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Effects of tow protocol cold water immersion on the post match recovery and physical performance in youth handball players

Belkadi ADEL, Mime MOKHTAR, Benchehida ABDELKADER, Sebbane MOHAMED, Benbernou OTHMAN
Institute of physical education and sports-University of Mostaganem , ALGERIA
Email: adel.belkadi@univ-mosta.dz

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Abstract

The purpose of this study is to compare two cold water immersion (CWI) protocols, continuous and fractionated, to optimize the recovery of Handball players after on recovery from exercise resulting in exercise-induced muscle damage.
Ten male Handball players (age: 15 ± 1.4 years, mass index: 67.2 ± 5.1 kg, height: 176.6 ± 7.30) voluntarily participated in the study. After three 90-minute training sessions (heart rate 160 ± 15.81, 156 ± 5.53 and 156 ± 12.24 bpm) per week, participants were divided into 03 groups. The first experimental group (GE1) in continuous immersion (CWIC) of (12 minutes, 12± 0.4 ° C), a second experimental group (GE2) in fractional immersion (CWIF) of (4 x 2 min at 12 ± 0.4 ° C + 1 min out of water) and a control group (GC) in passive recovery. Body mass indices (BMI), countermovement jump and muscle pain were measured. The results concerning the percentage differences in the variation of the CMJ occurred respectively at 24h ($Z = 12.62$, $p = 0.004$) and 48h ($Z = 16.22$, $p < 0.001$) compared to the control group. In addition, the results for muscle volume did not report any significant interaction ($F(5.64) = 3.42$, $p = 0.078$). The results of both protocols showed their effectiveness in reducing pain intensity by 24 and 48 hours after intense training ($F(3.54) = 2.91$, $p = 0.016$, $p2 = 0.24$).
In conclusion, continuous and fractionated cold water immersion is beneficial for neuromuscular recovery 24 hours after intense exercise. The results also demonstrate a rapid recovery of handball players from their physical potential required in high level competitions.

Keywords: Cold water immersion recovery handball

Introduction

There is Cold water immersion (CWI) is a popular form of cry therapy and considered one of the most effective for reducing tissue temperature and sustained cooling after removal(Vieira et al., 2016) and speed up the recovery process (Calleja-González et al., 2016; G., Halson, & Dawson, 2013).

Different approaches to these methods (G. et al., 2013; Hohenauer, Taeymans, Baeyens, Clarys, & Clijsen, 2015), as well as the results (Christensen et al., 2016; Hohenauer et al., 2015; Leeder, Gissane, van Someren, Gregson, & Howatson, 2012; Sanchez-Ureña, Barrantes-Brais, Ureña-Bonilla, Calleja-González, & Ostojic, 2015) have shown a beneficial effect of these techniques in recovery. In contrast, other studies have reported no significant effect on recovery (Higgins, Greene, & Baker, 2017; Murray & Cardinale, 2015). More specifically, experimental studies indicate that CWI generates a series of physiological changes including, the reduction of core body temperature(Peiffer, Abbiss, Watson, Nosaka, & Laursen, 2009; Yanagisawa, Homma, Okuwaki, Shimao, & Takahashi, 2007), acute inflammation(Vaile, Gill, & Blazevich, 2007), muscle spasms, and pain sensations(Washington, Gibson, & Helme, 2000) , localized edema (Vaile et al., 2007), as well as symptoms related to delayed onset muscle pain(George P. Elias, Wyckelsma, Varley, McKenna, & Aughey, 2013a; Montgomery et al., 2008; Greg J. Rowsell, Coutts, Reaburn, & Hill-Haas, 2009; Stanley, Buchheit, & Peake, 2012).

The perception of fatigue and levels of creatine phosphokinase (CPK), ,another study to realize by(Peiffer et al., 2009), whose aim was to examine the effects of 20-minute (14 ° C) imersion on neuromuscular function, recommendations were made to suggest that temperature and duration Optimal CWI for performance-based exercise recovery and management of exercise-induced muscle damage are at 10-15 ° C and 5-15 min (G. et al., 2013; Machado et al., 2016).

Most of these studies compared CWI under control or passive recovery, using continuous dips(Kwiecien, McHugh, & Howatson, 2018; Machado et al., 2016; Stanley et al., 2012; Stevens et al., 2017). On the other hand, CWI has also been used through the fractional method. The results concluded that this form of immersion has no effect on the athlete's recovery and performance(Johnston, Gabbett, & Jenkins, 2015; G.J. Rowsell, Coutts, Reaburn, & Hill-Haas, 2010), In addition, another study(A. Ascensão et al., 2011) reports positive effects on recovery using CWI intermittently. These contradictory results make necessary the deeper exploration of these approaches to be able to bring objective and weak answers.

Moreover, despite the wide dissemination and use of this recovery technique (G. et al., 2013), to our humble knowledge, only one study has explored the use of this technique in Handball players (Sanchez-Ureña et al., 2015). The protocol to use was that of the split CWI. The results showed a positive effect on handball recovery. However, no study has explored the effects of the two methods on recovery among sportsmen and women in team sports.

The advanced physiological mechanisms when using fractional immersions show a pumping effect caused by vasoconstriction and vasodilatation, which occur due to temperature change. This pumping effect stimulates the transport of waste and nutrients into the body (Higgins et al., 2017). In contrast, continuous immersions are advocated as a result of increased exposure to cold and the effects of vasoconstriction and hydrostatic pressure which together facilitate processes such as, rapidly decreasing body temperature, and acceleration of processes associated with decreased pain (Ihsan, Watson, & Abbiss, 2016)

Literature Review

Through this literature review, we assume that the response of the recovery indicators varies significantly depending on the type of CWI recovery protocol. Therefore, the main objective of this study is to compare the effects of two recovery protocols by CWI after a state of intense fatigue in young Handball players.

Method

Participants

The subjects who voluntarily participated in this experiment were Hand Ball players between 14 and 15 years of age (15±1.4 years of age) and a body weight of 67.2 ± 5.1 kg, with a height of 176 ± 3.02 cm. Their sporting experience was (5±2 years) on average. They trained three times a week. Each training session lasts 1 hour and a half. In addition, the entire team regularly participated in one competition once a week, for a total of 12 competitions during the pre-competitive period (Fig. 1). The experimental procedures, the associated risks and benefits were explained to each player through a consent form signed by the parents.

Subjects were homogeneously distributed A balanced design was applied in which subjects in Experimental Group 1 received the abstract (CWI.C), subjects in Experimental Group 2 received the abstract (CWIF) and subjects in the Control Group received the abstract (GC). This population was passively recovered, as shown in Figure 1, and this study was conducted prior to the competition period.

The study was designed in accordance with the recommendations for clinical research in the Declaration of Helsinki (General Assembly of the World Medical Association, 2014). The protocol was reviewed and approved by a committee of experts from the Institute of Physical Education and Sport of the University of Mostaganem (Algeria).

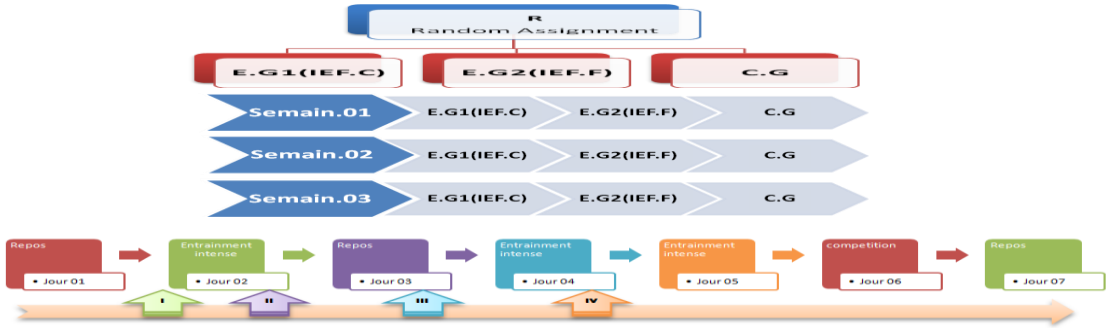

Figure 1. Training protocol representation of three groups Cold water immersion.

Materials and Methods

Body composition and anthropometric measurements

The mass index was determined using a model (Tanita BC-1500, Japan 2015) with an accuracy of ± 0.1 kg. The height was measured using a wall stadiometer. The Percentage of fat was calculated using a skin fold caliper, data from 7 sites (chest, medial-axillary subscapular, triceps, suprailiac, abdomen and thigh)(Hoppe, Brochhagen, Baumgart, Bauer, & Freiwald, 2017; Karan et al., 2017) were evaluated. All measurements were made with an anthropometric measurement calculation tool (Houcine, Ahmed, & Saddek, 2014). The water

temperature was monitored and recorded using a DeltaTrak digital thermometer, model 12207 (Lima, Peru) at 1-minute intervals.

The Performance and Recovery Indicators

Perceived pain

The visual analog scale (VAS 0-10) was used to measure the pain perceived by the subjects. In this case, zero (0) indicates no pain and ten (10) indicate extreme pain. To determine the level of pain, subjects were asked to perform the 90-degree chase test and indicate the perceived muscle pain in the thigh. This method has already been used in pain perception after intense exercise (Argus et al., 2017; A. Ascensão et al., 2011; George P. Elias et al., 2013a; G.J. Rowsell et al., 2010).

The circumference and volume of the thigh were measured using an anthropometric tape measure. Circumference was measured at two locations on the leg, under the buttock and above the knee. A marker was used to ensure the reliability of the re-test (before the recovery protocol and at 24 and 48 hours respectively after recovery). These data allow the calculation of thigh volume, which is an indicator of inflammation and muscle damage (Peiffer et al., 2009). The formula updated by(Hammami et al., 2018; Katch & Katch, 1974; Mudie, Gupta, Green, Hobara, & Clothier, 2017; Tidhar et al., 2015) was used to calculate muscle volume as Follows:

Vol= h/12 x Π x [C12 + C22+ (C1) x (C2)]

Note: h =high thigh; Π =3,14; C1=Sub-gluteal circumference; C2= above knee circumference

The counter-movement jump test (CMJ)

The measurements were made using a force platform. Three tests were performed with a recovery time of 2 minutes, and the best jump was recorded for each measurement episode. The jump countermovement test (CMJ) has an intra-class correlation reliability (CIC=0.98)(Markovic, Dizdar, Jukic, & Cardinale, 2004). All variables were measured before and immediately after the recovery (from 0 hours) and at 24 and 48 hours after cold water immersion.

Procedure

The anthropometric characteristics of the subjects in our sample were measured two days before the protocol (Houcine et al., 2014). Reference measurements for the dependent variables were controlled two hours before the experimental protocol was applied. Recovery and variable performance were measured in the following order: muscle pain perception, muscle volume and circumference and counter movement jump test. In addition, participants were instructed to abstain from caffeine for 24 hours, in order to avoid intense exercise for 8 hours before the test and to maintain their normal diet before the two days of the test(Cherara, Belkadi, Asli, & Benbernou, 2019).

The Fatigue Protocol

Subjects underwent three 90-minute sessions. The objective was to focus on training technical and tactical skills (average HR: 160 ± 15.81, 156 ± 5.53 and 156 ± 12.24 bpm, respectively). The structure of the training sessions was similar. It was composed of 10 minutes of activity on technical and tactical skills, 5 minutes of active stretching and 75 minutes of training divided into 7-8- 10 minutes of tasks.

Participants followed the three study conditions: the CWI.C protocol (12 min by immersion with temperature at 12 ± 0.4 °C), the CWI.F protocol (4 times x 2 min immersion with temperature at 12 ± 0.4 °C +1 min out of water at room temperature) and the control group (passive recovery, 12 minutes sitting). This protocol was chosen because the threshold temperature should be between 5 and -20°C and immersion time between 5 and 15 minutes, These thresholds were recommended by(G. et al., 2013; Machado et al., 2016) who noted that protocols with temperatures ranging from 11 °C to 15 °C for 10 to 15 minutes has a positive effect only on protocols with a temperature between 5 °C and 10 °C with an immersion time of less than 10 minutes.

The dives were carried out in a 5 x 2.4 metre inflatable pool. Ice was used to lower the water temperature. The subjects were seated during the immersion, with their legs fully extended. The dives were carried out immediately after the training session. The dependent variables were measured again at 0 hours and immediately after the recovery protocol and again 24 and 48 hours after the session, in the same order as the reference measurements.

The statistics

Descriptive statistics (mean and standard deviation) were calculated for all variables. The normality of the data was assessed using the Shapiro-Wilks test. The results indicated normality for all variables except muscle volume and MJF performance, which were analyzed in terms of percentage change from the previous value. Since the values of these two variables were not normally distributed, another non-parametric statistical analysis was performed, using the Kruskal-Wallis H test. The other variables were analyzed with their own units of measurement. The Levene test was used to analyze the homogeneity of variances. Repeatedly measured ANOVAs were used to compare post-exercise muscle pain at 0, 24 and 48 hours after exercise. Bonferroni post hoc analysis was used.

Results

Table 1. The mean scores of experimental and control groups are nearly the same, indicating equality of two groups regarding their knowledge of targeted structures.

variables		PMP basline	0H	A:24H	A:48	TMV(mm):	0H	A:24H	A:48	CMJ (cm):Aft	0H	A:24H	A:48
CWI.C	**mean**	4,32	2,31	2,52	2,26	4726,03	4663,6	4520,9	4566,9	44,2	43,61	43,03	43,94
	SD	1,63	1,17	1,61	1,2	850,2	843,8	840,5	983,5	5,6	4,89	4,8	5,06
CWI.F	**mean**	4,86	3,24	2,73	2,55	4735,8	4662,9	4782,1	4703,9	44,7	43,9	43,56	44,64
	SD	1,52	1,56	1,48	1,06	1180,5	1213,4	1122,8	1248,1	4,63	4,94	4,06	4,97
G.C	**mean**	4,63	5,81	5,02	4,53	5065,9	4934	4894,3	4886	46,76	46,93	45,6	43,3
	SD	1,67	1,59	1,54	0,83	1084,6	1184,2	1102,9	1129,5	7,6	6,95	7,2	7,49

Before: before training

G.E 1 (CWI.C): Experimental group with the Continuous Cold Water Immersion Protocol.

G.E 2 (CWI.F): Experimental group with the Fractionated Cold Water Immersion Protocol.

G C: Group control.

Table 1 above presents descriptive data for the variables associated with recovery for each of the experimental conditions (CWI C, CWI F, and GC) at different measurement times. Statistically significant differences do not appear for pain perception and counter-jump movement ($p<.05$); details are presented in (Figure 2).

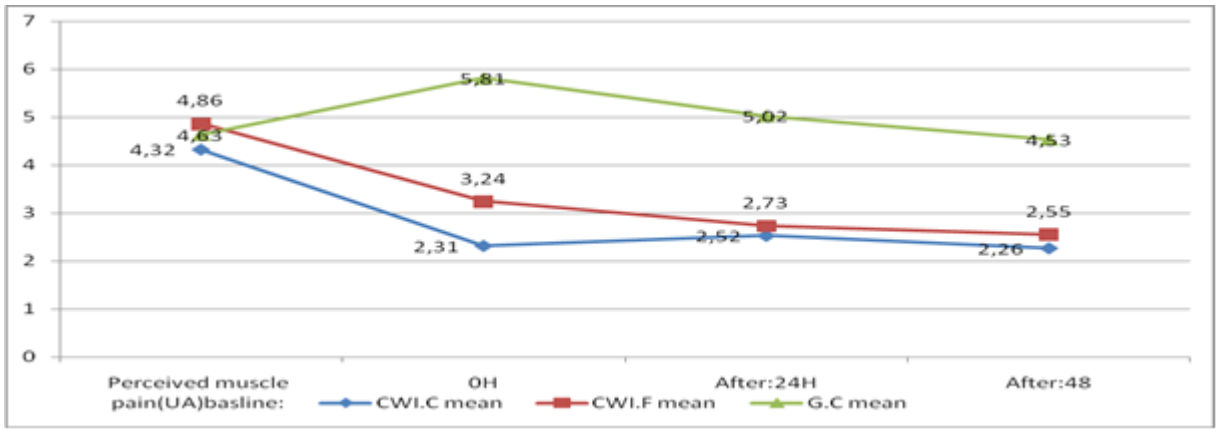

Figure 2. Shows the perception of muscle pain and its tendency between the 3 groups.

Figure 2 above shows a significant interaction (F (3.92) = 3.62, p = 3.16, p =.24) with the two immersion protocols (CWI.C CWI.F) and significantly reducing pain perception compared to GC (passive recovery) perceptions in measurements immediately after immersion (CWI.C Vs CG, p<.001) (CWI.F Vs CG, p =.009), at 24 hours (CWI.C Vs CG, p =.021) (CWI.F Vs CG, p =.024) and 48 hours after immersion (CWI.C Vs CG, p=.017) (CWI.F Vs CG, p=.032).

Statistically significant differences were not reported when comparing the reference value with the post-immersion measurements. In addition, statistically significant differences were not reported (p< 0.05) at any of the measurement times when comparing the continuous immersion group with the split immersion group. Change CMY test CMY 0% (CWI.F *1* * inverted values) CWI.C 2 Pre-Post Exec. 24 hours 48 hours of significant difference with respect to the control group (p<0.05), CG: control group.

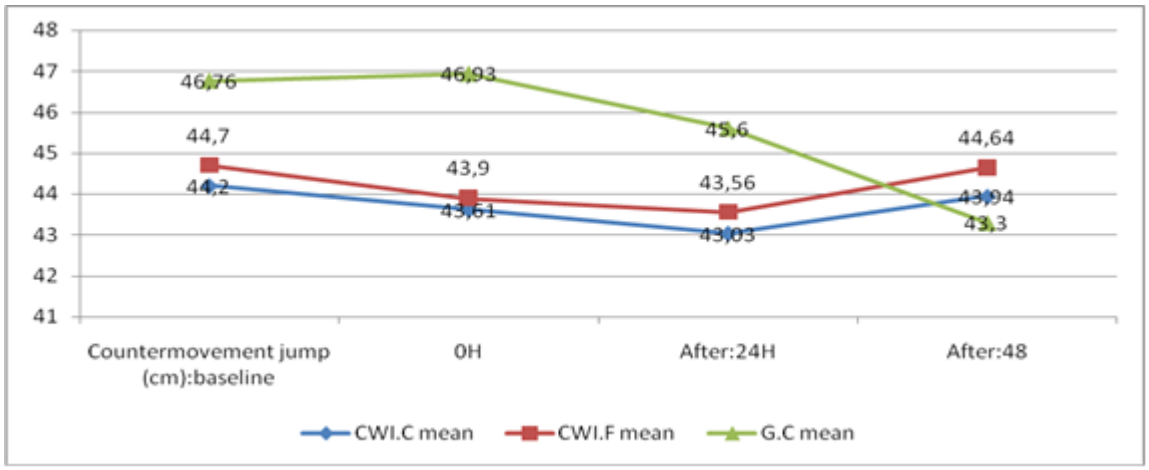

Figure 3. Shows the counter movement jump between the 3 groups CMJ (%)

Figure 3 above shows statistically significant differences in jump ability by analysis using the MJF test at 24 hours (Z= 12.62, p =0.004 when CWI.C; CWI.F comparison and with GC (passive recovery) (CWI.C vs CG, p=.006) (CWI.F vs GC, p=0.029) and 48 hours after training (Z= 16.22, p<0.001), (CWI.C Vs. CG, p<0.001) (CWI.F vs CG, p=0.017). In addition, no statistically significant differences (p<0.05) were reported when comparing the two groups that were continuously immersed with the fractionated group. Concerning muscle volume, the analysis did not show any significant interaction (F (3.54) = 2.42, p = 0.058).

Discussion and Conclusion

The main purpose behind conducting this study was to examine the effect of The purpose of this study was to explore the effects of two cold water immersion protocols: the CWI C protocol (12 min immersion at 12 ± 0.4°C) and the CWI F protocol (4 times x 2 min immersion at 12 ± 0.4°C + 1 min out of water) after intense exercise on recovery. The main finding of this study is that both immersion protocols are effective in reducing signs of fatigue and delaying the onset of muscle pain. The analyses also showed positive effects on the recovery of jump capacity measured using the CMJ jump test.

In the case of (Simmons, Cooper, Research, & Muse, 2018), continuous immersion in cold water as part of the 12-minute protocol at 12 ± 0.4°, the latter proved effective in reducing muscle pain immediately after immersion and at 24 and 48 hours after intense exercise. These results are not consistent with the work of (Glasgow, Ferris, & Bleakley, 2014; Stevens et al., 2017) but with those reported by (Delextrat, Calleja-González, Hippocrate, & Clarke, 2013; Greg J. Rowsell et al., 2009; Stanley et al., 2012) which indicate that cold water reduces the functional and physiological signs associated with muscle pain (Lauber, Hickle, Jargstorf, & West, 2017) and confirm that the use of this protocol for CMJ is effective. These results further reinforce protocols with temperatures ranging from 11°C to 15°C, with an immersion time of 10 to 15 minutes that have a positive effect (Lauber et al., 2017)and that MJF techniques appear to be more effective in accelerating performance restoration in different sports by using immersions 5 to 15 minutes at a water temperature of 5-20°C (Versey, Halson, & Dawson, 2013).

In addition, in fractional dives under the 4 x 2 min immersion protocol with a water temperature of 12 ± 0.4 °C + 1 min above water at room temperature, the results obtained disagree with those reported by (A. F. Machado et al., 2017). When used, the 3 x 1 min protocol of immersion at 5 ± 1 °C, with 1 min out of water, does not report positive effects on DOMS on a comparison of the experimental group with the control group.

Our results are consistent with those reported by (A. Ascensão et al., 2011)who used a 5 min x 1 protocol (10 ± 0.5°C + 1 min out of water) at room temperature and reported positive effects of intermittent immersion. These concordances with research results were reported by (António Ascensão, Leite, Rebelo, Magalhães, & Magalhães, 2011)who found significant differences both immediately after the immersion protocol and 24 hours after training compared to the control group.

Similarly, (Sánchez-Ureña et al., 2017) reported significant differences at 24 hours after training between the fractionated immersion group and the control group, using the 2 x 5-minute immersion protocol with water temperature at 10°C and 2.5 minutes out of water at 21°C ± 0.5. This study is the first to report these differences both immediately at 24 and 48 hours after exercise, indicating that the protocol used was characterized by the reversal of the previous protocol.

These physiological results demonstrate that the physiological and functional symptoms associated with Post-Effort Muscle Pain (EPMP) associated with the reduction of acute inflammation (Vaile et al., 2007), as well as the presence of symptoms in the muscle and the effect of hydrostat(George P. Elias et al., 2013a; Washington et al., 2000)ic pressure (Leeder et al., 2012) have accelerated recovery. Another mechanism could be related to cold exposure that has shown the potential for activation of the transient 8-melastatin receptor (Wang & Siemens, 2015) which is related to pain and temperature sensation (Knowlton et al., 2013; Proudfoot et al., 2006). Once activated, TRPM8 has an analgesic effect given by the action of

the interphas neurons the inhibitory interphase (Knowlton et al., 2013) and which improves the perception of DMPE and increases the feeling of recovery (Ihsan et al., 2016).

It is also important to note that exposure to cold causes changes in the neurotransmitters of dopamine and serotonin, which are responsible for regulating mood, sleep, emotions, motivation, pain perception and fatigue. Cold water immersion may help to reduce central nervous system fatigue (Ihsan et al., 2016) and suggests that an increase in serotonin/dopamine ratio is associated with fatigue and the rapid onset of fatigue, while a low serotonin/dopamine ratio promotes better performance through maintenance and physiological activation.

In addition, the jump capacity measured by MJF through the two immersion protocols was found to be more effective than passive recovery. This result is consistent with the studies of (Stanley et al., 2012). Indeed, using a continuous immersion protocol, differences were also observed between this group and the control group in terms of effectiveness using the Squat Jump test 48 hours and 72 hours after exercise but not at 24 hours after exercise the exercise between the two groups.

As with cold water immersion, (António Ascensão et al., 2011), the use of a five-minute protocol after the end of the competition to 2 split dives of the lower limbs (to the iliac crest) in a cold water bath (11°C), separated by 2 min in ambient air (sitting, ambient temperature 20°C) resulted in statistically significant differences 24 hours after the CMJ test immersion. These results are in line with the conclusions of our study.

In addition, the results for thigh volume coincide with those reported by (Zagatto et al., 2016)who also observed that continuous immersion did not significantly decrease edema evaluated at 24, 48 and 72 hours after training. Similar conclusions have been reported by (Wilcock, Cronin, & Hing, 2006)showing that the use of a continuous immersion protocol did not lead to a significant decrease in muscle edema in the immediate posterior measurement. (Wilcock et al., 2006) also indicated that the thigh circumference (edema) which is an indicator varies less throughout cold water training in the continuous immersion and control groups. The results are identical to the results of this study. One possible explanation is that the load to which the players were exposed did not cause sufficient muscle damage to generate oedema. The results obtained in this study allow sport professionals, such as coaches and trainers (Belkadi et al., 2015)to choose the best protocol for their athletes according to their preference, given the effectiveness of both protocols.

In the field of sports training and more particularly in the field of active recovery, more work is needed to compare different cold water immersion protocols, including the measurement of biochemical variables such as creatine phosphokinase (CPK) and lactate dehydrogenase (LDH) physiological myographic surfactants as well as other variables such as reaction time(Berria, Bachir, Eddine, & Adel, 2018), contraction and muscle relaxation time. In addition, it is necessary to test different split immersion protocols that take into account immersion times, in-water and out-water relationships and temperature differences to optimize the most appropriate protocol for the type of sport.

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Leisure Time Participation, Subjective Vitality and Life Quality of University Students[1]

Sonnur KÜÇÜK KILIÇ
Erzincan Binali Yıldırım University, Faculty of Education, Department of Physical Education and Sport, Erzincan, TURKEY
Email: sonnur.kucukkilic@erzincan.edu.tr

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Abstract

The aim of this research was to examine the leisure time participation, subjective vitality and life quality levels of university students according to some demographic variables and determine the relation between them. A sample of 317 (121 females and 196 males) students who studying at university provided responses. The mean age of the students was 21.42 ± 2.90. 'Subjective Vitality Scale' and 'World Health Organization Quality of Life Instrument (WHOQOLBREF)' were administered on the participants. Descriptive statistical methods, t-test, ANOVA and correlation analyses were used in the data analysis. Subjective vitality and life quality perceptions of the participants were at middle level. While the participants' life quality perceptions did not differ significantly according to gender, subjective vitality perceptions differed significantly. Subjective vitality and life quality perceptions of the participants differed significantly according to actively engage in sports, income, evaluation style of leisure time and participation frequency for recreational activities. In addition, middle and positive correlation was observed between subjective vitality and life quality. The results of the research showed that individuals who engaged in sport actively, had high income and participated in leisure time activities had a high subjective vitality and life quality perception. It had been determined that participation of sports, social and outdoor activities in leisure time had a positive effect on subjective vitality and life quality perceptions. In addition, as the subjective vitality of the participants increases, the level of life quality also increases.

Keywords: Subjective vitality, leisure time participation, life quality, university student

[1]The abstract of this study was presented as an oral presentation at the 2nd International Congress on Recreation and Sport Management (11-14 April 2019, Bodrum).

Introduction

Developments of science and technology not only reduce the need for people in production, but also lead to a decrease in the working time of individuals (Karaküçük, 2001). So, these developments in living conditions enable to people spending time for leisure activities increasingly (Kim et al. 2015; Ramazanoğlu et al. 2004). Similarly, besides the increase in leisure time, factors such as increase in education and income level and prolongation of life have led to the increase in demand for leisure activities (Mansuroğlu, 2002). The concept of leisure time is defined as the time in which an individual gets rid of all difficulties or connections for both himself/herself and others, can use them freely as he/she wishes (Bakır, 1990) and will engage in an activity of his/her own choice (Tezcan, 1994). In this context, it is stated that active participation in leisure activities, which constitute an important aspect of daily life (Heo and Lee, 2010), creates positive emotions on individuals (Caldwell et al. 1992; Murphy, 2003) and this situation contributes to the development of self-fulfilling and spiritually healthy young people (Passmore ve French, 2001). In addition, participation in leisure time activities reduces the level of depression and loneliness (Morgan and Bath, 1998; Warr et al. 2004), helps to cope with the challenges of aging (Steinkamp and Kelly, 1987), contributes to physical, social, psychological and cognitive health (Cheung et al. 2009; Shin and You, 2013), improves health and provides socialization (Drakou et al. 2008). On the other hand, studies have shown that participation in leisure activities is the most important determinant of life satisfaction (Riddick and Stewart, 1994) and is associated with increased happiness and life satisfaction (Menec, 2003; Ragheb and Tate, 1993).

On the other hand, it is stated that participation in leisure time activities has a positive effect on individuals' life quality as well as life satisfaction (Lloyd and Auld, 2002; Mannel, 2007). When these activities are well planned, they play an important role in improving of life quality socially and psychologically (Ashby et al. 1999) and it is one of the most important factors that contributes to the self-discovery, renewal and revelation of the individual (Aslan and Cansever, 2012). Research shows that participation in leisure time activities has effects that are characterized by direct improvements in a person's quality of life, often defined as increased mood (Hull, 1990), happiness, and pleasure (Csikszentmihalyi ve Le Fever, 1989). Similarly, the studies in the literature emphasize the role of leisure time contributing to the quality of life (Michalos, 2005; Wendel-Vos et al. 2004). The concept of quality of life, which was first used in the article ‘On the Quantity and Quality of Life’ published by Long in 1960 (Boylu and Paçacıoğlu, 2016), expresses how individuals perceive the positive and negative aspects of their lives subjectively (WHO, 1998) and includes both psychological and physical factors that affect the general perception of satisfaction in an individual's life (Diener, 1984; Diener et al. 1999). The quality of life defined as “individuals’ perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns” (WHO, 1993) is becoming a growing interest in finding and sustaining satisfaction, happiness and faith prospectively for individuals and communities in a rapidly changing world (Mercer, 1994). According to Seligman and Csikszentmihalyi (2000), positive individual traits, virtues such as subjective happiness, hope, optimism and courage, are very important to improve one's quality of life and avoid psychological problems.

Research shows that quality of life is associated with subjective vitality (Salama-Younes, 2011). The concept of subjective vitality, which is based on the theory of self-determination (Deci and Ryan, 2000), is defined as the energy felt by one's self (Ryan and Frederick, 1997). Subjective vitality is a complex and dynamic structure that is influenced by both physical and psychological factors (Ryan and Deci, 2001), which means that the person is full of energy,

enthusiastic, lively, cheerful, high-aroused and dynamic without fatigue, exhaustion or burnout (Fini et al. 2010; Ryan and Frederick, 1997). In this context, can be said that individuals with high levels of subjective vitality are more alert, more energetic and more committed to life (Bostic et al. 2000). Studies in the literature show that subjective vitality is positively related to well-being (Ryan and Frederick, 1997), life satisfaction (Salama-Younes, 2011) and subjective happiness (Akın, 2012), and negatively related to depressive symptoms and anxiety (Niemiec et al. 2006). So, can be said that subjective vitality refers to the assessment of people's quality of life (Diener et al. 2008; Pavot and Diener, 2004) and individuals who have a high level of subjective vitality perceive their lives as rewarding and satisfying, and experience their lives positively (Leontopoulou and Trilivia, 2012).

As a result of the literature review, studies were found in the literature that contextualised university students' subjective vitality and life satisfaction (Salama-Younes, 2011), subjective vitality and psychological well-being (Ryan and Frederick, 1997), leisure participation and life quality (Baştuğ et al. 2018; Peleias et al. 2017), leisure participation and psychological well-being (Karaca and Yerlisu Lapa, 2016; Liu and Yu, 2014; Molina-Garcia et al. 2011), leisure participation and life satisfaction (Huang and Carleton, 2003; Yaşartürk et al. 2017). However, in the literature review, there were no studies about university students' leisure time participation, subjective vitality and life quality perceptions. In this context, can be said that university students are exposed to many stresses due to many reasons such as change of residence, increased responsibility, adaptation to the university environment and heavy curricula. So these factors may affect their subjective vitality and life quality perceptions negatively. On the other hand, it is thought that participation in leisure time activities has a positive effect on these factors and plays an important role in increasing individuals' subjective vitality and life quality perceptions. Therefore, the aim of this research is to examine the leisure time participation, subjective vitality and life quality levels of university students according to some demographic variables and determine the relation between them.

Materials and Methods

The study was based on the ‘survey’ method which widely used in the descriptive research model (Ekiz, 2009). In this model, the individual or object is tried to be defined as it exists within its own conditions (Karasar, 2012). And ‘questionnaire’ was used as the data collection technique (Nachmias and Nachmias, 1996).

Participants

The study sample consists of 317 (121 females, 196 males) university students (Mage=21.42±2.90) who were studying at Erzincan Binali Yıldırım University in Erzincan, Turkey. Also convenience sampling method was used to determine the research group.

Instruments

Subjective Vitality Scale (SVS)

The Subjective Vitality Scale (SVS) was administered on the participants as data collection tool. The SVS was originally developed by Ryan and Frederick (1997) in order to measure level of subjective vitality was translated into Turkish by Uysal et al. (2014). The scale was consisted of 7 items and all items were measured by using a seven-point Likert scale (Strongly disagree, strongly agree). High scores obtained from the scale indicate that the individual's subjective vitality level is high. In this study, Cronbach Alpha reliability coefficient was measured as 0.84 for the scale.

World Health Organization Quality of Life Instrument (WHOQOL-BREF-TR)

Turkish version of the World Health Organization Quality of Life Instrument (WHOQOL-BREF-TR) was used to measure life quality perceptions of the students. It was translated into Turkish by Eser et al. (1999). The scale was consisted of 5 sub-factor and 26 items, and all items were measured by using a five-point Likert scale. In this study, physical health, psychological health, social relations and environment sub-factor of the scale were used. High score points to the high quality of life. In this study, Cronbach Alpha reliability coefficient was measured as 0.69 for *'Physical Health'*, 0.77 for *'Psychological Health'*, 0.54 for *'Social Relations'* and 0.72 for *'Environment'*.

Procedure

Data collection tool was administered to the participants following the getting necessary permissions in 2018-2019 Spring Semester. Required explanations were made about the purpose of the study and the detailed informations were given about the filling data collection tool in the guidelines. Application was based on voluntary basis. Questionnaire forms which were gathered by the researcher were controlled and filled out missing or wrong ones excluded from the study.

Data Analysis

The statistical analyses were carried out with SPSS 21 program. Descriptive statistics, t-test, one way ANOVA and Pearson Correlation were used in the data analysis. Skewness and Kurtosis values and results of Levene tests were examined and decided whether the data satisfied the prerequisites of parametric test or not (Büyüköztürk, 2012). And also Cronbach's alphas were calculated for the scales in order to evaluate their internal consistencies. In the study, the level of significance was determined as 0.05.

Findings

The mean and SD of the SVS scores of the university students who participated in this study was 4.67 and 1.27 respectively. WHOQOL-BREF-TR scores when analysed based on factors, findings indicated that the *'Physical Health'* (3.70) had highest average, while the *'Environment'* had lowest average (3.38). The Skewness and Kurtosis values showed that the data was distributed within the area of normalcy (Table 1).

Table 1. Descriptive Statistics for the SVS and WHOQOL-BREF-TR

	Items Number	M	SD	Skewness	Kurtosis	Min	Max
SVS	7	4.67	1.27	-0.17	-0.37	1.00	7.00
Physical Health	7	3.70	0.56	-0.11	-0.38	2.14	5.00
Psychological Health	6	3.54	0.66	-0.67	0.61	1.17	5.00
Social Relations	3	3.61	0.82	-0.26	-0.37	1.00	5.00
Environment	8	3.38	0.59	-0.09	-0.06	1.75	5.00

Results from the t-test indicated that there was a significant difference between gender and SVS scores ($t=2.84$, $p<0.05$). According to this result, male university students' average scores (4.83) were higher than the female university students' average scores (4.42). By contrast, there was no significant difference between gender and *Physical Health'* ($t=1.71$, $p>0.05$), *'Psychological Health'* ($t=0.20$, $p>=0.05$), *'Social Relations'* ($t=1.11$, $p>0.05$) and *'Environment'* ($t=0.79$, $p>0.05$) (Table 2).

Table 2. Results of t-test according to gender

	Female *(n=121)*		Male *(n=196)*			
	M	**SD**	**M**	**SD**	**t**	**p**
SVS	4.42	1.16	4.83	1.31	2.84	0.01
Physical Health	3.63	0.52	3.74	0.58	1.71	0.09
Psychological Health	3.53	0.58	3.55	0.71	0.20	0.85
Social Relations	3.67	0.78	3.57	0.85	1.11	0.27
Environment	3.41	0.56	3.36	0.60	0.79	0.43

Analyses showed that there was a significant difference between active involvement in sport and subjective vitality (t=3.16, p<0.01). According to this, participants who were involvement in sport actively had higher average scores (4.91) than the non-involvement participants (4.47). And also there was a significant difference between active involvement in sport and *'Physical Health'* (t=3.37, p<0.01) and *'Psychological Health'* (t=2.67, p<0.05) subscale scores. Students who active involvement in sport had higher *'Physical Health'* and *'Psychological Health'* subscale average scores.

Table 3. Results of t-test according to active involvement in sport

	Yes *(n=146)*		No *(n=171)*			
	M	**SD**	**M**	**SD**	**t**	**p**
SVS	4.91	1.28	4.47	1.22	3.16	0.00
Physical Health	3.81	0.56	3.60	0.54	3.37	0.00
Psychological Health	3.65	0.67	3.45	0.65	2.67	0.01
Social Relations	3.68	0.84	3.55	0.80	1.48	0.14
Environment	3.55	0.55	3.23	0.58	5.04	0.00

A significant difference was found between university students' SVS ($F_{(2,314)}$=5.85, p<0.01), *'Psychological Health'* ($F_{(2,314)}$=6.14, p<0.01), *'Social Relations'* ($F_{(2,314)}$=3.64, p<0.05) and *'Environment'* ($F_{(2,314)}$=15.15, p<0.01) scores depending on income level. In SVS, *'Psychological Health', 'Social Relations'* and *'Environment'*, the scores of the participants who had 1001 TL and more income level were higher than the others (Table 4).

Table 4. Results of ANOVA according to income level

	500 TL and less *(n=165)*		501-1000 TL *(n=89)*		1001 TL and more *(n=63)*				
	M	**SD**	**M**	**SD**	**M**	**SD**	**F**	**p**	**Significant Difference**
SVS	4.58	1.22	4.50	1.29	5.15	1.25	5.85	0.00	3>1, 3>2
Physical Health	3.67	0.59	3.66	0.58	3.82	0.42	1.88	0.16	-
Psychological	3.43	0.71	3.58	0.64	3.77	0.52	6.14	0.00	3>1
Social Relations	3.50	0.83	3.65	0.77	3.82	0.82	3.64	0.03	3>1
Environment	3.24	0.59	3.42	0.52	3.69	0.54	15.15	0.00	3>1, 3>2, 2>1

1: 500 TL and less, 2: 501-1000 TL, 3: 1001 TL and more

It was determined that the SVS (t=3.13, p<0.01), '*Physical Health'* (t=2.17, p<0.05) and *'Environment'* (t=2.76, p<0.05) scores of the students differed significantly according to the status of participation in sport activities in leisure time. On the other hand, SVS (t=2.44, p<0.05) and *'Psychological Health'* (t=2.75, p<0.05) scores of the students differed significantly according to the status of participation in social activities in leisure time.

According to these findings, it can be said that students who participate in sport activities in their leisure time had higher subjective vitality and perception of life quality related to physical health and environment. On the other hand, subjective vitality and life quality perceptions related to psychological health of students participating in social activities in their leisure time were found high (Table 5).

Table 5. Results of t-test according to evaluation style of leisure time (evaluation with sport and social activities)

	Sport Activities						**Social Activities**					
	Yes ***(n=174)***		**No** ***(n=143)***				**Yes** ***(n=145)***		**No** ***(n=172)***			
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**t**	**p**
SVS	4.87	1.25	4.43	1.24	3.13	0.00	4.86	1.33	4.51	1.20	2.44	0.02
Physical Health	3.76	0.56	3.62	0.55	2.17	0.03	3.74	0.52	3.65	0.59	1.44	0.15
Psychological	3.61	0.62	3.46	0.70	1.99	0.05	3.65	0.61	3.45	0.70	2.75	0.01
Social Relations	3.61	0.77	3.60	0.88	0.12	0.91	3.66	0.84	3.56	0.80	1.14	0.26
Environment	3.46	0.54	3.28	0.62	2.76	0.01	3.41	0.58	3.35	0.59	0.94	0.35

Analyses showed that the SVS ($t=2.15$, $p<0.05$) and '*Social Relations'* ($t=2.39$, $p<0.05$) scores of the students differed significantly according to the status of participation in outdoor activities in leisure time. On the other hand, there were no significant different between SVS ($t=1.28$, $p>0.05$), '*Physical Health'* ($t=0.26$, $p>0.05$), *'Psychological Health'* ($t=1.62$, $p>0.05$), '*Social Relations'* ($t=0.44$, $p>0.05$) and *'Environment'* ($t=1.05$, $p>0.05$) scores of the students and the status of participation in touristic activities in leisure time. Students who participate in outdoor activities in their leisure time had higher subjective vitality and perception of life quality related to social relations (Table 6).

Table 6. Results of t-test according to evaluation style of leisure time (evaluation with outdoor and touristic activities)

	Outdoor Activities						**Touristic Activities**					
	Yes ***(n=83)***		**No** ***(n=234)***				**Yes** ***(n=46)***		**No** ***(n=271)***			
	M	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**M**	**SD**	**t**	**p**
SVS	4.93	1.30	4.58	1.25	2.15	0.03	4.89	1.31	4.63	1.26	1.28	0.20
Physical Health	3.75	0.57	3.67	0.55	1.08	0.28	3.72	0.60	3.69	0.55	0.26	0.79
Psychological	3.64	0.61	3.51	0.68	1.65	0.10	3.69	0.64	3.52	0.67	1.62	0.11
Social Relations	3.79	0.79	3.54	0.82	2.39	0.02	3.66	0.78	3.60	0.83	0.44	0.66
Environment	3.42	0.58	3.37	0.59	0.70	0.48	3.46	0.60	3.37	0.58	1.05	0.29

Results of the analyses showed that both SVS ($F_{(2,394)}=15.20$, $p<0.01$) and '*Physical Health'* ($F_{(2,314)}=7.19$, $p<0.01$), *'Psychological Health'* ($F_{(2,314)}=3.86$, $p<0.05$), '*Social Relations'* ($F_{(2,314)}=7.24$, $p<0.01$) and *'Environment'* ($F_{(2,314)}=14.50$, $p<0.01$) scores of students differed significantly according to the frequency of participation in recreational activities (PFRA). Students who often participate in recreational activities had higher subjective vitality and life quality perceptions related to physical health, psychological health, social relations and environment (Table 7).

Table 7. Results of ANOVA according to participation frequency for recreational activities (PFRA)

	Rarely *(n=68)*		Sometimes *(n=169)*		Often *(n=80)*				
	M	**SD**	**M**	**SD**	**M**	**SD**	**F**	**p**	**Significant Difference**
SVS	4.03	1.22	4.72	1.16	5.12	1.32	15.20	0.00	2>1, 3>1, 3>2
Physical Health	3.57	0.56	3.65	0.53	3.89	0.58	7.19	0.00	3>1, 3>2
Psychological	3.42	0.66	3.51	0.63	3.71	0.72	3.86	0.02	3>1
Social Relations	3.41	0.86	3.55	0.76	3.89	0.84	7.24	0.00	3>1, 3>2
Environment	3.13	0.60	3.37	0.56	3.63	0.54	14.50	0.00	2>1, 3>1, 3>2

1: Rarely, 2: Sometimes, 3: Often

There were significant positive and middle correlations between SVS and '*Physical Health'* (r=0.48, p<0.01), *'Psychological Health'* (r=0.59, p<0.01), '*Social Relations'* (r=0.40, p<0.01) and *'Environment'* (r=0.47, p<0.01) subscale scores of the university students (Table 8).

Table 8. Correlations between SVS and WHOQOL-BREF-TR scores

	SVS		
	n	**r**	**p**
Physical Health	317	0.48**	0.00
Psychological Health	317	0.59**	0.00
Social Relations	317	0.40**	0.00
Environment	317	0.47**	0.00

**p<0.01

Discussions

The results of the study revealed that subjective vitality perception of the university students was at middle level. The results support the findings of some studies in the literature (Deniz and Satıcı, 2017; Salama-Younes, 2011). In contrast to with these results, while the subjective vitality of the participants was above the middle level in some studies (Akın and Akın, 2014; Sarıçam, 2015; Taylor and Londsale, 2010; Yazıcı, 2015), was high level in the others (Vlachopoulos, 2012). On the other hand, similar to the results of some studies (Koçak, 2019; Sarıgöz, 2019; Yılmazer, 2016), the participants' perception of quality of life was found at middle level. On the contrast, in the study conducted by Brajsa-Zganec et al. (2011), the participants' perception of life quality was found at high level. The reason for this difference may be related to the university environment in which students study. Considering the stress situation that university students are exposed to both academically and socially and spending most of the day on campus, it can be thought that designing university campuses in such a way that students can participate in more social activities will contribute to the elimination of these negativities.

In regards to the influence of gender on perceptions of subjective vitality levels, in this study found that there was a significant difference between females and males. According to this result, male university students had higher subjective vitality level than the females. In some studies in the literature (Ryan et al, 2010; Yazıcı, 2015), it was determined that subjective vitality perception did not differ according to gender. And also, according to the results of the study, participants' perception of life quality did not differ according to gender. Similarly, in

some studies, conducted by Akyüz et al. (2017), Baştuğ et al. (2018), Koçak (2019), Yılmazer (2016), there were no significant difference between gender and life quality perceptions. On the other hand, while it was determined that female participants had higher quality of life perceptions in some studies in the literature (Eriş and Anıl, 2015; Karaca and Yerlisu Lapa, 2016), and male participants had higher quality of life perceptions in some studies (Bozdağ, 2019; Cieslak et al. 2007; Emamvırdı, 2013; Gillison et al. 2006; Guallar-Castillon et al. 2005; Hamad Amin, 2018; Pekmezovic et al. 2011; Tekkanat, 2008; Ulutaş, 2019). This finding can be related that females who have more emotional nature as a personality and living more intense in their relationship on social life.

According to another result obtained from the research, the participants who stated that they actively engaged in sports had higher subjective vitality levels. In the study conducted by Yazıcı (2015), it was determined that subjective vitality perception did not differ according to actively engaged in sports. On the other hand, in some studies in the literature (Ju, 2017; Kinnafick et al. 2014; Moustaka et al. 2012; Ommundsen et al. 2010; Stathi et al. 2002), it has been concluded that participation in physical activity increases the perception of subjective vitality. Ryan et al. (2010) found that even imagining physical activity had a positive effect on subjective vitality. And also, similar to subjective vitality perceptions, the results obtained from the study indicate that the participants who stated that they actively engaged in sports had a higher life quality perception. The results support the findings of some studies in the literature (Emamvırdı, 2013; Yaran, 2014). On the other hand, in some studies in the literature (Dupuis and Smale, 1995; Gill et al. 2013; Kılınç et al. 2016; Moraes et al. 2009; Shibata et al. 2007; Sodergren et al. 2008; Ware and Sherbourne, 1992) have concluded that participation in physical activity increases the perception of life quality. In the studies conducted by Hamad Amin (2018) and Park and Kim (2013), it was determined that life quality perception did not differ according to participation in physical activities. The reason for this difference may be related to the nature of sport. As a matter of fact, it is a known fact that participation in regular physical activity has many contributions to psychological and physical health.

As a result of the study, it was determined that the participants with high income status had higher perceptions of subjective vitality. The results support the findings of some studies in the literature (Yazıcı, 2015). On the other hand, it was found that the participants with high income status had higher life quality perceptions. The results support the findings of some studies in the literature (Emamvırdı, 2013; Pekmezovic et al. 2011). In contrast, some studies have concluded that there is no relationship between income status and life quality perception [Akyüz et al. 2017; Ulutaş, 2019). People who has higher income may has different social status can be effective in showing up these findings.

According to another result obtained from the study, it was found that the participants who evaluated their leisure time by participating in sportive, social and outdoor activities had higher subjective vitality perceptions. In the study conducted by Molina-Garcia et al. (2011) was determined that the participants who evaluated their leisure time by participating in physical activity had higher subjective vitality perceptions. On the other hand, similar to the subjective vitality perception, participants who evaluated their leisure time by participating in sportive, social and outdoor activities had higher life quality perceptions. In the studies in the literature, it is stated that the participants who evaluate their leisure time by participating in physical activities (Han, 2015; Jurakic et al. 2010; Lee et al. 2014; Lo et al. 2015; Rose et al. 2007; Vuillemin et al. 2005), social activities (Cheung et al. 2009; Lloyd and Auld, 2002] and outdoor activities (Lee et al. 2014) have higher life quality perception.

As a result of the study, it was determined that the participants who frequently participated in leisure time activities had higher perceptions of subjective vitality and life quality. Similar to this finding, it was concluded that quality of life increased as the frequency of participation in leisure activities increased (Gönülateş, 2016; Huang and Carleton, 2003). Individuals who can perform more activities in their leisure time move away from negativities such as work intensity or psychological pressure and thus have more subjective vitality and life quality level.

Finally, the results of the study show that there is a positive relationship between subjective vitality and life quality perception. On the other hand, studies show that there is a positive relationship between subjective vitality and psychological well-being (Fini et al. 2010). Similarly, in different studies in the literature, subjective vitality was found to be positively related to self-realization, positive affectivity, self-esteem, extraversion, intrinsic motivation and life satisfaction (Çakar, 2012; Ryan and Frederick, 1997). In this context, it can be said that subjective vitality perception has a positive effect on life quality and increasing individuals' subjective vitality perception plays an important role in improving life quality.

Conclusions

According to the results of the study, students who actively participate in sport and leisure activities and evaluate leisure times with sportive, social and outdoor activities have high subjective fitness and life quality perceptions. In this context, it is thought that directing students to leisure time activities will contribute positively in psychological sense. Therefore, university campuses need to be organized to increase participation in leisure time activities. This research that examines the role of participation leisure time on subjective vitality and life quality perception of university students can conduct in different groups which live in different socio-economic cities.

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Determining Vocational High School of Health Students' Attitudes Toward Physical Education and Sports Class and Their Self-Efficacy

Murat SARIKABAK
Bartın University, Faculty of Sport Sciences, Bartın, TURKEY
Email: msarikabak@bartin.edu.tr

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Abstract

The purpose of the present study was to determine the attitudes of vocational high school of health students toward physical education and sports class and their self-efficacy. The population of the study was comprised of 245 students (174 female, 71 male) who studied at a state vocational high school of health in İzmit, Kocaeli province and they were selected via convenience sampling method. The data were collected through "personal information form," "attitude toward physical education and sports scale," and "academic self-efficacy scale." Then, these data were analyzed through SPSS 21 package program parametric tests, after they were checked for normality and normal distribution. In analysis of the data, descriptive data, t-test, one-way variance analysis (ANOVA) and pearson correlation analysis were used. The findings revealed that although the rate of participating in school sports was high in the students, (n: 137) the rate of participating in licensed sports was low (n: 26). While the students' attitude scores toward physical education and sports class were above average (:124.26) they did not differ according to gender and age ($p>0.05$). However, the students' attitude scores toward physical education and sports class did differ significantly ($p<0.05$) in support of the ones who participate in school sports (n: 137) and licensed sports (n:26). When the students' academic self-efficacies were compared according to gender variance, the results differed significantly in support of the female students ($p<0.05$). On the other hand, there was no a significant difference between academic self-efficacy and age group; and school sports participation rate and licensed sports participation rate ($p>0.05$). Finally, pearson correlation analysis revealed that there was no a significant relationship between the students' attitudes toward physical education and sports class and academic self-efficacy ($p>0.05$). The results were discussed in the light of related literature and a few suggestions were made in order to contribute in the field.

Keywords: Vocational High School of Health, Attitude toward Physical Education and Sports Class, Academic Self-efficacy

Introduction

It is well-known that health service workers have an important part among the occupations which are considered to be pioneers regarding human health. This field consists of several important workers such as doctors, technicians, nurses and chemists. The present study aims to examine vocational high school of health students who are expected to obtain a crucial and effective role in the health sector, physical education and sports class whose health benefits are agreed upon and the students' attitudes toward the class and academic self-efficacy; then bring these three titles together and examine their relationship with certain personal traits.

The students are able to work at private or state health institutes after graduating from these high schools and their attitudes toward physical education and sports class are expected to affect their work and social lives. Today's scientists agree on the fact that physical activity which is done at certain frequency and correct intensity can benefit an individual's physical and spiritual health. The effects indicate quite a wide area such as socialization of the disabled, normalizing the anxiety of children at the development stage, social health and supporting psychomotor development (Janssen an LeBlanc, 2010; Strong et al., 2005; PAGA Committee, 2008; Karakaş and Yaman, 2014; Macgregor, Borghese and Janssen, 2019).

Pupilage is pivotal in maintaining behaviors. Health sector workers' awareness and application of health benefits of physical activity since pupilage can be regarded as a job requirement. Observing physical education and sports classes in vocational high schools of health where there are several theoretical and applied classes through studies will contribute in creating terminal behavior plans.

Friends, parents and teachers who act as social agents in high school period can create an effective physical activity environment through sports activities (Akcan and Bulgu, 2012). Sports activities are the process in which enjoyable sports applications transform into permanent behavior.

Academic motivation, discipline and self-efficacy are of great importance especially in occupations which are likely to influence human life. Self-efficacy has begun to be included as an important concept following Bandura's (1977) contributions in the field of education, based on social learning theory. Whereas this concept is presented as the ability to organize oneself and display positive behavior, it is evidently high in creating effective strategies and coping. The results of a study which reveal the effects of academic self-efficacy on satisfaction with life are remarkable (Akbay 2009; Aktaş, 2017; Bandura, 1977; Eggen and Kauchak, 1999; Kim and Hong, 2019). This can be defined as one's belief in succeeding (Zimmermann, 1995). Through an optimistic perspective, it is possible to develop and transmit this belief through education (Schunk, 2009). A research which studies the relationship between academic self-efficacy and health sector assesses a number of psychometric data and emphasizes the importance of academic self-efficacy (Zhang et al., 2018).

Increasing the attitude toward physical education and sports class, high academic self-efficacy and vocational high school of health students working with these outcomes can provide individuals with social gains. A physically and spiritually fit health worker's developing performance, socially being an example, constant academic efforts and influence

on social health are possible through developing attitude toward physical education and sports class which heightens academic self-efficacy and physical activity. In the light of the information above, the present study aims to determine vocational high school of health students' attitudes toward physical education and sports class and their academic self-efficacy.

Methodology

Model of the Study

The study was conducted via the "survey method." The survey method is "an approach which aims to display a situation that existed or still exists as it is" (Karasar, 2016: 109).

Population and Sample of the Study

The population of the study was comprised of vocational high school of health students who studied in Kocaeli, İzmit; and the sample consisted of 245 high school students (174 female, 71 male) who were selected via random sampling method.

Data Collection

Before data collection, necessary permissions were received from related institutions to conduct the study. Then, the researcher explained the purpose of the study with the help of the school's guidance teacher and collected the data from volunteer students.

Data Collection Tools

The data were gathered through "personal information form," "attitude toward physical education and sports scale," and "academic self-efficacy scale."

Personal Information Form

The students were given a 4-question "Personal Information Form" in order to determine their certain demographic information. The form contained questions regarding the students'; gender, age, whether they participated in licensed sports and whether they participated in school sports.

Physical Education and Sports Attitude Scale

The study used "Physical Education and Sports Class Attitude Scale" which was developed by Güllü and Güçlü (2009). The scale included one dimension and its variance value was 36.19%; while primary value was 12,67. Cronbach's Alpha reliability index of the scale was found as .94. The scale was a 5-point Likert scale and its rating was as follows: "Completely agree (5), Agree (4), Unsure (3), Disagree (2), and Completely Disagree (1). The scale included 11 negative (items 3,17,19,20,24,25,26,29,30,34 and 35) and 24 positive items, 35 items in total. The lowest score one can get from the scale was 35, while the highest score was 175 (Güllü and Güçlü, 2009). Cronbach's Alpha index regarding the present study's instrument was found to be .90.

Academic Self-Efficacy

The study also used "Academic Self-efficacy Scale" which was developed by Jerusalem and Schwarzer (1981) and adapted into Turkish by Yılmaz, Gürçay and Ekici (2007). The scale included 7 items. The items were 4-point Likert style and read: 1- Not true, 2-Nearly true, 3-True, 4- Exactly true (Yılmaz, Gürçay and Ekici, 2007). The scale's validity and reliability for high school students were calculated by Aksu (2015). Study conducted by Aksu found that the scale was one-dimensional, explained one factor and its variance value was 51.7%. Besides, the Cronbach's Alpha index of the scale was .80. Cronbach's Alpha index of the scale for the present study was found as .64.

Data analysis

Data gathered from the students were checked one by one in case of possible coding mistakes. After omitting wrong, missing or carelessly coded data, the remaining ones were coded and transmitted into SPSS program. Normality test was conducted before analyzing the data and the test showed the data were suitable for normal distribution. Therefore, parametric tests were chosen to evaluate the data. In general analysis, descriptive statistics, t-test, one-way variance analysis (ANOVA) and pearson correlation analysis were used.

Results

This section of the paper presents findings gathered from the analyses.

Table 1. Frequency and percentage distribution of the students' demographic information

Gender	**n**	**%**
Female	174	71,00
Male	71	29,00
Age	**n**	**%**
14	26	10,6
15	145	59,2
16	59	24,1
17	15	6,1
Participating in school sports	**n**	**%**
Yes	137	55,9
No	108	44,1
Participating in licensed sports	**n**	**%**
Yes	26	10,6
No	219	89,4

Table 1 shows that 174 of the students were female (71%); while 71 of them were male (29%). 26 of them were 14 years old (10.6%); while 145 of them 15 (59.2%); 59 (24.1%) of them 16; and 15 (6.1%) of them are 17 years old. 137 of the students (55.9%) participated in

school sports, while 108 of them (44.1%) did not participate in school sports. Regarding licensed sports, the table shows that 26 of the students (10.6%) participated in licensed sports, while 219 of them (89.4%) did not participate in licensed sports.

Table 2. Descriptive Statistic Results of the Students' attitude toward Physical Education and Sports Class and Academic Self-efficacy Score Means

	n	$\overline{X}$	SS
Attitude toward Physical Education and Sports Class	245	124,26	27,79
Academic Self-efficacy	245	17,00	3,53

Table 2 shows the descriptive statistic results of the students' attitude scores toward physical education and sports class and academic self-efficacy scores. Mean score of the students' attitude toward physical education and sports class was 124.16; while the mean score of their academic self-efficacy was 17.00.

Table 3. T-test Results of the Students' Attitude toward Physical Education and Sports Class Scores according to Gender

	Gender	n	$\overline{X}$	SS	t	p
Attitude toward Physical Education and Sports Class	Female	174	125,20	25,93	,75	,45
	Male	71	121,98	32,00		

Table 3 presents the t-test results of the students' attitude toward physical education and sports class scores compared according to gender. The results show that the students' attitude toward physical education and sports class scores did not differ significantly according to their gender (p>.05).

Table 4. One-way Variance Analysis Results of the Students' Attitude toward Physical Education and Sports Class Scores according to Age Groups

		n	$\overline{X}$	SS	F	p
Attitude toward Physical Education and Sports Class	14	26	120,92	31,27	1,15	,32
	15	145	126,58	27,39		
	16	59	119,28	27,31		
	17	15	127,26	26,80		

Table 4 presents the results for the one-way variance analysis (ANOVA) which was used to analyze the students' attitude toward physical education and sports class scores according to their age group. The results show that the students' attitude toward physical education and sports scores did not significantly differ according to their age group (p>.05).

Table 5. T-test Results of the Students' Attitude toward Physical Education and Sports Class Scores according to Participating in School Sports

	Participating in School Sports	n	$\overline{X}$	SS	t	p
Attitude toward Physical Education and Sports Class	Yes	137	129,72	29,54	3,54	,00
	No	108	117,34	23,78		

Table 5 shows the results for the t-test which was used to analyze the students' attitude toward physical education and sports class scores according to participating in school sports. The results revealed that the students' attitude toward physical education and sports class scores differed according to whether or not they participated in school sports (p<.05).

Table 6. T-test Results of the Students' Attitude toward Physical Education and Sports Class according to Participating in Licensed Sports

	Participating in Licensed Sports	n	$\overline{X}$	SS	t	p
Attitude toward Physical Education and Sports Class	Yes	26	134,76	25,58	2,05	,04
	No	219	123,02	27,84		

Table 6 shows the results for t-test which was used to analyze the students' attitude toward physical education and sports class scores according to whether or not they participate in licensed sports. The results revealed that the attitude scores of the students toward physical education and sports class did differ according to whether or not they participated in licensed sports (p<.05).

Table 7. T-test Results of the Students' Academic Self-efficacy Scores according to their Gender

	Gender	n	$\overline{X}$	SS	t	p
Academic Self-efficacy	Female	174	17,40	3,54	2,79	,00
	Male	71	16,02	3,34		

Table 7 shows the results for the t-test which was used to analyze the students' academic self-efficacy scores according to their gender. The results revealed that academic self-efficacy scores differed according to gender (p<.05).

Table 8. One-way Variance Analysis Results of the Students' Academic Self-efficacy Scores according to their Age Group

		n	$\overline{X}$	SS	F	p
Academic Self-Efficacy	14	26	17,23	3,55	1,69	,17
	15	145	17,31	3,55		
	16	59	16,54	3,44		
	17	15	15,46	3,46		

Table 8 shows the results for one-way variance analysis (ANOVA) which was used to compare the students' academic self-efficacy scores according to their age group. The results revealed that academic self-efficacy scores of the students did not differ according to their age group (p>.05).

Table 9. T-test Results of the Students' Academic Self-efficacy Scores according to Participating in School Sports

	Participating in School Sports	N	$\overline{X}$	SS	t	p
Academic Self-Efficacy	Yes	137	16,80	3,45	-1,00	,31
	No	108	17,25	3,64		

Table 9 presents the results for the t-test which was used to compare the students' academic self-efficacy scores according to participating in school sports. The results revealed that academic self-efficacy scores did not differ according to participating in school sports (p>.05).

Table 10. T-test Results of the Students' Academic Self-Efficacy Scores According to Participating in Licensed Sports

	Participating in Licensed Sports	n	$\overline{X}$	SS	t	p
Academic Self-efficacy	Yes	26	17,57	3,41	,87	,38
	No	219	16,93	3,55		

Table 10 presents the results for the t-test which was used to compare the students' academic self-efficacy scores according to participating in licensed sports. The results revealed that the academic self-efficacy scores did not differ according to participating in licensed sports (p>.05).

Table 11. Results for the Relationship between the Students' Attitude toward Physical Education and Sports Class Scores and Academic Self-efficacy Scores

		Academic Self-efficacy
Attitude toward Physical Education and Sports Class	r	,066
	p	,301

Table 11 shows the results for the pearson correlation analysis which reveals the relationship between the students' attitude toward physical education and sports class and academic self-efficacy scores. Lastly, the results showed that there was not a significant relationship between the attitude toward physical education and sports class and academic self-efficacy.

Discussion and Conclusion

Sample group of the study included 174 female (71.00%); 71 male (29%); 26 14-year-old (10.6%); 145 15-year-old (59.2%); 59 16-year-old (24.1%) and 15 17-year-old (6.1%) students. 137 of the students (55.9%) participated in school sports; while 108 of them (44.1%) did not participate in school sports. On the other hand, 26 of the students (10.6%) participated in licensed sports; while 219 of them (89.4%) did not participate in licensed sports. Similar studies with vocational high school of health students showed the sample numbers between 237, 4678 and 8796. These numbers indicate that the present study requires a more crowded sample group. Additionally, another important result of the table is the fact that rate of participating in licensed sports is low (n:26; 10.6%).

Descriptive statistics results of the vocational high school of health students' attitude toward physical education and sports class scores and academic self-efficacy scores reveal that the mean of the students' attitude scores is 124.16; while the mean of their academic self-efficacy scores is 17.00. While these scores are close to average values, they can be considered slightly above average. In the light of this information, we can say that the sample group is suitable for the variables.

When the students' attitude toward physical education and sports class scores were compared according to their age group, the results did not reveal any statistical difference (p>0.05). Contrary to the results of the present study, Akandere et al., (2010) and Kangalgil et al. (2006) found that attitude toward physical education and sports class scores and gender variable differed in support of males (p<0.05). A similar result to the present study was found in the study of Güllü et al. (2016). Moreover, Luke and Sinclair (1991) female and male

students had similar attitudes toward physical education and sports class. On the other hand, Moral-Garcia et al. (2018) found that results were in support of the female students. Fox et al. (2010) stated that female high school students thought of sports as a lesson; therefore academic concerns may influence their attitude. In the light of these results, we can say that local and cultural factors influence the attitude toward physical education and sports class. Although there have been great developments lately, general positive results for the males can stem from the fact that it is a male-dominant country where local and regional characteristics are still present.

The students' attitude scores differed significantly in support of the ones who participate in sports when compared according to participation in school or licensed sports ($p<0.05$). Akandere et al. (2010) and Kangalgil et al. (2006) found similar results in support of the present study for both participating in school sports and licensed sports. The reason for this result may stem from the fact that doing sports enables one to feel energetic, socially active and help build new status in a social structure.

The findings revealed that academic self-efficacy scores of the vocational high school of health students differed according to gender ($p<0.05$) in support of the female students. While Kim and Hong (2019) and Keskin et al. (2016) found different results in support of the male students; Dishman et al. (2008) claimed that self-efficacy of females could stem from cognitive and social basis and that it could be improved. When social influences which pose as obstacles are decreased, self-efficacy in females can increase. On the other hand, Eroğlu et al. (2017) stated in their study that there was not a significant difference between self-efficacy and gender. This situation may be explained through the fact that females feel the need to succeed because of social factors and that there is a natural environment for competition as female students outnumber the males.

Another result revealed that academic self-efficacy scores of vocational high school of health students did not differ according to their age group and whether or not they participated in school or licensed sports ($p>0.05$). While the number of studies was limited on this subject, Chase (2001) claimed that increasing self-efficacy would also increase participation in sports. Therefore, although the results of the present study remain unchanged, future extensive studies may help uncover this context.

Last result of the study was that there was no significant relationship between the attitude scores of the students toward physical education and sports class and their self-efficacy scores ($p>0.05$). Keskin, Öncü and Küçük (2016) found a positively significant relationship between attitude and self-efficacy. Moritz et al. (2000) who studied the variance between self-efficacy and performance analyzed 45 studies and found the correlation between self-efficacy and sports performance as .38. These results may indicate that there is a strong connection between attitude toward physical education and sports class and academic self-efficacy.

As a result, the present study reached the following conclusions;

- Participating in licensed sports among vocational high school of health students was low,

- Vocational high school of health students had a positive attitude toward physical education and sports class,
- Participating in school or licensed sports increased the attitude toward physical education and sports class significantly ($p<0.05$),
- Female students had higher means in academic self-efficacy scores.

The study can suggest vocational high school of health students to participate in licensed sports, a more extensive study on the subject and guidance for male students which will motivate them to increase their academic self-efficacy.

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The Effect of Positive Teacher-Student Relationship on Physical Education Classes in Secondary School Students

Tolga ŞAHİN
Milli Eğitim Bakanlılı Kazım Özenç Seçen Ortaokulu, Konya, TURKEY
Email: ktolgasahin@gmail.com. tr

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Abstract

The study aims at finding out the students' attitude towards physical education classes in secondary schools corresponding with the positive teacher-student relationships. As the sample survey, totally 326 students, 173 girls and 153 boys, who are eight graders from 6 public schools in Konya, Selçuklu during 2018-2019 academic year have taken a questionnaire with 100% face to face meeting method. As a result, it is understood that the student's relationship with their physical education teachers is generally positive. The analysis proved that positive teacher-student relationship enhances the students' positive attitude towards physical education classes. Moreover, when the teachers' gender is considered, it is determined that the students tend to have better relationship with female teachers rather than male teachers. On the other hand, It is decided that the gender and economical level of the students do not contribute to the statistical data.

Keywords: Teacher, student, positive relationship, physical education, attitude

Introduction

Learning is an active process that begins at birth and continues throughout life. Part of this process is informal while the other part of this process is formal. Informal learning begins with the communication and the relationship with parents and relatives of the individual. Then this goes on with the relationship and communication formed by the individual with his/her environment that the parents control and permit. Socializing more, the individual forms new interactions away from the parents control and the learning process continues with peers or other people met. The formal education starts when the individual is at the required age for formal education. From that time on the individual has to learn and obey the institutional rules everybody has to obey. This stage of life is compulsory for certain time and then formal education is optional. The institutions which provide this formal education is called schools.

In this formal education process teachers, who have the instructive and the most important role in schools, get involved. The notion of teacher stands for the protector, instructor, coordinator and rule maker. Teacher is the key factor for education in schools.

According to Myers (1994), the teacher has the vital role in the effective and efficient learning process being the coordinator and provider of the teacher-student, student-student communication which means full-scale masterminding the communication. The teacher is the sole provider of this kind of communication.

Pianta (1998) point out that the way the teacher interprets the bond between the student and teacher, the way the student perceives this bond contributes greatly to the way the student behaves and adapts. The student who has positive relationship with the teacher is academically more successful and can adapt more than others.

The teachers new to the occupation tend to be reluctant in providing one-to-one and explicit relationship with the students (Celep, Erdoğan 2002), however, “The teachers' direct relevancy to the teaching process and close relationship to the student form their major role in school and also shape the image of the institution” Lightfoot (1983). As a matter of fact, effective communication skills used in the class by the teacher contributes positively to the teacher-student relationships (Jones & Jones, 1998, 100-101). Fraser and Chiohn (2009) too points out that positive relationship in class is very important for permanent learning.

It is known that not only the teachers' but also the students' personality is very important to identify the relationship. What is more, the age, sex and whether the student is active and successful or not shape the teachers’ attitude. Nevertheless, the crucial point in this relationship is that how the teacher influences the student and how the student is affected. This natural asymmetry among teacher-student relationships in terms of the quality of the relationship is mostly a burden on the teacher (Pianta, 1998).

The primary duty of the teacher training schools must be to educate teachers who are not only academically qualified but also pedagogically competent. Nonetheless, it is important to remember that even if the teachers have equal academic and pedagogic qualifications, their social lives, social environment, characters and how they are brought up also form how they shape their relationship with the students. Therefore, these differences are important factors in terms of teacher-student relationship.

The teachers' intellectual capacity, personal maturity and childhood hero are the fundamental components for training a person. Teaching methods become meaningful only if it is combined with teachers' personal qualifications. The primary key to learning is the interest rather than the teachers' character and the relationship between teacher-student and student-student that the teacher formed. In other words, interest stems from social relations and

continues by means of social relations. Teachers' character stands at the center of these relationships (Özakpınar, Yılmaz 1988).

Önder, Külahoğlu (2000) states that the teachers' characters and attitudes towards students strongly related to the students' behaviors in class. No doubt that the behaviors of a sensitive and caring teacher and the behaviors of a strict and reserved teacher differ from each other and thus it is clear that negative attitudes will not form a positive reaction from the student; on the contrary the student is going to form more negative behaviors. It is of no importance which party, teacher or the student, started the quarrel in a class as both parties will inevitably be sad in the end (Smitt, Laslctt, 1996, 67).

In this respect, according to Goh and Fraser (1998), teachers' relationship with the students and even the relationship among students will provide a better learning environment and thus better academic development. What is more, they take their claim one step further and state that positive relationships prevent possible negative behaviors.

The good relationship formed by the teacher with the student develops the students' feeling of trust and when the students feel confident mentally they tend to behave academically positive, they see themselves as the part of the school and become successful (Murray and Greenberg 2000), (Fraser and Chiohn 2009).

Teacher-student relationship is so important in education that (Pittman and Richmond, 2008), the target in education, enhancement of positive behavioral change in student, the acceptance of school rules and applications can be achieved through this relationship.

Teachers who are academically qualified, helpful, caring and have respectful and positive attitude towards students, are thought to support students' social and academic development, increase their sense of belonging and bring learning process to perfect; while the students who have bad relationship with their teacher are believed to have tendency to be less successful in their lessons (Baker 1998, Ma, 2003, Gordon 2010,Yaşartürk, 2019).

From this point forth, the teacher who can effectively apply constructive and positive way of communication, especially when the students are in the adolescence period which is defined as a period that the student has competitive, all-knowing and self-proving emotions and behaviors, get positive feedback from the student not only in education but also positive behavioral change. Therefore, the teacher is primarily responsible for the student to have a positive attitude towards the lessons and be active during classes.

Thus, one of the questions raised concerning whether the attitude of students towards the lessons are important for the fruitfulness or not. The answer to the question is hidden in the concept of attitude. Hence, the definition of attitude should be explained in detail.

The concept of attitude has many definitions; that is, area of social psychology is said to have been emerged from the curiosity and debates on this concept (Allen et al., 1980). While Franzoi (2003) defines attitude as “an individual's evaluation of a thing as positive or negative”, Krech and his friends (1980) define attitude as “an enduring organization of motivational, emotional, perceptual and cognitive processes with respect to some aspect of the individual's world (Özgün vd., 2017).

When the definitions considered it is not a mistake to say that attitude appear in two dimension in the individual, that is, while one may stem from a bad situation, the other from a positive situation. Therefore, positive or negative attitude towards a situation may then be a reason for that situation to become positive or negative.

Students may form an attitude towards a lesson. However, this attitude is formed by the student a while after meeting with his/her teacher. Because individuals are not born with attitudes, they learn them after a while (Kağıtçıbaşı, 2005).

Students may form a negative or positive attitude towards physical education lessons. If the attitude is positive, the lesson may reach its target and enable students to make physical activities a habit. If the attitude is negative, the student can't be happy during the lesson and this negatively affect the class and make the lesson less fruitful (Silverman and Scrabis, 2004).

Physical education lessons in schools are more bridgeable and require mental and physical relation more than the other theoretical lessons. Physical education lessons aim at educating an individual as contributor to development in psychomotor, cognitive and social areas, socially sensitive, can relate to peers and social environment, helpful, respectful to people and human rights, honest, physically and mentally healthy human beings by means of physical activities. The lesson is included in the syllabus of Turkish Republic Ministry of National Education in various grades with various hours and have theoretical and practical field of application. It has an important role in supporting the individual's social life and personality development.

Furthermore, it is stated in the second item of constitutive law of Ministry of National Education that “The main purpose of Turkish National Education is to raise science-loving, skilled, and ethical individuals who take an interest in culture and are willing to use present and future skills for the wellbeing of humanity” (meb.gov.tr). This statement shows how important physical education lessons are for the education system. The other feature of physical education lessons that differ from other lessons is that it not only focuses on the mental development of the individual but also focuses on physical development of the individual considering the improvement of muscle, bone and connective tissues and making physical activities become a habit for the individual.

Then it is important to provide students with understanding of the importance of physical education lessons. Generally, it is an advantage for the teacher that most of the students like physical education classes rather than the other lessons. The students are readily motivated as they like physical activities and games.

Sometimes the students can have a negative attitude towards physical education classes because of various reasons. One of these negativities is the lack of good relationship between the teacher and the student.

Hence, this study aims at searching the positive relationship of teacher and student in secondary schools and how this positive relationship effects their attitude towards the lesson as well as the dimension of the relationship between the student and the teacher. The result of survey targets to find out to what extent the student perceives positive relationship between the student and teacher and whether there is a correlation between physical education lesson attitudes or not. The study aims at answering the following questions:

RQ: What kind of correlation is there between the level of teacher-student relationship and the students' attitude towards physical education lessons?

H1: Positive teacher-student relationship effects the attitude towards the physical education lesson positively.

H2: The students' level of positive relationship with female teacher are higher than the male teachers.

H3: Female students' positive relationship with the physical education teachers are higher than the male students.

H:4 The higher the economical welfare of the student is, the better the positive relationship of the student is.

Method

As the study group, secondary school eighth graders are chosen as they are thought to put forth the results of the study best.

Universe and Sample

The study group are from 8th graders in district of Selcuklu in Konya, Turkey and are available samples. Samples are chosen according to the sampling method. 398 eighth grader students are chosen from the secondary schools in second term of 2018-2019 school year, a week after the high school competency exams. They are from six public schools in Selcuklu district. The study is implemented via personal information form and positive teacher-student relationship scale, secondary students' attitude towards physical education lessons scale which are prepared before and are applied using face to face interview technique.

Scales that are applied are carefully studied and the ones with missing information in personal information form, falsely completed personal information form, same options ticked systematically in the scale and the ones with unanswered questions more than acceptable level are not included in the evaluation process. As a result, 71 out of 398 students were left out of the evaluation and totally 326 students 173 of whom are girls and 153 of whom are boys are evaluated.

Data CollectionTool

The evaluation scale is formed of three sections first of which is personal information and demography form, second of which is the scale of 24 questions to determine the positive effect of teacher-student relationship in secondary school education and the third of which is the scale of the students' attitude towards the physical education classes in secondary schools. SPSS 23 statistical package program was used to analyze the data.

Positive Teacher-Student Relationship Scale

The scale has been developed by Celep and Erdoğan (2002) for 356 3rd grade high school students. One dimensional scale is formed of 24 positive statements. The items are formed with 5 choice Likert Scale which are affirmative statements. Items are scored as (1) Never, (2) Rarely, (3) Sometimes, (4) Often (5) Always. The reliability of the scale (Crombach's Alpha) 0,90. The reliability of scale in this study is calculated as (Crombach's Alpha) 0,92.

Physical Education Attitude Scale in Secondary School Students

The scale has been developed by Güllü and Güçlü (2009) on 600 secondary school students. One-dimension secondary school students' attitude scale has 35 items that are formed as negative 11 items and 24 positive items. The reliability of the scale is (Crombach's Alpha) 0,94. The reliability of the scale in this study is calculated as (Crombach's Alpha) 0,86.

Findings

"Positive Teacher-Student Relationship Scale" is recalculated and divided into three equal categories in order to categorize secondary students' level of positive relationships with their teachers. Table 1 shows the level of students' positive relationship.

Table 1. Level of Students' Positive Relationship

	F	%
Low	4	1,2
Moderate	101	31
High	221	67,8
Total	326	100

As seen in Table 1, students' level of positive relationship with their teachers is high.

There is positive and moderate relationship between positive teacher-student relationship and physical education class attitude levels (r=,515, p<.01). According to the aforementioned relationship, the higher the positive relationship of teacher-student is, the better level of physical education class attitude of the student is.

Table 2 shows Linear Regression analysis results to determine effect of positive teacher-student relationship on students' attitude towards physical education classes

Table 2. Effect of Positive Teacher-Student Relationship on Students' Attitude Towards physical education

	B	SH	β	t	p
Stable	1,877	,138		13,648	,000
Positive Relationship	,400	,037	,515	10,825	,000

$R=0,515$ $R^2=0,27$ $p=0,000$ $F(1,324)=117,191$

According to the regression analysis results shown in Table 2, there is high and meaningful relationship between the students' attitude towards physical education classes and positive teacher-student relationship ($R=0,515$ $R^2=0,27$ $p<0,001$). Positive teacher-student relationship level variance of students' attitude towards physical education classes explains approximately 27 percent. These results verify the first hypothesis

Table 3 shows the results of Independent Two Sample t-Test implemented to verify the second hypothesis of the study that is; female teachers' positive relationship level with the students is higher than the male teachers.

Table 3. Teachers' Positive Relationship Level and The Teachers' Gender

		N	$\overline{X}$	SS	t	p
Gender of the Teacher	Female	50	3,87	,562	2,840	,006
	Male	276	3,61	,748		

According to the analysis results shown on Table 3, the proximity of female teachers' positive relationship level with the students ($\overline{X}$ =3,87) is higher than the proximity of male teachers' positive relationship level ($\overline{X}$ =3,61) with the students. These results verify the second hypothesis.

Table 4 Shows the results of Independent Two Sample t-Test implemented to verify The Students' Gender and Level of Positive Teacher Student Relationship

Table 4. The Students' Gender and Level of Positive Teacher Student Relationship

		N	$\overline{X}$	SS	t	p
Students' Gender	Girl	173	3,71	,080	1,569	,006
	Boy	153	3,58	,081		

As seen in Table 4, the students' gender and the level of positive teacher-student relationship level doesn't have meaningful relation. That is to say, each sex, boy or girl, may have high or low positive relationship with the teacher. According to this, the third hypothesis, level of girls' positive teacher-student relationship is higher than that of the boys', isn't verified.

The fourth hypothesis, the higher the economical welfare of the student is, the better the positive relationship of the student is, is tested via One Dimension Variance Analysis (ANOVA). The resuls are shown on Table 5.

Table 5. Economical Welfare and Level of Positive Teacher-Student Relationship

		N	$\overline{X}$	S	F	p
Level of Relationship	Very Good	26	3,71	1,07	,995	,411
	Good	123	3,65	,65		
	Moderate	169	3,62	,71		
	Bad	7	4,16	,67		
	Very Bad	1	3,41			

Level of Relationship As seen in Table 5, Economical Welfare of the students and Level of Positive Teacher-Student Relationship level doesn't have meaningful relation. According to this, economical welfare is not a determinant for the level of positive teacher-student relationship.

Discussion

The analysis show that there is a direct proportion between the positive teacher-student relationship and the students' attitude towards physical education classes. When the literature is reviewed, many cases that support the meaningful correlation between the positive teacher-student relationship and the students' attitude towards physical education classes attract the attention (Celep ve Erdoğan 2002, Günay 2003, Durmaz 2007, İpek ve Terzi 2010, Fan 2012, Maulana et al., 2012).

Students may have positive or negative attitudes towards physical education classes. If the students' attitude is positive, it is easier for the teacher to reach the general and special target for the lesson and apply the required activities productively or it may even support student to participate in physical activities voluntarily (Silverman & Scrabis, 2004). Beytekin and Yalçınkaya (2014) also state in their study that efficient communication in teaching-learning environment provides more successful learning period. All of the aforementioned study results support the results of this study.

In the research, the analysis concerning the gender of teachers and positive teacher-student relationship, female teachers are determined to be more successful. When the literature is reviewed, other studies concerning the subject supports the data of this study (Öner 1999, Erdoğan 2001, Bulut 2004, Bedur 2007). Nonetheless, the gender and the economic welfare

of the students don't have a meaningful correlation when the positive teacher-student relationship is concerned.

Result

In order to define the level of positive teacher-student relationships of secondary school students with their physical education teacher and then to determine the effects of positive relation on the students attitudes towards the physical education lesson, a survey was conducted on 326 eighth grader students chosen from the secondary school from six public school in Konya, Selçuklu district.

According to the survey results, students have high level of positive teacher-student relationships with their physical education teachers and this provides a positive attitude towards the physical education classes as shown in statistical analysis.

It is thought that the physical education classes in curriculum is liked more by the students rather than the other lessons because of the structure of the lesson which enables students to express themselves easier, makes easier for the student to realize themselves and entertaining due to the fact that the lesson involves games that they may like. Furthermore, the physical education classes do not have a limited learning environment such as classes. On the contrary, the lessons are outdoors or in gym and the materials of the lesson, such as football, volleyball and basketball etc., may be the things that many children would like to have. Being able to use these materials enable the students to be motivated. Because being late to the class means using these materials less and this provides positive reinforcement for the student. Therefore, the relationship of the physical education class teachers and the students' relationship level is high due to the students' will of making the teacher happy and becoming active as soon as possible.

Furthermore, some drawbacks of theoretical lessons some students have the anxiety of being active in class due to some various reasons such as lack of review, being back from other students. These students tend to have fear of being humiliated by the peers or the teacher. Therefore, these students think that physical education class offers equality of opportunities and that they can have right to speak up. Thus, it is clear that the students have positive attitude towards physical education classes.

In this research, it is clearly determined that female teachers' positive relationship level with the students is higher than the male teachers.

The reason for the female teachers' high positive relationship with the student may be various. Women tend to be more calm and compassionate and also being a mother, women tend to embrace the students with the sense of motherhood. These and some other reasons may be the subject to other surveys. However, the students subject of this study state that female teachers use more of an emotional way of addressing the students such as calling them honey, dear, honeybun, sweetheart and also the female teachers tend to be more physical with the students such as rewarding the students with a pinch or kiss on the cheek. These behaviors are not considered to be awkward when it comes from a female teacher. Thus, these positive way of communication is more advantageous for female teachers. Furthermore, when the present conditions considered, male teachers' such contact to the children of this age might be considered bizarre and it may even further cause the male teacher to be charged with immoral accusations even if they do not deserve. The subjects also added that there are many examples of these lawsuits. In order to protect themselves from these kinds of lawsuits male teachers tend to be more reserved towards the students regardless of their gender. Therefore,

the male teachers seem to have less positive teacher-student relationship compared to female teachers.

Nonetheless, when this comparison is done among boys and girls, both gender seems to have no big difference statistically. In consequence of the mentioned result, boys and girls have the equal opportunity in terms of building positive relationship with their teachers.

The analysis concerning positive teacher-student relationship and economical wealth of the students shows that there is no correlation between the two variables. It wouldn't be wrong to say that there is no relationship between positive teacher-student relationship and economical wealth of the students.

Conflict of Interest

The authors have not declared any conflicts of interest.

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VAR'lığın YETER! Hakemlerin Gözünden Video Yardımcı Hakem Sistemi

Sabiha Gizem ENGİN[1], Veli Onur ÇELİK[2]
[1]Anadolu Üniversitesi, Sosyal Bilimler Enstitüsü, Spor Yönetimi ve Rekreasyon ABD, Eskişehir, TÜRKİYE
[2]Eskişehir Teknik Üniversitesi, Spor Bilimleri Fakültesi, Spor Yönetimi Bölümü, Eskişehir, TÜRKİYE
Email: s.gizemengin@gmail.com

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Öz

Futbolun endüstriyel bir iş kolu haline dönüşmesi, birer yatırım alanı olarak görülen yeşil sahaların, hatalardan mümkün olduğunca uzaklaştırılarak adil ve şeffaf bir alana dönüştürülmesini zorunlu kılmıştır. Standart bir yönetim anlayışının sağlanabilmesi amacıyla futbolda teknoloji kullanımına son yıllarda giderek önem verilmeye başlanmıştır. Bunun en çarpıcı örneği Video Yardımcı Hakem Sistemi'dir.

Bu çalışmanın odak noktası, futbolda kullanılmaya başlanan Video Yardımcı Hakem Sistemi'nin (VAR) bizzat uygulayıcıları tarafından öz değerlendirmesinin yapılması ve ortaya çıkan bulguların sistemin iyileştirilmesi ve geliştirilmesi adına katkı sağlayacak niteliğe kavuşturulmasıdır.

Bu kapsamda, Türkiye Futbol Federasyonu Merkez Hakem Kurulu bünyesinde görev alan Video Yardımcı Hakem Sistemi deneyimine sahip 5 faal futbol hakemi ile bireysel görüşmeler gerçekleştirilmiştir. Görüşmeler, 13 sorudan oluşan yarı yapılandırılmış görüşme formu çerçevesinde yürütülmüştür. Metin haline dönüştürülen veriler, araştırmacılar tarafından içerik analizi yöntemiyle çözümlenerek temalara ayrılmıştır. Siyah-beyaz hatalar, teknolojik gelişmeler, koordinasyon merkezi, medya ve fırsatlar olarak belirlenen temalar, ilgili alanyazın doğrultusunda ele alınmış ve yorumlanmıştır.

Ortaya çıkan bulgular incelendiğinde, sistemin olumlu ve olumsuz tarafları olmakla birlikte, bir ihtiyaç olduğu konusunda hemfikir olunmaktadır. Sergilenen performansın adil bir biçimde değerlendirilebilmesi ve verilen kararlar üzerinde herhangi bir şüphe oluşturmayacak şekilde şeffaflık sağlanabilmesi adına Video Yardımcı Hakem Sistemi uygulamasının devam ettirilmesi ve kademeli olarak alt liglerde de uygulanması gerektiği sonuç olarak ortaya konulabilir.

Anahtar Kelimeler: Futbol, Hakem Kararları, Video Yardımcı Hakem Sistemi (VAR)

The evaluation of the Video Assistant Referee (VAR) system from the perspective of the Football Referees

Abstract

The transformation of football into an industrial sector has made it necessary to transform green areas into a fair and transparent area by eliminating errors as much as possible. In order to ensure a standardized approach, the use of technology in football has become increasingly important in recent years. The most up-to-date example in this regard is Video Assistant Referee System (VAR).

The focus of this study is on the self-evaluation of the Video Assistant Referee System (VAR) by its own practitioners and providing the findings to contribute to the improvement and development of the system.

In this context, 5 active football referees, the member of the Turkish Football Federation Central Referee Committee, were interviewed. The interviews were conducted within the framework of a semi-structured interview form consisting of 13 questions. The data that has been transformed into text is divided into themes by the researchers by content analysis method. Black-and-white errors, technological developments, coordination center, media and opportunities are defined and interpreted in accordance with the related literature.

When the findings are examined, it is agreed that there is a need although there are positive and negative aspects of the system. In order to make a fair evaluation of football matches and to make the decisions transparent, the Video Assistant Referee (VAR) system should be continued and applied in the lower leagues gradually.

Keywords: Football, Referee Decision, Video Assistant Referee System (VAR)

Giriş

Günümüzde spor, en önem arz eden sektör olarak varlığını sürdürmektedir. Müsabakalar, yarışlar ve bu aktivitelerdeki yüksek performans görme isteği, spor katılımcılarının ortak istekleri olarak karşımıza çıkmaktadır. Müsabakaların futbol özelinde saha içerisindeki kontrol ve yönetimi spor eğitimi almış kişiler, futbol hakemlerinin vasıtası ile gerçekleştirilmektedir. Çünkü milyonlar bu branşı takip etmektedir (Sunay, 1992). Bir futbol müsabakasının izleyiciye keyif verecek şekilde ya da sinir bozacak şekilde geçmesinde en büyük etken hakemdir (Orta, 2000). Bir futbol hakeminin de maç esnasında iyi bir performans sergilemesi hem fiziksel hem de psikolojik dayanıklılığına bağlıdır. Futbol gibi bir oyunda verilen kararların birbiri ile ve farklı maçlar ile kıyaslanması oldukça zordur, çünkü bireysel farklılıklar verilen kararlar üzerinde oldukça etkili bir durumdur (Shiloh ve ark 2001; Lane ve ark 2006). Bireylerin yer aldığı organizasyonlarda kişilerin getirdiği bireysel farklılıkların olmaması mümkün değildir. Fakat bu farklılıklar herhangi bir müsabakanın gidişatında büyük öneme sahip etkiler yaratıyor ise, ortaya bir problem çıkmaktadır. Dolayısıyla da büyük kitlelerin yoğun ilgi ile takip ettiği futbol, dinamik yapısı gereği hataya müsait bir alan olarak değerlendirilebilir. Hataların önüne geçmek adına atılmış bir adım olan VAR siteminde hedef, minimum müdahale maksimum yarardır ve yeni bir sistem olarak karşımıza çıkan bu yapı hakkında, en önemli kitle olan taraftarlara da gerekli bilgilerin verilmesi önem arz etmektedir. Sistem adına önemli noktaların hakemler gözünden tespiti, sistem tecrübeleri, mevcut yeterlilikler, gelecekteki beklentiler ve ilgili detayların ortaya çıkarılması ile bu bilgilerin taraftarların anlayacağı bir dil ile ortaya konması bu çalışmanın amacını oluşturmaktadır.

Literatür Bilgisi

Türkiye'de 1923 yılında Yusuf Ziya ÖNİŞ vasıtasıyla temelleri atılan Türkiye Futbol Federasyonu (TFF) ile birlikte, Türk toplumunun modern futbol ile tanışması on dokuzuncu yüzyılın sonlarına denk gelmektedir. Futbolun zaman içerisindeki muazzam gelişimi, spor denilince akla ilk futbolun gelmesine sebep olmuştur (Uzunoğlu, 2008). Bu büyülü dünyada da katılımcıların hak ettiğinin karşılığını bulması önem arz etmektedir. İnsan faktörünün bulunduğu her alanda olduğu gibi futbolda da yapılan hatalar, katılımcıları olumsuz etkilemektedir.

Hakem

Ortaya çıkabilecek bir anlaşmazlığı, tarafsız bir şekilde çözüme kavuşturmak adına ilgili taraflar veya yetki sahibi bir kurum tarafından belirlenmiş kişidir. Sporun içerisinde ise, mevcut müsabakanın akışı içerisinde kazanılan sayılar hususunda, kuralların düzen içerisinde uygulanması ve kurallara uymayanlara gerekli yaptırımların uygulanmasına adına yetkili kişidir (Durna, 1997). Hakem aynı zamanda seyirciler ve sporcular arasında bir bağlayıcı görevi üstlenmektedir (Orta, 2000).

Toplumun bu hususta hakeme yüklediği bir görev ve bir değer mevcuttur. Doğru, güvenilir kararlar vermesi beklenen hakemlerin aynı zamanda şeffaf bir yönetim anlayışına sahip olması gerektedir. Çünkü toplumun bir hakemden beklentisi, seyir zevkini yaratması, görev ve sorumluluklarını yerine getirmesi, çağdaş bir şekilde oyunu yönetebilmesidir (Çelik, 2004).

Futbol Hakemliği

Futbol değişen ve gelişen yapısı ile birlikte artık sadece bir spor dalı değil, büyük paraların döndüğü ve büyük rakamların konuşulduğu bir sektör haline gelmiştir. Hakem ise bu devasa sektör içerisinde, futbolun en önemli üç faktöründen birisi olarak yerini almaktadır (Uzun, 2004).

Futbol hakemliği, çok kısa bir süre içerisinde, çok hızlı ve çok sayıda kararın doğru ve adil bir şekilde verilmesini bekleyen bir meslek grubudur. Hakemler bu zorlu süreç için özel yetiştirilmiş ve bilgilendirilmiş kişilerden seçilmektedir (Sunay, 1992) ve verdikleri kararlar ile oyunu yönetirlerken, bu kararların değiştirilemez olduğunun farkındadırlar. Hakemlerin herhangi bir şekilde kural hatası yapması veya yanlış bir karar vermesinin sonucu, saha içerisindeki otoritelerinin sarsılması ve başka yanlışların önünü açması ile sonuçlanabilir (Ekblom, 1994).

Ülkemizde hakemlerin ve hakemlik kurumunun gelişimi, taraftar gruplarının yapılarının, spor kulüplerinin ve yönetimlerinin içyapısının iyi tespit edilip analizinin yapılması ve böylelikle ortaya konması ile gerçekleşebilir (Orta, 2000).

Futbol hakemliği düşünüldüğünde aslında yapılması en zorlu olan uğraşlardan birisidir. Bu işin bu kadar zorlu olmasındaki temel sebep, gerek seyircilerin, gerek antrenörlerin, gerekse sporcuların kuralları tam anlamıyla bilmemesidir. Kuralların bilinmediği bir çevrede, hakem olarak belli konular üzerinden kararlar vermek, her ne kadar doğru bir adım atmış olsanız dahi tepki ile karşılanmaktadır. Özellikle seyirciler hakeme, taraftarı oldukları takımı savunmak ve galibiyet hazzını yaşamak adına son derece haksız davranmaktadırlar. Bu kadar fazla uyaranın olduğu bir oyunun içerisinde, hakemlerin hep bir adım daha iyi olma isteği ve bunun için gerek psikolojik dayanıklılıklarının, gerek fiziksel dayanıklılıklarının artması önem arz etmektedir (Cel, 1994).

Her zaman daha iyi olmak için çabalayan hakemler için bir de madalyonun diğer bir yüzü mevcuttur. Dinamik bir oyun içerisinde verilen çeşitli kararlar yüzünden küme düşen takımlar, kaybedilen müsabakalar ve belki de kaçırılan şampiyonluklar ortaya çıkmaktadır. Burada bakılması gereken temel nokta, verilen kararların yanlış olduğu mu yoksa kasıtlı olarak verilen bir karar mı olduğudur. Eğer bir hakem sık sık hata yapıyor ve maç seyrini etkileyecek kararlar veriyor ise bu iş için uygun olup olmadığı sorgulanmalıdır (Durna, 1997).

Futbol Hakemliğinde Karar Verme

Futbol hakemliği hususunda karar verme sürecinin %85'ini görsel bilgi oluşturmaktadır ve hakem çok kısıtlı bir süre içerisinde verdiği kararı duyurmak durumundadır. Yani kısaca bir hakem, bir pozisyon oluştuğu andan itibaren, durumu algılar, analiz etmeye başlar, kategorize eder, karşılaştırır ve daha sonra da o duruma en uygun tepkiyi yani kararı verir (Cel, 1994).

İyi bir hakemlik yolunda karar verme becerisi, ne zaman ve nasıl kararlar uygulanması gerektiğini bilmektir. Burada hakemler bir lider gibi tek başlarına ve emin adımlarla iyi birer uygulayıcı olmak zorundadırlar (Yarmalı, 2000).

Rasmussen (1993)'e göre deneyim sahibi hakemler saha içerisinde yetenekleri ve kuralları senkronize bir şekilde kullanırlar, fakat deneyimsiz hakemler kuralların ve mevcut bilgilerinin dışına çıkmamaya özen gösterirlerken, tecrübesiz hareketler sergilerler (Elsworthy ve ark., 2014; Macmahon, 1999). Burada profesyonel kararlar alabilmek tabii ki etkilidir fakat bazen alınacak kararlar ile ilgili risk almak zorunda kalınacağı durumların da olması beklenmelidir (Collina, 2004).

Hakemler hem büyük bir baskı ortamında karar vermek durumundadırlar hem de çok kısa bir süre içerisinde kararlarını açıklamakla yükümlüdürler. Örneğin; 1986 Dünya kupasındaki incelemeler göstermektedir ki, çeyrek final ve sonrasında oynanan 16 müsabakada görev yapmış olan futbol hakemlerinin toplamda 2167 karar verdikleri saptanmıştır. Bunun anlamı da dakikada 1.6 karar, yani her 40 saniyede 1 karar demektir. Bu kadar yoğun bir durum içerisinde mevcut konsantrasyonlarının maksimum seviyede olması ve bütün dikkatlerinin oyunda olması gereklilik arz eden bir durumdur (Evans ve Bellon 2000).

Müsabakalarda hakem hatalarının olması, bu kadar dinamik bir oyun içerisinde çok doğal bir sonuçtur ve bu hataların en aza indirilmesi ilk olarak hakemin sorumluluğunda olan bir görevdir. Bu hataların önlenmesi veya minimum seviyeye indirilmesi adına ilgili kuruluşların da çalışmalar yapması gerekmektedir. Bu zamana kadar denenen çizgi teknolojisi, 6. Hakemlik gibi uygulamalar verilen hatalı kararların minimuma indirilmesi adına yetkili kurumların attığı güzel adımlardandır. Bunlara ek olarak, 2018 yılı Dünya Kupası'nda kullanılan Video Yardımcı Hakem Sistemi (VAR) ise sportif çatışma ve itirazlar hususunda en etkili sistem olarak ülkemizde Süper Lig'inde de kullanılmaya başlanmıştır.

Video Yardımcı Hakem Sistemi

Video Yardımcı Hakem (VAR) özetle, itirazların yoğun olduğu, müsabaka skorunun etkilenebileceği düşünülen pozisyonlarda, pozisyonun tekrar izlenip kararın değiştirilebilmesi hususunda imkân sunan yeni bir sistemdir.

Mevcut sistemde ilk kez 2018 Dünya Kupası'nda kullanılan VAR, başarılı bir izlenim yaratmasının ardından Türkiye Futbol Federasyonu (TFF) tarafından 2018-2019 Spor Toto Süper Lig Lefter Küçükandonyadis Sezonu'nda ülkemizde kullanılmaya başlanmıştır (http-1).

VAR sistemi, maçı yöneten hakem tarafından kararsız kalındığı takdirde, saha kenarına kurulan VAR ekranından pozisyonu tekrar izleme ve doğru karar verme imkânı sunuyor. Ayrıca Riva'da kurulan özel bir VAR odasında farklı farklı açılardan maçı izleyen ayrı bir hakem heyeti de, tartışmalı bir pozisyon ile ilgili maçı yöneten hakeme uyarıda bulunabiliyor. VAR sistemi her pozisyonda devreye giren bir sistem olma özelliğini taşımamaktadır ve devreye girdiği pozisyonlar şu şekildedir (http-2);

- Topun çizgiyi geçip geçmediğine bağlı gol kararları,
- Penaltı kararları,
- Direkt kırmızı kart uygulaması,
- Hakemin yanlış oyuncuya kırmızı kart gösterdiği durumlardır.

Burada önemli olan nokta şudur; VAR odasında yer alan hakemler, her ne kadar oyunun yöneticisine pozisyonu izlemesi hususunda çağrıda bulunsa da, hakem kararının doğru olduğunu savunup ekrana izleme için gelmeyebilir. Her ne koşul olursa olsun VAR odası, hakeme tekrar izleme talebi dışında, oyun içerisinde herhangi bir söz hakkına sahip değildir ve son karar her zaman maçın orta hakemindedir.

Dünya Kupasında görücüye çıkan VAR sistemi ile ilgili FIFA Hakem Komitesi Başkanı Pierluigi Collina, sistem için *"mükemmele çok ama çok yakın"* ifadesini kullandı. Ayrıca FIFA, Dünya Kupası sonrasında açıkladığı raporda VAR sayesinde doğru karar oranının yüzde 99,3 olduğunu söylemiştir (http-3).

VAR sistemi, ilk olarak 1 Eylül 2016'da İtalya ile Fransa arasında oynanan hazırlık maçında denenen bir uygulama olarak karşımıza çıksa da şuanda toplam 16 ülkede uygulanmaktadır. Bu ülkeler şu şekildedir (http-4);

- Avusturya
- Belçika
- Brezilya
- Çin
- Çek Cumhuriyeti
- İngiltere
- Fransa
- Almanya
- İtalya
- Güney Kore
- Hollanda
- Polonya
- Portekiz
- Katar
- ABD

Bu ülkelere ek olarak Türkiye'de VAR teknolojisini kullanan ülkeler arasında yerini almaktadır.

Tablo 1. Görüşmelerde Kullanılan Yarı Yapılandırılmış Formu Soruları

1	Sistemin tanıtımı nasıl gerçekleştirildi? Vaat edildiği şekilde çalışmakta mıdır?
2	Bu sistem vasıtasıyla hatalı kararların önüne geçilebilir mi?
3	VAR Sistemine başvurmak oyunun akışını bozuyor mu?
4	Sisteme başvurmak güvensizlik hissi oluşturuyor mu?
5	VAR Sistemi kullanılmaya başladıktan sonra oyuncuların ve teknik direktörlerin size olan bakış açısında bir değişim gözlemliyor musunuz?
6	Sisteme bu kadar kabul görmesinin sebepleri nelerdir?
7	Bu sistemin kullanıma başlanmasında bir gecikme olduğunu düşünüyor musunuz?
8	Bu sisteme alternatif olacak bir görüşünüz var mıdır?
9	VAR Sistemi öncesinde maçla ilgili pozisyonların çokça tartışılıyor oluşu, bu sistem sayesinde azalacak mıdır?
10	Medya yoluyla üzerinizde oluşabilecek baskının azaltabileceğine inanıyor musunuz?
11	Bu sistemin ileride gelişmeye açık olduğunu düşünüyor musunuz?
12	Bu sistem, hakemlerin mesleki gelişimlerinde etkili olabilir mi?
13	VAR Sisteminin Süper Lig'de kadın hakemlere fırsat tanıyabileceğini düşünüyor musunuz?

Çalışmanın katılımcılarını, Türkiye Faal Futbol Hakemleri ve Gözlemcileri Derneği Eskişehir şubesine üye olan ve aktif olarak hakemliklerine devam eden 5 hakem oluşturmaktadır. Çalışma kapsamında, tüm hakemlere ulaşmak mümkün olmadığından araştırma için yararlı olabilecek, deneyimli hakemlerin tespiti hususunda dernek başkanı ile iletişime geçilmiş ve yönlendirmeleri ile çalışma toplam 5 hakem ile tamamlanmıştır. Gerçekleştirilen görüşmelere ilişkin; tarih ve görüşme süreleri **Tablo 2**'de verilmiştir.

Tablo 2. Görüşme Detayları

Katılımcılar	Görüşme Süreleri (dk)	Görüşme Tarihi
Katılımcı-1	39.36	21.09.2018
Katılımcı-2	37.55	22.09.2018
Katılımcı-3	27.11	23.09.2018
Katılımcı-4	34.28	27.09.2018
Katılımcı-5	35.04	28.09.2018

Araştırmacı, katılımcılar ile belirlenen tarih ve saat doğrultusunda görüşmeleri planlamışlar ve görüşmeci için uygun olan bir yerde görüşmeleri gerçekleştirmişlerdir. Görüşme öncesinde araştırmacılar tarafından katılımcıya çalışma hakkında bilgi verilmiş ve bilgilerin gizliliği ile sadece bilimsel amaçlar doğrultusunda kullanılacağını taahhüt eden bir onam formu karşılıklı olarak imzalanmıştır. Görüşmeler, katılımcının onayı ile ses kaydına alınmıştır. Ses kaydına alınan görüşmeler daha sonrasında yazıya aktarılmış ve 2 ayrı araştırmacı tarafından incelenmiştir. Gerçekleştirilen incelemeler sonucunda araştırmacıların fikir birliği ile temalar ve kodlar tespit edilmiştir. Belirlenen temalar ve kodlar, araştırmacılar tarafından çalışmanın kapsamı doğrultusunda yorumlanmıştır. Temalar ve kodlar belirlenirken güvenirlik aşamasında Miles ve Huberman'ın (1994) güvenirlik formülü [Güvenirlik=(Görüş Birliği / Görüş Birliği + Görüş Ayrılığı) x 100] kullanılmıştır. Bu amaçla araştırmacılar tarafından görüşme metinleri ayrı ayrı incelenmiş ve birbirlerinden bağımsız olarak belirlenen kategorilerin altına tespitlerini yazmaları istenmiştir. Mevcut formül ile hesaplamalar sonucunda %70 ve üzerinde olan sonuçların güvenirlik anlamında yeterli olacağı belirtilmiş bu yüzdenin altında kalan ifadeler değerlendirmeye alınmamıştır (Miles ve Huberman, 1994).

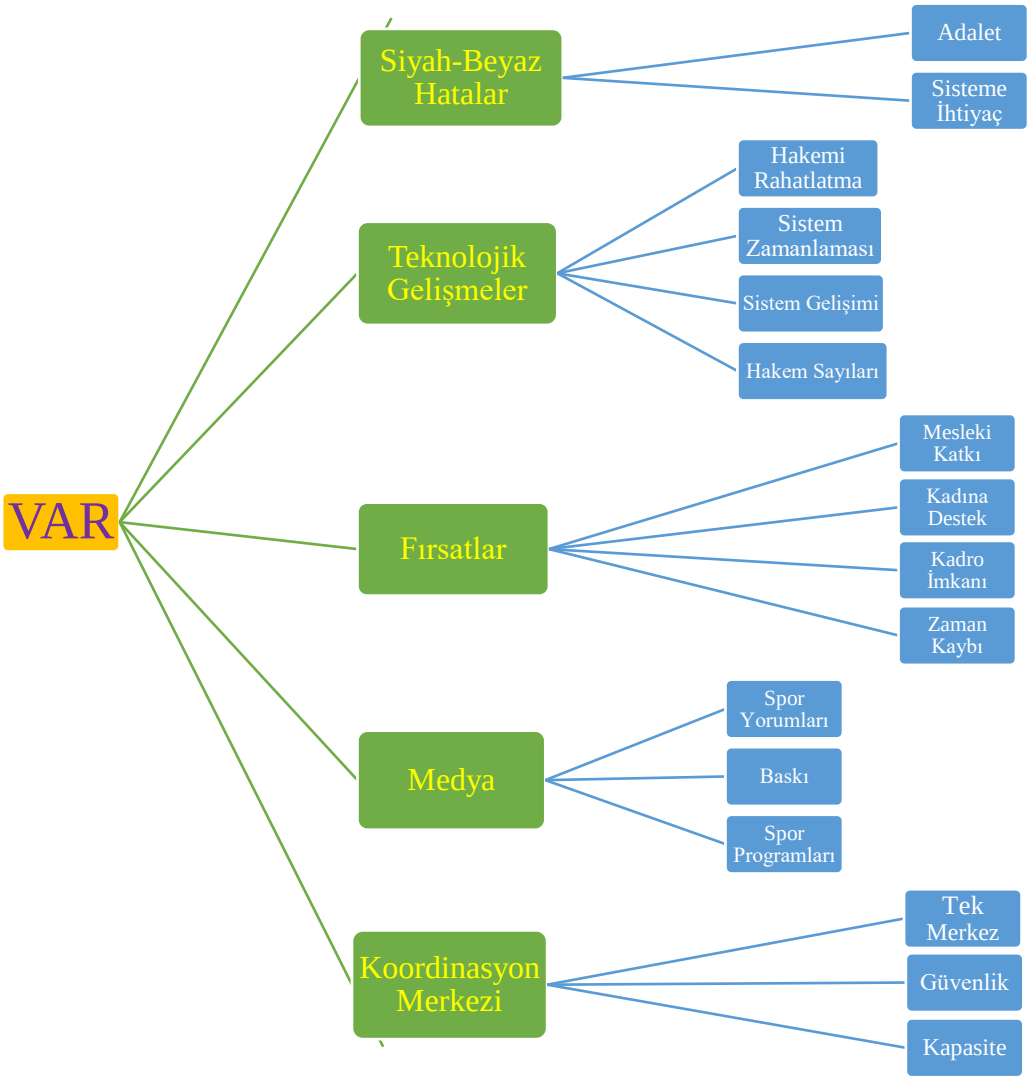
Bulgular

Gerçekleştirilen araştırma kapsamında, bulgular bölümünde tespit edilen temalar ve kodlara yer verilmiştir. Bulgular bölümünde ayrıca katılımcı görüşlerine yer verilmiş, katılımcı görüşleri paylaşılırken kimlikleri hakkındaki bilgiler paylaşılmamış ve görüşler araştırmacılar tarafından numaralandırılan katılımcı kodu ile aktarılmıştır.

Araştırma sonucunda hakemlerin VAR sistemi ile ilgili deneyimleri 5 tema altında toplanmaktadırlar. Bu temalar;

- Siyah-Beyaz Hatalar,
- Teknolojik Gelişmeler,
- Fırsatlar,
- Medya,
- Koordinasyon Merkezi'dir.

Temalar altında toplanan kodlar ise **Şekil-1**'de verilmiştir.



Şekil-1. VAR sistemi ile ilgili Temalar ve Kodlar

Siyah-Beyaz Hatalar

Katılımcılar, sistem üzerinde gerçekleştirdikleri açıklamalarda özellikle mevcut hataların sonucu etkilemesi durumunun son derece can sıkıcı olduğunu ve taraftarı derinden etkilediğini dile getirmişlerdir. İnsan faktörünün içinde bulunduğu durumlarda hatanın kaçınılmaz olduğunu ve minimum seviyede olması adına, oyun içerisinde yeni bir arayış olduğunu belirten hakemler, bu arayışın adalet istenmesi ile ortaya çıktığını ve sistem ihtiyacının oluşması ile sonuçlandığını belirtmişlerdir.

Adalet

Hakemler bazen verilen kararların, maç sonucu üzerinde son derece etkili olduğunu belirtmektedir.

Katılımcı-1: *"Bazen öyle maçlar izliyoruz ki, kazanması gereken takım hakemin hatası yüzünden kaybediyor"* cümlesi ile adalet kavramına vurgu yapmıştır. Katılımcı-3'de 1'in görüşünü destekler nitelikte *"Bazen hakemler için eyyamcılık suçlaması olabiliyor ve taraftarlar adaletli bir oyun seyretmek istiyor"* ifadesi ile beklentiyi gözler önüne sermiştir.

Sistem İhtiyacı

Hakemlerin taraftar tarafından adil olmadıklarına dair suçlamaları, sisteme olan ihtiyacı gözler önüne sermektedir.

Katılımcı-3 ihtiyacı şöyle anlatmaktadır; *"27 Haziran 2010 Almanya-İngiltere maçında gerçekleşen, Lampard'ın aşırtma vuruşunda top önce üst direğe çarpmış ardından kale çizgisinin nerdeyse 30 cm içine düşüp dışarı sekmiştir ama bu pozisyon hakem tarafından es geçilmiştir."* Katılımcı-2 ise *"Hakemlerin her pozisyonu görmesi imkânsızdır çünkü her zaman doğru açıya sahip olmak zor bir şeydir."* açıklaması ile sistemin gerçekten fonksiyonel olduğunu ifade etmektedir.

Teknolojik Gelişmeler

Gelişen ve değişen dünya ile birlikte artık hemen hemen her alanda teknolojinin desteğine ihtiyaç duyulmakta ve sunduğu kolaylıklardan fayda sağlanmaktadır. Aslında futbolun içerisine giren VAR sistemi farklı branşlarda uzun süredir kullanılan *"şahin gözü"* uygulamasının bir yansımasıdır.

Hakemi Rahatlatma

Hakemlerin VAR sistemi ile ilgili olarak vardıkları ortak görüşlerden birisi de, sistemin hakemi rahatlatması ve yönettiği maçta kararları daha kolay verdiğidir.

Katılımcı-5 *"Eğer karar verdiğimiz bir pozisyonda doğru açıda değilsek ve kararımızdan emin değilsek, adaleti sağlamak adına VAR sistemine gidebiliriz. Bu bizim için bir fırsat."* cümlesini kullanmış ve hakemlerin içlerinin rahatlaması ve kendinden emin kalmaları hususunda, sistemin önemini vurgulamıştır.

Sistem Zamanlaması

Hakemler sistemin futbolda kullanılmaya başlanma zamanlaması ile ilgili olarak en uygun zaman olduğunu düşünmekte ve buna Dünya Kupası'nı örnek göstermektedirler. Diğer branşların teknolojik uygulamaları ile özdeşleştirilmeyen futbol için en uygun zamanının Dünya Kupası olduğunu ve teknolojik desteğin ancak şimdi mümkün olduğunu dile getiren hakemler, kullanılan kamera sistemlerinin diğer branşlara göre daha gelişmiş olduğunu vurgulamaktadır.

Sistem Gelişimi

Mevcut gelişimlerin üzerine gelebilecek yeni adımların neler olduğunu tahmin etmekte güçlük çeken hakemlerimizden Katılımcı-4 "A*rtık bu yeniliğin evrileceği tek noktanın daha fazla açıdan daha fazla kameranın kullanılması olacağını düşünüyorum."* sözleri ile ifade etmiştir. Katılımcı-1 *"Teknoloji bu saatten sonra artık bizler için hayal gücümüzün ulaştığı nokta. Belki de ileride maçlar hakemsiz bile yürütülebilir."* yorumu ile geleceği ön göremediği hususundaki görüşlerini aktarmıştır.

Hakem Sayıları

Hakemlerimiz bu teknolojik gelişmenin bir sonucunun da hakem sayılarındaki azalma olacağını düşünmekte ve insan faktörünü azaltmanın, hataları azaltacağını söylemektedirler.

Katılımcı-2 durumu, *"İleriki dönemlerde belki de maçları sadece tek bir hakem yani orta hakem yönetecek. Kamera sistemleri çok rahat bir şekilde yardımcı hakem görevini yürütebilir hale gelecektir."* şeklinde özetlemiştir.

Fırsatlar

Mevcut değişimlerin yatacağı fırsatlara değinen hakemler, mesleki kazanımlardan, toplumsal cinsiyete dayanan imkânlar yaratılabileceğini dile getirmişlerdir.

Mesleki Katkı

VAR sistemi ile ilgili gerçekleştirilen eğitimlerin mesleki olarak gelişim sağlayacağı ve pratik yaratacağını söyleyen hakemler, mesleki açıdan bir kazanıma sahip olacaklarını düşünmektedirler.

Katılımcı-3 mesleki kazanımla ilgili olarak *"VAR eğitimlerinde o kadar çok video izliyoruz ki, pozisyonlar ister istemez hafızamıza kazınıyor."* demiştir. Bu görüşe paralel olarak Katılımcı-5 *"Kendimizi geliştirmek ve bir karar vermede pratik kazanmak adına yapılacak en güzel şey bol bol pozisyon izlemek ve VAR sistemi bize bu imkânı sunuyor." diyerek fikirlerini belirtmektedir.*

Kadına Destek

Hakemliğin erkek egemen bir konumda olduğu ülkemizde, futbolda kadına karşı güven bulunmamaktadır. VAR sistemi ile sağlanan kararların doğruluğu ile beraber belki kadının futbol içerisinde bir şansı bulunabilmektedir.

Toplumsal cinsiyet bağlamında katılımcı-2 *"en az bizler kadar iyi maç yöneten kadınlar ve süper Lig'de yer almayı hak ediyorlar. VAR sistemi kadınlar için bir şans olabilir."* diyerek görüşlerini belirtirken, katılımcı-1 bu görüşe daha temkinli yaklaşmakta ve *"Başımızda bu zihniyet ve böyle bir TFF yönetimi olduğu sürece kadın maalesef futbolun içerisinde yer edinemez."* şeklinde fikirlerini aktarmaktadır.

Kadro İmkânı

Hakemlerimiz yeni gelen bu sistem içerisinde eleman ihtiyacının son derece yoğun olduğunu dile getirmekte ve ilerleyen dönemlerde sadece süper lig hakemlerinden oluşan bir kadro ile değil, VAR sistemine özel bir kadro ile yola devam edileceğine inanmaktadır.

Açılabilecek yeni kadro fırsatları ile ilgili olarak katılımcı-4 *"Sistem şuan, mevcut süper lig hakemleri üzerinden ilerliyor ve bu süreç hakemler için çok yorucu bir hal almış durumda"* diye durumu açıklamaktadır. Bu görüşe paralel olarak katılımcı-2 *"Sistem daha alt liglere de uygulanmaya başladığında mutlaka yeni kişilere ihtiyaç duyulacak çünkü VAR sistemi kalabalık bir sistemdir."* olarak görüşlerini aktarmaktadır.

Zaman Kaybı

VAR sistemi ile ilgili olarak taraflardan gelen en büyük eleştiri, futbolun ruhuna aykırı olarak oyunun fazlaca durması ve gereksiz zaman kaybı yaratmasıydı. Oysaki hakemlerimiz bu konu ile ilgili tam tersi düşünceler içerisindedirler.

Zaman kaybından ziyade daha akışkan bir oyun oynandığını vurgulayan hakemlerimizden katılımcı-5 *"Bir hakemin VAR'a başvurması ve inceleme yapması maksimum 2-3 dakikasını alır, oysaki itirazlardan dolayı oyunlar çok daha fazla uzamakta."* Katılımcı-1 ise bu süreci *"VAR kullanımı açıklanan resmi rakama göre ortalama 60 saniye süren bir süreç ve oyunu uzatması veya sekteye uğratması mümkün değil."* şeklinde yorumlamaktadır. Diğer katılımcılar da bu süreç ile ilgili katılımcı-1 ve 5'e paralel ifadeler kullanmaktadırlar.

Medya

Medyanın çok güçlü bir etki yarattığını dile getiren hakemler, medya hususunda ortak bir dil kullanmaktadırlar ve üstün gücünü kabul etmektedirler.

Spor Yorumları

Oynanan oyun hakkında yapılan yorumların çok sert olduğunu dile getiren katılımcı-3 *"Gazetelerde veya çeşitli medya araçlarında yapılan yorumlar çok acımasız ve bu yorumları gerçekten işi bilen kişiler yapmıyor"* şeklinde yorum yapmaktadır.

Baskı

Medyanın güçlü ve etkili bir organ olduğunu kabul eden hakemlerimiz, özellikle kritik maçlar ile ilgili çok fazla baskı hissettiklerini ve bu baskının ister istemez hayatlarına yansıdığını belirtmektedir. Bu konu ile ilgili katılımcı-5'in görüşü şu şekildedir, *"Bir hakemin kritik bir maça çıkarken, mesela bir derbi maçı olsun… acaba herhangi bir hata yapıp, eleştiri alacak mıyım diye düşünmeden çıkmasının imkanı yoktur."*

Spor Programları

Yapılan programların çok düzgün programlar olmadığını dile getiren hakemlerimizin bu program ile ilgili eleştirileri şu şekildedir, katılımcı-2 *"öyle programlar yapılıyor ki sadece şarlatanlık izliyoruz. Spor ya da futbol namına hiçbir şey yer almıyor"*. derken, katılımcı-1 fikirlerini *"VAR sistemi geldi ve artık spor programcılarına konuşacak bir şey kalmadı. Artık televizyonlarda gerçek futbol konuşulacak"* şeklinde dile getirmiştir.

Koordinasyon Merkezi

VAR sisteminin koordinasyon merkezi İstanbul'da yer almaktadır. VAR sisteminin kullanıldığı her maç Riva merkezli olarak tek bir merkezden izlenmektedir ve bu uygulamanın farklı çeşitleri de mevcuttur.

Tek Merkez

Ülkemizde tek merkezden idare edilen VAR sistemi ile ilgili olarak yoğun fikir birliği tek merkezin uygun olmasına yöneliktir. Bununla ilgili olarak katılımcı-3 *"Uygulama farklı yerlerde farklı şekillerde yapılıyor, eğer görüntü aktarımında bir zaman kaybı yaşanmıyor ise merkezin nerede olduğu önemli değil"* derken, sadece katılımcı-5 diğerlerinden farklı bir fikir beyan etmekte ve güvenlik problemini vurgulamaktadır.

Güvenlik

Güvenlik ile ilgili soru işaretleri olduğunu aktaran katılımcı-5 bu konu hakkında şu görüşü öne sürmektedir *"Bizim ülkemizde VAR sistemi kabin tipi olur ise güvenlik sorunu yaşanabilir çünkü bu ülkede zamanında hakemler rehin alındı."* Ayrıca bu görüşe ek olarak, *"taraftarlar mobil araç gibi bir sistemin etrafını sarabilir ve zarar verebilir"* diyerek endişelerini dile getirmektedir.

Kapasite

Riva'da olduğu bilenen VAR uygulama merkezi şuanda 7 adet odadan oluşmakta ve sadece süper lig maçları için hizmette bulunmaktadır.

Mevcut kapasite göze alındığında, katılımcı-3 görüşlerini şöyle dile getirmektedir *"Tesis şuanda yeterli bir konumda fakat hakem sayısı yetersiz kalıyor."* Katılımcı-4 *"Madem bu sistem alt liglere de uygulanacak, kesinlikle mevcut odalar yetersiz kalacaktır"* şeklinde yorum yapmaktadır. Tesislerle ilgili katılımcı-2 ise*, "Evet, sistem şuanda iyi gidiyor ama önümüzdeki dönemlerde daha alt liglere ve farklı organizasyonlara da bu sistemin uygulanacağı söylendi, bu durumda ne 7 VAR odası yeterli olacaktır, ne de VAR özelliklerini taşıyan statlar yeterli olacaktır."* yorumunu yapmıştır.

Bütün bu bulgular değerlendirildiğinde, VAR sisteminin futbol dünyasında yeni bir soluk oluşturduğu söylenebilir. Üstün bir teknoloji ile donatılmış bu sistemin, hem kullanıcılar, hem de izleyiciler açısından faydalı bir sistem olacağına olan inanç, sistemin kullanımında daha aktif ve istekli olunması ile sonuçlanacaktır. Daha alt liglere de uygulanması beklenen sistemin, hataları azaltmak hususundaki etkisi yadsınamaz bir gerçektir.

Tartışma ve Sonuç

VAR sistemi en baştan beri ülkemizde ve pek çok ülkede tartışmaya sebebiyet veren bir sistem olarak anılmaktadır. Bu sistem ile ilgili olarak, Tottenham Menajeri Pochettino, söz konusu uygulamanın futbolun ruhuna zarar verdiğini dile getirmiştir. Bunun ile ilgili görüşü şu şekildedir; "Futbol duygularla oynanıyor. Eğer duyguları öldürürsek futbolu seven hiç kimse bu maçta yaşananlardan dolayı mutlu olmaz. Futbol aynı zamanda hatalarla oynanıyor. Biz hata yapıyoruz, oyuncular hata yapıyor, hakemler hata yapıyor. Fakat bana kalırsa biz en iyi hakemlere sahibiz. Video Hakem uygulamasının futbola yardımcı olacağını düşünmüyorum" (http-5).

Ayrıca Hırvat oyuncu Luka Modric, "Yeni bir buluş ama dürüst olmak gerekirse uygulamayı beğenmedim. Kafa karışıklığına sebep oluyor. Bu uygulamanın devam etmemesini umuyorum çünkü bunun futbol olmadığını düşünüyorum" sözleri ile VAR sistemine olan bakış açısını aktarmıştır (http-6).

Bu olumsuz görüşlere paralel olarak ülkemizde, VAR sistemi ile ilgili olarak olumsuz görüş belirtenler listesinde, eski futbolcu Tümer Metin, eski hakem Deniz Çoban, Türkiye Futbol Antrenörler Derneği (TÜFAD) Eskişehir Şube Başkanı Ahmet Bingöl, Hürriyet yazarı Uğur Meleke, Fanatik yazarı ve TRT Spor yorumcusu Cem Dizdar' da yer almaktadır. Kişilerin beyanatları dikkate alındığında, sistem ile ilgili zaman kaybı yaratacağı konusundaki görüş birliği ve kaygı göze çarpmaktadır.

Günümüzde önemli bir kitleyi oluşturan sosyal medya kullanıcıları arasındaki bazı futbolseverler, VAR sisteminin futbolun ruhuna ters olduğunu savunurken, bazıları da bu sistemin sonuçları adil olarak belirleyeceği fikrini savunmaktadır (http-7).

VAR sistemi ile ilgili olarak Türkiye'de antrenörlük yapan kişilerin görüşleri şu şekildedir (http-6);

Başakşehir Teknik Direktörü Abdullah Avcı: *"Video hakem uygulaması nostalji olarak bakıldığında sanki futbolun doğasını bozuyor gibi gözüküyor ama bugünkü gerçeklerle bakıldığında sanki futbolun içinde olması gereken bir durum gibi duruyor."*

Beşiktaş Teknik Direktörü Şenol Güneş: *"Sistem kullanılabilir."*

Galatasaray Teknik Direktörü Jan Olde Riekerink*: "Video hakem uygulaması başlatılırsa, bu onların da çok faydasına olacaktır. Her şeye rağmen, oyunun çekiciliğini, akıcılığını kaybetmemek lazım. Eğer bunu etkilemeyecekse, video hakem uygulamasına geçilebilir."*

Fenerbahçe Teknik Direktörü Dick Advocaat*: "İyi olur. Yardımı, katkısı olabilecek her şey iyi olur, çünkü hakem olmak zor bir iş."*

Bursaspor Teknik Direktörü Hamza Hamzaoğlu: *"Doğru bir şekilde oturtulursa yararlı olabilir. Hatalar en aza indirgenir. Dışarıdan başka bir hakem, izledikten sonra kulaklıkla hakeme bildirebilir. Çok daha kısa sürede yapılabilir ancak futbolun ruhunu öldürmemek lazım. Hata, futbolun içinde olan bir unsur, futbol hatalarıyla güzel."*

Osmanlıspor Teknik Direktörü Mustafa Reşit Akçay: *"Futbolun ruhuna aykırı görüyorum. Kim ne zaman hangi kararı vererek videoyu oynatacak? Süre kaybı ve konsantrasyon kaybı. Ayakla taç da gündeme gelmişti ama futbolun hızını ve konsantrasyonunu kestiği için vazgeçilmişti. Bence hakemlerin özgür görüşüyle oyunu doğal hale getirmeliyiz."*

Gençlerbirliği Teknik Direktörü Ümit Özat: *"Video hakem uygulaması mutlaka gelmeli ama kriteri olmalı. Kriterleri iyi oturtmak lazım. Bana göre ofsayt için uygulanmamalı. Elle oynanan pozisyonlar veya agresif davranışlar için uygulanmalı. Gelmesiyle beraber kriterlerin olması lazım. Her şeyi durdurarak bakarsak, futbol futboldan çıkar."*

Antalyaspor Teknik Direktörü Rıza Çalımbay*: "Önce bir bakmak, denemek lazım. Belli bir süre sonra başlamak lazım. Neticede hakemler insan, bazı pozisyonları kaçırabiliyor. Geçen sene Kasımpaşa'da çok yaşadım. En az 15 puanımız hakem hatalarından gitti ama ben bilerek yaptıklarını sanmıyorum. Çözüm olacaksa, bir faydası olacaksa olabilir. Daha önce 4. hakem koydular, olmadı, kaldırdılar. Belki onu da kurup tekrar kaldıracaklar."*

Karabükspor Teknik Direktörü Igor Tudor: *"Bu tarz hakemler için çok iyi olacak."*

Kasımpaşa Teknik Direktörü Kemal Özdeş: *"Bu hafta oynanan Medipol Başakşehir-Adanaspor maçıyla ilgili düşünürsek bence de olmasında fayda var."*

Trabzonspor Teknik Direktörü Ersun Yanal: *"Video uygulamasına, oyunun durmasına karşıyım. Birbirimize güvenmeliyiz. Birbirimizi baskı atına alıp futbol iklimini kirletmemeliyiz. Top çizgiyi geçti mi geçmedi mi, gibi bir takım küçük uygulamalar yapılabilir ama video uygulamasını futbolun doğasına aykırı buluyorum."*

Alanyaspor Teknik Direktörü Hüseyin Kalpar*: "Futbola katkı sağlayacak her şeye olumlu bakarım. Tabii ki bunun ön çalışmalarının yapılması gerekir. İleriye dönük bu tip çalışmalar olabilir. Önemli olan futbola fayda sağlanması."*

Rizespor Teknik Direktörü Hikmet Karaman: *"Video hakem uygulamasını çok merak ediyorum. Hakem daha sağlıklı görebilir. Biz bazen analiz yaparken aynı pozisyonu dört beş kez çevirip izliyoruz. Tartışıyorsun, karar veriyorsun. Yetkililerin bunu ele alması gerekiyor."*

Gaziantepspor Teknik Direktörü İbrahim Üzülmez: *"Video hakem uygulaması, oyunu biraz daha soğutur. Oyuncular arasında bir anket yapılsa olumsuz düşünce çok çıkar. Saha içinde oyuncu tarafından baktığımızda video uygulamasını değerlendirmek için en az iki dakika duracak. Oyuncular için doğru olmayacağını düşünüyorum. Basketbolda olabilir, futbolda olumsuz olarak değerlendiriyorum."*

Antrenörlerin birçoğunun birleştiği görüş sistemin kullanılmasının bir ihtiyaç ve faydalı olacağı yönündedir. Spor yorumcuları gibi olumsuz görüş belirtenlerin de dediği gibi bazı antrenörlerde de zaman kaybı yaratabileceği hususundaki kaygı göze çarpmaktadır.

Bütün bu görüşlerin yanında VAR, Spor Toto Süper Lig'in ilk yarısında 98 kararın değişmesini sağlamıştır. Hakemler, topun ağlara gittiği 24 pozisyonun öncesinde golü atan takım aleyhine; ofsayt, faul veya elle oynama gibi bir ihlal tespit etmiştir. Hakemlerin Video Yardımcı Hakem'e gitmeden önce iptal edilen 7 gol kararında değişiklik yapılmıştır. Süper Lig'in ilk yarısında 27 penaltı pozisyonunda VAR uygulamasına giden hakemler karar değiştirmiştir. İlk 17 haftada 20 penaltı VAR'a giden hakemlerin karar değiştirmesiyle verilmiştir. Hakemlerin penaltıya hükmettiği 7 pozisyonda ise karar geri alınmıştır. Hakemler, sezonun ilk yarısında 16 kırmızı kartı VAR incelemesinden sonra çıkarmıştır (http-8).

Sistemin bir ihtiyaç olduğu ve adalet dağıttığı hususunda hakemler tarafından belirtilen görüşleri destekler nitelikte adımlar atıldığı, Süper Lig'in ilk yarısında gerçekleşen uygulamalardan da gözükmektedir. Adaletin sağlanması ve hakemlere yardımcı olması hususunda faydalı bir sistem olduğu açıkça görülen VAR sistemi, hakkıyla uygulandığı takdirde, tarafları ve tüm paydaşları memnun eden bir sistem olarak anılabilir.

Yerli alanyazın dışında, yapılan araştırma sonucunda elde edilen bilgilerin ve görüşme sonuçlarının, yabancı alanyazın taraması sonuçları ile de benzerlik gösterdiği görülmektedir. (Schauss, 2018; Dugalić, 2018; Spitz ve ark., 2018; Spitz, 2017;). Gerçekleştirilen alanyazın taramasında elde edilen görüşler şu şekildedir;

- *"VAR sistemi subjektif bakış açısını ortadan kaldıracak ve daha temiz kararlar alınmasının önünü açacaktır."*
- *"Video teknolojisi daha kesin ve objektif kararlar verilmesi hususunda önem arz etmektedir."*
- *"Sporun dijitalleşmesindeki en önemli örneklerinden birisi 2018 Dünya Şampiyonasında kullanılan VAR sistemidir."*
- *"VAR sistemi yavaş çekim teknolojisi ile hakemlere karşı gerçekleşebilecek yanıltıcı hareketlerin tespitinde önemli ve faydalı bir yeniliktir."*

Alanyazında gerçekleştirilmiş nitel bir çalışma bulunmamasından dolayı, gerçekleştirilen bu çalışmanın özgün bir değere sahip olduğu söylenebilir. Yerli alan yazında VAR sistemi ve hakemlerine yönelik çalışmaların kısıtlılığı sebebiyle boşluğu doldurması bakımından özgün bir çalışma olarak kabul edilebilir.

Bu araştırma sonucunda gerçekleştirilen tespitlerin farklı örneklem gruplarında (Cinsiyet, statü, görev yılı vb.) değişiklik göstermesi olağandır. Bu çalışma; Türkiye'de VAR sisteminin mevcut durumu, işleyişi, tanıtımı, faydaları ve gelişim yolunda, olası geçirebileceği evrimin ortaya konması açısından önem arz etmektedir.

Her araştırmanın olduğu gibi bu araştırmanın da çeşitli sınırlılıklar ile yürütülmüş olduğu göz ardı edilmemelidir. Daha sonraki araştırmalarda farklı evren-örneklem grubu seçilerek ya da farklı alanlardaki görüşler alınarak (gözlemci, federasyon yetkilisi, yan hakem vb.) çeşitli araştırma desenleri oluşturulabilir.

Sonuç olarak; VAR sistemi pek çok ülkede kabul görmüş bir sistem olmasına rağmen ülkemizde dâhil olmak üzere, özellikle taraftarlar açısından bir yenilik olarak değerlendirilmekte ve önyargı ile yaklaşılmaktadır. Teknolojik gelişmelerin ve yeniliklerin hızla yaşandığı 21.yy.'da, hakemlerimizin de sistem hakkındaki görüşleri dikkate alındığında, futbolda ve pek çok spor branşında adalet sağlama adına daha fazla yeniliğin gelebileceğini söylemek mümkündür.

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Effect of Aerobic Exercise on Some Blood Parameters on Sedentary Individuals

Zeynep YILDIRIM, **Emre ÇİLİNGİR**
Bartın University, Sport Sicence Faculty, TURKEY
Email: zeynep.erol1989@gmail.com

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Abstract

The aim of the study was to investigate the effect of aerobic exercise on some blood parameters in sedentary individuals during 8 weeks. In this study, 9 Volunteer male sedentary individuals with an average age of 27.11±1.83 were involved. The subjects who participated in the study were given a 75-minute walking exercise 3 days a week, along with average ground exercises per day. Blood measurements and height-weight measurements; Each of the subjects was performed twice before and after the exercise program, including before the training program (pre–test) and after the training program (final–test). Food intake was stopped 12 hours before the measurements. The data was evaluated statistically using the IBM SPSS Statistics 23 License Authorization Wizard package program according to the values obtained from the measurements. P > 0.05 was considered statistically meaningless. When the statistical results are examined; while Weight, Total Cholesterol, TRIG, HDL, LDL, AST, ALT, Iron, Total Iron Capacity levels (TRIG, HDL, Iron and Total Iron Capacity) levels of sedentary individuals were not found to be statistically significant., (Weight, LDL, AST and ALT) levels were found statistically significant difference (p <0.05).

Keywords: sedentary, aerobic exercise, blood, total cholesterol, triglycerides, HDL, LDL, AST, ALT, total iron

Introduction

Physical activity, sports and vital activities, including muscle and joint movements are all body movements. Exercise is defined by the American Institute of Sports Medicine (ACSM) as the maintenance of physical health, repeated, planned and structured sportive activities of the body, depending on the deterioration of internal balance. (Kılıç Toprak, 2015). Exercise; It's a subtitle of physical activity, which is the body movements that are continually maintained without a break, so that they can maintain physical fitness or healthy life. ((Lindwall, 2004) While physical activity can be done without plan, exercise can be considered as previously planned activities. Sedantary's life-related disease risks are rising throughout life, beginning in childhood. (Booth ve Hargreaves, 2011). Today, inactivity is considered a discomfort with many fatal diseases. Cardiovascular systems and obesity are the most important of these. In addition, high cholesterol, triglyceride signs, abnormalities of blood sugar, susceptibility to high blood pressure, digestive and excretion problems, low breathing capacity, posture disorder, loss of flexibility of the chest cage, post-partum abdominal sagging, weak abdominal and back muscles , loss of strength and flexibility in muscle structures, calcification of skeletal structure, joint restriction, weak organism, easy illness and recovery problems are described as the discomforts of our time. (Göksu ve ark., 2003).

Type of exercise may vary according to intensity and duration of hematological and biochemical variables. (Demiriz ve ark., 2015). The effect of exercise on biochemical variables has become a continuous research topic. There has been a significant increase in exercise in recent years due to the positive effect of exercise on fats and carbohydrate metabolism, positive decreases in body weight, fat stores, total cholesterol and triglycerides (Tran and Weltmen, 1985) and the prevention of many diseases. (DeSouza ve ark., 2000). Exercise has many goals such as controlling oxygen distribution, regulating metabolic processes, increasing strength, improving endurance, reducing body fat, and regulating muscle-joint activity. (Aktürk, 2017). Exercise individuals are expected to have some physiological differences, along with acute and chronic adaptation. It is reported that regular, long-term and moderate aerobic exercises cause decrease in total cholesterol, LDL, triglyceride risk factors which are among the risk factors of coronary artery and cause an increase in HDL level. In addition, it is emphasized that high blood pressure and obesity diseases decrease with exercise. There is a stronger connection between plasma cholesterol levels and the risk of cardiovascular disorder, regardless of other risk factors. High LDL cholesterol levels have been shown to cause atherosclerotic heart disease. (Karacan ve Çolakoğlu, 2003). In recent years, the main reason for increasing the trend of exercise in the developed world has been found to be to maintain body health. In many studies, it is determined that regular exercise has a positive effect on people's body in sociological, psychological, motoric and physiological terms. (Gültekin, 2018). The aim of this study was to investigate the effect of 8 weeks of exercise program on 9 blood sedentary individuals on some blood parameters. The effects of aerobic exercise training program on blood lipids were examined.

Methods

In this research; the average age is 27.11 ± 1.83, living in the district of Samsun 19 May; 9 male sedentary individuals participated voluntarily. Participants were given an average of 60 minutes of walking exercise per day, 3 days a week. Blood measurements and height-weight measurements; Each of the subjects was given two times before and after the training program (pre-test) and after the training program (final-test). After the walk, the subjects completed the

exercise by doing ground exercises for the abdomen and legs for 10 minutes, and finally by cooling exercises for 5 minutes.

Body Weight and Height Measurement

This measurement was made using a scale with a sensitivity of 0.01 kg. the measurement was performed with the bare feet of the subjects, with their bellies hungry, and wearing only shorts. Height measurements were taken with bare feet and cm sensitivity with pharmacy type measuring instrument with a sensitivity of 0.01 cm. It has been taken with barefoot, head up, knees streched, heels and body in adjacent position. The obtained values were written in kilograms and centimeters in the information form.

Blood Parameters

With 9 male volunteers participating in the program, 12 hours before the start of the exercise program stopped eating and went to the previously diagnosed health facility to give blood. This procedure was performed by experts in the appropriate laboratory environment to examine the blood parameters (Total cholesterol, triglyceride, HDL, AST, lower, iron, total iron capacity) twice before the exercise (pre-test) and after the end of our 8-week exercise program (end-test). All numerical values of the research results were evaluated with the 'T test by calculating mean ± standard deviation.

Statistical Analysis

The values obtained were evaluated statistically using the IBM SPSS Statistics 23 License Authorization Wizard package program. The value p>0.05 was considered statistically meaningless. Independent sample t-test was used to determine differences between pre-test and end–test variables.

Findings

Table 1. Physical Characteristics of Participants Included in the Study

N	Years of Age (Mean±SD)	Size Length (cm (Mean±SD)
9	27,11±1,83	179,89±0,08

When the physical characteristics of the participants were examined in the table, age averages and length lengths were determined as 27.11±1.83 years and 179.89±0.08 cm respectively.

Table 2. Comparison Of The Preliminary Test-Final Test Results Of Some Physiological Parameters Of The Participants

Measurements (cm)	Sequences	N	Mean Rank	Sequence Total	Z	p
Weight pre-test-final test	Negative sequences	9[b]	5,00	45,00	-2,67**	,007
	Positive Sequences	0	,00	,00		
	Equal	-				
T.Cholesterol mg/dL pre-test-final test	Negative Sequences	6[b]	6,33	38,00	-1,83**	,066
	Positive Sequences	3	2,33	7,00		
	Equal	0				

Triglycerides mg/dL pre-test-final test	Negative Sequences Positive Sequences Equal	5[b] 4 0	4,40 5,75	22,00 23,00	-0,059	,953
HDL mg/dL pre-test-final test	Negative Sequences Positive Sequences Equal	5[b] 4 0	5,00 5,00	25,00 20,00	- ,296	,767
LDL mg/dL Pre-test-final test	Negative Sequences Positive Sequences Equal	8[b] 1 0	4,88 6,00	39,00 6,00	-1,95*	,050
AST U/L Pre-test-final test	Negative Sequences Positive Sequences Equal	8[b] 1 0	5,19 3,50	41,50 3,50	-2,25*	,024
ALT U/L Pre-test-final test	Negative Sequences Positive Sequences Equal	6[b] 3 0	6,42 2,17	38,50 6,50	-1,89*	,049
Iron Pre-test-final test	Negative Sequences Positive Sequences Equal	6[b] 3 0	4,50 6,00	27,00 18,00	- ,533	,059
Total Iron Capacity Pre-test-final test	Negative Sequences Positive Sequences Equal	5[b] 4 0	5,20 4,75	26,00 19,00	- ,415	,678

When the results of the study were examined, there were no statistically significant differences in weight, total cholesterol, trig, HDL, LDL, AST, lower, iron, total iron capacity levels (TRIG, HDL, iron and total iron capacity) levels in sedentary individuals (Table 2); It was found some differences (Weight, LDL, AST and lower) levels in sedentary individuals. ($p<0,05$). Table 2

Discussion and the Result

In this study, we investigated the effect of aerobic exercises on some blood parameters of 9 sedentary individuals with an average age of 27.11±1.83, body weight, total cholesterol, triglyceride, HDL, AST, lower, iron and total iron capacities of the participants in the training group who participated in walking exercises at submaximal level for 8 weeks were examined. In a 20-week aerobic exercise study conducted by Katzmarzyk and his friends 650 male and female participants aged 17-65, they examined differences in blood lipids and body fat ratio. At the end of the exercise, they found a 3.3% decrease in the body fat ratio of the participants and found a significant correlation between the differences in the body fat levels of the women and the lipid Exchange indices of LDL-K, total cholesterol, total-K/HDL-K. As a result of our 8-week study; There was no statistically significant difference between the levels of Weight, Total Cholesterol, TRIG, HDL, LDL, AST, ALT, Iron and Total Iron Capacity (TRIG, HDL, Iron and Total Iron Capacity) of the subjects participating in aerobic exercise; A statistically significant difference was found in weight, LDL, AST and ALT levels. ($p<0,05$).

Aerobic exercises have a very significant positive health effects when there is continuity in their programs. (Kin İşler and his friends., 2001). mertens and colleagues applied 12-month walking exercises to a 12-person group of subjects consisting of 4 overweight women and 8 men who had myocardial infarction, with an average age of 54,9. As a result of the study, body weight ratios of women from 70.7 kg to 65.6 kg were increased from 38.3 to 35.2, BMI from 27.2 kg / m2 to 25.2 kg / m2. -K levels decreased from 5.89 mmol / L to 5.80 mmol / L and lean body weight increased from 41.6 kg to 42.2 kg. Triglycerit did not register any changes to HDLK, LDL-K. When we compare the study of Mertens and his friends with our own study, weights, Total-K, TRIG, HDL levels show parallelism. As a result of the aerobic exercises we performed during 8 weeks, we found statistically significant difference between pre-test and final tes in LDL levels and did not show any parallels with the work of Mertens and his friends. (1998).

In the concept described as a body composition, a combination of body fat and fat-free body fat, it is known that body weight and body fat also affect blood plasma lipids as well as lipoprotetes. (Aslan ve ark., 2001). In the vast majority of similar studies in the literature, the effect of exercise alone or in combination with nutrition programs on body composition and, with it, serum lipids is notable. Moderate-level exercises affect lipid metabolism positively. body fat depots, total body weight, total cholesterol, serum triglycerides may lead to decrease in LDL-C and VLDL and may lead to an increase in HDL-C. (Ağırbaş and his friends 2009)

In general, the effects of exercise components directly and indirectly on fat metabolism and blood lipids, the effect of exercise on body composition and blood fats and the intensity of exercise, there is a direct proportional development between the duration. A similar study conducted by creating moderate run-and-walk groups of up to 50 minutes in duration showed that the lipid parameters did not change, but the group had increased HDL-C levels in 24 hours. At least 2 months of exercise programs are needed to reduce LDL and TG concentration in plasmas along with exercise, which results in the conclusion that exercise affects blood parameters not acutely but chronically. (Gökdemir, 2007).

When the results of the study were examined, there were no statistically significant differences in weight, total cholesterol, trig, HDL, LDL, AST, lower, iron, total iron capacity levels (TRIG, HDL, iron and total iron capacity) levels in sedentary individuals; It was found some differences (Weight, LDL, AST and lower) levels in sedentary individuals. ($p<0,05$). This result, which we reached in our study, supports similar views in the literature.

In similar studies in the literature, the effects of exercise on blood lipid levels and blood pressure, a significant decrease in systaltic blood pressure and change in blood lipids were observed in participants after exercise of circular training studies for chronic heart patients in middle age and older individuals as well as in the special population. (Green and his friends 2001).

In a study that investigated the effect of moderate regular exercise on cardiovascular risk factors, 3615 participants were found to have reasonable levels of resting heart beats and blood lipid levels compared to the non-exercise group of regular exercise participants. (Mahanonda and his friends 2000).

After 12 weeks of aerobic training planning, participants increased MaxVo2 values, decreased blood pressure and changes in blood lipid levels were recorded, which can be considered as the result of long-term programs and the effect of moderate-intensity exercises on sedentary individuals on these parameters. (Alan and his friends., 2000).

In a study similar to the parameters we discussed, Szmedra and her colleagues assessed a 3.4% decrease in the total weight values and the process of terminating the training program before starting the training application and recorded that these results were statistically significant in the treadmill exercise planning applied to middle age female participants.

In similar study, with the 24 week durability and aerobic integrated exercise program were applied to 31 healthy women in 5 days a week. a significant reduction in total weight was observed at the end of the training (Nindl and his friends., 2000).

Another study of a similar nature showed that short-term exercises did not produce significant changes in blood parameters, and that the 20-day camp period did not statistically lead to change and development in HCT and HGB blood parameters. (Mashiko and his friends., 2004).

In a popular study which was done by Unal (1998) , he found no statistically significant differences in the PLT levels after 8 weeks of chronic aerobic exercise (P>0.05). In the study, there were no statistically significant (p>0.05) differences in PLT levels after chronic exercise applied to sedentary individuals. The effect of aerobic exercise on some blood parameters of sedentary individuals was investigated and as a result, the findings of our study showed that short-term submaximal level exercises in sedentary individuals included weight, total cholesterol,TRIG, HDL, LDL, AST, ALT, Iron.It did not cause statistically significant changes in the levels of total iron capacity (TRIG, HDL, iron and total iron capacity); it did cause statistically significant differences in the levels of (weight, LDL, AST and lower) (P>0.05). It is thought that the submaximal and maximal level exercises applied on sedentary or active athletes will not be greatly improved in terms of change and development in short-term training programs, and in fact the exercises may react in terms of duration, severity, frequency and scope differently.

Recommendations

The aim of this study is to evaluate the effects of mid-level violence and maximal exercises on blood parameters besides the submaximal level, to classify the participants according to anthropometric and motoric characteristics and compare them according to these parameters, to increase the duration and intensity of exercise., it can be considered and recommended that the field of study can contribute to writing whether acute and chronic blood pressure is followed and influences these outcomes, and that the next researcher can contribute to science as well. In order to obtain more healthy information, it may be recommended to increase the studies in this field in order to encourage sedentary individuals to sport and healthy life by applying different procedures and different methods as mentioned.

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