

Healthy eating and exercise relationship in female footballers

Bekir Çar^{ABDE}, Ahmet Kurtoğlu^{ACE}, Gizem Başkaya^{ACE}

Bandırma Onyedi Eylül University, Turkey

Authors' Contribution: A – Study design; B – Data collection; C – Statistical analysis; D – Manuscript Preparation; E – Funds Collection.

Abstract

Background and Study Aim As a result of the recognition of women's football in the world and the growing popularity of female footballers, the healthy eating of female footballers and their status towards exercise have also become a major research topic. The aim of this study is to investigate the attitudes of female soccer players towards healthy eating and their sports addiction. This study aimed to assess female footballers' attitudes toward healthy eating and exercise addiction based on age, league, position, active sports year, training status and number of exercises per week, and examine female football players' attitudes toward healthy eating and exercise addiction.

Material and Methods The sample group of the study consists of 167 female soccer players who are active in the Turkish women's soccer leagues 2021-2022. The data collection instruments "Personal Information Form", "Healthy Eating Attitude Scale" and "Exercise Addiction Scale" were used for the study. Independent samples t-test was used for binary comparisons for scale scores and single factorial ANOVA and Tukey HSD test for multiple comparisons.

Results When the study examined mean healthy eating attitude scores, there were no differences in educational status, age, and active sports year, while league, position, and weekly exercise were not found. Variables for exercise dependence were not identified.

Conclusions Therefore, based on the data obtained, the sample group concluded that there was a small, nonsignificant relationship between attitudes and exercise dependence on healthy eating. It can be said that female footballers may have improved their performance and development as a result of increasing their awareness of healthy eating and adoption of female footballers that exercise addiction interacts with healthy eating.

Keywords: exercise, exercise addiction, woman football players.

Introduction

"Nutrition is the totality of needs that enable the body to balance energy from the outside," according to the World Health Organization. A balanced diet consists of programs that balance the health problems of the individual and ensure a comfortable life for the individual" [1]. A balanced dietary intake helps people perform their daily activities in athletes and individuals [2]. There are three basic rules for sports nutrition. The first is to consume fluids, not to miss energy tanks, and to consume as much food as burned after exercise [3].

Athletes not only know how they eat, but their attitude toward healthy eating affects individual performance. Attitude is the tendency of the individual to react to the phenomena or environment surrounding him. The expected behavior toward the situation or events that surround the individual. Attitudes are a tendency to enduring emotions, beliefs, and behaviors. Attitude is known as emotional situations in which people show abstract thoughts [4]. It is a demonstration of reaction to what is happening around the person or the expected behavior [5]. People have attitudes and opinions in their daily life [6].

Exercise are activities that are programmed and increase the physical performance of the person [7] "The concept of exercise dependence is used for cases of commitment," that is, people who consider physical activities as the most important part of their lives plan their lives based on exercise conditions [7]. Individuals' failure to devote enough time to exercise, to make time for exercise in disregard of their obligations, and to reshape their lives according to exercise habits is explained as exercise addiction [8], in order to achieve the effect expected from the individual's control of exercise. The study of exercise addiction shows that there is dissatisfaction and excessive weight problems in individuals [9].

In examining the literature, diet and exercise are considered complementary concepts. The purpose of this work is to evaluate female soccer players' attitudes toward healthy eating and exercise dependence based on age, gender, sports history, industries, and the number of exercises performed during the week, and to examine the relationship between female athletes' attitudes toward healthy eating and exercise dependence. The sub-problems of the work for this basic purpose are as follows.

1. Do female football players' attitudes toward healthy eating and exercise dependence differ

statistically according to the variables of gender, age, industry, sports history, and weekly number of exercises?

2. Is there a statistically significant relationship between female football players' attitudes toward healthy eating and their exercise dependence?

Materials and Methods

Participants

Female athletes actively playing football during the 2021-2022 football season participated in the research. Demographics of participants appear in Table 1.

Research Design

The study used a scanning method from descriptive review models that queried states. In research, individuals are defined within existing conditions and as they are [10].

Data Collection Tools

The data in this study were collected using a survey form, the Attitude Scale for Healthy Eating (SBIT) and the Exercise Dependence Scale (EPS), which asks for demographic data prepared by the researcher.

Attitude Scale for Healthy Eating (SBIT): the validity and reliability of the scale was conducted by Tekkürsun-Demir and Çicioğlu [11]. The scale consists of 21 substances and 4 sub-factors. These factors are called nutrition information (BHB), feeding feeling (BYD), positive nutrition (OB), and poor nutrition (KB). Nutrition information (BHB):

1st, 2nd, 3rd, 4th, 5th; feeding feeling (BYD): 6th, 7th, 8th, 9th, 10th, 11th; positive nutrition (OB): 12th, 13th, 14th, 15th, 16th; and the lower factor of malnutrition (KB): 17th, 18th, 19th, 20th, 21st. The rating for the positive scale items is "I disagree at all", "I disagree", "I am ambiguous", "I agree", "I agree", "I fully agree". Positive attitude items: 1, 2, 3, 4, and 5; negative attitude items are 5, 4, 3, 2, and 1. Positive substances: 1st, 2nd, 3rd, 4th, 5th, 12th, 13th, 14th, 15th, 16th substances; negative substances are 6th, 7th, 8th, 9th, 10th, 11th, 17th, 18th, 19th, 20th, and 21st. The scale is of Likert type.

Exercise Independence Scale (EBO): a scale with 17 substances and 3 subfactors, with validity and reliability from Tekkürsun-Demir, Hazar, and Çicioğlu [12]. These factors are overfocus and emotional change (1, 2, 3, 4, 5, 6, 7th items), delayed individual-social needs and conflict (8, 9, 10, 11, 12, item 13) are tolerance development and passion (14, 15, 16, 17th substances). The scale is a Likert scale with values from 1 to 5: "I disagree at all," "I disagree," "I disagree," "I agree," and "I agree completely."

Collection of Data

The data collection tools used in the research were applied online through Google Forms to the athletes who created the sample. Data collection tools have been sent to athletes via email. The preliminary section of the form included information that participation in the study was voluntary.

Statistical Analysis

It was established whether the data provided

Table 1. Demographic information on participants

Variables	Categories	n	%
Educational Status	High School	97	58.1
	Licence and more	70	41.9
League	1.League	79	47.3
	2.League	55	52.7
Age	16-20 age	111	66.5
	21-25 age	32	19.2
	26 age and more	24	14.4
Position	Goalkeeper	19	11.4
	Defence	55	32.9
	Midfielder	60	35.9
	Striker	33	19.8
Year of Active Football	1-5 years	90	53.9
	6-10 years	55	32.9
	11 years and more	22	13.2
Number of Weekly Exercises	1-2 days	53	31.7
	3-4 days	63	37.7
	5 days and more	51	30.5
	Total	167	100.0

the preconditions for parametric tests before they were subject to any analysis. In this context, the data's distortion and distortion values for the normal distribution state were examined, the data appeared to have a normal distribution relative to each variable, and parametric tests were applied to the data [13]. Accordingly, the numeracy average ($\bar{X}$), standard deviation (ss), percentage, frencans, Pearson Moment Correlation test and t test were benefited.

Results

Findings from the research are presented in tables in this section.

Findings on Female Football Players' Attitudes to Healthy Eating and Exercise Addiction Conditions

According to Table 2, the scores on the whole scale [t (165) = -3.3550; .001*, p < .05] differ significantly according to educational status. For female football players who have a high school degree, the scale scores are lower ($\bar{X}$ =3.48), for bachelor's degree graduates and higher ($\bar{X}$ =3.78) compared to females. No significant differences were found with respect to exercise addiction [t (165) = .810; p > .05] as a function of educational status.

According to Table 3, when examining female football players' attitudes toward healthy eating, scores on the total scale [t (165) = -.743; p < .05] and on the sports addiction scale [t (165) = -.767; p < .05] were not significantly different from the league variable.

Table 4 shows that the attitudinal scores of female football players who participated in the study differed significantly in terms of healthy eating according to age. According to the results of

Tukey's test for the cause of the difference, female football players aged 26 years and above ($\bar{X}$ =4.05) scored higher than those aged 16-20 years ($\bar{X}$ =3.49) and 21-25 years ($\bar{X}$ =3.66). There is no significant difference between the scale and the age variable in relation to exercise addiction.

When examining the data contained in Table 5, it was found that the healthy eating and physical activity dependence scores of the female football players participating in the study did not differ significantly according to the position variable they played.

According to Table 6, the attitude scores of female football players who participated in the study were significantly different on the healthy eating scale from the active sports year variable. According to Tukey's test for the source of the difference, female football players ($\bar{X}$ =3.84) who actively played football for 11 years or more scored higher than female football players ($\bar{X}$ =3.49) who actively played football for 1-5 years. The variable for sports addiction was not significantly different from the scale-wide variable for active years of sports.

When examining the data contained in Table 7, it was found that the scores obtained by the female football players participating in the study on the healthy eating and sports addiction scale were not significantly different from the variable for the number of weekly training sessions.

According to Table 8, Correlation analysis was used to test whether there was a significant relationship between attitude and reliance on healthy eating among the female football players involved in the study. As the table shows, there appears to be a non-positive relationship between

Table 2. T-test results of female football players' attitude to healthy eating and exercise addiction by training status

Factors	Educational Status	n	$\bar{X}$	S	sd	t	p
Healthy Eating	High School	97	3.48	.53	165	-3.550	.001*
	Licence and more	70	3.78	.52			
Exercise Addiction	High School	97	3.52	.49	165	.810	.419
	Licence and more	70	3.45	.52			

*p<.05

Table 3. T-test results of female football players' attitude to healthy eating and exercise addiction status by league

Factors	League	n	$\bar{X}$	S	sd	t	p
Healthy Eating	1.League	79	3.57	.55	165	-.743	.459
	2.Lague	88	3.63	.54			
Exercise Addiction	1.League	79	3.46	.53	165	-.767	.444
	2.Lague	88	3.52	.48			

*p<.05

Table 4. ANOVA results of female football players' attitude and exercise addiction to healthy eating by age

Factors	Age	n	$\bar{x}$	S	Source of Variance	Squares Total	sd	Squares Average	F	p	Difference
Healthy Eating	16-20 age	111	3.49	.55	Intergroup	6.286	2	3.143	12.067	.000*	1-3 2-3
	21-25 age	32	3.66	.44	Intergroups	47.412	164	.260			
	26 age and more	24	4.05	.37	Total	48.997	166				
Exercise Addiction	16-20 age	111	3.49	.55	Intergroup	.308	2	.154	.602	.549	
	21-25 age	32	3.56	.40	Intergroups	41.872	164	.255			
	26 age and more	24	3.42	.39	Total	42.179	166				

*p<.05

Table 5. ANOVA results based on position of female football players' attitudes and exercise dependency on healthy eating

Factors	Position	n	$\bar{x}$	S	Source of Variance	Squares Total	sd	Squares Average	F	p
Healthy Eating	Goalkeeper	19	3.64	.77	Intergroup	1.260	3	.420	1.435	.235
	Defence	55	3.58	.50	Intergroups	41.638	163	.293		
	Midfielder	60	3.70	.49	Total	42.179	166			
	Striker	33	3.46	.55						
Exercise Addiction	Goalkeeper	19	3.50	.35	Intergroup	.541	3	.180	.706	.550
	Defence	55	3.56	.48	Intergroups	41.638	163	.255		
	Midfielder	60	3.42	.57	Total	42.179	166			
	Striker	33	3.49	.48						

*p<.05

the female football players' attitudes toward healthy eating and exercise dependence scores. ($r = .071$; $p = .362 < .05$). However, looking at the correlation coefficient, it can be said that it is a low level relationship as the coefficient ranges from 0.30 to 0.00 [14].

Discussion

This study examined female football players' attitudes toward healthy eating and exercise dependence as a function of educational status, league, age, position, active sports year, and weekly number of physical activities and tested the relationship between these variables.

When examining female football players' attitudes toward healthy eating as a function of educational status, it was found that university students and university graduates scored higher

than high school graduates.

Attitudes of female football players toward healthy eating did not differ statistically when examined by league variables. Kırkçıl [15] concluded in his study on healthy eating in athletes that the mean scores of professional athletes were higher than those of amateur athletes.

When the attitudes of female football players toward healthy eating were studied according to age variability, a statistically significant difference was found according to age variability. Athletes aged 26 years and older had higher scores than those aged 16 to 20 years and those aged 21 to 25 years, suggesting that athletes become more aware of healthy eating as they age. Sargın et al. [16] concluded on teachers' attitudes toward healthy eating that teachers in the age group 36 and older had higher scores than younger teachers. Sabbag [17] compared the attitudes of teachers aged 30-39

Table 6. ANOVA results of female football players' attitudes and exercise addiction to healthy eating by active sports year

Factors	Year of Active Football	n	$\bar{x}$	S	Source of Variance	Squares Total	sd	Squares Average	F	p	Difference
Healthy Eating	1-5 years	90	3.49	.55	Intergrup	2.863	2	1.431	5.088	.007*	1-3
	6-10 years	55	3.70	.51	Intergrups	46.135	164	.281			
	11 years and more	22	3.84	.48	Total	48.997	166				
Exercise Addiction	1-5 years	90	3.47	.58	Intergrup	.127	2	.064	.248	.780	
	6-10 years	55	3.53	.40	Intergrups	42.052	164	.256			
	11 years and more	22	3.50	.42	Total	42.179	166				

*p<.05

Table 7. ANOVA results by weekly training count of female football players' attitudes and exercise addiction to healthy eating

Factors	Number of Weekly Exercises	n	$\bar{x}$	S	Source of Variance	Squares Total	sd	Squares Average	F	p
Healthy Eating	1-2 Days	53	3.57	.53	Intergrup	.501	2	.251	.848	.430
	3-4 Days	63	3.57	.60	Intergrups	48.496	164	.296		
	5 Days and more	51	3.69	.48	Total	48.997	166			
Exercise Addiction	1-2 Days	53	3.55	.58	Intergrup	1.185	2	.592	2.369	.097
	3-4 Days	63	3.38	.46	Intergrups	40.995	164	.250		
	5 Days and more	51	3.55	.45	Total	42.179	166			

Table 8. Pearson correlation analysis results for association between attitude to healthy eating and exercise addiction states

Factors	r	p
Healthy Eating	.071	.362
Exercise Addiction		

on nutrition and Tasdelen [18] found in his study for athletes that their mean scores were higher than the age average. Goekensel [19] found no difference in nutritional behaviour and nutritional status of players in the study on volleyball players. Uluc et al. [20] concluded that there was no difference in healthy diet and according to age variable in the study of students in sports management.

Attitudes of female football players toward healthy eating did not differ statistically when examined by the variability of the position they played.

When female football players' attitudes toward healthy eating were examined by the variable active sport year, female athletes with sport histories between 1-5 years and 11-15 years and 16 years performed worse than female athletes with sport

histories.

Female football players' attitudes toward healthy eating did not differ statistically when examined using the variable number of weekly sports.

There were no statistical differences in female football players' exercise dependence when examined by the variant of exercise setting.

There were no statistical differences when the training dependence of female football players was examined according to the league variable.

When the training dependence of female football players was examined according to the age variability, there were no statistical differences. Hamer et al. [21] in their study on sports addiction and Yilmaz [22] in his study on sports addiction in physical education and sports science concluded that there are no differences between age groups.

Cicioglu et al. [23] in his study on sports addiction in elite athletes and Orhan et al. [24] in the study on sports addiction in gym individuals concluded that there is no difference between age groups. Paksoy [25] in his study for undergraduate sports science students concluded that the mean scores were high compared to students aged 18-23 to 28-32 years.

There are no statistically different differences in the study of exercise dependence of female football players based on the variable of active sports year. Arslanoglu et al. [26] When examining prospective coaches for exercise addiction, it was concluded that the mean scores of coaches with active sports years of 3-5 years were higher than those of coaches with 1-2 years. Ilbak et al. [27], in their study of individuals who exercise, found that those who were physically active for 1-3 years had lower exercise addiction than individuals who exercised for 4-6 years, 7-9 years, and over 10 years. Orhan et al. [24], in examining the exercise addiction of individuals, concluded that the mean scores of those who exercised were higher than those who did not exercise. Yıldırım et al. [28] concluded that the mean scores of those who played sports were higher than those who did not play sports, when studying the exercise addiction of individuals. Birgoenueel [29] concluded in his study of tennis athletes that as the active year of sport increases, the sport addiction also increases.

Yılmaz [22] found no difference between physical education and sports science in the study of exercise addiction. Paksoy [25] concluded in his study for the students of the Faculty of Physical Education that there was no difference according to the active sports year.

The number of exercise dependencies in female football players was statistically different

when studied according to the variable number of exercises per week. Bavlı et al. [30] concluded in their study of female players who trained regularly that the mean scores of those who trained two days per week were higher. Basoglu [31] concluded in his study on exercise training for individuals that the dependence increased with the number of exercises. Costa et al. [32] concluded in their study on exercise addiction that those who exercised 5 days or more per week had higher mean scores for excessive concentration and mood swings than those who exercised 1-2 days.

Paksoy [25] concluded in his study for undergraduate students in the Faculty of Physical Education that as the number of exercises increased, the mean scores also increased at the same rate. Nogueira et al. [33] and Costa et al. [32] concluded in their studies that weekly exercise and exercise addiction are directly proportional.

Conclusions

When investigating the relationship between healthy eating attitudes and exercise dependence, a statistically positive relationship was found between female football players' healthy eating attitudes and exercise

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Conflicts of Interest

The authors declare no conflict of interest.

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Information about the authors:

Bekir Çar; (Corresponding Author); <http://orcid.org/0000-0001-7422-9543>; carbekir@gmail.com; Faculty of Sport Sciences, Bandırma Onyedi Eylül University; 10200, Turkey.

Ahmet Kurtoğlu; <http://orcid.org/0000-0002-9292-5419>; akurtoglu@bandirma.edu.tr; Faculty of Sport Sciences, Bandırma Onyedi Eylül University; 10200, Turkey.

Gizem Başkaya; <http://orcid.org/0000-0002-6001-1727>; gbaskaya@bandirma.edu.tr; Faculty of Sport Sciences, Bandırma Onyedi Eylül University; 10200, Turkey.

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