONAL SCIENCE CULTURE AND SPORT ASSOCIATION

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.659

A Comparison of Some Strength Parameters in Crossfit Training and Resistance Training

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Type: Research Article (Received:23.08.2022– Accepted:27.09.2022)

Abstract

Crossfit is an exercise method that includes high-intensity functional training, resistance exercises, gymnastics, and aerobic exercises and creates variations between them daily. As it gets popular with its time-efficient workouts, the long and time-consuming traditional training began to lose its popularity. Still, it's unclear if Crossfit training is advantageous in terms of various fitness attributes compared to traditional resistance training. So this study aims to examine whether there is a difference in strength, muscle endurance, and vertical jump parameters between individuals who apply Crossfit training and those who apply traditional strength training. 10 Crossfit-trained individuals formed the Crossfit group (CrG) and 9 resistance-trained individuals formed the Traditional group (TG). Countermovement jump (CMJ), Handgrip strength, Leg, and Back strengths, 30s Sit-ups, and maximum Push-ups tests were applied. There was no significant difference for all measured parameters between groups. In conclusion, the present study found no significant difference between the groups that performed Crossfit training and traditional resistance training in terms of strength, muscular endurance, and vertical jump performances. Due to similar results between groups, Crossfit training can be recommended as an alternative method for strength development.

Keywords: Crossfit, resistance training, functional training

Introduction

In today's lifestyle, people reduced their physical activities drastically. Therefore, excess weight and disorders in the musculoskeletal, circulatory, and respiratory systems are increased. For adults, 150-300 minutes of moderate-intensity, 75-150 minutes of vigorous-intensity per week, or a combination of those with similar intensity exercise is recommended (Yang, 2019). Traditional resistance training and aerobic training support this kind of exercise with muscle development in the long term. However, the body adapts quickly to these same repeated exercises. It can slow down development. Motivation and the desire to continue training decrease over time. Time constraints, lack of variety in exercise programs, complexity, monotony, or fear of injury are the reasons for discontinuation of training in the first months. For this reason, it is important to find methods that will eliminate these disadvantages but also enable us to reach the desired goals in a shorter time. High-intensity interval training (HIIT), bodyweight training, and functional training are at the top of European fitness trends in 2020 (Chukhlantseva, Cherednychenko, & Kemkina, 2020). It is stated that functional training contributes to the protection and improvement of health by improving muscle endurance, body composition, and aerobic fitness (Mcweeny et al., 2020). One of these popular workouts is Crossfit. It is a type of training that every participant can enjoy, regardless of training background, age, lifestyle, or fitness level (Mangine et al., 2020).

Crossfit is an exercise method that includes high-intensity functional training, resistance exercises, gymnastics, and aerobic exercises and creates variations between them daily (Mangine et al., 2020). It aims to improve 10 fitness domains which are accuracy, agility, balance, coordination, cardiovascular and respiratory endurance, flexibility, power, speed, stamina, and strength (Cazayoux and DeBeliso, 2019). The daily workouts are created by using metabolic exercises such as free weights, body weight, running, and cycling under the name of workout of the day (WOD). The WODs are performed repetitively or for a certain period with short rest intervals or no rest (Faelli et al., 2020). Thus, a single training session can save time compared to traditional training. In addition, Crossfit can improve several physiological and performance parameters in a single session (Gavanda, et al., 2022). Studies are showing that traditional strength training (Doğru et al., 2018) and Crossfit training (Dilber and Doğru, 2018) improve strength values. However, it is still unclear if Crossfit training is advantageous in terms of various fitness attributes compared to traditional resistance training (Mangine et al., 2020; (Gavanda et al., 2022). So this study aims to examine whether there is a difference in strength, muscle endurance, and vertical jump parameters between individuals who apply Crossfit training and those who apply traditional strength training.

Material and Method

19 healthy men participated in the study. Two groups were formed. 10 Crossfit trained individuals (23,80±4,91 years; 180,8±6,74cm; 78,73±10,35kg) formed the Crossfit group (CrG) and 9 resistance-trained individuals (21,55±2,12years; 184,33±10,51cm; 83,5±10,93kg) formed the Traditional training group (TG). Participants were informed about the content of the study and written informed consent was obtained from them.

Handgrip strength measurement was made with the Takei A5001 Hand Grip Dynamometer (Japan), using the best of two trials with the dominant hand.

Back strength and leg strength measurements were made with Takei A5002 (Japan) Back and leg dynamometer, using the best of two trials. For the back strength test, the participant stands

upright on the platform with the feet shoulder-width apart. He holds the bar with both hands and palms facing toward the body. He pulls the bar with his upper body strength.

For the leg strength test, the chain was adjusted and the knees bent at approximately 110 degrees. In this position participant's back should be bent slightly forward at the hips, the head should be held upright, and he should look straight ahead. Then without bending his back, he pulls as hard as possible on the chain and tries to straighten his legs, keeping his arms straight (Eyuboglu et al., 2019).

30sec Sit-up Test

The participant lies on his back with his knees bent and the soles of his feet are on the floor. The arms are placed crosswise on the chest. The feet are supported by being held by a partner. The movement is applied by lifting the body 90 degrees upwards. The maximum number of sit-ups made in 30 seconds is recorded.

Maximum Push-ups Test

The participant gets in a push-up position with hands shoulder-width apart and elbows extended. Partner puts his fist on the ground at chest level. With each push-up move, the subject's chest will touch the partner's fist. The participant does as many push-ups as he can without resting. The total number is recorded.

Countermovement Jump Test

On the jumping mat, the subject makes a maximal single jump with hands on the hips. After 3 repetitions the highest number is recorded.

Statistical analyzes were performed with SPSS 21.0 program. The significance level was accepted as $p<0.05$. The normality of the distribution was determined by the Shapiro-Wilk test. The "T-Test" for parametric data and the "Mann Whitney U Test" for non-parametric data was used.

Findings

Table 1. Performance Measurements Of The Participants

	Group	Mean±Sd.	P value
CMJ (cm)	CrG n=10	33,73±2,61	0,278
	TG n=9	35,95±6,58	
Handgrip strength (kg)	CrG n=10	48,99±6,55	0,827
	TG n=9	48,30±7,00	
Leg strength (kg)	CrG n=10	144,26±22,65	0,505
	TG n=9	137,77±18,22	
Back strength (kg)	CrG n=10	160,86±39,09	0,968
	TG n=9	161,55±24,54	
30s Sit-up (reps)	CrG n=10	24,70±4,83	0,975
	TG n=9	24,78±5,67	
Max. Push-ups (reps)	CrG n=10	27,70±12,74	0,549
	TG n=9	28,44±10,63	

CrG: *Crossfit Group,* ***TG:*** *Traditional Training Group,* ***CMJ:*** *Countermovement Jump*

There was no significant difference for all measured parameters between CrG and TG (p>0,05) (Table 1).

Discussion and Conclusion

In the present study, there was no significant difference between the CrG and TG in handgrip strength, muscular endurance, and vertical jump performances.

Similar to the present study, de Sousa et al. (2016) found no significant difference in CMJ and upper body strengths between the Crossfit and resistance-trained individuals. In another study, between the traditional resistance and Crossfit training groups no significant difference was found in handgrip strength, push-ups, squats, and vertical jumps, similar to this study (Hollerbach et al., 2021). Barfield and Anderson (2014) also found no difference between the two groups in vertical jump values, which is another strength parameter. Another study that compared Crossfit training to traditional strength training, found similar improvements in both groups for muscle endurance, maximal strength, and explosive strength. But, in line with the present study, there wasn't any difference in values of vertical jump, muscle endurance, and maximal strength after the training intervention for both groups (Costa, Feye & Magallanes, 2021). Özbay (2019) also found similar strength parameters between Crossfit and resistance-trained groups. These results show that Crossfit training can be as effective as traditional resistance training for strength development. Experience can also be a factor in these results. The beginners in Crossfit may develop less aerobic capacity and anaerobic power than experienced athletes. The changes in the body also may not be seen in early sessions of Crossfit (Meyer et al., 2017).

In a study women, participants of Crossfit training had a higher upper limb strength when compared to concurrent training (Bahremand et al., 2020). Gender may have a role in this different outcome. Contrary to the present study, Mcweeny et al. (2020), stated that functional training improves aerobic power and upper body muscular endurance more than traditional training. It is thought that the similarity of the measurement method and the exercises they perform in functional training may cause this effect. In another study comparing Crossfit and traditional resistance training, muscular endurance increased by 22% with Crossfit training which is contrary to our findings (Barfield and Anderson, 2014). Another research on Crossfit vs traditional training found that maximal strength improved significantly in favor of the Crossfit training group which is also different from our findings (Gerhart and Pasternostro Bayles, 2014). Differences such as training content, location, and trainer may affect these results.

In conclusion, the present study found no significant difference between the groups that performed Crossfit training and traditional strength training in terms of strength, muscular endurance, and vertical jump performances. Due to similar results, Crossfit training can be recommended as an alternative method for strength development.

With longer-term planning, the effects of training on development can be examined. Also, a control group can be added. The metabolic effects of Crossfit can be examined for aerobic performance improvements. Upper and lower body strength developments can be measured separately for future studies.

Conflict of Interest

The authors declared no conflicts of interest to authorship and/or publication of the article.

Financial Disclosure

The authors received no financial support for the research and/or publication of this article.

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.660

DETERMINING LEADERSHIP STYLES WITH COACHES WORKING IN DIFFERENT BRANCH

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Type: Research Article (Received:17.12.2021– Accepted: 24.09.2022)

Absract

The purpose of this study is to investigate the leadership styles of coaches. The aim is to determine the leadership styles of the coaches working in different branches, how the leadership styles are in line with the opinions of the athletes, whether there are differences between the branches and to offer solutions. The universe of the research; The coaches working in Turkey and the athletes working in these teams constitute the sample; trainers and athletes working in selected branches. A questionnaire was applied to approximately 240 athletes, and the leadership styles of the coaches working in their teams were questioned. In the research, besides the "Personal Information Form", the "Leadership Scale for Sports" consisting of 40 items, developed by Chelladurai and Saleh, was used to obtain information about the athletes themselves. After the research data were obtained, the data were analyzed by calculating the frequency, frequency (f) and percent (%) of the demographic characteristics of the athletes using the SPSS statistical package program. The results of the study showed that the athletes from different departments participating in the study did not differ in educational support, social support and autocratic subscales. However, there is a significant difference between the mean scores of the democratic and positive feedback subscales.

Keywords: Sports, Coach, Leadership, Leadership Styles

Introduction

The most distinctive feature of collective life is that it has the distinction between the ruler and the ruled. This distinction is found in the family unit, which is the smallest structure of the society, and also in the largest social units. This distinction has caused some needs. These needs; reasons such as disagreement over personal goals, personal cooperative obligations, and division of labor due to increased cooperation and specialization can be calculated. Due to these factors, the relationship of influence and power between people; this has also led to the emergence of concepts such as leadership, management and coaching (Çalışkan, 2001). "Leadership is one of the most important concepts in the field of sports. Leadership styles of athletes, coaches and sports managers affect success" (Serin, 2016). Coaches are the people who teach the rules of the game, train them, observe their abilities, make them ready for competitions and apply a discipline system suitable for their structure, taking into account individual differences (Genç, 1998). In order for the athlete to be successful, it is very important for the coach to reveal what he needs to have and to lead the athletes. The features that will enable a coach to direct his/her athletes in every aspect are realized by knowing the characteristics of his personal characteristics and leadership styles (Köksal, 2008). Nowadays, various leadership styles have emerged in terms of leadership behaviors and new styles continue to be formed as time passes. These leadership behavior types are autocratic leader, democratic leader, liberal leader, transformational leader, visionary leader, charismatic leader, situational leader and strategic leader (Donuk, 2006).

In the light of the literature given above, in this research, it is aimed to determine the leadership styles of the coaches working in different branches.

Method

Since it was aimed to determine the leadership styles of the coaches in this study, the scanning model was used. This model can be defined as "research models aiming to determine the existence and/or degree of co-variation between two or more variables" (Karasar, 2007). In the research; It has a descriptive nature as it will be done to determine the leadership level of the coaches.

Working group

The working group of this research consists of trainers working in the Ministry of Youth and Sports.

Table 1. Demographic Characteristics Of The Study Group

Gender	N	%
Female	91	42,5
Male	123	57,5
Total	214	100

Sample and Data Collection

The Leadership Scale in Sport was developed by Chelladurai and Saleh. The scale is a five-point Likert-type scale consisting of 40 items (Chelladurai, Saleh: 1980). The scale was adapted to Turkish by Güngörmüş, Gürbüz, and Yenel and its validity and reliability was tested on players playing in university teams. The scale consists of 3 sub-dimensions (Güngörmüş, Gürbüz, Yenel, 2006). **Instructor and Instructor Behavior Sub-Dimension:** 13 items consisting of 1,5,8,11,14,17,20,23,26,29,32,35,38. **Democratic Behavior Sub-Dimension:** It consists of 9 items; 2, 9, 15, 18, 21, 24, 30, 33 and 39. These items show how the coach allows the athletes to participate in the decision making process. **Autocratic Behavior Sub-Dimension:** 6, 12, 27, 34 and 40, consisting of 5 items. These materials measure how far the coach stays away from the athletes and how their coaches adopt a controlling and authoritative style while expressing their authority. **Social Support Behavior Sub-Dimension:** It consists of 8, 3, 7, 13, 19, 22, 25, 31 and 36 items. These items show how coaches play a role in eliminating the needs of athletes. **Positive Feedback Behavior Sub-Dimension (Reward):** It consists of 5, 4, 10, 16, 28 and 37. The positive feedback subscale is the coaches who reinforce or praise the good performance of the athletes (Güngörmüş, vd. 2006). Cronbach Alpha internal consistency coefficient of the scale. 71 (autocratic behavior) and 84 (educational supportive). The total internal consistency coefficient of the scale is 87 (Alpar, 2001).

Evaluation of Research Data

The data collected for the problems whose answers are sought within the framework of the purpose of the research were first processed into the data coding form. All of the data were included in the research. Then, statistical analyzes were applied to the data transferred to the computer on the SPSS 24.0 program. The results of personal information, scale and inventory total scores, factor scores, frequency and percentage values of the candidates were analyzed. The normal distribution of the scores, their curves, and the values of the skewness and kurtosis coefficients were examined.

Table 2. The skewness and kurtosis coefficients of the scores and the significance level results

	N	Çarpıklık	Basıklık
Autocratic Behavior Sub-Dimension	14	-0,280	-0,643
Social Support Behavior Sub-Dimension	14	0,961	1,024
Democratic Behavior Sub-Dimension	14	0,911	0,361
Instructor and Instructor Behavior Sub-Dimension	14	1,123	1,668
Positive Feedback Behavior Sub-Dimension (Reward)	14	1,194	1,192

Considering the skewness and kurtosis coefficients in Table 2, it was determined that the scores were in the range of ±2. While Cooper-Cutting explains that the skewness and kurtosis values are in the range of ±2, it is a suitable situation in terms of normality, while Büyüköztürk interprets that these values are in the range of ±1 as no deviation from normality. In the study, it was decided to apply parametric statistical techniques since it was seen that the skewness-kurtosis values of the scores were not at extreme levels, were in the range of ±2, and there were no excessive deviations in the normal distribution curves.

Results

Table 3. T-Test Distribution Values of Leadership Styles Scale Scores Related to Gender Variables

		N	X± Ss	t	p
Autocratic Behavior Sub-	Kadın	91	21,47±4,85	-2,38	0,048*

Dimension	Erkek	123	16,54±5,56		
Social Support Behavior Sub-Dimension	Kadın	91	22,47±7,53	-5,79	0,037*
	Erkek	123	29,87±7,28		
Democratic Behavior Sub-Dimension	Kadın	91	12,71±4,59	-2,31	0,023*
	Erkek	123	18,34±3,45		
Instructor and Instructor Behavior Sub-Dimension	Kadın	91	12,48±4,28	3,79	0,033*
	Erkek	123	16,72±3,81		
Positive Feedback Behavior Sub-Dimension (Reward)	Kadın	91	9,28±4,29	-3,72	0,018*
	Erkek	123	15,49±4,58		

In Table 3, when the mean scores of the Autocratic Behavior Sub-dimension, which is one of the sub-dimensions of the Leadership for Sports scale, are examined, it is seen that the average of female athletes is 21.47, and the average of male athletes is 16.54. The p value (0.048) calculated to test the significance of the difference between the two groups was found and the difference between the two groups was found to be significant ($p<0.05$). When the Democratic Behavior Sub-Dimension mean scores of the sub-dimensions of the Leadership for Sports scale are examined, it is seen that the average of female athletes is 22.47, while the average of male athletes is 29.87. The p value (0.037) calculated to test the significance of the difference between the two groups was found and the difference between the two groups was found to be significant ($p<0.05$). When the mean scores of the Social Support Behavior Sub-dimension, which is one of the sub-dimensions of the Leadership for Sports scale, are examined, it is seen that the average of female athletes is 12.71, while the average of male athletes is 18.34. The p value (0.023) calculated to test the significance of the difference between the two groups was found and the difference between the two groups was found to be significant ($p<0.05$). When the mean scores of the Trainer and Instructor Behavior Sub-dimension, which is one of the sub-dimensions of the Leadership for Sports scale, are examined, it is seen that the average of female athletes is 12.48, while the average of male athletes is 16.72. The p value (0.033) calculated to test the significance of the difference between the two groups was found and the difference between the two groups was found to be significant ($p<0.05$). When the Positive Feedback Behavior Sub-Dimension (Award) score averages from the sub-dimensions of the Leadership for Sports Scale were examined, the average of female athletes was 9 ,28, and the average of male athletes is 15.24. The p value (0.018) calculated to test the significance of the difference between the two groups was found and the difference between the two groups was found to be significant ($p<0.05$).

Table 4. Anova Test Distribution Values for Age Variables of Leadership Styles Scale Scores

	Years	**X± Ss**	**F**	**p**	**Tukey HSD**

Autocratic Behavior Sub-Dimension	14-17 years[1]	76	3,26±0,93			**1-3***
	18-21 years[2]	79	2,94±1,06			
	22-25 years[3]	36	2,45±1,04	**4,315**	0,02	
	26-29 years[4]	10	2,47±0,90			
	30 years ve üzeri[5]	13	3,09±0,69			
Democratic Behavior Sub-Dimension	14-17 years[1]	76	1,85±0,69			**1-2***
	18-21 years[2]	79	1,53±0,56			**2-4***
	22-25 years[3]	36	1,62±0,63	**3,804**	0,05	
	26-29 years[4]	10	2,12±0,75			
	30 years ve üzeri[5]	13	1,85±0,51			
Social Support Behavior Sub-Dimension	14-17 years[1]	76	1,92±0,66			**1-2***
	18-21 years[2]	79	1,63±0,56			
	22-25 years[3]	36	1,66±0,58	**2,706**	0,03	
	26-29 years[4]	10	1,84±0,61			
	30 years ve üzeri[5]	13	1,79±0,36			
Instructor and Instructor Behavior Sub-Dimension	14-17 years[1]	76	1,68±0,58			**1-2***
	18-21 years[2]	79	1,44±0,49			
	22-25 years[3]	36	1,52±0,47	2,191	0,07	
	26-29 years[4]	10	1,66±0,65			
	30 years ve üzeri[5]	13	1,47±0,36			
Positive Feedback Behavior Sub-Dimension (Reward)	14-17 years[1]	76	1,85±0,63			**1-2***
	18-21 years[2]	79	1,55±0,49			
	22-25 years[3]	36	1,68±0,53	**2,958**	0,02	
	26-29 years[4]	10	1,71±0,58			
	30 years ve üzeri[5]	13	1,87±0,62			

When Table 4 is examined, when the averages of the age categories of the autocratic behavior sub-dimension are considered, the average age of 14-17 is 3.26, the average age of 18-21 is 2.94, the average of 22-25 is 2.45, the average of 26-29 is 2. It was determined that the average of those aged 30 years and over was 47, and 3.09. In addition, it was determined that there was a significant difference at the p<0.05 level between the ages of 14-17 and 22-25 years. When the averages of the age categories of the democratic behavior sub-dimension are examined, it is seen that the average age of 14-17 is 1.85, the average age of 18-21 is 1.53, the average of 22-25 is 1.62, the average of 26-29 is 2.12, 30 and 30 years old. The average of the above was found to be 1.85. In addition, it was determined that there was a significant difference at the p<0.05 level between the ages of 18-21, the ages of 14-17 and the ages of 26-29. When the averages of the age categories of the social support behavior sub-dimension are examined, it is seen that the average age of 14-17 is 1.92, the average age of 18-21 is 1.63, the average of 22-25 is 1.66, the average of 26-29 is 1.84, 30 years old. and above was found to be 1.79. In addition, it was determined that there was a significant difference at the p<0.05 level between the ages of 14-17 and 18-21 years. When the averages of the Instructor and Instructor Behavior Sub-Dimension age categories are examined, it is seen that the average age of 14-17 is 1.68, the average age of 18-21 is 1.44, the average age of 22-25 is 1.52, the average age of 26-29 is 1.66. 30 the mean age and above was found to be 1.47. In addition, it was determined that there was a significant difference at the p<0.05 level between the ages of 14-17 and 18-21 years. When the averages of the Positive Feedback Behavior Sub-Dimension age categories are examined, it is seen that the average age of 14-17 is 1.85, the average age of 18-21 is 1.55, the average of 22-25 is 1.68, the average of 26-29 is 1.71, 30 years and 30 years old. It was determined that the mean of the higher score was 1.87. In addition, it was determined that there was a significant difference at the p<0.05 level between the ages of 14-17 and 18-21 years.

Table 5. Anova Test Distribution Values of Leadership Styles Scale Scores Related to Sports Branch Variables

	Branc		**X± Ss**	**F**	**p**	**Tukey HSD**
Autocratic Behavior Sub-Dimension	Basketbol[1]	43	2,79±0,95			
	Futbol[2]	34	2,77±1,07			
	Falk Dance[3]	50	3,11±1,09	**1,063**	0,37	
	Hentbol[4]	43	3,08±0,97			
	Voleybol[5]	44	3,04±0,66			
Democratic Behavior Sub-	Basketbol[1]	43	2,14±0,68			**2-1***
	Futbol[2]	34	1,53±0,59			**2-3***

Dimension	Falk Dance[3]	50	1,70±0,62	**6,929**	0,000*	**2-4***
	Hentbol[4]	43	1,80±0,78			
	Voleybol[5]	44	1,71±0,58			
Social Support Behavior Sub-Dimension	Basketbol[1]	43	2,00±0,67			**1-2***
	Futbol[2]	34	1,60±0,59			**1-4***
	Falk Dance[3]	50	1,84±0,57	**4,892**	0,001*	**2-3***
	Hentbol[4]	43	1,90±0,65			
	Voleybol[5]	44	1,76±0,31			
Instructor and Instructor Behavior Sub-Dimension	Basketbol[1]	43	1,45±0,54			**2-1***
	Futbol[2]	34	1,79±0,42			**2-3***
	Falk Dance[3]	50	1,41±0,47	3,377	0,01*	
	Hentbol[4]	43	1,58±0,69			
	Voleybol[5]	44	1,60±0,37			
Positive Feedback Behavior Sub-Dimension (Reward)	Basketball[1]	43	1,55±0,62			
	Futbol[2]	34	1,89±0,48			
	Falk Dance[3]	50	1,62±0,53	**2,290**	0,61	
	Hentball[4]	43	1,74±0,50			
	Voleyball[5]	44	1,78±0,57			

When the mean scores of the autocratic behavior sub-dimension, which is one of the sub-dimensions of the Leadership for Sports scale, are examined in Table 5, it is seen that the highest average belongs to the athletes of the folk dances branch with an average of 3.11, handball with an average of 3.05, volleyball with an average of 3.04, 2, 2. It is seen that basketball and football athletes follow with an average of 79. When the average of democratic behavior sub-dimension, which is one of the sub-dimensions of the scale, is examined, it is seen that the highest average belongs to basketball players with 2.14, they are handball with an average of 1.80, volleyball with an average of 1.71, folk dances with an average of 1.70 and 1, respectively. It is seen that football players follow with an average of 53. As a result of the statistical analyzes made on the sub-dimension of democratic behavior, it was determined that there was a significant difference at the $p<0.05$ level between the football branch and basketball, folk dances and handball branches. Considering the Social Support mean scores,

one of the sub-dimensions of the scale, it is seen that the highest average belongs to basketball players with an average of 2.00, handball with an average of 1.90, folk dances with an average of 1.84, volleyball with an average of 1.76 and an average of 1.60, respectively. It is seen that football athletes follow with this. As a result of the statistical analyzes on the social support behavior sub-dimension, it was determined that there was a significant difference at the $p<0.05$ level between basketball branch and football and handball branches, and between football and folk dances. When the mean score of the Trainer and Instructor Behavior Sub-dimension, which is one of the sub-dimensions of the scale, is examined, it is seen that the highest average belongs to the athletes of the football branch with 1.79, volleyball with an average of 1.60, handball with an average of 1.58, basketball with an average of 1.45, and 1, respectively. It is seen that folk dance athletes follow with an average of 41. As a result of the statistical analyzes made on the Instructor and Instructor Behavior Sub-Dimension, it was determined that there was a significant difference at the $p<0.05$ level between the football branch and the basketball and folk dances branch. When the Positive Feedback mean scores, one of the sub-dimensions of the scale, are examined, it is seen that the highest average belongs to the athletes of the football branch with 1.89, volleyball with an average of 1.78, handball with an average of 1.74, folk dances with 1.62 and basketball with 1.55. It is seen that the sportsmen of the branch are watching.

Discussion and Conclusion

In order to test the significance of the difference between male and female groups in Autocratic Behavior, Democratic Behavior, Social Support Behavior, Trainer and Instructive Behavior and Positive Feedback Behavior Sub-dimensions of Leadership for Sports Scale, the difference between the two groups with p value less than 0.05 was calculated. was found to be significant ($p<0.05$).

"Nacar and Gacar" (2013) investigated the relationship between volleyball coaches and coaches and team relationships. Considering the scores of volleyball players in the leadership behavior sub-dimension according to gender variables, statistically significant differences were found in the social support behavior sub-dimension. It was determined that there was no statistically significant difference between the dimensions of education, training, democracy, autocracy and positive feedback behaviors (Nacar and Gacar 2013). Again Nacar (2013) In the Turkish Professional Handball League, "A research on the leadership style of in-service coaches according to the gender of handball, the scores they got from the coaching leadership sub-dimension; Statistically significant differences were found in the sub-dimensions of positive feedback behaviors in education and guidance behaviors, and there was no statistically significant difference in the dimensions of democracy, autocracy and social support behavior. These results support our study.

As a result of the statistical analyzes carried out to test the significance of the difference between age groups in the Autocratic Behavior, Democratic Behavior, Social Support Behavior, Trainer and Instructive Behavior and Positive Feedback Behavior Sub-dimensions of the Leadership for Sports Scale; In the autocratic behavior sub-dimension, there was a significant difference at the $p<0.05$ level between the ages of 14-17 and 22-25.

There was a significant difference at the level of p<0.05 between 14-17 years and 18-21 years of age in the social support behavior sub-dimension, p<0, between the ages of 14-17 and 18-21 in the teacher and instructive behavior sub-dimension. It was determined that there was a significant difference at the 05 level, and a significant difference at the p<0.05 level in the positive feedback behavior sub-dimension between the ages of 14-17 and 18-21 years.

Weinberg and Gould (1995) stated in their study in 1995 that as people get older and mature as athletes, they increasingly prefer authoritative and socially supportive coaches. These results also support our study.

As a result of the statistical analyzes carried out to test the significance of the difference between the branch groups in the Autocratic Behavior, Democratic Behavior, Social Support Behavior, Trainer and Instructive Behavior and Positive Feedback Behavior Sub-dimensions of the Leadership for Sports scale; There was no significant difference at the p<0.05 level in the autocratic behavior sub-dimension, There was no significant difference at the p<0.05 level in the democratic behavior sub-dimension, There was a significant difference at the p<0.05 level between the football branch and the basketball, folk dances, and handball branches, In the social support behavior sub-dimension, basketball and football and There was a significant difference at the p<0.05 level between handball branches and between football and folk dances branch. It was determined that there was a significant difference at the p<0.05 level in the positive feedback behavior sub-dimension.

When the literature is examined, it is seen that there is no study examining the branches and leadership styles of coaches. In this respect, it is thought that the study will contribute to the literature.

Having a leadership style is undoubtedly an important factor in raising successful and disciplined athletes. From this point of view, it is necessary for the coaches to have a leadership style and to participate in the activities in order to develop the leadership styles they have.

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.661

Examination of Physical Activity Levels of Children Aged 8-14 Years

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Type: Research Article (Received:02.09.2022– Accepted: 27.09.2022)

Abstract

Physical activity contributes to the healthy development of children by paying special attention to the development of children. The aim of this study is to examine the physical activity levels of children aged 8-14 years and to determine whether they differ according to their sociodemographic (age, gender, educational status and class status). The data required for the research were collected online between 21 May 2022 and 03 July 2022. The study group of the research consists of children between the ages of 8-14. In data collection, online questionnaire method, sociodemographic data collection form and child physical activity questionnaire (CPAQ) were used from 250 children aged 8-14 years who had family consent, participated voluntarily and were selected by convenience sampling method. Improbable sampling methods. SPSS 26.0 data analysis program was used in the statistical analysis of the data obtained in the study, Mann-Whitney U tests, Kruskal-Wallis H tests and correlation analysis were used to examine the physical activity levels of children according to their sociodemographic characteristics. As a result of the research, it was concluded that the physical activity levels of the children in the 8-14 age group were moderate. However, while the extracurricular physical activity levels of the children were low, the physical activity levels at school were found to be moderate. Based on the research data, it was concluded that children's extracurricular physical activity levels were considerably lower than their school activity levels. It was determined that the children participating in the study performed moderate physical activity. It was stated that physical activity levels differ according to sociodemographic characteristics. It is recommended to organize education programs for children aged 8-14 on the importance of proper nutrition habits and physical activity.

Keywords: Child, level, activity, physical activity.

Introduction

Physical activity is defined as any movement that causes the body to spend energy. It can be categorized as occupational, transportation, sports, home, and leisure activities (Casperson et al., 1985). It can be presented in different ways according to the category characteristics (Aerobic, anaerobic, or diversified such as static and dynamic) (Zorba and Saygın, 2009).

A vigorous and cheerful daily life, protecting the body against diseases, preventing obesity by consuming excess energy naturally, aging and slowing down the organic regression brought by aging, reaching and maintaining the superior capacity of the respiratory and circulatory systems, reducing nervous tensions and death caused by coronary vascular diseases. It is effective in increasing the preventive and protective effect of the disease, protecting the health and functionality of the joint tissues connected to the muscle, getting rid of loneliness by providing social cohesion, and preventing posture disorders (Arabacı and Çankaya, 2007). Physical activity is necessary for general health and quality of life, as well as the maintenance and improvement of metabolic and psychological functions of physical development (Bozkus et al., 2013; Özkan et al., 2018; Thivel et al., 2018). Along with the development of self-confidence, moral strength is also high in individuals engaged in physical activity. Thus, it explains and supports the saying healthy mind is found in a healthy body. Health and physical activity have become inseparable parts of a whole (Ketelhut, 2011). If individuals do physical activity, their communication skills improve, and their self-confidence rises (Kalyon, 1997).

Physical Activity and Its Importance in Children

Children should also acquire the habit of regular movement and physical activity in the pre-school period because it is much easier for children in the pre-school period to get moving than children in the adolescence period. Because movement is an indispensable element of learning and communicating in children in the primary movement period (2-6 years old), they are ready to learn new motor skills in the rapid development process (Gallahue & Donnely, 2003). Skills such as running and jumping, which are basic movement patterns, are part of children's education and learning experiences. The skills learned during this period will be permanent for life and will form the basis for new skills. On the other hand, not giving or restricting movement and trial opportunities negatively affects motor skill performance in children (Gallahue & Ozmun, 2002). Children with adequate levels of physical activity have better cardiometabolic, musculoskeletal, mental and cognitive health, bone mineral density, and motor performance. It is also known that they have better self-esteem and self-image (Guerrero et al., 2020; Chen et al., 2020 ; Barros et al., 2012).

Physical activity levels of school-age children may vary according to age and gender. In the studies conducted, age, gender, lifestyle and attitude of the family, environmental conditions and educational policies of pre-school institutions, teachers' knowledge levels and attitudes, and growth environment (rural-urban) draw attention as the main factors affecting the level of activity in the pre-school period (Bozkus, 2013; Bellows et al. 2011; Ketelhut 2011; Oliver et al. 2010; Sandercock, 2010; Vale et al. 2010; Bower et al. 2008; Schneider, 2008). In addition to age-related differences, significant decreases are observed in physical activity, especially in girls, with increasing age, especially in children between the ages of 8-14 (Trost et al., 2002). Creating a foundation for lifelong physical activity at school age also contributes to future health benefits. In addition, considering the fact that low physical activity levels in childhood

cause many serious health problems, the movement habits gained in this life period may affect the maintenance of adequate physical activity levels in adulthood (Telama, 2009).

The aim of this study was to determine whether the physical activity levels of children between the ages of 8-14 differ according to their sociodemographic characteristics.

Material and Method

Study Design: It was conducted as a descriptive study in order to reveal whether the physical activity levels of children aged 8-14 differ according to their sociodemographic characteristics.

Research Questions

- Is there a significant relationship between physical activity levels of children aged 8-14 according to their sociodemographic characteristics?

- Does it differ in the physical activity levels of children aged 8-14 according to their sociodemographic characteristics?

Place and Time of the Study: The research data were collected between the dates of 21 May 2022 and 03 July 2022 by using the online questionnaire (Google Form) from children aged 8-14 with parental consent who participated voluntarily.

Sample: Children between the ages of 8-14 formed the research population. The sample, on the other hand, was selected by convenience sampling method, one of the non-probability sampling methods, with parental consent, voluntarily participating, and no obstacle to answering the questions. The research was carried out with 250 children who met the conditions of participation.

Variables of the Study

Research Inclusion criteria

- Children who will participate in the research should be between the ages of 8-14
-Children with parental consent
- Those who fill out the child consent form
- Children who voluntarily agreed to participate in the study

Research exclusion criteria

- The children who will participate in the research should not be between the ages of 8-14.
-No parental consent
-Those who do not fill out the child consent form
- Children who do not agree to participate in the study voluntarily

Data Collection Tools: Research data were collected with the following data collection forms:

- Sociodemographic Data Collection Form
-Child Physical Activity Questionnaire (CPAQ)

Sociodemographic Data Collection Form: This form consists of a total of 4 questions about the age, gender, education, and class status of the children.

Child Physical Activity Questionnaire (CPAQ): CPAQ was conducted by Kowalski et al. (2004) to determine the physical activity levels of children for seven days, and its Turkish adaptation, validity, and reliability study was conducted by Erdim et al. (2019). The CFAA consists of 10 items in total. The first nine items evaluate physical activity efficiency, and the 10th item evaluates whether the child is sick or has a condition that may prevent him from doing physical activity. However, this item is not included in the calculation of the physical activity score. CFAA can be applied to students between the ages of 8-14, and question items are scored on a 5-point scale. The physical activity score for children is calculated by taking the average of the first nine items.

The lowest score that can be obtained from the CFAA is one, and the highest score is 5. 1 indicates low physical activity level, and 5 indicates high physical activity level (Kowalski et al., 2004; Erdim et al., 2019).

Variables of the Research

Independent Variable: Age, gender, education level, class status.
Dependent Variable: Physical activity levels.

Evaluation of Data

SPSS (Statistical Package for Social Sciences) 26.0 package program was used in the analysis of the data. In the analysis of the percentage distribution, mean and total for descriptive statistics in the study, and physical activity levels of children according to age, gender, educational status, class status variables. Mann-Whitney U, Kruskal-Wallis H tests and correlation analyzes were used.

Findings

The 9 items in the scale used to determine the physical activity levels of children in the study consist of two sub-dimensions. The physical activity score for children was calculated by taking the average of the 9 mines in the first scale. As the scale average increases, the physical activity scores of the children also increase. Erdim et al. (2019) found in their study that the Child Physical Activity Scale consists of two dimensions. These dimensions are respectively “Physical activities performed at school” and “Extracurricular physical activities”. "Physical Education", "Recess" and "After Lunch" physical activities in the scale are included in the "Physical activities performed at school" dimension, and Questions 2, 3 and 4 are related to this dimension. Physical activities related to “After School”, “Evenings”, “Weekends”, “Explains you best”, “Activity frequency for each day of the past week” and “Leisure activity checklist” in the research “Extracurricular physical activities” 1st, 5th, 6th, 7th, 8th and 9th questions are related to this dimension.

Table 1. Information on physical activity scale mean, item score and results

Average range	İtem score	Result
1-1,80	1	very low physical activity
1,81-2,60	2	low physical activity
2,61-3,40	3	moderate physical activity
3,41-4,20	4	high physical activity
4,21-5	5	very high physical activity

The Child Physical Activity Scale is scored between 1 and 5, with an average range of 1-1.80 "very low physical activity, 1.81-2.60 "low physical activity", 2.61-3.40 "moderate physical activity", 3.41-4.20 indicates "high physical activity" and 4.21-5 indicates "very high level" physical activity range.

Table 2. Demographic characteristics of the participants

			n		%	
Gender	Boy		169		67,6	
	Girl		81		32,4	
Age	8-10 age		106		42,4	
	11-13 age		87		34,8	
	14 age		57		22,8	
Education Level	Primary education	1. class	3	68	1,2 ,8	27,2
		2. class	2			
		3. class	14		5,6	
		4. class	49		19,6	
	Secondary education	5. class	38	136	15,2	54,4
		6. class	33		13,2	
		7. class	45		18,0	
		8. class	20		8,0	
	High school	9. class	46			18,4
	Total		250			100,0

Of the children participating in the study, 67.6% were boys and 32.4% were girls. Of the children participating in the study, 42.4% are in the 8-10 age group, 34.8% are in the 11-13 age group, and 22.8% are in the 14 age group. In the study, 27.2% of the participants study in primary school, 54.4% in secondary school and 18.4% in high school.

Table 3. Findings on the physical activity scale and its sub-dimensions for children

Sub dimensions	Substances	x̄	σ	Result
Extracurricular physical activities	2.Physical Education	3,10	1,24	Moderate physical activity
	3.Respiration	2,70	1,35	Moderate physical activity
	4.Lunch	2,73	1,33	Moderate physical activity
Physical activities performed at school	5. After School	2,26	1,42	Low physical activity
	6. in the evening	2,63	1,21	Moderate physical activity
	7.Weekends	2,82	1,28	Moderate physical activity
	8. Describes you best	2,44	1,28	Düşük fiziksel aktivite
	9. Activity frequency for each day of the past week	2,62	0,73	Moderate physical activity
	1. Free time activity checklist	2,73	0,65	Moderate physical activity
Children's Physical Activity Levels		2,72	0,51	Moderate physical activity

In the study, it was revealed that the physical activity levels of children aged 8-14 in physical education class, during breaks and after lunch were "moderate". It has been revealed that the physical activities of the children after school are “low level”, and their physical activity in the evenings and on the weekends is “moderate”. However, it was determined that the activity frequency and leisure activity levels for each day of the last week were "moderate".

Table 4. Findings on the physical activity scale and its sub-dimensions for children by age groups

	Age group	N	x̄	σ	Rank averages	H	p
Extracurricular physical activities	8-10 age	106	2,60	0,67	128,81	0,539	0,764
	11-13 age	87	2,57	0,65	121,16		
	14 age	57	2,58	0,60	125,97		
	Total	250	2,59	0,65			
Physical activities performed at school	8-10 age	106	2,88	0,90	128,39	1,125	0,570
	11-13 age	87	2,87	0,68	127,76		
	14 age	57	2,73	0,73	116,67		
	Total	250	2,84	0,79			
Children's Physical Activity Levels	8-10 age	106	2,74	0,71	128,70	0,543	0,762
	11-13 age	87	2,72	0,59	125,23		
	14 age	57	2,65	0,58	119,96		
	Total	250	2,71	0,64			

* Kruskal- Wallis H test

In the study, it was determined that as the age level increased, the children's extracurricular physical activity and physical activity levels at school increased. According to this, it is seen that the levels of extracurricular physical activity and physical activity at school in the 8-10 age group are higher than those in the 11-13 age group and 14 age group. It is seen that the levels of extracurricular physical activity and physical activity at school in the 11-13 age group are higher than those in the 14 age group. It was found that there was no difference between the extracurricular physical activity and the physical activity averages performed at school (H=0.539; p>0.05: H=1.125; p>0.05).

Table 5. Findings on the physical activity scale and its sub-dimensions for children by gender

		N	x̄	σ	Rank averages	z	p
Extracurricular physical activities	Boy	169	2,69	0,65	136,13	-3,358	0,001
	Girl	81	2,37	0,58	103,31		
Physical activities performed at school	Boy	169	2,98	0,75	137,74	-3,899	0,000
	Girl	81	2,56	0,80	99,96		
Children's Physical Activity Levels	Boy	169	2,83	0,61	138,53	-4,114	0,000
	Girl	81	2,47	0,62	98,32		

* Mann-Whitney U test

In the study, it was revealed that there was a difference between the averages of boys' extracurricular physical activities than girls (z=-3.358; p<0.05). Accordingly, it can be stated that boys do more extracurricular physical activities than girls. The resulting difference was in favor of boys. When the physical activity levels of the children were examined in general according to the gender groups in the study, it was found that the physical activity levels of the boys were higher than the girls and that there was a difference between the averages (z=-4.114; p<0.05).

Table 6. Findings on the physical activity scale and its sub-dimensions for children by education level

	Education level	N	x̄	σ	Rank averages	H	p
Extracurricular physical activities	Primary education	68	2,67	0,66	137,86	4,733	0,094
	Secondary education	136	2,60	0,66	125,29		
	High school	46	2,43	0,57	107,84		
	Total	250	2,59	0,65			
Physical activities performed at school	Primary education	68	3,03	0,95	142,51	6,122	0,047
	Secondary education	136	2,80	0,70	122,01		
	High school	46	2,67	0,73	110,66		

	Total	250	2,84	0,79			
Children's Physical Activity Levels	Primary education	68	2,85	0,72	142,36	6,837	0,033
	Secondary education	136	2,70	0,61	123,33		
	High school	46	2,55	0,57	106,98		
	Total	250	2,71	0,64			

*Kruskal-Wallis H test

In the study, it was determined that as the education level increased, the children's extracurricular physical activity and physical activity levels at school increased. Accordingly, it is seen that primary school students' extracurricular physical activity and physical activity levels at school are higher than those of secondary and high school students. It was found that there was a difference between the physical activity averages of the children and the physical activity sub-dimension averages performed at school according to the level of education (H=6.837; p<0.05: H=6.122; p<0.05).

Table 7. Findings related to the dimension of extracurricular physical activities according to the class of education

Class		**N**	**x̄**	**σ**	**r**	**p**
Extracurricular physical activities	1.class	3	3,72	0,47	-,127*	,044
	2. class	2	3,30	0.35		
	3. class	14	2,87	0,53		
	4. class	49	2,52	0,63		
	5. class	38	2,48	0,65		
	6. class	33	2,67	0,61		
	7. class	45	2,67	0,76		
	8. class	20	2,53	0,51		
	9. class	46	2,43	0,57		
	Total	250	2,59	0,65		

* Correlation analysis

In the study, it is seen that as the grade level of the children increases, their extracurricular physical activities decrease as well. As a result of the analysis, it was revealed that the students studying in the 1st, 2nd and 3rd grades, respectively, had the highest extracurricular physical activity levels, while the 8th and 9th grade students had the lowest. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and their extracurricular physical activities (r=-.127; p<0.05). This result shows that as the level of children's education increases, their extracurricular physical activity levels increase.

Table 8. Findings related to the physical activities of children at school according to the class of education.

		N	x̄	σ	r	p
Physical activities performed at school	1. class	3	3,78	0,19	-,136*	,032
	2. class	2	4,00	0,47		
	3. class	14	3,33	0,81		
	4. class	49	2,86	0,98		
	5. class	38	2,61	0,68		
	6. class	33	2,92	0,69		
	7. class	45	2,91	0,76		
	8. class	20	2,75	0,55		
	9. class	46	2,67	0,73		
	Total	250	2,84	0,79		

* Correlation analysis

The physical activity levels of the students at school were found to be "very high" in the 1st and 2nd grades. In the research, it is seen that the physical activities of the students decreased from the 3rd to the 5th grade, and increased in the 6th and 7th grades. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and the physical activity levels performed at school ($r=-.136$; $p<0.05$).

Table 9. Findings related to physical activity levels of children according to the class of education

		N	x̄	σ	r	p
Children's Physical Activity Levels	1. class	3	3,75	0,27	-,147*	,020
	2. class	2	3,65	0,06		
	3. class	14	3,10	0,43		
	4. class	49	2,69	0,74		
	5. class	38	2,54	0,60		
	6. class	33	2,79	0,56		
	7. class	45	2,79	0,69		
	8. class	20	2,64	0,46		
	9. class	46	2,55	0,57		
	Total	250	2,71	0,64		

* Correlation analysis

The physical activity levels of the children were found to be "very high" in the 1st and 2nd grades. In the research, it is seen that the physical activity levels of the students decreased from the 3rd to the 5th grades, and increased in the 6th and 7th grades, and that the physical activity levels of the students studying in the 8th and 9th grades were low. As a result of the correlation analysis, it was revealed that there was a negative significant relationship between the grade level of the children and the physical activity level of the children ($r=-.147$; $p<0.05$).

Discussion

Considering the physical activity levels of children by age, ıt is seen that the physical activity levels of children are lower during the COVID 19 pandemic. In a study conducted in the USA, middle school-aged children are less likely to be compared to primary school-age children. Reported physical activity and more sedentary behavior (Dunton et al., 2020). This children aged 7-8 years, where age has an effect on physical activity and sedentary life. It has been stated that they are more active than children in the 9-10 age group (McMurray et al., 2016). Yılmaz and Kocataş (2019) conducted a study on secondary school students, as the age increases, the level of physical activity increases found to decrease. Increasing age and the COVID 19 pandemic have increased sedentary behavior in children causes. Research findings also support this situation. Live your physical activity level the use of technological tools (tablets, computers, mobile phones, etc.) **(**Tanir 2021; Kheradmand et al., 2020). It was determined that the results of the research were compatible with the results of the physical activity levels of the children according to the age level. According to gender, 69.7% of men and 30.3% of women who walk weekly, 36.0% of men and 64.0% of women doing moderate physical activity. and vigorous physical activity. It was determined that 61.5% of males and 38.5% of females were doing it. vigorous activity, moderate activity, total physical activity values were found to be higher in men than in women. Vigorous activity, moderate activity, and total physical activity values are higher in males than females. found high (Kızar et.al., 2016). Dunton et al. (2020) study of boys more physical activity and exercise, girls are more active in lesson and classroom activities. stated that they are. 10-year-old Czech children before and during the COVID 19 pandemic it was stated that they have higher levels of physical activity than girls (Štveráková et al., 2021). Similarly, boys have a higher level of physical activity than girls. There are studies showing that (Gilic et al., 2020; Xu et al., 2018). In children, it was determined that as the age increased, the level of physical activity decreased, and boys had a higher level of physical activity than girls. These studies reflect the research findings is supportive. However, it was stated that gender did not affect the level of physical activity in children available in studies (Velde et al., 2021; Moore et al., 1991). Korkmaz et al. (2020) found that exercise for secondary school students did not differ according to gender. they have stated. Similarly, Eyler et al. (2021) doing physical activity in children aged 5-12 found that there was no difference by gender. Children's physical activity levels by gender. In general, men are more active than women and their sedentary behavior is more appears to be less. When the physical activity levels of children by gender are examined, it is seen that men are generally more active than women and their sedentary behaviors are less. It can be said that this is due to the fact that boys are more prone to physical activity. A study conducted in the USA reported that secondary school children exhibit less physical activity and more sedentary behavior than primary school children (Dunton et al., 2020). In the study conducted by Savaşhan et al. (2014), it was stated that 69.6% of primary school children consume junk food such as hamburger and toast between meals, and that the physical activity levels of children in primary school are high. In the study of Bayrakdar and Saygın (2010), children In order to determine their physical activities, daily step numbers were calculated and physical activity levels were determined to be low. It is said that the level of physical activity differs at every age, educational status, and the factors affecting the level of physical activity are sedentary behaviors, school, family, society, active transportation, organized sports programs, active play participation, physical structure, environment and

government policies (Tarakcı et al. , 2015). It was determined that the results of the research were compatible with the results of the physical activity levels of the children according to the education level. It has been reported that during childhood and adolescence, especially as age progresses, the behavior of skipping meals at class level increases, and the level of physical activity decreases with age (Aksoydan and Çakır, 2011). Yabancı and Pekcan's (2010) study is consistent with our research findings. In the study conducted by Sabbağ (2009), it was concluded that the physical activity levels of the 5th and 6th grade students were low. In different studies, it has been reported that the level of physical activity increases as the grade level decreases (Tunç and İşler, 2007; Aksoydan and Çakır, 2011).

Conclusion

As a result of the evaluations made on children between the ages of 8-14; It has been determined that the physical activity levels of children studying in primary education are higher than boys. In order to sustain the physical, mental and social development of children, physical activity programs should be given importance in schools.

Limitations: Children aged 8-14 years were included in the study. Research results can only be generalized to the sample group in the study.

Acknowledgement: There is no thank you status**.**

Conflict of Interest Statement: There is no conflict of interest statement available.

Ethical Aspect of Research/Ethical Approval Statement: Erdim et al. (2019) Permission was obtained via e-mail. Permission was obtained from Hakkari University Scientific Research and Publication Ethics Committee (IRB:2022/53-1) for the research. Identity information of the children was not obtained or shared in any way. In order not to cause ethical violations within the scope of the research, consent was obtained from children in the 8-14 age group and informed consent form from their parents.

Research Support: There was no financial support, and the research was carried out in line with the possibilities of the researchers.

Author Contributions: Generating an idea or hypothesis for research and/or article; ÇMH, DDK, MZA planning methods to achieve results: ÇMH, DDK, MZA, organization and supervision of the course of the article: ÇMH. take responsibility for the logical explanation and presentation of the findings: ÇMH. Taking responsibility for the creation of the entire article or the main part: ÇMH, DDK, Reworking before submitting the article not only in terms of spelling and grammar, but also in terms of intellectual content: ;ÇMH.

** This study was presented as an oral presentation at the 10th International Congress on Women's and Children's Health and Education to be held on 19-20 November 2022.*

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.662

Examination of the Relationship Between Elite-Levels Archers' Levels of Self-Talk And Shooting Performances According to Some Varıables

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Type: Research Article (Received:04.10.2021– Accepted: 20.12.2021)

Abstract

This thesis aims to examine the relationship between the level of self-talk with elite archers according to some variables and their shooting performance. A total of 242 elite-level archers, 113 women, and 129 men, voluntarily participated in the study. The archers participating in the study are the athletes competing in the compound bow (n = 100) and recurve bow categories (n = 142) and 102 of them were on the National Team. In the study, the Self-Talk Scale developed by Zervas, et., al. (2007) and adapted to Turkish by Engür (2011) and the Personal Information Form prepared by the researcher were used. The data obtained in the study were analyzed with the SPSS27 package program. Correlation, Kruskal Wallis, and Mann-Whitney U tests were used in the solution and interpretation of the data. While interpreting the results, the significance level was determined as $p < 0.05$. As a result of this study, it was determined that there is a statistically significant difference in their levels of self-talk with them in terms of gender, sports age, and being a national athlete, and there is a weak but positive correlation between the shooting performance of the archers and their level of speaking with them according to the gender variable.

Keywords: Archery, Psychological Skill Training, Self-Talk

Introduction

Athletes push the limits of their skills every day with the physical, psychological, technical, and tactical pieces of training they apply and make an effort to improve them. Psychological skill training has also been seen as an important training method that should be applied in recent years, and it has been a training method that has been developed and started to be applied (Altıntaş & Akalan, 2008).

Karagözoğlu and İkizler (1997) describe psychological skills training as the systematic management of psychological skills such as controlling stress, directing attention, and providing motivation before, after, and during sports activities. Although the level of using and developing the skills they have varies from athlete to athlete, it is thought that athletes with high performance achieve success by using their physical and psychological skills in a balanced way. Studies show that many factors affect the performance of the athlete. As the differences in the factors affecting the performance, it is thought that the physical and psychological skills that the athlete will need during the performance will change (Muratlı et., al. 2007).

Archery, a branch in which psychological and physical skills should be used in harmony and balance, is an Olympic and individual sport. Archers are expected to perform their technical movements in a limited area within a certain period, without contacting their opponents, by staying alone with their shooting equipment and themselves. For a person watching the archers from the outside, a successful archer consists of the archer's controlling the shooting equipment and the shooting technique that his body will apply (Needham, 2013).

The importance of psychological skills for archers is explained by Wise (2014), who states that successful shooting can be achieved in any condition where he gains his physical form consisting of equipment and shooting technique, and then his mind can manage his subconscious with the help of psychological skills. Psychological skill training used by athletes varies. Kale et al., (2020) examine psychological skill training under the headings of goal setting, imagery, self-talk, autogenic training, and performance profile.

Inner speech, which is one of the psychological skills, also appears in the literature as "talk to oneself" or "self-talk". It is stated that talking to yourself is a technique that athletes use during the thinking, planning, and management work they apply to improve their performance. It is

thought that it is also used in defining the technical movement sequence specific to the branch, applying it in the correct order, and evaluating the feedback on the results. It is argued that with this technique, athletes gain confidence and competence, realize their mistakes, and produce solutions to correct them (Anderson, 1997).

This research aims to determine whether there is a relationship between the ability of elite-level archers to talk to themselves and their shooting performance. It is estimated that archers use the self-talk function to maintain their motivation in training and competition environments;

According to some variables, the effect of using this method on shooting performance is unknown. With this research, the differences between the levels of using the self-talk function according to some variables and the effect of the level of using the self-talk function on the shooting performance of the elite archers according to some variables will be examined.

Material and Method

In this study, in which the relationship between archers' self-talk skills and shooting scores will be examined according to some variables, Karasar (2008) explained a research model that aims to determine the existence and/or degree of co-covariancetween two or more variables (Ekici & Hevedanlı, 2010). In this study, the relational survey model and the causal comparison method, which are quantitative research methods and aim to determine the causes of an existing/naturally occurring situation or event and the variables affecting these causes or the results of an effect, were used (Büyüköztürk, et al., 2008).

Research Group

The necessary permissions were obtained from the Archery Federation for this study, which was applied to Turkish Archery Federation licensed archers aged 18 and over. The universe of this research consists of Turkish Archery Federation licensed archers aged 18 and over. The minimum number of samples was determined by the power analysis method. The sample of the study consisted of 242 elite archers aged 18 and over, participating in the competitions in the category of youth and adults, and the participants were determined voluntarily. Participants were informed about the research by the researcher. The questionnaire and Personal Information Form were sent online to Turkish Archery Federation archery clubs in the digital environment. The participants' self-talk levels were associated with the highest outdoor ranking total score and shooting performance they achieved in their careers and other variables found in the personal information form.

Data Collection Tools

In the study, the Self-talk Questionnaire was used to determine the level of self-talk function of the participants, and the Personal Information Form prepared by the researcher was used to determine their descriptive information. Personal information form; It consists of questions about gender, age, sports age, bow category, and whether they are a national athlete or not. In addition, the shooting score information to be used to examine the relationship between the self-talk levels of the athletes and their shooting performance was obtained by asking the highest total score of the archers, out of 720 total points, in the national or international outdoor competitions they participated in their careers, in the personal information form.

The Self Talk Questionnaire (S-TQ) used was developed by Zervas et al. (2007), adapted into Turkish by Engür (2011), and tested for validity and reliability. The scale consists of 11 items in which judgments are made according to 5 evaluation steps (1 Never, 2 Rarely, 3 Sometimes, 4 Often, 5 Always) and includes 2 subscales.

These subscales are Motivational Function and Cognitive Function. The 1st, 2nd, 3rd, and 11th items of the scale belong to the Cognitive Function sub-dimension, and the 4th, 5th, 6th, 7th, 8th, 9th and 10th items belong to the Motivational Function sub-dimension. In Engür (2011)'s study, the Cronbach alpha value in the "Motivational function" subscale was .93. In the Cronbachalpha "Cognitive Function" subscale, which is the internal consistency coefficient, it was found to be .87. In general, the reliability coefficient of the scale was determined as .95. It is possible to use the scale at the level of elite and non-elite groups, experienced and low-experienced athletes, children, youth, and adult athletes (Engür, 2011).

Data Analysis

The data obtained in the study were analyzed with the SPSS 27 package program. Kolmogorov Smirnov and Shapiro Wilk tests were used while investigating the normal distribution of variables. While interpreting the results, 0.05 was used as the significance level; It was stated that in the case of $p<0.05$, the variables did not comply with the normal distribution, and in the case of $p>0.05$, the variables were in compliance with the normal distribution. While examining the differences between the groups, the nonparametric Mann-Whitney U test was used in pairwise group comparisons in cases where the variables did not conform to the normal distribution. When examining the differences between the groups, nonparametric Mann-Whitney U tests were used in cases where the variables did not comply with the normal distribution, and Kruskal Wallis tests were used if the groups were more than two. In case of significant differences in the Kruskal Wallis test, the groups with differences between them were determined by the Post-Hoc multiple comparison test. Correlation analysis was performed while examining the relationship between the shooting scores of the archers and the scores they got from the self-talk scale according to the variables. While interpreting the results, 0.05 was used as the significance level; It was stated that there was a significant relationship in the case of $p<0.05$, and there was no significant relationship in the case of $p>0.05$.

Findings

Table 1. Frequency and Distribution Table for Categorical Variables

		F	%
Age	18-20 Age	78	32,2
	21-25 Age	70	28,9
	26 Age and Over	94	38,9
Gender	Male	129	53,3
	Female	113	46,7
Category of Bow	Compound	100	41,3
	Recurve	142	58,7
National Team	Yes	102	42,1
	No	140	57,9
Age for Sports	2-4 Age	68	28,1
	5 Age And Over	174	71,9

Table 1 shows the distribution of the archers participating in our research according to some demographic characteristics. When the table is examined, it is seen that 53,3% of the participants are male, 46,7% are female, 41,3% are compound, and 58,7% are recurve bow category athletes. 42,1% of archers are athletes who have been on the national team before. 28,1% of the archers stated that the age for sports is between 2-4 years, and 71,9% of them are 5 years and above.

Table 2. Descriptive Statistics for Numerical Variables

	n	Mean	ss.	Min	Max
Age	242	26,02	8,73	18	59
Sports Age	242	7,94	5,74	2	40
Shooting Points	242	638,80	50,16	423	715
Motivational Function	242	25,26	6,50	7	35
Cognitive Function	242	14,91	3,82	4	20
Self-Talk Function	242	40,17	9,91	11	55

Table 2 contains descriptive information about the numerical variables of our research. When the table is examined, the age of our study participants varies between 18-59, and the average is 26,02. The sports age of the archers varies between 2-40, with an average of 7,94. The shooting points of the archers vary between 423-715, with an average of 638.80 points. The scores of the participants in the motivational function sub-dimension range from 7 to 35, with an average of 25,26 points. The scores of the participants in the cognitive function sub-dimension range from 4 to 20, with an average of 14,91 points. The participants' total scores from the self-talk function range from 11 to 55, with an average of 40,17 points.

Table 3. Mann-Whitney U Test Results Regarding the Comparison of Self-Talk Function and Shooting Scores According to Gender Variable

Gender		n	Mean	ss.	Min	Max	Z	p
Shooting Points	Male	129	644,74	50,15	423	715	**-2,515**	**0,012***
	Female	113	632,01	49,52	450	710		
Motivational Function	Male	129	23,50	6,67	7	35	**-4,51**	**0,001***
	Female	113	27,27	5,69	10	35		
Cognitive Function	Male	129	13,91	4,04	4	20	**-4,134**	**0,001***
	Female	113	16,04	3,22	7	20		
Self-Talk Function	Male	129	37,41	10,28	11	55	**-4,569**	**0,001***
	Female	113	43,32	8,49	21	55		

***** $p<0,05$ significance level

When Table 3 is examined, it is seen that there is a statistically significant difference in terms of shooting score averages according to the gender variable (p<0.05). The mean score of female participants (632,01) is significantly lower than the average score of male participants (644,74). When the findings were examined, it was observed that the shooting score levels of male archers were higher. There is a statistically significant difference in the mean scores of motivational function, cognitive function, and self-talk function according to the gender variable (p<0.01). Accordingly, it is seen that the average scores of the female participants are significantly higher than the average scores of the male participants.

Açıklama [t1]: Numeric data should be separated by commas
Valid for all tables.

Table 4. Kruskal-Wallis Test Results Regarding the Comparison of Self-Talk Function and Shooting Scores According to Age Group Variable

Age Group		n	Mean	ss.	Min	Max	Z	p
Shooting Points	Male	129	644,74	50,15	423	715	**-2,515**	**0,012***
	Female	113	632,01	49,52	450	710		
Motivational Function	Male	129	23,50	6,67	7	35	**-4,51**	**0,001***
	Female	113	27,27	5,69	10	35		
Cognitive Function	Male	129	13,91	4,04	4	20	**-4,134**	**0,001***
	Female	113	16,04	3,22	7	20		
Self-Talk Function	Male	129	37,41	10,28	11	55	**-4,569**	**0,001***
	Female	113	43,32	8,49	21	55		

Table 4 shows the findings regarding whether the archers' shooting score levels, self-talk function usage levels, motivational function sub-dimension, and cognitive function sub-dimension usage levels differ according to the age variable. There was no statistically significant difference in terms of shooting score averages and other sub-dimensions according to the age group variable (p>0.05).

Table 5. Mann Whitney U Test Results Regarding the Comparison of Self-Talk Function and Shooting Scores According to The Spring Category Variable

Category of Bow		n	Mean	ss.	Min	Max	Z	p
Shooting Points	Compound	100	662,45	47,80	423	715	**-8,122**	**0,001***
	Recurve	142	622,14	44,94	450	710		
Motivational Function	Compound	100	25,16	7,07	7	35	-0,104	0,917
	Recurve	142	25,33	6,08	9	35		
Cognitive Function	Compound	100	14,19	4,37	4	20	-1,916	0,055
	Recurve	142	15,42	3,31	6	20		
Self-Talk Function	Compound	100	39,35	11,07	11	55	-0,745	0,456
	Recurve	142	40,75	9,01	15	55		

***** p<0,05 significance level

Table 5 shows the findings regarding whether the archers' shooting point levels, self-talk function usage levels, motivational function sub-dimension, and cognitive function sub-dimension usage levels differ according to the bow category variable.

There is a statistically significant difference in terms of shooting score averages according to the bow category variable (p<0.01). The average score (622,14) of the participants in the recurve bow category is significantly lower than the average score (662,45) of the participants in the compound bow category. When the findings were examined, it was observed that the shooting score levels of the archers competing in the compound bow category were higher. According to the bow category variable, there was no statistically significant difference in the mean scores of the other sub-dimensions (p>0.05).

Table 6. Mann Whitney U Test Results Regarding the Comparison of Self-Talk Function and Shooting Scores According to Sports Age Variable

Sports Age		n	Mean	ss.	Min	Max	Z	p
Shooting Points	2-4 Age	68	616,90	56,05	423	700	**-4,273**	**0,001***
	5 Age and Over	174	647,36	45,01	450	715		
Motivational Function	2-4 Age	68	23,75	6,45	9	35	**-2,381**	**0,017***
	5 Age and Over	174	25,85	6,44	7	35		
Cognitive Function	2-4 Age	68	14,43	3,27	6	20	-1,717	0,086
	5 Age and Over	174	15,10	4,01	4	20		
Self-Talk Function	2-4 Age	68	38,18	9,39	15	55	**-2,205**	**0,027***
	5 Age and Over	174	40,95	10,03	11	55		

***** p<0,05 significance level

In Table 6, there is a statistically significant difference in terms of shooting score averages according to the sport age variable (p<0.01). The average score (616,90) for the participants aged 2-4 in sports is significantly lower than the mean score (647,36) of the participants whose sports age is 5 and above. When the sports age variable is examined according to the sub-dimensions, there is a statistically significant difference in terms of the mean scores in the motivational function, cognitive function, and speech function sub-dimensions (p<0.05). Accordingly, in all sub-dimensions, the average scores of the participants whose sports age is between 2 and 4 are significantly lower than the average scores of the participants whose sports age is 5 and above.

Table 7. Mann Whitney U Test Results Regarding the Comparison of Self-Talk Function and Shooting Scores According to the Variable of Being a National Athlete

National Athlete		n	Mean	ss.	Min	Max	Z	p
Shooting Points	Yes	102	662,76	32,02	576	715	-6,592	0,001*
	No	140	621,34	53,75	423	700		
Motivational Function	Yes	102	26,29	6,26	7	35	-2,115	0,034*
	No	140	24,51	6,59	9	35		
Cognitive Function	Yes	102	15,17	3,90	4	20	-0,934	0,348
	No	140	14,72	3,77	4	20		
Self-Talk Function	Yes	102	41,46	9,80	11	55	-1,737	0,082
	No	140	39,23	9,92	14	55		

***** $p<0,05$ significance level

When Table 7 is examined, it is seen that there is a statistically significant difference in terms of shooting score averages according to the variable of being a national athlete ($p<0.01$). The average score of the participants who are national athletes (662,76) is significantly higher than the average score of participants who are not national team athletes (621,34). According to the variable of being a national athlete, there is a statistically significant difference in terms of mean scores in the motivational function sub-dimension ($p<0.05$). The average score of the participants who are national athletes (26,29) is significantly higher than the average score of participants who are not national athletes (24,51). According to the variable of being a national athlete, there was no statistically significant difference in the mean scores of cognitive function and self-talk function ($p>0.05$).

Discussion and Conclusion

As a result of the analyzes made to determine the differences between the groups, significant differences were determined in terms of the archers' shooting score, motivational function, cognitive function, and self-talk function score averages according to the gender variable. It was observed that the average shooting points of female archers were significantly lower than the average shooting points of male archers. Similar to our findings, Tekin (2018), in his research to examine the relationship between the imagery levels of the archers and their attention and performance levels, observed a difference between the shooting performances of the archers according to the gender variable and stated that the shooting performance of the male archers was higher.

In our other findings, it was observed that the scores of female archers in motivational function, cognitive function, and self-talk function were significantly higher. It was concluded that female archers use the self-talk function and both sub-dimensions of this function more than men.

In the study of Hocaoğlu (2019), in which a total of 346 athletes aged 18-30 participated, he examined the role of the perceived sportive competence and goal orientations of the athletes in determining the inner speech and imagery styles, and Keskin et., al. (2020) examined the effects of self-talk of table tennis players. Eryücel (2019) analyzed the self-talk and flow status of 242 team and individual sports athletes, Akman (2019) examined the relationship between imagination, self-talk, and stress coping styles of adult athletes and mental endurance. In the study conducted by Şahin (2017) to determine the self-talk levels of a total of 441 Grecomen and freestyle wrestlers, no difference was observed in the scores of the athletes according to the gender variable in the motivational function, cognitive function, and self-talk function. n the other hand, in the study conducted by Engür (2011) to adapt and apply the Self-talk Questionnaire to the Turkish athlete population, a significant difference was found in both motivational function and cognitive function sub-dimensions according to the gender variable of the athletes. However, unlike our findings, it was stated that the mean scores of male participants in the motivational function sub-dimension and female participants in the cognitive function sub-dimension were higher. Gülşen et., al. (2018) conducted a study to examine the self-talk levels of sports science students, who are individual and team athletes from 9 different branches, according to various variables. When their scores were examined, a statistically significant difference was found and it was observed that male athletes used the self-talk function and its sub-dimensions at a higher level.

Bayköse (2014), who obtained findings in line with the findings we obtained, in his research examining the role of self-talk and imagery level in determining the optimal performance mood with undergraduate students from various branches, stated that the scores of female participants in the cognitive function sub-dimension according to the gender variable were significantly higher. Güvendi and Pehlivan (2020) examined the self-talk and aggression and anger behaviors of athletes from 6 different martial arts. When the findings were obtained as a result of the study in which he examined the motivational self-talk and mental endurance levels of different individual sports branch athletes who do active sports, it was observed that female athletes had a high level of use of the motivational function sub-dimension. When Nergiz et., al. (2015) examined the results of their studies to examine the self-talk of modern and folk dance dancers, it was found that female dancers' motivational self-talk levels were higher than male dancers.

As a result of the analyzes made to determine the differences between the groups, no statistically significant difference was observed in terms of the archers' shooting score and the mean scores of motivational function, cognitive function, and self-talk function according to the age variable ($p>0.05$). It can be said that archers aged 18-20, 21-25, or 26 years and older do not use the self-talk function, and the sub-dimensions of this function significantly differ from any age group. Guvendi and Pehlivan (2020), who have findings that are in line with our findings, observed that the self-talk function according to the age variable and the athletes did not get significantly different scores in the sub-dimensions of this function in their research with the athletes who belong to the individual sports martial arts.

Unlike our results, Akikveren (2017) found a difference in the level of use of the motivational function sub-dimension according to the age variable of 353 individual branch athletes in his study and stated that he obtained results in favor of the younger ones.

As a result of the analyzes made to determine the differences between the groups, no statistically significant difference was observed in terms of the archers' motivational function, cognitive function, and self-talk function mean scores according to the bow category variable ($p>0.05$). When the study conducted by Şahin (2017) was examined, it was observed that the scores of the athletes who wrestled in freestyle and Greco-Roman style according to the style variable, which are the sub-dimensions of the self-talk function, motivational and cognitive function sub-dimensions, did not differ statistically, and it coincides with our research findings. Nargiz et al. (2015), when both motivational and cognitive function sub-dimensions were examined according to the dance type variable, no significant difference was observed between the scores of the dancers ($p>0.05$).

A significant difference was observed in the average shooting points of the archers according to the bow category variable. When the findings were examined, it was observed that the average shooting points of the roller bow category archers were higher than the average shooting points of the classical bow category archers. In the research conducted by Öner and Cankurtaran (2020) with archers, similar to our findings, it was observed that the shooting scores of roller bow archers were higher. Tekin (2018) also observed that the performance of roller bow archers is higher in his study with archers.

As a result of the analyzes carried out to determine the differences between the groups, a significant difference was observed in terms of the shooting score, motivational function and self-talk function (total) score averages of the archers according to the sport age variable, and no difference was found in terms of the cognitive function score averages. Archers with a sports age of 5 and above have higher shooting scores, motivational function, and self-talk function (total) scores than archers with a sports age of 2-4 years. Similar to the significant difference in the shooting scores of more experienced archers, Tekin (2018) observed that performance increased as sports experience increased. In parallel with our findings, Engür (2011) observed a significant difference in the motivational function scores of the athletes according to the sports age variable in his study. Hocaoğlu (2019) and Akman (2019) observed that in the sports experience variable in the self-talk function sub-dimensions, Hocaoğlu observed that the average values of the motivational and cognitive function sub-dimensions of the athletes with 8 years or more experience were higher than those with 3-7 years of experience. Different according to our findings, in the study of Güvendi and Pehlivan (2020), no significant difference was found in the sub-dimensions of self-talk according to the sports age of martial athletes ($p>0.05$). Akınveren (2017), in his study, did not observe a significant difference in the motivational function scores of the self-talk function sub-dimension of the athletes according to the sports age variable.

As a result of the analyzes made to determine the differences between the groups, a significant difference was observed in terms of the shooting score and motivational function score averages of the archers according to the variable of being a national athlete before, and no difference was found in terms of "talk to yourself function and cognitive function score averages. Shooting points and motivational function averages of archers who were national athletes before were higher than archers who were not national athletes. Tekin (2018), who obtained findings similar to our findings, stated that the performance of national athletes was higher in his research with archers. Keskin et., al. (2020) found a significant difference in the motivational function sub-dimension of the self-talk function according to the nationality status of the athletes and observed that the national athletes use the motivational function more. On the other hand, contrary to our findings, Akınveren (2017) did not observe a difference in the level of use of the motivational function, which is the sub-dimension of the self-talk function, according to the variable of whether the athletes were in the national team or not. As a result of the research conducted by Güvendi and Pehlivan (2020), no significant difference was found in the sub-dimensions of the self-talk function according to the nationality of the athletes. In the study conducted by Şahin (2017), no statistical difference was observed in the motivational and cognitive function sub-dimensions of the self-talk function according to the variable of being a national athlete of the athletes who wrestle in freestyle and Greco-Roman style.

In the literature review, no study was found that examined the relationship between the performance of archers according to their demographic characteristics and the use of the self-talk function, and experimental studies were found to examine the effect of the self-talk function on their performance. Wickramanayake et., al. (2016), in their study to examine the effect of relaxation and concentration on the performance of archers in the army, an 8-week training was planned, and pre-test and the post-test study were applied to the experimental and control groups. The training was carried out with the help of eight different techniques, including the self-talk technique, aimed at concentration and relaxation. There was a significant difference between the pre-test and post-test results of the experimental group's performance results. Wu et., al. (2017) conducted a study to develop self-talk strategies to guide and facilitate performance based on the assumption that archers' thoughts affect their movements. He stated that they determined different self-talk strategies to benefit from sports science education, since performance is affected by stress, anxiety, and other negative emotional factors, and active and positive self-talk improves performance effectively. He explained that for Chinese archery to become a leader in world archery, self-talk training should be used to increase performance. These positive effects of the Talk to Yourself Function on archers explain the accuracy of our research findings.

In another study, Van Raalte et., al. (1995) participated darts athletes who have the task of hitting a specific target as in archery and investigated the effect of using some self-talk instructions on performance in their study with darts athletes. They observed that positive self-talk instructions increased the performance of the experimental group of athletes (Hatzigeorgiadis et al., 2011).

Theodorakis et al., (2001) also gave basketball players a shooting task and were asked to use two types of self-talk instruction and measured its effect on their performance. They concluded that a self-talk strategy determined by the desired performance technique will increase performance (Hatzigeorgiadis et., al. 2011). It is expressed as a fine motor skill that small muscle groups should be used to perform the archery skill successfully or to release the beam during the release (Karanfilci et., al. 2014). Theodorakis et al. (2000) conducted a study in which performance evaluation was carried out by applying different motor learning tasks. They concluded that the self-talk strategy determined in fine motor learning had a positive effect (Hatzigeorgiadis et., al. 2011).

Conclusions and Recommendations

In this study, in which the relationship between the level of speaking to themselves and the shooting performance of the elite archers was examined according to some variables, the shooting performance of the archers aged 18 and over who have the athlete license of the Turkish Archery Federation was determined, and the relationship of this performance with the level of self-talk of the archers according to some demographic variables and with yourself according to the variables. The differences between speech levels were tried to be explained.

According to the research findings, it was concluded that female archers use the self-talk function and its sub-dimensions at a higher level, and the level of use of the motivational function sub-dimension positively affects the shooting scores of female archers. However, it was observed that the shooting averages of the female archers were significantly lower than the average shooting points of the male archers. It is estimated that female archers use bows of lower hardness, considering that women's physical strength is generally lower than men's. The low stiffness of the bow slows down the flight speed of the arrow. The slow-flying of the arrows causes them to be more affected by the weather conditions and deviates from the aiming point, thus reducing the total shot score. Although the motivational function, which is the sub-dimension of talking to yourself, is effective in increasing the performance of female archers, it can be said that women score lower than men due to their low physical strength.

According to the research findings, the shooting averages of the archers competing in the roller bow category were higher than the shooting averages of the archers competing in the classical bow category, there was no significant difference in the level of use of the self-talk function and sub-dimensions of this function of the roller bow archers. It was concluded that it did not affect the scores significantly. Although the roller and classic bow shooting distances are different, the target papers used by the archers in the competition also differ. Classic bow archers shoot from 70 meters to 122 cm target face (center ring inner diameter 6.1 cm), and roller bow archers shoot from 50 meters to 80 cm target face (center ring inner diameter 4 cm). It should not be ignored that roller bow archers shoot arrows at smaller target paper from a shorter distance than classical bow archers.

The performance of the spring and the athlete can be carried to a higher level by the fact that the adjustable spring stiffness range of the roller spring is greater than that of the classical spring. It can be said that this hardness and performance advantage in the roller bow explains that the average shooting points of the roller bow archers participating in our research are higher than the shooting averages of the classical bow archers.

According to the research findings, it was concluded that the shooting score, motivational function, and self-talk function scores of archers aged 5 and above were significantly higher, but the level of using the self-talk function and its sub-dimensions of this function did not significantly affect the shooting scores according to the sports age variable. Although archers with 5 years or more experience use self-talk and motivational functions at a significantly higher level, their success in shooting points; It can be said that they have become professional in shooting technique, the increase in spring stiffness depending on their age, and they may have learned to manage their mind with skills different from the ability to talk to yourself.

According to another finding of our research, it was concluded that the shooting scores and motivational function usage levels of the archers who had been national athletes before, were higher, but the levels of self-talk, motivational and cognitive function use did not significantly affect the shooting scores. The success of the archers who became national athletes in shooting points; it can be said that they benefit from regular and correct training methods, professionalized shooting techniques, use of hard blows, and psychological skills other than the ability to talk to yourself in managing their minds.

According to these results we have obtained;

- Considering that the shooting performance of female archers will increase, experimental research is carried out by using self-talk and other psychological skill trainings that will increase their physical strength through the shooting technique,
- Examining the relationship between the levels of using the self-talk function and shooting performance of Turkish and foreign archers according to different demographic variables.
- Determination of psychological skill techniques related to shooting performance for male archers,
- Considering that the current high performance of the roller bow archers can be increased by including the self-talk skills in their training programs, an experimental study will examine the effect of the self-talk training that they will systematically apply to the roller bow athletes on their performance,
- For female archers, it can be suggested to plan and implement self-talk trainings systematically with an experimental study and to determine the change in their performance.

**This study was produced from a thesis*

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.663

Investigation of University Students' Burnout Levels in Sports

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Type: Research Article (Received:03.09.2022– Accepted: 08.09.2022)

Abstract

Burnout, which is one of the situations where an individual feels psychologically bad, is a situation that university students often experience. For this reason, the aim of this study is to examine the burnout status of university students who do physical activity in sports. In this study, the sports burnout scale developed by Sorkkila et al., (2017) and adapted into Turkish by Çam et al., (2019) was used. The data were collected by convenience sampling method. Statistical analyzes were made with the SPSS program. In addition, to reduce the error rate, FDR analysis was performed with the Graphpad 9 program with a rate of 5%. When this analysis was done, the data were free of type I error. As a result, it is seen that as participation in physical activity increases, burnout in sports decreases.

Keywords: Burnout, Sport, Sociology of Sport.

Introduction

Burnout is a state of psychological, emotional, and sometimes physical withdrawal from sports participation as a result of chronic stress. Burnout is among the important problems of young athletes. A significant number of young athletes suffer from burnout each year. Unfortunately, the literature review shows that sports scientists show little interest in burnout (Googger et al., 2007).

Sports burnout is a multidimensional syndrome defined as physical and psychological exhaustion, which tends to decrease the performance of individuals, reduces their interest in sports and affects them psychologically negatively (Goodger Jones, 2012; Langan et al., 2015). The design and programming of interventions that increase participation, thereby promoting motivation and protecting athletes against burnout, has gained particular attention in the field of sport psychology. While this study analyzes the role of motivation in the emergence of burnout and commitment, it also plays an important role in the relationship between the motivation of athletes and burnout. This situation shows that burnout in sports has a negative relationship with motivation (Graña et al., 2021). However, sport mostly allows individuals to feel good psychologically (Gülü ve Ayyildiz, 2022; Gülü ve Yapıcı, 2022).

Physical exhaustion, sports depreciation and a reduced sense of accomplishment. The development of ABQ has contributed significantly to the development of research on burnout among athletes (Seong, 2002). There are several reasons why athletes end their athletic careers. However, burnout is one of the main causes (Smith, 1986). The aim of this study is to examine the burnout levels of university students in sports.

Material and Method

Research Group

The research group of this study consists of university students engaged in physical activity. A total of 388 people, 247 men and 141 women, agreed to participate in the study voluntarily.

Data Collection Tool

The data collection tool consists of two parts. Personal information form was used in the first part, and the sports burnout scale developed by Sorkkila et al., (2017) and adapted into Turkish by Çam et al., (2019) was used in the second part. The scale consists of 10 items and

three sub-dimensions in total. These sub-dimensions are; depersonalization, exhaustion and inadequacy. Items 3, 5, 8, 9 and 10 in the scale are reverse scored.

Table 1. Descriptive Statistics

Variable	**Grup**	**f**	**%**	**Total**
Gender	Female Male	141 247	36.3 63.7	388
Age	18-19 years 20-21 years 22 years and older	107 176 105	27.6 45.4 27.1	388
Frequency of physical activity	Rarely Sometimes Always	115 121 152	29.6 31.2 39.2	388

When Table 1 is examined, it is seen that 36.3% of the participants are female (n=141) and 63.7% (n= 247) are male. Considering the age variable, there are 107 (27.6%) people in the 18-19 age range, 176 (45.4%) in the 20-21 age range, and 105 (27.1%) people aged 22 and over. In the frequency of exercise; The number of those who exercise all the time was 115 (29.6%), the number of those who exercise occasionally was 121 (31.2%), and the number of those who rarely exercised was 152 (39.2%).

Results

In the homogeneity test, skewness-kurtosis values were found in the range of -2+2. This result shows that the data are homogeneously distributed. In addition, according to the results of the Cronbach alpha reliability analysis, all horse dimensions were found above .70. This result shows that our data is reliable.

Table 2. Independent t-test analysis results for gender variable

Variable	**Gender**	**N**	$\bar{x}$	**SS**	**p**
Inadequacy	Female Male	141 247	2.67 2.24	.78 .42	.000
Exhaustion	Female Male	141 247	2.20 2.42	.26 .58	.000
Depersonalization	Female Male	141 247	2.84 2.14	.73 .30	.000

$p<0.001$

According to the results of Table 2 analysis, while there was a significant difference in favor of women in the sub-dimensions of inadequacy and depersonalization, there was a significant difference in favor of men in the sub-dimension of exhaustion (p<0.001).

Table 3. Anova test analysis by age variable

				ANOVA	
Variable	**Grup**	**N**	$\bar{x}$	**P**	**Benferoni**
Inadequacy	18-19 years (1)	107	3.26	.000	1>2>3
	20-21 years (2)	176	3.00		
	22 years and older (3)	105	2.00		
Exhaustion	18-19 years (1)	107	2.18	.000	**2-3>1**
	20-21 years (2)	176	2.45		
	22 years and older (3)	105	2.31		
Depersonalization	18-19 years (1)	107	2.89	.000	1>2>3
	20-21 years (2)	176	2.33		
	22 years and older (3)	105	2.02		

p<0.01

When Table 3 is examined, it is seen that there is a significant difference in the sub-dimensions of inadequacy and depersonalization as the age increases. In addition, it is seen that the participants aged 20 and over have a significantly higher level of burnout than the participants aged 18-19 (p<.001).

Table 4. Anova test analysis according to exercise frequency variable

				ANOVA	
Variable	**Grup**	**N**	$\bar{x}$	**P**	**Benferoni**
Inadequacy	Rarely (1)	115	2.68	.000	1>2>3
	Sometimes (2)	121	2.47		
	Always (3)	152	2.12		
Exhaustion	Rarely (1)	115	2.46	.000	**2-3>1**
	Sometimes (2)	121	2.44		
	Always (3)	152	2.17		
Depersonalization	Rarely (1)	115	2.69	.000	1>2>3

	Sometimes (2)	121	2.46
	Always (3)	152	2.11

p<0.01

When Table 4 is examined, it is observed that as the frequency of exercise increases, there is a significant difference in the sub-dimensions of inadequacy and depersonalization. In addition, it is seen that the participants who exercise occasionally and all the time have a significantly higher level of exhaustion than the participants who rarely exercise (p<.001).

Discussion and Conclusion

The more stressful an individual's life situations are, the higher the degree of burnout. Consistent with this result, individuals reporting higher levels of stress are more likely to experience burnout. Among the investigated variables, perceived stress has the strongest correlation with the individual's burnout (De Francisco, 2016; Tabei, 2019).

When the effect of burnout on gender was examined, no significant difference was found in some studies (Koustelios, 2001; Raanes et al., 2019; Yenihan et al., 2018). However, there are studies where the burnout level of men is higher than that of women (Aypay ve Sever, 2011; Eroğlu et al., 2009). This situation is similar to our study. In our study, it was observed that males were significantly higher in the exhaustion sub-dimension. This situation shows that male students wear themselves out more.

It has been concluded that men's depersonalization and competence thoughts are higher than women's (Eroğlu et al., 2009). This view differs from our study. The reason for this may be the difference in the sample group and having different environmental conditions.

It is observed that burnout increases with increasing age (Buğdaıcı et al., 2004; Veysel ve Şahan, 2015). In addition, while there are studies in which there is no significant difference in the level of depersonalization (Kaya et al. 2007), there is a study that concluded that depersonalization decreases with increasing age (Buğdaıcı et al., 2004). In the results of our study, it was concluded that as age increases, burnout and depersonalization decrease. It is thought that the fact that the participants are university students and that the majority of them are away from their families for the first time (in the periods of 18-19 years) begin to increase in their state of exhaustion with stress. In addition, it is thought that the human being, who does not become more individual as the age increases, may be more insensitive.

As the level of physical activity increases, burnout decreases (Toker ve Biron, 2012). This result shows parallelism with our study. Looking at the results, it is seen that physical activity reduces burnout. It is thought that burnout is low because the individual both includes himself/herself in a social group and feels better physically.

As a result, in order to reduce the sense of burnout, organizing sportive activities in environments where young people are present will provide significant benefits (Gündoğmuş, 2017). The dissemination of sports and the creation of a sports culture throughout the society will cause a decrease in the feeling of burnout. The fact that the sports clubs of the universities are active and the sports environments are accessible will allow the students to feel better in the time left behind from the intense course tempo.

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International Journal of Sport Culture and Science
September 2022 : 10(3)
ISSN : 2148-1148
Doi : 10.14486/IntJSCS.2022.664

Investigation of Volunteer Motivation in Sports Events

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Type: Research Article (Received:03.08.2022– Accepted: 04.10.2022)

Abstract

The purpose of this research is to examine the volunteer motivations of individuals participating in sports events. The descriptive method, one of the quantitative research methods, was used in the study. The study group consists of 178 volunteers who participated in sports events in Turkey between the years 2021-2022 and were selected by simple random sampling method. As a measurement tool, Yıldız et al. (2015) "Sports Events Volunteer Motivation Scale" was used. In the analysis of the data, firstly, skewness and kurtosis analysis methods were used to test the normality distribution. In order to determine the differences between the variables, t-test and ANOVA tests were performed for related samples. Cronbach's Alpha analysis was applied to determine the reliability of the measurement tool. According to the data obtained from the research, no significant difference was found in the sub-dimensions of volunteering motivation in sports events in terms of gender, education, level of sports (amateur or professional) and the way of deciding to participate in sports events. According to the age of the participants, a significant difference was found in the sub-dimensions of 'purposeful' and 'solidarity', which are sub-dimensions of volunteering motivation in sports events. While this difference is in favor of the participants aged 31 and over in the purposeful sub-dimension, it is in favor of the participants aged 18-25 in the solidarity sub- dimension. Considering the sub-dimensions of volunteering motivation in sports events in terms of marital status, a significant difference was found in the 'purposeful' sub-dimension. Accordingly, the volunteering motivation level of the married participants in sports is higher than the male participants. As a result, in the purposeful sub-dimension of married participants; it is seen that participants aged 31 and over have higher scores in the purposeful sub-dimension, and participants aged 18-25 have higher scores in the solidarity sub-dimension. As a result, it is understood that the "Purposeful" sub-dimension has a higher average score than the other sub-dimensions, and that individuals who voluntarily take part in sports activities participate in accordance with the purpose of the activity in order to be beneficial to the society and other individuals.

Keywords: Sports Event, Volunteering, Motivation

Introduction

Today, sports have become an occupation that people make use of their spare time and attract the attention of individuals (Yaman and Duman, 2004; Altunbaş, 2018). Sport is an individual and social phenomenon in which people perform physically and mentally (İlhan & Gencer, 2013). Sports and sportive events have a very important place from past to present. The motivation of people plays an important role in participating in these events.

Motivation, in its simplest form, is defined as the direction and intensity of a person's efforts (Weinberg & Gould, 2015; Özgün, et al., 2017; Sarı & Sağ, 2021). In other words, motivation is internal and external stimuli that direct a person to a certain action (Yıldız and Doğu, 2021). While external stimuli are the benefits and rewards that are outside of the individual and will be obtained in the event of the fulfillment of the task, internal stimuli are the interest and pleasure in a task that is inside of the individual (Wann, 1997; Kaman et al., 2017). While individuals are sometimes more easily motivated by internal reasons, they are sometimes more easily motivated by external reasons (Malone & Lepper, 1997; İlhan & Gencer, 2013). External motivation can be defined as relying on noticeable rewards, while internal motivation can be defined as undertaking activity for his/her own purpose. Individuals tend to be internally motivated when they feel both competent and in control or when they decide by themselves (Dweck, 1986; Türkmen et al., 2013; İlhan & Gencer, 2013). The best way to understand motivation is to evaluate both the person and the situation and how these two interact with each other (Zorlu et al., 2020). More efficiency can be obtained from a motivated individual when s/he voluntarily participates in sports events.

Volunteering can be defined as an individual dedication of personal time, energy, knowledge and skills for the benefit of other people, groups or goals (Omoto et al., 2000; Weerakoon et al. 2021). Chelladurai (2006) states that volunteering is a unique type of pro-social behavior that typically takes place in an organizational context. In addition, Freeman (1997) defined volunteering as a form of work that does not depend on any financial return. Today, volunteers have become a valuable human resource in almost every part of society (Bang and Ross, 2009). Their motivation is important since volunteering activities do not have a financial return.

The most important point that motivates volunteers is that they want to help others. *Contemporary volunteering thought is more project-centered in terms of scope, time and structure of volunteer participation and includes specific expectations. Particularly, it is seen that volunteers working in the field of social services have different motivations such as thinking about others, establishing social communication, being in events for their personal interests, and meeting their emotional needs. When approaching volunteering in terms of recreational events, it is argued that there may be a desire to "do something with others and have a good time doing it"* (Bang & Ross, 2009; Berber & Terekli, 2019). Volunteers, who have become a valuable human resource in a large part of the society, have a great role in sports events.

The success of many sports events depends on the people who participate in these events voluntarily (Khoo and Engelhorn, 2007). Especially the events in the sports sector are mainly based on volunteers. It is because, naturally, a large amount of workforce is needed to realize sportive events (Berber and Terekli, 2019). The sports industry relies heavily on volunteers, as the creation and delivery of sports services often requires large numbers of manpower. The benefits of volunteering for institutions have been emphasized by scientists (Chelladurai & Madella, 2006; Cravens, 2006; Cuskelly & Boag, 2001). In particular, it is known that many volunteers take part in international sports events. It can be said that the biggest share in the

success of these events falls on the individuals who participate voluntarily (Giannoulakis et al., 2008). The high motivation of volunteers, who have a great share in the success of sports events, can facilitate the success of the event. Therefore, in this study, it is aimed to examine the volunteering motivations of individuals who take part in sports events.

Method

The descriptive method, one of the quantitative research methods, was used in the study. The sample of the study consists of 178 volunteers who participated in sports events in Turkey between the years 2021-2022 and were selected by simple random sampling method. "Sports Events Volunteer Motivation Scale" developed by Yıldız et al. (2015) was used as a measurement tool. In the analysis of the data, firstly, skewness and kurtosis analysis methods were used to test the normality distribution. In order to determine the differences between the variables, t-test and ANOVA tests were performed for related samples. Cronbach's Alpha analysis was applied to determine the reliability of the measurement tool.

Data Analysis

In the analysis of the data, firstly, skewness and kurtosis analysis methods were used to test the normality distribution. In order to determine the differences between the variables, t-test and ANOVA tests were performed for related samples. Cronbach's Alpha analysis was applied to determine the reliability of the measurement tools. In the statistical analysis and interpretation of the data, the significance level of $p<0.05$ was taken into account.

Table 1. Demographic Information of Participants

Personal Information		**Frequency (f)**	**Percentage (%)**
Gender	Female	98	55.1
	Male	80	44.9
Age	18-25 years	114	64
	26-30 years	17	9.6
	31 years and above	47	26.4
Marital Status	Single	142	79.8
	Married	36	20.2
Educational Level	Secondary-High School	11	6.2
	Undergraduate	144	80.9
	Graduate	23	12.9
Are you interested in a sport as an amateur or professional?	Yes	138	77.5
	No	40	22.5
How did you decide to volunteer at sporting events?	Social media	35	19.7
	Friend recommendation	69	38.8
	Educational institution	54	30.3
	Print media and poster announcement	11	6.2
	Internet	9	5.1

Findings

Table 2. Reliability, skewness and kurtosis values of the data

Sub-dimensions	**$\bar{x}$±SD**	**Skewness**	**Kurtosis**	**C. Alpha**
Purposeful	4.63±0.48	-1.48	1.54	0.80
Solidarity	4.27±0.74	-0.94	0.21	0.84
Commitment	3.17±0.91	0.13	-0.66	0.77
Personal Interest	4.02±0.64	-0.56	0.18	0.64

Since the skewness and kurtosis values ranged from +2 to -2, the data were considered to have a normal distribution. In addition, the Cronbach's Alpha internal consistency coefficients of the sub-dimensions were calculated as 0.80 for Purposeful, 0.84 for Solidarity, 0.77 for Commitment, and 0.64 for Personal Interest, respectively.

Table 3. t-test analysis results for gender-based opinions

Sub-dimensions	Gender	N	$\bar{x}$± SD	t	p*
Purposeful	Female	98	4.64±0.48	.488	.627
	Male	80	4.61±0.49		
Solidarity	Female	98	4.32±0.72	.981	.328
	Male	80	4.21±0.77		
Commitment	Female	98	3.19±0.91	.359	.720
	Male	80	3.14±0.93		
Personal Interest	Female	98	4.04±0.65	.461	.645
	Male	80	3.99±0.62		

When Table 3 is examined, no significant difference was found in the sub-dimensions of the Sports Events Volunteer Motivation Scale according to the gender variable.

Table 4. t-test analysis results for opinions according to marital status

Sub-dimensions	Marital Status	N	$\bar{x}$± SD	t	p*
Purposeful	Married	36	4.78±0.36	2.18	0.03
	Single	142	4.59±0.50		
Solidarity	Married	36	4.15±0.75	-1.14	0.25
	Single	142	4.31±0.74		
Commitment	Married	36	3.28±0.90	0.79	0.42
	Single	142	3.14±0.92		
Personal Interest	Married	36	4.02±0.53	0.07	0.99
	Single	142	4.02±0.66		

When Table 4 is examined, a significant difference was found according to the marital status variable as a result of the t-test analysis applied on the average of the participants' opinions in the "purposeful" ($t=2.18$; $p<0.05$) sub-dimension of the Sports Events Volunteer Motivation Scale. Accordingly, the average scores of married participants are higher than those of single participants.

Table 5. t-test analysis results for opinions according to whether they are interested in sports as an amateur or professional.

Sub-dimensions	Amateur or Professional	N	$\bar{x}$± SD	t	p*
Purposeful	Yes	138	4.62±0.48	.-415	0.67
	No	40	4.65±0.48		
Solidarity	Yes	138	4.27±0.74	-.017	0.98
	No	40	4.28±0.75		
Commitment	Yes	138	3.13±0.92	-1.02	0.30
	No	40	3.30±0.90		
Personal Interest	Yes	138	4.03±0.64	0.57	0.54
	No	40	3.97±0.64		

When Table 5 is examined, no significant difference was found in the sub-dimensions of the Sports Events Volunteer Motivation Scale according to the variable of being interested in sports as an amateur or professional.

Table 6. One-way analysis of variance (ANOVA) for participant opinions according to age

Sub-dimensions	Age	N	$\bar{x}$± SD	F	p*	Difference
Purposeful	18-25 years	114	4.56±0.53	3.24	0.04	18-25 years <31 years and above
	26-30 years	17	4.76±0.38			
	31 years and above	47	4.74±0.36			
Solidarity	18-25 years	114	4.37±0.68	7.47	0.00	18-25 years <31 years and above
	26-30 years	17	4.58±0.53			
	31 years and above	47	3.94±0.85			
Commitment	18-25 years	114	3.21±0.90	0.46	0.62	-
	26-30 years	17	3.01±0.99			
	31 years and above	47	3.11±0.94			
Personal Interest	18-25 years	114	4.03±0.64	1.40	0.24	-
	26-30 years	17	4.20±0.56			
	31 years and above	47	3.91±0.64			

One-way analysis of variance (ANOVA) for participant opinions according to age is presented in Table 6. In the "purposeful" sub-dimension [F (2, 175) =3.24, p<.05] and in the "Solidarity" sub-dimension [F (2, 175) =7.47, p<.05] of Sports Events Volunteer Motivation Scale, a significant difference was found. LSD multiple comparison test was performed to determine between which groups there was a significant difference.

In the "Purposeful" sub-dimension, it was determined that the mean score of the participants aged between 18-25 was lower than the mean score of the participants aged 31 and above. In the "Solidarity" sub-dimension, it was determined that the mean score of the participants aged between 18-25 was higher than the mean score of the participants aged 31 and above.

Table 7. One-way analysis of variance (ANOVA) for participant opinions according to education level

Sub-dimensions	Education	N	$\bar{x}$± SD	F	p*	Difference
Purposeful	Secondary-High School	11	4.62±0.17	0.10	0.90	-
	Undergraduate	144	4.62±0.48			
	Graduate	23	4.67±0.50			
Solidarity	Secondary-High School	11	4.13±0.82	0.21	0.80	-
	Undergraduate	144	4.28±0.75			
	Graduate	23	4.28±0.67			
Commitment	Secondary-High School	11	2.90±0.79	1.15	0.31	-
	Undergraduate	144	3.22±0.88			
	Graduate	23	2.98±1.12			
Personal Interest	Secondary-High School	11	3.89±0.70	0.29	0.74	-
	Undergraduate	144	4.02±0.64			
	Graduate	23	4.07±0.61			

One-way analysis of variance (ANOVA) of the participants according to the education variable is presented in Table 7. According to the education variable, no significant difference was found in the sub-dimensions of the Sports Events Volunteer Motivation Scale.

Table 8. One-way analysis of variance (ANOVA) for participant opinions according to the decision to participate in sports events

Sub-dimensions	Decision-making status	N	x̄± SD	F	p*	Difference
Purposeful	Social media	35	4.71±0.44	0.39	0.81	-
	Friend recommendation	69	4.60±0.49			
	Educational institution	54	4.59±0.48			
	Print media and poster announcement	11	4.68±0.49			
	Internet	35	4.62±0.63			
Solidarity	Social media	69	4.47±0.64	1.10	0.35	-
	Friend recommendation	54	4.21±0.82			
	Educational institution	11	4.29±0.69			
	Print media and poster announcement	35	4.22±0.74			
	Internet	69	4.00±0.71			
Commitment	Social media	54	3.20±1.08	1.33	0.26	-
	Friend recommendation	11	3.18±0.93			
	Educational institution	35	3.28±0.80			
	Print media and poster announcement	69	2.89±0.85			
	Internet	54	2.61±0.67			
Personal Interest	Social media	11	4.14±0.69	0.89	0.47	-
	Friend recommendation	35	3.93±0.64			
	Educational institution	69	4.05±0.59			
	Print media and poster announcement	54	4.12±0.62			
	Internet	11	3.87±0.68			

In Table 8, one-way analysis of variance (ANOVA) according to the decision-making status of the participants is presented. According to the decision-making variable, no significant difference was found in the sub-dimensions of the Sports Events Volunteer Motivation Scale.

Discussion and Conclusion

In this study, which was carried out to examine the volunteering motivations of individuals participating in sports events according to different demographic variables, it was determined that the "purposeful" sub-dimension has the highest score when the mean scores of the volunteers were taken into account. However, "solidarity" and "personal interest" sub-dimensions are motivational factors with high mean scores. Apart from these dimensions, there is the last sub-dimension of "commitment" with the lowest mean score. There are studies in the literature parallel to this result. In the study conducted by Bektaş (2021) on volunteering motivation in sports events, it is seen that the mean score of the "purposeful" sub-dimension is higher than the mean score of the other sub-dimensions. When we look at the items of the purposeful sub-dimension, there are generally statements that are beneficial for the society and that the sports events are successful. According to Berrakcay and Güran (2019), volunteering is defined as “working in order to be beneficial to other individuals and to be a useful individual to the society, without expecting any financial return”. This definition explains why the "purposeful" sub-dimension is at the top of the motivation factors of individuals who volunteer in sports events.

When the motivation factors for volunteering were examined according to the gender variable, no significant difference was found between male and female participants. Looking at the literature, it is seen that in the study conducted by Bektaş (2021), similar results were obtained in terms of volunteering motivation according to gender. However, in the studies conducted by Berber and Terekli (2019), Er and Güzel Gürbüz (2021), a significant difference was found in terms of volunteering motivation according to gender. Accordingly, in these

studies, it was revealed that female volunteer participants were more motivated than male participants. The reason for this is the high importance of voluntary participation in women's leisure attitudes (Gümüş et al., 2019).

According to the marital status variable, in the "purposeful" sub-dimension, the mean scores of the married participants for volunteering motivation are higher than the single participants. Although there is no statistically significant difference in the "commitment" sub-dimension, when the mean score is considered, it was determined that the volunteering motivation of the married participants is higher. In parallel with this result, studies by Bektaş (2021) and Bang and Chelladurai (2009) show that married volunteers show higher motivation than single volunteers. In many studies (Rohs, 1986; Berger, 1991; Wymer et al., 1996; Berber, 2015; Ardahan, 2016), It was emphasized that being married had an effect on voluntarism. However, there are also studies stating the opposite (Fişne, 2017; Bulut, 2021; Cicik & Akdağ, 2021). According to these studies, it is seen that the motivation of single volunteers is higher than that of married volunteers. The reason for this is that single individuals have more time for volunteering events.

There was no significant difference in motivation factors according to whether they are interested in sports as an amateur or professional. On the other hand, it is seen that the majority of the participants are interested in a sport branch as an amateur or professional. Downward and Ralston (2006) reached very interesting results in their study in which they examined the studies revealing the demographic characteristics of the volunteers. According to this, it is revealed that approximately one fourth (26%) of the individuals who voluntarily participate in the events do sports actively. In the study conducted by Bektaş (2021) on 311 volunteers, it is seen that 72.2% of the participants are interested in a licensed sports branch. This result shows that the voluntary participation of people who are interested in a sport branch as an amateur or professional is higher than those who have not been involved in any sport before.

There is a significant difference in the "purposeful" and "solidarity" sub-dimensions in terms of motivation factors according to the age of the volunteers participating in the sports events. In the "purposeful" sub-dimension, the mean score of the participants aged between 18-25 is lower than the mean score of the participants aged 31 and above. There are also findings opposite to this result in the literature. For example, in a study conducted by Berber and Terekli (2019) on volunteering motivation, it is seen that the mean scores of people aged 25-59 in the "goal-oriented" sub-dimension are lower than those under the age of 24.

In the "solidarity" sub-dimension, the mean score of the participants aged between 18-25 is higher than the mean score of the participants aged 31 and above. In general, the concept of solidarity matures with age (Ulusoy et al., 2013). In this respect, this result is not similar to the literature. However, the higher mean scores of younger participants can be explained by their career goals. It is because there is a difference between the career orientation perceptions of those who participated in volunteering events before and those who did not. Those who have not volunteered before think that volunteering will contribute more to their careers. As a result, it is more important for those who have not volunteered before to include volunteering experience in the CV (Atci et al., 2014). From this point of view, the higher volunteering motivation scores of younger participants can be explained as a natural result.

No significant difference was found in the sub-dimensions of the scale according to the educational status variable. In other words, the educational status of the participants is similar in terms of volunteering motivation in sports events. Atci et al. (2014) also found no significant difference between education status and education level. Moreover, in studies on

volunteerism in the literature (Bulut, 2021; Yıldız et al., 2015; Atci et al., 2014), it is seen that the participants are generally educated people. The reason for this may be that the volunteers were selected from among trained individuals. This is because people who are experts in their fields and have a high level of education positively affect the efficiency, impact and quality of their work (Göker, 2009).

There is no significant difference in the sub-dimensions of the scale in terms of motivation factors according to the decision of the volunteers participating in the sports events to participate in the volunteering events. Volunteering is generally done for reasons such as establishing social networks and creating corporate identity (Becker and Dhingra, 2001) as well as individuals' desire to help society (Neely et al., 2021).

As a result, it can be said that the age and marital status of the individuals participating in sports events are related to their motivation. In addition, the fact that the "purposeful" sub-dimension has a higher mean score than the other sub-dimensions means that individuals who voluntarily take part in sports events participate in accordance with the purpose of the event in order to be beneficial to the society and other individuals. In addition, it can be said that the motivation of individuals who participate voluntarily in accordance with the purpose of the sports event will be higher in these events. For this reason, it is important that voluntary individuals participating in sports events participate in the purpose of the sports event and for their own purposes

[*] *This study was presented as a summary at the 3rd Recreation and Sports Management Congress.. (Antalya, Türkiye, 16 - 19 Mayıs 2022)*

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