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## Investigation of Secondary School Students' Attitudes toward Violence with Physical Education Lessons' Sportspersonship Behaviours

### Abstract

The aim of this study is investigation of secondary school students' attitudes toward violence with physical education lessons' sportspersonship behaviours according to certain independent variables. A total of 209 (age= 12.18 ± 1.06) students, 108 females and 101 males, participated in the research. The data analysis included descriptive statistics, T-test, Pearson moments multiplication correlation analysis, and one-factor variance analysis (ANOVA). In the study analyses show that secondary school sportspersonship levels are high and they are not participate to attitudes toward violence. There is avoidant, low level, meaningful relation between avoiding negative behaviours and attitudes toward violence. In addition, students exhibiting Sportspersonship behaviours were found to be higher than students who played in the school team, and students who did not participate in the sport were more likely to avoid Sportspersonship than students who were not active in the competition. As a result, it is thought that educational institutions can help to reduce violence while increasing the Sportspersonship behaviours by encouraging the orientation of the students to the school teams in order to improve the Sportspersonship and moral values of the students.

**Keyword:** physical education, violence, sportspersonship, student, school.

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## INTRODUCTION

Physical education and sport classes are part of a fundamental education for all individuals in society and provide an opportunity to develop desired behaviours in the society (Yapan, 2007). Sports in physical education classes have an important role to help children and adolescence to internalise solidarity, cooperation, rule consciousness, sharing, justice, compassion, and charity (Kayışoğlu, Altınkök, Temel, & Yüksel, 2015). Sportspersonship is considered an important ethical concept and educational principle because it contains ideas like playing by the rules, respect, right, justice, gentlemanliness, and rejects deceit, lies, and breaking the rules (Yapan, 2007). Sportspersonship is related to normative standards, complies with socio-ethical behaviours in sports, and explains the virtuous behaviour for the spirit of sport and how these behaviours could be applied (Baklıkçıhanlı, & Yıldırım, 2011). In our country, Sportspersonship is identified with different concepts. Fair-play and gentlemanship are other terms (Pehlivan, 2004). According to Kaya (2011) fair-play plays an important role for children and adolescence for promoting behaviours such as compassion, ethics, virtues, and respect. Furthermore, as fair-play is emphasised in schools, social development can be promoted, and this concept could be important for development for young individuals. The fundamental source for frequency of fair-play behaviour is school rather than the intrinsic behaviour of individuals. Encouraging efforts for these behaviours are invisible in purpose-oriented education, success-oriented school sport environment, exercises, trainer education, or similar education environment (Yıldırım, 2002). Within schools, organising sports activities that enable individuals to spend fun time and engage with other individuals rather than competition and winning is believed to be educational when considering the development characteristic of children and adolescence (Pehlivan, 2004). In this context, it is important to start Sportspersonship development during elementary and middle school age physical education classes to raise future sportsman, trainers, referees, authors, and audiences (Yıldırım, 2004). The World Health Organisation defined violence as using intentional force or threat of using the force against oneself, other individuals, or towards a group that would result (or has high possibility of such results) in injury, death, psychological harm, growth retardation or inattention (Krug et al., 2002). Generally, acts of violence are often visible among 15-16-year-old adolescence (Özönder, 2005). Therefore, the school environment, where adolescents spent most of their time, is important (Pilz, 2002). The atmosphere and culture of the school, characteristics of students and school employees, physical and social properties of school are affective on developing aggressive and violent behaviours (Yavuzer, 2011). Sports education enables individuals to express feelings during movements. In sport helps to control such feelings by expressing emotions such as aggression, anger, and jealousy. Sports education and game activities are tools to release stress and tension (Göral, & Yapıcı, 2001). Therefore, physical education classes in schools and off-class sports activities are of special importance. On one hand, school sport activities educate children and adolescents as to purposes of sports. On the other hand, these activities aim to educate them in positive ways by adopting sports (Orhun, 1992). The aim of this study is investigation of secondary school students' attitudes toward violence with physical education lessons' sportspersonship behaviours according to certain independent variables.

## METHOD

This study adopted the relational survey model to evaluate and reflect upon the relationship between Sportspersonship behaviour in physical education classes and violence

perspectives of middle school using independent variables. Relational survey models are research models that aim to determine the presence and/or extent of change between two or more variables.

## Population and Sample

The population of this study consisted of İstanbul, European Side Middle school students. The sample consisted of 209 students which were 108 females and 101 males and had average age of  $\bar{X}_{age} = 12.18 \pm 1.06$ .

## Data Collection

In this study, three different measurement tools were adopted. These tools were "Sportspersonship behavior scale in physical education course", "Attitude Towards Violence Scale", and "Personal Information Form".

**Sportspersonship Behavior Scale in Physical Education Course:** This scale was developed by Koç (2013) for middle school students and is 5-point Likert type scale. The original scale consisted of 22 items which were 11 "Exhibiting Proper Behaviour" (EPB) factors (item 1, 2, 4, 7, 9, 11, 12, 14, 16, 19, and 21), and 11 negatively scored "Avoiding Improper Behaviour" (AIB) factors (item 3, 5, 6, 8, 10, 13, 15, 17, 18, 20, and 22). To understand scale factor clearly and interpret the abbreviations easily, "Exhibiting Proper Behaviour" (EPB) factor was changed to "Exhibiting Positive Behaviour" (EPB) and "Avoiding Improper Behaviour" (AIB) factor was changed to "Avoiding Negative Behaviour" (ANB) that has the same meaning. "I will help my opponent to get up if he/she falls" could be given as example to EPB factor where "I will cheat to win" could be given as example to ANB factor. Evaluation of the scale was prepared to measure the frequency of the behaviours in the items and were listed as "(5) Always, (4) Frequently, (3) Sometimes, (2) Rarely, and (1) Never". ANB factors were inversely scored. Total score from the scale was evaluated as "Total Sportspersonship" (TS). Lowest possible score from the scale was 22 (average 1) and highest possible score from the scale was 110 (average 5). Separate scores from Factor 1 and Factor 2 could be lowest 11 (average), and highest 55 (average 5). As the total score from the scale increased, this indicated higher Sportspersonship levels among students.

**Attitude Towards Violence Scale:** was developed by Çetin (2011). This scale consisted of 10 items and was a single-dimension 5-point Likert scale where possible lowest score in the 10-item scale was 10 and possible highest score in the scale was 50.

## Data Analysis

In the data analysis, for distribution of personal characteristics of the participants in the sample group, frequency, percentage values, average, and standard deviation values were calculated as descriptive statistics. Additionally, to compare the personal characteristics of the participants and attitudes towards violence for independent samples, this study developed two groups that were sub-dimensions obtained by combining the questions in the survey, independent samples t-test and on variables with more than two groups, one-way ANOVA test were applied. To determine if there was any difference between groups after the variance analysis and where these differences occurred, Tukey test, one of the comparative tests, was applied. The confidence interval was selected as 95% and values under  $p < 0.05$  were considered statistically significant.

## FINDINGS

The results of this study were examined to evaluate and reflect upon the relationship between Sportspersonship behaviour in physical education classes and violence perspectives of middle school using independent variables, as indicated below.

Table 1. Scale Score Distribution

Scales	Item Number	n	Av ± Std. Dev.	Min.	Max.
Sportspersonship Total Score	22	209	90.25±12.74	56.00	110.00
Physical Education Class Sportspersonship Scale	Exhibiting Positive Behaviour	11	42.87±8.55	13.00	55.00
	Avoiding Negative Behaviour	11	47.38±6.35	26.00	55.00
Attitude Towards Violence Scale	Attitude Towards Violence Total Score	10	24.82±8.73	10.00	50.00

Based on the average score of the scales, it was stated that middle school students had high Sportspersonship levels and avoided violence based behaviour (Table 1).

Table 2. Correlation Results of Total Scale Scores

	Sportspersonship Total Score	Exhibiting Positive Behaviour	Avoiding Negative Behaviour
Attitude Towards Violence	r	-.114	-.049
	p	.099	.485
Total Score	n	209	209

There was a negative, low significance relationship between the *Avoiding negative behaviour* sub-dimension of physical education Sportspersonship scale and the *Attitude towards violence total score* of attitude towards violence scale (Table 2).

Table 3. t-Test Results for Gender of Sportspersonship and Violence Scales

	Gender	n	Av ± Std. Dev.	t	p
Sportspersonship Total Score	Female	108	93.75±10.63	4.267	.000
	Male	101	86.51±13.76		
Exhibiting Positive Behaviour	Female	108	44.19±8.27	2.337	.021
	Male	101	41.45±8.67		
Avoiding Negative Behaviour	Female	108	49.55±4.62	5.449	.000
	Male	101	45.05±7.11		
Attitude Towards Violence Total Score	Female	108	25.81±9.87	1.705	.087
	Male	101	23.76±7.23		

*Sportspersonship total score* ( $t=4.26$ ,  $p<0.05$ ), *Exhibiting positive behaviour* ( $t=2.33$ ,  $p<0.05$ ), and *Avoiding negative behaviour* ( $t=5.44$ ,  $p<0.05$ ) sub-dimensions of physical education Sportspersonship scale had significant differences for gender variable (Table 3).

Table 4. t-Test Results of Doing Sports of Sportspersonship and Violence Scales

	Do you do sport?	n	Av ± Std. Dev.	t	p
Sportspersonship Total Score	Yes	111	88.93±13.63	-1.595	.112
	No	98	91.74±11.54		
Exhibiting Positive Behaviour	Yes	111	42.40±8.71	-.836	.404
	No	98	43.39±8.39		
Avoiding Negative Behaviour	Yes	111	46.53±6.74	-2.076	.039
	No	98	48.34±5.77		
Attitude Towards Violence Total Score	Yes	111	25.05±8.77	.406	.685
	No	98	24.56±8.72		

*Avoiding negative behaviour* ( $t=-2.07$ ,  $p<0.05$ ) sub-dimension of physical education Sportspersonship scale indicated significant differences for students doing sports (Table 4).

Table 5. Anova Results of Doing Sports of Sportspersonship and Violence Scales

		n	Av ± Std. Dev.	F	p	Tukey
Sportspersonship Total Score	Club	43	84.20±15.17	4.71	.003	K-Y K-O* K-D
	Summer school	55	91.01±12.11			
	School team	14	95.28±10.62			
	Other	97	91.77±11.43			
Exhibiting Positive Behaviour	Club	43	40.62±8.28	1.77	.153	
	Summer school	55	42.74±8.49			
	School team	14	45.92±10.78			
	Other	97	43.49±8.26			
Avoiding Negative Behaviour	Club	43	43.58±7.90	7.15	.000	K-Y K-O* K-D
	Summer school	55	48.27±5.25			
	School team	14	49.35±3.60			
	Other	97	48.27±5.88			
Attitude Towards Violence Total Score	Club	43	26.95±8.07	1.60	.190	
	Summer school	55	23.07±8.75			
	School team	14	25.00±9.67			
	Other	97	24.84±8.78			

*Sportspersonship total score* ( $F=4.71$ ,  $p<0.05$ ), and *Avoiding negative behaviour* ( $F=7.15$ ,  $p<0.05$ ) sub-dimensions of the physical education Sportspersonship scale indicated significant differences for doing sport variable (Table 6). When the Sportspersonship total score and avoiding negative behaviour of sub-dimension of physical education Sportspersonship scale were investigated, highest differences were observed in club and school team sports players ( $p<0.05$ ), (Table 5).

Table 6. t-Test Results of Experiencing Injury of Sportspersonship and Violence Scales

	Did you experience any injury?	n	Av ± Std. Dev.	t	P
Sportspersonship Total Score	Yes	121	88.71±13.26	-2.068	.040
	No	88	92.37±11.74		
Exhibiting Positive Behaviour	Yes	121	41.85±8.93	-2.018	.045
	No	88	44.26±7.84		
Avoiding Negative Behaviour	Yes	121	46.85±6.74	-1.420	.157
	No	88	48.11±5.75		
Attitude Towards Violence Total Score	Yes	121	24.19±8.52	-1.230	.220
	No	88	25.69±8.99		

*Sportspersonship total score* ( $t=-2.06$ ,  $p<0.05$ ), and *Exhibiting positive behaviour* ( $t=-2.01$ ,  $p<0.05$ ) sub-dimension of physical education Sportspersonship scale indicated significant differences for experiencing injury variable (Table 6).

## DISCUSSION AND CONCLUSION

This study was conducted to investigate secondary school students' attitudes toward violence with physical education lessons' sportspersonship behaviours according to certain independent variables.

The data analysis showed that middle school students had high Sportspersonship behaviour and avoided violent behaviours. In line with these results, Korkmaz, Korkmaz, and Özkaya (2007) stated that behaviours that disrupted the learning environment were mild, could be resolved and this was connected with the content of physical education classes.

Furthermore, their study found that students that can move based on their interests had exhibited behaviours lower in physical education classes in which playing and moving requirements were met. When the study of Sezer, Ektirici, Özbal, and Atlı (2015) investigated the sub-dimensions of Physical Education Sportspersonship Behaviour Scale, the lowest average was obtained in the "Avoiding Improper (Negative) Behaviour" sub-dimension and the highest average was obtained in the "Exhibiting Proper (Positive) Behaviour" sub-dimension. The results of Korkmaz et al. could explain the high Sportspersonship behaviour and the avoiding violent behaviour findings in this study. Kayışoğlu et al. (2015) found high Sportspersonship behaviour among middle school students. The authors indicated that this could be an effect specific to socio-cultural, regional, and sample groups and emphasised the need for more extensive research to investigate Sportspersonship behaviour.

Based on the correlation analysis, there was a negative, low significance relationship between avoiding negative behaviour sub-dimension of physical education Sportspersonship behaviour scale and attitude towards violence total score. This result means that when secondary school students' attitudes toward violence increase, their avoiding from negative behaviors levels are decrease. Koç and Güllü (2007) found negatively significant relationship between physical education class Sportspersonship behaviour of female and male students (Avoiding negative behaviours, Exhibiting positive behaviours, and Total Sportspersonship) and aggression values. Additionally, there was a negative significant relationship between physical education class Sportspersonship behaviour of students and aggression values. It was suggested that the decrease in aggressive behaviour of students could play an important role to develop Sportspersonship behaviour.

Based on the gender of the students, there were significant differences in favour of female students for physical education Sportspersonship total scores, exhibiting positive behaviour, and avoiding negative behaviour. Accordingly, it could be stated that female students exhibit more Sportspersonship behaviour compared to male students. Türkmen and Varol (2015) identified that female students avoided non-Sportspersonship behaviours and male students had the tendency to embrace these behaviours for success. Additionally, the authors determined that female students exhibit more Sportspersonship behaviour compared to male students. Koç (2013) determined that exhibiting Sportspersonship behaviour level of female students were higher than male students. Koç and Güllü (2017) identified significant differences between genders for avoiding negative behaviour, total Sportspersonship, and violence values. Accordingly, it was clear that females had higher Sportspersonship and lower aggression values than male students. While avoiding negative behaviour levels of female students were higher than male students, both male and female students indicated similar results for exhibiting positive behaviour. The findings of that study were in line with the findings of this study. Hacicaferoğlu, Selçuk, Hacicaferoğlu, and Karataş (2015) stated that there was no statistical difference in terms of gender for physical education and sport class of middle school students and feeling Sportspersonship behaviour. Therefore, the values for female and male students were similar for feeling Sportspersonship behaviour in physical education and sport classes.

Based on the doing sports state of the students, there was a significant difference for avoiding negative behaviour sub-dimension of Sportspersonship. Accordingly, students that have never attended sports under official rules had higher avoiding from negative situations in physical education classes compared to students who were actively involved in sport. Most of the literature supported the findings of this study. However, there were researchers



with opposing views. Akandere, Baştuğ, and Güler (2009) stated that the ethical level of student involved in sports is higher than students not involved; they commented that sport positively affected ethical level. Volk and Lagzdings (2009) indicated that female athletes were subjected to oral bullying and threats in sports environment more than in the school environment. Gümüş, Saraçlı, Karakullukçu, Doğanay, and Kurtipek (2016) stated that when the interest of the team was considered, students with licence cared fair-play less than other students and players with licence approved deceptive and misleading behaviours. Recent violence events in competitions between students indicated that students were motivated with the “winning no matter what” principle (Yıldiran, 2002). In this context, it is important for physical education and sport teachers, trainers, and institutions that train managers should convert education and teaching programs to include sport ethics and philosophy (Pehlivan, 2004).

Based on the sport category, there was a significant difference between Sportspersonship total score and avoiding negative behaviour. Accordingly, it was seen that students in club teams had higher Sportspersonship behaviour compared to students in school team. Participating structured social activities such as sportive activities and school clubs strengthens the understanding of children to comply with social norms (Hirschi, 1969). However, the competitive environment that students are subjected leads sports students to have warrior spirit. Competitive behaviour in competition environment could be satisfactory for certain sports players. However, these behaviours could be problematic for less competitive and less talented sports players. Peguero stated that student who participated in school sport activities had a higher possibility to be bullied compared to students who avoid participation. Same study indicated that students who participated in school sport activates were suffering from bullying. When students experience such behaviours, they often responded with negative behaviour patterns (Peguro, 2008).

Based on the previous injury states of students, there was a significant difference between physical education Sportspersonship scale total score and exhibiting positive behaviour sub-dimension. Accordingly, students that have experienced sport injuries had lower Sportspersonship scores. Similar to the results of this study, İkizler, Balcıoğlu, and Atay (1996) conducted a study on sports player who are involved in individual sports. This study indicated that sports players who had experienced multiple sport related injuries had lower aggression and hostility tendencies compared to sport player with no previous sport injury. Contrary to the prevention-aggression hypothesis, it is believed that sport players had developed auto-control mechanism related to previous injuries.

Koç (2017) suggested an application to teach Sportspersonship behaviour in physical education classes. The application was named as “Structuring Sportspersonship in Plays of Children” (SSPC). In the first three weeks of the application, in-class lectures, and activities (providing theoretical knowledge), in the following four weeks, sport field or sport saloon activities and on the 8th week of the application, activities based on practice were planned. It is believed that this application suggestion should be presented to teacher candidates in undergraduate education and should be delivered to teachers in forms of service seminars. It is expected that as the teacher applied this program, with the support of Ministry of National Education, Sportspersonship behaviour would be further developed among students. It is suggested that the feasibility, effectiveness, and sustainability of SSPC application that was prepared to increase physical education class Sportspersonship behaviour of students should be experimentally tested. Kirbaş, Taşmektepligil, and Üstün (2007) stated that young people

with tendency for violence had low interests in sports and low success rates in school classes. Additionally, it was understood that class content and off-class sport activities were below the level to address the expectation of young people. According to Kırbaş et al., to prevent violence in school environment, systematic education programs should be organised for families, young people, and educators. Additionally, sportive and other social activities should be included in the school environment to help children to relax and use free-time in the best ways possible. Physical conditions should be created accordingly. As a result, it was observed that students who have not competed in official competition were avoiding negative situations in physical education classes more than students who were involved in such competitions. Furthermore, students in clubs had more positive behaviour in terms of sportive ethics and Sportspersonship compared to students in school teams. It is believed that conduction studies to develop Sportspersonship and ethical values of students in education setting could help reducing violence as well as increasing the Sportspersonship behaviour as students are directed towards school teams.

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## Differences in Performance Indicators Between Winners and Defeated Female Cadet Wrestlers

### Abstract

Freestyle wrestling for women is characterised as complex polystructural acyclic movement activity of high intensity. The aim of this research is to determine the differences in performance between winners and defeated female cadet freestyle wrestlers at European championship for Cadets, held in Sarajevo (Bosnia and Herzegovina) in 2010. The research is based on the analysis of 415 wrestling techniques performed successfully, out of which the female cadet winners have achieved  $n=330$  (Standing position  $n=203$ , Parterre position  $n=127$ ), while the defeated ones achieved  $n=85$  techniques (Standing position  $n=64$ , Parterre position  $n=21$ ). The comparison between the winners and the defeated female cadets has been based on several performance indicators by the use of notational analysis of video recordings. Wilcoxon test confirms the differences in performances between winners and defeated female cadet wrestlers in regards to the Standing position ( $p<.001$ ), Parterre position ( $p<.001$ ), scored points in the Standing position ( $p<.001$ ), in the Parterre position ( $p<.001$ ), and for the most of individual wrestling techniques from Standing and Parterre position, in which case the Take Down ( $p<.001$ ) in Standing position technique is the most dominant among the winners, and a turn-over by twisting the opponent with an arm and head ( $p<.001$ ) is the most dominant in Parterre position. The results indicate the differences in the performances between the winners and defeated cadets, which can assist in planning and programming training processes, but as well help in further analysis of different wrestling styles.

**Keyword:** women, freestyle, notational analysis, victory, loses, competition.

## INTRODUCTION

Freestyle wrestling for women is characterised as a complex polystructural acyclic movement activity of high intensity during which a specific „confrontation“ between the two individuals takes place, within a limited space and defined time period, in presences of referees, and governed by a specific set of rules which dictate the successfulness of a wrestling competition. The activities during the freestyle wrestling match come as a result of complex and demanding processes, for which reason the performance analysis is to provide with the proper understanding of these complex results. Freestyle wrestling is one of the wrestling styles practiced by women. Since the World Championship in Wrestling for women held in 1987 until the moment when wrestling was officially included as a part of Olympic Games Programme for women in 2014 in Athens (Greece), the freestyle wrestling for women has fought vigorously for gender equality and its repositioning in the Olympic Games programme (Curby & Jomand, 2015). According to the wrestling rules, women wrestlers can compete in all age categories, cadets, juniors and seniors for very objective reasons, such as: protection against injuries, providing with the equal conditions for the female contestants to show their best performances, and to increase the intensity of the match. Freestyle wrestling for women has been described as intermittent physical combat sport requiring technical, tactical and psychological skill, high intensity activity, which produces great strength and muscle power demands on both the upper and lower body, with high anaerobic energy metabolism requirements (Cipriano, 1993; Garcí'a-Pallare's, 2011; Horswill, 1992; Horswill, et al., 1992; Horswill, et al., 1989; Kraemer, 2001; Sharratt, 1986; Utter, 2002; Yoon, 2002). In wrestling during the match both energy systems, aerobic and anaerobic are present, thus the wrestlers are capable to withstand the strains which occur during the match, but also possess the ability to quickly react during wrestling holds (Callan, et al., 2000; Cinar & Tamer, 1994; Karninčić, et al., 2009). The anaerobic system provides explosive power during the match, while the aerobic system contributes to sustained effort for the duration of the match and to recovery between periods (Callan, et al., 2000). Freestyle wrestling can cause lactate to reach 18 mmol/L and HR to reach 180 bpm (Kraemer, et al., 2001). Arakawa (2015) indicates that the participants are characterized as having great FFMI (fat-free mass divided by height squared,  $18.8 \pm 0.8$  in light and  $20.5 \pm 0.8$  in heavyweight groups) with intensely enlarged circumference especially within the arms ( $30.0 \pm 2.7$  cm for upper arms and  $24.2 \pm 1.5$  cm for forearms). These findings suggest that elite female wrestlers have site-specific hypertrophied musculature only in the upper body, despite a general awareness of difficulty in developing upper limb muscles in women. Likewise, Arakawa (2015) concluded that extreme development of fat-free tissue, specifically around the upper body, is an important requirement for female wrestlers to win the worldwide prestigious tournaments. During the wrestling match under such conditions, a connection between the skill technique of wrestlers and selected coordination motor abilities has been confirmed (Sadowski & Gierczuk, 2009).

Podlivaev (2015) affirmed a model for which elite female wrestlers in freestyle wrestling for women should possess the following: a wide range of technical and tactical skills, have a high level of physical fitness, possess tactical skill, and have psychological strength. Model Characteristics Values of Competition Activity in Women's Wrestling are: 1. 0,6–0,8 - Tactical fitness coefficient; 2. 5–6 Number of points gained; 3. 1–2 Number of points lost 4. 0,8–1,2 Effectiveness of attack activity points/min; 5. 20–25 sec. Attack interval (AI); 7. 3–4 Number of hold groups and 8. 4–5 Number of techniques. Cadet wrestlers in a Long-term athlete development process (LTAD) start training for competition when they develop

specific wrestling performance, and can perform technical and tactical holds under the influence of competition requirements such as: introduce wrestling specific strategies, learn to focus through a full practice, increase levels of competition, implement complex coordination and movement training, solid technique in every position and self-motivated (Balyi, et al., 2013; USA-Wrestling, 2019). The performance analysis in wrestling is an interdisciplinary process, which requires an objective explanation of different female cadet wrestlers' behaviour during training and competitions, thus improving the scientific concept of such processes and providing practical assistance in sport with good quality and quantity information. There is a great variety in performance analysis application during training and competition in freestyle wrestling for women, and it represents a very important role in wrestling performance analysis process. There are different technology systems which enable scientists, who study wrestling, to find answers for many questions, which have been a mystery for coaches and athletes as well. For the successful wrestling match, contestants need to develop a high mental, conditional, technical and tactical performance capacities. The analysis of such performances is an objective data gathering method, in which case key elements can be quantified in a valid and consistent manner (International Society of Performance Analysis in Sport - ISPAS, 2013). In regards to the above stated, Miarka (2016) reports that the analysis of technical, tactical and physiological demands in wrestling fights are important because they reveal essential information for the development of contextual training and specific physical preparation of wrestlers. After rule modifications in 2013, wrestling matches showed quicker and more diversified actions, especially in the lighter categories. For the same period, foot/leg techniques were the most effective in female and freestyle wrestling, followed by takedown attacks in World competitions for the period 2009-2011. McGarry, et al., (2013) indicates that the purpose of athlete analysis performance is twofold, first it improves the scientific concept, and secondly it provides with practical assistance in sport by offering quality data. Data collected in this manner and within realistic wrestling match settings will be very beneficial for coaches and athletes in their perception of their and their opponents' strengths and weaknesses. Isik, et al., (2017) have developed a system of following the matches during wrestling competitions, which allows wrestlers to analyse when, where and how they applied a technique; from which side they applied the technique; and how many points they received. Moreover, it will help us obtain permanent results. Thus, the characteristics of the wrestlers can be recorded according to the latest wrestling competition rules. Modern and attractive wrestling considers a high level of technical-tactical efficiency in standing and parterre.

Modern highly-qualified wrestler is characterised by aggressive attack tactics, tendency to technical, physical and psychological superiority over a rival, and the ability to make quick decisions in extreme conditions during the intensive fight (Grigoryan, Lavrichinko & Gomboev, 2011). Determination of technical-tactical parameters is possible with notational analysis. The application of Notational Analysis is to record critical events (movements, situations, interactions, techniques and tactics, even intervention of referees) in which performance can be quantified in a consistent and reliable manner (Lopez-Gonzalez, 2013). Many authors have analysed wrestler performances in different wrestling styles (Greco-Roman, Free style for men and Free style for women) and for different age categories clearly determining which technical-tactical factors are important for success in wrestling, as well as the quality of applied wrestling techniques through scored points (López, 2018; Tünnemann & Curby, 2016; López-González, 2015; Kajmović, et al., 2014; López-González & Bianca, 2013; López-González, et al., 2012; Dokmanac, Karadzic, & Doder, 2012; López-

González, 2011; Tünnemann, 2011). Available research in wrestling have identified the changes in technical-tactical indicators of freestyle wrestlers between the 1996 and 2008 Olympics only in regards to their winning points, also including a third round as a determining round for 68% of wrestlers (Kruszewski, et al., 2011). It has likewise been determined that light weight categories achieve a smaller number of technical points in Standing position, while the greater number of technical points was achieved in Parterre position. Dokmanac, et al., (2012) confirm that in final matches at the World Wrestling Championship in Istanbul 2011, an average number of points achieved by winner is 0,81 points per minute, while the defeated wrestler achieved 0,41 points. The dominated techniques at this competition in Parterre position were gut wrench and lifting the mat, while for the Standing position the dominating ones were Out-of Bounds as opposed to Take downs and Throws. Wrestlers' successfulness in Parterre Position was 70% as opposed to the technique efficiency from a Standing position which was 30%. Tünnemann (2011) analysed the quality of achieved points from the World Championship for Cadets, Juniors and Seniors in 2011, where cadets achieved 7,2 points, juniors 5,9 and seniors 5,0 points. It is obvious that the senior wrestlers achieve smaller number of points due to the greater quality of the wrestlers. The dominant Cadets were those achieving one or two points, while percentagewise achieving 5 points is very low. The aim of this research is to determine the differences between the winners and defeated female cadet wrestlers at the European Championship for Cadets.

## METHOD

### Sample

The sample for this research was based on the analysis of 415 successfully performed wrestling techniques out of which the winners performed  $n= 330$  (Standing position  $n= 203$  and Parterre position  $n= 127$ ), and the defeated female wrestler cadets performed  $n=85$  techniques (Standing position  $n= 64$  and Parterre position  $n= 21$ ). The analysis was conducted in regards to the European Cadet Championship in freestyle wrestling, held in Sarajevo (Bosnia and Herzegovina) in 2010.

### Sample of variables

The analysis of performance indicators of winners and defeated cadets was based on the analysis of the following variables according to Shahmuradov (1996):

- Successfully performed technical actions in standing and parterre position
- Scored points (1, 2, 3 and 5) as a result of successfully performed actions in a standing position
- Scored points (1, 2, 3 and 5) as a result of successfully performed actions in a parterre position
- Efficiently performed individual techniques from a standing position
- Efficiently performed individual techniques from a parterre position

### Procedures

Data was collected from 103 match video analysis in all 10 categories for 10 female cadet wrestlers (-38 kg, -40 kg, -43 kg, -46 kg, -49 kg, -52 kg, -56 kg, -60 kg, -65 kg, -70kg), for three two-minute sessions, which were recorded with three cameras by Sony (DCR-SR 35). Each out of the three cameras was positioned so that it was recording fighting areas one by one. In this way, during the video analysis of fights, observers could clearly see fighters,

referees, scorer's table and scoreboard, which allowed them reliable verification of all events on the mat during the fights, rewinding recordings more times in case of certain inconsistencies. All the data were registered in the specially prepared templates for the analysis of every fight in which all the analysed variables were coded.

### Reliability testing

In order to ensure a quality level of reliability, O'Donoghue and Mayes (2013) suggest a constant improvement of reliability of data collected using performance analysis systems. Following this concept, the research conducted by (López-González, & Bianca, 2013) had an aim to determine the reliability of a new Time-Motion Analysis (TMA) model based on technical-tactical interactions in the three Olympic wrestling styles: freestyle (FS), female wrestling (FW) and Greco-Roman (GR) from FILA's World Senior Championships.

Inter-rater reliability tests Cohen's Kappa and Intra-class Correlation Coefficient (ICC) were used as Agreement Measures in order to assess the categorical and duration data. Resulting values were classified as "substantial" for categorical agreement per style and "almost perfect" for agreement in duration and score-related actions.

Based on that, the fights in wrestling are evaluated by means of intra-observers and inter-observers with the assistance of using mistake percentage. The research was conducted by two wrestling experts with years of competition and coaching experience. Reliability of intra-observers is based on the concept of reanalysis of 20 random fights. Reanalysis is completed after four weeks, after finalizing the original data. Reliability of inter-observer is secured by reanalysis of all the matches by other analyst. Based on the original data V1 and V2 re-test, mistake percentage is calculated in equation (1) (Hughes, & Franks, 2004):

$$\text{Total \% error} = (V1 - V2) / (V_{\text{mean}}) \times 100\% \quad (1)$$

Intra-observer percentage errors of reliability ranged from 0.00% to 0.25%, and the inter-observers reliability ranged from 0.00% to 0.38%, which is acceptable to 5%, which is the level of limiting error.

### Data analysis

For all the techniques in the Standing position, Parterre position and scored points, frequencies and percentage of values were calculated. In order to determine the difference in the achieved performances between the winners and defeated female cadets wrestlers, Wilcoxon rank test was used (O' Donoghue, 2012, pg. 272-274) at the level of statistical significance of 95%. Wilcoxon test converts the results in ranks and that way performs the comparisons using specific criteria (Field, 2005). An Effect size was likewise calculated

$$(\text{Effect size-ES}) \text{ using the following equation: } r = Z - \text{score} / \text{sqrt}(N) \quad (2)$$

where N represents the number of observations. Interpretation of the Effect size (ES) in range  $\geq 0.1 < 0.3$  is presented as a small effect,  $\geq 0.3 < 0.5$  medium effect and  $\geq 0.5$  large effect (Cohen, 1988, 1992). All statistical analysis was performed using SPSS 22.0 (IBM Corporation, New York, USA) Pallant (2007).

## FINDINGS

Table 1 presents the performance results of winners and defeated cadets in freestyle wrestling, where a number of performed technical actions in standing position and parterre favours the winners, indicated as well by the results of Wilcoxon test which confirms the existence of differences between the two segments of wrestling fight (Standing position



$p < .001$  and Parterre position  $p < .001$ ), in which case the winners are dominating in the performance of parterre techniques as opposed to the defeated contestants. The effect size (SI) is large.

Table 1. Technical Actions Performed from a Standing Position and Parterre Position of Winners and Defeated Female Wrestler Cadets

	Winners	Defeated	N	Z	SI	p
Standing position	203 76,0%	64 24,0%	267 64,3%	-8.50	0,52	.000*
Parterre position	127 85,8%	21 14,2%	148 35,7%	-8.71	0.72	.000*
<b>Total</b>	330 79,5%	85 20,5%	415 100%			

\*Significant difference at a level of  $< 0.05$

Table 2 and Table 3 indicate the differences between the awarded points from the referees for the efficient performance of the technique from standing position and parterre. Therefore, the most dominant technique in standing position are the ones where one point was scored, while in parterre the most dominant techniques were the ones where two points were scored. In the standing position the differences in the number of scored three points were confirmed, while in parterre position that was not the case. The Effect size (SI) of the scored points in the standing and parterre position is large.

Table 2. Technical Points of Winners and Defeated Female Cadet Wrestlers in a Standing Positions

Points	Standing position points					
	Winners	Defeated	N	Z	SI	p
1	158 72,5%	60 27,5%	218 81,7%	-6.637	0.45	.000*
2	6 100%	0 0,0%	6 2,2%	-2.449	0.99	.014*
3	41 95,3%	2 4,7%	43 16,1%	-5.947	0.91	.000*
<b>Total</b>	205 76,8%	62 23,2%	267 100%			

\*Significant difference at a level of  $< 0.05$

Table 3. Technical Points of Winners and Defeated Female Cadet Wrestlers in a Parterre Positions

Points	Parterre position points					
	Winners	Defeated	N	Z	SI	p
1	52 91,2%	5 8,8%	57 38,5%	-6.22	0.82	.000*
2	69 81,2%	16 18,8%	85 57,4%	-5.74	0.62	.000*
3	5 83,3%	1 16,7%	6 4,1%	-1.63	0.67	.102
<b>Total</b>	126 85,1%	22 14,9%	148 100%			

\*Significant difference at a level of  $< 0.05$

The results of Wilcoxon test (Table 4) clearly indicates in which wrestling techniques from a standing position the winners differ and dominate over the defeated cadets. Amongst

them one can highlight: Take down, Side throws, Double leg, Push out techniques. The Effect size (SI) is large.

Table 4. Performed Actions of Winners and Defeated Female Cadet Wrestlers in a Standing Position

Techniques	Winners	Defeated	N	Z	SI	p
Take down	144 70,9%	59 29,1%	203 76,0%	-5.96	0.42	.000*
Push out techniques	11 84,6%	2 15,4%	13 4,9%	-2.49	0.69	.013*
Throw with both legs locked	12 92,3%	1 7,7%	13 4,9%	-3.05	0.84	.002*
A Fireman s carry Melnica	9 90,0%	1 10,0%	10 3,7%	-2.53	0.80	.011*
Counterattack in standing position	2 100,0%	0 0,0%	2 0,7%	-1.41	1.00	.157
Pull downs	6 100,0%	0 0,0%	6 2,2%	-2.44	0.99	.014*
Side throws	17 94,4%	1 5,6%	18 6,7%	-3.77	0.89	.000*
Shoulder throw	2 100,0%	0 0,0%	2 0,7%	-1.41	1.00	.157
Total	203 76,0%	64 24,0%	267 100,0%			

\*Significant difference at a level of  $< 0.05$

Table 5 indicates the difference between the winners and defatted cadets in case of successfully applied parterre techniques during the fight, and those are: A turn-over by twisting the opponent with an arm and head, Holding the opponent on the ground, A turn-over by twisting the opponent with an arm and ankle lock, Turning the opponent with the stretcher ride, a head lock and an inside leg vine. The Effect size (SI) is large.

Table 5. Performed Technical Actions of Winners and Defeated Female Cadet Wrestlers in the Parterre Position

Techniques	Winners	Defeated	N	Z	SI	p
A turn-over by twisting the opponent with an arm and head	45 80,4%	11 19,6%	56 37,8%	-4.54	0.61	.000*
A turn-over by twisting the opponent with an arm and ankle lock	13 92,9%	1 7,1%	14 9,5%	-3.20	0.86	.001*
A turn-over with a cross hold of the knees	2 100,0%	0 0,0%	2 1,3%	-1.41	1.00	.157
Holding the opponent on the ground	49 92,5%	4 7,5%	53 35,8%	-6.18	0.85	.000*
Counter dragging through sitting position with the grip under upper arm	2 40,0%	3 60,0%	5 3,4%	-.447	0.19	.655
Turning the opponent with the stretcher ride, a head lock and an inside leg vine	14 87,5%	2 12,5%	16 10,8%	-3.00	0.75	.003*
Gut wrench	2 100,0%	0 0,0%	2 1,3%	1.41	1.00	.157
Total	127 85,8%	21 14,2%	148 100%			

\*Significant difference at a level of  $< 0.05$

## DISCUSSION

This research had an aim to study the differences in the performance success between the winners and defeated female cadets in freestyle wrestling, and as such the aim has been fully achieved. Performance effectiveness is defined as obtaining certain technical points for making a technical-tactical combination (Lopez-Gonzalez, 2013). The selected performances indicate the variables which differentiate the winners from the defeated cadets within three two-minute sessions. It is important to note that during the research, the authors were unable to come across a great number of research conducted in case of freestyle female cadets, therefore had to rely on the research conducted on older age groups at different competition levels. Tünnemann, and Curby (2016) point out that it is very important for the coaches to analyse the technical-tactical structure of the winners, when they can compare the technical capacity of their athletes with the top athletes of the weight class, and it is also very important for the planning of the technical-training process as well as for the training concepts of the promising young talents.

General feature of the European Championship for Cadets is a winners' significant domination in scoring difference in all segments of the fight in standing position and parterre position. Similar data were presented in the research conducted by López-González (2011) with an aim to classify the performance of world-class women wrestlers in the frequency and characteristics of their effective Technical-Tactical Combinations (TTC) from the standing position at the highest level of international competition in 2009. They confirmed that the most important factor related to winning a medal was the execution of leg attacks, with several possible endings, with almost non-contact set-up, followed by low-risk attacks launched from a close distance.

In the analysis of European Female Cadet Championship in wrestling, the domination was detected in case of lower fighting stance and redirecting the fight to a parterre position by approaching the opponent from the back while constantly avoiding an attractive grand amplitude throws. By comparing the overall results from Table 2 and Table 3, it is noticeable that a number of technically scored points favours those scored in the standing position, which indicates that the dominating fight was the one performed in the standing position. Therefore, the attempt of defeated contestants was oriented towards the fight in the standing position, since it was clear that the winners have the upper hand in parterre fight. The analysis of achieved technical actions in standing position between the winners and defeated contestants indicates a certain and clear 1,2,3 points advantage of the winners as opposed to the defeated contestants.

In standing position the dominated techniques were those that scored 1 point, while in parterre position those that scored 2 points. The high fighting stance and attractive throwing techniques which bring the highest points were avoided. The fight in medium and low fighting stance had a tendency to be redirected to parterre position.

Tünnemann (2011) designed a scoring analysis of the Cadet World Championships 2011 in Szombathely, in which case shoulder victories were very high (Cadet WC 62 that means 33% of all bouts, Junior WC 60 that means 33% and Senior WC 54 that means 22%). Another proof of the technical-tactical attractiveness at the Cadet World Championship 2011 is the achieved number of technical points per minute. Results indicate that the attention is awarded to the surprisingly good defence actions of World Champion Cadets. Qualitative analysis results of combat behaviour between Senior, Junior and Cadet World

Championships, indicate that cadets reached 8.1 points per bout, juniors 7.5 and seniors 6.8. The seniors scored fewer 3 - and 2-points, and scored more 1-points than the young generation. Participants in the World Championship for Cadets with attack actions achieve average 1.04 points per minute, the junior 1.01 and seniors only 0.86 points per minute.

Technical actions scoring 1 point such as technique Take down, Push out techniques, have proven to be the most efficient techniques. The technique, Take down is one of the safest and useful techniques during the fight. Female contestants opt for these techniques because during its performance they will for sure score the advantage of 1 point, and most importantly by grabbing their opponents from the back they have brought them in a position in which they have the control and ability to perform other much more complex technical actions (turn overs, turn downs, push outs, throws) which can score 1, 2, 3, or 5 points.

Technical actions which bring 2 points and which have been scored by the techniques (turn overs, counter attacks) in this Championship have a low performance frequency. This data indicates that the winners were confident during their fights and did not allow their opponents to use counterattacks against them and thus loose points, neither were they under great pressure from their opponents to use counterattacks and turn overs in order to gain point advantage. This Championship depicted 6 such actions or scored points. This is because cadets possessed mental stability and great caution and focus in performing only safe actions. They were resolved in securing safe points, along with being able to perform under the influence of anger if the things do not go as the have planned, rarely allowing themselves any reckless moves (defying referee decisions, reacting to the opponents provocations such as pinching or small punches during the match which the referee cannot see) which would throw them out of focus of the fight and allow their opponents to gain advantage.

The analysis of results of technical actions in which one scores 3 points (side throws, throws by grabbing both legs, shoulder throws) indicate that the aforementioned techniques are the most efficient for winners as opposed to the defeated contestants. Techniques of side throws are the first choice for winner contestants and those usually include techniques of head and arm grab. As to why do contestants opt for these techniques, the answer lies in that with a proper grab these technique neutralise the ability of the opponents to move thus affecting their coordination and providing with the opportunity to safely conduct the throwing actions.

After a properly conducted throwing technique, the opponent is on the mat lying on her back in a subordinate position which gives additional advantage to ending the fight by declaring „touché“ or to continue the fight by applying parterre techniques.

Technical actions by which one scores 5 points were not performed by either winners nor defeated contestants, because the style of fighting in freestyle wrestling demands great movement dynamic which entails great physical efforts. It is also due to the lack of strength and great risk for their actions to be used against them. Therefore, they do not even try to perform actions of grand amplitude and throwing techniques which require high lifts. It has likewise been determined that cadets often fight in a medium and low stance, trying to grab the leg and around the waist, therefore tackling the opponent to her backs and pushing her out of the wrestling area which would allow them to score 1 point.

López-González (2011) indicated that women wrestlers who participated in the World Championship of 2009 demonstrate organized attack combinations, which can emerge from

the complex interactions regulated through their perceptual processes. Incidentally, the results demonstrated that leg attacks is the main type of offensive skill used by winners. Analysis of competitive activity in women's freestyle wrestling throughout the last two Olympic cycles has shown that simple attacks to the legs and turning-down constitute 74% of the Technical Tactical Actions TTA (Tünnemann, 2012). Performance of grand amplitude throws, which require a certain amount of time of training and entail certain risks, is minimal.

Tünnemann (2011) reports that scoring analysis of the World Freestyle Championship 2011, presented similar results to López, et al., (2012), with leg attacks as the most effective attack of all technical structures, with 0.49 pts/min. The same author demonstrated that these results are not new in freestyle wrestling combats: the World Championships of 2009 and 2010 also presented leg attacks as the main technical structure to achieve attack efficacy, with 0.27 and 0.34 pts/min, respectively.

Tünnemann and Curby (2016) by analysing Scoring Analysis of the Wrestling matches from the 2016 Olympic Games in Rio, have come to the results that freestyle wrestling for women is dominated by leg attacks. It is interesting, but understandable because of the high value of the counterattacks. Likewise, a decrease in the effective application of take downs, throws, turn overs, ankle laces, and "push outs" techniques is noticed when looking at the Olympic cycle. The gut wrench has completely disappeared. The coaches should pay special attention to the decline of throws as a result of rule changes.

Tünnemann (2017) conducted the analysis of the technical-tactical combat behaviour in the wrestling finals of the 2016 Olympic Games Rio in comparison to the 2012 OG London. Women's wrestling bouts are dominated by leg attacks. The high value of the counter-attacks is interesting but quite understandable. The technical and tactical diversity is reflected in the application of take downs, turn overs and ankle lace. In addition to the already mentioned dominance of the leg attacks, the decline of take down, throws, turn over, ankle lace and "push out"- techniques are noticed when looking at the Olympic cycle. Gut wrench have completely disappeared. López (2018) conducted the Scoring Analysis of the Senior World Wrestling Championships-2017, and determined that the quality of wrestling for women is 1.92 pts/m, and a number of 4 points scored equal to 15%. 5 points were not scored. 75% of points scored by female wrestlers are 2 points. The standing position is mostly dominant equalling to 71%, followed by parterre position of 22%. Leg attack scored 1.41.pts/m, while in parterre position gut wrenches, ankles laces scored 0.29 pts/min. The parterre position exhibited techniques such as turnovers, reversals and counter-offensive blocks. Counter-offensive take downs in women wrestlers is applicable to a great extent. The decrease in the application of turn-overs in women wrestlers is noticeable.

The analysis of reformed technical actions in parterre position between winners and defeated contestants indicates a certain and clear point advantage where the winners have an advantage of 1, 2, 3 points in regards to the defeated contestants. A domination of technical elements is highly noticeable, which include the turn-overs of the opponents by applying different grabs and attacks from the back of the opponents and domination of the winners while holding the opponents in the position of declaring a „touché“

Technical actions scoring 1 point such as actions of holding someone in a position for declaring „touché“ have proven to be efficient parterre techniques which have given an advantage to winners over defeated opponents. The contestants were able to perform these techniques by successfully performing either throws, turn overs or counter turnovers in

parterre position and have brought their opponents into a subordinate position, holding them in a position declaring „touché“ and thus scoring an advantage of 1 point.

Technical actions scoring two points such as: A turn-over by twisting the opponent with an arm and head, turn-over by twisting the opponent with an arm and ankle lock, A turn-over with a cross hold of the knees, gut wrench are dominant technical actions in which winners dominated over defeated contestants at this championship. Techniques of turn over arm head, arm leg, head leg are the most efficient techniques in parterre position used by the contestants. This is because a firm and proper grab in these techniques provides with a great possibility for successful technique performance. Also, because these techniques are very difficult to counterattack and because these techniques provide with an opportunity to develop and use other techniques. Cadets have avoided using technical elements such as lifts form parterre position and other technical elements which would allow them to score more than two points.

Technical actions scoring three points are the techniques of lift and throws from parterre position. The scored results indicate that these techniques have a low efficiency rate, i.e. contestants do not use these techniques because they require a lot of strength for their performance and allow for the possibility of counter attacks. For scoring 3 points in parterre position this is not the case, because the referee cannot give 3 points unless it is connected to some other action (approach from the back + turn over), therefore connected technical actions were not statistically significant.

Similar data was presented Dokmanac, Karadzic, and Doder (2012) stating that the most dominant technique in freestyle wrestling for women was take down during Wrestling World Championship in Istanbul in 2001. As to the parterre, the highest number of techniques are classified as other techniques because of the large number of procedures that cannot be classified in any of the predicted group techniques. Comparison between standing and parterre ethnics by style (FW) are observed in women, techniques in the standing position are even more dominant than the presented techniques in parterre position. Analysis of grouped weight category techniques in freestyle wrestling indicated that in the light category take downs are the most common technique. The parterre is represented with 3 techniques, and standing position with 5 techniques. In medium category the most commonly used technique is take down and followed by other techniques in the standing position. Parterre were represented with 3 techniques, and standing position with 5 techniques. In case of heavy category, the parterre was represented by only one technique, while standing position was represented by 5 techniques.

López-González (2015) has confirmed significant correlations between Technical Profile of Top Four Women's Wrestling Teams in the 2014 Senior World Championship and Selected Performance Variables. Regarding the technical groups, three of seven in standing (takedowns, shifts, and defensive blocks) and two of four in parterre (turnover and spins) had at least one significant correlation with some performance variable. Since 2013 significant changes in the wrestling rules were introduced (FILA, 2013), and these changes have effected several wrestling fight segments. These changes have promoted more aggressive wrestling because more aggressive wrestling is required under the modified regulations. Greater anaerobic and aerobic capacities will be required to win (Tunnemann, 2013), and as a result of the application of the new rules it can be stated that the introduction of the new rules were crowned principle of success: The new rules in all three disciplines resulted in a significant increase in victories with technical superiority (ST, SP) at the expense

of point victories. It resulted in an improvement of the performance index and the effectiveness of attacks, which is reflected in the increase of the activity and an enormous improvement in the attack oriented combat behaviour. The number of achieved technical points per bout increased in all three disciplines as the rules changed. The formal appreciation of 2-point ratings lead to a reduction of the 1-point ratings but not to the increase of the 3 - and 5 - point rating values or to an increase of the pins which cannot be seen as an increase of attractiveness (Tunnemann, 2013). Recent analyses developed after 2013 rule modifications (Miarka, 2016), showed that the decisive offensive actions were applied on foot and in parterre situations – especially gut wrenches techniques and derivatives of suplex movements. And finally, one can conclude that female cadets have shown a great level of tactical risk-free fighting, and tactical maturity as a proof of long term training. The differences between winners and defeated wrestlers from the European Championship for Cadets can be explained as insufficient training of the defeated contestants, weak technical-tactical preparation, but as well a lack of experience in young contestants in regards to big competitions.

## CONCLUSIONS

The performance analysis of female cadet wrestlers demonstrates a possibility of understanding the technical-tactical effectiveness in wrestling, which is represented as an ability to efficient technique application in standing and parterre position and which is measured by how many times the aim was achieved, the number and quality of scored points, and the circumstances under which all of the above was accomplished during the fight. This research has clearly indicated in which performances the winners differ from the defeated cadets in freestyle wrestling. In the light of wrestling rule modifications which have now occurred several times after this competition, the researchers are given an opportunity to study in detail the performances in regards to both genders, different age categories and different wrestling style, which will provide quality information for the development of wrestling sport, both from practical and scientific aspect. In this way, the expert teams will have an opportunity to plan and programme quality training processes, with an adequate evaluation and analysis of information gathered at competitions so as to make important decision for further preparations and competitions.

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## Effects of Pilates Programs among the Elderly on Some Physical Parameters

### Abstract

Pilates has recently become one of the most popular sports activities. Many people prefer Pilates to overcome the adverse effects of a sedentary lifestyle. News about celebrities preferring Pilates over other exercise types and increasing number of articles and information on Pilates on societal media also increased people's awareness on it and created hype. Aging decreases physical fitness, and consequently, quality of life. A large number of studies reported that physical activity is a requirement in promoting health and physical well-being of individuals during the aging process. In this literature review, changes in some physical parameters due to practicing Pilates among the elderly were evaluated. The studies in this literature review generally stated that Pilates improves dynamic balance and decreases risk of falling in the elderly. There are also some studies reporting that positive effects of Pilates are not very significant. There is a dearth of scientific research comparing the effects of Pilates to other types of exercising modes.

**Keyword:** pilates, elderly, women, physical fitness, review.

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## **INTRODUCTION and OBJECTIVE**

The Industrial Revolution, in addition to a more sedentary life, brought about deterioration in health conditions, and in connection to this, infant mortality and contagious disease (Latey, 2001). Weakened physical functions and unwanted external effects necessitate physical activity in order to have a healthy physical structure and increased quality of life. This situation is much more important among especially the elderly (de Souza, Marcon, de Arruda, Pontes, & de Melo, 2018).

Capability in balance is mainly dependent on the interactions of the visual, vestibular, sensory and motor systems. The process of aging induces physiological changes in these systems, postural stabilization is disrupted, and therefore, the performance in daily life activities also decreases (Matsumura & Ambrose, 2006; Nelson et al., 2007). Especially lumbar pain is one of the most frequently observed problems in the society, and it decreases quality of life (Dagenais, Caro, & Haldeman, 2008; Hoy et al., 2010). Changes related to the aging process, especially those that are related to balance, start to occur about 45 years of age and affect physical characteristics through the sensory system. These changes bring about several problems related to balance by also affecting reaction times (Mesquita, de Carvalho, Freire, Neto, & Zangaro, 2015). Achieving an increase in control over balance by regular exercise is a good strategy to reduce the risk of falling in this population (Granacher, Gollhofer, Hortobagyi, Kressig, & Muehlbauer, 2013; Mokhtari, Nezakatalhossaini, & Esfarjani, 2013).

Pilates is a method that was developed by Joseph H. Pilates for improving the form of the body. Joseph Pilates started to develop this method during WWI and continued to improve it through the 50-year period until his death in 1967. Pilates contains more than 500 flexibility and strength exercises that aim to improve the form of the body. These exercises are mainly divided into two groups as mat (exercise mat) exercises and exercises with equipment (Muscolino & Cipriani, 2004). While mat exercises may be done using or not using apparatuses (elastic bands, mini-balls, etc.), tools that are used in Pilates are equipment which specific designs that may be adjusted for difficulty with different spring resistance values and fit different body positions (Wells, Kolt, & Bialocerkowski, 2012).

Although Joseph Pilates created this method in relation to body form, he named it “the Art of Contrology”. Joseph Pilates argued that the Pilates method is not only a method that is practiced for the body, but it is also a technique that is practiced for the form and strength balance of the mind. With this comprehensive method involving flexibility and strength exercises, Joseph Pilates aimed to achieve a strong and flexible body, as well as a mind that is also strong and able to control this body (Muscolino & Cipriani, 2004).

There are six main principles in the Pilates method. These are centering, concentration, control, precision, breath and flow.

1. Centering is the main point of focus for the Pilates method. The “center” is the core part of the body that is also usually known as the “powerhouse”.

2. Concentration is important as the mind is the body’s guide. There is no unimportant part in the body, and the person should concentrate well on what they are doing.

3. Control refers to controlling the performance of an exercise while applying it by focusing from the center. While doing an exercise, the position, angle and movements of all parts of the body should be kept under control while applying an exercise.

4. All exercises in the Pilates method were made precise by Joseph Pilates. Thus, the main question in the practice is not “how many” but “how to”.

5. Exercise should be carried out by rhythmic breathing for achieving the circulation of oxygen to all tissues of the body via the blood.

6. A smooth flow from one exercise to another should be achieved while applying the Pilates method (Latey, 2001).

Centering may be the most important principle of the Pilates method. Pilates believed in the necessity of gaining flexibility and strength in the muscles of the body, and he paid the highest importance to the muscles found at the center of the body (Muscolino & Cipriani, 2004). As opposed to the case of classical resistance exercises, Pilates exercises have an approach that requires the simultaneous activation and coordination of multiple muscle groups (Sofianidis, Dimitriou, & Hatzitaki, 2017).

Pilates is a physical movement system and type of exercise that has become popular worldwide and is used for rehabilitation and improvement of physical fitness (Wells et al., 2012). It is commonly used not only by dancers and athletes but also by all individuals with some modifications for rehabilitation and physical fitness purposes (Barbosa et al., 2017; Latey, 2001). Several studies have shown that Pilates is a type of exercise that involves the combination of muscular strength and increased flexibility, integrates different parts of the body by a specific respiration model and includes exercises that optimize the neuromotor control of the body especially by making deeper muscles work (Mokhtari et al., 2013; Wells et al., 2012).

Joseph Pilates developed this type of exercise by inspiration from the movement style and philosophy of gymnastics and branches such as martial arts, yoga and dance (Latey, 2001). Today, it is possible to encounter several techniques in the world of Pilates. While some of these are techniques that were developed directly by Joseph Pilates himself, while others were developed later (Muscolino & Cipriani, 2004).

Pilates is among the specific exercise methods that are used to eliminate lumbar pain. It involves exercises that make the core of the body work by facilitating isometric contraction of deep muscle groups (Miyamoto et al., 2018). This is why individuals with back pain are recommended to do Pilates (Barbosa et al., 2017; Wells et al., 2012). The repertoire of Pilates mat exercises involves the stabilization and strengthening of the core area, and this has significance for the performance of balance and physical functions in the elderly (Wells et al., 2012). Especially since the early twentieth century, Pilates has been used to perform physical activities that are required for daily life by achieving the strength, flexibility and contraction control of the muscles especially in the lumbar and pelvis regions (Granacher et al., 2013; Wells et al., 2012). While the effects of Pilates on lumbar pain are researched, another topic of research is whether or not it has a different effect in comparison to other exercise methods. In patients with chronic lumbar pain, Pilates is more effective than a minimal intervention on pain and injury with medium-level effects in the short-run and small effects in the mid-run, but it does not have any difference in comparison to other types of exercise. Moreover, there is still no evidence on the effectiveness of Pilates in the long-run or the optimal dose of treatment (Miyamoto et al., 2018).

Pilates is one of the types of exercise that are used to improve physical fitness. It is used alongside other branches of sports for especially solving problems that are brought by

aging. The purpose of this study is to present the positive and negative effects of Pilates by reviewing studies that investigated the physical changes created by Pilates on the elderly.

## **METHOD**

This article is a literature review, and it was written by reviewing articles that investigated the effects of Pilates on the physical problems that occur by aging and were published in the database of "Web of Science".

## **CONCLUSION**

Muscolino and Cipriani (2004) investigated the effects of Pilates on the core part of the body (powerhouse). Accordingly, significant effects of Pilates on the core region were emphasized regarding the pelvic muscle system and posture. Theoretically, if a person has a perfectly healthy pelvis, they do not need to change this with Pilates or other types of exercise. However, in an average individual, the perfect structure of the pelvis is affected by especially the continuation of the aging process and gravity (anterior tilt). This case leads to lordosis development in the lumbar vertebrae. This is why the structure of the pelvis is highly prioritized in the Pilates method. Another significant effect of Pilates is the extension of the spine. This extension allows the person to stand taller and reduce the pressure between vertebrae. The trainer checks whether the person who will apply the exercise has extended their spine at every Pilates exercise. The third main impact of Pilates is its ability to affect the structural integrity or tonus of the abdominopelvic cavity (Muscolino & Cipriani, 2004).

Yamato et al. (2015) conducted a study on the effects of Pilates on individuals with chronic lumbar pain. They observed that Pilates exercises had a medium-level effect in the short-run and a small effect in the mid-run on eliminating chronic lumbar pains (Yamato et al., 2015). Another study followed the lumbar pain of groups that had one, two or three sessions of Pilates per week, and the results of the group that had two sessions a week were found to be better than those of the group that had one session a week. The two-session and three-session groups had similar results (Miyamoto et al., 2018).

Bullo et al. (2015) reported that Pilates exercises provided significant improvements in the development of the muscles in the lower extremities, dynamic balance and gait mechanics. The same study also stated the positive effects of Pilates on static balance and flexibility (Bullo et al., 2015).

A static and dynamic balance characteristic has a crucial significance in daily life for the elderly. Loss of balance may lead to falling and accidents among elderly people. Sofianidis et al. (2017) reported that elderly people who took part in the sport of Pilates for 12 weeks experienced improvements in their static and dynamic balance skills (Sofianidis et al., 2017). Barker et al. (2015) also stated that Pilates had positive effects on static and dynamic balance in the elderly (Barker, Bird, & Talevski, 2015).

Although several studies reported that Pilates mat exercises provided improvements in some physical parameters in the elderly, there are some debates in a few studies on whether or not Pilates exercises lead to improvements, for example, in balancing skills (Bird, Hill, & Fell, 2012; Gabizon, Press, Volkov, & Melzer, 2016; Mesquita et al., 2015; Vieira et al., 2017). Its effects on other physical functions such as flexibility and the cardiovascular system are not yet clear (Gabizon et al., 2016).

De Souza et al. (2018) reviewed studies on Pilates. In their review, they reported that, in the elderly, Pilates had a positive effect on dynamic balance, muscle strength (lower extremities), flexibility (hips and lumbar region) and cardiovascular durability. In the same study, they reached the conclusion that static balance did not improve by Pilates. They stated three reasons that may have led to such a conclusion. Accordingly, first of all, static balance might not be affected in healthy elderly people. Second of all, the Pilates program that was applied might not have been organized in a way to improve static balance, and finally, there is a possibility that the tests that measured static balance were not able to detect sensitive changes (de Souza et al., 2018).

Millner et al. (2016) investigated the effects of types of exercise on patients of Ankylosing Spondylitis (inflammation in the joints in the lumbar region). They stated that Tai Chi, swimming and Pilates exercises may be useful for individuals with this problem in terms of their contents on motion directionality, functional training and strength (Millner et al., 2016).

Uluğ et al. (2018) investigated the effects of Pilates and yoga exercises on individuals with chronic neck pain. While they found similar results between the yoga and Pilates groups regarding their levels of neck pain, there was thickening in the semispinalis capitis muscle in the Pilates group (Uluğ, Yilmaz, Kara, & Ozcakar, 2018).

Although there are several studies that showed the positive effects of Pilates in the short- and mid-run, it was observed that it was not different to other types of exercises. Moreover, there is still no evidence on the effectiveness of Pilates in the long-run or the optimal dose of treatment (Miyamoto et al., 2018). This reminds one the following. Pilates is a type of exercise, sports. Considering the necessity of taking part in physical activities throughout life for increasing quality of life, Pilates should be considered not as a healing phenomenon but as an exercise, a branch of sports that should be practiced life-long.

Mesquita et al. (2015) examined the effects of Pilates and PNF exercises on balance parameters in elderly women. They found that, in comparison to the control group, both methods provided positive effects on balance parameters, while they found no significant difference between these two methods (Mesquita et al., 2015).

Several studies have reported that Pilates leads to improvements especially in the muscle groups in the lumbar regions, and thus, it is useful in general regarding static and dynamic balance and lumbar pains. Though just a few, some studies stated that there is no strong evidence on the effects of Pilates on elimination of lumbar pain yet (Yamato et al., 2015). On the other hand, the first question that comes to mind here is about which Pilates exercises or materials were used in these studies. Wells et al. (2012) reviewed studies on Pilates and found that 38% (120 studies) used mat exercises and some equipment, 25% did not specify an exercise or equipment, and the remaining studies did not provide any recommendation about mat exercises or equipment usage (Wells et al., 2012). Another issue is that, practicing Pilates, especially practicing it with equipment, has high costs (Yamato et al., 2015). This issue led us to think that there have been no particular standards in previous studies on the topic. Especially in studies carried out about Pilates, attention should be paid to include the exercises and materials that are used.

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## Content Analysis of the Theses Done on Service Quality in Sports (2005-2017)

### Abstract

In this study, between the years of 2005-2017, a content analysis was made on the postgraduate and doctoral theses related to the subject of service quality in the area of sports sciences, recorded in the database of Turkey National Thesis Center of Council of Higher Education and identified that it is accessible. 17 postgraduates and 7 doctoral theses, included in the scope of the study were examined according to “the university, in which it was done; publication year; concepts and words used in keywords; sector, in which the study was carried out; number of page; sort of study; study model, number of sample; sort of data collecting instruments; data analysis method; and sort and actuality of resources”. For this aim, MAXQDA qualitative data analysis program was utilized. As a result of the study, it was identified that the most theses were made in Gazi University; that at the postgraduate and doctoral level, sort of quantitative study was mostly preferred; that service quality was frequently used in the names and keywords of the theses; and that they were descriptive studies, mostly carried out by receiving the views of customers of sports businesses of private sector. In addition, it was found that scanning design was preferred in most of the postgraduate and doctorate; that the surveys or Likert type of scales were used in the theses; that in generalized sub-dimensions, quality of physical environment was dominant; that the scale “An Instrument for Evaluating Service Quality of Health/Fitness Clubs (SQAS)” was used the most; that statistics t-test and variance analysis was mostly used; that it was worked on 500 and over samples; and that the actual and foreign resources were dominant.

**Keyword:** research trends, service quality in sports, content analysis, graduate theses.

## INTRODUCTION

In parallel with the presentation of sport services in the world, a change is experienced in the approach of service quality in sports. As a result of this change experienced, in Turkey, in both public sport businesses and private sport businesses, the importance of service quality increases every passing day. In today's conditions, in selections of sport services, each element of service quality has an importance. At the present time, when the products having the same features are sold in the same value, service quality is seen as important indicator of making product different.

At the present time, when a thousands of messages are exposed by mass media and there are a number of products similar to each other to meet the same need, being able to make human being happy or to fulfil its desire have considerably become difficult. For all of reasons, in sport businesses of today, in being able to successfully execute businesses, the problems related to service and service quality are accepted to be important. In other words, the studies carried out, important study theories, and findings have revealed an important point in service quality. This is related to better interpreting all dimensions to provide to be appropriately understood the quality of service a sport business presents to customers determining its success. Certainly, there are a number of studies on service quality in sports: Gençer, 2005; Ceyhun, 2006; Uçan, 2007; Salman, 2008; Tüfekçi, 2010; Yüzgenç, 2010; Salahoğlu, 2010; Savaş, 2012; Demiray, 2012; Yiğit, 2013; Barsbuğa, 2013, Çevik, 2013; Demirel, 2013; Özkan, 2013; Güçlü, 2013; Öztürk, 2014; Yaşar, 2014; Eraslan, 2014; Acar, 2015; Akkoyun, 2015; Duygulu, 2015; Solak, 2015; Erdoğan, 2016; Gevezoğlu, 2017. Each study studied the different aspects of service quality. These studies were carried out in different areas such as recreation, stadium, fitness, and sport tourism. But a study combining all of these studies were not focused on. In the light of this information, the studies of content analysis, which are study syntheses having an important role in becoming widespread the studies and shaping the next studies, policies, applications and public perceptions (Suri, & Clarke, 2009; cited by Çalık, & Sözbilir, 2014), will provide a great benefit in the areas and subjects determined.

Until this time, many studies were carried out on content analysis in the different areas and disciplines. With the studies carried out on the subjects determined, easiness can be provided about the deficiencies in the literature of the area and subjects the researcher will go towards. Additionally, how many studies are carried out on the subject determined, which subjects are given weight to, and the studies are conducted on which areas are introduced. While the deficiencies and gaps are identified, an important contribution can be made to the relevant literature in terms of the qualities and usability of the studies conducted (Kanlı et al., 2014). For this purpose, indicating what the tendencies or deficiencies in the national and international articles, papers, and postgraduate theses will guide to the new researchers.

In the recent years, in the literature of the area, a number of studies examining postgraduate and doctoral theses in the different disciplines directed to identifying the tendencies of scientific studies in Turkey have been carried out (Özbey, & Şama, 2017; Kozikoğlu, & Senemoğlu 2015). The number of the studies, directed to examining postgraduate theses, carried out generally in the area of sport sciences and specifically in the area of service quality in sports, is relatively less. Bal (2016) evaluated 1624 papers taking place in Congress Books of International Sport Sciences in terms of the study subject, sort of study, the number of author, and statistical method used. According to the results of the study, it was reported that in the papers presented in international congresses of sport

sciences held by Association of Sport Sciences in Turkey, more studies were carried out on psychosocial area in sports and sciences of movement and training, among the main areas of sport sciences but the studies at adequate level were not carried out on the other areas; that there were mostly quantitative studies on the subjects worked on; that the studies were multiple- authors (three and more) studies; and that in the statistical methods used, multiple –variable tests and tests directed to examining the relationships were less used.

It is seen that the research subjects of the studies carried out in many areas and examining postgraduate or doctoral theses were evaluated by the method of content analysis in terms of the qualities, quantities, methods of the studies and techniques used and, thus, that the tendency in a certain area were tried to be identified. It is considered that just as the data obtained give direction to the studies of sport sciences and that the studies of sport sciences will also make important contributions to developing publication policies.

It can be sad that postgraduate theses having important place in the studies of sport sciences in Turkey make an important contribution to the studies of sport sciences. In this stage, it is necessary to see what sort of tendency the postgraduate and doctoral theses on service quality in sports shows and which data they provide for the area of service quality regarding the structures such as the subject, method, and content. In this sense, for evaluating the studies carried out on this area in a comprehensive and holistic way, it can be said that such a study is needed. In addition to this, the results of the studies at the present time are very important in terms of understanding the nature of the next studies on service quality. It is thought that this study can make a contribution to full understanding the phenomenon of “service quality in sport”, which are not fully become clear in Turkey.

## METHOD

In this study, in which qualitative design study method was used, document review method was also utilized. In qualitative studies, content analysis is used to make document review. Content analysis is a systematic process for defining content communication (Merriam, 2013). Content analysis is to bring together the data similar to each other in the framework of certain concepts and themes and interpret these by arranging in the way the reader will understand. The main aim in content analyses carried out in the studies is to reach the concepts and relationships that can account for the data collected. For this aim, it is necessary to first conceptualize the data collected, later arrange them in logical way according to the emerging concepts and identify themes explaining the data according to this. A concept takes us to themes, and we can arrange phenomena better thanks to concepts and make them more understandable (Yıldırım, & Şimşek, 2006). Document review covers analysis of written materials containing information about the phenomenon and phenomena targeted to be studied. Documentary analysis provides visible records to researchers upon that participant examine the documents belonging to them or directed to the subjects concerning them (Creswell, 2013). Documents are important information resources that are necessary to be effectively used in qualitative studies. In this sort of studies, researcher can obtain the data he/she needs without needing to make observation and interview. In this sense, document review will provide savings in terms of budget and time (Yıldırım, & Şimşek, 2006).

### Universe and Sample

The universe of the study consists of the theses carried out between the years of 2005-2017 in the area of all sport sciences and reached through the keywords of sports, sport

centers and service quality by using search engine of Turkey National Thesis Center of Council of Higher Education (CHE). The sample of the study consists of 17 postgraduates and 7 doctoral theses, whose full texts can be electronically accessed in the area of sport sciences, which are open for accessing in the range of the relevant years, and which include the keywords determined.

Researchers must check originality of documents they reached in document review. The documents obtained were reached through internet page of Turkey National Thesis Center of Council of Higher Education, and marking tag of the studies can be reached through this page. Also, these documents collected were examined by two researchers, who are specialists in their areas, and it was identified that they were original studies that is compatible with the study subject. These researchers also examined the studies in terms of validity and reliability.

### Validity and Reliability of the Study

One of the important criteria that is necessary for the categories formed to include is to identify that two documents used for the same purpose can reach the similar results. This case can be provided with coding reconciliation. Reconciliation of encoders is simply the rate of units having the matching explanations (Hayes, & Krippendorff, 2007). This case depends on that the compliance between two encoders conform with each other at an acceptable level. Therefore, coding was made by two specialists through the same document. In coding reliability, in order to identify between encoders, compliance percentage was derived by MAXQDA Program. Coding reliability is at acceptable level (Gisev et al., 2013; Hayes, & Krippendorff, 2007).

### Data Analysis

Using search engine of National Thesis Center of Council of Higher Education, the theses related to service quality in the area of sport sciences were evaluated by means of document review. In the scope of evaluation, the feature of word processor of MAXQDA 13.3, qualitative data analysis program.

## FINDINGS

Table 1. Distribution of Postgraduate Theses according to the Years

Year	Doctorate (n)	Postgraduate (n)	Total
2005	1	-	1
2006	1	-	1
2007	1	-	1
2008	1	-	1
2009	-	-	-
2010	-	3	3
2011	-	-	-
2012	1	1	2
2013	1	6	7
2014	1	1	2
2015	-	4	4
2016	-	1	1
2017	-	1	1
<b>Total</b>	<b>7</b>	<b>17</b>	<b>24</b>

In the content analysis of postgraduate theses, which was carried out in Turkey, related to service quality in sports, coding intensities if the data in the following tables were

identified. In this framework, coding intensities belonging to postgraduate theses were presented below.

When Table 1 is examined, it is seen that the theses carried out related to service quality in sports were completed with maximum 7 theses in total in the year 2003. This case is in the same way with 6 theses at postgraduate level. While observing that the theses between the years of 2005-2008 were completed at doctoral level, it was observed that this intensity decreased a little after 2012 and that there was an increase in postgraduate theses as well. In addition, when Table 1 was examined, it was observed that the intensity in theses subjected to content analysis was in postgraduate theses.

Table 2. Distribution of Postgraduate Theses according to Their Methods

Method	Doctorate (n)	Postgraduate (n)	Total
Quantitative	7	16	23
Qualitative	-	1	1
Mixed	-	-	-
<b>Total</b>	<b>7</b>	<b>17</b>	<b>24</b>

When Table 2 is examined, almost all of postgraduate theses (16 pieces) carried out related to service quality in sport and all of doctoral theses (7 pieces) used quantitative method. 1 postgraduate thesis used qualitative method. In postgraduate theses, mixed method was not preferred at all.

Table 3. Distribution based on Sample Size Frequently Studied in Postgraduate Theses

Sample Size	Doctorate (n)	Postgraduate (n)	Total
101-200	-	3	3
201-300	-	5	5
301-400	1	-	1
401-500	1	3	4
501 and over	5	5	10
<b>Total</b>	<b>7</b>	<b>16</b>	<b>23</b>

When Table 3 is examined, it is seen that the sample size of theses carried out related to service quality in sport are intensively 501 and over. Due to the fact that most of the theses are quantitative, in general, it is seen that it is studied with the samples of 501 and over. It can be said that this case is positive.

Table 4. Distribution of Postgraduate and Doctoral Theses According to Universities

Universities	Doctorate	Postgraduate	Total
Gazi University	3	3	6
Selçuk University	-	2	2
Bahçeşehir University	-	2	2
Dumlupınar University	-	2	2
Balıkesir University	-	2	2
Abant İzzet Baysal University	1	1	2
Marmara University	2	-	2
Ege University	1	-	1
Anadolu University	-	1	1
Maltepe University	-	1	1
Beykent University	-	1	1
Karadeniz Teknik University	-	1	1
Fırat University	-	1	1
<b>Total</b>	<b>7</b>	<b>17</b>	<b>24</b>

According to Table 4, when the distribution of theses carried out related to service quality in sports is examined according to the universities, in both postgraduate (3 pieces) and doctoral (3 pieces) theses, it is seen that the most studies are completed in Gazi University.

Table 5. Distribution of Postgraduate Theses According to the Cases of Using the Existing Scale or Developing Scale

Data Collecting Instrument	Doctoral (n)	Postgraduate (n)	Total
Existing Scale	3	13	16
Developing Scale	4	3	7
Qualitative Descriptive Analysis	-	1	1
<b>Total</b>	<b>7</b>	<b>17</b>	<b>24</b>

According to Table 5, when the distribution of the theses carried out related to service quality in sports is examined, based on the cases of scale development, it is seen that the studies using the existing scale is predominant in postgraduate (13 Pieces). In doctoral studies, it is seen that scale development is predominant (4 pieces). Only one study used qualitative measurement as a measuring instrument in postgraduate.

Table 6. Distribution of Measuring Instrument of Postgraduate Theses According to the Sectors They Were Applied

Data Collecting Instrument	Doctoral (n)	Postgraduate (n)	Total
Private	7	11	18
Public	-	5	5
Private and Public	-	1	1
<b>Total</b>	<b>7</b>	<b>17</b>	<b>24</b>

When Table 6 is examined, it is observed that the most study in both postgraduate (11 pieces) and doctoral theses (7 pieces) was intensively applied to the sample of private sport businesses.

Table 7. Distribution of Postgraduate Theses According to the Concepts Used in Keywords

Keywords	Postgraduate Theses
Service Quality	21
Other	16
Fitness Centers	10
Perceived Quality of Service	7
Satisfaction	6
Sports	5
Recreation	4
Local Governments	4
Expectation	3
Customer	2
Animation	2
Healthy Life and Sport Centers	2
<b>Total</b>	<b>24</b>

When Table 7 is examined, it is seen that the most used concept in the theses carried out related to service quality in sports is service quality (21 pieces). In classification of keywords, the words containing the affixes not modifying the meaning of word and word groups expressing the same meaning were evaluated in the same category (Fitness studio covers the words such as fitness center, sport center, and sport business). If coding that is less than 2 pieces was made to any concept, it was coded as "other".

Table 8. Distribution of Postgraduate Theses According to the Frequently Encountered Concepts in Their Names

Frequently Encountered Concepts	Postgraduate Theses
Service Quality	18
Examining /Researching /Evaluating	13
Other	9
Sport Businesses	7
Perceived Quality of Service	7
Fitness Center	7
Sample of ....province/Sample	7
Local Government	4
Recreation	4
Satisfaction	4
Expectation	3
Customer	3
Football Club	3
Perception	3
<b>Total</b>	<b>24</b>

When Table 8 is examined, Service Quality was used the most (18 pieces) in the frequently taking place in the titles of the theses subjected to systematic examination, the concepts that are less than 3 coding were coded as "other". According to Table 8, the expressions giving information about the quality and broadness of the study carried out (examining, researching, evaluating) are frequently encountered.

Table 9. Distribution of Generalized Sub-Dimensions of Graduate Theses

Sub- dimensions of Scale	Pcs
Quality of Physical Environment	30
Quality of Interaction	25
Quality of Program	18
Quality of Environmental Conditions	10
Quality of Output	9
Other	6
<b>Total</b>	<b>98</b>

In Table 9, when the sub-dimensions of almost all of the theses carried out related to service quality in sports are examined, the sub-dimension having the most intensity value (30 pieces) is quality of physical environment. In postgraduate theses, sub-dimensions were categorized as quality of physical environment, quality of interaction, quality of program, quality of environmental conditions, and quality of output. The dimensions that are not able to be associated with these dimensions were coded as "other".

Table 10. Distribution of Postgraduate Theses According to the Scales used

Scales	Postgraduate	Doctorate	Total
SSQRS	2	-	2
STHKÖ	-	1	1
SQSFC	1	-	1
OSTYSK	1	-	1
SERVQAL	2	1	3
SQAS	6	3	9
AHKÖ	-	1	1
SFM-HKÖ	4	1	5
Qualitative Measurement	1	-	1
<b>Total</b>	<b>17</b>	<b>7</b>	<b>24</b>

When Table 10 is examined, it is seen that the most used scale in the theses related to service quality is Service Quality Assessment Scale (SQAS) in postgraduate (6 pieces) and doctoral theses (pieces)

SSQRS: A Hierarchical Model of Service Quality for Recreational Sport Industry (Ko, & Pastore 2005).

STHKÖ: Sport Tourism Service Quality Scale (Chank, & Chelladurai 2000).

SQSFC: Service Quality Scale for Fitness Centers (Yıldız, 2011).

OSTYSK: Standard Quality of Service for the Hotel (Salahoğlu, 2010)

SERVQAL: Service Quality Scale (Parasuman et al., 1985).

SQAS: An Instrument for Evaluating Service Quality of Health/Fitness Clubs (Gürbüz, Koçak, & Lam 2005)

AHKÖ: Perceived service quality scale (Gençer, 2005).

SFM-HKÖ: Sports Fitness Centers Perceived Service Quality Scale (Uçan, 2007).

Table 11. Distribution According to Methods of Data Analysis Used in Postgraduate Theses

Explanation Method of Data Analysis	Total
Frequency /Percentage /Chart	18
Anova	14
T-Test	14
Mean Standard Deviation	8
Explanatory Factor Analysis	7
Correlation	5
Regression	3
Confirmatory Factor Analysis	2
Chi-Square	2
Mann Whitney U	2
Item Analysis	1
Kruskal Wallis	1
Structural Equity Modelling (Way Analysis)	1
<b>Total</b>	<b>78</b>

As seen in Table 11, as the most used method of data analysis explanation in the theses that are related to service quality in sports subjected to content analysis, Frequency/Percentage/Chart (18 pieces), Anova (14 pieces), and T-Test were preferred. Each resource used in the postgraduate and doctoral theses completed in the area of service quality in sports was coded in MAXQDA program, and the rates of the domestic and foreign resources were determined according to the number of these codes.

Table 12. Distribution of Postgraduate and Doctoral Theses According to the Preference of Domestic and Foreign Resource

Resource Preference	Doctorate (n)	Postgraduate (n)	Total
Domestic Resource	282	767	1049
Foreign Resource	588	562	1150
<b>Total</b>	<b>870</b>	<b>1329</b>	<b>2199</b>

Based on Table 12, when the distribution intensity of the theses carried out related to service quality in sports is examined according to preference of domestic and foreign resources, it is seen that foreign resources were preferred the most in the doctoral theses (588 pieces), while domestic resources were preferred the most in the postgraduate theses (767 pieces).



The postgraduate and doctoral theses completed in the area of service quality in sport were identified in terms of resource actuality. In using resource actuality in MAXQDA program, those stages were paid attention. Beginning from that the term was published, the resources that are in the last ten years were coded as actual resources and those more than ten years, as nonactual resources.

Table 13. Distribution of the Postgraduate and Doctoral Theses According to Resource Actuality

Resource Actuality	Doctorate (n)	Postgraduate (n)	Total
Actual Resource	466	680	1146
Nonactual Resource	404	649	1053
<b>Total</b>	<b>870</b>	<b>1329</b>	<b>2199</b>

In Table 13, when Distribution intensity of the theses carried out related to service quality in sports according to the actual and nonactual preference of resources, it was revealed that actual resource was preferred in the doctoral (466 pieces) and postgraduate (680 pieces) theses.

## DISCUSSION AND CONCLUSION

In this study, it was aimed to be evaluated the theses carried out in Turkey in the area of "service quality in sports" between 2005-2017 in terms of the university, where they were carried out; sector, where the study was carried out; the number of page; sort of study; study model; the number of sample; sort of data collecting instruments; method of data analysis; and sort and actuality of resources.

The following results were reached in the direction of this aim.

It was seen that postgraduate theses in the scope of the study was mostly defined at postgraduate level. In addition, a considerable increase was observed in postgraduate theses compared to doctoral theses after 2002. This case can first of all be accounted for with the rate of the numbers of the postgraduate and doctoral students to each other. In addition, in the world and Turkey, in related to the developments in sport service sector, it is considered that, in order to support their own developments of the individuals, who find place for themselves in sports sciences, they prefer to take postgraduate education, particularly, in the area of service quality in sports in the main scientific branches of sport management and recreation. But after postgraduate education, due to the fact that the requirements of doctoral education after postgraduate education are more, and therefore, that every students taking master degree cannot take doctorate, it can be said that the number of the students taking master degree are more compared to the number of the students taking doctorate. Lastly, the most important cause of this increase at postgraduate level are postgraduate education programs increasing in the direction of the number of faculties of sport sciences newly opened in the recent years. The reflection of decrease in thesis intensity seen in 2005 and 2009 supports the finding that the least paper is presented in 2008, obtained in the study, in which Bal (2016) examined the papers, presented in Congresses of International Sport Sciences organized by Sport Sciences Association in Turkey.

In the thesis studies, it is seen that the sort of quantitative study is totally preferred the most in the sort of the study. This case is considerably high at postgraduate level. This case at postgraduate level was also identified in the similar studies (Ulutaş, & Ubuz, 2008; Polat, 2013; Çiltaş et al., 2012; Temel, et al., 2015). In addition, Erdem (2001), in his study, revealed that the large majority (82%) of the scientific studies were carried out by using

quantitative study methods. With moving from these findings, that quantitative study is more preferred can be accounted for the cases that they are fast and easy, can readily reach sample, and can collect and interpret data more easily and in shorter time.

In only one of the thesis studies, qualitative study is given at postgraduate level. The reason for this case can be that it is necessary to expect the production of new information for the area at the doctoral level and that qualitative method is a method in the direction to meet this expectation. However, because the scientifically dominant paradigm is still positivist paradigm, it can be considered that quantitative method was predominantly used in the theses. According to this, in postgraduate theses as in doctoral theses, that the rate of quantitative studies decreases and the rate of qualitative studies, particularly mixed, increases highly important in terms of increase of service quality in sports. Sözbilir, and Kutu (2008), in their study, suggested that the studies would be more qualified by using multiple method and data collecting instruments and this would positively affect the validity and reliability of the study results.

Although the preference of the sort of mixed study at doctoral level in the highest degree was a case (Ulutaş, & Ubuz, 2008; Çiltaş, et al., 2012; Yılmaz, 2012; Temel et al., 2015) supported and desired to be by most researchers, mixed studies were not encountered in any postgraduate study.

The postgraduate theses related to service quality in sports intensively focus on the internal and external customer among customer groups and on service applications in the sports and health areas as area. With moving from all these findings, depending on that postgraduate theses written on this subject give more weight to mixed studies, in which data diversity is provided by supporting the quantitative data with qualitative data, that they deal with the actual problems, whose popularity increase every passing day, is seen the most basic need in this area.

It is seen that the sample size in the theses examined are mostly is "501 and over". This case can be accounted for with the fact that the researchers do not prefer qualitative research method. When considered that the quantitative studies form the majority, it can be said that the sample sizes in the studies are generally quite good

When the distribution of the theses in Turkey National Thesis Center of Council of Higher Education are regarded according to universities, between 2005 -2017, the most theses in the area of service quality in sports from Gazi University. That Gazi University is one of the first universities providing the education of "Physical Education and Sports"; that it is one of the first educational institutes providing education at postgraduate and doctoral level; and that it is a rooted educational institute can account for this case. As in the other disciplines, it can be said that [the first] studies related to service quality in the sports belong to the scientists serving in Gazi University, which is one of the universities that can be qualified as developed. Together with opening the departments of sport management in the other universities (Selçuk University, Dumlupınar University, Balıkesir University, Bahçeşehir University, Abant İzzet Baysal University), there is an increase in the number of postgraduate theses. Although there are some structural problems in newly established universities (lack of program disintegration), the increase in the numbers of the studies at postgraduate level is promising on the name of enrichment of service quality knowledge in sports.

In the content analysis carried out, when data collecting instruments are examined used in the theses, it is seen that the existing scale is used the most, generally, perception scales. This finding comes to our face as a result of quantitative studies that is earlier determined as the most used method. Yağmur Şahin et al., (2013), in the study they carried out, examined the postgraduate and doctoral theses carried out on Turkish education and identified that the attitude and perceptions scales were used the most in the studies carried out. In the study, carried out by the study titled "Examination of the theses carried out in education of Science", it was identified that the studies related to the attitude and perception scales are mostly carried out, similarly. It can be said that most use of the studies scale and survey based studies arises from that their costs are low and that they are more advantageous about labor and time compared to the other studies (Baş, 2005). In addition, it was observed that the majority of these studies were carried out in private sport businesses due to time trouble resulted from the permission and official procedures. When considered that many theses related to service quality in sports are carried out in fitness area, another reason for this can be accounted for with the fact that fitness businesses are established as private businesses or that the law transfers these businesses to private businesses for a certain time in exchange of service.

It is seen that the most used concept in the theses written about service quality in sports and the titles of the theses is "service quality". This concept is mostly used to express the subject and aim. In this direction, in the thesis titles, it is seen that there is a general tendency in the direction of emphasizing the subject of the study. In another word, this can arise from that the researcher wants to emphasize the subject he/she is going to study in both keywords and title. In naming theses, the expressions giving information regarding the quality and wideness of the study carried out are frequently met. While the examination, research, and evaluation are made regarding the subject studied in the title of the study, in some part of it, the concepts indicating the agents (e.g. fitness center, sport business) of the study intensively takes place. In addition, the information is given regarding the universe of the study, where the study is carried out (e.g. Ankara city example, Konya city example). However, that the most used sub dimension among sub dimensions generalized in postgraduate theses is "quality of physical environment" may be related to the use of this sub dimension and related dimensions in the light of the scales, whose service quality is developed and adapted.

According to the results of the study, it was identified that the scales were frequently used as data collecting instruments and. the most used scale is Service Quality Assessment Scale (SQAS), It is thought that the reason for this is this is the first scale developed in this area and is the first scale adapted to Turkey in the area of service quality in sports. It may be said that the same or similar ones of the scales used in postgraduate theses will cause the repetition of publication. In view of this, it is thought that considering the different measurement instruments, which can be related to service quality, will be useful in terms of increasing the quality of studies on the area.

When the findings of the study are examined, it was found that frequency / percentage / chart method, among quantitative predictive data analysis method, was selected the most. Following this data analysis method, it was found that the most preferred data analysis methods were Anova and t-test, which are among the quantitative predictive methods. Namely, it was found that the data analysis method used in the articles published at the end of the study is mostly the descriptive analysis. The cause of that the frequency,

table and chart, and Anova and t-test are most used is that analyzing, explaining, editing, and interpreting it may be easier compared to model studies. When considered in this direction, the use of personal studies, analyses, and different analysis model can make important contribution to the development of this area.

When the study results are examined under the category of features of the resources used, in terms of sorts of the resources, it is seen that at postgraduate level, “domestic resources are used more than foreign resources”. At doctoral level, this case is the direction of that “foreign resources are used more than domestic resources”. This result makes think of that the foreign literature is more followed at the doctorate level. In addition, another reason for this can result from not enhancing the quality of doctoral studies in terms of resources. This case at postgraduate level shows similarity to the study of content analysis of theses related to project based instruction in sciences education by Yavuz, and Yavuz (2017). When the retrospective and annual process are evaluated in terms of resource actuality, it is seen that actual resources are more at both postgraduate level and doctoral level. This case revealed that the actual resources are sufficiently given place among the resources at the postgraduate and doctoral level.

The limitation of this study is that the study data are completed between 2005-2017 and that it was obtained by using 24 theses, which were sought in the database of Turkey National Thesis Center of Council of Higher Education with the keywords of “Sport”, “Fitness” and “Quality of Service” and “Perceived Service Quality” and which can be electronically reached full texts of them. In spite of this, it is considered that this study will form an idea for the subject preferences of the postgraduate and doctoral students in the stage of thesis writing in the research they study and that it will guide to them. With including the articles related to service quality in sports in the study of content analysis, the different results can be introduced. It is considered that including the articles related to service quality in the studies of content analysis to be carried out in the future will be useful in terms of seeing the details of service quality studies. [In addition], with the studies to be formed by extending the scope of the content studies related to service quality, the study content will be actually followed and it will make positive contribution to the scientific studies carried out related to this subject.

In the studies related to service quality to be conducted in the future, diversifying the methods, in which scale development and models are fictionalized, can enrich the studies in terms of quality. In the studies related to service quality, valuing qualitative and mixed methods as well as quantitative method can enable both better to be solved the subject studied and study design to become different. It is considered that valuing qualitative and mixed methods will contribute to the scope and depth of service quality studies. Carrying out by considering the differences of the public and private sector the next studies and fictionalizing the studies by extending the scope of the study can make contribution to the generalizability of the results. It is considered that giving place to more actual resources in the studies to be carried out will provide more actual information and make contributions to the area of service quality area in sports.

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## Fair-Play Behavior of High School Students Playing Futsal and Football

### Abstract

The objective of this study is to scrutinize the changes taking place in the fair-play behaviors of the high school students playing football and futsal with amateur license. The study group was constituted by the 264 high school sportspeople, being 140 involved with futsal, 124 with football, doing sports as amateurs. In identifying the fair-play behaviors, The Fair Play Scale in Physical Education and Sport, developed by Hassandra et al. (2002) and adapted to Turkish by Mirzaoglu (2015) was used to collect data. The scale has four subscales including 15 items. The scale consists of the factors of respect for teammates, cheating, respect for conventions, and sportsperson ship. The scale is the Likert type (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always). Conducting the works on the diagnostic statistics of the data obtained, their variance and homogeneousness were tested and Independent Samples t test was used in pairwise comparisons and One-Way Anova test was used in multiple comparisons. No statistical alteration was determined in line with the age and year factor, in which they perform sports. No statistical difference was observed in the categories of respect for teammates and cheating. The statistical change in the categories of respect for conventions and undeserved winning was found to be statistically significant (table 1;  $p<0.05$ ). Statistically significant changes were observed in the fair play behaviors in view of the gender factor as well (table 2;  $p<0.05$ ). In the light of this study, it was determined that more positive values were found in the fair-play behaviors of futsal players than football players, in female sportspeople than male sportspeople, female futsal players than female football players. It is considered that such situation depends on the certain structures of sportive branches in addition to the physical and psychological factors specific to males and females.

**Keyword:** football, futsal, fair-play, sportspeople.



## INTRODUCTION

What matters is not to win against all costs but to win without losing anything of us and what remains to us are the things we lose when winning. Eitzen (2006) emphasizes that the foundation of sports is competition and its objective is to win but a fair play spirit is required for winning ethically. Lots of senses and emotions, such as peace, friendship, fellowship, unity, and sharing come out and become reinforced thanks to sports. Yıldiran (2004) states that while the concept of fair play is expressed as honest playing, it is the attitudes and behaviors that ensure sportspeople to comply with the rules with patience, coherence, and awareness, during competitions even under the conditions becoming more and more compelling; not to accept the unfair advantages in order not to break down the equality of opportunity; not to attempt to exploit the unfair disadvantages of the opponents; to consider the opponents not as enemies but, on the contrary, as the partners and individual with equal rights; and that show their efforts of valuing.

Orhun (1992) specifies that fair play can be classified in two separate forms as formal and informal, meaning that the sportsperson uses his/her entire strength in order to win adhering to rules in the formal sense, and, while making use of that strength, he/she acts through the understanding of universal ethics in the informal one. Kicking the ball out of the field for the treatment of an injured player is a directive that is not present in written rules formally. Nevertheless, when human life is in question, rules are the designations that remain on papers and that pose inconvenience on conscience when observed in that situation. Possibility of obtaining the expected efficiency from sports is through adherence to the ethics of sports as well as their philosophical principles and rules that have come to the present times throughout history (Şahin, 1998; Erdem, 2002). The phenomenon of fair play has an importance that can be rendered central in the constitution of a sports culture and in its settlement into the internal dynamics of societies. A structure that harbors the understanding that "I must win whatever is present in its center," might cause attitudes, behaviors, and emotions that would be regarded as odd by the society. Sezen and Yıldiran (2007) highlighted the fact that the increase of the commercial and political expectations from sports pushes the ethical expectations to the backseat and causes the amateur spirit to retard against professionalism.

Tel (2014) qualifies the concept of fair play as "playing fairly and honestly; compliance with rules; respect to the opponent; avoidance of unfair advantage and not attempting to exploit the unfair advantages of the opponent; taking pleasure from not defeating the opponent but being together with him/her; and embracing it as the basic principle to appreciate the score achieved by the opponent as much as the sportsperson's own score." Adherence to ethical values in addition to the criteria required by the respective branch of sports determine the limits of the concept of sportspersonship. Boniface (2007) states that the more prior example of globalization than democracy, economy, and the internet is football. Football is a sport of the world and, thus, it is one of the branches that experience the concrete impacts of globalization first (Authier, 2002). Once football that brings together and unites billions of people and that is the source of different emotions and behaviors is established on the right foundations, it will serve for the life quality of societies. When defining football, Konter (2004) uses the expression that it is a game with which masses of people experience without causality motivation, stress, and pressure, are strained emotionally and mentally, and exhibit the behavioral reactions and anxiety, expressing the

success in football as a level acquired in line with the results of the education-training process of a footballer. Together with the process of modernization, football shifted from being a game belonging to a subculture and became a popular means of entertainment that masses of people pursue, acquiring the status of being a basic source of satisfaction to which people are attached religiously or semi-religiously (Kayaoğlu, 2000).

Even if the sport of futsal appears to be an extension of the sport of football, it has different characteristics (Altın, & Kıvrak, 2018). Barbeo-Alvarez et al. (2008) state that the popularity of futsal is increasing day-by-day and it is played by both women and men in professional and amateur leagues worldwide. While football and futsal look highly similar, either of them has its own specific structure in terms of the dimensions of the fields of the games played, the equipment used, and the differences in the rules of matches. Rodrigues et al (2011) specify that futsal is played in a narrow area and fast, while Castagna et al. (2010) point out that it consists of violent activities and that the ability of iterative sprint is important. Falcao, one of the notable names of futsal, explained the difference between football and futsal as "It took centuries for the ball to come to me when I played in normal fields." (Altın, & Kıvrak, 2018).

Regardless of the sports branch performed and of its characteristics, while the results of a contest determine merely the superior party, the only thing ensures that a finished competition is remembered even after centuries later on is our attitudes and behaviors we exhibit when we lose or win. Fair play or honest play must be handled as a term that demonstrates a particular manner of behavior even beyond the compliance with rules. Aytekin (2007) underlines the fact that the logic of "I must win in any case and losing is the end of everything" dominates sports and such manner of thinking brings along the welcoming of all kinds of wrong actions as ordinary ones on the path leading towards success.

Simon (2004) states that the reflections of sports not only increase internal attention but also brings one out of his/her own borders and that when it comes to questioning of the nature of fair play in sports, an understanding of justice in a wider social environment might help us. Godin (1994) specifies that the idea of winning at all costs would not accord with the spirit of fair play, while wishing to win is natural but it must be within a noble competitive frame. The impact of the structural and functional changes in sports on the inclinations toward and behaviors about fair play must be presented by studying in different scopes and dimensions.

In the branches of football and futsal, the factors like the rules, playfield, number of the sportspeople and supporters, and structural and cultural differences may affect the fair play understanding of sportspeople. It is contemplated that the conduct of the studies regarding fair play in different scopes and dimensions is a requirement for the domination of a universal understanding of fair play in all branches of sports without dependence on any structural and functional difference..

## **METHOD**

### **The Population and the Sample**

The study group was constituted by the 264 high school sportspeople, being 140 involved with futsal, 124 with football, performing sports as amateurs, and studying in the provinces of Konya, Bursa, Karaman, Niğde, Izmir, and Istanbul.

## Data Collection Tool

The Fair Play Scale in Physical Education and Sport, developed by Hassandra et al. (2002) and adapted to Turkish by Mirzaoglu [2015] was used to collect data. The scale has four subscales including 15 items. The scale consists of the factors of respect for teammates, cheating, respect for conventions, and sportsperson ship. The scale is the Likert type (1=Never, 2=Rarely, 3=Sometimes, 4=Often, 5=Always).

## Data Analysis

The descriptive analysis of demographic variables and exploratory factor analysis for validity were used; Cronbach's alpha coefficient was calculated for reliability. The relationships were determined by using correlation analysis, and independent t-test was used for comparison between groups. (Independent samples t test, One-Way Anova and Turkey HSD)

## FINDINGS

Table 1. Fair-Play Behavioral Changes in Line with the Branch Factor

Branch	n	Respect for Teammates		Respect for Conventions		Undeserved Winning		Cheating	
		x	Ss	x	Ss	x	Ss	x	Ss
Futsal	140	3,69	0,69	3,71	0,62	2,30	0,59	2,33	0,70
Football	124	3,54	0,57	3,56	0,61	2,61	0,45	2,45	0,59
Total	264	3,62	0,64	3,64	0,62	2,44	0,55	2,39	0,65
<b>p</b>		,063		,046*		,000*		,154	

\* Significant difference between groups (p<0.05).

As can be seen in Table 1, no statistical change was observed among the football and futsal players in terms of respect for teammates and cheating category. It was determined that the futsal players' values of respect for conventions ( $3,71 \pm 0,62$ ) are statistically higher than those of the football players ( $3,56 \pm 0,61$ ) (p<0.05). In the case of undeserved winning category, the average value of the football players ( $2,61 \pm 0,45$ ) was found to be higher than the average value belonging to the futsal players ( $2,30 \pm 0,59$ ) and such change was identified as statistically significant as well (p<0.05).

Table 2. Fair-Play Behavioral Changes in Line with the Gender Factor

Gender	n	Respect for Teammates		Respect for Conventions		Undeserved Winning		Cheating	
		x	Ss	x	Ss	x	Ss	x	Ss
Female	105	3,76	0,60	3,78	0,57	2,38	0,49	2,28	0,61
Male	159	3,52	0,65	3,55	0,63	2,49	0,58	2,46	0,67
<b>p</b>		,002*		,003*		,096		,032*	
Female Futsal Player	54	4,01	0,53	4,00	0,51	2,19	0,48	2,31	0,63
Female Football Player	51	3,50	0,57	3,54	0,54	2,57	0,43	2,26	0,58
<b>p</b>		,000*		,001*		,000*		,450	
Male Futsal Player	86	3,48	0,71	3,53	0,62	2,36	0,64	2,35	0,74
Male Football Player	73	3,57	0,58	3,57	0,66	2,63	0,47	2,58	0,56
<b>p</b>		,421		,719		,003*		,027*	

\* Significant difference between groups (p<0.05).

As appears in Table 2, no change is encountered in the undeserved winning category between females and males in the entire group, while it was determined that female sportspeople's average values of respect for teammates ( $3,76 \pm 0,60$ ) and respect for conventions ( $3,78 \pm 0,57$ ) were statistically higher than those values of respect for teammates ( $3,52 \pm 0,65$ ) and respect for conventions ( $3,55 \pm 0,63$ ) of male ones ( $p < 0,05$ ). In the case of the cheating category, the male sportspeople's average value ( $2,46 \pm 0,67$ ) was found to be higher than the female sportspeople's average value ( $2,28 \pm 0,61$ ) and such difference was determined to be statistically significant ( $p < 0,05$ ).

While no difference was encountered in the cheating category of female futsal players and female football players, it was determined that the average values of female futsal players for respect for teammates ( $4,01 \pm 0,53$ ) and respect for conventions ( $4,00 \pm 0,51$ ) were statistically higher than the female football players' average values of respect for teammates ( $3,50 \pm 0,57$ ) and respect for conventions ( $3,54 \pm 0,54$ ) ( $p < 0,05$ ). In the case of undeserved winning category, the value of the female football players ( $2,57 \pm 0,43$ ) was found to be statistically higher than the value ( $2,19 \pm 0,48$ ) of the female futsal players ( $p < 0,05$ ).

No change in a statistical sense takes place in the respect for teammates and respect for conventions categories between the male football and futsal players, while it was determined that the undeserved winning ( $2,63 \pm 0,47$ ) and cheating ( $2,58 \pm 0,56$ ) averages of the male footballers were higher than the undeserved winning ( $2,36 \pm 0,64$ ) and cheating ( $2,35 \pm 0,74$ ) average values of the male futsal players ( $p < 0,05$ ).

Table 3. Fair-Play Behavioral Changes in Line with the Age Factor

Age	n	Respect for Teammates		Respect for Conventions		Undeserved Winning		Cheating	
		x	Ss	x	Ss	x	Ss	x	Ss
13-14 years	146	3,60	0,66	3,63	0,62	2,46	0,52	2,42	0,63
15-16 years	103	3,64	0,62	3,68	0,60	2,44	0,58	2,36	0,69
17 year and above	15	3,60	0,63	3,50	0,70	2,30	0,61	2,25	0,51
<b>p</b>			,915		,548		,574		,531

As it is seen in Table 3, no statistical difference was observed in line with the fair play behaviors of the sportspeople in view of the age factor.

Table 4. Fair-Play Behavioral Changes in Line with the Sportive Background Factor

Sports Period in Years	n	Respect for Teammates		Respect for Conventions		Undeserved Winning		Cheating	
		x	Ss	x	Ss	x	Ss	x	Ss
1-3 years	126	3,69	0,66	3,70	0,60	2,43	0,57	2,43	0,67
4-6 years	118	3,55	0,62	3,59	0,63	2,46	0,52	2,36	0,64
7 years and above	20	3,53	0,62	3,53	0,67	2,39	0,58	2,32	0,63
<b>p</b>			,175		,278		,831		,626

As can be understood from Table 4, no statistical difference was observed in the fair play behaviors of the sportspeople for the background of them doing sports.

## DISCUSSION AND CONCLUSION

No change was observed in the category of respect for teammates and cheating among the football and futsal sportspeople. This result shows that the sportspeople engaged in both branches of sports respect their teammates and are unwilling to win competitions by

cheating. It was determined that the average value of the category of respect for conventions of the futsal players is higher than that of the football players and that the averages of their category of undeserved winning is statistically low ( $p < 0.05$ ; table 1). Each branch of sports has its own unique properties and that specific structure may affect the direction and category of the studies conducted and be the reason for such variability. In a study, Kalkan (2017) specifies that fair play behaviors might vary in line with the branches of sports. Gürpınar and Kurşun (2013) mention the fact that fair play is taken less seriously in the contact sports than the non-contact sports. Miller and Jarman (1988) stress that the team sports like basketball have less sportsperson ship properties compared to the individual sports like swimming and that basketball players care about fair play to a lesser extent than the volleyball players. Bozdemir (2017) reports a significant positive relation between the fair play behaviors and empathy skills of the students playing basketball, in a sportive environment. While football and futsal look similar characteristically, they differ in terms of the properties of the playfields and the specific nature of the rules of games. Sezen (2003) states that as long as the importance of the sportive matches increases, the formal and informal understanding of ethics loses its importance and that deliberately-made mistakes violating rules have started to be interwoven into football. It is possible to encounter studies in the literature, regarding the fact that footballers have lower fair play score averages than other branches (Teke, 2018; Yıldiran, & Sezen, 2006). The findings of our study concerning the football players and futsal players in the case of undeserved winning appear to be similar to those studies. It can be said that such condition can arise from the fact that a football field is larger and its alternatives are more and from the unique nature of the respective sports branch. Possession of a statistically higher average value by futsal players than footballers in terms of the category of respect to teammates and conventions is considered due to the specific structure of the indoor sports and their characteristics as well as the obligations of exhibiting selective behavior in the environments that are narrower and more in sight.

In the literature, studies asserting that impact of gender on the fair play behaviors is found and that females have more positive values than males, exhibiting higher-level of fair play and sportsperson ship behavior, can be encountered (Yapan, 1992; Coulomb-Cabagno, & Rasclé, 2006; Papageorgiou, 2008; Shields et al., 2007; Satcher, 2006; Tsai, & Fung 2005; Koç, 2013; Teke, 2018; Esentürk et al., 2015; Efe, & Yıldiran, 2012). It appears in our study that the changes in the averages of the female sportspeople in the categories of respect to teammates and conventions and cheating, as compared to the male sportspeople, are similar to those studies. It is also possible to see studies reporting no difference between males and females (Miller et al., 2004; Shileds et al., 2007). In this study, no change between males and females was observed in the undeserved winning category, while Zorba (2018) states that males are more prone to undeserved winning behavior than females. It is contemplated that the reason for such changes is the sociocultural structure as well as the variables connected with the population in the study area and properties of the study group. Gender roles are shaped in line with social and cultural structure. It can be said that the roles and statuses of males as the head of the family earning its livelihood and security and the motherly nature of women ensuring equilibrium for the family and housework depend on unwritten sociological norms. It is observed that in the Turkish society, the ethical and belief-oriented values of children are shaped mainly by the impressions from the mother and that the father mainly has a regulatory and controlling impact.

Fair play behaviors might be shaped and they exhibit different tendencies through the impact of numerous environmental and personal factors. Teke (2018) provides that those

with lower ages have more fair-play behaviors than older ones. Kotan (2004) reports in a study that the fair play averages of the age group of 13-17 are statistically higher than the other age groups. In this study, no statistical change was encountered in the fair play behaviors of the sportspeople in view of their ages. The findings of Teke (2018) and Kotan (2004) and those of our study are supportive of each other. Such condition is considered dependent upon the study group, sociocultural and psychological disposition as well technological developments.

Sports are a culture and the best gift that can be conveyed to the subsequent generations is the habit of performing sports in a regular and scheduled manner. According to Erdemli's emphasis (2006), sports are a phenomenon that requires body, intellect, intelligence, will, emotion, self-control system, specific ethical concern, and life attitude are to be working hand-in-hand and that, hence, a sportsperson is not a person endeavoring only for sportive success; he/she strives to present ethical and aesthetic values in addition to the struggle oriented to sportive success. It is the basic principle of the ethics of sports that sportspeople adopt the universal ethical values and reflect them in their actions in the sports competitions (Charles et al., 1999). Doğal (2007) expresses that fair play is an international call symbolizing a humanly uprising against ethical warps and corruptions encountered particularly in performance and competitive sports. Aripınar and Donuk (2011) mention that fair play accommodate the demonstration of behaviors that are essentially self-devoted and far from the sense of self, toward the competitor and surrounding people, without considering the respective person's own life, future, family, and interest.

Confucius has construed the wisdom of living humanly in the most beautiful way by saying, "If you govern by regulations and keep them in order by punishment, the people will avoid trouble but have no sense of shame. If you govern them by moral influence, and keep them in order by a code of manners, they will have a sense of shame and will come to you of their own accord," (Yıldırım, 2005; Yatkın, 2015). Obuz (2009) states that while sports and unethical behaviors seem to be inversely related with each other, the fact that sports are becoming more and more professional, their material gains are increasing, and accordingly, the significant values constituting the universal spirit of sports are becoming less important, has increased the significance of the studies oriented to ethics in sports. Such condition is in the form of an evidence of the fact that, in addition to the football and futsal players, all the persons, institutions, and factors involved with that sports branch have impact on the concept of fair play.

Barbeo-Alvarez et al. (2008) specify that 13,7% of the distance traveled in a futsal game contains high-intensity conditions and 8,2% fast sprint-type conditions. Sportspeople slog a lot on choosing the accurate alternatives of movement carrying toward the target in short timeframes. However, it appears in our study that the futsal sportspeople have more sportspeople like and positive fair play scores than footballers. Gastin (2001) mentions that in the sports like futsal and handball performed indoors, in a substantial part of the activities with high level of intensity, the muscular energy is created by anaerobic glycolysis. In consideration of the fact that the brain cells need oxygen in making healthy decisions, such condition becomes more and more difficult in the case futsal where an anaerobic energy system is needed. When sportspeople are aware of their own psychological and physical condition, their control of their emotions and behaviors will be easier. Lima et al (2005) state that in indoor sports, possession of knowledge about their own anaerobic strength and capacities by sportspeople for evaluating their exercise and contest performances is

important. Football is defined in the sports literature as a sports branch that is important in terms of determining the anaerobic performance (Bangsbo, 1996; Mohr et al., 2003; Weston et al., 2007). It is known that the movements performed differently from each other and in irregular intervals in football affect numerous properties of the sportspeople, such as aerobic, anaerobic, strength, power, coordination, and speed (Açıkada et al., 1996). In futsal, the categories of the playfield and the number of the players make it mandatory for the futsal players to become engaged in the game more and more than footballers (Katis, & Kellis 2009). Such differences demonstrate that the dominant energy systems used are also different, in addition to the differentiation of futsal and football merely through the playfield and rules of performing them. In our study, the reason for the possession of lower fair play behavior averages by football players than futsal players can be considered as the size of the playfield, higher number of the football players along with the higher number of alternatives, and accommodation of a heterogeneous social structure by the players. Football must be a type of social structure design, which is regulated with rules, and in which all kinds of score would bring along a pacifistic result (Can, & Can, 2002). Loland (2002) mentions that the concept of fair play is used in relation with the demonstration of generosity in a game and exhibition of temperate behaviors in the case of both success and failure and that such responsibilities apply to all participants of the sports, such as the contestants, families, coaches, executives, leaders, and supporters. Unless and until the awareness and understanding of fair play are embedded into the educational system and sports culture, rules, directives, punishments, and sanctions will remain lack of quality and be understood only quantitatively. Fair play must be perceived as a lifestyle that is much beyond behaviors and internalized as a behavioral pattern inured by societies.

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